

Search history

Search 1: FT=(WELL~ AND FLOW~ AND CONTROL~ AND PRESSURE~ AND OIL~ AND GAS~ AND SYSTEM~ AND METHOD~) (Results 203082)

Title: Means for recording and modifying intelligence

Abstract: 744,352. Digital electric calculating apparatus. STANDARD TELEPHONES and CABLES, Ltd. May 21, 1952 [May 23, 1951], No. 12060/51. Class 106 (1). Equipment for the storage of intelligence comprises a number of separate stores each individually allocated to a particular one of a number of items of intelligence, means for reading the items in succession, means for restoring the items in turn in the same order in which they were read and in stores individually allocated to them, and means for altering any item of intelligence during a transfer operation between the reading and the restoring means. In one embodiment a magnetic recording head STH, Fig. 1, makes longitudinal N-S or S-N recordings representing binary digits, on one track of a magnetic drum (which may be of nickelplated brass). A reading head RDH, arranged diametrically opposite the recording head, picks up the recorded signals and, after amplification, these cause a flip-flop RDF to be set in accordance with the binary digits read out. The information may be returned unmodified to the recording head STH via a gate STG, may be read out via a gate OTG, or may be modified under the **control** of a flip-flop ACF before rerecording or reading out. The information on a single track is divided into a plurality of sections, a marker track MKT common to all the storage tracks of a drum indicating the starting positions for each of the sections. An element track ELT supplies groups of pulses t_1, t_2, t_3 at the required frequency for the recording of binary digits. The output from a marker read head MRH provides pulses to operate a position counter PC, the outputs $P_1 \dots P_N$ of which can be used to scan in turn input leads $CL_1 \dots CL_N$ to a condition flip-flop CNF. Thus, it may be required, for instance, to add 1 to a value read by the read head RDH whenever a condition signal appears on the related **control** lead CL , passing on the previous value unchanged if the condition signal is absent. The condition flip-flop CNF, shown in more detail in Fig. 3, is normally in the C-tube -conducting state; the D tube is fired when the position counter output scans a lead CL which is subject to a condition signal. The first element space in each section is used to indicate whether or not an addition has been made in response to the conditioning of a lead CL . If not, the reading flip-flop AB assumes the B-tube-conducting position and a pulse is gated to fire tube F at the t_2 pulse time. The condition of the flip-flop EF determines whether the resultant flip-flop GH assumes the same state as the reading flip-flop AB (i.e. when tube E is conducting), or the reverse state (tube F conducting). The addition of one digit is performed by recording the reverse of each binary digit received up to and including the first zero and thereafter recording the digits unchanged. An RC network at the cathode of tube F and connected to the gate at the trigger element of tube E provides a suitable delay. As the information is read off and re-recorded 180 degrees round the track, the newly modified data will, in turn, pass under the recording head and the appropriate lead CL will, normally, still be conditioned at this time. However, the first element space will now contain a significant digit so that tube A of the reading flip-flop AB will be fired and the flip-flop CD will remain in the C-tube-conducting condition. Accordingly, the addition **control** flip-flop remains in the E-tube-conducting condition and the binary digits are re-recorded without modification. As alternatives to the magnetic drum storage, **systems** for storing information employing a mercury delay line (Fig. 13, not shown) and a cathode-ray memory tube (Fig. 14, not shown) but with similar forms of external circuit, are also described. In a more detailed embodiment the invention is applied to a telephone message registration **system** in which the numbers of calls made by subscribers are registered on magnetic drums, and means are provided for extracting and printing this information. A binary-decimal converter for use when reading out from the **system** is described in Specification 744,400. The converter described in Specification 711,561 also is referred to. Means are described for translating the decimal result into a five-unit teleprinter code, utilizing a rectifier network (Fig. 9, not shown), and registering the code for each translated digit on groups of flip-flops (Fig. 10, not shown); these registering flip-flops are scanned under the **control** of a 5 kc/sec. pulse source so as to form a series-mode telegraph-coded signal for transmission to a teleprinter. Specifications 693,424, 732,341, 744,356, 744,357 and 744,358 are referred to.

Classifications:

International (IPC 8-9): A01F25/20 H01J3/02 H01L23/10 H01L23/14 H01L23/48 H01L29/00 H01L29/72 H04B11/00 (Advanced/Invention); A01F25/16 H01J3/00 H01L23/02 H01L23/12 H01L23/48 H01L29/00 H01L29/66 H04B11/00 (Core/Invention)

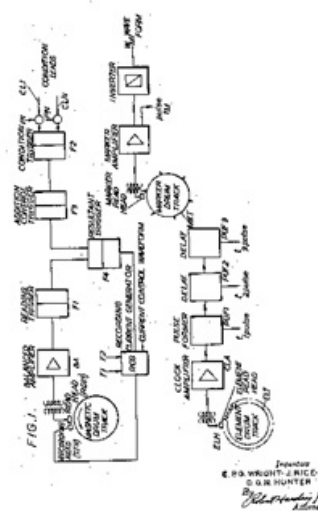
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US: 139/15 139/1A 235/137 235/61R 257/41 340/309.16 340/309.8 340/5.6 341/104 341/67 341/86 341/91 360/24 360/39 360/6 360/63 360/79 377/26 377/28 377/49 379/111 379/124 379/126 379/133 379/135 438/101 708/672 708/674 708/705 711/101 711/111 711/117 711/159 711/167 711/E12.091 713/401 713/600 G9B/20.039 G9B/20.04 G9B/20.045

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MEANS FOR RECORDING AND MODIFYING INTELLIGENCE
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Assignee(s): STANDARD TELEPHONES AND CABLES LIMITED ; INTERNATIONAL STANDARD ELECTRIC CORPORATION ; STANDARD ELECTRICA S A ; FA TRIOLIET SILO EUROPE B V ; STANDARD TELEPHON UND RADIO AG ; STANDARD TELEPHON U RADIO AG ; TRIOLIET MULLOS SILO NEDERLAND B V TE LOSSER ; TRIOLIET SILO EUROPE B V LOSSER NL ; TRIOLIET SILO EUROPE LOSSER NIEDERLANDE BV FA ; TRIOLIET SILO EUROPE LOSSER NIEDERLANDE BV

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Title: BRANCHED HYDROCARBONS IN THE C16-C40 RANGE HAVING MAXIMALLY CROWDED GEMINAL METHYL GROUPS

Abstract: ABSTRACT OF THE DISCLOSURE Novel individual hydrocarbon species, useful as chemical intermediates or as components of traction fluids, can be obtained from the mixture of hydrocarbon fluids obtained from thermally cracking high molecular weight polyisobutylene. Other novel hydrocarbons are obtained by hydrogenation of the novel olefins. The unique character of these olefin and paraffin hydrocarbons can be proved by a combination of gas chromatography and nuclear magnetic resonance spectroscopy (NMR). This discovery involved the preparation and characterization of a homologous series, C₁₁ to C₄₀, of sixteen branched hydrocarbon species consisting of repeating isobutylene structures and proves that these hydrocarbons are unique species which are characterized by "crowded" and sterically hindered geminal methyl and isolated methylene groups. 3' CROSS REFERENCES TO RELATED APPLICATIONS The present application is copending with the following listed applications, all of which are assigned to the Sun Oil Company, to whom the present application is also assigned: Ser. No. 621,443 (now abandoned), filed Mar. 8, 1967--"Synthetic Lubricants from Low Molecular Weight Olefins"--Richard S. Stearns, Irl N. Duling, and David S. Gates; Ser. No. 679,801 (now U.S. Pat. 3,597,358, issued Aug. 3, 1971), filed Nov. 1, 1967--"Traction Drive Transmission Containing Adamantane Compounds as Lubri-cant"--Irl N. Duling, David S. Gates, and Robert E. Moore; Ser. No. 679,833 (now U.S. Pat. 3,595,796, issued July 27, 1971), filed Nov. 1, 1967--"Traction Drive Transmission Containing Naphthenes, Branched Paraffins, or Blends of Naphthenes and Branched Paraffins as Lubri-cant"--Irl N. Duling and David S. Gates; Ser. No. 679,834 (now U.S. Pat. 3,595,797, issued July 27, 1971), filed Nov. 1, 1967--"Blending Branched Paraffin Fluids for Use in Traction Drive Transmission"--Irl N. Duling, David S. Gates, and Marcus W. Haseltine, Jr.; Ser. No. 679,851 (now U.S. Pat. 3,598,740, issued Aug.

Classifications:

International (IPC 8-9): C07C11/02 C07C2/22 C07C29/48 C07C31/125 C07C45/40 C07C49/04 C07C49/92 C07C51/34 C07C53/126 C07C9/00 C07C9/14 C07F9/02 C07G17/00 C07G99/00 C10L1/30 C10L10/04 C10M135/02 C10M159/12 C10M169/04 C10M171/00 C11C3/00 F16H15/08 (Advanced/Invention); C10N30/06 C10N30/12 C10N40/02 C10N40/20 C10N60/10 (Advanced/Non-invention); C07C11/00 C07C2/00 C07C29/00 C07C31/00 C07C45/00 C07C49/00 C07C51/34 C07C53/00 C07C9/00 C07F9/00 C07G99/00 C10L1/10 C10M135/00 C10M159/00 C10M169/00 C10M171/00 C11C3/00 F16H15/08 (Core/Invention); C10M (Subclass/Invention)

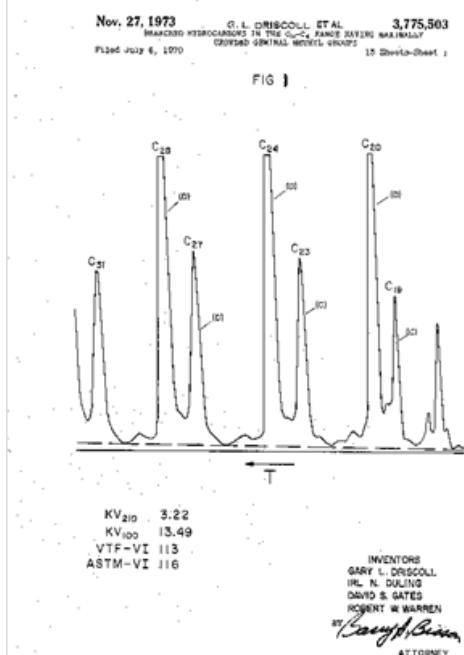
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Agent(s): GOWLING LAFLEUR HENDERSON LLP

Title: **METHOD** AND APPARATUS FOR FORMING AND/OR AUGMENTING AN ENERGY WAVE

Abstract: ABSTRACT OF THE DISCLOSURE

A **method** in which an energy wave at a **controlled** frequency is superimposed on another energy wave transmitted through some medium to increase the energy level and heat the medium through which the energy waves are propagated. One of the energy waves is generated from an electrical current source connected to electrodes in contact with the wave transmitting medium. This application is a continuation of my prior copending application, Ser. No. 511,957, filed Dec. 6, 1965, now abandoned the latter application being a continuation-inpart application of Ser. No. 389,233, now abandoned, filed July 6, 1964, which is a divisional application of S.N. 833,122, now Patent 3,141,099, which was a continuation of Ser. No. 431,388, filed May 21, 1954, now abandoned, which is a continuation-in-part of Ser. No. 241,647, filed Aug. 13, 1951, now Patent 2,796,129, dated June 18, 1957, and Ser. No. 296,038, filed June 27, 1952, now Patent 2,866,509, dated Dec. 30, 1958. The subject matter of this application also relates to the subject matter of my copending applications Ser. No. 431,246, now Patent 3,133,591, dated May 19, 1964, and Ser. No. 434,299, now Patent 3,042,115, dated July 3, 1962. 4Q

Classifications:

International (IPC 8-9): B01J19/10 B06B1/20 B06B3/00 E21B21/10 E21B33/14 E21B37/10 E21B43/00 E21B43/04 E21B43/16 E21B43/24 E21B43/25 E21B43/26 E21B43/263 E21B43/32 E21B7/18 F04B11/00 F04B49/12 F04B53/12 G01V1/157 G01V9/00

G10K11/08 (Advanced/Invention); B01J19/10 E21B21/00 E21B37/00 E21B43/00 E21B43/02 E21B43/16 E21B43/25 E21B7/18 F04B11/00 F04B49/12 F04B53/10 G01V1/02 G01V9/00 G10K11/00 (Core/Invention)

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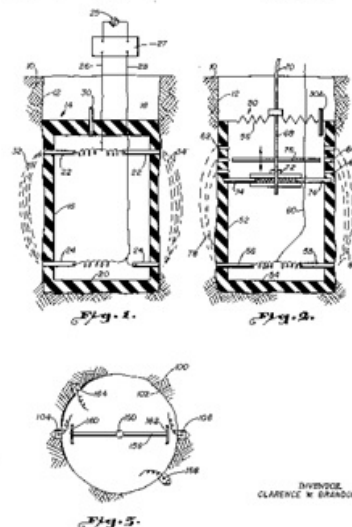
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Inventor(s): CLARENCE WILLIAM BRANDON ; CLARENCE W BRANDON ; BRANDON C US

[illegible]

record media 0 a. d i-lcais for processing input information in an accounti-,- step by sort,n.-, traii.slating, computing or otherwise re_irrE,P,- ng said input information and distribtiting said p_roccssed iiiiormatioii as output items of information to said recordiiaig means, said device having reading registers for registering iitems of in_-ormation, means inc'uding said reading m--ans for causing items of information read fror;i incoming record inedia to be registered in said read- ;n,- regist--rs, gen--ral registee-s for registering items of g_-iier,-,l ini'ormation, a calculator, a plurality of time re.-isters e,-ch characterized by a different identity index and arranged to re,,Ister two specific items of time inforiiiati,-__'i 'il,-rein, means **controlled** by the registration i-,-i said reading registers of specific time information characterized by a given identity inde),, for reregisti_ring said time infor_-atio-n 'n tlac o,ne ol_ said time registers characelizer_-d by tiae same identity index, means iilclluding Sllid caletila,or and thereafter **controlled** by t-e re.-istra-tio-,i L.-i sa:_d reidi-tig registers of sp-cific facility inforatio,-i characterized by the sai_ie identity index for combining said re.-istered and reregistered specific iiformatio ar_d said registered general information in a processing step in_- 'judirig the d,-rival'on of new items of informa-t;ol _ht L refrom i-7ic'uding a c,-7_stomer char-c derived by said calc,,iiator, anl -Ti,-ars **controlled** by said combining mo_w_s incident to sqi_,d co,,iabinig operation for recordo,-i on_- Gr iaire of said outgoing record r_lesia said new item._02-2 iito,-,mation. 12. In an autor_ialic acctotintlig **system** whel-ein records "_ facilities -,ire containe of c,,slomer uses o d in record media in ttic fcr)rm of sets ol_ coded data expressig items of g.-ne-val i- ,a,_ormalio-ii a-_id expressiig items of st)ecific ir,,_orr_a_t,"cn iilclidin.- -,ird characterized by identfty in50 e, _es z,,Lci coirp,-ising t_i-, data " om which etistoiilier ir char,-,,s are d--riv.-Ct, ti-,-,c said iteras of speci-'lc informat_-on for eacj'i recorded czi-aplete customer i,-se including (1) of the customer facility used and (2) the t;ile at wli_c'i'li ti'-,e use was commieced and (3) the 'Lime at wh;ch the use was terminated, the said specific if-,iilis fbr any customer use including and charac,-,-ized by '-Tie sam- ;dcntty i-_idex, an account- :rg d-,-,icc rea,-I:n- means for reading iiput items of info-'Cl_ia'ic,-.1 fr6m iilco,,iing record i-_edia and recordi_i.- mtnis 'lor record'in,- o-,-,tp,-,it items of information on oullgoi-,-i,- recor(-i rii_-c7ia a-,,d means for processing input ipforri-a_io,-_l in,in ,iccountin,- step by sorling, translator o',herwisa rearrai,-ing said input inar-d saicl processed i-,iformatio 6a- Es oo_-Lllit cf _nformatio,-i to said recording means, said Cvcice havir_g readlrig registers for registeriilig items of i-,iclu,-ing said read,-,,ig means for caus ng icms o_-,-,formalio.-i read 'rom incoirring record media to'be i-e'gistered in said Yead,'ng registers, general 7o regis-terers for registeriilig it-,ms of general in.Formation, a cal_-ulator, a -lurality of time registers each characterized by a different iienty index and arran,-_ed to re.-ister two specific items of time information therein, means **controlled** by the registratiioi in said readin._ registers of specific time informat,on characterized by a given identity Index for reregistering said time information in the one of said time registers characterized by the same identity index, means including said calculator and thereafter **controlled** by the registration in said reading registers of specific facility information characterized by the same identity index for combining said registered and reregistered specific information and said registered general information in a processing step including the derivation of new items of information therefrom including a customer charge derived by said calculator, selecting means lo **controlled** by said combining means incident to said combining operation for selecting one or more of said recording means, and means **controlled** by said selecting means incident to said selcting operation for recording on one or more of said outgoing record media said new items of information. 13. In an automatic accounting **system** wherein records of customer uses of facilities are conta in record media in the form of sets of coded data expressing items of general information and expressing items of specific information including and cbaracterized by identity indices and comprising the data from which customer charges are derived, the said items of specific information for each recorded complete customer use including (1) identification of the customer facility used and (2) the time at which the use was commenced and (3) the time at which the Lise was terminated, the said specific items for any particular customer use including and characterized by the same identity index, an accounting device including reading means for reading input items of informa- tion from incoming record media and recording means for recording output items of information on outgoing record media and means for processing input information in an accounting step by sorting, translating, computing or otherwise rearranging said input information and distributing said processed information as output items of information to said recording means, said device having reading registers for registering items of information, means including said reading means for causing items of information read from incoming record media to be registered in said reading registers, general registers for registering items of general information, a calculator, a plurality of time registers each characterized by a different identity index and having two registration sections, one of said sections for registering (3) the timt at which the use was terminated and the other of said sections for registering (2) the time at which the use was commenced, means **controlled** by registration in said reading registers of specific time information (3) characterized by a given identity index for reregistering said time information (3) in said one section of the one of said t,-me registers characterized by the same identity index, means **controlled** by the registration in said reading registers o' specific time information (2) cbaracterized by the same identity index for reregistering said time in- forriation (2) in the said other section of the said time register characterized by the same identity index, means including said calculator and thereafter **controlled** by the registration in said reading registers of specific facility information (1) characterized by the same identity index for combining said registered and reregistered specific information (1) and (2) and (3) and said registered general information in a processing step including the derivatioii of new items of information therefrom including a customer charge derived by said calculator fromi specific time information (2) and (3), selecting means **controlled** by said combining means incident to said combining operation for selecting one or more of said recording means, and means **controlled** by said selecting means incident to said selection for recording on one or more of said going record media said new items of information. 14. The invention claimed in claim 13 wherein an incoming record medium is a perforated tape, an outgoing record medium is an unperforated tape, a reading means is a perforated tape reader, a recording means is a tape perforator, a set of coded data is a plural digit numbei represented by a group of perforations in a perforatec tape, an identity index is a digital component of a plura digit number, reading registers are reading relays, and calculator is a relay subtracter. 15. In an automatic accounting **system** wherein recordt of customer uses of facilities are contained in recor_- media in the form of sets of coded data expressing item_ of general information and expressing items of specific information including and characterized by identity in, dices and comprising the data from which customei charges are derived, the said items of specific informatior for each recorded complete customer use including (1) identification of the customer facility used and (2) the time at which the use was commenced and (3) the time at which the use was terminated, the said specific items for any particular customer use including and character. ized by the same identity index, an accounting device including reading means for reading input items of information from incoming record media and recording means for recording output items of information on outgoing record media and means for processing input information in an accounting step by sorting, translating, computing or otherwise rearrangin.a said input information and distributing said processed information as output items of information to said recording means, said device having a plurality of time registers each characterized by a different identity index and including two registration sections for registering two specific items of time information, **control** means individual to each time register and conditioned differently by the operated and released conditions of a first one of said sections, and means including said **control** means and **controlled** by said reading means incident to the reading of a specific item of time in,_Ormation from an incoirring record medium and characterized by a given identity index for selecting the one of said time registers characterized by the same identity index and for registering said read time information in a different section thereof for each different condition of said **control** means. 16. In an automatic accounting **system** wherein records of customer uses of facilities are contained in record media in the form of sets of coded data expressing items of general information and expressing items of specific information including and characterized by identity indices and comprising the data from which customer charges are derived, the said items of specific information for each recorded complete customer use including (1) identification of the ei-istomer facility used and (2) the time at which the use was commenced and (3) the time at which the use was terminated, the said specific items for any particular customer use including and characterized by the same identity index, an accounting device including reading means for reading input items of information from incoming record media and recording means for recording output items of information on outgoing record media and meatis for processing input information in an accounting step by sorting, translating, computing or otherwise rearranging said input information and distributing said processed information as output items of information to said recording means, said device having a plurality of time registers each characterized by a different identity index and including two registration sections for re.-istering two specific items oj' time information, **control** means individual to each time register and conditioned differently by the operated and released conditions of a first on_- of said sections, selecting means **controlled** by said reading means incident to the reading of a specific item of time information fromi an incoming record medium and characterized by a given identity index for selecting the one of said time registers characterized by the same identity index, and means including said **control** means and said selecting means for i-egistering said read time information in a diftrent sec- tion of sild sel.ected tir,-ic re.-ister for each different condition of said **control** means. 17. In an automatic accounting **system** wherein records of customer uses of facilities are contained in record media in the form of sets of coded data expressing items of general information and expressing items of specific information including and characterized by identity indices and comprising the data from which customer charges are derived, the said items of specific information for each recorded complete customer use including (1) identification of the customer facility used and (2) the time at which the use was commenced and (3) the time at which the use was terminated, the said specific items for any

particular customer use including and characterized by the same identity index, an accounting device including reading means for reading input items of information from incoming record media and recording means for recording output items of information on outgoing record media and means for processing input information in an accounting step by sorting, translating, computing or otherwise rearranging said input information and distributing said processed information as output items of information to said recording means, said device having a plurality of time registers each characterized by a different identity index and including two registration sections for registering two specific items of time information, a **control** circuit individual to each time register and placed in different circuit conditions by the operated and released conditions of a first one of said sections, a selecting circuit **controlled** by said reading means incident to the reading of a specific item of time information from an incoming record medium and characterized by a given identity index for selecting the one of said time registers characterized by the same identity index, connector means individual to said selected time register and selectively operable to register said read time information in one of the sections of said selected time register, and circuit means including said **control** circuit and said selecting circuit for selectively operating said connector means according to the circuit condition of said **control** circuit. 18. In an automatic accounting **system** wherein records of customer uses of facilities are contained in record media in the form of sets of coded data expressing items of general information and expressing items of specific information including and characterized by identity indices and comprising the data from which customer charges are derived, the said items of specific information for each recorded complete customer use including (1) identification of the customer facility used and (2) the time at which the use was commenced and (3) the time at which the use was terminated, the said specific items for any particular customer use including and characterized by the same identity index, an accounting device including reading means for reading input items of information from incoming record media and recording means for recording output items of information on outgoing record media and means for processing input information in an accounting step by sorting, translating, computing or otherwise rearranging said input information and distributing said processed information as output items of information to said recording means, said device having a plurality of time registers each characterized by a different identity index and including two registration sections for registering two specific items of time information, a **control** relay individual to each time register and operated or released respectively by the operated or released condition of a first one of said sections, a first circuit closed upon the release of said **control** relay and opened upon the operation of said **control** relay, a second circuit closed upon the operation of said **control** relay and opened upon the release of said **control** relay, a selecting conductor individual to each time register for selecting said time register when energized, a selecting circuit **controlled** by said reading means incident to the reading of a specific item of time information from an incoming record medium and characterized by a given identity index for energizing the selecting conductor of the time register characterized by the same identity index, a first connector individual to said selected time register and operable over a closed first circuit to register said read time information in said first section of said selected time register, a second connector individual to said selected time register and operable over a closed second circuit to register said read time information in the other section of said selected time register, circuit means including said first circuit and said energized selecting conductor for operating said first connector when said **control** relay is released, and circuit means including said second circuit and said energized selecting conductor for operating said second connector when said **control** relay is operated. 19. In an automatic accounting **system** wherein records of customer uses of facilities are contained in record media in the form of sets of coded data expressing items of general information and expressing items of specific information including and characterized by identity indices and comprising the data from which customer charges are derived, the said items of specific information for each recorded complete customer use including (1) identification of the customer facility used and (2) the time at which the use was commenced and (3) the time at which the use was terminated, the said specific items for any particular customer use including and characterized by the same identity index, an accounting device including reading means for reading input items of information from incoming record media and recording means for recording output items of information on outgoing record media and means for processing input information in an accounting step by sorting, translating, computing or otherwise rearranging said input information and distributing said processed information as output items of information to said recording means, said device having a plurality of time registers each characterized by a different identity index and including two registration sections, a first section operable to register a specific item (3) of time information and a second section operable to register a specific item (2) of time information, a disconnect relay individual to each time register and operated or released respectively by the operated or released condition of said first section, a pair of break contacts closed or opened respectively by the release or operation of said disconnect relay, a pair of make contacts closed or opened respectively by the operation or release of said disconnect relay, a selecting conductor individual to each time register for selecting said time register when energized, a selecting circuit **controlled** by said reading means incident to the reading of a specific item of time information from an incoming record medium and characterized by a given identity index for energizing the selecting conductor of the time register characterized by the same identity index, a disconnect connector individual to said selected time register and operable through a closed pair of said break contacts to register said read time information in said first section of said selected time register, an answer connector individual to said selected time register and operable through a closed pair of said make contacts to register said read time information in said second section of said selected time register, a first circuit including an energized selecting conductor and a closed pair of said break contacts for operating said disconnect connector when said disconnect relay is released, and a second circuit including an energized selecting conductor and a closed pair of said make contacts for operating said answer connector when said disconnect relay is operated. 20. The invention claimed in claim 19 wherein an incoming record medium is a perforated tape, an outgoing record medium is an unperforated tape, a reading means is a perforated tape reader, a recording means is a tape perforator, a set of coded data is a plural digit number represented by a group of perforations in a perforated tape, and an identity index is a digital component of a plural digit number. 21. In an automatic accounting **system** wherein records of customer uses of facilities are contained in record media in the form of sets of coded data expressing items of general information and expressing items of specific information including and characterized by identity indices and comprising the data from which customer charges are derived, the said items of specific information for each recorded complete customer use including (1) identification of the customer facility used and (2) the time at which the use was commenced and (3) the time at which the use was terminated, the said specific items for any particular customer use including and characterized by the same identity index, an accounting device including reading means for reading input items of information from incoming record media and recording means for recording output items of information on outgoing record media and means for processing input information in an accounting step by sorting, translating, computing or otherwise rearranging said input information and distributing said processed information as output items of information to said recording means, said device having a plurality of time registers each characterized by a different identity index and including two registration sections for registering two specific items of time information, **control** means individual to each time register and conditioned differently by the operated and released conditions of a first one of said sections, means including said **control** means and **controlled** by said reading means incident to the reading of a specific item of time information read from an incoming record medium and characterized by a given identity index for selecting the one of said time registers characterized by the same identity index and for registering said read time information in a different section thereof for each different condition of said **control** means, and means thereafter **controlled** by said reading means incident to the reading of a specific item of facility information from an incoming record medium and characterized by the same identity index for combining said read and registered specific information in a processing step including the recording on one or more of said outgoing record media of information resulting from said processing. 22. In an automatic accounting **system** wherein records of customer uses of facilities are contained in record media in the form of sets of coded data expressing items of general information and expressing items of specific information including and characterized by identity indices and comprising the data from which customer charges are derived, the said items of specific information for each recorded complete customer use including (1) identification of the customer facility used and (2) the time at which the use was commenced and (3) the time at which the use was terminated, the said specific items for any particular customer use including and characterized by the same identity index, an accounting device including reading means for reading input items of information from incoming record media and recording means for recording output items of information on outgoing record media and means for processing input information in an accounting step by sorting, translating, computing or otherwise rearranging said input information and distributing said processed information as output items of information to said recording means, said device having a plurality of time registers each characterized by a different identity index and including two registration sections for registering two specific items of time information, **control** means individual to each time register and conditioned differently by the operated and released conditions of a first one of said sections, means including said **control** means and **controlled** by said reading means incident to the reading of a specific item of time information from an incoming record medium and characterized by a given identity index for selecting the one of said time registers characterized by the same identity index and for registering said read time information in a different section thereof for each different condition of said **control** means, and means thereafter **controlled** by said reading means incident to the reading of a specific item of facility information from an incoming record medium and characterized by the same identity index for combining said read and registered specific information in a processing step including the

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particular customer use including and characterized by the same identity index, an accounting device including means for reading input items of information from incoming record media and recording means for recording output items of information on outgoing record media and means for processing input information in an accounting step by sorting, translating, computing or otherwise rearranging said input information and distributing said processed information as output items of information to said recording means, said device having a plurality of time registers each characterized by a different identity index and having two registration sections for registering two specific items of time information, **control** means individual to each time register and conditioned differently by the operated and released conditions of a first one of said sections, means including said **control** means and **controlled** by the registration in said reading registers of a specific item of time information characterized by a given identity index for selecting the one of said time registers characterized by the same identity index and for reregistering said time information in a different section thereof for each different condition of said **control** means, means including said calculator and thereafter **controlled** by the registration in said reading registers of specific facility information characterized by the same identity index for combining said registered and reregistered specific information and said stored general information in a processing step including the derivation of new items of information therefrom including a customer charge derived by said calculator selecting means **controlled** by said combining means incident to said combining operation for selecting one or more of said recording means, and means **controlled** by said selecting means incident to said selecting operation for recording on one or more of said outgoing record media said new items of information. 33. The invention claimed in claim 32 wherein an incoming record medium is a perforated tape, an outgoing record medium is an unperforated tape, a reading means is a perforated tape reader, a recording means is a tape perforator a set of coded data is a plural digit number represented by a group of perforations in a perforated tape, an identity index is a digital component of a plural digit number, reading registers are reading relays, and a calculator is a relay subtractor. 34. In an automatic accounting system wherein records of customer uses of facilities are contained in record media in the form of sets of coded data expressing items of general information and expressing items of specific information including and characterized by identity indices, and comprising the data from which customer charges are derived, the said items of specific information for each recorded complete customer use including (1) identification of the customer facility used and (2) the time at which the use was commenced and (3) the time at which the use was terminated, the said specific items for any particular customer use including and characterized by the same identity index, an accounting device including reading means for reading input items of information from incoming record media and recording means for recording output items of information on outgoing record media and means for processing input information in an accounting step by sorting, translating, computing or otherwise rearranging said input information and distributing said processed information as output items of information to said recording means, said device having a plurality of time registers each characterized by a different identity index and including two registration sections for registering two specific items of time information, a first transmission channel common to all first sections of said time registers, a separate second transmission channel common to all second sections of said time registers, **control** means individual to each time register and conditioned differently by the operated and released conditions of the first section thereof, first connector means in each time register operable to connect the first section thereof to said first channel, second connector means in each time register operable to connect the second section thereof to said second channel, third connector means common to all time registers operable to interconnect said first and second channels, circuit means **controlled** by said reading means incident to the reading of any specific item of time information from an incoming record medium for operating said third connector means and for applying therethrough said read specific item of time information to both of said channels, and circuit means **controlled** by said reading means incident to the reading of said read specific item of time information characterized by a given identity index for selecting and operating the first or second connector means of the time register characterized by the same identity index depending upon the condition of said **control** means, whereby said read specific item of time information is registered in the first or second section of only said selected time register. 35. In an automatic accounting system wherein records of customer uses of facilities are contained in record media in the form of sets of coded data expressing items of general information and expressing items of specific information including and characterized by identity indices and comprising the data from which customer charges are derived, the said items of specific information for each recorded complete customer use including (1) identification of the customer facility used and (2) the time at which the use was commenced and (3) the time at which the use was terminated, the said specific items for any particular customer use including and characterized by the same identity index, an accounting device including reading means for reading input items of information from incoming record media and recording means for recording output items of information on outgoing record media and means for processing input information in an accounting step by sorting, translating, computing or otherwise rearranging said input information and distributing said processed information as output items of information to said recording means, said device having a plurality of time registers each characterized by a different identity index and including a commence time registration section and a terminate time registration section for registering two specific items of time information, a commence time conductor multiple common to all commence sections of said time registers, a separate terminate time conductor multiple common to all terminate sections of said time registers, **control** means individual to each time register and conditioned differently by the operated and released conditions of one of the sections thereof, a commence connector in each time register operable to connect the commence section thereof to said commence multiple, a terminate connector in each time register operable to connect the terminate section thereof to said terminate multiple, connector means common to all time registers operable to interconnect said two multiples, circuit means **controlled** by said reading means incident to the reading of any specific item of time information from an incoming record medium for operating said connector means and for applying therethrough said read specific item of time information to both of said multiples, and circuit means **controlled** by said reading means incident to the reading of said read specific item of time information characterized by a given identity index for selecting and operating the commence or terminate connector of the time register characterized by the same identity index depending upon the condition of said **control** means, whereby said read specific item of time information is registered in the commence or terminate section of only said selected time register. 36. In an automatic accounting system wherein records of customer uses of facilities are contained in record media in the form of sets of coded data expressing items of general information and expressing items of specific information including and characterized by identity indices and comprising the data from which customer charges are derived, the said items of specific information for each recorded complete customer use including (1) identification of the customer facility used and (2) the time at which the use was commenced and (3) the time at which the use was terminated, the said specific items for any particular customer use including and characterized by the same identity index, an accounting device including reading means for reading input items of information from incoming record media and recording means for recording output items of information on outgoing record media and means for processing input information in an accounting step by sorting, translating, computing or otherwise rearranging said input information and distributing said processed information as output items of information to said recording means, said device having a plurality of time registers each characterized by a different identity index and including a commence time registration section and a terminate time registration section for registering two specific items of time information, a commence time conductor multiple common to all commence sections of said time registers, a separate terminate time conductor multiple common to all terminate sections of said time registers, a **control** relay individual to each time register and operated or released respectively by the operated or released condition of said terminate section, a first circuit closed upon the release of said **control** relay and opened upon the operation of said **control** relay, a second circuit closed upon the operation of said **control** relay and opened upon the release of said **control** relay, a commence connector in each time register operable to connect the commence section thereof to said commence multiple, a terminate connector in each time register operable to connect the terminate section thereof to said terminate multiple, connector means common to all time registers operable to interconnect said two multiples, circuit means **controlled** by said reading means incident to the reading of any specific item of time information from an incoming record medium for operating said connector means and for applying therethrough said read specific item of time information to both of said multiples, a selecting conductor individual to each time register for selecting said time register when energized, a selecting circuit **controlled** by said reading means incident to the reading of said read specific item of information characterized by a given identity index for energizing the selecting conductor of the time register also characterized by the same identity index, said terminate connector individual to said selected time register operable over a closed first circuit to register said read time information in said terminate section of said selected time register, said commence connector individual to said selected time register operable over a closed second circuit to register said read time information in said commence section of said selected time register, first circuit means including said first circuit and said energized selecting conductor for operating said terminate connector when said **control** relay is released, and second circuit means including said second circuit and said energized selecting conductor for operating said commence connector when said **control** relay is operated. 37. The invention claimed in claim 36 wherein an incoming record medium is a perforated tape, an outgoing record medium is an unperforated tape, a reading means is a perforated tape reader, a

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regi_tered in the,,commence or,.terminate section of only said selected time register, , a re_istgr oommon to all time registers and arranged to reregister specific items of time information registered in any time register, second coinnector means individual to said coniiion register and operable to connect said common register to both of said multiples, and circuit means **controlled** by said reading means incident to the reading of a specific item of facility information from, an incoming record medium and characterized -by. said same identity index for concurrently operating 6nly both, of said commence and terminate connectors. in the time register characterized by said same ideuty iridex and for operating said second connector means, whereby specific items of time information sequentially re.,istered in a time register at different times over said multiple-s are concurrently reregistered in said conimon register at the same time over both multiples. 48. In an automatic accounting **system** wherein records of customer uses of facilities are contained in record media in the form of sets of coded data expressing items of general information and expressing items of specific information 'Mcluding and cha.racterized by identity indices and comprising the data from which customer charges are derived, the said items of specific information for each recorded complete customer use including ' (1) identification of the customer facility used and (2) the time at which the use was commenced and (3) the time at which the use was terminated, the said specific items. for any particular customer use including and characterized by the same identity index, an accounting device including reading means for reading input items of information from incoming record med:_a and recording means for recording output itei-ns of information on outgoing record media and means fOT processing input input information in an accounting step by sorting, translating, computing or otherwise rearranging said input information and distributin- said processed information as output items of information to said recordiing means, said device having a plurality of time registers each characterized by a different identity index and including a commence time registration section and a terminate time registration section for registering two specific items of time information, a commence time conductor multiple common to all commence sections of said tirrie, registers, a separate terminate time conductor multiple common to all terminate sections of said tineregisters, **control** means individual to each time register _nd conditioned differently by the o_erated and released conditions of one of the sections thereof, a commence co-nnector in each time re.-ister operable to connect tlae commence section th_--eof to said commence multiple, a terminate connector in each time register operable to connect the terminate section thereof to said terminate multiple, connector means common to all time registers operable to interconnect said two multiples, circuit means **controlled** by said reading means incident to the reading of any specific item of time information from an incoming record medium for operating said connector means and for applying therethrough said read specific iteni of time information to both of said multiples, circuit meatis **controlled** by said reading means incident to the reading of said read specific item of time information characterized by a given identity index for selecting and operating the commence or terminate connector of the time register characterized by the same identity inde, depeidiing upon the condition of said **control** means, whereby said read specific item of time information is registered in the commence or terminate section of only said selected time register, a register common to all time registers and arranged to reregister specific items of time information registered in any time register, second connector means individual to said common register and operable to connect said common register, to both of said multiples, circuit means **controlled** by said reading m . CF.-ns incident to the reading of a specific item of facility information from. an incoming record medium and char-, acterized by said same identity index for concurrently operating only both of said commence and terminate connectors in the time register characterized by said identity index, and circuit means **controlled** by said r_ading means incident to the reading of said same read, specific item of facility information for operating said: second connector means at the same time as said concirrent operation of said commence and terminate connectoks, whereby specific items of time information S6 tially r_istered in a time register at different times , quen eg over said multiples are concurrently reregistered in said c_ommoil. register at the same time over both multiples. . 49. In an automatic accounting **system** wherein records of customer use_ of facilities are contained in r_-cord media in _ the form of sets of coded data expressing items of, general information and expressing items of specific information including and characterized by identity indices and comprising the data from which customer charges are derived, the said items of specific information for each recorded complete customer use including (1) identification of the customer facility used and (2) the time at which the use was commenced and (3) the time at which the use was terminated, the said specific items for any particular customer use including and characterized by the same identity index, an accounting device including reading means for reading input items of information from incoming record media and recording means for recording output items ot information on outgoing record media and means for processing input infonnation in an accounting step by sorting, translating, computing or otherwise rearranging said input information and distributing said processed information as output items of inforrjaation to said recording means, said device having a plurality of time registers each characterized by a different identity index and including a commence time registration section and a terniinate time registration section for registering two specific items of time information, a commence time conductor multiple common to all commence sections of said time registers, a separate terminate time conductor multiple common to all terminate sections of said time registers, a **control** relay individual to each time register and operated or released respectively by the operated or released condition of said terminate section, a first circuit closed upon the release of said **control** relay and opened upon the operation, of said **control** relay, a second circuit closed upon the operation of said **control** relay and opened upon the release of said **control** relay, a commence connector in each time register operable to connect the commence section thereof to said commence multiple, a terminate connector in each time register operable to connect the terminate section thereof to said terminate multiple, connector means common to r,5 all time registers operable to interconnect said two multiples, circuit means **controlled** by said reading mean incident to the reading of any specific item of time information from an incoming record medium for operating said connector means and for applying therethrough said read specific item of time information to both of said multiples, a selecting conductor individual to each time register for selecting said time register when energized, a selecting circuit **controlled** by said readin- means incident to the reading of any read specific item of informa- tion characterized by a given identity index for energizing the selecting conductor of the time register characterized by ' the same identity index, said terminate connector individual to said selected time register operable over a closed first circuit to register said read time information in said terminate section of said selected time register, said commence connector individual to said selected time register operable over a closed second circuit to register said read time information in said commence section of said selected time register, first circuit means including Ti s.,,tid first circuit and said energized selecting conductor for operating said terminate connector when said **control** relay is released, second circuit means 'mcluding said second circuit and said ener-,ized selecting conductor for operating said commence connector when said **control** relay is operated, a register commor to all time registers and arranged to reregister specific items of time information registered in any time register, second connector means individual to said conimon re.,,ister and operable to connect said common register to both of said multiples, and circuit means **controlled** by said reading means in- cident to the reading of a specific item of facility inilormation from an inco-ling record medium and clia.racterized by said same identity index for closing both of said first and second circuits independently of the operated or released condition of said **control** relays and for operating said second connector means, whereby specific itenis of time information sequentially registered 'm a time register at different times over said multiples are concurrently reregistered in said common register at the same time over both multiples. 50. in an automatic accounting **system** wherein records of customer uses of facilities are contained in record media in the form of sets of coded data expressing items of general infotmation and expressing items of specific information including and characterized by identity indices and comprising the data from which customer charges are derived, the said items of specific information for each recorded corqplete customer use including (1) identification of the customer facility used and (2) the time at which the use was commenced and (3) the time at whirh the use was terminated, the said specific items for any particular customer use including and cbaracterized by the same identity index, an accounting device including reading means for reading input items of infonnation from inco-ling record media and recording means for recording output items of information on outgoing record media and mea-.is for processing input information in an accounting step by sorting, translating, computing or othe.-wise rearranging said input information and distributing said processed information as output items of information to said recording means, said device having a plurality of time registers each characterized by a different identity index and includin.- a commence time registration section and a terminate tinte Al; registration section for registering tvo specific items of " time information, a commence time conductor multiple common to all commence sections of said time registers, a separate terminate time conductor multiple common to all terminate sections of said time reg;sters, a **control** relay ro individual to each time reg-ister and operated or released respectively by the operated or released condition of said terminate section, a first circuit closed upon-i the release of said **control** relay and opened upon the operation of said **control** relay, a second circuit closed upon the operation of said **control** relay and opened upon the release of said **control** relay, a commence connector in each time register operable to connect the commence section thereof to said commence multiple, a terminate connector in each time register operable to connect the terminate section thereof to said terminate multiple, connector means common to all time registers operable to interconnect said two multiples, eirclit means **controlled** by said reading means incident to the reading of any specific item of time information from an incoming record medium for operating said connector means and for applying therethrough said read specific item of time information to both of said multiples, a selecting conductor individual to each time register for selecting said - time register when energized, a selecting circuit **controlled** by any read specific item of information characterized by a given identity

index for energizing the selecting conductor of the time register characterized by the same identity index, said terminate connector individual to said selected time register operable over a closed first circuit to register said read time information in said term_inatd section of said selected time register, said commence connector individual to said selected time register operable over a closed second circuit to register said read time information in said commence section of said selected time register, first circuit means including said first circuit and said energized selecting conductor for operating, said second circuit means including said second circuit and said energized connector when said **control** relay is released, second circuit means including said second circuit and said energized selecting conductor for operating said commence connector when said control relay is operated, a register common to all time registers and arranged to reregister specific items of time information registered in any time register, second connector means individual to said common register and operable to connect said common register to both of said multiples, circuit means **controlled** by said reading means incident to the reading of a specific item of facility information from an incoming record medium, characterized by said same identity index for closing both of said first and second circuits independently of the operated or released condition of said control relays, and circuit means **controlled** by said reading means incident to the reading of said same read specific item of facility information for operating said second connector means at the same time as the concurrent operation of said commence and terminal connectors, whereby specific items of time information sequentially registered in a time register at different times over said multiples are concurrently reregistered in said common register at the same time over both multiples. 51. The invention claimed in claim 50 wherein an incoming record medium is a perforated tape, an outgoing record medium is an unperforated tape, a reading means is a perforated tape reader, a recording means is a tape perforator, a set of coded data is a plural digit number represented by a group of perforations in a perforated tape, and an identity index is a digital component of a plural digit number. 52. In an automatic accounting **system** wherein records of customer uses of facilities are contained in record media in the form of sets of coded data expressing items of general information and expressing items of specific information including and characterized by identity indices and comprising the data from which customer charges are derived, the said items of specific information for each recorded complete customer use including (1) identification of the customer facility used and (2) the time at which the use was commenced and (3) the time at which the use was terminated, the said specific items for any particular customer use including and characterized by the same identity index, an accounting device including reading means for reading input items of information from incoming record media and recording means for recording output items of information on outgoing record media and means for processing input information in an accounting step by sorting, translating, computing or otherwise rearranging said input information and distributing said processed information as output items of information to said recording means, said device having a plurality of time registers each characterized by a different identity index and including two registration sections for registering two specific items of time information, a first transmission channel common to all first sections of said time registers, a separate second transmission channel common to all second sections of said time registers, **control** means individual to each time register and conditioned differently by the operated and released conditions of the first section thereof, first connector means in each time register operable to connect the first section thereof to said first channel, second connector means in each time register operable to connect the second section thereof to said second channel, third connector means common to all time registers operable to interconnect said first and second channels, circuit means **controlled** by said reading means incident to the reading of any specific item of time information from an incoming record medium for operating said third connector means and for applying there-through said read specific item of time information to both of said channels, circuit means **controlled** by said reading means incident to the reading of said read specific item of time information characterized by a given identity index for selecting and operating the first or second connector means of the time register characterized by the same identity index depending upon the condition of said **control** means, whereby said read specific item of time information is registered in the first or second section of only said selected time register, a register common to all time registers and including a time section and a facility section, fourth connector means individual to said common register and operable to connect the time section of said common register to both of said first and second channels, a separate third transmission channel, fifth connector means individual to said common register and operable to connect the facility section of said common register to said third channel, circuit means **controlled** by said reading means incident to the reading of a specific item of facility information from an incoming record medium and characterized by said same identity index for concurrently operating only both of said first and second connector means in the time register characterized by said same identity index and for operating said fourth connector means and for operating said fifth connector means and for applying through said fifth connector means said read specific item of facility information to said third channel, whereby specific items of time information sequentially registered in a time register at different times over said first and second channels are concurrently registered in the time section of said common register at the same time over both of said first and second channels and whereby said read specific item of facility information is registered in the facility section of said common register concurrently with said reregistration. 53. In an automatic accounting **system** wherein records of customer uses of facilities are contained in record media in the form of sets of coded data expressing items of general information and expressing items of specific information including and characterized by identity indices and comprising the data from which customer charges are derived, the said items of specific information each recorded complete customer use including (1) identification of the customer facility used and (2) the time at which the use was commenced and (3) the time at which the use was terminated, the said specific items for any particular customer use including and characterized by the same identity index, an accounting device including reading means for reading input items of information from incoming record media and recording means for recording output items of information on outgoing record media and means for processing input information in an accounting step by sorting, translating, computing or otherwise rearranging said input information and distributing said processed information as output items of information to said recording means, said device having a plurality of time registers each characterized by a different identity index and including two registration sections for registering two specific items of time information, a first transmission channel common to all first sections of said time registers, a separate second transmission channel common to all second sections of said time registers, **control** means individual to each time register and conditioned differently by the operated and released conditions of the first section thereof, first connector means in each time register operable to connect the first section thereof to said first channel, second connector means in each time register operable to connect the second section thereof to said second channel, third connector means common to all time registers operable to interconnect said first and second channels, circuit means **controlled** by said reading means incident to the reading of any specific item of time information from an incoming record medium for operating said third connector means and for applying therethrough said read specific item of time information to both of said channels, circuit means **controlled** by said reading means incident to the reading of said read specific item of time information characterized by a given identity index for selecting and operating the first or second connector means of the time register characterized by the same identity index depending upon the condition of said **control** means, whereby said read specific item of time information is registered in the first or second section of only said selected time register, a register common to all time registers and including a time section and a facility section, fourth connector means individual to said common register and operable to connect the time section of said common register to both of said first and second channels, a separate third transmission channel, fifth connector means individual to said common register and operable to connect the facility section of said common register to said third channel, circuit means **controlled** by said reading means incident to the reading of a specific item of facility information from an incoming record medium and characterized by said same identity index for concurrently operating only both of said first and second connector means in the time register characterized by said same identity index, and circuit means **controlled** by said reading means incident to the reading of said same read specific item of facility information for operating said fourth connector means at the same time as said concurrent operation of said first and second connector means and for operating said fifth connector means at the same time as said concurrent operation of said first and second connector means and for applying through said fifth connector means said read specific item of facility information of said third channel, whereby specific items of time information sequentially registered in a time register at different times over said first and second channels are concurrently reregistered in the time section of said common register at the same time over both of said first and second channels and whereby said read specific item of facility information is registered in the facility section of said common register concurrently with said reregistration. 54. In an automatic accounting **system** wherein records of customer uses of facilities are contained in record media in the form of sets of coded data expressing items of general information and expressing items of specific information including and characterized by identity indices and comprising the data from which customer charges are derived, the said items of specific information for each recorded complete customer use including (1) identification of the customer facility used and (2) the time at which the use was commenced and (3) the time at which the use was terminated, the said specific items for any particular customer use including and characterized by the same identity index, an accounting device including reading means for reading input items of information from incoming record media and recording means for recording output items of information on outgoing record media and means for processing input information in an accounting step by sorting, translating, computing or otherwise rearranging said input information and distributing said processed information as output items of information to said recording means, said device having a plurality of time registers each characterized by a different identity index and including a common time registration

section ii and a terminate time registration section for registering two specific items of time information, a common time conductor multiple common to all commence sections of said time registers, a separate terminate time conductor multiple common to all terminate sections of said time registers, a **control** relay individual to each time register and operated or released respectively by the operated or released condition of said terminate section, a first circuit closed upon the release of said **control** relay and opened upon the operation of said **control** relay, a second circuit closed upon the operation of said **control** relay and opened upon the release of said **control** relay, a common connector in each time register operable to connect the commence section thereof to said common time conductor multiple, a terminate connector in each time register operable to connect the terminate section thereof to said terminate multiple, a connector means common to all time registers operable to interconnect said two multiples, circuit means **controlled** by said reading means incident to the reading of any specific item of time information from an incoming record medium for operating said connector means and for applying therethrough said read specific item of time information to both of said multiples, a selecting conductor individual to each time register for selecting said time register when energized, a selecting circuit **controlled** by said reading means incident to the reading of any read specific item of information characterized by a given identity index for energizing the selecting conductor of the time register characterized by the same identity index, said terminate connector individual to said selected time register operable over a closed first circuit to register said read time information in said terminate section of said selected time register, said common connector individual to said selected time register operable over a closed second circuit to register said read time information in said commence section of said selected time register, first circuit means including said first circuit and said energized selecting conductor for operating said terminate connector when said **control** relay is released, second circuit means including said second circuit and said energized selecting conductor for operating said common connector when said **control** relay is operated a register common to all time registers and including a time section and a facility section, second common connector means individual to said common register and operable to connect the time section of said common register to both of said first and second multiples, a separate third facility conductor multiple, third connector means individual to said common register and operable to connect the facility section of said common register to said third multiple, circuit means **controlled** by said reading means incident to the reading of a specific item of facility information from an incoming record medium and characterized by said same identity index for closing both of said first and second circuits independently of the operated or released condition of said **control** relays, and circuit means **controlled** by said reading means incident to the reading of said same read specific item of facility information for operating said second connector means at the same time as said concurrent operation of said commence and terminate connectors and for operating said third connector means at the same time as said concurrent operation of said commence and terminate connectors and for applying through said third connector means said read specific item of facility information to said third multiple, whereby specific items of time information sequentially registered in a time register at different times over said first and second multiples are concurrently registered in the time section of said common register at the same time over both of said first and second multiples and whereby said read specific item of facility information is registered in the facility section of said common register concurrently with said reregistration. 55. The invention claimed in claim 54 wherein an incoming record medium is a perforated tape, an outgoing record medium is an unperforated tape, a reading means is a perforated tape reader, a recording means is a tape perforator, a set of coded data is a plural digit number represented by a group of perforations in a perforated tape, and an identity index is a digital component of a plural digit number. 56. In an automatic accounting system wherein records of customer uses of facilities are contained in record media in the form of sets of coded data expressing items of general information and expressing items of specific information including and characterized by identity indices and comprising the data from which customer charges are derived, the said items of specific information for each recorded complete customer use including (1) identification of the customer facility used and (2) the time at which the use was commenced and (3) the time at which the use was terminated, the said specific items for any particular customer use including and characterized by the same identity index, an accounting device including reading means for reading input items of information from incoming record media and recording means for recording output items of information on outgoing record media and means for processing input information in an accounting step by sorting, translating, computing or otherwise rearranging said input information and distributing said processed information as output items of information to said recording means, said device having a plurality of processing registers, each processing register including a facility section arranged to register an item of specific facility information consisting of a number of consecutive sets of coded data read by said reading means from an incoming record medium, each facility section including a number of data registers, each data register arranged to register therein a different set of coded data relating to a specific item of facility information, a transmission channel common to all processing registers, connector means selectively operable to connect a selected data register of a selected processing register to said common channel, a **control** circuit for selectively **controlling** said connector means, initial operating means **controlled** by said reading means incident to the reading of data contained in a first set of coded data relating to a first specific item of facility information from an incoming record medium for causing said **control** circuit to selectively operate said connector means and for applying said read first set of coded data to said common channel, whereby said first read set of coded data is registered in a first data register of said selected processing register, conditioning means **controlled** by the registration of data contained in said first registered set of coded data for conditioning said **control** circuit according to the number of supplementary sets of coded data to be expected relating to said first specific item of facility information, supplementary operating means **controlled** by said reading means incident to the reading of data contained in each supplementary set of coded data relating to said first specific item of facility information from an incoming record medium and **controlled** by said conditioning means for causing said **control** circuit to sequentially and selectively operate said connector means and for applying each successive read supplementary set of coded data to said common channel, whereby each successive read supplementary set of coded data is registered in an additional one of said data registers of said selected processing register, and switching means including said conditioning means effective only after the said expected number of supplementary sets of coded data relating to said first specific item of facility information have been registered in a corresponding number of data registers of said selected processing register to cause said **control** circuit to register a second read specific item of facility information in another processing register under the **control** of said initial operating means and said conditioning means and said supplementary operating means. 57. In an automatic accounting system wherein records of customer uses of facilities are contained in record media in the form of sets of coded data expressing items of general information and expressing items of specific information including and characterized by identity indices and comprising the data from which customer charges are derived, the said items of specific information for each recorded complete customer use including (1) identification of the customer facility used and (2) the time at which the use was commenced and (3) the time at which the use was terminated, the said specific items for any particular customer use including and characterized by the same identity index, an accounting device including reading means for reading input items of information from incoming record media and recording means for recording output items of information on outgoing record media and means for processing input information in an accounting step by sorting, translating, computing or otherwise rearranging said input information and distributing said processed information as output items of information to said recording means, said device having two processing registers, each processing register including a facility section arranged to register an item of specific facility information consisting of a number (two or four) of consecutive sets of coded data read by said reading means from an incoming record medium, each facility section including four data registers, each data register arranged to register therein a different set of coded data relating to a specific item of facility information, a transmission channel common to all processing registers, a connector individual to each data register and operable to connect the associated data register to said common channel, a **control** circuit for **controlling** said data register connectors, initial operating means **controlled** by said reading means incident to the reading of data contained in a first set of coded data relating to a first specific item of facility information from an incoming record medium for causing said **control** circuit to operate a first data register connector in one of said two processing registers and for applying said read first set of coded data to said common channel, whereby said first read set of coded data is registered in a first data register of said one processing register, conditioning means **controlled** by the registration of data contained in said first read set of coded data for conditioning said **control** circuit according to the number (one or three) of supplementary sets of coded data to be expected relating to said first specific item of facility information, supplementary operating means **controlled** by said reading means incident to the reading of data contained in each supplementary set of coded data relating to said first specific item of facility information from an incoming record medium and **controlled** by said conditioning means for causing said **control** circuit to sequentially operate each successive additional data register connector in said one processing register and for applying through each respective additional data register connector each additional respective read supplementary set of coded data to said common channel, whereby each additional respective read supplementary set of coded data is registered in an additional respective one of said data registers of said one processing register, and switching means including said conditioning means effective only after the said expected number (one or three) of supplementary sets of coded data relating to said first specific item of facility information have been registered in a corresponding number (one or three) of data registers of said one processing register to cause said **control** circuit to register a second read specific item of facility information in the other processing register under

the **control** of said initial operating means and said conditioning means and said supplementary operating means. 58. The invention claimed in claim 57 further includes a first steering relay associated with said one processing register and operated at the start of processing, wherein said condition means also includes a line count circuit operated by contained in said registered first read set of coded data to remember the expected number of supplementary sets of coded data relating to said first read specific item of facility information, wherein said supplementary operating means also includes other steering relays associated with said one processing register and operated sequentially as consecutive and successive sets of coded data relating to said first specific item of facility information are read by said reading means, and wherein said switching means also includes a first and other steering relays associated with said other processing register. 59. The invention claimed in claim 58 wherein an incoming record medium is a perforated tape, an outgoing record medium is an unperforated tape, a reading means is a perforated tape reader, a recording means is a tape perforator, a set of coded data is a plural digit number represented by a group of perforations in a perforated tape and an identity index is a digital component of a plural digit number. 60. In an automatic accounting **system** wherein records of customer uses of facilities are contained in record media in the form of sets of coded data expressing items of general information and expressing items of specific information including and characterized by identity indices and comprising the data from which customer charges are derived, the said items of specific information for each recorded complete customer use including (1) identification of the customer facility used and (2) the time at which the use was commenced and (3) the time at which the use was terminated, the said specific items for any particular customer use including and characterized by the same identity index, an accounting device including reading means for reading input items of information from incoming record media and recording means for recording output items of information on outgoing record media and means for processing input information in an accounting step by sorting, translating, computing or otherwise rearranging said input information and distributing said processed information as output items of information to said recording means, said device having a plurality of time registers each characterized by a different identity index and having two registration sections for registering two specific items of time information, a first transmission channel common to all first sections of said time registers, a separate second transmission channel common to all second sections of said time registers, **control** means individual to each time register and conditioned differently by the operated and released conditions of the first section thereof, first connector means in each time register operable to connect the first section thereof to said first channel, second connector means in each time register operable to connect the second section thereof to said second channel, third connector means common to all time registers operable to interconnect said first and second channels, circuit means **controlled** by said reading means incident to the reading of any specific item of time information from an incoming record medium for operating said third connector means and for applying therethrough said read specific item of time information to both of said channels, circuit means **controlled** by said reading means incident to the reading of said read specific item of time information characterized by a given identity index for selecting and operating the first or second connector means of the time register characterized by the same identity index depending upon the condition of said **control** means, whereby said read specific item of time information is registered in the first or second section of only said selected time register, a register common to all time registers and having two registration parts for reregistering the two specific items of time information registered in any time register, fourth connector means individual to said common register and operable to connect a first part of said common register to said first channel and a second part of said common register to said second channel, circuit means **controlled** by said reading means incident to the reading of a specific item of facility information from an incoming record medium and characterized by said same identity index for concurrently operating only both of said first and second connector means in the time register characterized by said same identity index and for operating said fourth connector means, whereby a read specific item of time information registered in a section of a time register over said first or second channel is reregistered in the corresponding part of said common register over the corresponding channel, a check circuit operable to indicate whether any specific items of time information are registered in the sections of the time register associated with said reregistration, an **control** circuit means **controlled** by said check circuit when only one section contains a reregistration, for operating said third connector, whereby the specific item of time information registered in said one section is reregistered both parts of said common register at the same time over both channels through said third connector means. 61. In an automatic accounting **system** wherein records of customer uses of facilities are contained in record media in the form of sets of coded data expressing items of general information and expressing items of specific information including and characterized by identity indices and comprising the data from which customer charges are derived, the said items of specific information for each recorded complete customer use including (1) identification of the customer facility used and the time at which the use was commenced and (3) the time at which the use was terminated, the said specific items for any particular customer use including and characterized by the same identity index, an accounting device including reading means for reading input items of information from incoming record media and recording means for recording output items of information on outgoing record media and means for processing input information in an accounting step by sorting, translating, computing or otherwise rearranging said input information and distributing said processed information as output items of information to said recording means, said device having a plurality of time registers each characterized by a different identity index and having registration sections for registering two specific items of time information, a first transmission channel common to all first sections of said time registers, a separate second transmission channel common to all second sections of said time registers, **control** means individual to each time register and conditioned differently by the operated and released conditions of the first section thereof, first connector means in each time register operable to connect the first section thereof to said first channel, second connector means in each time register operable to connect the second section thereof to said second channel, third connector means common to all time registers operable to interconnect said first and second channels, circuit means **controlled** by said reading means incident to the reading of any specific item of time information from an incoming record medium for operating said third connector means and for applying therethrough said read specific item of time information to both of said channels, circuit means **controlled** by said reading means incident to the reading of said read specific item of time information characterized by a given identity index for selecting and operating the first or second connector means of the time register characterized by the same identity index depending upon the condition of said **control** means, whereby said read specific item of time information is registered in the first or second section of only said selected time register, a register common to all time registers and having two registration parts for reregistering the two specific items of time information registered in any time register, fourth connector means individual to said common register and operable to connect a first part of said common register to said first channel and a second part of said common register to said second channel, circuit means **controlled** by said reading means incident to the reading of a specific item of facility information from an incoming record medium and characterized by said same identity index for concurrently operating only both of said first and second connector means in the time register characterized by said same identity index and for operating said fourth connector means, whereby a read specific item of time information registered in a section of a time register over said first or second channel is reregistered in the corresponding part of said common register over the corresponding channel, a relay check circuit individual to said common register and operable into a plurality of conditions to indicate how many specific items of time information are registered in the sections of the time register associated with said reregistration, and circuit means **controlled** by said check circuit when the condition thereof indicates that only one section contains a registration for operating said third connector whereby the one specific item of time information contained in said one section is reregistered in both parts of said common register at the same time over both channels through said third connector means. 62. In an automatic accounting **system** wherein records of customer uses of facilities are contained in record media in the form of sets of coded data expressing items of general information and expressing items of specific information including and characterized by identity indices and comprising the data from which customer charges are derived, the said items of specific information for each recorded complete customer use including (1) identification of the customer facility used and (2) the time at which the use was commenced and (3) the time at which the use was terminated, the said specific items for any particular customer use including and characterized by the same identity index, an accounting device including reading means for reading input items of information from incoming record media and recording means for recording output items of information on outgoing record media and means for processing input information in an accounting step by sorting, translating, computing or otherwise rearranging said input information and distributing said processed information as output items of information to said recording means, said device having a plurality of time registers each characterized by a different identity index and having a commence time registration section and a terminate time registration section for registering two specific items of time information, a commence time conductor multiple common to all commence sections of said time registers, a separate terminate time conductor multiple common to all terminate sections of said time registers, **control** means individual to each time register and conditioned differently by the operated and released conditions of one of the sections thereof, a commence connector in each time register operable to connect the commence section thereof to said commence multiple, a terminate connector in each time register operable to connect the terminate section thereof to said terminate multiple, connector means common to all time registers operable to interconnect said two multiples, circuit means **controlled** by said reading means incident to the reading of any specific item of time information from an incoming record medium for operating said connector means and for applying therethrough said read

specific item of time information to both of said multiples, circuit means **controlled** by said reading means incident to the reading of said read specific item of time information characterized by a given identity index for selecting I and operating the commence or terminate connector of the time register characterized by the same identity index depending upon the condition of said **control** means, whereby said read specific item of time information is registered in the commence or terminate section of only said selected time register, a register common to all time registers and having a commence time registration part 9 and a terminate time registration part I for registering the two respective specific items of time information registered in any time register, a commence connector individual to said common register and operable to connect said first part of said common register to said commence multiple, a terminate connector individual to said common register and operable to connect said terminate part of said common register to said terminate multiple, circuit means **controlled** by said reading means incident to the reading of a specific item of facility information from an incoming record medium and characterized by said same identity index for concurrently operating only both of said commence and terminate connectors, in the time register characterized by said same identity index, circuit means **controlled** by said reading means incident to the reading of said same read specific item of facility information for concurrently operating both of said commence and terminate connectors in said common register, whereby each specific item of time information registered in a section of a time register over said commence or terminate multiple is reregistered in the corresponding part of said common register over the said corresponding multiple, a group of relays individual to said common register and selectively operable in response to the interconnection between said common register and one of said time registers to select one of a number of circuit conditions indicating how many specific items of time information are registered in the sections of the time register associated with said reregistration, a switching relay, and an operating circuit for said switching relay selectively energized by said relay check circuit when only one section contains a registration for causing the operation of said switching relay, said operated switching relay arranged to operate said connector means, whereby the commence and terminate multiples are interconnected through said connector means thereby to cause the specific item of time information registered in said one section to be reregistered in both parts of said common register at the same time over both multiples. 63. The invention claimed in claim 62 wherein the said relay check circuit includes an up-check relay and a down-check relay common to each of the commence and terminate sections of all time registers. 64. The invention claimed in claim 63 wherein an incoming record medium is a perforated tape, an outgoing record medium is an unperforated tape, a reading means is a perforated tape reader, a recording means is a tape perforator, a set of coded data is a plural digit number represented by a group of perforations in a perforated tape, and an identity index is a digital component of a plural digit number. 65. In an automatic accounting **system** wherein records of customer uses of facilities are contained in record media in the form of sets of coded data expressing items of general information and expressing items of specific information including and characterized by identity indices and comprising the data from which customer charges are derived, the said items of specific information for each recorded complete customer use including (1) identification of the customer facility used and (2) the time at which the use was commenced and (3) the time at which the use was terminated, the said specific items for any particular customer use including and characterized by the same identity index, an accounting device including reading means for reading input items of information from incoming record media and recording means for recording output items of information on outgoing record media and means for processing input information in an accounting step by sorting, translating, computing or otherwise rearranging said input information and distributing said processed information as output items of information to said recording means, said device having a plurality of time registers each characterized by a different identity index and including registration means for registering two specific items of time information, means **controlled** by said reading means incident to the reading of a specific item of time information from an incoming record medium and characterized by a given identity index for causing said read time information to be registered in the registering means of the one of said time registers characterized by the same identity index, a **control** circuit common to all time registers and arranged to indicate whether one or two specific items of time information are contained in any time register, and means including said **control** circuit and **controlled** by said reading means incident to the reading of a general item of charge cancelling information from an incoming record medium to selectively release none or one or both registrations in all time registers depending upon the type of read item of charge cancelling information and upon the indication in said **control** circuit. 66. In an automatic accounting **system** wherein records of customer uses of facilities are contained in record media in the form of sets of coded data expressing items of general information and expressing items of specific information including and characterized by identity indices and comprising the data from which customer charges are derived, the said items of specific information for each recorded complete customer use including (1) identification of the customer facility used and (2) the time at which the use was commenced and (3) the time at which the use was terminated, the said specific items for any particular customer use including and characterized by the same identity index, an accounting device including reading means for reading input items of information from incoming record media and recording means for recording output items of information on outgoing record media and means for processing input information in an accounting step by sorting, translating, computing or otherwise rearranging said input information and distributing said processed information as output items of information to said recording means, said device having a plurality of time registers each characterized by a different identity index and including registration means for registering two specific items of time information, means **controlled** by said reading means incident to the reading of a specific item of time information from an incoming record medium and characterized by a given identity index for causing said read time information to be registered in the registering means of the one of said time registers characterized by the same identity index, a release relay in each time register operable to release all registrations in the registration means thereof, a **control** circuit common to all time registers and including a first and a second indicating relay operable respectively to indicate respectively whether one or two specific items of time information are contained in any time register, first relay means including either or both operated said indicating relays and **controlled** by said reading means incident to the reading of a first particular type of general item of charge cancelling information from an incoming record medium to cause operation of only those release relays associated with time registers having at least one specific item of time information registered in the registering means thereof, and second relay means including an operated said first indicating relay and **controlled** by said reading means incident to the reading of a second particular type of general item of charge cancelling information from an incoming record medium to cause the operation of only those release relays associated with time registers having only one specific item of time information registered in the registering means thereof. 67. In an automatic accounting **system** wherein records of customer uses of facilities are contained in record media in the form of sets of coded data expressing items of general information and expressing items of specific information including and characterized by identity indices and comprising the data from which customer charges are derived, the said items of specific information for each recorded complete customer use including (1) identification of the customer facility used and (2) the time at which the use was commenced and (3) the time at which the use was terminated, the said specific information to be registered in the first section of said time 2 register if said first relay is released and to be registered in the second section of said time register if said first relay is operated, a release relay in each time register operable to release all registrations therein, a **control** circuit common to all time registers and including a first indicating relay operated under the **control** of an operated first relay and a released second relay of any time register to indicate that at least one time register contains only one specific item of time information and including a second indicating relay operated under the **control** of an operated first relay and an operated second relay of any time register to indicate that at least one time register contains two specific items of time information and including first and second conductors common to all time registers, an operating circuit for each release relay completed under the **control** of an associated operated first relay and an associated released second relay to said first conductor whereby each such release relay will be operated when said first conductor is energized and completed under the **control** of an associated operated first relay and an associated operated second relay to said second conductor whereby each such release relay will be operated when said second conductor is energized, and means **controlled** by said reading means incident to the reading of a general item of charge cancelling information from an incoming record medium to selectively energize only said first conductor or both of said first and second conductors or neither of said first and second conductors depending upon the type of read general item of charge cancelling information and the operated or released

form of sets of coded data expressing items of general information and expressing items of specific information including and characterized by identity indices and comprising the data from which customer charges are derived, the said items of specific information for each recorded complete customer use including (1) identification of the customer facility used and (2) the time at which the use was commenced and (3) the time at which the use was terminated, the said specific items for any particular customer use including and characterized by the same identity index, an accounting device including reading means for reading input items of information from incoming record media and recording means for recording output items of information on outgoing record media and means for processing input information in an accounting step by sorting, translating, computing or otherwise rearranging said input information and distributing said processed information as output items of information to said recording means, said device having a plurality of time registers each characterized by a different identity index and including two registration sections for registering two specific items of time information, a first relay in each time register operated under the **control** of the first section thereof only when said first section contains a registration, a second relay in each time register operated under the **control** of the second section thereof only when said second section contains a registration, means **controlled** by said reading means incident to the reading of a specific item of time information from an incoming record medium and characterized by a given identity index and controlled by the first relay of the time register characterized by the said same identity index for causing said read time information to be registered in the first section of said time register if said first relay is released and to be registered in the second section of said time register if said first relay is operated, a release relay in each time register operable to release all registrations therein, a **control** circuit common to all time registers and including a first indicating relay operated under the **control** of an operated first relay and a released second relay of any time register to indicate that at least one time register contains only one specific item of time information and including a second indicating relay operated under the **control** of an operated first relay and an operated second relay of any time register to indicate that at least one time register contains two specific items of time information and including first and second conductors common to all time registers, an operating circuit for each release relay completed under the **control** of an associated operated first relay and an associated released second relay to said first conductor whereby each such release relay will be operated when said first conductor is energized and completed under the **control** of an associated operated first relay and an associated operated second relay to said second conductor whereby each such release relay will be operated when said second conductor is energized, a first **control** relay operable to energize said first conductor, a second **control** relay operable to energize said second conductor, and means **controlled** by said reading means incident to the reading of a particular type of general item of charge canceling information from an incoming record medium and by an operated first or second indicating relay to operate both of said **control** relays. 74. The invention claimed in claim 73 wherein an incoming record medium is a perforated tape, an outgoing record medium is an unperforated tape, a reading means is a perforated tape reader, a recording means is a tape perforator, a set of coded data is a plural digit number represented by a group of perforations in a perforated tape, and an identity index is a digital component of a plural digit number. 75. In an automatic accounting **system** wherein records of customer uses of facilities are contained in record media in the form of sets of coded data expressing items of general information and expressing items of specific information including and characterized by identity indices and comprising the data from which customer charges are derived, the said items of specific information for each recorded complete customer use including (1) identification of the customer facility used and (2) the time at which the use was commenced and (3) the time at which the use was terminated, the said specific items for any particular customer use including and characterized by the same identity index, an accounting device including reading means for reading input items of information from incoming record media and recording means for recording output items of information on outgoing record media and means for processing input information in an accounting step by sorting, translating, computing or otherwise rearranging said input information and distributing said processed information as output items of information to said recording means, said device having a plurality of time registers each characterized by a different identity index and including registration means for registering two specific items of time information, means **controlled** by said reading means incident to the reading of a specific item of time information from an incoming record medium and characterized by a given identity index for causing said read time information to be registered in the registering means of the one of said time registers characterized by the same identity index, a **control** circuit common to all time registers and arranged to indicate whether one or two specific items of time information are or are contained in any time register, and means including said **control** circuit and **controlled** by said reading means incident to the reading of a particular type of general item of charge canceling information from an incoming record medium to release all registrations in all timing registers which contain only one registered specific item of time information. 76. In an automatic accounting **system** wherein records of customer uses of facilities are contained in record media in the form of sets of coded data expressing items of general information and expressing items of specific information including and characterized by identity indices and comprising the data from which customer charges are derived, the said items of specific information for each recorded complete customer use including (1) identification of the customer facility used and (2) the time at which the use was commenced and (3) the time at which the use was terminated, the said specific items for any particular customer use including and characterized by the same identity index, an accounting device including reading means for reading input items of information from incoming record media and recording means for recording output items of information on outgoing record media and means for processing input information in an accounting step by sorting, translating, computing or otherwise rearranging said input information and distributing said processed information as output items of information to said recording means, said device having a plurality of time registers each characterized by a different identity index and including registration means for registering two specific items of time information, means **controlled** by said reading means incident to the reading of a specific item of time information from an incoming record medium and characterized by a given identity index for causing said read time information to be registered in the registering means of the one of said time registers characterized by the same identity index, a **control** circuit common to all time registers and including first and second indicating means operable respectively to indicate respectively whether one or two specific items of time information are or are contained in any time register, and means including said first indicating means and **controlled** by said reading means incident to the reading of a particular type of general item of charge canceling information from an incoming record medium to release all registrations in all timing registers which contain only one registered specific item of time information. 77. In an automatic accounting **system** wherein records of customer uses of facilities are contained in record media in the form of sets of coded data expressing items of general information and expressing items of specific information including and characterized by identity indices and comprising the data from which customer charges are derived, the said items of specific information for each recorded complete customer use including (1) identification of the customer facility used and (2) the time at which the use was commenced and (3) the time at which the use was terminated, the said specific items for any particular customer use including and characterized by the same identity index, an accounting device including reading means for reading input items of information from incoming record media and recording means for recording output items of information on outgoing record media and means for processing input information in an accounting step by sorting, translating, computing or otherwise rearranging said input information and distributing said processed information as output items of information to said recording means, said device having a plurality of time registers each characterized by a different identity index and including two registration sections for registering two specific items of time information, a first relay in each time register operated under the **control** of the first section thereof only when said first section contains a registration, a second relay in each time register operated under the **control** of the second section thereof only when said second section contains a registration, means **controlled** by said reading means incident to the reading of a specific item of time information from an incoming record medium and characterized by a given identity index, a **control** circuit common to all time registers and including a first indicating relay operated under the **control** of an operated first relay and a released second relay of any time register to indicate that at least one time register contains only one specific item of time information and including a second indicating relay operated under the **control** of an operated first relay and an operated second relay of any time register to indicate that at least one time register contains two specific items of time information and including first and second conductors common to all time registers, an operating circuit for each release relay completed under the **control** of an associated operated first relay and an associated released second relay to said first conductor whereby each such release relay will be operated when said first conductor is energized and completed under the **control** of an associated operated first relay and an associated operated second relay to said second conductor whereby each such release relay will be operated when said second conductor is energized, and means **controlled** by said reading means incident to the reading of a particular type of general item of charge canceling information from an incoming record medium and by an operated first indicating relay to energize only said first conductor. 78. In an automatic accounting **system** wherein records of customer uses of facilities are contained in record media in the form of sets of coded data expressing items of general information and expressing items of specific information including and characterized by identity indices and comprising the data from which customer charges are derived, the said

items of specific information for each recorded complete customer use including (1) identification of the customer facility used and (2) the time at which the use was commenced and (3) the time at which the use was terminated, the said specific items for any particular customer use including and characterized by the same identity index, an accounting device including reading means for reading input items of information from incoming record media and recording means for recording output items of information on outgoing record media and means for processing input information in an accounting step by sorting, translating, computing or otherwise rearranging said input information and distributing said processed information as output items of information to said recording means, said device having a plurality of time registers each characterized by a different identity index and including two registration sections for registering two specific items of time information, a first relay in each time register operable under the **control** of the first section thereof only when said first section contains a registration, a second relay in each time register operable under the **control** of the second section thereof only when said second section contains a registration, means **controlled** by said reading means incident to the reading of a specific item of time information from an incoming record medium and characterized by a given identity index and **controlled** by the first relay of the time register characterized by the said time to be registered in the first section of said time register, a first relay is released and to be registered in the second section of said time register if said first relay is operated, a release relay in each time register operable to release all registrations therein, a **control** circuit common to all time registers and including a first indicating relay operated under the **control** of an operated first relay and a released second relay of any time register to indicate that at least one time register contains only one specific item of time information and including a second indicating relay operated under the **control** of an operated first relay and an operated second relay of any time register to indicate that at least one time register contains two specific items of time information and including first and second conductors common to all time registers, an operating circuit for each release relay completed under the **control** of an associated operated first relay and an associated released second relay to said first conductor whereby each such release relay will be operated when said second conductor is energized, a first **control** relay operable to energize said first conductor, a second **control** relay operable to energize said second conductor, and means **controlled** by said reading means incident to the reading of a particular type of general item of charge canceling information from an incoming record medium and by an operated first indicating relay to operate only said first **control** relay. 79. The invention claimed in claim 78 wherein an incoming record medium is a perforated tape, an outgoing record medium is an unperforated tape, a reading means is a perforated tape reader, a recording means is a tape perforator, a set of coded data is a plural digit number represented by a group of perforations in a perforated tape, and an identity index is a digital component of a plural digit number. 80. In an automatic accounting **system** wherein records of customer uses of facilities are contained in record media in the form of sets of coded data expressing items of general information and expressing items of specific information including and characterized by identity indices and comprising the data from which customer charges are derived, the said items of specific information for each recorded complete customer use including (1) identification of the customer facility used and (2) the time at which the use was commenced and (3) the time at which the use was terminated, the said specific items for any particular customer use including and characterized by the same identity index, an accounting device each including reading means for reading input items of information from incoming record media and recording means for recording output items of information on outgoing record media and means for processing input information in an accounting step by sorting, translating, computing or otherwise rearranging said input information and distributing said processed information as output items of information to said recording means, said device having a plurality of time registers each characterized by a different identity index and including registration means for registering two specific items of time information, means **controlled** by said reading means incident to the reading of a specific item of time information from an incoming record medium and characterized by a given identity index for causing said read time information to be registered in the registering means of the one of said time registers characterized by the same identity index, a **control** circuit common to all time registers, and means including said **control** circuit for releasing all registrations in all timing registers. 81. In an automatic accounting **system** wherein records of customer uses of facilities are contained in record media in the form of sets of coded data expressing items of general information and expressing items of specific information including and characterized by identity indices and comprising the data from which customer charges are derived, the said items of specific information for each recorded complete customer use including (1) identification of the customer facility used and (2) the time at which the use was commenced and (3) the time at which the use was terminated, the said specific items for any particular customer use including and characterized by the same identity index, an accounting device including reading means for reading input items of information from incoming record media and recording means for recording output items of information on outgoing record media and means for processing input information in an accounting step by sorting, translating, computing or otherwise rearranging said input information and distributing said processed information as output items of information to said recording means, said device having a plurality of time registers each characterized by a different identity index and including registration means for registering two specific items of time information, means **controlled** by said reading means incident to the reading of a specific item of time information from an incoming record medium and characterized by a given identity index for causing said read time information to be registered in the registering means of the one of said time registers characterized by the same identity index, a **control** circuit common to all time registers, and means including said **control** circuit and **controlled** by an operator at any desired time to release all registrations in all timing registers. 82. In an automatic accounting **system** wherein records of customer uses of facilities are contained in record media in the form of sets of coded data expressing items of general information and expressing items of specific information including and characterized by identity indices and comprising the data from which customer charges are derived, the said items of specific information for each recorded complete customer use including (1) identification of the customer facility used and (2) the time at which the use was commenced and (3) the time at which the use was terminated, the said specific items for any particular customer use including and characterized by the same identity index, an accounting device including reading means for reading input items of information from incoming record media and recording means for recording output items of information on outgoing record media and means for processing input information in an accounting step by sorting, translating, computing or otherwise rearranging said input information and distributing said processed information as output items of information to said recording means, said device having a plurality of time registers each characterized by a different identity index and including registration means for registering two specific items of time information, means **controlled** by said reading means incident to the reading of a specific item of time information from an incoming record medium and characterized by a given identity index for causing said read time information to be registered in the registering means of the one of said time registers characterized by the same identity index, a **control** circuit common to all time registers, and means including said **control** circuit and **controlled** manually by an operator at any desired time to release all registrations in all timing registers. 83. In an automatic accounting **system** wherein records of customer uses of facilities are contained in record media in the form of sets of coded data expressing items of general information and expressing items of specific information including and characterized by identity indices and comprising the data from which customer charges are derived, the said items of specific information for each recorded complete customer use including (1) identification of the customer facility used and (2) the time at which the use was commenced and (3) the time at which the use was terminated, the said specific items for any particular customer use including and characterized by the same identity index, an accounting device including reading means for reading input items of information from incoming record media and recording means for recording output items of information on outgoing record media and means for processing input information in an accounting step by sorting, translating, computing or otherwise rearranging said input information and distributing said processed information as output items of information to said recording means, said device having a plurality of time registers each characterized by a different identity index and including registration means for registering two specific items of time information, means **controlled** by said reading means incident to the reading of a specific item of time information from an incoming record medium and characterized by a given identity index for causing said read time information to be registered in the registering means of the one of said time registers characterized by the same identity index, a release relay in each time register operable to release all registrations therein, a **control** circuit common to all time registers and including a **control** relay operable to operate all release relays in all time registers containing any registration, manually operable switch means, and means effective upon the operation of said switch means to operate said **control** relay. 84. In an automatic accounting **system** wherein records of customer uses of facilities are contained in record media in the form of sets of coded data expressing items of general information and expressing items of specific information including and characterized by identity indices and comprising the data from which customer charges are derived, the said items of specific information for each recorded complete customer use including (1) identification of the customer facility used and (2) the time at which the use was commenced and (3) the time at which the use was terminated, the said specific items for any particular customer use including and characterized by the same identity index, an accounting device including reading means for reading input items of

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customer charges are derived, the said items of specific information for each recorded complete customer use including identification of the customer facility used and (2) the time at which the use was commenced and (3) the time at which the use was terminated, the said specific items for any particular customer use including and characterized by the same identity index, an accounting device including reading means for reading input items of information from incoming record media and recording means for recording output items of information on outgoing record media and means for processing input information in an accounting step by sorting, translating, computing or otherwise rearranging said input information and distributing said processed information as output items of information to said recording means, each incoming record medium including among its general items of information certain record identification information indicating the accounting conditions employed in the process of producing said incoming record, one such general item of identification information comprising identification of the **control** means employed in the process of producing said incoming record, said device having an identification circuit including a set of switches settable whereby said circuit is arranged to permit said device to process only incoming record media containing general items of identification information corresponding to similar information prescribed by the setting of said switches, at least one of said switches settable to permit said device to process at any one time only incoming record media produced through the employment of a 3EST AVAIII\BL'r- UCi **control** means which is identified by said general item, of identification information as corresponding to the setting of said one switch; translator relays, at least one different translator relay operable to condition said device to process incoming record media on the basis of each different billing round of - a different duration where each different billing round consists of a different number of consecutive calendar days, semi-permanent cross-connections manually preset to associate particular different operations of said translator relays with particular said one general items of identification information, and circuit means including said semipermanent crossconnections and automatically **controlled** by the setting of said one switch to operate said translator relays, according to the setting of said one switch. 98. The invention claimed in claim 97 wherein the said translator relays are operable in two different ways and wherein the said different billing rounds consist of a three-day round and a five-day round and wherein the said cross-connections - are preset such that any, operational setting of said one switch associates one of said two relay operations with any operational said one general item of identification information. 99. The invention claimed in claim 98 wherein an incoming record medium is a perforated tape, an outgoing record medium is an unperforated tape, a reading means is a perforated tape reader, a recording means is a tape perforator, a set of coded data is a plural digit number represented by a group of perforations in a perforated tape, and an identity index is a digital component of a plural digit number. 100. In an automatic accounting system wherein records of customer uses of facilities are contained in record media in the form of sets of coded data expressing items of general information and expressing items of specific information including and characterized by identity indices and comprising the data from which customer charges are derived, the said items of specific information for each recorded complete customer use including (1) identification of the customer facility used and (2) the time at which the use was commenced and (3) the time at which the use was terminated, the said specific items for any particular customer use including and characterized by the same identity index, an accounting device including reading means for reading input items of information from incoming record media and recording means for recording output items of information on outgoing record media and means for processing input information in an accounting step by sorting, translating, computing or otherwise rearranging said input information and distributing said processed information as output items of information to said recording means, each incoming record medium including among its general items of information certain record identification information including the accounting conditions employed in the process of producing said incoming record, certain such general items of identification information comprising identification of the accounting time during which said incoming record was produced, said device having an identification circuit including a set of switches table whereby said circuit is arranged to permit said device to process only incoming record media containing general items of identification information as prescribed by the setting of said switches, certain of said switches settable to prescribe inclusive time limits between first and last accounting times whereby said circuit is arranged to permit said device to process only incoming record media produced during accounting times which are identified by said certain general items of identification information as within the inclusive limits thereof prescribed by the setting of said switches, registering means operable under the **control** of said reading means incident to the reading of said certain general items of identification from an incoming record medium to denote at any one time the accounting time pertaining to an incoming record medium then being processed by said device, and circuit means **controlled** by said registering means and by said identification circuit and by said reading means incident to the reading of said certain general items of identification from incoming record media to permit said device to process only incoming record media which are identified by said certain general items of identification information as arranged in an order of time between the inclusive accounting time limits thereof as prescribed by the setting of said switches and to operate said circuit means accordingly during the processing of said incoming record media. 101. The invention claimed in claim 100 wherein the said first and last accounting times are respectively earliest and latest accounting times and wherein the said order of time is the reverse chronological order of time. 102. The invention claimed in claim 101 wherein the latest accounting time is a specified latest calendar day and the earliest accounting time is a specified earliest calendar day. 103. The invention claimed in claim 102 wherein said latest calendar day is a specified day of a specified billing period and wherein said earliest calendar day is a specified day of a specified earliest billing period. 104. The invention claimed in claim 103 wherein a billing period is a round consisting of a number of consecutive calendar days in a calendar month, wherein said certain switches prescribe a specified day of a specified latest round of a month as one time limit and a specified day of a specified earliest round of said month as the other time limit, and wherein said registering means includes means for registering the round and the day thereof. 105. The invention claimed in claim 104 wherein an incoming record medium is a perforated tape, an outgoing record medium is an unperforated tape, a reading means is a perforated tape reader, a recording means is a tape perforator, a set of coded data is a plural digit number represented by a group of perforations in a perforated tape, and an identity index is a digital component of a plural digit number. 106. In an automatic accounting system wherein records of customer uses of facilities are contained in record media in the form of sets of coded data expressing items of general information and expressing items of specific information including and characterized by identity indices and comprising the data from which customer charges are derived, the said items of specific information for each recorded complete customer use including (1) identification of the customer facility used and (2) the time at which the use was commenced and (3) the time at which the use was terminated, the said specific items for any particular customer use including and characterized by the same identity index, an accounting device including reading means for reading input items of information from incoming record media and recording means for recording output items of information on outgoing record media and means for processing input information in an accounting step by sorting, translating, computing or otherwise rearranging said input information and distributing said processed information as output items of information to said recording means, each incoming record medium including among its general items of information certain record identification information including the accounting conditions employed in the process of producing said incoming record, certain such general items of identification information comprising identification of the billing round and day thereof during which said incoming record was produced, a calendar month is for accounting purposes divided into a plurality of rounds each consisting of a plurality of consecutive calendar days, said device having an identification circuit including a set of switches settable whereby said circuit is arranged to permit said device to process only incoming record media produced during a specified latest round and a specified earliest day of a specified latest round whereby said circuit is arranged to permit said device to process only incoming record media produced during rounds and days thereof which are identified by said certain general items of identification information as within the inclusive limits thereof prescribed by the setting of said group of switches, a round register operable under the **control** of said reading means incident to the reading of a round general item from an incoming record medium to denote at any one time the round pertaining to an incoming record medium then being processed by said device, a day register operable under the **control** of said reading means incident to the reading of a day of round general item from an incoming record medium to denote at any one time the day of round pertaining to an incoming record medium then being processed by said device, and circuit means **controlled** by both of said registering means and by said identification circuit and by said reading means incident to the reading of said certain general items of identification information from incoming record media to permit said device to process only incoming record media which are identified by said certain general items of identification information as arranged in the reverse chronological order of time between the inclusive limits thereof as prescribed by said group of switches and to operate both of said registering means accordingly during the processing of said incoming record media. 107. The invention claimed in claim 106 wherein said group of switches includes four switches individually settable to prescribe respectively a last round and a last day of the last round and a first round and a first day of the first round, wherein said circuit means includes first circuit means effective under the **control** of said reading means upon the reading of a first incoming record medium to register in said round register and in said day register the respective prescribed last round and last day of last round upon identification thereof by said identification circuit as pertaining to said first incoming record medium, wherein said circuit means includes second circuit

means effective thereafter under the **control** of said reading means upon the reading of subsequent successive incoming record media to successively change the round and day of round registrations according to the reverse chronological order of time upon identification by said identification circuit of such changes as pertaining to said successive incoming record media in the order read. 108. The invention claimed in claim 107 wherein said second circuit means includes checking circuits effective in cooperation with said registers and with said identification circuit as incoming record media are read to permit a change of the day of round registration to lie next earlier day of round provided no change in round occurs and to permit a change of the day of round registration from the first day of a round to the last day of a round provided the round changes to the next earlier round. 109. The invention claimed in claim 108 wherein an incoming record medium is a perforated tape, an outgoing record medium is an unperforated tape, a reading means is a perforated tape reader, a recording means is a tape perforator, a set of coded data is a plural digit number represented by a group of perforations in a perforated tape, and an identity index is a digital component of a plural digit number. 110. In an automatic accounting **system** wherein records of customer uses of facilities are contained in record media in the form of sets of coded data expressing items of general information and expressing items of specific information including and characterized by identity indices and comprising the data from which customer charges are derived, the said items of specific information for each recorded complete customer use including (1) identification of the customer facility used, and (2) the time at which the use was commenced and (3) the time at which the use was terminated, the said, specific items for any particular customer use including and characterized by the same identity index, an accounting device including reading means for reading input items of information from incoming record media and recording means for recording output items of information on outgoing record media and means for processing input information in an accounting step by sorting, translating, computing or otherwise rearranging said input information and distributing said processed information as output items of information to said recording means, each incoming record medium including among its general items of information certain record identification information comprising identification of the accounting time during which said incoming record was produced and identification of the serial number of the source of said incoming record, said device having an identification circuit including a set of switches settable to prescribe inclusive time limits between first and last accounting times and inclusive serial number limits between first and last numbered sources of incoming record media whereby said circuit is arranged to permit said device to process only incoming record media produced by sources thereof and during accounting times both of which are identified by said certain general items of identification as within the serial number and accounting time limits thereof prescribed by the setting of said switches, registering means operable under the **control** of said reading means incident to the reading of said certain general items from an incoming record medium to denote at any one time the accounting time and the source serial number pertaining to an incoming record medium then being processed by said device, and circuit means **controlled** by said registering means and by said identification circuit and by said reading means incident to the reading of said certain general items of identification from incoming record media to permit said device to process only incoming record media which are identified by said certain general items of identification information as arranged for each separate source in the same order of time between the inclusive accounting time limits thereof and as arranged in an order of source serial number between the inclusive serial number limits thereof all as prescribed by said switches and to operate said registering means accordingly during the processing of said incoming record media. 111. In an automatic accounting **system** wherein records of customer uses of facilities are contained in record media in the form of sets of coded data expressing items of general information and expressing items of specific information including and characterized by identity indices and comprising the data from which customer charges are derived, the said items of specific information for each recorded complete customer use including (1) identification of the customer facility used and (2) the time at which the use was commenced and (3) the time at which the use was terminated, the said specific items for any particular customer use including and characterized by the same identity index, an accounting device including reading means for reading input items of information from incoming record media and recording means for recording output items of information on outgoing record media and means for processing input information in an accounting step by sorting, translating, computing or otherwise rearranging said input information and distributing said processed information as output items of information to said recording means, each incoming record medium including among its general items of information certain record identification information comprising identification of the accounting time during which said incoming record was produced and identification of the serial number of the source of said incoming record, said device having an identification circuit including a set of switches settable to prescribe inclusive time limits between first and last accounting times and inclusive serial number limits between first and last numbered sources of incoming record media whereby said circuit is arranged to permit said device to process only incoming record media produced by sources thereof and during accounting times both of which are identified by said certain general items of identification as within the serial number and accounting time limits thereof prescribed by the setting of said switches, a time register and a number register each operable under the **control** of said reading means incident to the reading of said certain general items from an incoming record medium to denote at any one time the respective accounting time and source serial number pertaining to an incoming record medium then being processed by said device, first circuit means **controlled** by both registers and by said identification circuit and by said reading means incident to the reading of said certain general items of accounting time identification from incoming record media to permit said device to process only incoming record media which are identified by said certain general items of identification as arranged for each separate source in the same order of time between the inclusive accounting time limits thereof prescribed by said switches, second circuit means **controlled** by both registers and by said identification circuit and by said reading means incident to the reading of said certain general items of source serial number identification from incoming record media to permit said device to process only incoming record media which are identified by said certain general items of identification as arranged in an order of source serial number between the inclusive serial number limits thereof prescribed by said switches, and third circuit means **controlled** by said first and second circuit means to operate said registers accordingly during the processing of said incoming record media. 112. The invention claimed in claim 111 wherein an alarm circuit is provided operable under the **control** of said first and second circuit means to stop the processing of incoming record media in the event that an improper succession of incoming record media is attempted to be processed by said device. 113. The invention claimed in claim 112 wherein an incoming record medium is a perforated tape, an outgoing record medium is an unperforated tape, a reading means is a perforated tape reader, a recording means is a tape perforator, a set of coded data is a plural digit number represented by a group of perforations in a perforated tape, and an identity index is a digital component of a plural digit number. 114. In an automatic accounting **system** wherein records of customer uses of facilities are contained in record media in the form of sets of coded data expressing items of general information and expressing items of specific information including and characterized by identity indices and comprising the data from which customer charges are derived, the said items of specific information for each recorded complete customer use including (1) identification of the customer facility used and (2) the time at which the use was commenced and (3) the time at which the use was terminated, the said specific items for any particular customer use including and characterized by the same identity index, an accounting device including reading means for reading input items of information from incoming record media and recording means for recording output items of information on outgoing record media and means for processing input information in an accounting step by sorting, translating, computing or otherwise rearranging said input information and distributing said processed information as output items of information to said recording means, each incoming record medium including among its general items of information certain record identification information comprising identification of the accounting time during which said incoming record was produced and identification of the serial number of the source of said incoming record, said device having an identification circuit including a set of switches settable to prescribe inclusive time limits between earlier and later accounting days and inclusive recorder number limits between lowest and highest recorder whereby said circuit is arranged to permit said one device to process only incoming record media produced by recorders and during accounting days both of which are identified by said certain general items of identification as within the recorder number and accounting day limits thereof prescribed by the setting of said switches, a time register operable to denote the passage of time in terms of accounting days, a number register operable to denote a succession of incoming record media recorder numbers, means in said device **controlled** by said reading means and responsive to the reading of accounting day and recorder number information from incoming record media to operate said time register over the entire inclusive limits between said later and earlier accounting days only if changes in accounting days are consecutive for each recorder number, and means in said device **controlled** by said reading means and responsive to the reading of accounting day and recorder number information from incoming record media to operate said number register over the entire inclusive limits between said lowest and highest recorder number only if changes of recorder number are consecutive and only if such changes occur when the accounting day changes from said earlier to said later accounting day. 115. The invention claimed in claim 114 wherein a billing round is a division of a calendar month consisting of a plurality of consecutive calendar days, wherein said later accounting day is a specified later day of a latest round, wherein said earlier accounting day is a specified earlier day of an earliest round, wherein said time register includes a round register and a day of round register, operable to denote the passage of time in terms of rounds and days of round, wherein said means for operating said time register includes a circuit for checking that

for recording output items of information on outgoing record media and means for processing input information in an accounting step by sorting, translating, computing or otherwise rearranging said input information and distributing said processed information as output items of information to said recording means, each incoming record medium characterized by having an incoming record identity code therein, all record media having incoming record identity being connected in a series whereby such a series may be processed by said recording device as a continuous incoming record, said device having means **controlled** by said reading means incident to the reading of incoming record identity code for permitting said device to process only record media having incoming record identity, means **controlled** by said processing means to cause said recording means to record outgoing record identity code on regular outgoing record media and to record incoming record identity code on special outgoing record media, means in said processing means **controlled** by said permitting means incident to the reading from said continuous record of specific items of complete customer uses for causing said recording means to record output items related thereto on one or more regular outgoing record media, and other means in said processing means **controlled** by said permitting means incident to the reading from said continuous record of one or more specific items of incomplete customer uses for causing said recording means to record output items related thereto on one or more special outgoing record media, whereby special outgoing record media may be connected in a series, Part of a later processed continuous incoming record. 127. In an automatic accounting **system** wherein records of customer uses of facilities are contained in record media in the form of sets of coded data expressing items of general information and expressing items of specific information, including and characterized by identity indices and comprising the data from which customer charges are derived, the said items of specific information for each recorded complete customer use including (1) identification of the customer facility used and (2) the time at which the use was commenced and (3) the time at which the use was terminated, the said specific items for any particular customer use including and characterized by the same identity index, an accounting device including reading means for reading input items of information from incoming record media and recording means for recording output items of information on outgoing record media and means for processing input information in an accounting step by sorting, translating, computing or otherwise rearranging said input information and distributing said processed information as output items of information to said recording means, each incoming record medium characterized by having incoming record identity code therein including general item information identifying the source of said incoming record medium, all record media having incoming record identity for a particular source thereof being connected in a tandem group and all such tandem groups of record media being connected in a series whereby such a series of tandem groups of record media may be processed by said device as a continuous incoming record, said device having means **controlled** by said reading means incident to the reading of incoming record identity code for permitting said device to process only record media having incoming record identity, means **controlled** by said processing means to cause said recording means to record outgoing record identity code on regular outgoing record media and to record incoming record identity code on special outgoing record media, means in said processing means **controlled** by said permitting means incident to the reading from a tandem group of said continuous record of specific items of complete customer uses contained within said tandem group for causing said recording means to record output items related thereto on one or more regular outgoing record media, and other means in said processing means **controlled** by said permitting means incident to the reading from a tandem group of said continuous record of one or more specific items of incomplete customer uses contained within said tandem group for causing said recording means to record output items related thereto on one or more special outgoing record media, whereby special outgoing record media containing output items for incomplete customer uses contained in each tandem group may be connected in and as part of a later process continuous incoming record. 128. In an automatic accounting **system** wherein records of customer uses of facilities are contained in record media in the form of sets of coded data expressing items of general information and expressing items of specific information, including and characterized by identity indices and comprising the data from which customer charges are derived, the said items of specific information for each recorded complete customer use including (1) identification of the customer facility used and (2) the time at which the use was commenced and (3) the time at which the use was terminated, the said specific items for any particular customer use including and characterized by the same identity index, an accounting device including reading means for reading input items of information from incoming record media and recording means for recording output items of information on outgoing record media and means for processing input information in an accounting step by sorting, translating, computing or otherwise rearranging said input information and distributing said processed information as output items of information to said recording means, each incoming record medium having splice code on the ends thereof and having adjacent said splice code incoming record identity code including general item information identifying the serial number of the source of said incoming record medium, all record media having incoming record identity and pertaining to a particular source number being spliced together at respective splice codes to form a tandem group for each source number, all such tandem groups being spliced together at respective splice codes to form a series of tandem groups whereby such a series may be processed by said device as a continuous incoming record, said device having means **controlled** by said reading means incident to the reading of incoming record identity code for permitting said device to process only incoming record media having incoming record identity and only incoming record media arranged as a continuous incoming record, means **controlled** by said reading means incident to the reading of specific items of customer uses from incoming record media for registering said read items in said device preparatory to processing associated specific items for each customer use, means **controlled** by said processing means to cause said recording means to record outgoing record identity code and splice code on regular outgoing record media and to record incoming record identity and splice code on special outgoing record media, means **controlled** by the registering in said device of specific items of complete customer uses to cause said recording means to record output items related thereto on one or more regular outgoing record media, means **controlled** by said reading means incident to the reading of general source number item information from incoming record identity codes for indicating the end of a tandem group of incoming record media, and means responsive to such indication to cause said recording means to record on special outgoing record media output items relating to all specific items of incomplete customer uses then registered in said device, whereby special outgoing record media containing output items for incomplete customer uses for each source number may be spliced in and as part of a later processed continuous incoming record. 129. The invention claimed in claim 128 wherein said incoming record identity code includes general item information identifying the type of said source, wherein said recording means includes first means selectively operable to record regular splice code or special splice code on outgoing record media, and wherein said means for causing said recording means to record splice code on outgoing record media includes means selectively **controlled** by said reading means incident to the reading of general source type item information from incoming record media to selectively operate said first means according to the source type read. 130. The invention claimed in claim 129 wherein said general source type item information may identify a regular source or a special source, wherein said first means comprises a regular code **controller** operable to record regular splice code on regular outgoing record media and a special code **controller** operable to record special splice code on special outgoing record media, wherein said selectively **controlled** means includes a regular selector **controlled** by said reading means incident to the reading of regular source type item information to operate said regular code **controller**, and wherein said selectively **controlled** means includes a special selector **controlled** by said reading means incident to the reading of special source type item information to operate said special code **controller**. 131. The invention claimed in claim 130 wherein said regular code **controller** includes means for generating a fixed arbitrary splice code whereby any record media having such splice code may be properly spliced together, and wherein said special code **controller** includes means for generating a variable distinctive splice code comprising source type item information whereby only record media having matching variable distinctive splice code may be properly spliced together. 132. The invention claimed in claim 131 wherein an incoming record medium is a perforated tape, an outgoing record medium is an unperforated tape, a reading means is a perforated tape reader, a recording means is a tape perforator, a set of coded data is a plural digit number represented by a group of perforations in a perforated tape, and an identity index is a digital component of a plural digit number. 133. In an automatic accounting **system** wherein records of customer uses of facilities are contained in record media in the form of sets of coded data expressing items of general information and expressing items of specific information including and characterized by identity indices and comprising the data from which customer charges are derived, the said items of specific information for each recorded complete customer use including (1) identification of the customer facility used and (2) the time at which the use was commenced and (3) the time at which the use was terminated, the said specific items for any particular customer use including and characterized by the same identity index, and wherein an accounting device is provided including reading means for reading input items of information from incoming record media and recording means for recording output items of information on outgoing record media and means for processing input information in an accounting step by sorting, translating, computing or otherwise rearranging said input information and distributing said processed information as output items of information to said recording means, the **method** of processing information in continuous record form from discontinuous incoming record media comprising the steps of recording on outgoing record media one or more specific items for each incomplete customer use in incoming record media, splicing said outgoing record media into other incoming record media containing one or more missing specific items for said incomplete customer use, and

processing said spliced record media as a continuous incoming record. 134. In an automatic accounting **system** wherein records of customer uses of facilities are contained in record 4,5 media in the form of sets of coded data expressing item-is of general information and expressing items of specific information including and characterized by identity indices and comprising the data from which customer charges are derived, the said items of specific information for each recorded complete customer use including (1) identification of the customer facility used and (2) the time at which the use was commenced and (3) the time at which the use was terminated, the said specific items for any particular customer use including and characterized by 5,5 the same identity index, and wherein an accounting device is provided including reading means for reading input items of information from incoming record media and recording means for recording output items of information on outgoing record media and means for processing input information in an accounting step by sorting, translating, computing or otherwise rearranging said input information and distributing said processed information as output items of information to said recording means, the **method** of processing information in continuous record form from discontinuous incoming record media comprising the steps of processing specific items for each complete customer use in incoming record media, recording on outgoing record media one or more specific items for each incomplete customer use in said incoming record media, splicing said outgoing record media into other incoming record media containing one or more missing specific items for said incomplete customer use, and processing said spliced record media as a continuous incoming record. 135. In an automatic accounting **system** wherein records of customer uses of facilities are contained in record media in the form of sets of coded data expressing items of general information and expressing items of specific information including and characterized by identity indices and comprising the data from which customer charges are derived, the said items of specific information for each recorded complete customer use including (1) identification of the customer facility used and (2) the time at which the use was commenced and (3) the time at which the use was terminated, the said specific items for any particular customer use including and characterized by the same identity index, and wherein an accounting device is provided including reading means for reading input items of information from incoming record media and recording means for recording output items of information on outgoing record media and means for processing input information in an accounting step by sorting, translating, computing or otherwise rearranging said input information and distributing said processed information as output items of information to said recording means, the **method** of processing information in continuous record form from discontinuous incoming record media comprising the steps of connecting a first group of discontinuous incoming record media to form a continuous incoming record, processing specific items for each complete customer use in each of said first group of incoming record media, recording on outgoing record media one or more specific items for each incomplete customer use in each of said first group of incoming record media, connecting said outgoing record media with a second group of discontinuous incoming record media containing one or more missing specific items for said incomplete customer uses, and processing said later connected record media as a continuous incoming record. 136. In an automatic accounting **system** wherein records of customer uses of facilities are contained in record media in the form of sets of coded data expressing items of general information and expressing items of specific information including and characterized by identity indices and comprising the data from which customer charges are derived, the said items of specific information for each recorded complete customer use including (1) identification of the customer facility used and (2) the time at which the use was commenced and (3) the time at which the use was terminated, the said specific items for any particular customer use including and characterized by the same identity index, and wherein an accounting device is provided including reading means for reading input items of information from incoming record media and recording means for recording output items of information on outgoing record media and means for processing input information in an accounting step by sorting, translating, computing or otherwise rearranging said input information and distributing said processed information as output items of information to said recording means, the **method** of processing information in continuous record form from discontinuous incoming record media comprising the steps of connecting a first group of discontinuous incoming record media to form a first continuous incoming record, processing specific items for each complete customer use in each of said first group of incoming record media, recording on one or more regular outgoing record media output items related to said processed complete customer uses, recording on special outgoing record media one or more specific items for each incomplete customer use in each of said first group of incoming record media, connecting said special outgoing record media with a second group of discontinuous incoming record media containing one or more missing specific items for said incomplete customer uses to form a second continuous incoming record, and processing said second continuous incoming record. 137. In an automatic accounting **system** wherein records of customer uses of facilities are contained in record media in the form of sets of coded data expressing items of general information and expressing items of specific information including and characterized by identity indices and comprising the data from which customer charges are derived, the said items of specific information for each recorded complete customer use including (1) identification of the customer facility used and (2) the time at which the use was commenced and (3) the time at which the use was terminated, the said specific items for any particular customer use including and characterized by the same identity index, and wherein an accounting device is provided including reading means for reading input items of information from incoming record media and recording means for recording output items of information on outgoing record media and means for processing input information in an accounting step by sorting, translating, computing or otherwise rearranging said input information and distributing said processed information as output items of information to said recording means, each incoming record medium characterized by having incoming record identity code therein including general item information identifying the source of said incoming record medium as either a regular source having a regular serial number or an emergency source, acting for a regular source and having the associated regular serial number and including general item information identifying those places in each incoming record medium where a transfer took place between a regular and an emergency source, all record media having incoming regular or emergency record identity for a particular regular serial number source being connected according to a prescribed order of time in a tandem group and all such tandem groups being connected in a series according to a prescribed order of regular serial numbers whereby such a series of tandem groups may be processed by said device as a continuous incoming record, said device having means **controlled** by said reading means incident to the reading of incoming record identity for, permitting said device to process only record media having incoming regular or emergency record identity, a testing circuit in said device **controlled** by said reading means for checking the prescribed ordered sequence of the record media comprising said continuous incoming record, means in said testing circuit effective upon the reading by said reading means of transfer identity codes in successively connected record media to compare items of transfer identity from both said latter record media, and means effective upon a proper comparison to permit the processing of said continuous incoming record to continue and effective upon an improper comparison to prevent the continued processing of said continuous incoming record. 138. In an automatic accounting **system** wherein records of customer uses of facilities are contained in record media in the form of sets of coded data expressing items of general information and expressing items of specific information including and characterized by identity indices and comprising the data from which customer charges are derived, the said items of specific information for each recorded complete customer use including (1) identification of the customer facility used and (2) the time at which the use was commenced and (3) the time at which the use was terminated, the said specific items for any particular customer use including and characterized by the same identity index, and wherein an accounting device is provided including reading means for reading input items of information from incoming record media and recording means for recording output items of information on outgoing record media and means for processing input information in an accounting step by sorting, translating, computing or otherwise rearranging said input information and distributing said processed information as output items of information to said recording means, each incoming record medium characterized by having incoming record identity code therein including general item information identifying the source of said incoming record medium as either a regular source, having a regular serial number, or an emergency source acting for a regular source and having the associated regular serial number and including general item information identifying those places in each incoming record medium where a transfer took place between a regular and an emergency source, all record media having incoming regular or emergency record identity for a particular regular serial number source being connected according to a prescribed order of time in a tandem group and all such tandem groups being connected in a series according to a prescribed order of regular serial numbers whereby such a series of tandem groups may be processed by said device as a continuous incoming record, said device having means **controlled** by said reading means incident to the reading of incoming record identity for permitting said device to process only record media having incoming regular or emergency record identity, a testing circuit in said device **controlled** by said reading means for checking the prescribed ordered sequence of the record media comprising said continuous incoming record, means in said testing circuit effective upon the reading by said reading means of a transfer identity code in one record medium to establish a transfer comparison circuit, means in said testing circuit effective upon the reading by said reading means of the transfer identity code in the record medium connected to said one record medium to compare items of transfer identity from both said latter record media, progress means operable to permit the processing of said continuous incoming record to continue, alarm means operable to prevent the continued processing of said continuous incoming record, means effective upon a proper comparison to operate said progress means, and means effective upon an improper comparison to operate said alarm means. 139. In an automatic

between said registers and key means manually operable to cause said transfer circuits to be connected with said source over said connector whereby the registration in said electromagnetic register is registered if said relay register is in a first condition. 146. In an automatic accounting system wherein records of customer uses of facilities are contained in record media in the form of sets of coded data expressing items of general information and expressing items of specific information including and characterized by identity indices and comprising the data from which customer charges are derived, the said items of specific information for each recorded complete customer use including (1) identification of the customer facility used and (2) the time at which the use was commenced and (3) the time at which the use was terminated, the said specific items for any particular customer use including and characterized by the same identity index, an accounting device including reading means for reading input items of information from incoming record media and recording means for recording output items of information on outgoing record media and means for processing input information in an accounting step by sorting, translating, computing or otherwise rearranging said input information and distributing said processed information as output items of information to said recording means, each incoming record medium including among its general items of information certain record identification information including accounting conditions employed in the process of producing said incoming record, said device having a source of electric power and registering means operable under the control of said reading means and of said source of power to denote at any one time an accounting condition pertaining to an incoming record medium then being processed by said device, said registering means including a first and a second register for separately denoting the same accounting condition, said first register being a relay register both operated and maintained or created under the control of said source and said second register being an electromechanical register operated under the control of said source, and circuit means effective in the event of a failure of said relay register to maintain a registration to derive the pertaining accounting condition from said stepping register into said relay register. 147. The invention defined in claim 146 wherein said stepping register is a step-by-step switch and wherein circuit means includes a connector and transfer circuits between said relay register and said switch and key means manually operable to cause said transfer circuits to be connected with said source over said connector whereby the registration in said switch is registered in said relay register. 148. In an automatic accounting system wherein records of customer uses of facilities are contained in record media in the form of sets of coded data expressing items of general information and expressing items of specific information including and characterized by identity indices and comprising the data from which customer charges are derived, the said items of specific information for each recorded complete customer use including (1) identification of the customer facility used and the time at which the use was commenced and (3) the time at which the use was terminated, the said specific items for any particular customer use including and characterized by the same identity index, an accounting device including reading means for reading input items of information from incoming record media and recording means for recording output items of information on outgoing record media and means for processing input information in an accounting step by sorting, translating, computing or otherwise rearranging said input information and distributing said processed information as output items of information to said recording means, each incoming record medium including among its general items of information certain record identification information including accounting conditions employed in the process of producing said incoming record, said device having a source of electric power and registering means operable under the control of said reading means and of said source of power to denote at any one time an accounting condition pertaining to an incoming record medium then being processed by said device, said registering means including a first and a second register for separately denoting the same accounting condition, said first register being a neutral relay register both operated and maintained operated under the control of said source and said second register being a polar relay register operated under the control of said source and magnetically maintained operated independently of said source, and circuit means effective in the event of failure of said neutral relay register to maintain a registration to derive the pertaining accounting condition from said polar relay register into said neutral relay register. 149. The invention defined in claim 148 wherein said polar relay register comprises relays which magnetically maintain whatever condition prevails upon loss of electrical energization and wherein said circuit means includes a connector and transfer circuits between said neutral relay register and said polar relay register and key means manually operable to cause said transfer circuits to be connected with said source over said connector whereby the registration in said polar relay register is registered in said neutral relay register. 150. In an automatic accounting system wherein records of customer uses of facilities are contained in record media in the form of sets of coded data expressing items of general information and expressing items of specific information including and characterized by identity indices and comprising the data from which customer charges are derived, the said items of specific information for each recorded complete customer use including (1) identification of the customer facility used and (2) the time at which the use was commenced and (3) the time at which the use was terminated, the said specific items for any particular customer use including and characterized by the same identity index, an accounting device including reading means for reading input items of information from incoming record media; and recording means for recording output items of information on outgoing record media and means for processing input information in an accounting step by sorting, translating, computing or otherwise rearranging said input information and distributing said processed information as output items of information to said recording means, said device having a plurality of time registers each characterized by a different identity index and arranged to register two specific items of time information therein, means in each time register for indicating whether or not a first use has been made of time information in said register per incoming record medium means effective upon the start of the processing of an incoming record medium to cause said indicating means, in each said time register to indicate no first use, means controlled by said reading means incident to the reading of a specific item of time information from an incoming record medium and characterized by a given identity index for registering said read time information in the one of said time registers characterized by the same identity index, release means in each time register operable to release all registrations therein and to cause said indicating means to indicate a first use of said time register, said processing means controlled by said reading means incident to the reading of other information from an incoming record medium for using the time information in a time register in a processing step according to the indication by said indicating means, said processing step including the recording on one or more of said outgoing record media of information resulting from said processing, and circuit means effective upon each use of time information in each time register to operate the associated release means. 151. In an automatic accounting system wherein records of customer uses of facilities are contained in record media in the form of sets of coded data expressing items of general information and expressing items of specific information including and characterized by identity indices and comprising the data from which customer charges are derived, the said items of specific information for each recorded complete customer use including (1) identification of the customer facility used and (2) the time at which the use was commenced and (3) the time at which the use was terminated, the said specific items for any particular customer use including and characterized by the same identity index, an accounting device including reading means for reading input items of information from incoming record media and recording means for recording output items of information on outgoing record media and means for processing input information in an accounting step by sorting, translating, computing or otherwise rearranging said input information and distributing said processed information as output items of information to said recording means, said device having a plurality of time registers each characterized by a different identity index and arranged to register two specific items of time information therein, dual condition indicating means in each time register, setting means effective upon the start of the processing of each incoming record medium to cause said indicating means in each said time register to be set into its first condition, means controlled by said reading means incident to the reading of a specific item of time information from an incoming record medium and characterized by a given identity index for registering said read time information in the one of said time registers characterized by the same identity index, release means in each time register operable to release all registrations therein and to cause said indicating means to be set into its second condition, said processing means controlled by said reading means incident to the reading of other information from an incoming record medium for using the time information in a time register in a processing step according to the condition of said indicating means, said processing step including the recording on one or more of said outgoing record media of information resulting from said processing, and circuit means effective upon each use of time information in each time register to operate the associated release means. 152. In an automatic accounting system wherein records of customer uses of facilities are contained in record media in the form of sets of coded data expressing items of general information and expressing items of specific information including and characterized by identity indices and comprising the data from which customer charges are derived, the said items of specific information for each recorded complete customer use including, identification of the customer facility used and the time at which the use was commenced and (3) the time at which the use was terminated, the said specific items for any particular customer use including and characterized by the same identity index, an accounting device including reading means for reading input items of information from incoming record media and recording means for recording output items of information on outgoing record media and means for processing input information in an accounting step by sorting, translating, computing or otherwise rearranging said input information and distributing said processed information as output items of information to said recording means, said device having a plurality of time registers each characterized by a different identity index and arranged to register two specific items of time information therein, a use relay

in each time register, setting means effective upon the start of the processing of each incoming record medium to operate said use relay in each said time register, means **controlled** by said reading means incident to the reading of a specific item of time information from an incoming record medium and characterized by a given identity index for registering said read time information in the one of said time registers characterized by the same identity index, a release relay in each time register operable to release all registrations therein and to release said use relay, said processing means controlled by said reading means incident to the reading of other information from an incoming record medium for using the time information in a time register; a processing stop according to the operated or released condition of said, use relay, said processing, step including the recording on one or more of said outgoing record media of information resulting from said processing, and circuit means effective upon each use of time information in each time register to operate the associated release relay. 153. The invention claimed in claim 152 wherein circuit means is provided and **controlled** by said setting means to cause said use relay to remain released after the first release thereof until such time as said setting means becomes effective again upon the start of the processing of a succeeding record medium. 154. The invention claimed in claim 153 wherein is provided means operable under the **control** of said reading means incident to the reading of incoming record information to detect the start of the processing of a succeeding incoming record medium and circuit means controlled by the operation of said detecting means to make said setting means effective again. 155. The invention claimed in claim 154 wherein an incoming record medium is a perforated tape, an outgoing record medium is an unperforated tape, a reading means is a perforated tape reader, a recording means is a tape perforator, a set of coded data is a plural digit number represented by a group of perforations in a perforated tape, and an identity index is a digital component of a plural digit number. 156. In an automatic accounting **system** wherein records of customer uses of facilities are contained in record media in the form of sets of coded data expressing items of general information and expressing items of specific information including and characterized by identity indices, and comprising the data from which customer charges are derived, the said items of specific information for each recorded complete customer use including (1) identification of the customer facility used, and (2) the time at which the use was commenced and (3) the time at which the use was terminated, the said specific items for any particular customer use including and characterized by the same identity index, an accounting device including reading means for reading input items of information from incoming record media and recording means for recording output items of information on outgoing record media and means for processing input information in an accounting step by sorting, translating, computing or otherwise rearranging said input information and distributing said processed information as output items of information to said recording means, said device having a plurality of time registers each characterized by a different identity index and arranged to register two specific items of time information therein, dual condition indicating means in each time register for indicating whether or not a first use has been made of time information in said register per incoming record medium, means effective upon the start of the processing of each incoming record medium to cause said indicating means in each said time register to indicate no first use, means **controlled** by said reading means incident to the reading of a specific item of time information from an incoming record medium and characterized by a given identity index for registering said read time information in the one of said time registers characterized by the same identity index, release means in each time register operable to release all registrations therein and normally to cause said indicating means to indicate a first use of said time register, a **control** circuit common to all time registers and arranged to indicate whether one or two specific items of time information is or are contained in any time register, circuit means **controlled** by said **control** circuit and by said reading means incident to the reading of a general item of charge canceling information from an incoming record medium to operate the release means in certain time registers depending upon the read type, of general item of charge canceling information and upon the indication in said **control** circuit, and circuit means, in each time register effective whenever said release means is operated under charge canceling conditions to cause the indication provided by said indicating means therein to remain the same during the operation of said release means. 157. In an automatic accounting **system** wherein records of customer uses of facilities are contained in record media in the form of sets of coded data expressing items of general information and expressing items of specific information including and characterized by identity indices and comprising the data from which customer charges are derived, the said items of specific information for each recorded complete customer use including (1) identification of the customer facility used and (2) the time at which the use was commenced and (3) the time at which the use was terminated, the said specific items for any particular customer use including and characterized by the same identity index, an accounting device including reading means for reading input items of information from incoming record media and recording means for recording output items of information on outgoing record media and means for processing input information in an accounting step by sorting, translating, computing or otherwise rearranging said input information and distributing said processed information as output items of information to said recording means, said device having a plurality of time registers each characterized by a different identity index and arranged to register two specific items of time information therein, dual condition indicating means in each time register, setting means effective upon the start of the processing of an incoming record medium to cause said indicating means in each said time register to be set into its first condition, means **controlled** by said reading means incident to the reading of a specific item of time information from an incoming record medium and characterized by a given identity index for registering said read time information in the one of said time registers characterized by the same identity index, release means in each time register operable to release all registrations therein and normally to cause said indicating means to be set into its second condition, a **control** circuit common to all time registers and arranged to indicate whether one or two specific items of time information is or are contained in any time register, circuit means **controlled** by said **control** circuit and by said reading means incident to the reading of a general item of charge canceling information from an incoming record medium to operate the release means in certain time registers depending upon the read type of general item of charge canceling information and upon the indication in said **control** circuit, and circuit means in each time register effective whenever said release means is operated under charge canceling conditions to cause said indicating means therein to remain in its then condition regardless of the operation of said release means. 158. In an automatic accounting **system** wherein records of customer uses of facilities are contained in record media in the form of sets of coded data expressing items of general information and expressing items of specific information including and characterized by identity indices and comprising the data from which customer charges are derived, the said items of specific information for each recorded complete customer use including (1) identification of the customer facility used and (2) the time at which the use was commenced and (3) the time at which the use was terminated, the said specific items for any particular customer use including and characterized by the same identity index, an accounting device including reading means for reading input items of information from incoming record media and recording means for recording output items of information on outgoing record media and means for processing input information in an accounting step by sorting, translating, computing or otherwise rearranging said input information and distributing said processed information as output items of information to said recording means, said device having a plurality of time registers each characterized by a different identity index and arranged to register two specific items of time information therein, a use relay in each time register, an operating circuit for said use relay, setting means effective upon the start of the processing of each incoming record medium to energize said operating circuit to operate said use relay in each said time register, means **controlled** by said reading means incident to the reading of a specific item of time information from an incoming record medium and characterized by a given identity index for registering said read time information in the one of said time registers characterized by the same identity index, a release relay in each time register operable to release all registrations therein and to deenergize said operating circuit thereby normally to release said use relay, a **control** circuit common to all time registers and arranged to indicate whether one or two specific items of time information is or are contained in any time register, circuit means controlled by said **control** circuit and by said reading means incident to the reading of a general item of charge canceling information from an incoming record medium, to operate the release relay in certain time registers depending upon type of general item of charge canceling information and upon the indication in said **control** circuit, and circuit means in each time register effective whenever said release means is operated under charge canceling conditions to cause said operating circuit to remain in its then condition (energized or deenergized) regardless of the operation of said release means. 159. In an automatic accounting **system** wherein records of customer uses of facilities are contained in record media in the form of sets of coded data expressing items of general information and expressing items of specific information including and characterized by identity indices and comprising the data from which customer charges are derived, the said items of specific information for each recorded complete customer use including (1) identification of the customer facility used and (2) the time at which the use was commenced and (3) the time at which the use was terminated, the said specific items for any particular customer use including and characterized by the same identity index, an accounting device including reading means for reading input items of information from incoming record media and recording means for recording output items of information on outgoing record media and means for processing input information in an accounting step by sorting, translating, computing or otherwise rearranging said input information and distributing said processed information as output items of information to said recording means, said device having a plurality of time registers each characterized by a different identity index and arranged to register two specific items of time information therein, a use relay in each time register, an operating circuit energizable to operate said use relay and deenergizable normally to release

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carry means Gf the calculator of the next higher denominational order, internal carry means extending between the sections of each said calculator and isolation means in said internal carry means to block all excepting an effective one thereof whereby unauthorized carries are prevented. 169. In an automatic accounting **system** wherein records of customer uses of facilities are contained in record media in the form of sets of coded data expressing items of general information and expressing items of specific information including and characterized by identity indices and comprising the data from which customer charges are derived, the said items of specific information for each recorded complete customer use including (1) identification of the customer facility used and (2) the time at which the use was commenced and (3) the time at which the use was terminated, the said specific items for any particular customer use including and characterized by the same identity index, an accounting device including reading means for reading input items of information from incoming record media and recording means for recording output items of information on outgoing record media and means for processing input information in an accounting step by sorting, translating, computing or (otherwise rearranging said input information and distributing said processed information as output items of information to said recording means, said general items including data indicative of the calendar day during which an incoming record was produced, said device having a calendar day register arranged to register calendar day indications therein, said device having switch means set to indicate the month during which an incoming record was produced, said device having a plurality of time registers each characterized by a different identity index and arranged to register two specific items of time information therein along with calendar day information relating thereto, means **controlled** by said reading means incident to the reading of a general item of day information from an incoming record medium to register said read day item in said day register, means **controlled** by said reading means incident to the reading of a specific item of time information from an incoming record medium and characterized by a given identity index for registering said read time item in the one of said time registers characterized by the same identity index, a translator operable under the **control** of said day register and of said switch means to provide a single digit representing a particular calendar day of the month indicated by said switch means, and means also **controlled** by said reading means incident to the said reading of the said specific item for interconnecting said one time register with said day register through said translator whereby said single digit is, registered in said one time register as part of the related time item registered therein. 170. The invention defined in claim 169 wherein said general items also include data indicative, of the hour of the day during which an incoming record was produced, said device has an hour register arranged to register hour indications therein, each of said plurality of time registers is arranged to register hour information relating to specific time items registered therein, said means for registering read day items in said day register is **controlled** incident to the reading of a general item of hour information from an incoming record medium to register said read hour item in said hour register, and means is provided and **controlled** by said hour register to indicate a change of day, and said translator is operable under the additional **control** of said day change indicating means. 171. The invention defined in claim 170 wherein said day and hour registers include tens and units sections 2() each, said time registers are arranged to register tens and units digits of the hour value and arranged to register only a single digit for said day value, and said day change indicating means comprises circuits for detecting when the said hour register registers an hour value of 00 following a previous registration of 23; 172. The invention claimed in claim 171 wherein an incoming record medium is a perforated tape, an outgoing record medium is an unperforated tape, a reading means is a perforated tape reader, a recording means is a tape perforator, a set of coded data is a plural digit number represented by a group of perforations in a perforated tape, and an identity index is a digital component of a plural digit number. 173. In an automatic accounting **system** wherein records of customer uses of facilities are contained in record media in the form of sets of coded data expressing items of general information and expressing items of specific information including and characterized by identity indices and comprising the data from which customer charges are derived, the said items of specific information for each recorded complete customer use including (1) identification of the customer facility used and (2) the time at which the use was commenced and (3) the time at which the use was terminated, the said specific items for any particular customer use including and characterized by the same identity index, an accounting device including reading means for reading input items of information from incoming record media and recording means for recording output items of information on outgoing record media and means for processing input information in an accounting step by sorting, translating, computing or otherwise rearranging said input information and distributing said processed information as output items of information to said recording means, said device having a plurality of time registers each characterized by a different identity index and arranged to register two specific items (2) and (3) of time information therein, means **controlled** by said reading means incident to the reading of each of said specific items (2) and (3) from an incoming record medium and characterized by a given identity index for, registering said read time items in the one of said time registers characterized by the same identity index, a calculator common to said time registers and having means to reregister therein two related items (2) and (3) of time information and to calculate therefrom an elapsed time of customer use, said calculator being unable to calculate elapsed times exceeding the capacity thereof and including means to, indicate such an overcapacity condition said processing means **controlled** by said reading means incident to the reading of a specific item of facility information from an incoming record medium and characterized by the same said identity index for causing said calculator to reregister the related time items therein and to calculate the related elapsed time, said recording means including a plurality of record selecting means **controlled** by said processing means for selecting one or more of said recorders and for **controlling** same to record on related outgoing record media information resulting from said processing, and means in said processing means **controlled** by an overcapacity indication to cause said selecting means to select a particular recorder or the recording thereby of all output information related to overcapacity calculations, 174. The invention defined in claim 173 wherein said calculator comprises a subtractor for calculating the difference between the related commence time (2) and terminate time (3) registered in said calculator, and said overcapacity indicating means includes **control** relays and **control** circuits therefor arranged to cause said relays to assume different operative, conditions for different actions of said subtractor indicative of overcapacity and not-overcapacity conditions. 175. The invention defined in claim 174 wherein said **control** relays include an overcapacity relay and a notovercapacity relay, the former being operated and the latter released by said subtractor for an overcapacity condition and the said former relay being released and the said latter relay operated by said subtractor for a notovercapacity condition. 176. The invention claimed in claim 175 wherein an incoming record medium is a perforated tape, an outgoing record medium is an unperforated tape, a reading means is a perforated tape reader, a recording means is a tape perforator, a set of coded data is a plural digit number represented by a group of perforations in a perforated tape, and an identity index is a digital component of a plural digit number. 177. In an automatic accounting **system** wherein records of customer uses of facilities are contained in record media in the form of sets of coded data expressing items of general information and expressing items of specific information including and characterized by identity indices and comprising the data from which customer charges are derived, the said items of specific information for each recorded complete customer use including (1) identification of the customer facility used and (2) the time at which the use was commenced and (3) the time at which the use was terminated, the said specific items for any particular customer use including and characterized by the same identity index, an accounting device including reading means for reading input items of information from incoming record media and recording means for recording output items of information on outgoing record media and means for processing input information in an accounting step by sorting, translating, computing or otherwise rearranging said input information and distributing said processed information as output items of information to said recording means, said device having a plurality of time registers each characterized by a different identity index and arranged to register two specific items of time information therein, means **controlled** by said reading means incident to the reading from an incoming record medium of specific items of time information characterized by a given identity index for registering said read time items in the one of said time registers characterized by the same identity index, a processing register arranged to register therein two related time items and one related facility item and new items related thereto, means **controlled** by said reading means incident to the reading from an incoming record medium of a specific item of facility information for registering said read facility item in said processing register and for reregistering the related two time items therein from the time register in which said two time items are registered, a calculator including means to reregister therein two related time items and to calculate therefrom new items of information including an elapsed time of customer use, and means in said processing means responsive to the registration and reregistration in said processing register of three related specific items (1) and (2) and (3) to reregister in said (2) and (3) (1) in, said calculator; and to, register in said processing register said new items derived from: said calculator. 178. The invention defined in claim 177 wherein an incoming record medium is, a, perforated tape, an outgoing record medium is, an unperforated tape, a reading means is a perforated tape reader, a recording means is a tape perforator, a set of coded data is a plural digit number represented by a group of perforations in a perforated tape, and an identity index is a digital component of a plural digit number. 179. The invention defined in claim 177 wherein said recording means includes a plurality of recorders, said device includes a recorder control circuit **controlled** by said processing register to select one or more of said recorders and for controlling same to record on related outgoing record media information registered in said processing register and relating to a customer use, and said recorder control circuit is controlled responsive to the registration in said processing register of the said three related specific items (1) and (2) and (3) and of the new items relating thereto. 180. The invention defined in claim 179 wherein

said recorder **control** circuit includes a plurality of connectors and means under the **control** of said processing register to operate said connectors selectively depending upon the extent and nature of the specific and new items registered in said processing register, said connectors in turn connecting said processing register selectively with said recorder or recorders to cause the recording thereby of selected information relating to said customer use. 181. The invention claimed in claim 180 wherein an incoming record medium is a perforated tape, an outgoing record medium is an unperforated tape, a reading means is a perforated tape reader, a recording means is a tape perforator, a set of coded data is a plural digit number represented by a group of perforations in a perforated tape, and an identity index is a digital component of a plural digit number. 182. In an automatic accounting **system** wherein records of customer uses of facilities are contained in record media in the form of sets of coded data expressing items of general information and expressing items of specific information including and characterized by identity indices and comprising the data from which customer charges are derived, the said items of specific information for each recorded complete customer use including (1) identification of the customer facility used and (2) the time at which the use was commenced and (3) the time at which the use was terminated, the said specific items for any particular customer use including and characterized by the same identity index, an accounting device including means for reading input items of information from incoming record media and recording means for recording output items of information on outgoing record media and means for processing input information in an accounting step by sorting, translating, computing or otherwise rearranging said input information and distributing said processed information as output items of information to said recording means, said device having a plurality of time registers each characterized by a different identity index and arranged to register therein two related items, (2) and (3) of time information characterized by the same identity index, means controlled by, said reading means incident to the reading from an incoming record medium of said two related time items to register same in the related time register, at least one processing register arranged to register therein said specific information and two specific items (2) and (3) of time information related thereto, means controlled by said reading means incident to the reading from an incoming record medium of a facility item for registering same in said processing register and for registering the same in one of said time registers the two registered items characterized by the same identity index as said read facility item, a calculator operable to calculate with said items registered in said processing register and to provide new items as a result of said calculation, other registering means in said processing register, means controlled by the registration in said processing register of related facility and time items for causing said calculator to operate thereon and to produce new items therefrom including an elapsed time for the related customer use and to register said new items in said other registering means, a plurality of recorders operable for producing outgoing record media, a sort switch settable in one of a plurality of positions indicative of the desired extent to which information related to processed customer uses is to be recorded by one or more recorders, a recorder assignment circuit variously operable to assign various recorders to record on various outgoing record media output items related to processed customer uses, and means controlled by the setting of said sort switch and by registrations in said processing register to derive a sorting index for each processed customer use and to cause an operation of said assignment circuit according to said sorting index. 183. The invention claimed in claim 182 wherein an incoming record medium is a perforated tape, an outgoing record medium is an unperforated tape, a reading means is a perforated tape reader, a recording means is a tape perforator, a set of coded data is a plural digit number represented by a group of perforations in a perforated tape, and an identity index is a digital component of a plural digit number. 184. The invention defined in claim 182 wherein said other registering means in said processing register includes a variably operable sort digit register, translating means is provided in said processing register responsive to the registration in said other registering means of said new items to operate said sort digit register according to said translation, and wherein said operation of said sort digit register comprises the said derivation of said sorting index. 185. The invention defined in claim 182 wherein the said specific facility item registered in said processing register includes information comprising a billing index indicative of the type of billing to be used in regard to the related customer use, and wherein said registration of a billing index comprises the said derivation of said sorting index. 186. The invention defined in claim 182 wherein said other registering means in said processing register includes means for registering new items representing the said elapsed time of the customer use, said specific facility item registered in said processing register includes information comprising a billing index indicative of the type of billing to be used in regard to the related customer use, said other registering means includes means jointly controlled by said elapsed time and billing index registrations to register a number of charge units determined thereby, and said sorting index deriving means is controlled by said charge units registration to derive a different sorting index depending upon whether said charge units are over or under a prescribed amount. 187. The invention defined in claim 186 wherein means is provided responsive to charge units registration to determine whether said charge units are above nine or below ten, and said deriving means derives a different sorting index for each of said two determinations. 188. The invention defined in claim 182 wherein means is provided controlled by said processing means incident to the processing of customer uses for determining the type of output items relating thereto to be recorded on outgoing record media, and said sorting index deriving means includes means controlled by said type determining means to derive a sorting index according to said determined output item type. 189. The invention defined in claim 182 wherein the said specific facility item registered in said processing register includes a plural digit number identifying a customer facility, and said sorting index deriving means includes means controlled by one of said registered identifying digits to derive a sorting index according to the said digit. 190. The invention defined in claim 182 wherein the said processing register includes means controlled by said processing means for registering a number of different criteria upon which a sorting index may be based, said criteria including a customer billing index and an elapsed time indication and a charge units determination and a plural digit customer identity number, and means in said sorting index deriving means for deriving a sorting index according to two or more of said criteria. 191. The invention claimed in claim 190 wherein an incoming record medium is a perforated tape, an outgoing record medium is an unperforated tape, a reading means is a perforated tape reader, a recording means is a tape perforator, a set of coded data is a plural digit number represented by a group of perforations in a perforated tape, and an identity index is a digital component of a plural digit number. 192. In an automatic accounting **system** wherein records of customer uses of facilities are contained in record media in the form of sets of coded data expressing items of general information and expressing items of specific information including and characterized by identity indices and comprising the data from which customer charges are derived, the said items of specific information for each recorded complete customer use including (1) identification of the customer facility used and (2) the time at which the use was commenced and (3) the time at which the use was terminated, the said specific items for any particular customer use including and characterized by the same identity index, an accounting device including reading means for reading input items of information from incoming record media and recording means for recording output items of information on outgoing record media and means for processing input information in an accounting step by sorting, translating, computing or otherwise rearranging said input information and distributing said processed information as output items of information to said recording means, each said incoming record including among its general information a record identity group of items comprising a succession of items of incoming record identity appearing on that part of said record first read by said reading means, said processing means including means enabled to be controlled by said reading means incident to the reading of specific use items (1) and (2) and (3) for assembling such specific items having the same identity indices and for deriving therefrom output use items related thereto, said recording means including a plurality of recorders operable to prepare outgoing record media containing outgoing record identity groups of items and output use items related to processed customer uses, a recorder selecting circuit variably operable to select a recorder, a plurality of manually settable switches set to prescribe circuit conditions corresponding to proper incoming record identity group items, means controlled by said reading means incident to the reading from an incoming record of said incoming identity groups for comparing items thereof with the settings of said switches, means controlled by said switches for prescribing the number of said recorders to be employed during processing of said incoming record, means responsive to said comparing means incident to a proper comparison and controlled by said prescribing means and by said switches for causing said selecting circuit to operate said prescribed recorders in sequence and to formulate outgoing record identity items and to cause said prescribed recorders to record said outgoing record identity items on respective outgoing media, a means operable to indicate when all said prescribed recorders have finished said outgoing record identity operation, and means responsive to the operation of said indicating means to enable said processing means to process specific items relating to customer uses. 193. The invention defined in claim 192 wherein said formulating means includes a plurality of operable pattern connectors one for each item of outgoing record identity to be formulated and includes a sequencing circuit for operating certain of said connectors in sequence according to a prescribed order of items in said identity group and includes circuits interconnecting said processing means with said pattern connectors for providing to said pattern connectors information pertinent to each item of outgoing record identity, wherein said recorder selecting circuit includes a recorder connector for each recorder, each said recorder connector when operated interconnecting the associated recorder with the outputs of all pattern connectors. 194. The invention claimed in claim 193 wherein an incoming record medium is a perforated tape, an outgoing record medium is an unperforated tape, a reading means is a perforated tape reader, a recording means is a tape perforator, a set of coded data is a plural digit number represented by a group of perforations in a perforated tape, and an identity index is a digital

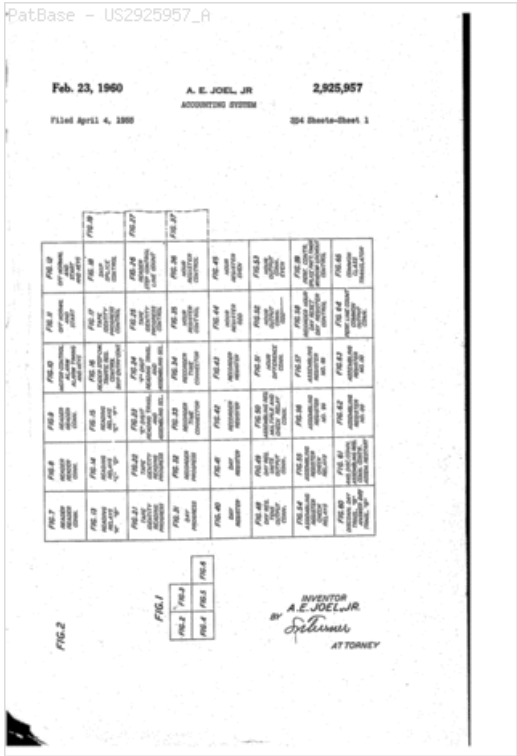
component of a plural digit number. 195. In an automatic accounting **system** wherein records of customer uses of facilities are contained in record media in the form of sets of coded data expressing items of general information and expressing items of specific information including and characterized by identity indices and comprising the data from which customer charges are derived, the said items of specific information for each recorded complete customer use including (1) identification of the customer facility used and (2) the time at which the use was commenced and (3) the time at which the use was terminated, the said specific items for any particular customer use including and characterized by the same identity index, an accounting device including reading means for reading input items of information from incoming record media and recording means for recording output items of information on outgoing record media and means for processing input information in an accounting step by sorting, translating, computing or otherwise rearranging said input information and distributing said processed information as output items of information to said recording means, said device having a plurality of time registers each characterized by a different identity index and arranged to register therein two related items (2) and (3) of time information characterized by the same identity index, means **controlled** by said reading means incident to the reading from an incoming record medium of said two related time items to register same in the related time register, at least one, time processing register arranged to register therein a specific item of facility information and two specific items (2) and (3) of time information related thereto, means **controlled** by said reading means incident to the reading from an incoming record medium of a facility item for registering same in said processing register and for reregistering therein from one of said time registers the two registered time items characterized by the same identity index as said read facility item, other registering means in said processing register, means in said processing register **controlled** by the registration in said processing register of related facility and time items for processing said items and for producing new items therefrom and for registering a said new item in said other register, means, a plurality of recorders operable for producing output going record media, a sort switch setting, in one of a plurality of positions indicative of the desired extent to which, information related to processed customer uses is to be recorded by one or more recorders, means for assigning output items for each processed customer use including said new items, a reordering assignment means variously operable to assign various recorders to record on various outgoing record media output items related to customer uses, and means **controlled** by the setting of said sort switch and by registrations in said processing register to cause an operation of said assignment circuit in some cases whereby all output items for a given customer use are recorded on one outgoing record media and whereby output items for another customer use are recorded partly on one outgoing record media and partly on another. 196. The invention defined in claim 195 wherein said means for causing an operation of said assignment circuit includes an output item counting means **controlled** by said processing means incident to the processing of specific items of a customer use to predetermine the number of output item parts to be recorded for such use, said deriving means includes connector means operated selectively and sequentially by said item counting means to provide a succession of output item parts for recording, and said assignment circuit operating means includes a recorder transfer circuit effective in response to processing of certain customer use items to cause recording of some of said number of output item parts by one of said recorders and then to cause recording of the rest of said number of output item parts by another of said recorders. 197. The invention claimed in claim 196 wherein an incoming record medium is a perforated tape, an outgoing record medium is an unperforated tape, a reading means is a perforated tape reader, a recording means is a tape perforator, a set of coded data is a plural digit number represented by a group of perforations in a perforated tape, and an identity index is a digital component of a plural digit number. 198. In an automatic accounting **system** wherein records of customer uses of facilities are contained in record media in the form of sets of coded data expressing items of general information and expressing items of specific information including and characterized by identity indices and comprising the data from which customer charges are derived, the said items of specific information for each recorded complete customer use including (1) identification of the customer facility used and (2) the time at which the use was commenced and (3) the time at which the use was terminated, the said specific items for any particular customer use including and characterized by the same identity index, an accounting device including reading means for reading input items of information from incoming record media and recording means for recording output items of information on outgoing record media and means for processing input information in an accounting step by sorting, translating, computing or otherwise rearranging said input information and distributing said processed information as output items of information to said recording means, each said incoming record including therein a succession of distinctive items of splice data consisting each of the same pattern code whereby separate such records may be spliced together for processing as a continuous incoming record, said device including reading registers **controlled** by said reading means incident to the reading of coded data from an incoming record to register therein all elements of said read code, means for locking said registrations until used for processing, means effective to release said registrations after same are used, means **controlled** by said reading registers to indicate the released or locked condition thereof, means normally operable under the **control** of said indicating means for permitting said reading means to register a read set of coded data in said reading registers only when said reading registers are released, means operated under the control of said reading registers to detect whenever a said distinctive pattern code is registered thereon, means responsive to the operation of said detecting, means to maintain said pattern code locked in said registers and to cause the operation of said permitting means as long as successive read data agrees with said maintained locked registration. 199. The invention defined in claim 198 wherein said maintaining means includes a validity check relay, a validity check circuit **controlled** by said reading registers and effective to operate said check relay as long as the registrations in said reading registers remain the same, and means whereby the continued operation of said check relay causes the operation of said permitting means. 200. The invention defined in claim 199 wherein said reading registers comprise a plurality of reading relays operated in a given manner to register a given read set of coded data, said validity check circuit is a series circuit through contacts controlled by all reading relays, said maintaining means includes a reading relay locking circuit, and wherein continued operation of said check relay by said check circuit causes continued operation of said permitting means as long as successive read sets of coded data agree with said locked reading relay registrations. 201. The invention defined in claim 200 wherein circuit means is provided effective whenever a succeeding read set of coded data does not agree with said locked registration to revert the **control** of said permitting means back to normal operation. 202. The invention claimed in claim 201 wherein an incoming record medium is a perforated tape, an outgoing record medium is an unperforated tape, a reading means is a perforated tape reader, a recording means is a tape perforator, a set of coded data is a plural digit number represented by a group of perforations in a perforated tape, and an identity index is a digital component of a plural digit number. 203. In an automatic accounting **system** wherein records of customer uses of facilities are contained in record media in the form of sets of coded data expressing items of general information and expressing items of specific information including and characterized by identity indices and comprising the data from which customer charges are derived, the said items of specific information for each recorded complete customer use including (1) identification of the customer facility used and (2) the time at which the use was commenced and (3) the time at which the use was terminated, the said specific items for any particular customer use including and characterized by the same identity index, an accounting device including reading means for reading input items of information from incoming record media and recording means for recording output items of information on outgoing record media and means for processing input information in an accounting step by sorting, translating, computing or otherwise rearranging said input information and distributing said processed information as output items of information to said recording means, each said incoming record having recorded therein from place to place general items of time information characterized as to type and representing passages of prescribed intervals of time during the process of producing each such incoming record, an odd and an even general time register, means **controlled** by said reading means incident to the reading from an incoming record of successively occurring general time items for registering same in alternate ones of said general time registers, an adjustable comparison circuit for comparing each such registration with its predecessor in the other general time register, means **controlled** by said reading means incident to the reading of each said read general item to detect its type and for adjusting said comparison circuit according to said type, and means **controlled** by a proper comparison according to said type for releasing the said predecessor registered general time item. 204. The invention defined in claim 203 wherein said means for registering successive general time items in alternate general time registers comprises for said respective odd and even input connectors, said comparison circuit includes adjustable output connector means and registration check circuits interconnecting both registers through said connector means, and said adjusting means comprises circuits **controlled** by said detecting means for adjusting said connector means according to the type of general read time item. 205. The invention defined in claim 204 wherein said general time items are hour entries, a succeeding general time item is a type indicating that it should differ from its predecessor by a specified amount, said detecting means is effective upon detecting said type to adjust said connector means to compare for the related difference, and said releasing means comprises a circuit operated by a proper difference comparison to release said predecessor registration. 206. The invention claimed in claim 205 wherein an incoming record medium is a perforated tape, an outgoing record medium is an unperforated tape, a reading means is a perforated tape reader, a recording means is a tape perforator, a set of coded data is a plural digit number represented by a group of perforations in a perforated tape, and an identity index is a digital component of a plural digit number. 207. The invention defined in claim 205 wherein said succeeding hour entry is of a first type indicating that it should not differ from its predecessor, and said detecting means

is effective upon detecting said first type to adjust said connector means to compare for the indicated 30 difference of zero (i.e. exact equality). 208. The invention claimed in claim 207 wherein an incoming record medium is a perforated tape, an outgoing record medium is an unperforated tape, a reading means is a perforated tape reader, a recording means is a tape perforator, a set of coded data is a plural digit number represented by a group of perforations in a perforated tape, and an identity index is a digital component of a plural digit number. 209. The invention defined in claim 205 wherein said succeeding hour entry is of a second type indicating that it should differ from its predecessor by one hour, and said detecting means is effective upon detecting said second type to adjust said connector means to compare for the indicated difference of one hour. 210. The invention claimed in claim 209 wherein an incoming record medium is a perforated tape, an outgoing record medium is an unperforated tape, a reading means is a perforated tape reader, a recording means is a tape perforator, a set of coded data is a plural digit number represented by a group of perforations in a perforated tape, and an identity index is a digital component of a plural digit number. 211. The invention defined in claim 205 wherein said succeeding hour entry is of a third or fourth type indicating that an entry of the respective second or first type is missing, means is provided under the **control** of said detecting means for operating the appropriate input connector and output connector means to transfer the predecessor registration to the other general time register respectively with a one hour change or with no change, and said detecting means effective thereafter to adjust said connector means to compare for the indicated difference. 212. The invention claimed in claim 211 wherein an incoming record medium is a perforated tape, an outgoing record medium is an unperforated tape, a reading means is a perforated tape reader, a recording means is a tape perforator, a set of coded data is a plural digit number represented by a group of perforations in a perforated tape, and an identity index is a digital component of a plural digit number. 213. In an automatic accounting **system** wherein records of customer uses of facilities are contained in record media in the form of sets of coded data expressing items of general information and expressing items of specific information including and characterized by identity indices and comprising the data from which customer charges are derived, the said items of specific information for each recorded complete customer use including (1) identification of the customer facility used and (2) the time at which the use was commenced and (3) the time at which the use was terminated, the said specific items for any particular customer use including and characterized by the same identity index, an accounting device including reading means for reading input items of information from incoming record media and recording means for recording output items of information on outgoing record media and means for processing input information in an accounting step by sorting, translating, computing or otherwise rearranging said input information and distributing said processed information as output items of information to said recording means, said device having a plurality of time registers each characterized by a different identity index and including means for registering therein a specific item of time information, first connector means, second connector means, a transmission channel common to said time registers, a validity register, a satisfaction circuit, means **controlled** by said reading means incident to the reading from an incoming record of a specific time item for actuating said first connector means to apply said read item over said common channel and to register said read item in the time register characterized by the same identity index and to actuate said second connector means to register said read item from said channel into said validity register, and means including said satisfaction circuit **controlled** by a valid registration in said validity register to release said first and second connector means and said validity register. 214. The invention defined in claim 213 wherein said reading means includes an incoming record reader and a set of reading relays operated by said reader incident to the reading of a set of coded data, and a reader advance circuit is provided operated by said release means to release said reading relays and to permit said reader to read a next occurring item. 215. The invention defined in claim 213 wherein said release means includes means primarily responsive to a valid registration in said validity register to release said first connector means, and means secondarily and thereafter responsive to a valid registration to operate said reader advance circuit and to release said validity register. 216. The invention claimed in claim 215 wherein an incoming record medium is a perforated tape, an outgoing record medium is an unperforated tape, a reading means is a perforated tape reader, a recording means is a tape perforator, a set of coded data is a plural digit number represented by a group of perforations in a perforated tape, and an identity index is a digital component of a plural digit number. 217. In an automatic accounting **system** wherein records of customer uses of facilities are contained in record media in the form of sets of coded data expressing items of general information and expressing items of specific information including and characterized by identity indices and comprising the data from which customer charges are derived, the said items of specific information for each recorded complete customer use including (1) identification of the customer facility used and (2) the time at which the use was commenced and (3) the time at which the use was terminated, the said specific items for any particular customer use including and characterized by the same identity index, an accounting device including reading means for reading input items of information from incoming record media and recording means for recording output items of information on outgoing record media and means for processing input information in an accounting step by sorting, translating, computing or otherwise rearranging said input information and distributing said processed information as output items of information to said recording means, said device having a plurality of time registers each characterized by a different identity index and a selecting conductor individual to each time register and energizable to select the associated time register, said reading means including a set of reading relays operated by said reading means incident to the reading of specific time items from an incoming record to register in said reading relays the said read time items including their identity indices, selecting means **controlled** by the registration of a time item for energizing the selecting conductor associated with the time register having the same identity index as said registered time item and for reregistering said registered time item in said selected time register, said processing means effective during the processing of an incoming record to process recorded complete customer uses and for removing from appropriate time registers the reregistered time items relating thereto and for indicating the end of processing of complete customer uses, means associated with each time register to detect the presence of unprocessed time items remaining registered therein, and means including said reading relays **controlled** by said process end indication and by said detecting means to generate identity indices and to energize corresponding selecting conductors corresponding to the time registers containing unprocessed time items and to cause said processing means to process said latter time items in a special way. 218. The invention defined in claim 217 wherein said detecting means includes a plurality of group relays each common to a different plurality of time registers and operated to detect the presence of an unprocessed time item in any time register in its group. 219. The invention claimed in claim 218 wherein an incoming record medium is a perforated tape, an outgoing record medium is an unperforated tape, a reading means is a perforated tape reader, a recording means is a tape perforator, a set of coded data is a plural digit number represented by a group of perforations in a perforated tape, and an identity index is a digital component of a plural digit number. 220. The invention defined in claim 218 wherein said time registers are characterized by identity indices numbered consecutively, each group relay is common to a different group of consecutively numbered time registers, said detecting means includes circuits **controlled** by said time registers for operating said group relays in succession, and said generating means includes a walking circuit for successively and sequentially operating said reading relays to simulate the successive sequential registration therein of identity indices corresponding to time registers represented by successively operated group relays. 221. The invention defined in claim 220 wherein said identity indices range from 00 to 99, ten group relays 0 to 9 are provided each common to ten time registers characterized by a different tens digit and each having its operating circuit common to its group of ten time registers, ten units relays 0 to 9 are provided and are operated in succession by said walking circuit for each operated tens relay. 222. The invention defined in claim 221 wherein said detecting means includes a tens lockout circuit for permitting the operation of only one tens group relay at a time in a preference from lowest to highest tens digits and said walking circuit includes a repeating circuit for causing said units relays to operate one at a time from units relay 0 to units relay 9 for each successively operated tens relay 0 to 9. 223. The invention defined in claim 222 wherein said means for energizing selecting conductors comprises two reading registers **controlled** successively by said operator's succession of tens and units relays for energizing successively the selecting conductors corresponding to time registers characterized by said operated tens and units relays. 224. The invention claim in claim 223 wherein an incoming record medium is a perforated tape, an outgoing record medium is an unperforated tape, a reading means is a perforated tape reader, a recording means is a tape perforator, a set of coded data is a plural digit number represented by a group of perforations in a perforated tape, and an identity index is a digital component of a plural digit number. 225. In an automatic accounting **system** wherein records of customer uses of facilities are contained in record media in the form of sets of coded data expressing items of general information and expressing items of specific information including and characterized by identity indices and comprising the data from which customer charges are derived, the said items of specific information for each recorded complete customer use including (1) identification of the customer facility used and the time at which the use was commenced and (3) the time at which the use was terminated, the said specific items for any particular customer use including and characterized by the same identity index, an accounting device including reading means for reading input items of information from incoming record media and recording means for recording output items of information on outgoing record media and means for processing input information in an accounting step by sorting, translating, computing or otherwise rearranging said input information and distributing said processed information as output items of information to said recording means, said general items including hour entries from place to place in said incoming record to indicate the passage of time during the period in which said incoming record was produced, an hour register for

registering therein the hour Pertinent to the then processed action of said device, _leans **controlled** by said hour register and by said reading means incident to the reading from an incoming rec- '35 ord of successive general hour items for adjusting the hour registration from time to time in accordance with read general hour items, a check circuit **controlled** by said hour register to permit said device to process customer uses only if said hour register contains a complete 40 hour registration and to prevent further pr_essing by said device if said hour register becomes empty or incompletely filled, means effective whenever said check,citcuit has prevented further processing to cause a fictitious hour entry to be registered in said hour register 45 whereby said check circuit permits said device to continue processing, said adjusting means **controlled** by said fictitious registration and by said reading means incident to the reading from an incoming record of a present to adjust the hour registration as though the sa . id fiC,tiTiOUS TegiStration represented a registered general hour item. 226. The invention defined in claim 225 wherein said hour register comprises tv_o sections **controlled** to reg- ister therein alternately read general time items ' said adjusting means includes a comparison circuit for permitting a new read general_ hour item to be registered in one section if said new item compares properly with the previously read general hour item then registered in the Go other section, and said adjusting means including a nullifying circuit for nullifying said comparison circuit whenever said previously read -encral hour item is represented by a fictitious registration. (;5 227. The invention claimed in claim 226 wherein aq incoming record medium is a perforated tape, an outgoing record medium is an unperforated 'Lape, a reading means is a perforated tape reader, a recording means is a tape perfOTator, a set of coded data :is a plural digit number represented by a group of perforations in a pe-r- forated tape, and an identity index is a digital coi-npone . nt of a plural digit number. 228. In an automatic accounting **system** wherein records of custoiiier uses of facilities are contained in record media in the form of sets of coded data expressing items of general inforination and expressing items of specific information including and characterized by idi,-ntity indices and comprising the data from which customer charges are derived, the said items of specific information for each recorded complete customer use including (1) identification of the customer facility used ahd (2) the time at which the use was commenced and (3) the time at which -the use was terminated, the said specific items for any particular customer use including tnd characterized by the same identity index, an accounting device including reading means for reading input items of information from incoming record media and recording means for recording output items of information on outgoing record media and means for processing input information in an accounting step by sorting, translating, computing or otherwise rearranging said input information and distributi-ig said processed information as output items of information to said recording means, said general items including true general time items occurring from place to place in an incoming record to represent the passage of units of time during the making of said record, a general time register, means **controlled** by said reading means incident to the reading of successive true general time items to adjust said general time register according to the said passage of units of time, an enabling circuit **controlled** by said reading means and by said general time register for permitting said device to process customer -uses only when said general time register contains a general time registration and for preventing such processing when said general time register is empty or contains an incomplete general time registration, means effective when said empty or incomplete condition exists to register in said general time register a fictitious general time entry whereby said enabling circuit may permit processing to continue, said device having a plurality of time registers characterized by different identity indices, and arranged to register therein two specific time items (2) _nd (3) including general time information pertinent thereto, means **controlled** by said reading means incident to the reading from incomin_ records of specific time ite s to register m same in the specific time registers characterized by the same indices and to r_,register therein as part of each specific item the information then registered in said general time register, a calculator, said processing means effective when processing a customer use to interconnect the appropriate specific time register with said calculator for transmission into said calculator of the specific time ated with said calculator and effective upon said interconnection to detect whether said general time parts to be transmitted are tr-ue or fictitious, means **controlled** by said deteotting means incident to the detection of a fictitious part or parts for modifying the transmission such that said fictitious part or parts are transmitted in an arbitrary amount, means in said calculator for calculating an elapsed time difference between said two specific time items transmitted thereto, and means in said calculator effective upon calculating a negative elapsed time due to the Lise of said arbitrary part or parts to adjust said calculator to provide a proper positive remainder. 229. The invelition defined in claim 228 wherein said calculator comprises a subtracter wherein a said specific item (2) is operated on as a stubtrahend and a said spe, cific item (3) is operated on as a minuend to provide a remainder comprising the calculated elapsed time, and said calculator adjusting means includes carry means effe_tive if said remainder is indicated as negative due to the use of- a fictitious ti7me item for adjusting the said nilnuend so that the remainder produced is posi-tive. 230. The invention defined in claim 229 wherein one general time part t.o be transmitted to said calculator is a true _par-t and the other is fictitious and said modif3dng general hour item when said fictitious registration is ro item.s including general time parts thereof, means associ- 529 5,ZO meais causes said one part to be transnu'tted as both 236. Th- invention defined in ct'al_n 235 Wherein said parts. formulating means includes a counting circuit for pre- 231. The invention claimed in claim 230 wherein an determining the number of codes required to be recorded incoming record medium is a perforated tape, an outacross a splice area and for counting said number of going record medium is an unperforated tape,,a reading 5 codes as they are recorded, said formulating means inmeans is a perforated tape reader, a recordinmeans cludes means **controlled** by said splice area detecting ciris a tape perforator, a set of coded data is a plural digit cuit for formulating and causing to be recorded said number represented by a group of perforations in a persplice information.set ahead of and after said splice area forated tape, and an identity index is a digital comand.includes a timer for formulating and causing to be ponent of a plural digit number. lo recorded said splice patterli code repeatedly as a sin-le 232- The invention defined in claim 229 wherein both code count across said splice area. general time parts to be transmitted to said calculator 237. The invention defined in claim 236 wherein said -ire fictitious and said modifying means causes both parts splice area mardfestations consist of a beginning and an to be transmitted as zero. end of a hole in each said spliced unrecorded out-,oin.- 233. The invention claimed in claim 232 wherein an 15 record media, and said detecting means includes an elecincoming record medium is a'perforated tape, an outtutical contact **controlled** by the beginning and the end goin_ record medium is an unperforated tape, a reading confines of said hole. means is a perforated tape reader, a recording means is .238. The invention claimed in claim 237 wherein an a tape perforator, a set of coded data is a plural digit incoming record rmedium is a perforated tape, an outnumber represented by a group of perforations in a per- going record medium is an unperforated tape, a reading ferated tape, and an identity index is a digital commeans is a perforated tape reader, a recording means is ponent of a plural digit number. a tape perforator, a set of coded data is a plural digit 234. In an automatic accounting **system** wherein recnumber represented by a group of perforations in a ords of customer uses of facilities are contained in recperforated tape, and an identity index is a digital comord media in the form of sets of coded data expressing 25 ponent of a plural digit number. items of general information and expressin- items of 239. In an automatic accounting **system** wherein rescpecific information including and characterized by identity indices and comprising the data from which customer charges are derived, the said items of specific infor,mation for each recorded complete customer use in- cluding (1) identification of the customer facility used and (2) the time at which the use was commenced and (3) the time at which the use was terminated, the said specific item-s for any particular customer use including and characterized by the same identity index, an account- ing device including reading means for reading input items of information from incoming record media and recording means for recording output items of information on outgoing record media and means for processing information in an accounting step by sorting, trans- lating, computing or otherwise rearranging said input inform_ati'on apd distributing said processed information as output items of information to said recording means, said recording means comprising a plurality of recorders for recordin.- outgoing items on separate unrecorded out- goin.- record media, each unrecorded outgoing rccord being spliced from place to place to various sections thereof, each splice area including manifestations of the beginning and the end of the splice atea, each recorder :ncluding means for detectin- the beginning and the end of a splice area, said device having a recorder **control** circuit effective during the processing of customer uses to selectively operate said recorders to record thereby on correspondin,- outgoing records output items relating to said processing and to said selected outgoinerecord, means operable to formulate outgoin_ record splice codes and to cause a recorder to record such formulated codes, means responsive to the detection of a splice area to cause said select,ve operating means to select the associated recorder and to operate said formulating means acr-ording to the recorder selected, said formulating nieans and said recorder selecting and **controlling** means so interrelated as to cause said splice codes to extend beyond the beginning and the end of said splice areas. 235. The invention defined in claimi 234 wherein said -,zsplice codes include a splice information code set and a plurality of successive splice pattern codes, said formulating means is operated differently for at least two recorder selections whereby in one case said splice infor- ination code set consists of a single skip splice code preceding the following said splice pattern codes and in the other case said splice information code set consists of a p,lurality of distinct outgoing identity codes where some precede and some follow said splice pattern codes. ords of customer uses of facilities are contained in record media in the form of sets of coded data expressing items of general information and expressing items of specific information including and chareterized by identity indices and comprising the data from which customer charges are derived, the said items of specific information for each recorded complete customer use including (1) ideritification of the customer facility used and (2) the time at which the use was commenced and (3) the time at which the

use was terminated, the said specific items for any particular customer use including and characterized by the same identity index, an accounting device including reading means for reading input items of information from incoming record media and recording means for recording output items of information on outgoing record media and means for processing input information in an accounting step by sorting, translating, computing or otherwise rearranging said input information and distributing said processed information as output items of information to said recording means, said device having a plurality of time registers each characterized by a different identity index, each time register having two sections for registering two related specific time items, a connector for each section and operable separately or at the same time, means **controlled** by said reading means incident to the reading from an incoming record medium of a specific time item to operate only one of the connectors at one time of the particular time register characterized by the same identity index as said read specific time item and to register said read specific time item in the corresponding section of said particular time register, means **controlled** by said reading means incident to the reading from an incoming record medium of a specific facility item to operate both connectors at the same time of the unique time register characterized by the same identity index as said read specific facility item and to read-out the specific time items registered therein, means **controlled** by said connectors and operable to detect, whether one or more than one of said connectors is operated at any one time, alarm means operable by said detecting means whenever more than one connector operation is detected, and means operable in response to the **control** operations incident to a concurrent operation of said both connectors pursuant to the reading of a specific facility item for preventing the operation of said detecting means. 240. The invention defined in claim 239 wherein said detecting means includes first relay means normally operated whenever more than one connector operates and released whenever only one connector operates, said alarm means includes second relay means operated by an operated first relay means and released by a released first relay means, and said preventing means effective when operated to prevent said first relay means from operating. 241. The invention defined in claim 240 wherein said means for operating a connector includes a conductor individual to each connector and energizable to operate the corresponding connector and includes a selecting circuit for energizing one or both conductors of a particular or unique time register, said first relay means comprises a marginal current relay and circuit means for supplying current to said marginal relay in series with a parallel arrangement of all energized conductors such that normally said marginal relay cannot operate when only one conductor is energized but can operate when a plurality of conductors are energized in parallel, and said preventing means is effective when operated to change the marginal characteristic of said marginal relay to prevent its operation when two conductors are energized in parallel. 242. The invention defined in claim 241 wherein said current supply circuit includes a changeable bias current circuit for supplying a changeable bias current to said marginal relay, and said preventing means includes means for changing said bias circuit to cause same to supply a changed bias current to said marginal relay. 243. The invention claimed in claim 242 wherein an incoming record medium is a perforated tape, an outgoing record medium is an unperforated tape, a reading means is a perforated tape reader, a recording means is a tape perforator, a set of coded data is a plural digit number represented by a group of perforations in a perforated tape, and an identity index is a digital component of a plural digit number.

Classifications:
International (IPC 8-9): G06F7/44 (Advanced/Invention);
G06F7/40 (Core/Invention)
CPC: G06F7/44
European: G06F7/44
US: 235/419



Family:

Publication number	Publication date	Application number	Application date
US2925957 A	19600223	US19550499195	19550404

Priority:
US19550499195 19550404

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Title: Pilot rack and differential

Abstract: (Claim 1) 1. A proportional **control system** for determining the instant position of an object and for initiating the movement of said object to a desired position comprising, a piston rod in the form of a pilot rack rod productive of a first signal representative of the desired position of said object and connected to an adjustable hydraulically operated piston for positioning said pilot rack rod, response means for producing a second signal representative of the instant position of said object, means connected between said rack rod and said response means for determining the difference between said first signal and said second signal to produce an error signal, and means **controlled** by said error signal for initiating the movement of said object to said desired position.

Classifications:

International (IPC 8-9): B61G5/02 B63B25/24 F15B9/08 F15B9/14 F16H61/42 F16H61/46 F16H61/47 F41A9/42 F41A9/50 F41A9/54 F41F3/04 F41F3/052 F41F3/055 F41F3/077 F42B39/24 (Advanced/Invention); B61G5/00 B63B25/00 F15B9/00 F16H61/40 F41A9/00 F41F3/00 F42B39/00 (Core/Invention)

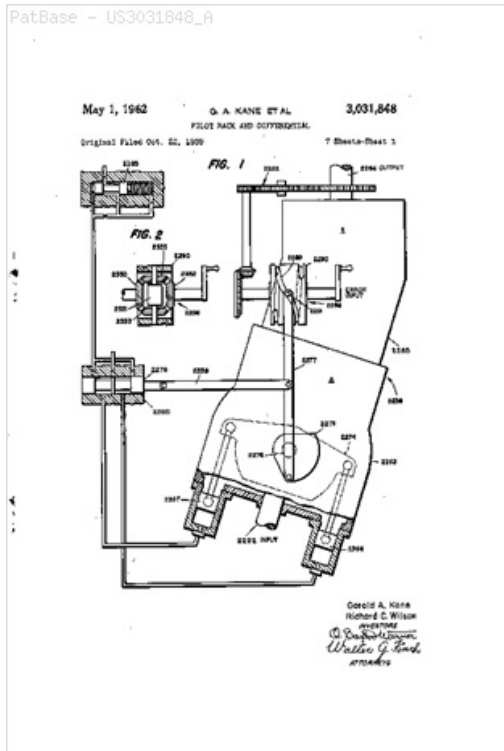
International (IPC 1-7): B63G3/04 B65G23/22 F41F3/04 F41F3/08 F42B37/00 G05D1/00

CPC: F41A9/50 F41F3/04 F41F3/0406 F41F3/052 F41A9/42 B61G5/02 F41A9/54 F41F3/077 F15B9/08 F41F3/055 B63B25/24 F42B39/24 F15B9/14 F16H61/42 F16H61/47

European: B61G5/02 B63B25/24 F15B9/08 F15B9/14 F16H61/42 F16H61/47 F41A9/42 F41A9/50 F41A9/54 F41F3/04 F41F3/04B F41F3/052 F41F3/055 F41F3/077 F42B39/24

US: 104/107 104/172.1 104/28 104/89 104/94 104/96 104/98 114/72 188/268 188/322.5 200/19.06 410/44 410/49 414/745.7 414/787 439/142 439/296 49/138 49/280 49/360 49/70 60/389 60/391 60/395 60/446 89/1.802 89/1.805 89/1.806 89/1.811 89/47 91/172 91/20 91/216R 91/367 91/384 91/405 91/410 91/417R 91/44 91/446 91/447 91/45 91/461 92/108 92/119 92/68 92/8

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Family:

Publication number	Publication date	Application number	Application date
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Priority:

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US19590861162 19591221	US19590861161 19591221	US19590863365 19591231
US19590863366 19591231	US19590863367 19591231	US19600003700 19600120
US19600005575 19600129	US19600016108 19600318	US19600011386 19600512
US19600035852 19600613		

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Inventor(s): LANDSTROM SVEN

US20070678615 20070225 AU20080203032 20080709 AU20100212347 20100813
AU20120203661 20120622 US20130791302 20130308 AU20150200303 20150122

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GENERAL ELECTRIC CAPITAL CORP ; HERCULES TECHNOLOGY GROWTH CAPITAL INC ; DEPO TECH
CORPORATON

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DAGMAR ; PEPPER CLINT ; PEPPER CLINT B

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GB GE GH GM GN GR GW HR HU ID IE IL IS IT JP KE KG KP KR KZ LC LI LK LR LS LT LU LV MC MD MG
MK ML MN MR MW MX NE NL NO NZ PL PT RO RU SD SE SG SI SK SL SN SZ TD TG TJ TM TR TT UA UG
UZ VN YU ZW

Title: **Method** and apparatus for forming a compound bend in a glass sheet on a gas support bed

Abstract: ABSTRACT OF THE DISCLOSURE

Glass sheets having a compound curvature composed of curves extending both transversely and longitudinally of the sheet are formed on an elongated support bed providing a gaseous support for the glass. The support bed forms a common surface of changing contour composed of an initial zone of flat configuration, a final zone having curves extending both longitudinally and transversely of the path of travel of the sheet and a transition zone of a configuration changing progressively from a flat surface to a curvature transversely of the path of travel of the sheet and, finally, to curvatures extending both transversely and longitudinally of the path of travel of the sheet. The apparatus is provided with means to heat the sheets to their deformation temperature on the support bed, a quenching zone beyond the support bed and means for conveying the sheets along the support bed into the quenching zone. This application is a continuation of application Ser. No. 379,108 filed June 30, 1964, now abandoned.

Classifications:

International (IPC 8-9): B65G49/06 B65G51/02 B65G51/03 B65H29/24 B65H5/06 B65H5/22 C03B23/02 C03B23/03 C03B23/035 C03B27/008 C03B27/048 C03B29/08 C03B29/12 C03B35/00 C03B35/16 C03B35/18 C03B35/22 C03B35/24 C03C17/00 (Advanced/Invention); C03B23/02 (Advanced/Non-invention); B65G51/00 B65H29/24 C03B23/02 C03B27/00 C03B27/008 C03B29/00 C03B35/00 C03C17/00 (Core/Invention); C03B23/02 (Core/Non-invention)

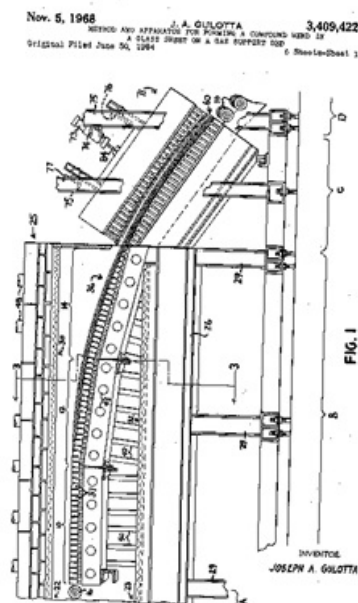
International (IPC 1-7): B65G49/06 C03B23/02 C03B23/035 C03B27/00 C03B27/04 C03B29/00 C03B29/04 C03B35/00 C03B35/24 C03C17/00 G06F17/50 G06F19/00 G06K9/03

CPC: C03B23/035 C03B27/008 C03B27/0404 C03B27/0413 C03B27/048 C03B29/08 C03B29/12 C03B35/16 C03B35/18 C03B35/189 C03B35/24 C03B35/243 C03B225/02 C03C17/001 C03C17/002

European: C03B23/035 C03B27/008 C03B27/048 C03B27/04A C03B27/04B C03B29/08 C03B29/12 C03B35/16 C03B35/18 C03B35/18H C03B35/24 C03B35/24B C03C17/00B C03C17/00B2 M03B225/02

US: 156/102 226/196.1 242/615.11 264/500 414/159 414/676 65/104 65/106 65/107 65/114 65/115 65/119 65/161 65/182.2 65/194 65/25 65/25.2 65/25.4 65/285 65/287 65/29.15 65/348 65/350 65/351 65/60.52 65/60.53 65/65 65/90

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Priority:

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US19670660469	19670814				

Probable Assignee: PPG INDUSTRIES INC

Assignee(s): (std): PITTSBURGH PLATE GLASS CO ; PPG IND INC ; PPG INDUSTRIES INC ; PPG INDUSTRIES INC
PITTSBURGH PENNSYLVANIA VER ST

Assignee(s): PPG INDUSTRIES INC PITTSBURGH PENNSYLVANIA VER ST V AM ; PPG INDUSTRIES INC PITTSBURGH
PA V ST A ; PPG IND INC PITTSBURGH PA V ST A ; PITTSBURGH PLATE GLASS COMPANY ;
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Inventor(s):

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Title: BIS(ISOCYANATOALKYL OR PHENYL) TRANS-9, 10-DIHYDROANTHRACENE 9, 10-ENDO ALPHA, BETA-SUCCINATES

Abstract: Curable coating compositions are obtained by reacting diisocyanate esters of formula wherein R is a divalent substituted or unsubstituted, saturated or unsaturated aromatic group; and R1 is a divalent group (see Division C2) with a drying oil or a diene of formula where each R6 and R8 is hydrogen or a substituted or unsubstituted aliphatic group or one of R6 and R8 together are a methylene or phenylene group or an oxo bridge; and R7 is hydrogen or a substituted or unsubstituted aliphatic group or both R7's taken together are part of the same six-membered cycloaliphatic or aromatic group. Diene compounds mentioned are tung, oiticica, corn, linseed, safflower seed, soybean or dehydrated castor oils. The compositions may include driers, e.g. cobalt naphthenate, lead octanoate, dibutyl tin dilaurate, diamines and aminetin complexes, fillers and pigments and yield transparent flexible coatings. Examples describe the reaction of tung oil, oiticica oil or tung oil modified with a pentaerythritol ester of rosin, oiticica oil modified with a rosin acid ester of tricyclo-[4.3.12.5.01,6]-undecane-4,8,9-triol, dehydrated castor, linseed and oiticica oils and bis-(2-iso-cyanatoethyl) fumarate which yield air-drying and moisture cured film coatings. ALSO: The invention comprises ester isocyanates of formula wherein R is a divalent substituted or unsubstituted, saturated or unsaturated aliphatic or alicyclic group or a substituted or unsubstituted aromatic group and R1 is a divalent group of formula wherein B is a divalent organic group containing a 2-butylene group which forms a six-membered ring; R2 is hydrogen or alkyl with the proviso that when both R's are alkylene R1 is not a cis-vinylene group. Particular groups of compounds mentioned are those of formula wherein R3 represents an alkylene, alkenylene, alkynylene, cycloalkylalkylene, cycloalkenylalkylene, or aralkylene groups with 2-10 C atoms, e.g. bis-(2-isocyanatoethyl), bis-(2,2-dimethyl - 3 - isocyanatopropyl), bis - (9-isocyanatononyl), bis - (5,6,7 - triethyl - 9 - isocyanatononyl), 2 - methyl - 3 - isocyanatopropyl 2-isocyanatoethyl and 4-ethyl-7-isoheptyl 6-isocyanato fumarates; of formula where R4 is a cycloalkylene, cycloalkenylene, cycloalkynylene, alkylcycloalkylene, alkylcycloalkenylene, alkylcycloalkynylene, or cycloalkylenealkylene group with 4-10 C atoms, e.g. bis-(2-isocyanatocyclobutyl) maleate, bis-(3-isocyanatocyclopentyl) fumarate, bis-(5-isocyanato-6-cycloheptamyl) maleate, bis-(3-isocyanato cyclopentylmethyl) fumarate and bis-(3 - isocyanato - 5 - methylcyclohexyl) fumarate; where R4 represents a divalent substituted or unsubstituted aromatic group with 6-12 C atoms or a fused cycloaliphatic or aromatic ring, e.g. bis-(2-isocyanatoethyl)-4-cyclohexene-1,2-dicarboxylate or bicyclic or heterocyclic ester isocyanates, e.g. bis-(2-isocyanatoethyl)-5-norbornene - 2,3 - dicarboxylate or bis - (2-isocyanatoethyl) - 3,6 - endo - oxo - 4 - cyclohexene - 1,2 - dicarboxylate; or compounds obtained by the Diels-Alder reaction of a drying oil with an olefinically unsaturated ester isocyanate. The ester isocyanates are prepared by reacting a carbonyl dihalide, e.g. phosgene with the corresponding olefinically unsaturated ester diamines or diamine salts, in an inert liquid organic solvent at between 100 DEG and 225 DEG C. Examples describe the preparation of bis-(2-isocyanatoethyl) fumarate; bis-(a - isocyanatoethyl) fumarate; bis - 2 - isocyanatoethyl) - 5 - norbornene - 2,3 - dicarboxylate, bis - (2 - isocyanato) - 4 - cyclohexene - 1,2-dicarboxylate; bis - (2 - isocyanatoethyl)-trans - 9,10 - dihydroanthracene - 9,10 - endo-a,b - succinate; bis - (2 - isocyanatoethyl) - 4-methylcyclo - hex - 4 - ene - 1,2 - dicarboxylate; and bis - (2 - isocyanatoethyl) - 4,5 - dimethylcyclohex - 4 - ene - 1,2 - dicarboxylate. Compounds of the formula are prepared by the additional step of adding a diene to the unsaturated ester isocyanate. Dienes are listed and preferred are the triglycerides of fatty acids with at least one conjugated unsaturation or unsaturation capable of reaction. Examples describe the Diels-Alder reaction of tung oil, oil modified with a rosin-pentaerythritol ester, oiticica oil modified with a rosin acid ester of tricyclo-[4,3,12,5,01,6] undecane - 4,8,9 - triol, dehydrated castor oil and linseed oil with bis-(2-isocyanatoethyl) fumarate and the products yield cured films of improved protective properties.

Classifications:

International (IPC 8-9): B65D8/08 C07C263/10 C07C265/04 C07C265/10 C07C265/14 C07C265/16 C07D493/08 C08F2/38 C08F20/10 C08F20/36 C08F22/22 C08F222/10 C08F222/22 C08F8/30 C08G18/02 C08G18/04 C08G18/70 C08G18/72 C08G18/73 C08G18/75 C08G18/77 C08G18/80 C08G18/81 C08J9/04 C08L75/04 C09D175/00 C09J187/00 D06M15/564 (Advanced/Invention); B65D8/04 C07C263/00 C07C265/00 C07D493/00 C08F2/38 C08F20/00 C08F22/00 C08F222/00 C08F8/00 C08G18/00 C08J9/00 C08L75/00 C09D175/00 C09J187/00 D06M15/37 (Core/Invention)

International (IPC 1-7): B65D8/08 C07C119/04 C07C119/042 C07C119/045 C07C119/048 C07C119/06 C07C69/74 C08F2/38 C08F20/10 C08F222/10 C08F222/22 C08F27/10 C08F8/30 C08G18/02 C08G18/04 C08G18/75 C08G18/77 C08G18/81 C08G22/18 C08G22/24 C08G22/26 C08G22/28 C08G22/44 C08J9/04 C08L75/04

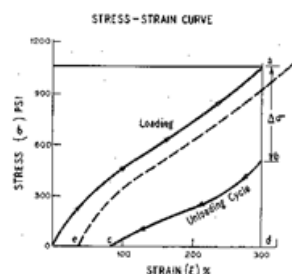
CPC: Y10S528/905 Y10S528/906 C07D493/08 C08F22/22 C08G18/02 C08G18/04 C08G18/728 C08G18/75 C08G18/758 C08G18/771 C08G18/773 C08G18/8125 C08G18/8141 C08J9/04 D06M15/564 C07C265/04 C07C263/16

European: 124GB5B4 124CA5N5D 124CA7 124CA7G 124CB7F1H 124CC1N10G4 124CF53/05HD3C9 124CF6HJ3C9 124CF6N3A3 124JA10 124JC3 C07C263/16 C07C265/00 C07D493/08 C08F2/00T C08F22/22 C08G18/02 C08G18/04 C08G18/72P C08G18/75 C08G18/75D C08G18/77D C08G18/77G C08G18/81D C08G18/81K C08J9/04 D06M15/564

US: 106/252 106/264 106/265 156/307.3 156/331.4 156/331.7 252/3 260/2.5AT 260/468 260/485 260/75 521/127 521/130 521/137 521/144 521/145 521/147 521/148 521/149 521/150 521/155 521/160 521/162 521/172 521/176 525/455 526/230 526/232 526/261 526/268 526/271 526/280 526/281 526/301 526/302 526/310 526/312 528/272 528/288 528/296 528/354 528/44 528/45 528/50 528/53 528/55 528/56 528/57 528/58 528/61 528/63 528/65 528/67 528/70 528/73 528/74 528/74.5 528/75 528/76 528/80 528/85 528/905 528/906 549/463 558/240 560/107 560/120 560/125 560/127 560/128 560/129 560/142 560/146 560/158 560/164 560/171 560/188 560/192 560/193 560/194 560/195 560/196 560/261 560/55 560/80 560/84

PatBase - US3629200_R

Dec. 21, 1971
Y. K. BROTHERTON ET AL. 3,629,200
REACTOR PROCESSES OF OLIGOMERALLY UNSATURATED
DIISOCYANATE (11)
Original Filed Nov. 9, 1964



THOMAS K. BROTHERTON
JOHN W. LYNN
BY *Walter P. Lynn*
ATTORNEY

Family:

Publication number	Publication date	Application number	Application date
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Priority:

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US19640409921 19641109	US19650478400 19650809	US19650485285 19650907
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Probable Assignee: UNION CARBIDE CORP

Assignee(s): (std): UNION CARBIDE CORP

Assignee(s): MORGAN GUARANTY TRUST CO ; MORGAN GUARANTY TRUST CO OF NEW YORK AND MORGAN BA ; MORGAN GUARANTY TRUST CO OF NEW YORK AND MORGAN BANK (DELAWARE) COLLATERAL (AGENTS) SEE RECORD FOR REMAINING ASSIGNEES AS ; MORGAN GUARANTY TRUST CO OF NEW YORK AND MORGAN BANK DELAWARE COLLATERAL AGENTS SEE RECORD FOR REMAINING ASSIGNEES AS

Inventor(s): (std): WENDELL LYNN JOHN ; VA ALBANS W ; LYNN JOHN W ; KNOPF ROBERT J ; KEMPER BROTHERTON THOMAS ; JOHN KNOPF ROBERT ; BROTHERTON THOMAS K

Inventor(s): ALBANS W VA ; JOHN W LYNN ; THOMAS K BROTHERTON ; ROBERT J KNOPF

Title: Class of service communication switching **system**

Abstract: ABSTRACT OF THE DISCLOSURE

The disclosure relates to a switching network and marker used in a communication switching **system**. The network comprises a plurality of coordinate matrices with reed relay crosspoint switching devices. The marker is a combination of reed relays and electronic scanners for finding a path through the network and establishing a connection. The same network and marker are used for originating and terminating calls. This is a division of my application Ser. No. 304,826 filed Aug. 27, 1963 and now abandoned. The drawings and the specification following the brief description of the drawings in the original application is identical to that of an application by W. R. Wedmore for a Marker For A Communication Switching Network, Ser. No. 804,892, filed Aug. 27, 1963, now Patent No. 3,293,368, which is made a part hereof as though fully set forth, and may be referred to for additional details of the **system**.

Classifications:

International (IPC 8-9): H04Q3/49 H04Q3/52 H04Q3/545

H04Q3/78 (Advanced/Invention);

H04Q3/48 (Core/Invention)

International (IPC 1-7): H04Q1/30 H04Q3/04 H04Q3/42 H04Q3/47

H04Q3/48 H04Q3/49 H04Q3/495 H04Q3/52 H04Q3/54 H04Q3/72

CPC: H04Q3/545

European: H04Q3/545

US: 340/2.2 340/2.21 340/2.4 340/2.7 379/119 379/120 379/150

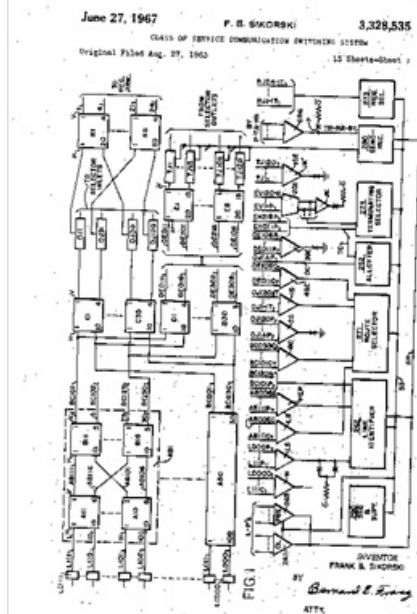
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PatBase - US3328535_A



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Priority:

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FR19640987270 19640907		

Probable Assignee: AUTOMATIC ELECT LAB

Assignee(s): (std): AUTOMATIC ELECTRIC LABORATOIRE ; AUTOMATIC ELECT LAB

Assignee(s): AUTOMATIC ELECTRIC LAB ; AUTOMATIC ELECTRIC LABOR INC ; AUTOMATIC ELECTRIC LABORATOIRES INC ; AUTOMATIC ELECTRIC LABORATORIES INC ; AUTOMATIC ELECTRIC LABORATORIES INC NORTHLAKE ILL ; AUTOMATIC ELECTRIC LABORATORIES INC NORTHLAKE ILL V ST A

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Inventor(s): HM SELLENSLAGH EMIEL ; WIRSING HOWARD L CHICAGO ; AMIOT LAWRENCE W ELMHURST ; WEDMORE WILLIAM R GLEN ELLYN ; SPELLNES KORE K GLEN ELLYN ; SIKORSKI FRANK B DES PLAINES ; MILLER WILLIAM C GLEN ELLYN ; SELLENSLAGH EMIEL H M AARTSELAAR ; KLEES WILLIAM B CHICAGO ; LANGE ALFRED C OAK PARK ; MANESCHI JOHN R PLEASANT VALLEY N Y ; ESPERSETH MAURICE H MOUNT PROSPECT ; GLENNER EDWARD J SKOKIE ; BOSSE JOHN G VAN PARK RIDGE ; LEE DAVID KWOK KANG

Title: DERIVATIVES OF BRANCHED POLYALKYLENE-POLYAMINES

Abstract: (Claim 1) A compound (1) an acylated containing at least one formula selected from the group consisting of derivative of a polyalkylenepolyamine least three primary amino groups and tertiary amino group and having the H NHs—(R—T)ss -RN- [LI RNH] R I V. NH₂ Jy wherein R is an alkylene group having at least two carbon atoms, x is an integer of 4 to 24, y is an integer of 1 to 6, and z is an integer of 0-6, formed by reacting said polyalkylenepolyamine with a compound selected from the group consisting of (i) a carboxylic acid having 7-39 carbon atoms and (ii) a precursor of said carboxylic acid capable of forming said acid in said reaction, (2) an oxyalkylated derivative of a polyalkylenepolyamine containing at least three primary amino groups and at least one tertiary amino group and having the formula H I f ^ NHj-(R-N) -RN—-L Lira: J, RNHj V. NHi yy wherein R is an alkylene group having at least two carbon atoms, x is an integer of 4 to 24, y is an integer of 1 to 6, and z is an integer of 0-6, formed by reacting said polyalkylenepolyamine with an alkylene oxide having at least 2 carbon atoms, (3) an alkylated derivative of a polyalkylenepolyamine containing at least three primary amino groups and at least one tertiary amino group and having the formula H NHr-(RBeI -RNHa H NHj-(B—If)x -RNI R I. RNHa H NEr-(R-N), -RN- [LI -RNHa H NHj—CR— r RN- [LI I R V. NHj J -ENHa R zHa Jy wherein R is an alkylene group having at least two carbon atoms, x is an integer of 4 to 24, y is an integer of 1 to 6, and z is an integer of 0-6, formed by reacting said polyalkylenepolyamine with an alkylating agent having 1 to 30 carbon atoms, (4) an olefinated derivative of a polyalkylenepolyr amine containing at least three primary amino groups and at least one tertiary amino group and having the formula wherein R is an alkylene group having at least two carbon atoms, x is an integer of 4 to 24, y is an integer of 1 to 6, and z is an integer of 0-6, formed by reacting said polyalkylenepolyamine first with one of said foregoing reactants to form a poly-alkylene polyamine derivative and then reacting said so-formed derivative with at least another of said foregoing reactants.

Classifications:

International (IPC 8-9): B01D19/04 B03D1/01 C02F5/12 C04B24/28 C04B41/48 C07C209/08 C07D207/412 C07D233/16 C07D247/02 C07D307/52 C08G12/00 C08G69/26 C08G69/34 C08G73/02 C08K5/17 C09D11/02 C09D5/08 C09K8/035 C09K8/28 C09K8/528 C09K8/54 C09K8/74 C10G33/04 C10L1/22 C10M133/00 C10M173/00 C14C9/00 C23F11/173 D06M13/332 E21B41/02 (Advanced/Invention);

C07D207/40 C10L1/22 (Advanced/Non-invention);

B01D19/02 B03D1/004 C02F5/10 C04B24/00 C04B41/45 C07C209/00 C07D207/00 C07D233/00 C07D247/00 C07D307/00 C08G12/00 C08G69/00 C08G73/00 C09D11/02 C09D5/08 C09K8/02 C09K8/52 C09K8/54 C09K8/60 C10L1/10 C10M133/00 C10M173/00 C14C9/00 C23F11/10 D06M13/00 E21B41/00 (Core/Invention); C10L1/10 (Core/Non-invention)

International (IPC 1-7): A01N37/20 B01D19/04 B03D1/02 C08F10/00 C08G12/00 C08G69/26 C08G69/34 C08G73/02 C08G73/04 C08L95/00 C09D11/02 C09D7/12 C09K7/00 C09K7/02 C10L1/22 C10M133/00 C10M173/00

CPIC: C10G33/04 C08K5/17 Y10S507/928 Y10S507/933 Y10S507/936 Y10S516/07 Y10S507/927 Y10S516/914 Y10S507/934 C02F5/12 C07C255/00 C09K8/28 C09K8/528 C07D207/412 B01D19/0413 C04B24/28 C04B41/488 C07C209/08 C07D233/16 C07D247/02 C07D307/52 C08G12/00 C08G69/26 C08G69/34 C08G73/0206 C09D5/082 C09D11/03 C09K8/035 C09K8/54 C09K8/74 C10L1/22 C10M133/00 C10M173/00 C14C9/00 C23F11/173 D06M13/332 E21B41/02 B03D2201/02 B03D2203/06 B03D1/01 C10L1/221 C10L1/222 C10L1/2222 C10L1/2225 C10L1/224 C10L1/2283 C10L1/232 C10L1/234 C10L1/238 C10L1/2383 C10M2201/02 C10M2215/04 C10M2215/042 C10M2215/26 C10M2217/046 C10M2217/06 C10N2230/12 C10N2240/401 C10N2250/02

European: 124BG12B2D2 124BG12B2F5B2 124BG12B3 124BG17B 124BG2B 124BG2B3F 124BG5B3S 124BG8B3B2B8 124CA7 30I3H8 45L8J3 B01D19/04D4 B03D1/01 C02F5/12 C04B24/28 C04B41/48T C07C209/08 C07C255/00 C07D207/412 C07D233/16 C07D247/02 C07D307/52 C08G12/00 C08G69/26 C08G69/34 C08G73/02A C08K5/17 C09D11/03 C09D5/08B C09K8/035 C09K8/28 C09K8/528 C09K8/54 C09K8/74 C10G33/04 C10L1/22 C10M133/00 C10M173/00 C14C9/00 C23F11/173 D06M13/332 E21B41/02 M10L1/222 M10L1/222B M10L1/222B2 M10L1/224 M10L1/228B M10L1/22W M10L1/232 M10L1/234 M10L1/238 M10L1/2383 M10M201/02 M10M215/04 M10M215/042 M10M215/26 M10M217/046 M10M217/06 M10N230/12 M10N240/401 M10N250/02

US: 106/14.13 106/14.15 106/14.16 106/14.31 106/14.37 106/14.42 106/14.43 106/278 106/279 106/284.4 106/285 106/287.3 166/275 166/280.1 166/304 166/305.1 166/312 208/251R 208/253 209/166 252/180 252/390 252/392 252/400.62 252/401 252/403 44/419 44/421 44/432 44/433 507/129 507/131 507/133 507/244 507/246 507/251 507/927 507/928 507/933 507/934 507/936 508/448 508/543 508/544 508/550 508/554 508/558 508/559 510/247 514/166 516/128 516/129 516/148 516/169 516/171 516/172 516/176 516/177 516/179 516/180 516/203 516/22 516/27 516/68 516/69 516/9 516/914 516/DIG.7 530/230 530/231 554/51 554/54 554/55 554/56 554/57 554/60 556/110 556/116 556/137 556/138 556/148 556/175 556/176 556/32 556/57 556/63 556/64 556/77 564/156 564/160 564/183 564/186 564/271 564/272 564/273 564/274 564/275 564/278 564/505 564/512

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Publication number	Publication date	Application number	Application date
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US3259512 A	19660705	US19630300148	19630806
US3259572 A	19660705	US19630300150	19630806
US3259578 A	19660705	US19630300145	19630806
US3259586 A	19660705	US19630300153	19630806
US3259587 A	19660705	US19630300154	19630806
US3260365 A	19660712	US19630300147	19630806
US3262791 A	19660726	US19650505039	19651024
US3265512 A	19660809	US19630300151	19630806
US3271307 A	19660906	US19630300152	19630806

Priority:

US19600047386 19600804	US19630300145 19630806	US19630300148 19630806
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US19630300150 19630806	US19630300153 19630806	US19630300151 19630806
US19630300154 19630806	US19630300152 19630806	US19650505039 19651024

Probable Assignee: PETROLITE CORP

Assignee(s): (std): PETROLITE CORP

Inventor(s): (std): JENKINS FRED W ; DICKSON WOODROW J

Title: AQUEOUS LATICES OF HIGH POLYMER COMPOSITIONS AND PROCESSES FOR PRODUCING SAME

Abstract: ABSTRACT OF THE DISCLOSURE The preparation of aqueous latices from solvent dispersions of elastomers and other high polymer compositions has presented problems including foaming and coagulation which have produced losses and increased costs. Herein combinations of steps are disclosed which reduce or eliminate various of these problems; enable the preparation of latices from high solids, high viscosity cements; enable preparation of latices of Allier extended and Allier 20 reinforced elastomers; and enable the preparation of latices both dilute and of high solids content, which are useful for example for adhesive and film forming purposes. n¹—1 20 B

Classifications:

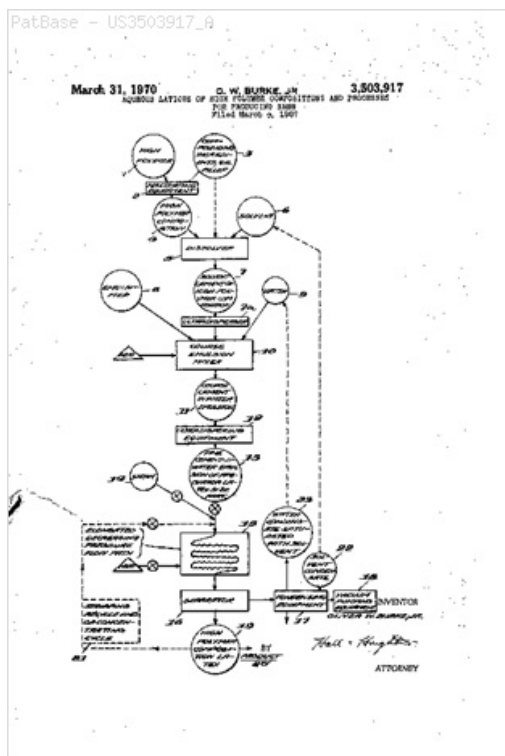
International (IPC 8-9): B01D1/14 B01D1/16 B01D19/00 B01D3/34 B01D47/00 B01F17/00 B01F3/12 B01F5/04 B01F7/00 B01J19/00 B21G3/00 B21G3/18 C08F2/00 C08F2/22 C08F291/00 C08J3/02 C08J3/03 C08J3/07 C08J3/21 C08J3/26 (Advanced/Invention); B01F3/04 B01F5/00 (Advanced/Non-invention); B01D1/00 B01D19/00 B01D3/34 B01D47/00 B01F17/00 B01F3/12 B01F5/04 B01F7/00 B01J19/00 B21G3/00 C08F2/00 C08F2/12 C08F291/00 C08J3/02 C08J3/20 (Core/Invention); B01F3/04 B01F5/00 (Core/Non-invention)

International (IPC 1-7): B01D1/00 B01D1/14 B01D1/16 B01D1/22 B01D3/34 B01D47/00 B01D47/06 B01D47/10 B01F11/02 B01F3/12 B01F5/08 B01F5/10 B01F7/00 B01J1/00 B01J13/00 B21G3/18 B29H1/00 B29H1/10 C08C1/065 C08C2/00 C08C4/00 C08D1/00 C08D13/00 C08D5/00 C08D7/00 C08D7/18 C08D9/00 C08F2/00 C08F2/22 C08F2/24 C08F22/00 C08F22/44 C08F226/06 C08F255/00 C08F255/02 C08F255/06 C08F255/10 C08F265/08 C08F291/00 C08F291/02 C08F3/16 C08F36/04 C08F45/24 C08F47/00 C08F47/18 C08F6/16 C08J1/46 C08J3/02 C08J3/06 C08J3/08 C08J3/10 C08L23/00 C08L23/02 C08L23/16 C08L23/36 C08L25/04 C08L27/06 C08L7/02 C08L9/00 C08L9/04 C08L9/08 C09D5/02 C10J1/12

CPC: B21G3/005 B21G3/18 B01D1/14 B01F5/04 B01F7/00 B01D19/0068 C08J3/26 B01D1/16 B01F3/1271 B01J19/002 Y10S528/934 Y10S159/10 Y10S260/22 Y10S528/935 B01D47/00 B01F3/04099 B01F5/045 B01F5/0471 B01F5/049 B01F2005/0051 B01F2215/0049 C08J3/212 C08F291/00 C08J3/07 C08J3/03 B01D3/343 B01F17/0085

European: B01D1/14 B01D1/16 B01D19/00S B01D3/34B B01D47/00 B01F17/00Z B01F3/12P B01F5/04 B01F5/04C13 B01F5/04C14 B01F5/04C14S4 B01F7/00 B01J19/00B4 B21G3/00B B21G3/18 C08F291/00 C08J3/03 C08J3/07 C08J3/21D C08J3/26 L01F215/00A58 L01F3/04C L01F5/00A20B6

US: 106/277 159/0.6R 159/1.6S 159/13.1 159/16.3 159/17.1 159/17.3 159/28.6 159/4.09 159/4.2 159/4.4 159/43.2 159/6.1 159/DIG.10 204/159.15 252/35.9A 252/359A 252/359D 259/7 260/29.6 260/29.6PM 260/29.6RB 260/29.7 260/29.7B 260/29.7EM 260/29.7N 260/29.7P 260/296 260/296CM 260/296PM 260/296RB 260/297 260/297B 260/297N 260/297P 260/DIG.22 261/118 29/12 366/124 366/136 366/147 366/148 366/159.1 366/165.2 366/181.8 366/182.2 366/191 366/241 366/279 366/303 366/69 522/116 522/117 522/120 522/121 522/123 522/124 522/125 522/85 522/86 523/300 523/313 523/318 523/319 523/326 523/328 523/330 523/335 523/340 523/342 523/343 523/353 524/138 524/140 524/156 524/236 524/238 524/239 524/394 524/458 524/460 524/461 524/533 524/570 524/571 524/574 524/579 524/583 524/584 526/65 528/500 528/501 528/934 528/935 55/419 55/459.1 86/51 96/281

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Priority:

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US19683622127 19681015	US19680767790 19681015	US19680784596 19681218
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Probable Assignee: EXXON MOBIL CORP

Assignee(s): (std): BURKE OLIVER JR ; BURKE OLIVER W JUN ; EXXON RESEARCH ENGINEERING CO ; ESSO RESEARCH ENGINEERING CY US ; ESSO RESEARCH AND ENGINEERING CY LINDEN NEW JERSEY ; EXXON RESEARCH AND ENGINEERING CO TE LINDEN N ; BURKE JUN OLIVER WALLIS DR PHI ; EXXON MOBIL CORP ; OLIVER WALLIS BURKE ; WHIRLPOOL CO ; OLIVER WALLIS BURKE JR FORT LAUDERDALE FLORIDA VE ; EXXON RESEARCH ENGINEERING CY ; BURKE O

Assignee(s): BURKE O US ; OLIVER WALLIS BURKE JR FORT LAUDERDALE FLORIDA VER ; OLIVER WALLIS BURKE JR FORT LAUDERDALE FLORIDA VER ST V AM ; OLIVER W BURKE JR ; WHIRLPOOL CORP ; BURKE JUN OLIVER WALLIS DR PHIL ; BURKE JR OLIVER W ; BURKE JUN ; ESSO RESEARCH ; ESSO RESEARCH AND ENGINEERING CY LINDEN NEW JERSEY E U A ; EXXON RESEARCH AND ENGINEERING CO LINDEN N J V ST A ; EXXON RESEARCH AND ENGINEERING CO TE LINDEN NEW JERSEY VER ST V AM ; ESSO RESEARCH AND ENGINEERING CY LINDEN NEW JERSEY EUA ; ESSO RES AND ENG CO US ; ESSO RESEARCH ENG CO ; EXXON RESEARCH AND ENGINEERING CO ; EXXON RESEARCH AND ENGINEERING CO LINDEN N J V ST ; EXXON RES AND ENG CO ; EXXON RESEARCH ENG CO

Inventor(s): (std): BURKE JUN OLIVER WALLIS DR ; BURKE OLIVER W JR ; WALLIS DR PHIL BURKE JUN OLIVE ; PARIS MAURICE H ; ORIBAA DABURYUU BAAKU JUNIA ; METZ JR JOHN ; METZ JOHN JR ; BURKE JUN OLIVER W ; BURKE JR OLIVER W ; BURKE JR DECEASED OLIVER W ; BOOTS IRA J ; BURKE O

Inventor(s): BURKE JUN OLIVER WALLIS DR PHIL FORT LAUDERDALE FL ; BURKE JUN ; JR JOHN METZ ; BURKE O US ; OLIVER W BURKE JR ; W BURKE JUN OLIVER ; W BURKE JUN ; WALLIS DR PHIL BURKE JUN ; WALLIS DRPHIL BURKE JUN ; WALLIS DR PHIL BURKE JUN OLIVER

Title: CLAY TREATMENT OF HYDROREFINED CABLE OILS

Abstract: ABSTRACT OF THE DISCLOSURE Cable oils havin- ASTM D-1934 aged dissipation factors (ADF) below 0.010 are produced from severely hydrorefined 500-2000 SUS (100° F.) naphthenic oil having an ADF greater than 0.015 by contacting the hydrorefined oil at from 100-400° F. with activated adsorbent clay in an amount per barrel of oil such that from grams of KOH would be required to neutralize the acidity of the clay. 20 B

Classifications:

International (IPC 8-9): B01J23/00 C08J9/00 C08K5/01 C08L1/00 C08L101/00 C08L21/00 C08L23/00 C08L27/00 C08L7/00 C09D11/02 C09K5/08 C10G17/00 C10G21/00 C10G35/06 C10G45/02 C10G45/44 C10G49/00 C10G59/02 C10G65/04 C10G67/00 C10G67/06 C10G67/14 C10G69/00 C10M101/00 C10M101/02 H01B3/20 H01B3/22 (Advanced/Invention); B01J23/00 C08J9/00 C08K5/00 C08L1/00 C08L101/00 C08L21/00 C08L23/00 C08L27/00 C08L7/00 C09D11/02 C09K5/00 C10G17/00 C10G21/00 C10G35/00 C10G45/02 C10G45/44 C10G49/00 C10G59/00 C10G65/00 C10G67/00 C10G69/00 C10M101/00 H01B3/18 (Core/Invention)

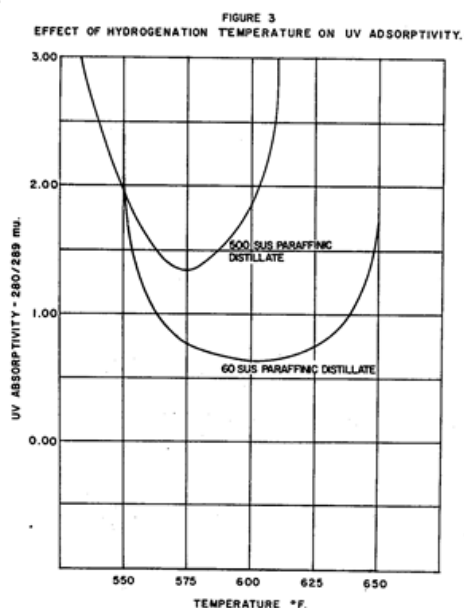
International (IPC 1-7): A61K31/215 C08C1/00 C08C11/22 C08D11/02 C09D11/00 C09D11/02 C10G17/00 C10G17/02 C10G21/00 C10G21/12 C10G23/00 C10G23/02 C10G23/16 C10G25/00 C10G29/00 C10G31/00 C10G31/14 C10G34/00 C10G41/00 C10G7/00 C10M1/00 C10M1/04 C10M1/08 C10M1/16 H01B3/00 H01B3/20 H01B3/22 H01F27/00

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US: 106/285 106/31.2 106/31.88 106/311 174/25P 174/25R 208/1.4 208/1.8 208/1.9 208/14 208/141 208/143 208/18 208/19 208/254H 208/264 208/273 208/301 208/311 208/57 208/88 208/89 208/90 208/91 208/92 208/94 208/98 208/99 252/578 252/63 524/485 524/491 524/571

PatBase - US3959122_A

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FR2058348 B1	19760319	FR19700030129	19700817
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Priority:

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Probable Assignee: SUN OIL CO PENNSYLVANIA

Assignee(s): (std): SUN OIL CO ; SUN OIL CO OF PENNSYLVANIA ; SUN OIL CO PENNSYLVANIA

Assignee(s): SUN OIL CY OF PENNSYLVANIA ; SUN OIL CY ; SUN OIL CY OF PENNSYLVANIA US ; SUN OIL CO OF PENNSYLVANIA US ; SUN OIL COMPANY OF PENNSYLVANIA ; SUN OIL CO US ; SUN OIL COMPANY ; GLENN R DIMELER ; IVOR W MILLS ; MILLS IVOR W

Inventor(s): (std): ATKINSON W ; ATKINSON W A ; ATKINSON WILLIAM A JR ; DIMELER G ; DIMELER G R ; DIMELER GLENN R ; HOFFMAN J ; HOFFMAN J P ; HOFFMAN JAMES P ; KIRK M ; KIRK MERRITT C JR ; MILLS I ; MILLS I W ; MILLS IVOR W ; MILLS J ; WILLIAM MILLS IVOR ; WA ATKINSON ; ROY DIMELER GLENN ; PAUL HOFFMAN JAMES ; MERRITT CONOWAY JR KIRK ; JP HOFFMAN ; IW MILLS ; IVOR WILLIAM MILLS ; GR DIMELER ; GLENN ROY DIMELER ; CONAWAY KIRK JUN MERRITT ; ARTHUR ATKINSON JUN WILLIAM ; GLENN R DIMELER

Inventor(s): ARTHUR ATKINSON JUN ; R DIMELER GLENN ; CONAWAY KIRK JUN ; ATKINSON W US ; G R DIMELER ; DIMELER G US ; CONOWAY JR KIRK MERRITT ; IVOR W MILLS ; I W MILLS ; HOFFMAN J US ; JAMES P HOFFMAN ; J P HOFFMAN ; MERRITT C KIRK JR ; MILLS I US ; W A ATKINSON ; WILLIAM A ATKINSON JR

Title: APPARATUS FOR CONTROLLING THE PRESSURE IN A WELL

Abstract: ABSTRACT OF THE DISCLOSURE

A choke is connected to an outlet from the upper end of the annulus between a well bore penetrating an earth formation containing (Iiiiit under pressure and a drill string extending into the well bore. When a kick is en-counterred during drilling of the well, a blowout preventer at the wellhead about the outlet may be closed to divert drilling fluid circulating through the drill string and annulus through the choke. The choke is responsive to a bias and a control signal for regulating the pressure of the drilling fluid in order to maintain the differential between the bottom hole pressure of such drilling fluid and the pressure of the formation fluid at a predetermined value. Means are provided for producing a control signal and a bias which cooperate to cause the choke to respectively increase or decrease the formation fluid pressure within the outlet automatically in response to a deviation, negative or positive, from said predetermined pressure differential, whereby the outlet pressure ap-proaches a value at which such deviation is zero. The bias is a signal representing the pressure of the drilling fluid within a standpipe connected to the upper end of the drill string, and the control signal represents the sum of the circulating pressure loss within the drill string, the static pressure of the drilling fluid in such standpipe, and the predetermined pressure differential. The signal producing means includes a means for sensing the product of the density and the square of the rate of circulation of drilling fluid within the upper end of the drill string, which is useful in computing the circulating pressure loss within such string.

Classifications:

International (IPC 8-9): E21B21/08 E21B34/02 (Advanced/Invention); E21B21/00 E21B34/00 (Core/Invention)

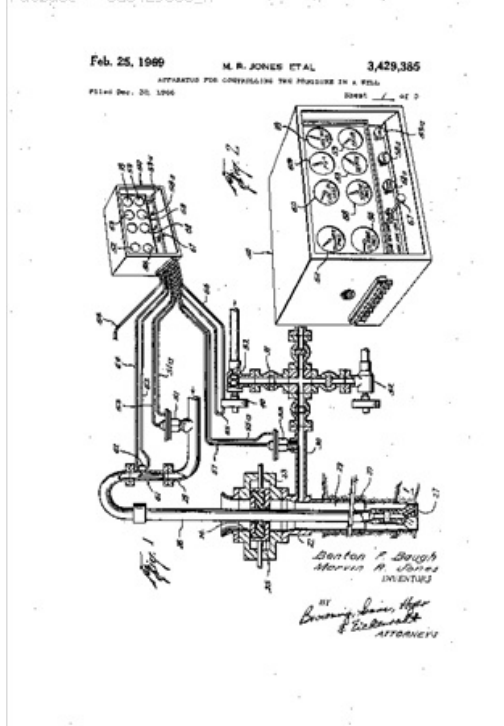
International (IPC 1-7): E21B21/00 E21B21/04 E21B21/08 E21B3/12 E21B33/02 E21B33/06 E21B47/06 E21B7/00 F15D1/00 G01F1/00 G01F1/06

CPC: E21B21/08 E21B34/02

European: E21B21/08 E21B34/02

US: 138/45 175/218 175/25 175/38 73/152.04 73/152.21 73/152.29 73/152.51 73/152.52 73/186 73/861.71

PatBase - US3429385_A



Family:

Publication number	Publication date	Application number	Application date
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GB1213281 A	19701125	GB19670054399	19671129
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Priority:

US19660606206 19661230 US19660606312 19661230 US19660645566 19661230
US19670645566 19670607 US19670606206 19670607 US19680742386 19680703

Probable Assignee: CAMERON IRON WORKS INC

Assignee(s): (std): CAMERON IRON WORKS INC

Assignee(s): CAMERON IRON WORKS INC HOUSTON TEX V ST A

Inventor(s): (std): BAUGH BENTON F ; BAUGH BENTON FREDERICK ; BENTON FREDERICK BALIGH ; F BAUGH BENTON ; JONES MARVIN R ; JONES MARVIN RICHARD ; MARVIN RICHARD JONES ; R JONES MARVIN

Inventor(s): MARVIN R JONES ; BENTON FREDERICK BAUGH ; BENTON F BAUGH

Title: **METHOD** OF IMPROVING THE STABILITY OF INTERCONNECTED POWER **SYSTEMS**

Abstract: ABSTRACT OF THE DISCLOSURE

Control systems for changing the distribution of power **flow** within an interconnected power **system**, through the execution of changes in the driving power of prime movers, and changes in connected electrical loads, where-in initiation of **control** action is responsive to suddenly occurring events adapted to cause, or which could cause, **system** instability, and the power **flow** changes take place in such a way and with sufficient speed as to prevent or oppose development of instability.

Classifications:

International (IPC 8-9): B05B13/06 B05C7/08 B05D1/34 B05D7/22 F01D17/24 F01D21/00 F01D21/02 F01K7/16 F01K7/24 F01K9/04 H02J3/06 (Advanced/Invention);

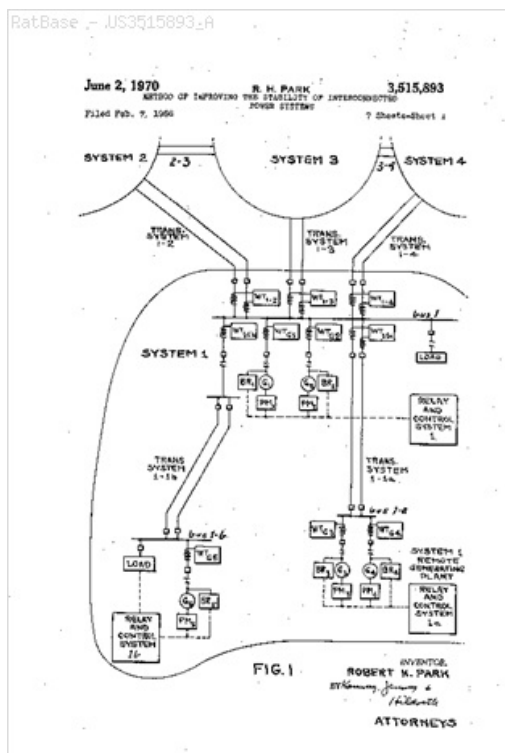
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International (IPC 1-7): B05B13/06 B05C7/02 B05D1/26 B05D1/34 B05D7/22 B08B9/02 B28B19/00 B32B1/08 C23C C23D F01K13/02 F16L57/00 F16L58/00 F16L9/14 H02J1/10 H02J3/06 H02J3/08

CPC: F01D21/00 B05B13/0654 B05D1/002 B05D1/34 B05D7/222 F01K7/24 F01K7/165 F01K9/04 B05C7/08 Y10S118/10 H02J3/06 Y10T307/549 F01D21/02 F01D17/24 Y10T307/576 Y10T307/724

European: B05B13/06D2 B05C7/08 B05D7/22 B05D7/22A F01D17/24 F01D21/00 F01D21/02 F01K7/16B F01K7/24 F01K9/04 H02J3/06 L05D1/00C L05D1/34

US: 118/317 118/318 118/321 118/72 118/DIG.10 239/310 239/336 239/424 239/426 239/427.5 239/433 239/434.5 290/2 290/40 290/40B 290/40R 290/52 307/52 307/57 307/8.5 307/85 361/20 361/53 361/62 427/231 427/233 427/234 427/236 427/239 427/240 427/426 60/646 60/652 60/663 60/664



Family:

Publication number	Publication date	Application number	Application date
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Probable Assignee: WILMINGTON TRUST CO AND WADE WILLIAM J TRUSTEE AS

Assignee(s): (std): FAST LOAD CONTROL INC ; PARK ROBERT H ; RONALD H MINTER ; ROBERT H PARK ; REKNORD INC ; REKNORD INK FA

Assignee(s): WILMINGTON TRUST CO AND WADE WILLIAM J TRUSTEE AS ; WADE WILLIAM J RODNEY SQUARE NORTH WILMINGTON DELA ; WILMINGTON TRUST CO RODNEY SQUARE NORTH WILMINGTON ; REKNORD INK FIRMA ; SIEFERT WILLIAM J ; ROEDER CHARLES L ; THEIJSMEIJER FREDERIK ; WADE WILLIAM J RODNEY SQUARE NORTH WILMINGTON DELAWARE 19890 TRUSTEE ; WILMINGTON TRUST CO RODNEY SQUARE NORTH WILMINGTON DELAWARE 19890 A CORP OF DE ; ST LOAD CONTROL INC FA ; WILMINGTON TRUST CO ; WADE WILLIAM J ; FAST LOAD CONTROL INC 395 ANGELL ST PROVIDENCE RI ; FAST LOAD CONTROL INC US ; MGI PHARMA INC ; CHEMREX INC ; CHEMREX INC 1209 ORANGE STREET WILMINGTON DELAWARE ; CHEMREX INC 1209 ORANGE STREET WILMINGTON DELAWARE 19801 A DE CORP

Inventor(s): (std): WILLIAM JAMES SIEFFERT ; WJ SIEFFERT ; TEJDZHSMEJDZHER FREDERIK ; SIFERT VILYAM DZHEJMS ;

SIEFERT W ; ROEDER CHARLZ L ; ROEDER CH ; ROEDER C ; ROEDER L CHARLES ; SIEFERT JAMES WILLIAM ; THEIJSMEIJER F ; VILYAM DZHEJMS SIFERT US ; FREDERIK THEIJSMEIGER ; FREDERIK TEJDZHSMEJDZHER CA ; F THEIJSMEIGER ; CL ROEDER ; CHARLZ L ROEDER US ; CHARLES L ROEDER ; PARK R ; THEIJSMEIJER FREDERIK ; SIEFERT WILLIAM J ; THEIJSMEIGER FREDERIK ; SIEFFERT WILLIAM JAMES ; ROEDER CHARLES L ; THEIJSMEIGER F ; SIEFERT W J ; ROEDER C L ; PARK ROBERT H

Inventor(s): PARK R US ; ROEDER C L SIEFERT W J AND IHEI JSMEIGER F ; C L ROEDER ; W J SIEFERT ; ROBERT H PARK

Agent(s): CO; COLLISON AND CO; GEORGE H RICHES AND ASSOCIATES

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Priority:

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Probable Assignee: UOP INC

Assignee(s): (std): UNIVERSAL OIL PRODUCTS ; UNIVERSAL OIL PRODUCTS CO ; UOP INC ; UOP INC TEN PLAZA ; UNIVERSAL OIL PRODUCTS CY US ; UOP INC TEN UOP PLAZA ; UNIVERSAL OIL PRODUCTS COMPANY ; UNIVERSAL OIL PRODUCTS COMPANY DES PLAINES ILLINOI ; UNIVERSAL OIL PROD CO

Assignee(s): UNIVERSAL OIL PROD CO US ; RAUSCH RICHARD E ; UOP A GENERAL PARTNERSHIP OF NY ; UNIVERSAL OIL PRODUCTS COMPANY DES PLAINES ILLINOIS VER ST V AM ; UOP DES PLAINES IL A NY GENERAL PARTNERSHIP ; UOP DES PLAINES IL A GENERAL PARTNERSHIP OF NY ; UNIVERSAL OIL PRODUCTS CO US ; UNIVERSAL OIL PRODUCTS CO DES PLAINES ILL (V ST A) ; UNIVERSAL OIL PRODUCTS CO DES PLAINES ILL V ST A

Inventor(s): (std): RAUSCH RICHARD E ; RICHARD RAUSCH EARL ; RAUSCH EARL RICHARD ; RICHARD RASCH EARL ; RICHARD EARL RAUSCH ; RAUSCH R E ; RASCH EARL RICHARD ; RANSCH R ; R E RAUSCH ; RAUSCH RICHARD EARL ; RAUSCH R ; RAUSCH RICHARD EARL MUNDELEIN ILL

Inventor(s): RAUSCH R US ; RICHARD E RAUSCH ; RAUSCH RICHARD EARL MUNDELEIN ILL V ST A

Agent(s): REINHOLD COHN AND PARTNERS

Title: OZONE STERILIZATION PROCESS

Abstract: ABSTRACT OF THE DISCLOSURE

A unique utilization of oxygen and ozone generated from oxygen in a gaseous form singly or in combination as from air, or a carbon dioxide-oxygen mixture used as 15 a solution or with superheated water vapor is contemplated in process and apparatus. A sterilant is made by passing a fluid in a **flow** dominated by a hydraulic **pressure** gradient characterized by an overall **pressure** drop per unit of line length reduced from the gravitational 20 gradient **pressure** drop per unit of line length of one foot of fluid per foot of distance by several orders of magnitude, substantially uninfluenced by the gravitational **pressure** gradient incidentally present creating local areas of high momentum exchange at restrictions in the **flow**, and 25 introducing gaseous oxygen-ozone into the liquid at these points where the static **pressure** is regained thus modifying the velocity profile in fully developed turbulent **flow** to achieve maximum uniformity of oxygen-ozone concentration throughout the fluid whereby the solubility 30 of the oxygen-ozone into the fluid is greatly enhanced. Further, this process may also be operated at a reduced incident gas content in the fluid and possibly at a temperature reduced to increase the solubility of oxygen-ozone, and sterilization within the fluid conduit or con- 35 tainer takes place during a distance in which the hydraulic **pressure** gradient is continuously imposed to ensure maximum solubility of the oxygen-ozone into the fluid by reason of intense mixing and restricted **pressure** change.

Classifications:

International (IPC 8-9): A47K10/06 A47K10/30 A61L11/00 A61L2/16 A61L2/20 B01D21/00 B01D21/02 B01D21/34 B01D47/00 B01D53/34 B01F11/00 B01F3/04 B01F5/04 B01F5/06 B01J10/00 B01J12/00 C01B13/10 C01B13/11 C02F1/24 C02F1/34 C02F1/36 C02F1/48 C02F1/72 C02F1/74 C02F1/76 C02F1/78 C02F11/00 C02F11/06 C02F3/00 C02F3/02 C02F3/04 C02F3/10 C02F3/12 C02F3/14 C02F3/20 C02F3/26 C02F3/30 C02F3/34 C02F7/00 C02F9/00 F16L55/00 F16L55/02 F16L55/045 (Advanced/Invention); C02F1/76 C02F1/78 F16L55/00 (Advanced/Non-invention); A47K10/00 A47K10/24 A61L11/00 A61L2/16 A61L2/20 B01D21/00 B01D21/02 B01D21/30 B01D47/00 B01D53/34 B01F11/00 B01F3/04 B01F5/04 B01F5/06 C01B13/10 C01B13/11 C02F1/24 C02F1/34 C02F1/48 C02F1/72 C02F1/74 C02F1/78 C02F11/00 C02F11/06 C02F3/00 C02F3/02 C02F3/04 C02F3/12 C02F3/14 C02F3/20 C02F3/26 C02F3/30 C02F3/34 C02F7/00 C02F9/00 F16L55/00 F16L55/02 F16L55/04 (Core/Invention); C02F1/76 C02F1/78 (Core/Non-invention)

International (IPC 1-7): A61L13/06 B01D21/02 B01D21/24 B01D53/14 B01F11/00 B01F3/04 B01F5/04 B01J10/00 B01J11/14 B01J10/00 B05B3/06 C01B13/10 C01B13/11 C02B1/34 C02B1/36 C02B1/38 C02B3/06 C02B3/08 C02C1/00 C02C1/02 C02C1/04 C02C1/06 C02C1/08 C02C1/26 C02C1/40 C02C5/00 C02C5/04 C02F3/14 C02F7/00 F15D1/02 F16F15/00 F16K19/00 F16L55/00 F16L55/04 F17D1/20

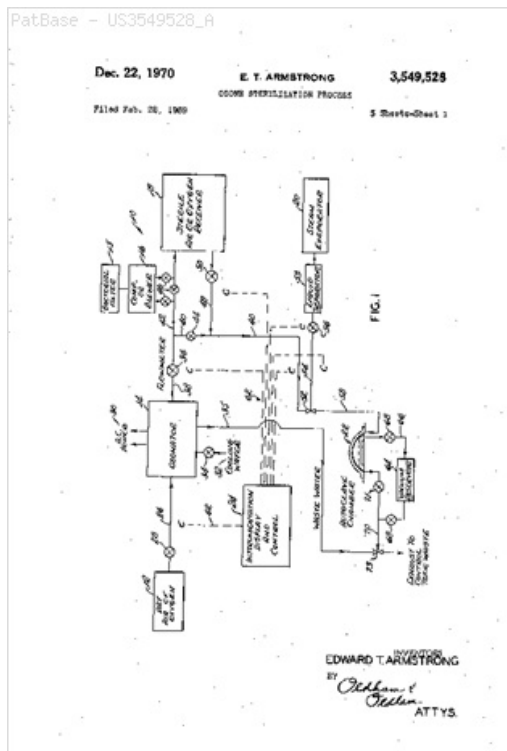
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European: A47K10/06 A47K10/30 A61L11/00 A61L2/16 A61L2/20 A61L2/20C B01D21/00 B01D21/01 B01D21/14 B01D21/24

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Family:

Publication number	Publication date	Application number	Application date
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Priority:

US19640362118 19640423	US19690813382 19690228	US19700100333 19701221
US19700100192 19701221	CA19710130066 19711214	US19730335738 19730226
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US19780898484 19780425	CA19790320968 19790206	CA19790320967 19790206
CA19790320966 19790206		

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Inventor(s): GRAHAM J US ; T ARMSTRONG EDWARD ; EDWARD T ARMSTRONG ; ARMSTRONG E US

Agent(s): RIDOUT AND MAYBEE LLP

Title: HYDRAULIC OIL COMPOSITION

Abstract: ABSTRACT OF THE DISCLOSURE An improved anti-leak hydraulic oil of the gel-thickened type comprises an effective amount of a lithium soap (e.g. 0.1-1% Li stéarate) or an aluminum soap (e.g. 0.5-2% Al stéarate), or mixtures of such soaps, and a base oil having a viscosity in the range of 80-800 SUS at 100 degrees F. and an aniline point in the range of 150-170 degrees F., said base oil comprising at least one hydrotreated naphthenic oil having a viscosity in the range of 40-12,000 SUS at 100 degrees F. The hydraulic oil can also contain an anti-rust agent (e.g. 0.02-2%) barium petroleum sulfonate, an anti-oxidant (e.g. an amine type) and an antiwear (e.g. 0.1-5% zinc dialkyl dithiophosphate). CROSS REFERENCE TO RELATED APPLICATIONS The following patents and applications are related to the disclosure of the present application in that they disclose **methods** of obtaining distillate oils and hydrotreated oils which can be used to make the hydraulic oil composition of the present invention. U.S. 3,462,358 issued Aug. 19, 1969; Ser. No. 636,493 filed May 5, 1967; U.S. 3,502,567 issued Mar. 24, 1970; Ser. No. 730,999 filed May 22, 1968; U.S. 3,619,414 issued Nov. 9, 1971; Ser. No. 850,716 (now abandoned in view of continuation-in-part Ser. No. 175,775 filed Aug. 27, 1971); Ser. No. 850,717 (now abandoned in view of continuation-in-part Ser. No. 228,832 filed Feb. 24, 1972); U.S. 3,654,127 issued Apr. 4, 1972; Ser. No. 873,008 filed Oct. 31, 1969; Ser. No. 874,087 filed Oct. 27, 1969; and Ser. No. 22,295 filed Mar. 24, 1970. The disclosure of all of these applications and patents is hereby incorporated herein. B

Classifications:

International (IPC 8-9): C10M1/20 C10M169/00 C10M169/04

C10M171/00 C10M177/00 (Advanced/Invention);

C10M169/00 C10M171/00 C10M177/00 (Core/Invention);

C10M (Subclass/Invention)

International (IPC 1-7): B60T8/08 C09K3/00 C10M1/00 C10M1/02 C10M1/08 C10M1/18 C10M1/20 C10M1/24 C10M1/26 C10M1/28 C10M1/32 C10M1/46 C10M1/48 C10M1/54 C10M143/00 C10M143/10 C10M145/14 C10M3/42 C10M3/48 C10M5/10 C10M5/14 C10M5/24 C10M7/46 C10M9/00 C10N50/04 F01M9/00 F02C7/00 F16N

CPC: C10M169 C10M171 C10M177 C10M101/02 C10M117/02

C10M133/12 C10M135/10 C10M137/10 C10M143/06 C10M155/02

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C10M105/34 C10M105/38 C10M107/02 C10M129/32 C10M135/02

C10M137/08 C10M143/10 C10M171/00 D06M7/00 D06M2200/40

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C10M2203/10 C10M2203/1006 C10M2203/102 C10M2203/1025

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C10M2207/246 C10M2207/281 C10M2207/2815 C10M2207/282

C10M2207/283 C10M2207/2835 C10M2207/2845 C10M2207/286

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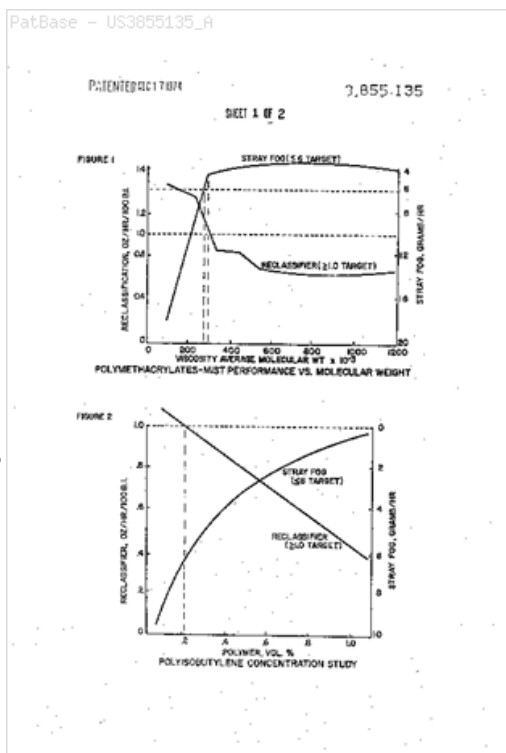
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508/297 508/374 508/378 508/436 508/534 508/537 508/539 508/591 585/11 585/12 585/13 585/3 585/4 585/5

Family:

Publication number	Publication date	Application number	Application date
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Priority:

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Probable Assignee: SUN OIL CO PENNSYLVANIA

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Inventor(s): WOOLF CROUSE JUN ; G R DIMELER ; E S WILLIAMS ; J Q GRIFFITH III ; I W MILLS ; WILLIAM H REILAND JR ; WILLIAMS E US ; THOMPSON SHELDON LEE GLEN MILLS PA ; W H REILAND ; W J

COPPOCK ; W W CROUSE ; T D NEWINGHAM ; ROBERT PAUL BRYER WILLIAM WOOLF CROUSE JR JOHN
QUINTIN GRIFFITH HI THOMAS DAVIS NEWINGHAM WILLIAM HENRY REILAND ; ROBERT PAUL BRYER
WILLIAM WOOLF CROUSE JR JOHN QUINTIN GRIFFITH HI THOMAS DAVIS NEWINGHAM WILLIAM HENRY
REILAND JR RONALD WILLIAM REYNOLDS SHELDON LEE THOMPSON EDWARD SHEPARD WILLIAMS ;
REYNOLDS RONALD WILLIAM WILMINGTON DEL ; REILAND W US ; R P BRYER ; R W REYNOLDSET S L
THOMPSON ; REILAND JUN ; NEWINGHAM THOMAS DAVIS BROOMALL PA ; JOHN Q GRIFFITH ;
NEWINGHAM T US ; J R AMAROSO ; AMAROSO J US ; AMAROSO JAMES RICHARD PHILADELPHIA PA ;
GRIFFITH J US ; HENRY REILAND JUN ; GRIFFITH III JOHN QUINTIN CLAYMONT ; GRIFFITH III JOHN
QUINTIN CLAYMONT DEL ; EDWARD S WILLIAMS ; COPPOCK W US ; COPPOCK WALTER JOSEPH
WALLINGFORD PA ; CROUSE JUN ; BRYER ROBERT PAUL CLAYMONT DEL

Title: IMAGE SEQUENCE ENHANCEMENT **SYSTEM** AND **METHOD**

Abstract: Scenes in a motion picture to be colorized are broken up into separate elements, composed of backgrounds/sets or motion/onscreen-action. These backgrounds elements and motion elements are combined separately into single frame representations of multiple frames, as tiled frame sets or as a single frame composite of all elements (i.e., both motion and backgrounds/foregrounds) that then becomes a visual reference database that includes data for all frame offsets which are later used for the computer **controlled** application of masks within a sequence composed of a plurality of frames. Each pixel address within the visual reference database corresponds to a mask/lookup table address within the digital frame and X, Y, Z location of subsequent frames that were used to create the visual reference database. Masks are applied to subsequent frames of motion objects based on various differentiating image processing **methods**, including automated mask fitting of all masks in an entire frame, automated mask fitting of single masks in each frame, bezier and polygon tracing of selected regions aided by edge detected shaping and operator directed detection of subsequent regions corresponding to the original region of interest. In this manner, the gray scale actively determines the mask and corresponding color lookup from frame to frame that is applied in a keying fashion within regions of interest.

Classifications:

International (ipc 8-9): C06K9/40 F02M21/04 F02M21/06 G06F17/30 G06K9/00 G06K9/18 G06K9/20 G06K9/32 G06K9/36 G06K9/40 G06Q10/10 G06T11/00 G06T15/00 G06T5/00 G06T7/00 G06T7/20 G09G5/18 G11B27/00 G11B27/02 G11B27/031 G11B27/034 G11B27/036 G11B27/10 G11B27/34 H04N13/00 H04N13/02 H04N21/472 H04N21/60 H04N5/93 H04N7/18 H04N9/43 H04N9/79 (Advanced/Invention);

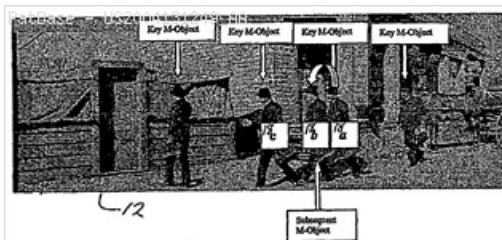
F02B43/00 (Advanced/Non-invention);
F02M21/04 F02M21/06 (Core/Invention);
F02B43/00 (Core/Non-invention)

International (ipc 1-7): F02M17/18 F02M21/04 G06K9/00 G06K9/40 G06T11/00 G06T5/00 H04N1/46 H04N9/43

CPG: Y10S261/38 F02M21/06 F02B43/00 F02M21/04 Y02T10/32 H04N21/47205 G06F17/30784 G06F17/30247 H04N13/0055 G11B27/34 H04N9/79 G06T11/001 G06T2207/10028 G06T5/005 H04N13/0037 H04N13/0022 G06F17/30256 G06F17/30268 G06F17/3082 G06Q10/06 G06Q10/103 G06T7/215 G06T7/262 G06T7/37 H04N9/43 G11B27/036 G11B27/031 G11B27/00 G11B27/105 G11B27/034 H04N13/0257 H04N13/0267 H04N13/026 H04N13/257 H04N13/266 H04N13/128 H04N13/15 H04N13/189 H04N13/261

European: F02M21/04 F02M21/06 G06T11/00C G06T5/00D G06T7/00D1T G06T7/20A G06T7/20F H04N13/02B H04N13/02C2 H04N9/43 R02B43/00

US: 1/1 123/527 261/119.1 261/70 261/72.1 261/DIG.38 345/419 345/419P 345/638 345/640 348/100 348/43 348/43P 348/576 348/586 348/E09.028 348/E13.003 348/E13.003S 348/E13.06 348/E9.028 348/E90.28S 358/3.26 358/3.27 358/450 358/506 358/515 358/517 358/518 358/525 358/537 358/538 358/540 382/154 382/162 382/162P 382/164 382/165 382/167 382/167P 382/167S 382/184 382/212 382/213 382/254 382/254P 382/254S 382/274 382/275 382/278 382/282 382/283 382/284 382/286 382/291 382/294 382/300 382/307 386/278 386/282 386/286 386/E5.028 48/180.1 48/180R

**Family:**

Publication number	Publication date	Application number	Application date
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AU2002305387 BB	20080403	AU2002305387	20020506
AU2011348121 AA	20120628	AU20110348121	20111222
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Probable Assignee: LEGEND3D INC

Assignee(s): (std): LEGEND FILMS INC ; LEGEND FILMS LLC ; SANDREW BARRY B ; SANDREW BARRY ; LEGEND3D INC ; SANDREW JARED ; LOPEZ ANTHONY ; BALDRIDGE TONY ; CESAREO CRAIG ; JOSEPH H BALDWIN ; LEGEND 3D INC ; PASSMORE CHARLES ; TRANQUILL TIMOTHY

Assignee(s): LEGEND3D INC SAN DIEGO ; SILICON VALLEY BANK ; LEGEND FILMS ; IP SUCCESSOR FUND 21 LP ; PAR INVESTMENT PARTNERS LP ; LEGEND3D INC100 - 2200 FARADAY AVENUECARLSBADCA92008US

Inventor(s): (std): BALDWIN JOSEPH H ; WANG NANCY ; SANDREW JARED ; SANDREW BARRY B ; SANDREW BARRY ; PROLA JAMES ; PASSMORE CHARLES ; TRANQUILL TIMOTHY ; LOPEZ ANTHONY ; HUNT JILL ; CESAREO CRAIG ; BARRY B SANDREW ; BALDRIDGE TONY

Inventor(s): SANDREW JARED SAN DIEGO ; SANDREW BARRY SAN DIEGO ; BALDRIDGE TONY SAN DIEGO ; CESAREO CRAIGUS ; SANDREW JAREDUS ; LOPEZ ANTHONYUS ; TRANQUILL TIMOTHYUS ; JOSEPH H BALDWIN

Agent(s): COLLISON AND CO; BORDEN LADNER GERVAIS LLP; SMITHS IP; LUCEY MICHAEL; KLUNKER SCHMITT NILSON HIRSCH; DALINA LAW GROUP PC; ARC IP LAW PC; JOSEPH J; MAYO JOSEPH J

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW

Title: OXIDATION RESISTANT POLYMERIC COMPOSITIONS PREPARED FROM 3 - N-(4' - ANILINOPHENYL)AMINO - 2-HYDROXYPROPYL METHACRYLATE

Abstract: ABSTRACT OF THE DISCLOSURE Antioxidants such as the reaction product of p-amino-diphenylamine and glycidyl methacrylate [3-N- (4'-anilino-phenyl)amino-2-hydroxypropyl methacrylate], and the reaction product of n-hexyl-N'-phenyl-p-phenylenediamine and glycidyl methacrylate [3-[N-(4'-anilino-phenyl)-N-(1,3 - dimethylbutyl)]amino-2-hydroxypropyl methacrylate], age resistant polymers having monomeric age resisters physically combined therewith and oxidation resistant polymeric compositions prepared by free radical polymerization techniques involving the use of said antioxidants as monomers.

Classifications:

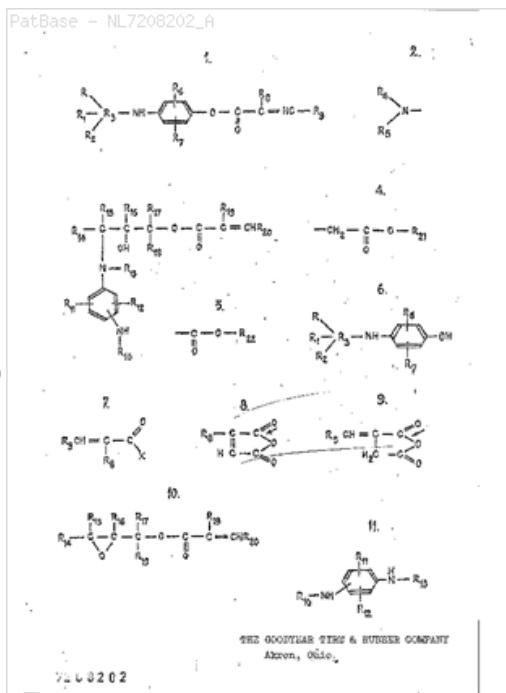
International (IPC 8-9): A01N43/653 A01N47/38 C07C69/54 C07D249/08 C07D249/10 C07D249/12 C07D303/16 C08F2/22 C08F20/34 C08F22/22 C08F236/04 C08F236/10 C08K5/00 C08K5/18 C08L21/00 C08L25/10 C08L33/08 C08L9/06 (Advanced/Invention); A01N A01N47/28 C07D C07D249/00 C07D303/00 C08F2/12 C08F20/00 C08F22/00 C08F236/00 C08K5/00 C08L21/00 (Core/Invention); A01N C07D (Subclass/Invention)

International (IPC 1-7): A01N17/00 A01N47/38 A01N5/00 A01N9/00 A01N9/12 A01N9/14 A01N9/16 A01N9/22 A01N9/22 C07C67/08 C07C69/54 C07C69/76 C07C93/193 C07C93/26 C07D207/00 C07D211/00 C07D223/00 C07D225/00 C07D249/00 C07D249/10 C07D249/12 C07D265/00 C07D401/12 C07D403/12 C07D413/12 C07D55/00 C07D55/06 C08C17/00 C08D1/00 C08D13/00 C08D3/00 C08D3/02 C08D3/04 C08D3/06 C08F1/00 C08F1/13 C08F15/02 C08F19/00 C08F20/34 C08F220/34 C08F236/04 C08F236/10 C08F246/00 C08F45/00 C08F45/60 C08G51/60 C08K5/18 C08L25/10 C08L9/06

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European: 124BG5D2D 124BG5F4 124CF6HD3C3 124HA51B7C3 124HC2B4A A01N47/38 C07C255/00 C07D249/08 C07D249/12 C07D303/16 C08F20/34 C08F22/22 C08F236/04 C08K5/18

US: 260/308R 260/486R 504/218 504/219 504/225 504/248 504/272 504/273 504/274 504/283 524/240 525/293 526/310 526/312 526/313 526/319 526/326 526/329.1 526/338 540/480 540/603 544/132 544/366 544/82 546/210 548/263.2 548/264.2 548/264.4 560/104 560/142 560/193 560/221 560/55 560/81 560/85



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ZA7203151 A	19730228	ZA19720003151	19720509

Priority:

GB19700031922 19700701	GB19710008275 19710331	US19710153448 19710615
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US19770849367 19771107		

Probable Assignee: BOOTS CO LTD

Assignee(s): (std): BOOTS CO LTD ; BOOTS PURE DRUG CO LTD ; GOODYEAR TIRE AND RUBBER CY ; THE BOOTS CO LTD GB ; THE BOOTS CO LTD ; THE BOOTS COMPANY LIMITED ; GOODYEAR TIRE AND RUBBER

Assignee(s): GOODYEAR TIRE AND RUBBER CO ; GOODYEAR TIRE AND RUBBER CO US ; GOODYEAR TIRE AND RUBBER COMPANY THE ; BOOTS PURE DRUG CO LTD NOTTINGHAM GROSSBRITANNIEN ; GOODYEAR TIRE AND RUBBER CO THE ; THE GOODYEAR TIRE AND RUBBER CO ; GOODYEAR TIRE RUBBER CO ; THE GOODYEAR TIRE AND RUBBER CY 1144 EAST MARKET ; THE GOODYEAR TIRE AND RUBBER COMPANY ; THE GOODYEAR TIRE AND RUBBER CO AKRON OHIO US ; THE GOODYEAR TIRE AND RUBBER CO AKRON OHIO V ST A ; THE GOODYEAR TIRE AND RUBBER CY 1144 EAST MARKET STREET AKRON OHIO E U A ; THE GOODYEAR TIRE AND RUBBER COMPANY TE AKRON OHIO VER ST V AM ; PARKS CARL R ; KLINE RICHARD H ; GOODYEAR TIRE AND RUBBER CY 1144 EAST MARKET STREET AKRON OHIO EUA ; BOOTS PURE DRUG CY LTD ; BOOTS PURE DRUG CO LTD NOTTINGHAM ; BOOTS PURE DRUG COMPANY LIMITED ; BOOTS CO LTD 00 ; BOOTS CO LTD GB ; BOOTS COMPANY LTD ; BOOTS COMPANY LTD 00

Inventor(s): (std): GODSON DAVID H ; KLINE R ; KLINE R H ; KLINE RICHARD H ; KLINE RICHARD HENRY ; PARKS C ; PARKS C R ; PARKS CARL R ; PARKS CARL RAMSEY ; BROOKES ROBERT F ; WAKERLEY STANLEY B ; WAKERLEY S ; TULLEY M ; BROOKES R ; BRICE WAKERLEY STANLEY ; WAKERLEY STANLEY BRICE ; TULLEY MARGARET ; GREENWOOD DOUGLAS ; GODSON DAVID HENRY ; BROOKES ROBERT FREDERICK ; STANLEY BRICE WAKERLEY ; ROBERT FREDERICK BROOKES ; MARGARET TULLEY ; HENRY GODSON DAVID ; GREENWOOD D ; GODSON D ; FREDERICK BROOKES ROBERT ; DOUGLAS GREENWOOD ; DAVID HENRY GODSON ; BURTON JOYCE

Inventor(s): CR PARKS ; JOYCE BURTON ; RH KLINE ; PARKS C US ; WIRD SPAETER GENANNT WERDEN ; C R PARKS ; CARL RAMSEY PARKS ; R H KLINE ; RICHARD HENRY KLINE ; ROBERT FREDERIK BROOKES DAVID HENRY GODSON DOUGLAS GREENWOOD STANLEY BRUCE WAVERLEY AND MARGARET TULLEY

Agent(s): EITAN PEARL LATZER AND COHEN ZEDEK

Title: **SYSTEM** AND **METHOD** EMPLOYING A DIGITAL COMPUTER WITH IMPROVED PROGRAMMED OPERATION FOR AUTOMATICALLY SYNCHRONIZING A GAS TURBINE OR OTHER ELECTRIC POWER PLANT GENERATOR WITH A POWER **SYSTEM**

Abstract: A gas turbine power plant is provided with an industrial gas turbine which drives a rotating brushless exciter generator coupled to a power **system** through a breaker. One or more of the turbine-generator plants are operated by a hybrid digital computer **control system** during sequenced startup, synchronizing, load and shutdown operations. The program **system** for the computer and external analog circuitry operate in a multiple gas turbine **control** loop arrangement. Automatic synchronization is achieved with a hybrid subsystem which includes the programmed computer and external phase detection circuitry. An automatic synchronization program for the computer is divided into rough speed and voltage matching, fine speed matching and breaker closure subprograms.

Classifications:

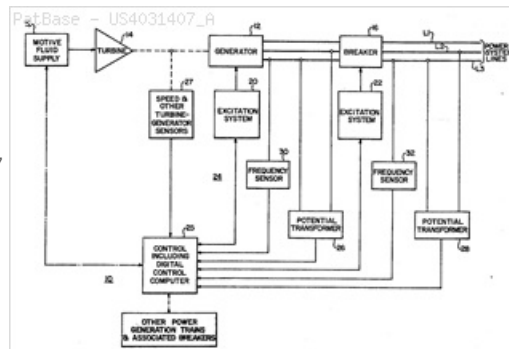
International (IPC 8-9): H02J3/42 (Advanced/Invention);
H02J3/40 (Core/Invention)

International (IPC 1-7): F02C G05B13/02 G05B15/02 H01J3/00
H02J3/40 H02J3/42 H02P9/04

CPC: Y10T307/735 H02J3/42

European: 21C53 H02J3/42

US: 290/1 290/1R 290/40R 307/87 364/494 364/495 415/17 700/287
701/100 708/3



Family:

Publication number	Publication date	Application number	Application date
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JP47028418 A2	19721101	JP19710083255	19711021
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US4308463 A	19811229	US19720319114	19721229
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Priority:

US19700082470 19701020 US19700099491 19701218 US19700099493 19701218
US19720276508 19720731 US19720276343 19720731 US19720319114 19721229

Probable Assignee: WESTINGHOUSE PROCESS CONTROL INC A DELAWARE CORP

Assignee(s): (std): BEIDEN TE EINDHOVEN ; WESTINGHOUSE ELECTRIC CO ; WESTINGHOUSE ELECTRIC CORP

Assignee(s): WESTINGHOUSE ELECTRIC CORP GATEWAY CENTER PITTSBURGH PENNSYLVANIA E U A ;
WESTINGHOUSE PROCESS CONTROL INC ; WESTINGHOUSE PROCESS CONTROL INC A DELAWARE
CORP ; GIRAS THEODORE C ; REED TERRY J ; REUTHER JOHN F

Inventor(s): (std): REED T J ; REUTHER J F ; GIRAS T C ; REUTHER JOHN F ; REED TERRY J ; GIRAS THEODORE C

Inventor(s): J F REUTHER ; T C GIRAS ; T J REED ; TJ REED ; TC GIRAS ; JF REUTHER

Title: ENERGY CONVERSION **SYSTEM**

Abstract: A **system** for the transmission and conversion of the potential energy of hydrocarbon fuels to available heat, power and light. The **system** is particularly adapted for use with natural gas, artificial gases or any of the LPG fuels such as propane, butane, etc. According to the **system** of the invention, the fuel gas is mixed with air preferably in the amount providing the stoichiometric ratio of oxygen and is stored under **pressure** and ultimately transmitted to burner elements which are hermetically sealed except for the inlet and discharge ports, such as tubes, power sources, such as captive and free piston devices and gas turbines and light sources. The **system** includes special forms of equipment for mixing the gas and air and special forms of equipment for establishing and **controlling** the combustion processes.

Classifications:

International (IPC 8-9): B01J19/14 F22B1/18 F22B25/00 F22B5/00 F23C3/00 F23D14/60 F23D14/66 F23D99/00 F23K5/00 F23N1/02 F24C3/08 F24C3/12 F24D9/02 F24H1/00 F24H1/12 F24H1/26 F24H1/28 F24H1/44 F24H8/00 F24H9/00 F24H9/18

F28D7/16 (Advanced/Invention);

F24H1/00 (Advanced/Non-invention);

B01J19/14 F22B1/00 F22B25/00 F23C3/00 F23D14/46 F23D99/00

F23K5/00 F23N1/02 F24C3/08 F24C3/12 F24D9/00 F24H1/12

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F24H1/00 (Core/Non-invention)

International (IPC 1-7): C01B21/00 C01B31/20 F01N3/12 F22B1/00

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F24H9/00A3 F24H9/18 R23D206/00G55 R23N33/06 R24H1/00D3 Y02B30/10B Y02E20/32H Y02E20/34H

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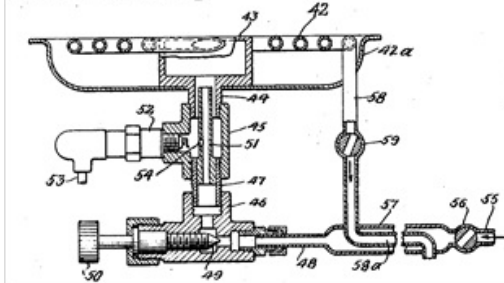
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126/350R 126/360.0R 126/360R 126/39J 126/91A 126/91R 165/160 165/83 165/913 237/12.1 422/170 422/182 422/183

422/189 422/612 422/618 422/643 422/649 423/212 423/351 423/437 423/437.1 431/215 431/344 431/346 431/353 60/309

60/320 60/484

PatBase - US3844270_R

**Family:**

Publication number	Publication date	Application number	Application date
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Priority:

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Probable Assignee: BLACK ROBERT B

Assignee(s): (std): BLACK ROBERT B ; BLACK ROBERT BEAUREGARD ; BLACK R

Assignee(s): BLACK R US ; ADAPT INC ; JOHNSON GENTRY E ; OMEGA ENERGY SYSTEMS INC ; ROBERT B BLACK

Inventor(s): (std): BLACK R ; BLACK R B ; BLACK ROBERT B ; BLACK ROBERT BEAUREGARD ; RB BLACK ; ROBAATO BII BURATSUKU ; ROBERT B BLACK

Inventor(s): BEAUREGARD BLACK ROBERT ; R B BLACK ; BLACK R US

Agent(s): SMART AND BIGGAR

Title: APPARATUS AND **METHOD** FOR PRODUCING HIGH REGISTRATION PHOTO MASKS

Abstract: A **system** is provided for producing high registration photo-optical masks. A **control system** generates signals to a step and repeat contact printing machine that exposes many prints of the master die images on a photographic film, where these prints have a high registration characteristic. Claims, 10 Drawing Figures

Classifications:

International (ipc 8-9): B41F33/10 B41F33/16 B60R16/02 B60R16/037 F21V23/00 G01B11/26 G01J1/42 G01R15/00 G01S15/89 G01S3/80 G01S3/86 G01S7/52 G01V1/28 G02B26/02 G02F1/01 G02F1/13 G02F1/133 G03B27/04 G03B27/52 G03B9/00 G03F7/20 G03F9/00 G04G99/00 G05B1/03 G05B15/00 G05B19/18 G05B19/35 G05B19/408 G05B19/409 G05B19/4093 G05B19/414 G05D25/02 G05D3/20 G06F12/00 G06F12/02 G06F13/10 G06F13/12 G06F13/16 G06F15/00 G06F17/10 G06F17/14 G06F19/00 G06F3/00 G06F3/023 G06F3/033 G06F3/038 G06F3/14 G06F3/147 G06F3/16 G06F9/22 G06F9/46 G06J1/00 G06K9/40 G06T1/20 G06T3/00 G07G1/12 G09G3/36 G09G5/00 G09G5/18 G09G5/20 G10L15/22 G10L19/00 G11C11/406 G11C11/56 G11C17/10 G11C19/18 G11C19/28 G11C19/36 G11C27/00 G11C27/02 G11C27/04 H03H17/02 H04N3/10 H04N5/66 H04N5/74 H04N9/31 (Advanced/Invention); G03F7/20 G03F9/00 G06F15/00 G06F3/023 G06F3/14 G06F3/147 (Core/Invention)

International (ipc 1-7): G01J1/32 G01S9/66 G01V1/00 G01V1/28 G02F1/13 G03B19/00 G03B27/02 G03B27/04 G03B27/32 G03B27/52 G03H3/00 G05B1/01 G05B1/02 G05B15/00 G05B19/02 G05B19/18 G06F1/00 G06F11/00 G06F12/00 G06F12/02 G06F13/00 G06F15/00 G06F15/20 G06F15/31 G06F15/332 G06F15/336 G06F15/34 G06F15/40 G06F15/46 G06F17/14 G06F3/00 G06F3/02 G06F3/12 G06F3/16 G06F7/00 G06F9/06 G06F9/18 G06F9/22 G06J1/00 G06K9/00 G09G1/28 G09G3/36 G09G5/00 G11C11/00 G11C11/40 G11C13/00 G11C17/00 G11C27/00 G11C7/00 H01J61/12 H01J61/30 H04M1/00 H04N5/66 H04N5/74 H04N9/31

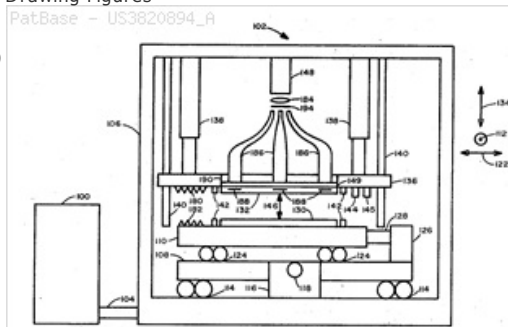
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European: B60R16/02B6D B60R16/037B F21V23/00 G01S15/89D5B G01S15/89D6 G01S7/52S2B1 G02F1/01D G02F1/133D2 G03F7/20T22 G03F7/70L10D G03F7/70L2H G03F9/70D G03F9/70M G04G99/00M G05B19/35C G05B19/408 G05B19/408A G05B19/408C G05B19/409 G05B19/4093 G05B19/414 G05B19/414K G06F12/02C G06F13/12 G06F13/16 G06F3/023A5 G06F3/02A5 G06F3/033Z9 G06F3/038E G06F3/147 G06J1/00 G06Q20/209 G07G1/12 G09G5/18 G09G5/20 G10L19/00 G11C11/56E G11C13/00R25D G11C16/34D G11C16/34D6 G11C19/00M6 G11C19/28C G11C19/36 G11C27/00 G11C27/02C G11C27/04 G11C7/10M5 G11C7/10M6 H03H17/02G2C L65H557/2644 S05B219/23094 S05B219/33182 S05B219/34023 S05B219/34098 S05B219/34471 S05B219/34472 S05B219/35262 S05B219/35263 S05B219/35373 S05B219/35381 S05B219/35431 S05B219/35436 S05B219/35453 S05B219/35472 S05B219/35554 S05B219/35588 S05B219/36152 S05B219/36227 S05B219/36333 S05B219/36366 S05B219/36379 S05B219/36395 S05B219/36502 S05B219/36503 S05B219/36506 S05B219/36546 S05B219/41021 S05B219/42237 S05B219/45214 S05B219/45215 S05B219/49221 S05B219/50047 S05B219/50048 S05B219/50083 S05B219/50151 S06F12/02C S11C13/04 S11C7/16 T05K999/99

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Family:

Publication number	Publication date	Application number	Application date
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Priority:

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Probable Assignee: SAID MICRO COMPUTER INC BY SAI

Assignee(s): (std): HYATT GILBERT P ; HYATT GILBERT PETER ; SAID MICRO COMPUTER INC BY SAI ; EGYESUELT
IZZOLAMPA ; HYATT G

Assignee(s): HYATT G US ; SAID MICRO COMPUTER INC BY SAID BARRY T LEE RALPH ; SAID MICRO COMPUTER
INC BY SAID BARRY T LEE RALPH V COLE GUNTHER W WIMMER

Inventor(s): (std): WIMMER GUNTHER W ; LEE BARRY T ; KEREKES BELA DIPL ING ; KEREKES BELA ; KEREKES B ; HYATT
GILBERT PETER ; HYATT GILBERT P ; HYATT G ; HIRSCH IRVING ; COLE RALPH V

Inventor(s): HYATT G US

Agent(s): GOWLING LAFLEUR HENDERSON LLP

Designated states: AT BE CA CH DE DK ES FR GB GR IT JP KR LU NL SE

Title: **METHOD** OF FRACTURING SUBTERRANEAN FORMATIONS USING OIL-IN-WATER EMULSIONS

Abstract: A fracturing **method** wherein an improved oil-in-water emulsion is injected into a subterranean formation under sufficient **pressure** to open a fracture in the formation and constituents of the emulsion are thereafter produced from the formation. The emulsion contains a major volume proportion of an internal liquid hydrocarbon phase and a minor volume proportion of an external water phase containing a water-dispersible polymeric thickening agent in a concentration sufficient to provide the water phase with an apparent viscosity of at least 10 centipoises at 70 DEG F and a shear rate of 511 reciprocal seconds. The emulsion is formulated so that the internal oil phase constitutes more than 50 but not more than about 80 volume percent, and preferably between about 60 and about 75 volume percent, of the emulsion.

Classifications:

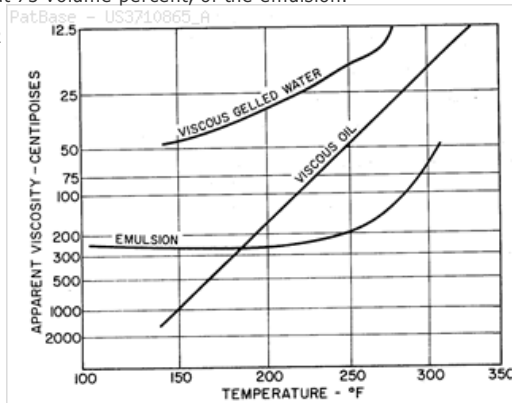
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International (IPC 1-7): B01F15/04 B01F3/08 B01F5/00 C09K3/00 C10M3/14 E21B43/16 E21B43/26 E21B43/27

CPC: Y10S507/933 Y10S507/922 C09K8/905 C09K8/62 C09K8/64 C09K8/72

European: C09K8/62 C09K8/64 C09K8/72 C09K8/90A

US: 166/283 166/30.8 166/307 166/308.2 166/308.4 166/90.1 507/209 507/211 507/213 507/216 507/225 507/265 507/922 507/933



Family:

Publication number	Publication date	Application number	Application date
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AU454070 B2	19741017	AU19710032819	19710827
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Priority:

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 US19720263081 19720615 US19720281694 19720818

Probable Assignee: EXXON MOBIL CORP

Assignee(s): (std): BIESAN M FR ; EXXON PRODUCTION RESEARCH CO ; EXXON RESEARCH ENGINEERING CO ; EXXON MOBIL CORP

Assignee(s): ESSO RES CO PROD US ; ESSO PRODUCTION RESEARCH CY US ; ESSO PRODUCTION RESEARCH CY ; EXXON PRODUCTION RESEARCH COMPANY ; KIEL OTHAR M ; ESSO PROD RES CO US ; ESSO PRODUCTION RESEARCH CLO ; ESSO PRODUCTION RESEARCH CO ; ESSO PRODUCTION RESEARCH CO US ; ESSO PRODUCTION RESEARCH COMPANY

Inventor(s): (std): KIEL O ; KIEL OTHAR MEADE ; KIEL OTHER MEADE ; KIEL OTHAR M

Inventor(s): OTHER MEADE KIEL ; OTHAR MEADE KIEL ; KIEL O US

Title: MEANS FOR TREATMENT OF THE EXHAUST GASES OF COMBUSTION

Abstract: The invention relates to a thermally, and optionally catalytically, operative exhaust gas treatment reactor of an engine, comprising filamentary material directly against and inside the heat insulating portion of a housing assembly which is placed on an engine over the exhaust ports, either directly or with a member interposed. Rapid warm up during cold start is achieved by restriction of gas **flow**, with the optional re-routing of exhaust gas, including routing to a reservoir which may be expandable. Other features include various embodiments of filamentary material, mechanism for accurately regulating exhaust gas recirculation and provision of extra air, the providing a secondary substance such as water/methanol or steam to induction charge to assist in the balancing of exhaust reactions. Treatment of exhaust gas is generally but not specifically to remove certain undesired pollutants from the exhaust gas of vehicles as required in many countries.

Classifications:

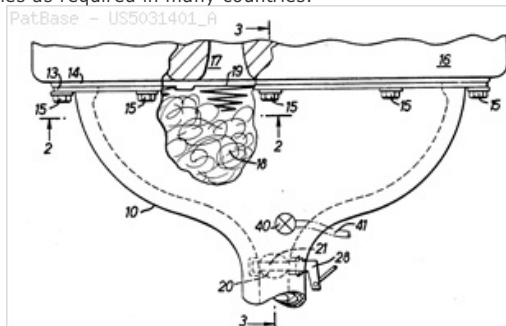
International (IPC 8-9): F01N13/10 F01N3/022 F01N3/035 F01N3/20 F01N3/26 F01N3/28 F02B75/32 (Advanced/Invention); F01N13/10 F01N3/022 F01N3/035 F01N3/20 F01N3/26 F01N3/28 F02B75/32 (Core/Invention)

International (IPC 1-7): F01N3/00 F01N3/10 F01N3/15 F01N3/28 F02B75/10

CPC: F02B75/00 Y10T74/18024 Y10T74/18312 F01L3/22 F01B7/18 F01B9/06 F01L1/026 F01L1/18 F01L1/185 F01L1/46 F01L2001/0535 F01L2101/02 F01L2810/02 F02B53/02 F02B75/002 F02B75/065 F02B75/32 Y02A50/2322 F01N13/102 F01N3/022 F01N3/035 F01N3/2006 F01N3/26 F01N3/2807 F01N3/2835 F01N3/2839 F01N3/285 F01N3/2882 F01N3/2892 F01N13/10 F01N2240/12 F01N2250/02 F01N2250/04 F01N2260/14 F01N2290/00 F01N2310/02 F01N2310/04 F01N2310/06 F01N2330/10 F01N2510/02 F01N2510/06 Y02T10/26

European: F01L1/02C F01L1/18 F01L1/18D F01L1/46 F01L3/22 F01N13/10B F01N3/022 F01N3/035 F01N3/20B F01N3/26 F01N3/28B2 F01N3/28B8 F01N3/28C F01N3/28C8 F01N3/28D F01N3/28E F02B75/00 F02B75/00B F02B75/32 R01B7/18 R01B9/06 R01L1/053C R01L101/02 R01L810/02 R01N13/10 R01N240/12 R01N250/02 R01N250/04 R01N260/14 R01N290/00 R01N310/02 R01N310/04 R01N310/06 R01N330/10 R01N510/02 R01N510/06 R02B53/02 R02B75/06C

US: 123/197.1 123/198E 123/43.00R 123/43R 123/45R 60/282 60/302 60/323 74/22R 74/57



Family:

Publication number	Publication date	Application number	Application date
DE2233907 A1	19730118	DE19722233907	19720710
FR2145340 A5	19730216	FR19720024805	19720707
GB1402714 A	19750813	GB19720021149	19720505
IT961314 A	19731210	IT19720051421	19720708
US5031401 A	19910716	US19870131231	19871207
US7117827 BA	20061010	US19950477704	19950607
US7438027 BA	20081021	US19950477703	19950607

Priority:

GB19710032228 19710708	GB19720016450 19720410	GB19720021149 19720505
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US19880237761 19880829	US19900543405 19900626	US19920982424 19921127
US19930136729 19931014	US19940287429 19940809	US19950441117 19950515
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Probable Assignee: HINDERKS M V

Assignee(s): (std): HINDERKS M V ; HINDERKS MITJA V ; MITJA V

Assignee(s): HINDERKS MITJA VICTOR LONDON ; HINDERKS MITJA

Inventor(s): (std): HINDERKS MITJA V ; HINDERKS MITJA VICTOR

Inventor(s): HINDERKS MITJA VICTOR LONDON

Agent(s): RICHARD

Title: POWER UNITS

Abstract: A free piston engine, or an opposed free piston engine, in which the power output is derived as a **flow** of pressurized hydraulic fluid. The engine piston, or each engine piston, coacts with a hydraulic pump which delivers hydraulic fluid into a constant displacement accumulator. The constant displacement accumulator is charged to a predetermined level on each power stroke of the engine piston, to store energy for effecting the recompression stroke. Pressurized fluid for driving a load motor is delivered in accordance with the opening of a **pressure**-responsive one-way valve, upon charging of the accumulator to its maximum level, so that the energy available for the recompression stroke of the piston is independent of load. In the case of an opposed free piston engine, a closed loop **control system** is provided for maintaining the engine pistons in synchronism.

Classifications:

International (IPC 8-9): F01B11/04 F01B23/08 F01B7/02 F02B71/00 F02B71/02 F02B71/04 F02B75/04 F02M59/10 F03C2/08 F04B11/00 F04B17/05 F04B31/00 F04B49/16 F04B53/10 F04B53/16 F04C14/06 F04C14/24 F16H39/08 F16L55/04 (Advanced/Invention);

F02B3/06 (Advanced/Non-invention);

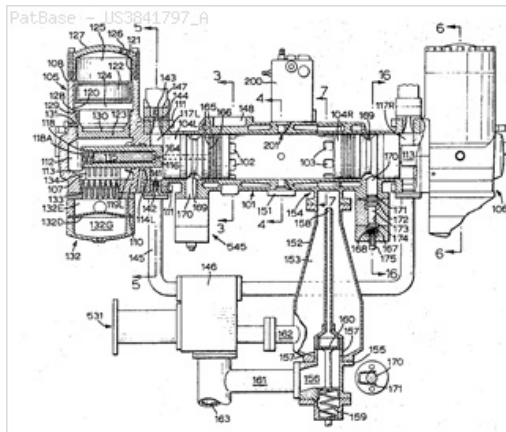
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International (IPC 1-7): B60K17/10 B60K23/08 F01B11/08 F01B23/08 F01B7/02 F01C1/08 F01C1/18 F01C19/08 F01K23/14 F02B3/06 F02B71/00 F02B71/04

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European: 59E10B F02B71/02 F02B71/04H F02B75/04 F02M59/10C F03C2/08 F04B11/00A2 F04B17/05 F04B31/00 F04B49/16 F04B53/10 F04B53/10D8 F04B53/16C2 F04C14/06 F04C14/24 F04C15/04C F04C15/04K F16L55/04 R02B3/06

US: 123/139A 123/447 123/457 123/46R 123/495 138/31 417/323 417/364 417/380 417/543 418/102 418/131 418/196 418/73 418/81 60/426 60/427 60/595 91/41 91/414 91/461 91/517 91/525 92/86

**Family:**

Publication number	Publication date	Application number	Application date
AR195203 A1	19730919	AR19720245218	19721120
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FR2222902 A5	19741018	FR19730025696	19730713
FR2332436 A1	19770617	FR19730025692	19730713
FR2332436 B1	19780414	FR19730025692	19730713
GB1406221 A	19750917	GB19710053721	19711118
IN139163 A	19760515	IN1973CA00481	19730305
IT1056731 A	19820220	IT19720031838	19721117
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SE392503 B	19770328	SE19720014965	19721117
SE392503 C	19770707	SE19720014965	19721117
US3841797 A	19741015	US19720305453	19721110
US3908379 A	19750930	US19740504729	19740909
US3918851 A	19751111	US19740504722	19740909
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US3968732 A	19760713	US19740504725	19740909
US4031920 A	19770628	US19740504723	19740909
US4048970 A	19770920	US19740504728	19740909

Priority:

GB19710053721 19711118	AU19720048721 19721110	US19720305453 19721110
US19740504722 19740909	US19740504724 19740909	US19740504723 19740909
US19740504729 19740909	US19740504725 19740909	US19740504728 19740909

Probable Assignee: WILLIAM MAURICE BARD FITZGERAL

Assignee(s): (std): BARD FITZGERALD WILLIAM MAURIC ; FITZGERALD W ; FITZGERALD W M B ; FITZGERALD WILLIAM ; FITZGERALD WILLIAM M ; FITZGERALD WILLIAM M B ; WILLIAM MAURICE BARD FITZGERAL ; FITZGERALD WILLIAM MAURICE BAR

Assignee(s): FITZGERALD WILLIAM MAURICE BARD ; FITZGERALD WILLIAM MAURICE BARD CLAREMONT ONTARIO ; FITZGERALD WILLIAM M CA ; FITZGERALD WILLIAM M B R R NO 1 CLAREMONT ONTARIO CANADA ; FITZGERALD WILLIAM MAURICE BARD CLAREMONT ONTARIO KANADA ; FITZGERALD WILLIAM MAURICE BARD CLAREMONT ONTARIO CA ; WILLIAM MAURICE BARD FITZGERALD TE CLAREMONT CANADA ; FITZGERALD WILLIAM MB ; FITZGERALD WILLIAM M B R R NO 1 CLAREMONT ONTARIO ; WILLIAM MAURICE BARD FITZGERALD ; FITZGERALD WILLIAM CA ; FITZGERALD W CA

Inventor(s): (std): FITZGERALD W ; FITZGERALD WILLIAM M ; FITZGERALD WILLIAM MAURICE BAR

Inventor(s): FITZGERALD WILLIAM MAURICE BARD ; FITZGERALD WILLIAM MAURICE BARD CLAREMONT ONTARIO ; FITZGERALD WILLIAM MAURICE BARD CLAREMONT ONTARIO CA ; FITZGERALD WILLIAM MAURICE BARD CLAREMONT ONTARIO KANADA ; SOK ; WILLIAM MAURICE BARD FITZGERALD ; FITZGERALD WILLIAM M CA ; FITZGERALD W CA

Title: Digital computer **control system** and **method** for monitoring and **controlling** operation of industrial gas turbine apparatus employing expanded parametric **control** algorithm

Abstract: A hybrid digital computer gas turbine power plant **control system** which may operate in a multiple **control** loop arrangement is provided with a plurality of process sensors at various operating cycle positions. Derivative inputs provide a basis for responsive **control system** variation of gas turbine parameters. Parametric **control** is maintained over generator and turbine subsystems during all modes of operations. More specifically, optimally arranged **system** thermocouples provide inputs from which temperature **control** variables are derived. Inlet guide vanes are positioned in response thereto to **control** exhaust gas temperatures while maintaining near optimum generator output.

Classifications:

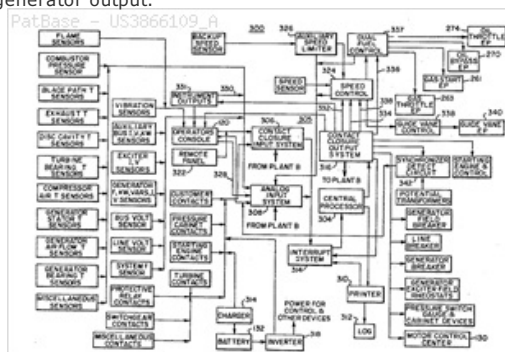
International (IPC 8-9): F02C7/26 F02C9/28 F02C9/50 F02C9/54 F02C9/56 G05B11/00 G05B15/00 G11B15/52 G11B20/10 G11B5/09 H02P9/04 (Advanced/Invention); F02C7/26 F02C9/00 G05B11/00 G05B15/00 G11B15/46 G11B20/10 G11B5/09 H02P9/04 (Core/Invention)

International (IPC 1-7): F01D21/14 F02C7/26 F02C9/00 G05B11/00 G05B15/00 G11B15/52 G11B5/09

CPC: F02C3/04 F02C6/00 Y02P80/12 F02C9/50 F02C7/26 F02C9/54 F02C9/56

European: 46F45K 46F46H F02C3/04 F02C6/00 F02C7/26 F02C9/50 F02C9/54 F02C9/56

US: 290/2 290/40R 322/15 376/217 60/39.27 60/39.281 700/282 700/287 700/67 702/130



Family:

Publication number	Publication date	Application number	Application date
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CA993506 A1	19760720	CA19720144756	19720615
CA993507 A1	19760720	CA19720152498	19720926
GB1374871 A	19741120	GB19720044327	19720926
IT968936 A	19740320	IT19720030455	19721013
JP1267284 C3	19850610	JP19720102375	19721014
JP49108412 A2	19741015	JP19720102375	19721014
JP49108412 U1	19740917	JP19730003487U	19721230
JP59038422 B4	19840917	JP19720102375	19721014
US3866109 A	19750211	US19730326718	19730126
US3891915 A	19750624	US19730323593	19730115

Priority:

US19710189633 19711015 US19710189632 19711015 JP19720102375 19721014
JP19730003487U 19721230 US19730323593 19730115 US19730326718 19730126

Probable Assignee: WESTINGHOUSE ELECTRIC CORP

Assignee(s): (std): WESTERN ELECTRIC CO ; WESTINGHOUSE ELECTRIC CORP

Assignee(s): WESTINGHOUSE ELECTRIC CO ; WESTINGHOUSE ELECTRIC CORP GATEWAY CENTER PITTSBURGH PENNSYLVANIA E U A ; YANNONE ROBERT A ; KISCADEN ROY W ; REED TERRY J ; REUTHER JOHN F ; WEC

Inventor(s): (std): KISCADEN ROY W ; YANNONE ROBERT A ; YANNONE R A ; KISCADEN R W ; REUTHER JOHN F ; REED TERRY J

Inventor(s): JON EFU RUUSAA ; R A YANNONE ; R W KISCADEN ; RA YANNONE ; ROBAATO EI YANNON ; ROI DABURYU KISUKEEDON ; RW KISCADEN ; TERII JEI RIIDO

Title: INTEGRAL TURBO-COMPRESSOR WAVE ENGINE

Abstract: The present engine includes a heating chamber to produce relatively high temperature, high **pressure** gases; an intake chamber to provide relatively low temperature, low **pressure** gases which initially act as scavenging gases; an exhaust chamber into which the spent hot gases are expelled by the scavenging gases; a compressed cool gas chamber into which the compressed cool gases **flow** with partial expansion; and at least one hot gas expansion outlet or duct into which the high **pressure** hot gases expand. In addition the present engine includes a compressor-expander rotor having a plurality of rotor chambers, with each of said rotor chambers having an inlet opening and a nozzle with an outlet opening. The compressor-expander rotor is disposed to rotate adjacent to said intake chamber and said heating chamber, to accept into said rotor chambers, cool gases from the former followed by hot gases from the latter. Termination of the **flow** of cool intake gases from each rotor chamber nozzle outlet initiates a shock wave at the rotor chamber nozzle outlet. A second, normally stronger, shock wave is initiated at the inlet of each rotor chamber as it is exposed to the hot gases **flowing** from the heating chamber. Each rotor chamber is designed so that before this second shock wave (which is set up by the hot gases entering a rotor chamber already filled with cool gas) reaches the end of its excursion toward the rotor chamber outlet, the shock wave encounters the constricted area, or nozzle, of the rotor chamber. As a result this second shock wave is reflected from the rotor chamber nozzle toward the inlet of the rotor chamber. As a result of this reflected shock wave, the final **pressure** of both the cool gases and the hot gases within the rotor chamber is very high and is substantially higher than the initial **pressure** of hot gases **flowing** from the heating chamber. The rotor housing is designed such that ideally as the reflected shock wave reaches the inlet of the rotor chamber, this inlet is sealed as a result of rotation of

Classifications:

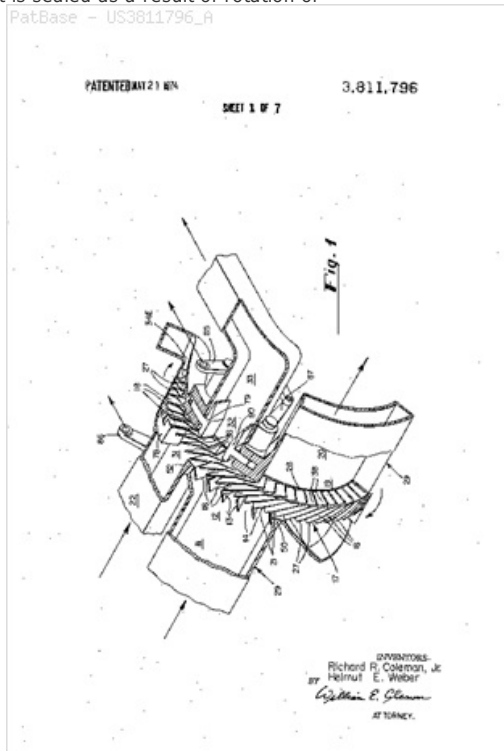
International (IPC 8-9): F02B33/42 F02C3/02 F02G3/00 F03G7/00 F04B11/00 F04D21/00 F04D23/00 F04F13/00 (Advanced/Invention); F02B33/00 F02C3/00 F02G3/00 F03G7/00 F04B11/00 F04D21/00 F04D23/00 F04F13/00 F04F99/00 (Core/Invention)

International (IPC 1-7): F01D1/00 F01K27/00 F02C3/00 F02C3/02 F02C3/04 F02C3/06 F02C7/00 F02G1/02 F04B11/00 F04D21/00 F04D23/00 F04F11/00 F04F7/00

CPC: F04D21/00 F04D23/00 F04F13/00 F02C3/02 Y02T50/671

European: F02B33/42 F02C3/02 F04D21/00 F04D23/00 F04F13/00 Y02T50/67B

US: 416/223A 416/237 416/242 417/6.4 417/64 60/39.45

**Family:**

Publication number	Publication date	Application number	Application date
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DE2250355 C3	19830105	DE19722250355	19721013
ES408033 A1	19751101	ES19720408033	19721020
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GB1411123 A	19751022	GB19720048075	19721018
IL40612 A0	19721229	IL19720040612	19721018
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Priority:

US19710191410 19711021 US19740464047 19740425 US19740464101 19740425

Probable Assignee: GEN POWER CORP

Assignee(s): (std): COLEMAN JR ; COLEMAN JR RICHARD R ; COLEMAN R ; COLEMAN RICHARD R ; R R ; WEBER H E ; GEN POWER CORP ; WEBER H ; COLEMAN RICHARD R JR ; WEBER HELMUT E ; WEBER HELMUTH E

Assignee(s): GENERAL POWER CORP 122 W LANCASTER AVENUE PAOLI PENNSYLVANIE 19301 E U A ; GENERAL POWER CORP US ; GENERAL POWER CORP PAOLI PA V ST A ; GENERAL POWER CORP PAOLI PA US ; GENERAL POWER CORP ; 4GENERAL POWER CORP

Inventor(s): (std): COLEMAN RICHARD R JR ; COLEMAN RICHARD REIL ; COLEMAN JR RICHARD R ; COLEMAN R ; COLEMAN R R ; WEBER HELMUT E ; WEBER HELMUT ERNST PROF ; WEBER H ; WEBER H E ; WEBER HELMUTH E ; WEBER HELMUT ERNST ; COLEMAN JR R R

Inventor(s): WEBER H US ; WEBER HELMUT ERNST PROF VALLEY FORGE PA US ; WEBER HELMUT ERNST VALLEY FORGE ; COLEMAN R US ; COLEMAN RICHARD R ; COLEMAN RICHARD REIL VILLANOVA ; COLEMAN RICHARD REIL VILLANOVA PA ; COLEMAN RICHARD REIL VILLANOVA PA US ; H E WEBER ; HE WEBER ; HELMUTH E WEBER ; R R COLEMAN ; RICHARD R COLEMAN JR ; RR COLEMAN

Title: ANTI-SKID MECHANISM

Abstract: An anti-lock device for a vehicle brake **system** is provided with a **control** valve actuated in response to signals from a sensing mechanism to subject a **control** member to vacuum and selectively subject said **control** member to atmosphere for **controlling** the application of supplied fluid **pressure** to a vehicle brake, and throttling valve means is provided to **control** the subjection of said **control** member to the vacuum.

Classifications:

International (IPC 8-9): B60T7/00 B60T8/00 B60T8/172 B60T8/1761 B60T8/1763 B60T8/34 B60T8/36 B60T8/42 B60T8/46 B60T8/48 B60T8/70 B60T8/72 B60T8/82 F16K17/00 G01P1/10 G01P15/08 G01P15/16 G01P3/56 (Advanced/Invention);

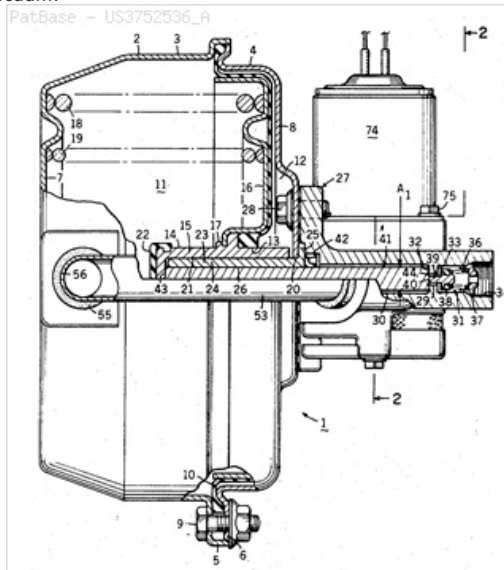
B60T8/00 B60T8/17 B60T8/34 B60T8/36 B60T8/42 B60T8/48 G01P1/00 G01P15/08 G01P15/16 G01P3/42 (Core/Invention)

International (IPC 1-7): B60T11/34 B60T13/68 B60T15/00 B60T15/18 B60T15/54 B60T17/04 B60T7/00 B60T8/00 B60T8/02 B60T8/04 B60T8/06 B60T8/08 B60T8/10 B60T8/12 F15B11/08 F15B13/04 F15B13/044 F15B15/22 F15C3/04 F16K11/00 F16K11/02 F16K11/04 F16K17/00 F16K31/02 G01P1/10 G01P15/00 G01P15/08 G01P3/56 G05D13/62 H03K5/00 H03K5/01 H03K5/153 H03K5/18 H03K5/20 H03K6/00

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US: 137/512.15 137/513.3 137/513.5 137/62.5.65 137/62.7.5 137/625.27 137/625.65 137/627.5 188/181A 251/282 303/11 303/115.3 303/118.1 303/157 303/195 303/21F 303/40 303/54 327/17 327/172 327/64 327/78 384/389 701/70 91/26 91/410 91/443 91/459

**Family:**

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US3752536 A	19730814		19711117
US3758167 A	19730911		19720117
US3786722 A	19740122		19721213
US3809125 A	19740507	US19720314813	19721213
US3827760 A	19740806	US19720218378	19720117
US3833268 A	19740903	US19720233579	19720310
US3840816 A	19741008	US19730340915	19730313
US3842355 A	19741015	US19730340735	19730313
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Priority:

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Probable Assignee: ECHLIN INC

Assignee(s): (std): FLEAGLE J ; DEL DOCTOR ESTEVE S A LAB ; KENRICK AND SONS LTD ; WAGNER ELECTROC CORP ; LAB DEL DR ESTEVE SA ; WAGNER ELECTRIC CORP ; WAGNER ELECTRIC CORP US ; KENRICK ET SONS LTD ARCHIBALD US ; WARNER ELECTRIC CORP ; WARNER ELECTRIC CORP US

Assignee(s): COOPER IND ; COOPER IND INC 1001 FANNIN HOUSTON TEXAS 77002 A C ; COOPER IND INC 1001 FANNIN HOUSTON TEXAS 77002 A CORP OF OHIO ; WAGNER ELECTRIC CORP NEWARK N J V ST A ; WAGNER ELECTRIC A CORP OF DE CORP ; FLEAGLE JOSEPH E ; MACHEK JOHN A ; STUDEBAKER WORTHINGTON INC ; EDISON INT ; ECHLIN INC ; FLEAGLE J US ; EDISON INTERNATIONAL INC

Inventor(s): (std): FLEAGLE J ; FLEAGLE JOSEF E ; FLEAGLE JOSEPH E ; MACHEK J ; MACHEK JOHN A

Inventor(s): MACHEK JOHN A CREVE COEUR MO V ST A ; A MACHEK JOHN ; MACHEK J US ; FLEAGLE JOSEPH E OVERLAND MO V ST A ; FLEAGLE JOSEF E OVERLAND MO V ST A ; FLEAGLE J US

Title: **CONTROL** BLASTING

Abstract: Disclosed herein is a new concept in blasting which is based on a unique theory that permits total utilization of the energy of a blasting charge. The **method** of this invention enables one, through a set procedure, to **control** the direction and distance of placement of huge volumes of earth and/or the degree of breakage of a volume of material adjacent the area effected by the blast. The **method** requires systematic test blasts to determine parameters for use in established formula so that the desired end of **control** blasting of huge volumes of earth can be attained. The scope of this invention is unlimited in its application to mining, hydropower development, construction projects, etc.

Classifications:

International (IPC 8-9): E21C37/00 E21C41/22 E21C41/24

E21C41/26 E21F16/00 F42D1/00 (Advanced/Invention);

E21C37/00 E21C41/00 E21F16/00 F42D1/00 (Core/Invention)

International (IPC 1-7): E02B1/00 E02D3/00 E21C37/00 E21C37/12

E21C41/06 E21C41/10 F42D1/00 F42D3/04 F42D5/00

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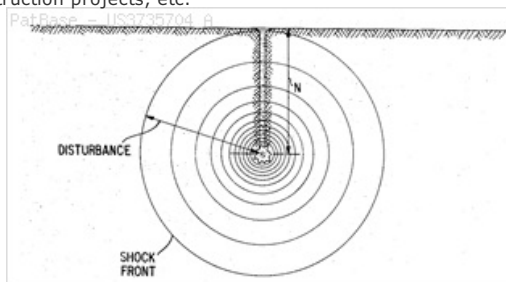
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European: E21B43/263 E21C37/16 E21C41/10 E21C41/24

E21C41/26 E21C41/31 E21F16/00 F42D1/00

US: 102/2.3 102/301 299/1.3 299/1.9 299/13 299/18 299/19 399/19

405/128.45 405/129.85 61/3.5



Family:

Publication number	Publication date	Application number	Application date
CA1003692 A1	19770118	CA19710102931	19710118
CA975014 A1	19750923		00000000
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CA977378 A1	19751104		00000000
CA977378 A2	19751104	CA19740198027	19740424
CA978208 A1	19751118		00000000
CA978208 A2	19751118	CA19740198017	19740424
US3735704 A	19730529	US19700014166	19700225
US3762771 A	19731002	US19710172710	19710818
US3775984 A	19731204	US19710172711	19710818
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Priority:

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Probable Assignee: LIVINGSTON CLIFTON W

Assignee(s): (std): LIVINGSTON C ; LIVINGSTON CLIFTON W

Assignee(s): LIVINGSTON C GRAND JUNCTION US ; LIVINGSTON C US

Inventor(s): (std): LIVINGSTON CLIFTON W ; LIVINGSTON C

Inventor(s): LIVINGSTON C GRAND JUNCTION US ; LIVINGSTON C US

Title: DUAL SAFETY VALVE METHOD AND APPARATUS

Abstract: Dual safety valve apparatus is utilized to automatically shut in one or a pair of producing well zones upon a reduction in control fluid pressure. A tubing hanger is run into the well on a setting tool and supports a dual tubing string into the well and seats in the well casing. Control fluid pressure supplied from the top of the well holds the shutoff valves open. Each shutoff valve has a full bore opening therethrough in the open position. A shifting tool is operable by fluid pressure to mechanically open the shutoff valves and when mechanically opened by the shifting tool, the valves can receive a secondary wireline retrievable shutoff valve operable by control fluid pressure. The dual shutoff valve is retrievable, and the tubing hanger is then retrievable by a retrieving tool.

Classifications:

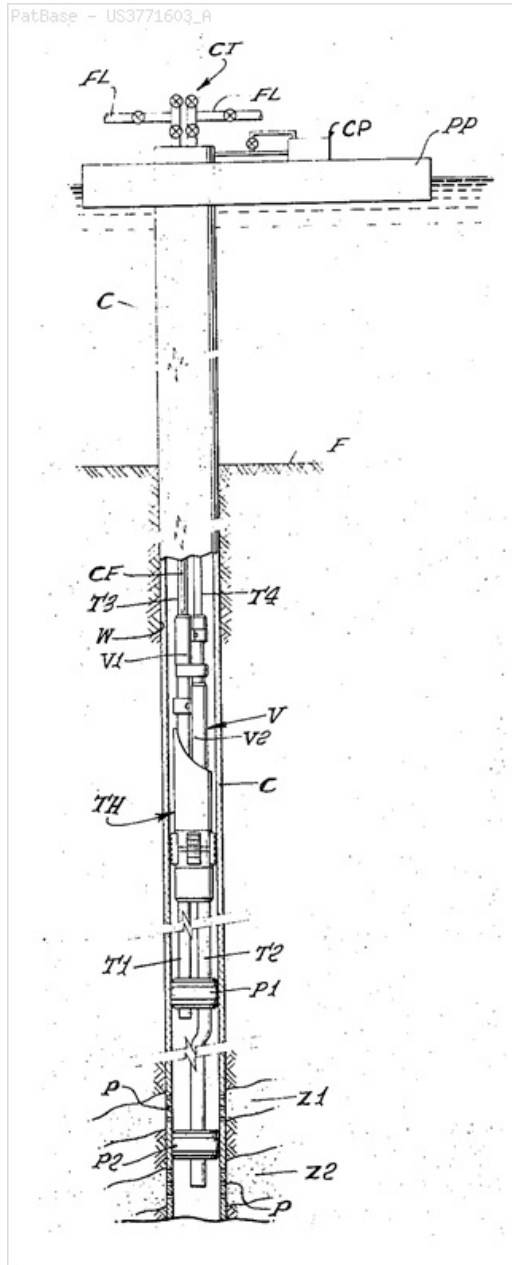
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International (IPC 1-7): E21B23/00 E21B23/04 E21B27/00 E21B33/00 E21B33/02 E21B33/03 E21B33/035 E21B33/04 E21B33/10 E21B33/12 E21B33/124 E21B43/00 E21B43/01 E21B43/10 E21B43/12 E21B43/14 F16K17/00 F16K17/10 F16K31/12 F16K31/16 F16K43/00 F16K5/00 F16K5/20

CPC: E21B23/06 E21B33/122 E21B33/1295 F16K5/0652 Y10T137/7727 Y10T137/7729 Y10T137/7782 E21B34/14 F16K5/20 Y10T137/7785 E21B43/14 E21B34/08 E21B34/10 E21B34/101 E21B43/10 E21B2034/002

European: E21B23/04 E21B23/06 E21B33/122 E21B33/1295 E21B34/08 E21B34/10 E21B34/10E E21B34/14 E21B43/10 E21B43/14 F16K5/06G2 F16K5/20 P21B34/00B

US: 137/460 137/462 137/495 137/498 166/120 166/124 166/125 166/129 166/182 166/189 166/212 166/217 166/22.4A 166/224A 166/237 166/313 166/314 166/321 166/322 166/323 166/324 166/363 166/375 166/382 166/386 166/72 251/63.6



Family:

Publication number	Publication date	Application number	Application date
BR7302558 A0	19740627	BR19730002558	19730410
CA964999 A1	19750325	CA19730163285	19730205
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FR2179724 A1	19731123	FR19730005784	19730219
FR2179753 A1	19731123	FR19730010321	19730322
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FR2179777 A1	19731123	FR19730011611	19730330
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GB1410102 A	19751015	GB19740055724	19730215
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GB1416084 A	19751203	GB19730012820	19730316
GB1416085 A	19751203	GB19730028329	19730316
GB1416086 A	19751203	GB19750000739	19730316
GB1416087 A	19751203	GB19750000862	19730316
GB1416088 A	19751203	GB19750001039	19730316
GB1416089 A	19751203	GB19750001293	19730316
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NL7305236 A	19731016	NL19730005236	19730413
US3771603 A	19731113	US19720243806	19720413
US3797573 A	19740319	US19720286151	19720905
US3830295 A	19740820	US19720275911	19720728
US3850242 A	19741126	US19720303482	19721103
US3871447 A	19750318	US19740475384	19740608
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Priority:

US19720243806 19720413	US19720275910 19720728	US19720275911 19720728
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US19740475587 19740603	US19740475384 19740608	US19740505348 19740912

Probable Assignee: BAKER OIL TOOLS INC

Assignee(s): (std): BAKER INT CORP ; BAKER OIL TOOLS INC

Assignee(s): BAKER OIL TOOLS INC US ; CROWE TALMADGE L ; BAKER OIL TOOLS ; BAKER DIL TOOLS INC

Inventor(s): (std): CROWE F ; CROWE T ; CROWE TALMADGE L ; CROWE TALMADGE LAYNE

Inventor(s): LAYNE CROWE TALMADGE ; CROWE T US

Title: **System** and **method** for operating a steam turbine with digital computer **control** having improved automatic startup **control** features

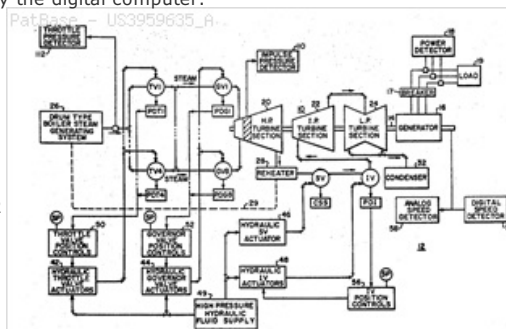
Abstract: A steam turbine operates with a **control system** having a programmed digital computer for automatically **controlling** steam **flow** to satisfy turbine speed or load demand during turbine startup, synchronization and load operation. Steam **flow** is **controlled** throughout the entire startup sequence by means of speed **control** signals determined by the computer as a function of monitored turbine operating conditions. While under load operation the turbine is under digital computer load **control**, and operational parameters are monitored by the digital computer.

Classifications:

International (IPC 8-9): F01D15/10 F01D17/00 F01D17/24
F01D19/00 F01D21/00 F01K13/00 F01K13/02 F01K7/16 F01K7/24
G05B15/02 G05B17/00 G05B9/03 G09B9/00 H02H7/06 H02P9/04
H02P9/08 (Advanced/Invention);
F01D17/00 F01D19/00 F01K13/00 F01K7/00 G05B15/02 H02H7/06
H02P9/04 H02P9/08 (Core/Invention)

International (IPC 1-7): F01B F01D15/10 F01D17/00 F01D17/02
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CPC: F01D17/24 F01K7/165 F01K13/02 F01K7/24 G06K13/0825
F01D19/00 H02P9/08

European: F01D17/24 F01D19/00 F01K13/02 F01K17/16B
F01K7/16B F01K7/24 G06K13/08A4 H02P9/08
US: 235/151.1 290/40.00R 290/40R 364/494 415/1 415/15 60/645
60/646 60/657 60/660 700/290



Family:

Publication number	Publication date	Application number	Application date
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JP49047835 A2	19740509	JP19730046888	19730426
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SE389164 B	19761025	SE19730005759	19730424
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Priority:

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US19730408962 19731023		

Probable Assignee: WESTINGHOUSE ELECTRIC CORP

Assignee(s): (std): WESTERN ELECTRIC CO ; WESTINGHOUSE ELECTRIC CO ; WESTINGHOUSE ELECTRIC CORP

Assignee(s): WESTINGHOUSE ELECTRIC CORP US ; WESTINGHOUSE ELECTRIC CORP PITTSBURGH PA V ST A ; WESTINGHOUSE ELECTRIC CORP 15222 PITTSBURGH PA US ; WESTINGHOUSE ELECTRIC CORP GATEWAY CENTER PITTSBURGH PENNSYLVANIA E U A ; GIRAS THEODORE C ; SIEMENS WESTINGHOUSE POWER CORP ; URAM ROBERT ; WEC

Inventor(s): (std): BRAYTENBAH ANDREW ; GIRAS T C ; GIRAS THEODORE C ; PODOLSKY LEAMAN ; TANCO JUAN J ; URAM R ; URAM ROBERT

Inventor(s): URAM ROBERT EAST PITTSBURGH ; URAM ROBERT EAST PITTSBURGH PA ; TC GIRAS ; R URAM ; T C GIRAS ; GIRAS THEODORE C PITTSBURGH

Title: TREATING WASTE MATERIALS TO PRODUCE USABLE GASES

Abstract: Solid waste, including municipal, agricultural, industrial, vegetable and animal matter, garbage and waste paper, is progressively converted by means of partial oxidation and distillation into gas under **controlled** temperature and **pressure** conditions and the gas is made suitable for industrial and chemical uses by being purified and separated into its main components or ingredients.

Classifications:

International (ipc 8-9): B01D5/00 B01D53/00 B01D53/34 B01D53/44 B01D53/74 C10B53/00 C10J1/00 C10J3/00 C10J3/06 F01K21/04 F01K3/18 F02C1/05 F02C3/30 F02C3/36 F02C6/00 F02C6/14 F02C6/18 F23G5/027 F23J15/00 F23J15/06 F23L15/02 F23R3/00 F24J2/07 F24J2/10 F24S20/20 F24S23/70 F27D17/00 G02B5/08 (Advanced/Invention); B01D5/00 B01D53/00 B01D53/34 B01D53/44 B01D53/74 C10J1/00 C10J3/00 C10J3/02 F01K21/00 F01K3/00 F02C1/00 F02C3/00 F02C3/20 F02C6/00 F02C6/18 F23G5/027 F23J15/00 F23J15/06 F23R3/00 F24J2/06 F27D17/00 (Core/Invention)

International (ipc 1-7): B01D5/00 B01D50/00 B01D53/00

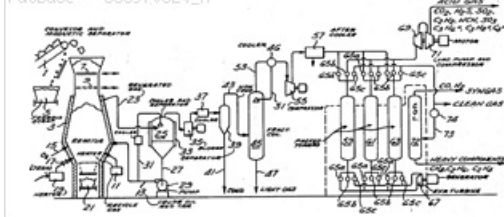
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CPC: B01D53/34 F01K21/047 F02C3/30 F02C3/36 F02C6/006 Y02E10/40 C10B53/00 F23L15/02 C10J3/86 C10J2300/0956 C10J2300/0959 C10J2300/1253 C10J2300/1603 C10J2300/1884 C10J2300/1892 Y02E20/14 B01D53/002 F01K3/185 B01D53/005 C10J3/06 F02C1/05 F02C6/14 Y02E10/41 F23J15/06 F27D17/00 F28D2021/0019 C10J3/78 C10J3/84 C10J2300/1671 C10J3/30 C10J2300/0946 C10J2300/0976 C10J2300/1823 C10J3/20 C10J2300/0906 F23J15/006 C10J3/00 F02C6/18 F23G5/0276 F23J15/00 F23J2215/10 F23J2215/20 F23J2215/30 F23J2215/40 F23J2215/50 F23J2217/10 F23J2217/40 F23J2219/70 Y02E20/12 Y02E50/11 Y02P10/265 Y02P10/283 Y02P20/134 Y02P20/129 Y02P20/124 Y02E20/348 Y02E20/363 F24S20/20 F24S2020/23

European: B01D53/00C B01D53/00H B01D53/34 C10B53/00 C10J3/00 C10J3/06 F01K21/04E F01K3/18C F02C1/05 F02C3/30 F02C3/36 F02C6/00F F02C6/14 F02C6/18 F23G5/027C F23J15/00 F23J15/00P F23J15/06 F23L15/02 F24J2/07 F27D17/00 R23J215/10 R23J215/20 R23J215/30 R23J215/40 R23J215/50 R23J217/10 R23J217/40 R23J219/70 R24J2/07B R28D21/00T Y02E10/40 Y02E10/41 Y02E20/12 Y02E20/14 Y02E20/34F Y02E20/36B Y02E50/11

US: 126/430 126/438 126/451 126/573 126/617 126/684 201/2.5 201/25 201/29 201/30 201/36 201/37 201/38 252/373 60/39.183 60/641.14 60/641.15 60/643 60/645 60/648 60/655 60/659 60/670 95/268 95/39

PatBase - US3970524_A

**Family:**

Publication number	Publication date	Application number	Application date
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CA1044895 A1	19781226	CA19760267304	19761207
CA1174061 A1	19840911	CA19820397368	19820302
CA1265714 A1	19900213	CA19860525570	19861217
CA983266 A1	19760210	CA19730171076	19730511
CH619864 A	19801031	CH19770002707	19770304
DE2323654 A1	19731122	DE19732323654	19730510
DE2323654 B2	19790419	DE19732323654	19730510
DE2323654 C3	19791206	DE19732323654	19730510
DE2656868 A1	19771020	DE19762656868	19761215
DE2656868 B2	19790523	DE19762656868	19761215
DE2656868 C3	19800131	DE19762656868	19761215
DE2759286 A1	19790712	DE19772759286	19771230
DE3677934 D1	19910411	DE19863677934	19861222
EP0229373 A1	19870722	EP19860117896	19861222
EP0229373 B1	19910306	EP19860117896	19861222
ES2021588 B3	19911116	ES19860117896T	19861222
GB1564450 A	19800410	GB19770011992	19770322
IL81071 A0	19870331	IL19860081071	19861222
JP52123373 A2	19771017	JP19770038170	19770405
US3970524 A	19760720	US19750565045	19750404
US4126000 A	19781121	US19760674219	19760406
US4265088 A	19810505	US19780962103	19781117
US4406118 A	19830927	US19810298364	19810901
US4411136 A	19831025	US19800205348	19801110
US4513573 A	19850430	US19830530650	19830909
US4670608 A	19870630	US19850812989	19851224
ZA8609651 A	19870930	ZA19860009651	19861223

Priority:

US19720252610	19720512	US19740486562	19740708	US19750565045	19750404
US19760674219	19760406	DE19762656868	19761215	DE19772759286	19771230
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CA19820397368	19820302	US19830530650	19830909	US19840574628	19840127
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Probable Assignee: FUNK H F**Assignee(s):** (std): FUNK H F ; FUNK HARALD F ; FUNK HARALD F DR**Assignee(s):** FUNK HARALD F DR MURRAY HILL N J V ST A ; FUNK HARALD F DR MURRAY HILL N Y US ; FUNK HARALD F MURRAY HILL N J V ST A ; HARALD F FUNK**Inventor(s):** (std): HARARUDO EFU FUANKU ; FUNK HARALD F DR ; FUNK HARALD F ; HARALD F FUNK ; DR HARALD F FUNK**Inventor(s):** F ; FUNK HARALD F MURRAY HILL N J V ST A ; FUNK HARALD F DR MURRAY HILL N J V ST A**Agent(s):** MCFADDEN FINCHAM; OSLER HOSKIN AND HARCOURT LLP; MACRAE AND CO**Designated states:** AT BE CH DE ES FR GB IT LI NL SE

Title: **CONTROL SYSTEM** AND **METHOD** FOR **CONTROLLING** DUAL FUEL OPERATION OF INDUSTRIAL GAS TURBINE POWER PLANTS, PREFERABLY EMPLOYING A DIGITAL COMPUTER

Abstract: A gas turbine power plant is provided with an industrial gas turbine capable of sustained operation on either gas or liquid fuel, or a mixture of the two. One of more of such turbine-generator plants are operated by a hybrid digital computer **control system** during all turbine operating modes. Optimum scheduling of either or both fuels under load is achieved by computer directed dual fuel subsystem operation. Computer determined fuel demands are continuously satisfied through either independent or simultaneous operation of the gas and liquid fuel subsystems.

Classifications:

International (ipc 8-9): F02C9/00 F02C9/26 F02C9/40 G05B15/00 G05B15/02 G06F15/02 (Advanced/Invention);

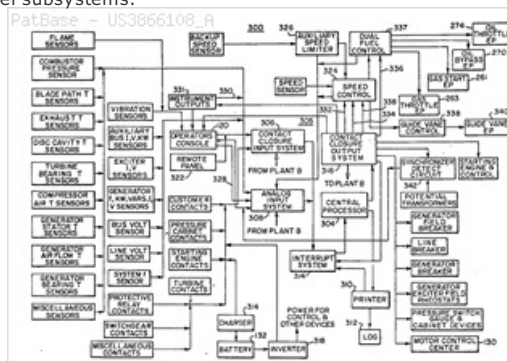
F02C9/00 G05B15/00 G05B15/02 G06F15/02 (Core/Invention)

International (ipc 1-7): F23N1/00 G05B15/00 G05B15/02 H02P9/04

CPC: F02C9/40 F02C9/26

European: F02C9/26 F02C9/40

US: 235/151.1 290/40R 290/4R 322/14 322/15 322/34 60/39.281 60/39.463 60/773 700/282 700/287 700/44 700/6 700/68 700/69 700/80 700/83 702/130

**Family:**

Publication number	Publication date	Application number	Application date
CA1025047 A1	19780124	CA19720157560	19721127
CA999924 A1	19761116	CA19720157229	19721123
CA999925 A1	19761116	CA19720157561	19721127
GB1410524 A	19751015	GB19720053477	19721120
GB1410525 A	19751015	GB19720053478	19721120
GB1410526 A	19751015	GB19720053479	19721120
JP48097021 A2	19731211	JP19720121716	19721206
US3866108 A	19750211	US19720310520	19721129
US3875380 A	19750401	US19730332457	19730214
US3919623 A	19751111	US19720308892	19721221
USB308892 I	19750128	US19720308892	19721221

Priority:

US19710204944 19711206 US19710205261 19711206 US19710205263 19711206
US19720310520 19721129 US19720308892 19721221 US19730332457 19730214

Probable Assignee: WESTINGHOUSE ELECTRIC CORP

Assignee(s): (std): WESTINGHOUSE ELECTRIC CORP

Assignee(s): YANNONE ROBERT A ; KISCADEN ROY W ; RANKIN GERALD L ; REUTHER JOHN F ; WESTINGHOUSE ELECTRIC CO

Inventor(s): (std): KISCADEN ROY W ; RANKIN GERALD L ; REUTHER JOHN F ; YANNONE ROBERT A

Title: Gas turbine power plant **control** apparatus having a multiple backup **control system**

Abstract: A gas turbine power plant is provided with an industrial gas turbine which drives a generator coupled to a power **system** through a breaker. The turbine-generator plant is operated by a hybrid **control system** having digital function capability during sequenced startup, synchronizing, load buildup and steady state load, and shutdown operations. The **control system** also contains monitoring and protective subsystems which function through all stages of operation, with redundancy and permissive features which maximize turbine availability.

Classifications:

International (IPC 8-9): F02C9/00 F02C9/32

G05B9/03 (Advanced/Invention);

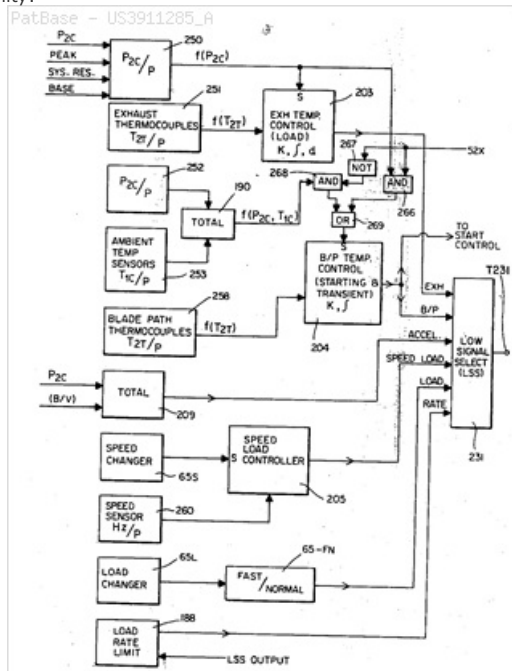
F02C9/00 G05B9/03 (Core/Invention)

International (IPC 1-7): F02C9/00 F02C9/08 F02D29/06 G05B9/03 H02P9/04

CPC: F02C9/32

European: 46F45K3NPT F02C9/32

US: 290/40 290/40.00R 290/40A 290/40R 322/14 60/39.091 60/39.281 60/773 700/287 700/304



Family:

Publication number	Publication date	Application number	Application date
BE816597 A	19741220	BE19740145651	19740620
CA1019397 A1	19771018	CA19740201535	19740603
JP1132634 C3	19830127	JP19740069776	19740620
JP50035617 A2	19750404	JP19740069776	19740620
JP57023092 B4	19820517	JP19740069776	19740620
US3911285 A	19751007	US19730371625	19730620
US4051669 A	19771004	US19740529204	19741203

Priority:

US19730371625 19730620 US19740529204 19741203

Probable Assignee: WESTINGHOUSE ELECTRIC CORP

Assignee(s): (std): WESTINGHOUSE ELECTRIC CO ; WESTINGHOUSE ELECTRIC CORP

Assignee(s): YANNONE ROBERT A ; SHIELDS JAMES J

Inventor(s): (std): SHIELDS JAMES J ; YANNONE ROBERT A

Title: Fuel **control system** and **control** device therefor or the like

Abstract: A fuel **control** device having a passage therethrough for interconnecting a fuel source with a main burner and having a poppet valve arrangement that is directly manually operated for opening and closing the passage so as to **control** the **flow** of fuel from the source to the main burner, the poppet valve arrangement having a poppet valve member that is moved relative to its valve seat upon the manual manipulation of a selector of the **control** device. The selector locks with the **control** device in the "off" position and the **control** device has a long and gradual cam surface to permit the selector to be moved to its locked "off" position without excessive "feel".

Classifications:

International (IPC 8-9): F16K1/52 F23N1/00 F23N5/02

F24C3/12 (Advanced/Invention);

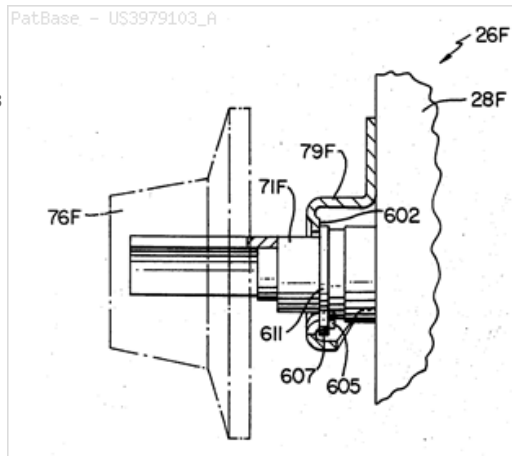
F16K1/32 F23N1/00 F23N5/02 F24C3/12 (Core/Invention)

International (IPC 1-7): F16K1/52 F16K17/00 F16K25/00 F16K31/143
F16K31/363 F16K31/524 F16K35/02 F16L5/00 F23N1/00 F23N5/02
F23N5/06 F23N5/24 F24C3/12 G10D11/00

CPC: F24C3/12 F23N2025/16 Y10T137/87523 F23N1/007 F23N5/027
F23N2035/12 F23N2035/18 F23N2035/20 F23N2035/24
Y10T137/87997 Y10T137/87981

European: F23N1/00F F23N5/02F F24C3/12 R23N25/16 R23N35/12
R23N35/18 R23N35/20 R23N35/24

US: 137/601.16 137/614.11 137/614.13 236/15A 251/180 251/263
251/304 251/333 251/63 251/85 251/97 285/188



Family:

Publication number	Publication date	Application number	Application date
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AU491240 B2	19780302	AU19740071346	19740717
BR7508001 A	19760824	BR19750008001	19751203
CA1029290 A1	19780411	CA19740205101	19740717
FR2238101 A1	19750214	FR19740024877	19740717
FR2238101 B1	19780127	FR19740024877	19740717
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JP50043537 A2	19750419	JP19740082082	19740717
US3979103 A	19760907	US19750570866	19750423
US3989064 A	19761102	US19740530605	19741209
US4007760 A	19770215	US19750604928	19750815
US4007872 A	19770215	US19750570863	19750423
US4007907 A	19770215	US19750570864	19750423
US4085891 A	19780425	US19760742846	19761118
US4123036 A	19781031	US19760742847	19761118
US4159800 A	19790703	US19780880762	19780224
USB530605 I	19760203	US19740530605D	19741209

Priority:

US19730380389 19730718	US19740443783 19740219	US19740530605 19741209
US19750570866 19750423	US19750570864 19750423	US19750570863 19750423
US19750604928 19750815	US19760742910 19761117	

Probable Assignee: ROBERTSHAW CONTROLS CO

Assignee(s): (std): ROBERTSHAW CONTROLS CO ; ROBERTSHAW CONTROLS COMPANY

Assignee(s): ROBERTSHAW CONTROLS CY US ; ROBERTSHAW CONTROLS CY ; BANKERS TRUST CO ; BRANSON CHARLES D ; DEMI ROY C

Inventor(s): (std): ROY CRAWFORD DEMI ; CHARLES DAVID BRANSON ; DEMI ROY CRAWFORD ; DEMI ROY C ; DEMI R ; BRANSON CHARLES DAVID ; BRANSON CHARLES D ; BRANSON C

Inventor(s): CHARLES DAVID BRANSON AND ROY CRAWFORD DEMI

Title: Protection **system** for transferring turbine and steam generator operation to a backup mode especially adapted for multiple computer electric power plant **control systems**

Abstract: An electric power plant including a steam generator and a steam turbine is operated by a **control system** including two redundant digital computers. Switching circuitry is provided for coupling one of the computers through interface equipment to the steam generator and the turbine and a generator according to programmed computer **control**. A data link is established between the computers to transfer manual/automatic status and other needed data from the **control** computer to the standby computer. A **system** is provided for detecting when certain hardware and software malfunctions have occurred and for responsively transferring **control** to the standby computer. The standby computer is tracked to the **control** computer so that **control** computer transfer can be made reliably without disturbing the electric power generation process. The detection **system** triggers computer transfers in the event malfunctions occur in input/output equipment including contact closure input and output **systems** and analog input and output **systems**. Computer transfers are also triggered on certain software malfunctions including tight loop operation and prescribed task errors. Certain other events such as a data link malfunction permit a computer transfer but limit the computer coming into **control** status to the manual mode.

Classifications:

International (IPC 8-9): F01D17/02 F01D17/24 F01K13/02 F01K7/24 G05B15/00 G06F11/20 G06F15/16 G06F19/00 H02P9/04 (Advanced/Invention);

F01D17/00 F01K13/00 F01K7/00 G05B15/00

G06F11/20 (Core/Invention);

E02B F03B G05B (Subclass/Invention)

International (IPC 1-7): E02B F01D17/00 F01D17/24 F01D17/24

F03B G05B15/00 G05B15/02 G05B9/03 G06F15/06 G06F15/16

G06F15/20 G06F15/46 G06F15/56 H02K H02P9/04

CPC: F01K7/24 G06F11/2023 G06F11/2038 G06F11/2097

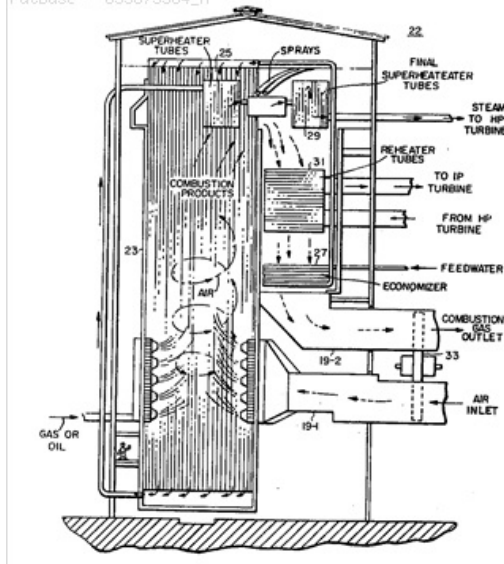
G06F11/2028 F01K13/02

European: F01K13/02 F01K7/24 G06F11/20P6 G06F11/20U

S06F11/20P2 S06F11/20P2E

US: 235/151.21 290/40R 364/494 415/1 415/15 60/645 60/646 700/287 700/70 700/82 714/2 714/E11.081

PatBase - US3875384_A



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Publication number	Publication date	Application number	Application date
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CA1046140 A1	19790109	CA19740212900	19741104
CA1046141 A1	19790109	CA19740212967	19741104
CH601848 A	19780714	CH19740014809	19741105
DE2452168 A1	19750821	DE19742452168	19741102
ES431639 A1	19770316	ES19740431639	19741105
ES431639 A2	19770416	ES19740431639	19741105
FR2257953 A1	19750808	FR19740036742	19741105
FR2257953 B1	19791019	FR19740036742	19741105
GB1486199 A	19770921	GB19740047571	19741104
IT1025438 A	19780810	IT19740029119	19741105
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JP50074718 A2	19750619	JP19740127271	19741106
SE422118 B	19820215	SE19740013954	19741106
SE422118 C	19820527	SE19740013954	19741106
SE7413954 A	19750710	SE19740013954D	19741106
US3875384 A	19750401	US19730413277	19731106
US3898441 A	19750805	US19730413271	19731106
US4029952 A	19770614	US19730413275	19731106
US4031372 A	19770621	US19730413278	19731106
US4053747 A	19771011	US19730413274	19731106

Priority:

US19730413271 19731106 US19730413275 19731106 US19730413278 19731106
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Probable Assignee: WESTINGHOUSE ELECTRIC CORP

Assignee(s): (std): WESTINGHOUSE ELECTRIC CO ; WESTINGHOUSE ELECTRIC CORP

Assignee(s): WESTINGHOUSE ELECTRIC CORP US ; DAVIS GUY E ; GHRIST WILLIAM D III ; HOOVER RAY C

Inventor(s): (std): DAVIS GUY E ; SMITH JACK ROBERT ; SMITH J R ; MENDEZ WILLIAM ELIGIO JR ; MENDEZ JUN WILLIAM ELIGIO ; MENDEZ JR W E ; HOOVER RAY CAMPBELL ; HOOVER R C ; GIRAS THEODORE CHARLES ; GIRAS T C ; GHRIST WILLIAM DEMPSEY III ; GHRIST III W D ; DAVIS GUY EDWIN ; DAVIS G E ; CHRIST WILLIAM DEMPSEY ; GHRIST WILLIAM D III ; SMITH JACK R ; MENDEZ JR WILLIAM E ; GIRAS THEODORE C ; HOOVER RAY C ; GHRIST III WILLIAM D

Inventor(s): G E DAVIS ; ELIGIO MENDEZ JUN ; JACK ROBERT SMITH ; J R SMITH ; R C HOOVER ; CAMPBELL HOOVER RAY ; CHARLES GIRAS THEODORE ; DEMPSEY CHRIST WILLIAM ; EDWIN DAVIS GUY ; GUY EDWIN DAVIS ; RAY CAMPBELL HOOVER ; ROBERT SMITH JACK ; THEODORE CHARLES GIRAS ; WILLIAM ELIGIO MENDEZ JR ; WILLIAM DEMPSEY GHRIST III ; W E MENDEZ JR ; W D GHRIST III ; T C GIRAS

Title: **METHOD** OF OXIDIZING HYDROCARBONS AND OXYGENATED HYDROCARBONS TO CARBON DIOXIDE AND WATER

Abstract: A class of ceramic mixed oxide, nonstoichiometric electrically neutral, rare-earth-type catalyst containing rare-earth-type elements, elements of the first transition metal series and Zirconium, Tin or Thorium and optionally the alkaline earth metals. The catalyst has the following formula: $W_kX_nJ_{(1-k-n)}ZrO_{3\pm m'}$ (I) wherein:

Classifications:

International (IPC 8-9): B01D53/62 B01D53/86 B01D53/94

B01J23/10 B01J23/22 B01J23/26 B01J23/34 B01J23/76 B01J23/78

B01J23/83 B01J23/835 C01B17/04 C01B17/50 C01B17/69

C01B17/78 C01B21/02 C01B21/22 C01B21/26 C01B21/36 C01B3/16

C01B31/20 C01B32/50 C01B5/00 C01C3/02 C04B35/50 C07C29/10

C07C29/48 C07C29/50 C07C45/35 C07C45/36 C07C45/38 C07C46/04 C07C51/25 C07C51/265

F23C13/00 (Advanced/Invention);

B01D53/62 B01D53/86 B01D53/94 B01J23/10 B01J23/16 B01J23/76 C01B17/00 C01B21/00 C01B3/00 C01B31/00 C01B5/00

C01C3/00 C04B35/50 C07C29/00 C07C45/00 C07C46/00 C07C51/16 F23C13/00 (Core/Invention)

International (IPC 1-7): B01D53/34 B01J23/10 B01J23/22 B01J23/26 B01J23/74 C01B17/04 C01B17/68 C01B17/69

C01B21/02 C01B21/22 C01B21/24 C01B31/20 C01B5/00 C01C3/02 F23D13/20

CPC: Y02T10/22 B01D53/86 B01D53/945 B01D53/8603 B01J23/76 C01C3/02 F23C13/08 F23C13/00 C01B17/0486

C01B17/508 C01B21/02 C04B35/50 C07C29/106 B01D53/62 C01B3/16 C01B21/22 C01B21/36 C07C29/04 C07C29/48

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B01J23/10 B01J23/78 C01B17/78 C01B21/265 C01B32/50 B01J23/835 B01D53/864 B01D53/9418 B01D53/9436

B01D2255/2042 B01D2255/2061 B01D2255/2063 B01D2255/2065 B01D2255/2068 B01D2255/20707 B01D2255/2073

B01D2255/20746 B01D2255/20753 B01D2255/20784 B01J23/22 B01J23/26 B01J23/34 B01J23/83 C01B5/00 Y02C20/10

Y02A50/2341

European: B01D53/62 B01D53/86 B01D53/86B B01D53/86H B01D53/94F2C2 B01D53/94F4 B01D53/94L2 B01J23/10

B01J23/22 B01J23/26 B01J23/34 B01J23/76 B01J23/78 B01J23/83 B01J23/835 C01B17/04D6 C01B17/50D C01B17/78

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C07C29/10D4 C07C29/48 C07C29/50 C07C45/35 C07C45/36 C07C45/38 C07C46/04 C07C51/25 C07C51/265 F23C13/00

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L01D255/207F L01D255/207G L01D255/207L Y02C10/04 Y02C20/10

US: 252/462 423/213.5 423/219 423/230 423/237 423/239.1 423/245 423/247 423/248 423/351 423/376 423/402

423/404 423/405 423/437 423/437.2 423/535 423/538 423/564 423/570 423/574.1 423/574R 423/580 423/580.1 423/655

423/659 431/2 431/5 502/302 502/303 502/304 502/306 502/324 502/328 502/336 502/340 502/341 502/342 549/248

549/258 562/412 562/523 568/400 568/402 568/409 568/431 568/471 568/476 568/477 568/802 568/866 568/867 568/900

568/910

Family:

Publication number	Publication date	Application number	Application date
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US3976599 A	19760824	US19750556670	19750310
US4062932 A	19771213	US19760712000	19760805
US4076486 A	19780228	US19760711999	19760805
US4078044 A	19780307	US19760712003	19760805
US4078046 A	19780307	US19760711998	19760805
US4080433 A	19780321	US19760712010	19760805
US4081519 A	19780328	US19760712001	19760805
US4082837 A	19780404	US19760712002	19760805
US4124687 A	19781107	US19770858560	19771208
US4124689 A	19781107	US19770858555	19771208
US4124694 A	19781107	US19770858558	19771208
US4124695 A	19781107	US19770858557	19771208
US4124697 A	19781107	US19770858556	19771208
US4160013 A	19790703	US19770858559	19771208

Priority:

US19710194769 19711008 US19710194769 19711028 US19750556670 19750310

US19760712001 19760805 US19760712002 19760805

Probable Assignee: UNIV SOUTHERN CALIFORNIA

Assignee(s): (std): UNIV SOUTHERN CALIFORNIA

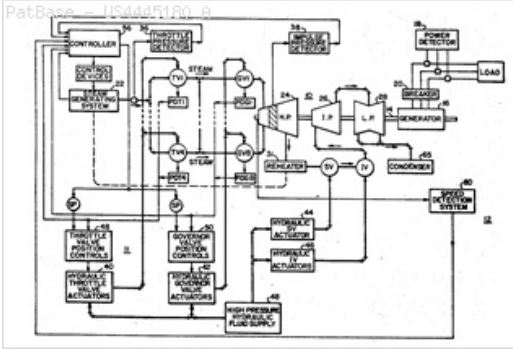
Assignee(s): UNIVERSITY OF SOUTHERN CALIFORNIA ; OF SOUTHERN CALIFORNIA UNIV ; THE UNIVERSITY OF SOUTHERN CALIFORNIA

Inventor(s): (std): WHELAN JAMES M

Title: Plant unit master **control** for fossil fired boiler implemented with a digital computer

Abstract: An electric power plant, including a fossil fired boiler and a steam turbine, is operated by a **control system** including a plant unit master. The **control system** includes a boiler **control** for determining the inputs of fuel, air and water, and a turbine **control** for determining the position of the throttle valves introducing steam from the boiler to the turbine. The plant unit master provides a load demand reference in parallel to the boiler **control** and to the turbine **control**, whereby the turbine and the boiler are operated in a coordinated manner. Measuring means provide indications of throttle **pressure**, power generated by the **system** and turbine rotor speed. Distinct **controllers**, each including a **controller** and responsive to one of the aforementioned indications and its corresponding reference, modify the load demand reference before it is applied to the turbine **control** or to the boiler **control**. The above-described **control system** including the plant unit master, boiler **control** and turbine **control** is implemented by a single digital computer.

Classifications:
International (ipc 8-9): F01D17/24 F01K13/02 F22B35/00 F22B35/18 F22B37/38 (Advanced/Invention)
International (ipc 1-7): F01D17/02 F01D17/24 F01K13/00 F01K13/02 F22B35/18 G05B15/00 G06F15/46
CPC: F01D17/24 F01K13/02 F22B35/18 G06K13/0825
European: F01D17/24 F01K13/02 F22B35/18 G06K13/08A4
US: 290/40R 364/494 60/646 700/289 700/41



Family:

Publication number	Publication date	Application number	Application date
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JP1207009 C3	19840511	JP19740127272	19741106
JP50124034 A2	19750929	JP19740127272	19741106
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US4445180 A	19840424	US19730413291	19731106

Priority:

US19730413291 19731106

Probable Assignee: WESTINGHOUSE PROCESS CONTROL INC A DELAWARE CORP

Assignee(s): (std): WESTINGHOUSE ELECTRIC CO ; WESTINGHOUSE ELECTRIC CORP

Assignee(s): WESTINGHOUSE PROCESS CONTROL INC ; WESTINGHOUSE PROCESS CONTROL INC A DELAWARE CORP

Inventor(s): (std): SMITH JACK R ; DAVIS GUY E

Title: PROCESS FOR RECOVERING AND UPGRADING HYDROCARBONS FROM OIL SHALE AND TAR SANDS

Abstract: A process for recovering and upgrading hydrocarbons from oil shale and tar sands by contacting the oil shale or tar sands with a dense-water-containing fluid at a temperature in the range of from about 600 DEG F. to about 900 DEG F. in the absence of supplied hydrogen and in the presence of a sulfur- and nitrogen-resistant catalyst and wherein the density of the water in said fluid is at least 0.10 gram per milliliter.

Classifications:

International (IPC 8-9): B01D11/02 C07C1/00 C07C67/00 C07C7/148 C07C9/00 C10G1/00 C10G1/04

C10G1/08 (Advanced/Invention);

B01D11/02 C07C1/00 C07C67/00 C07C7/00 C07C9/00

C10G1/00 (Core/Invention);

C10G (Subclass/Invention)

International (IPC 1-7): B01D11/00 B01J11/08 C01G17/00 C07C3/00 C07C7/10 C10G1/00 C10G1/04 C10G1/06 C10G11/02

C10G11/20 C10G13/06 C10G13/20 C10G17/00 C10G23/00

C10G23/04 C10G23/12 C10G31/08 C10G37/06 C10G9/34 C10G9/48

CPC: C10G1/047 Y10S208/952 C10G1/04 C10G1/00 C10G1/002

C10G1/08 C10G1/083

European: 23B C10G1/00 C10G1/00B C10G1/04 C10G1/04W

C10G1/08 C10G1/08B

US: 166/303 166/307 208/106 208/108 208/11.0LE 208/110

208/111.05 208/111.15 208/111.25 208/111.35 208/112 208/113

208/11LE 208/121 208/130 208/208R 208/213 208/217 208/251H

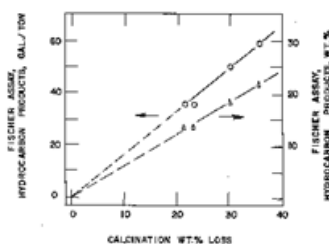
208/251R 208/253 208/254H 208/254R 208/390 208/391 208/414

208/430 208/435 208/8 208/9 208/952

PatBase - US3948754_A

U.S. Patent April 6, 1976 Sheet 1 of 7 3,948,754

FIG. 1



Family:

Publication number	Publication date	Application number	Application date
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FR2275545 A1	19760116	FR19750017041	19750530
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IT1035830 A	19791020	IT19750049732	19750522
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JP51002702 A2	19760110	JP19750064452	19750530
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NL7506072 A	19751202	NL19750006072	19750523
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SU1029830 D	19830715	SU19752144453	19750530
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US4005005 A	19770125	US19760664015	19760304
US4151068 A	19790424	US19770813990	19770708
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Priority:

US19740474907 19740531	US19740474908 19740531	US19740474927 19740531
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US19740484582 19740701	US19740484592 19740701	US19740484593 19740701
US19740484594 19740701	US19760664015 19760304	

Probable Assignee: STANDARD OIL CO INDIANA

Assignee(s): (std): STAND OIL CO ; STANDARD OIL CO ; STANDARD OIL CO INDIANA ; STANDARD OIL CO OHIO ;
STANDARD OIL COMPANY ; STANDART OIL CO US ; STANDARD OIL CY ; STANDARD OIL CO US ;
STANDARD OIL COMPANY TE CHICAGO ILLINOIS VER ST V

Assignee(s): STANDARD OIL COMPANY INDIANA ; STANDARD OIL COMPANY TE CHICAGO ILLINOIS VER ST V AM ;
STANDARD OIL CO TE CHICAGO ILLINOIS VER ST V AM ; SUTANDAADO OIRU CO ZA ; MCCOLLUM
JOHN D ; QUICK LEONARD M

Inventor(s): (std): DZHON DEVID MAKKOLLAM US ; JOHN DAVID MCCOLLUM ; JON DEEBITSUDO MATSUKORAMU ; KVIK
LEONARD MAJKL ; LEONARD MAJKL KVIK US ; LEONARD MICHAEL QUICK ; MAKKOLLAM DZHON DEVID
; MCCOILUM J ; MCCOLLUM J ; MCCOLLUM JOHN D ; MCCOLLUM JOHN DAVID ; QUICK L ; QUICK
LEONARD M ; QUICK LEONARD MICHAEL ; QUICK LEONARD MICHAEL US ; REONAADO MAIKURU
KUIITSUKU

Inventor(s): MCCOLLUM JOHN D US ; DAVID MCCOLLUM JOHN ; MICHAEL QUICK LEONARD

Title: Electronically commutated motor and **method** of making same

Abstract: A brushless DC motor is constructed with photosensitive devices for detecting rotor shaft position. Arcuate permanent magnets on the rotor provide a DC flux field while distributed stator windings, each spanning a fixed number of slots in the armature assembly, provide mutually perpendicular magnetic fields. A logic circuit comprising NOR gates and transistor switches and drivers activated in response to signals from the shaft position sensors are utilized to **control** current switching in the stator windings of the motor. A light interrupting shutter mounted to the rotor cooperates with the light sensitive devices which are mounted to a supporting bracket fixed to the stator assembly in a manner to selectively preset advancement of commutation of the stator windings.

Classifications:

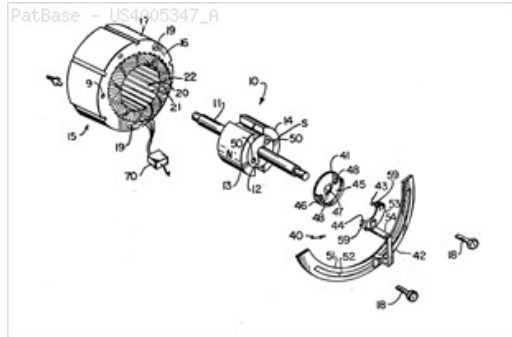
International (IPC 8-9): B60H1/32 D06F33/02 D06F35/00 D06F37/30 D06F37/38 D06F37/40 F23N3/08 F25B49/02 G05D23/01 G05D23/19 H02K29/00 H02K29/06 H02K29/10 H02P6/08 H02P6/14 H02P6/16 H02P6/18 (Advanced/Invention); H02K29/06 (Advanced/Non-invention); B60H1/32 D06F33/02 D06F37/30 F23N3/08 F25B49/02 G05D23/19 H02K29/00 H02K29/06 H02P6/08 H02P6/14 (Core/Invention); H02K (Subclass/Invention)

International (IPC 1-7): B60H3/04 D06F33/02 D06F35/00 D06F37/30 D06F37/36 D06F37/38 D06F37/40 F25B1/00 F25B31/02 F25B49/00 F25D17/00 G05D23/01 G06G7/62 H02K23/00 H02K29/00 H02K29/02 H02K29/06 H02K29/12 H02M1/08 H02M7/12 H02N H02P1/02 H02P1/18 H02P5/06 H02P5/16 H02P6/00 H02P6/02 H02P6/18 H02P7/00 H02P7/28 H02P7/29

CPC: H02P6/16 H02P2209/07 H02P6/08 D06F37/304 H02K29/06 H02P6/14 Y02B40/52 Y10S388/934 H02K29/10 H02P6/182 F23N3/082 F23N2033/04 F25B49/025 G05D23/19 D06F23/04 H02P6/085 F25B2600/021 H02P6/187

European: D06F37/30C F23N3/08B F25B49/02C G05D23/19 H02K29/06 H02K29/10 H02P6/08 H02P6/08B H02P6/14 H02P6/16 H02P6/18E R23N33/04 R25B600/021 T02P209/07 Y02B40/52

US: 318/138 318/254 318/3 318/318 318/334 318/341 318/342 318/345R 318/400.01 318/400.03 318/400.04 318/400.08 318/400.09 318/400.1 318/400.13 318/400.17 318/400.2 318/400.21 318/400.22 318/400.27 318/400.28 318/400.29 318/400.3 318/400.31 318/400.34 318/400.37 318/400.4 318/400.41 318/431 318/439 318/471 318/599 323/235 361/33 361/90 363/124 363/41 363/81 388/811 388/816 388/934 62/180 62/186 62/227 62/228.4



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Priority:

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Probable Assignee: REGAL BELOIT ELECTRIC MOTORS INC

Assignee(s): (std): GENERAL ELECTRIC CO ; BRATTOLI MARK A ; ERDMAN DAVID M ; GEN ELECTRIC

Assignee(s): GENERAL ELECTRIC ; GEC ; GEC US ; GENERAL ELECTRIC COMPANY ; GENERAL ELECTRIC CY ; REGAL BELOIT ELECTRIC MOTORS INC ; GENERAL ELECTRIC CO A CORP OF NY ; GENERAL ELECTRIC CO A NEW YORK CORP ; GENERAL ELECTRIC CO SCHENECTADY N Y US ; HARMS HAROLD B

Inventor(s): (std): BEATTY JAMES A ; BRATTOLI MARK A ; DAVID MARVIN ERDMAN ; DEBITSUDO MAABIN EAADOMAN ; DEIBITSUDO MAABIN AADOMAN ; ERDMAN D ; ERDMAN D M ; ERDMAN DAVID M ; ERDMAN DAVID MARVIN ; ERDMANN DAVID MARVIN ; FLOYD HOWARD WRIGHT ; FUROIDO HAWAADO RAITO ; HARMS HAROLD B ; PATEL AMRITLAL H ; WRIGHT F H ; WRIGHT FLOYD H ; WRIGHT FLOYD HOWARD ; LERDMAN DAVID M

Inventor(s): MARVIN ERDMAN DAVID ; ERDMANN DAVID MARVIN FORT WAYNE INDIANA 46825 US ; ERDMAN DAVID MARVIN FORT WAYNE IND ; HOWARD WRIGHT FLOYD ; ERDMAN DAVID MARVIN PORT WAYNE IND ; ERDMAN DAVID MARVIN PORT WAYNE IND US

Agent(s): DAVIES COLLISON CAVE PTY LTD; ECKERSLEY RAYMOND A

Designated states: DE FR GB IT

Title: HIGH TEMPERATURE CHEMICAL REACTOR

Abstract: A high temperature reactor comprises a tube which defines a reactor chamber; means for introducing the inert fluid into the reactor tube to provide a protective blanket for the inside surface of the tube; means for introducing reactants into the chamber, the reactants being confined centrally within the chamber by the protective blanket; and, means, for generating high intensity radiant energy which is directed into the chamber to coincide with at least a portion of the path of the reactants.

Classifications:

International (IPC 8-9): B01J12/00 B01J19/00 B01J19/12 B01J3/04 B23P15/22 C01B3/34 C01B31/08 C01B31/26 C01B31/30 C09C1/48 C09K3/14 C10G15/08 C10G32/02 C10G32/04 C10G9/20 C10G9/36 C10J3/10 C10J3/48 C10J3/74 C21B13/00 C21B13/04 C22B5/02 C22B5/10 C22B5/12 F02B43/10 (Advanced/Invention); F02B1/04 (Advanced/Non-invention); B01J12/00 B01J19/00 B01J19/12 B01J3/04 B23P15/00 C01B3/00 C01B31/00 C09C1/44 C09K3/14 C10G15/00 C10G32/00 C10G9/00 C10J3/00 C10J3/02 C10J3/48 C21B13/00 C22B5/00 (Core/Invention); F02B1/00 (Core/Non-invention)

International (IPC 1-7): B01J1/00 B01J19/00 B01J19/02 B01J19/08 B01J19/12 B01J19/00 B22F9/00 B23P19/04 C01B1/13 C01B3/22 C01B31/36 C10G9/42 C10J3/00 C22B1/00 F02B43/00 F27B17/00

CPC: B01J3/042 B01J19/122 F02B43/10 Y02T10/32 C10J2200/31 Y10S48/05 Y10S423/05 Y10S422/906 Y10S138/06 C22B5/02 C10K3/006 C10J3/723 C10J3/506 C10J3/76 C10J3/78 C10J2300/0906 C10J2300/093 C10J2300/0946 C10J2300/0959 C10J2300/0976 C10J2300/1246 C10J2300/1269 C10J2200/09 C10J2300/0986 B01J12/005 B01J2208/00495 C10G2400/20 C10G2400/30 C10J3/466 C10J3/485 C10J3/74 C10J2300/0956 C10J2300/0973 F02B1/04 F02F2007/0092 C10G9/20 C01B3/342 C09C1/48 C01P2004/20 C01P2004/32 C01P2006/60 C01P2006/80 C09K3/1436 C10G15/08 C10G32/02 C10G32/04 C21B13/00 C21B13/04 C10J3/10 C10J3/84 C09K3/1409 C22B5/10 C22B5/12 B01J2219/00155 Y10T29/49085 B23P15/22 B01J19/0053 Y10T29/49877 Y10T29/49888 Y10T428/30 B01J19/00 Y02P10/136 Y02P20/145 Y02P10/212 C01B32/30 C01B32/70 C01B32/90 C01B32/75

European: 23B7U B01J12/00D B01J19/00D B01J19/12D B01J3/04B B23P15/22 C01B3/34G C01B31/08 C01B31/26 C01B31/26B2 C01B31/30 C09C1/48 C09K3/14B C09K3/14C C10G15/08 C10G32/02 C10G32/04 C10G9/20 C10G9/36 C10J3/10 C10J3/46D C10J3/48D C10J3/74 C21B13/00 C21B13/04 C22B5/02 C22B5/10 C22B5/12 F02B43/10 L01J208/00C2P4 L01J219/00B2P4 M01P4/20 M01P4/32 M01P6/60 M01P6/80 M10G400/20 M10G400/30 R02B1/04 R02F7/00G5 **US:** 112/441 123/3 123/536 123/549 138/109 138/123 138/146 138/149 138/172 138/DIG.6 196/120 201/2.5 201/25 202/124 202/88 202/99 208/106 208/132 208/141 219/121.6 219/121.84 219/390 219/549 23/252R 250/432.00R 250/432R 252/373 264/0.5 264/7 29/454 29/460 29/612 290/2 373/112 373/113 373/133 392/330 392/407 392/419 392/422 422/109 422/111 422/112 422/129 422/150 422/186 422/186.04 422/186.22 422/198 422/199 422/202 422/203 422/205 422/240 422/241 422/242 422/906 423/345 423/349 423/415.1 423/439 423/453 423/458 423/650 423/652 423/659 423/DIG.5 428/408 432/238 432/8 48/103 48/111 48/197.00A 48/197.00R 48/197A 48/197R 48/205 48/206 48/209 48/215 48/86R 48/DIG.5 585/537 585/539 700/266 700/299 700/67 75/0.5B 75/10.12 75/345 75/414

Family:

Publication number	Publication date	Application number	Application date
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Priority:

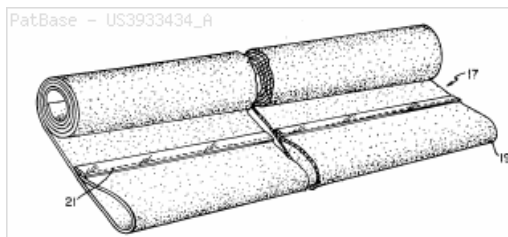
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Probable Assignee: THAGARD TECHNOLOGY CO

Assignee(s): (std): MATOVICH EDWIN ; THAGARD TECHNOLOGY ; THAGARD TECHNOLOGY CO ; COPELAN JAMES B

Assignee(s): JM HUBER CORP ; THAGARD TECHNOLOGY COMPANY

Inventor(s): (std): COPELAN JAMES B ; MATOVICH EDWIN



Title: FLUIDIC REPEATER

Abstract: Two fluid passages are connected through **flow** restrictors to a fluid supply. Downstream of the restrictors the fluid supply has a drooping pressureload characteristic. Venting means for the fluid passages comprises vent openings therein downstream of the restrictors and variable position obstructor means cooperating with vent openings to vary the venting and thereby vary fluid **pressures** in the fluid passages. This forms a mechanical to fluidic translator. **Pressures** at the translator's outputs are a function of the obstructor's position. This translator forms the transmitter of a servo or remote **control** or indicator **system**.

Classifications:

International (IPC 8-9): F15B13/043 F15B13/16 F15B9/08

F15C3/02 (Advanced/Invention);

F15B13/00 F15B9/00 (Core/Invention)

International (IPC 1-7): A01B63/112 F01B13/04 F01B3/00 F01B3/02

F15B13/02 F15B13/16 F15B15/22 F15B21/02 F15B9/08 F15B9/10

F15C3/02 F16H39/46

CPC: Y10T137/86582 Y10T137/86598 Y10T137/86606 F15B13/16

F15B9/08 F15B13/043

European: F15B13/043 F15B13/16 F15B9/08

US: 137/625.6 137/625.62 137/625.63 172/413 172/7 181/119

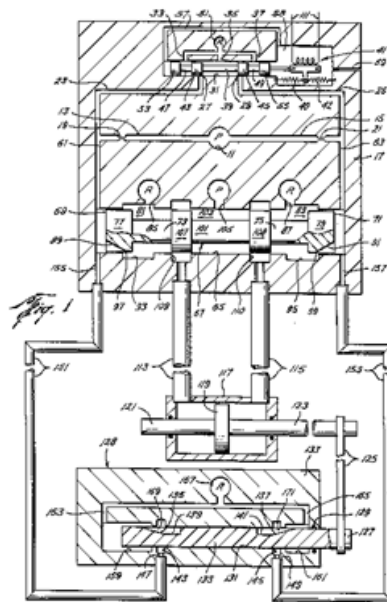
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PatBase - US3988966_A

U.S. Patent Nov. 2, 1976 Sheet 1 of 12 3,988,966



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Priority:

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US19760720410 19760903	US19770828045 19770826	US19780872826 19780127
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Probable Assignee: LEONARD WILLIE

Assignee(s): (std): LEONARD W ; LEONARD WILLIE ; LEONARD WILLIE B ; LEONARD WILLIE BURT

Assignee(s): UIRII BAATO REONAADO

Inventor(s): (std): LEONARD WILLIE B ; LEONARD WILLIE BURT

Inventor(s): UIRII BAATO REONAADO ; BURT LEONARD WILLIE

Title: PROCESS FOR OPERATING A MAGNETICALLY STABILIZED FLUIDIZED BED

Abstract: A fluidized bed process is disclosed which comprises subjecting a bed comprised of solid particulate magnetizable, fluidizable material within an external force field wherein at least a portion of the bed containing said solid particulate magnetizable and fluidizable material and fluidizing fluid are subjected to a nontime varying and substantially uniform applied magnetic field having a substantial component along the direction of the external force field such that said solid particulate magnetizable and fluidizable material has a component of magnetization along the direction of the external force field and wherein at least a portion of said bed containing the solid particulate magnetizable and fluidizable material is fluidized by a **flow** of fluid opposing said external force field at a superficial fluid velocity ranging between:

Classifications:

International (IPC 8-9): B01J23/00 B01J8/18 B01J8/42 B03C1/32 C09K3/00 C10G35/14 C10G45/20 C10G49/16 F26B3/08 F26B3/097 (Advanced/Invention); B01J8/24 B03C1/00 C10G35/00 C10G45/02 C10G49/00 F26B3/02 (Core/Invention)

International (IPC 1-7): B01D B01J23/74 B01J29/04 B01J29/06 B01J35/02 B01J8/18 B01J8/24 B01J8/40 B01J8/42 B03C C01B17/60 C01G49/08 C09K3/00 C10G11/18 C10G13/18 C10G23/10 C10G35/14 F26B3/08 H01F1/20

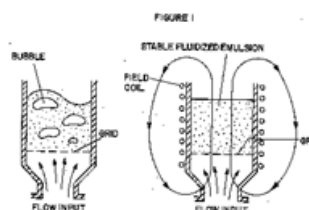
CPC: B01J8/42 B03C1/32 C10G35/14 C10G45/20 C10G49/16 F26B3/097 Y10S423/16

European: B01J8/42 B03C1/32 C10G35/14 C10G45/20 C10G49/16 F26B3/097

US: 208/120.01 208/134 208/213 208/46 252/62.56 34/1 34/249 422/139 423/150.6 423/244 423/244.06 423/244.1 423/659 423/DIG.16 48/210 502/66 502/74 95/27 96/2

PatBase - US4115927_A

U.S. Patent Sept. 26, 1978 Sheet 1 of 5 4,115,927

**Family:**

Publication number	Publication date	Application number	Application date
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Priority:

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US19780935566 19780821	US19800190934 19800924	US19800192228 19800930
US19800221372 19801230	US19820437408 19821028	

Probable Assignee: EXXON MOBIL CORP

Assignee(s): (std): EXXON RESEARCH AND ENGINEERING COMPANY ; EXXON RESEARCH ENGINEERING CO ; EXXON RESEARCH ENGINEERING CY ; EXXON RESEARCH AND ENGINEERING COMPANY TE FLORHAM ; EXXON RESEARCH AND ENGINEERING COMPANY TE LINDEN N ; EXXON MOBIL CORP ; EXXON RES AND ENG CO

Assignee(s): EXXON RESEARCH AND ENGINEERING CO ; EXXON RESEARCH AND ENGINEERING CO LINDEN N J US ; EXXON RESEARCH AND ENGINEERING COMPANY TE FLORHAM PARK NEW JERSEY VER ST V AM ; EXXON RESEARCH AND ENGINEERING COMPANY TE LINDEN NEW JERSEY VER ST V AM ; ROSENSWEIG RONALD E

Inventor(s): (std): RONALD ELLIS ROSENSWEIG ; ROSENSWEIG RONALD ELLIS ; ROSENSWEIG RONALD E ; ROSENSWEIG R

Inventor(s): ROSENSWEIG RONALD E SUMMIT N J US ; E ROSENSWEIG RONALD
Agent(s): BORDEN LADNER GERVAIS LLP

Title: Seismic data telemetering **system**

Abstract: A plurality of data acquisition units are connected to a central signal processor through a common telemeter link. The telemeter link includes a data channel, an interrogation channel and a **control** channel. The central signal processor sends an interrogation signal through the interrogation channel to the data acquisition units. As each data acquisition unit recognizes the interrogation signal, it transmits its acquired data back to the central signal processor through the data channel. Any selected data acquisition unit, when it receives a **control** signal through the **control** channel at the same time that it receives an interrogation signal through the interrogation channel, can be caused to perform a function different from all other units. The signal propagation velocity through the **control** channel is different from the signal propagation velocity through the interrogation channel. One of the two signals may be transmitted through the faster channel at a selected time later than the other of the two signals is transmitted through the slower channel. The selected time difference between the transmission of the two signals is proportional to the ratio of signal propagation delay difference between channels. Accordingly the signal through the faster channel will overtake and intercept the signal propagating through the slower channel, at the selected data acquisition unit. Each data acquisition unit may have two or more input channels. Each input channel is connected in turn to the data channel through a stepping switch or multiplexer. The interrogation signal may exist in one of two or more states. In the first state, the interrogation signal resets the multiplexer. In the second state, the interrogation signal advances the multiplexer to the next input channel in sequence.

Classifications:

International (IPC 8-9): G01D3/028 G01D5/12 G01J1/20 G01J1/22 G01V1/16 G01V1/20 G01V1/22 G01V1/24 G01V1/28 G01V1/34 G01V1/36 G01V1/38 G08C15/00 G08C15/06 G08C19/00 H03F1/34 H03G3/20 H03H11/04 H03H11/12 H03H19/00 H03H7/01 H03H7/06 H04J3/02 H04J3/04 H04J3/10 H04L25/49 H04Q11/04 H04Q9/00 (Advanced/Invention);

G01V1/28 H04Q9/00 (Advanced/Non-invention);

G01D3/028 G01D5/12 G01V1/00 G01V1/16 G01V1/22 G01V1/28 G01V1/38 G08C15/00 G08C19/00 H03G3/20 H03H11/04 H03H19/00 H03H7/01 H04J3/02 H04J3/04 H04L25/49 H04Q9/00 (Core/Invention);

G01V1/28 (Core/Non-invention);

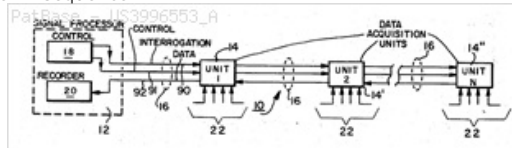
G01V G06F H04B (Subclass/Invention)

International (IPC 1-7): G01D5/12 G01J1/20 G01J1/22 G01S3/80 G01V1/00 G01V1/16 G01V1/20 G01V1/22 G01V1/24 G01V1/28 G01V1/34 G01V1/36 G01V1/38 G06G7/48 G08C15/00 G08C15/06 G08C15/06 H03F1/34 H03F21/00 H03G3/20 H03H11/00 H03H11/04 H03H11/12 H03H19/00 H03H7/01 H03H7/02 H03H7/06 H03K13/02 H03K13/18 H03K17/56 H04J3/02 H04J3/04 H04J3/10 H04L25/49 H04L25/52 H04L5/00 H04Q11/04

CPC: H03G3/30 G01V1/24 G01V1/20 H03G3/3026 G01D5/12 G01V1/16 G01V1/22 G01V1/245 G01V1/38 G08C15/00 H03H11/04 H03H19/002 H03H19/008 H04J3/04 H04J3/10 H04L25/4904 Y02A90/36

European: G01D5/12 G01V1/16 G01V1/20 G01V1/22 G01V1/24C G01V1/38 G08C15/00 H03G3/30B8 H03H11/04 H03H11/12C H03H19/00A H03H19/00D H04J3/04 H04J3/10 H04L25/49C

US: 179/15BL 327/407 327/99 330/144 330/282 330/86 340/15.5GC 340/15.5TS 340/853.7 340/870.04 340/870.13 340/870.38 340/870.41 367/135 367/15 367/45 367/52 367/6 367/60 367/63 367/67 367/74 367/78 367/79 370/439 370/450 370/517 370/532



Family:

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Priority:

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CA19760252025 19760507	DE19762659967 19760507	US19790077260 19790919

Probable Assignee: INPUT OUTPUT INC

Assignee(s): (std): WESTERN GEOPHYSICAL CO

Assignee(s): WESTERN GEOPHYSICAL CO AMERICA ; UESUTAAN JIOFUIJIKARU CO OBU AMERIKA ; WESTERN ATLAS INT ; WESTERN ATLAS INT INC A CORP OF DE ; WESTERN GEOPHYSICAL CO OF AMERICA A CORP OF DE ; SIEMS LEE E ; SAVIT CARL H ; WESTERN GEOPHYSICAL CO OF AMERICA TE BEVERLY HILLS CALIFORNIE VER ST V AM ; WESTERN GEOPHYSICAL COMPANY OF AMERICA ; WESTERN GEOPHYSICAL COMPAGNY ; WESTERN GEOPHYSICAL CY AMERICA ; WESTERN GEOPHYSICAL CY OF AMERIC ; WESTERN GEOPHYSICAL COMPANY OF AMERICA BEVERLY HILLS CALIF US ; WESTERN GEOPHYSICAL COMPANY OF AMERICA TE BEVERLY HILLS CALIFORNIE VER ST V AM ; I O EXPLORATION PRODUCTS (USA) INC ; I O EXPLORATION PRODUCTS INC ; INPUT OUTPUT INC ; MIODUSKI GEORGE T ; MORGAN PAUL M ; WESTERN GEOPHYSICAL CO OF AMERICA

Inventor(s): (std): SIEMS LEE E ; SIEMS L E ; SIEMS L ; SAVIT CARL H ; SAVIT C H ; SAVIT C ; MORGAN PAUL M ; MORGAN P MC ; MORGAN P M D ; MORGAN P M ; MORGAN P ; MIODUSKI GEORGE T ; MIODUSKI G T ; MIODUSKI G ; MC DONALD MORGAN P ; MORGAN PAUL MCDONALD ; MIODUSKI GEORGE TADEUSZ ; MIODUSKI G T ; JIYOOJI TADEUTSU MIODOUSUKII ; SIEMS LEE EDWARD ; SAVIT CARL HERTZ ; RII EDOWAADO SHIIMUSU ; POORU MAKUDONARUDO MOOGAN ; KAARU HAATSU SABUITSUTO ; KAARU HAATSU SABITSUTO

Inventor(s): JOOJI TADEUTSU MIODOSUKII ; T MIODUSKI GEORGE ; PAUL MCDONALD MORGAN ; HOORU MAKUDONARUDO MOOGAN ; GEORGE TADEUSZ MIODUSKI PAUL MCDONALD MORGAN ; GEORGE TADEUSZ MIODUSKI ; GEORGE T MIODUSKI ; CARL HERTZ SAVIT ; PM MORGAN ; MIODUSKI G T MORGAN P MC SANFT CH SIEMS LE ; LE SIEMS ; GT MIODUSKI ; CH SAVIT ; GEORGE TADEUSZ MIODUSKI PAUL MCDONALD MORGAN CARL HERTZ SAVIT ET LEE EDWARD SIEMS ; LEE EDWARD SIEMS ; LEE E SIEMS PAUL M MORGAN ET CARL H SAVIT ; LEE E SIEMS ET PAUL M MORGAN ; LEE E SIEMS ; KAARU HAATSU SAUITSUTO ; M MORGAN PAUL ; L E SIEMS ; H SAVIT CARL ; G T MIODUSKI ; E SIEMS LEE ; C H SAVIT ; P MC MORGAN ; P M MORGAN

Agent(s): SF; SPRUSON AND FERGUSON; MACRAE AND CO

Title: HETEROGENOUS SPECIFIC BINDING ASSAY EMPLOYING A COENZYME AS LABEL

Abstract: An improved heterogeneous specific binding assay **method** which employs a substance having reactant activity, i.e., a reactant, as a labeling substance in the detection of a ligand in a liquid medium. The **method** is carried out using reagent means which comprises, as its labeled constituent, a conjugate formed of a specific binding substance coupled to the reactant. The reactant advantageously is an enzymatic reactant such as an enzyme substrate or coenzyme. The activity of the conjugated reactant as a constituent of a predetermined reaction **system** is utilized as means for monitoring the extent of binding of the labeled constituent in conventional heterogeneous specific binding assay schemes. The presence of a ligand in a liquid medium may be determined following conventional competitive binding manipulative techniques. After the necessary separation of the bound-and free-phases resulting in the specific binding reaction **system**, the extent of binding of the labeled constituent is determined by contacting either phase with the necessary materials to form the predetermined monitoring reaction **system** in which the labeling substance is active and assessing reactant activity therein.

Classifications:

International (IPC 8-9): C07D209/48 C07D237/32 C07D493/10 C07D495/04 C07H19/20 C07H19/207 C07H21/00 C07J43/00 C12Q1/00 C12Q1/28 G01N31/00 G01N33/48 G01N33/50 G01N33/532 G01N33/533 G01N33/535 G01N33/536 G01N33/537 G01N33/54 G01N33/542 G01N33/543 G01N33/58 G01N33/60 (Advanced/Invention); C12Q1/00 G01N31/00 G01N33/50 G01N33/532 G01N33/536 G01N33/543 G01N33/60 (Advanced/Non-invention); C07D209/00 C07D237/00 C07D493/00 C07D495/00 C07H19/00 C07H21/00 C12Q1/00 G01N31/00 G01N33/50 G01N33/532 G01N33/533 G01N33/535 G01N33/536 G01N33/54 G01N33/543 G01N33/58 G01N33/60 (Core/Invention); G01N (Subclass/Invention)

International (IPC 1-7): C01B C07C103/52 C07D209/48 C07D237/30 C07D237/32 C07D307/94 C07D403/02 C07D403/06 C07D403/12 C07D409/14 C07D49/00 C07D495/04 C07D51/00 C07G7/00 C07H19/20 C07H19/207 C07H21/00 C07J43/00 C07J5/00 C09K11/07 C12N11/00 C12N11/16 C12Q1/00 C12Q1/10 C12Q1/66 G01J1/58 G01N21/52 G01N21/64 G01N21/76 G01N31/00 G01N31/14 G01N31/22 G01N33/00 G01N33/16 G01N33/48 G01N33/50 G01N33/52 G01N33/53 G01N33/531 G01N33/532 G01N33/533 G01N33/535 G01N33/536 G01N33/537 G01N33/54 G01N33/542 G01N33/543 G01N33/58

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PatBase - US4791055_R

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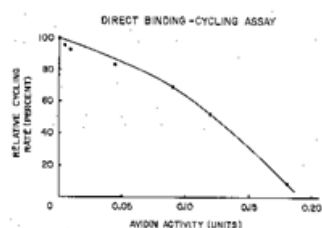


FIG. 1

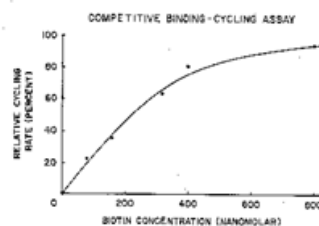


FIG. 2

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Priority:

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Probable Assignee: MILES INC

Assignee(s): (std): MILES INC ; MILES LAB ; MILES LABORATORIES INC TE ELKHART INDIANA VER ST V

Assignee(s): MILES LABOR INC ; MILES LABORATORIES INC ; MILES LAB INC ; MILES LABORATORIES INC US ; MILES LABORATORIES INC TE ELKHART INDIANA VER ST V AM ; MILES LABORATORIES INC 46515 ELKHART IND US ; MILES LABORATORIES INC ELKHART IND V ST A ; BOGUSIASKI ROBERT C ; BOGUSLASKI ROBERT C ; CARRICO ROBERT J ; CHRISTNER JAMES E ; MAIRUSU INC

Inventor(s): (std): BOGUSIASKI ROBERT C ; BOGUSLASKI CHARLES ; BOGUSLASKI CHARLES R ; BOGUSLASKI R ; BOGUSLASKI R C ; BOGUSLASKI ROBERT C ; BOGUSLASKI ROBERT CHARLES ; CARRICO JOSEPH ; CARRICO JOSEPH R ; CARRICO R ; CARRICO R J ; CARRICO ROBERT J ; CARRICO ROBERT JOSEPH ; CHRISTENER EDWARD ; CHRISTENER EDWARD J ; CHRISTNER J ; CHRISTNER J E ; CHRISTNER JAMES E ; CHRISTNER JAMES EDWARD ; ELKHART IND ; J E CHRISTNER ; JAMES EDWARD CHRISTNER ; JE CHRISTNER ; JEEMUSU EDOWAADO KURISUTONAA ; JIEEMUSU EDOWAADO KURISUTONAA ; JIEEMUZU EDOWAADO KURISUNAA ; R C BOGUSLASKI ; R J CARRICO ; RC BOGUSLASKI ; RJ CARRICO ; ROBAATO CHAACHIRUSU BOGUSURASU ; ROBAATO CHAACHIRUSU BOGUSURASUKII ; ROBAATO CHAARUSU BOGUSURASUKII ; ROBAATO CHIYAARUSU BOGUSURASUK ; ROBAATO CHIYAARUSU BOGUSURASUKII ; ROBAATO CHIYAARUZU BOGUSURASUK ; ROBAATO CHIYAARUZU BOGUSURASUKI ; ROBAATO JIYOSEFU KARIKO ; ROBAATO JIYOSEFU KIYARIKO ; ROBAATO JOSEFU KARIKO ; ROBERT CHARLES BOGUSLASKI ; ROBERT JOSEPH CARRICO

Inventor(s): ROBERT CHARLES BOGULASKI ; CHRISTENER EDWARD J US ; CARRICO JOSEPH R US ; BOGUSLASKI CHARLES R US ; CARRICO ROBERT JOSEPH BREMEN IND ; BOGUSLASKI ROBERT CHARLES ELKHART IND ; JOSEPH CARRICO ROBERT ; CHRISTNER JAMES EDWARD ANN ARBOR MICH ; CHRISTNER JAMES EDWARD ANN ARBOR MICH US ; EDWARD CHRISTNER JAMES ; CARRICO ROBERT JOSEPH BREMEN ; CARRICO ROBERT JOSEPH BREMEN IND US ; CHARLES BOGUSLASKI ROBERT ; BOGUSLASKI ROBERT CHARLES ELKHART ; BOGUSLASKI ROBERT CHARLES ELKHART IND US ; BOGUSLAWSKI R C CARRICO R J AND CHRISTNER J E

Agent(s): OSLER HOSKIN AND HARCOURT LLP; REINHOLD COHN AND PARTNERS

Title: Downhole recovery **system**

Abstract: The specification discloses a recovery process and **system** wherein hydrogen and oxygen are introduced into a vented **pressure** vessel, known as a gas generator, located at the bottom of a borehole, and ignited and burned to produce steam. The hydrogen and oxygen may be introduced either as a stoichiometric mixture or the combustible mixture may be hydrogen-rich. The gas generator comprises a cooling annulus surrounding a combustion and mixing zone for cooling the gas generator and the combustion products. Hydrogen or water may be supplied to the cooling annulus for cooling purposes. Remotely **controlled** valves are located downhole near the gas generator for positive **control** to the gas generator of the hydrogen and oxygen and of the water, if it is employed for cooling purposes. The **well** casing is sealed just above the gas generator by an inflatable packer. Provision is made for maintaining the desired hydrogen-oxygen ratio either by a hydrogen **flow control** slaved to a downhole thermocouple or by a special hydrogen-oxygen **flow control** employed in the event that ignition is carried out by a DC power supply located downhole. Although the preferred embodiment employs a fuel-oxidizer cooling fluid combination of hydrogen and oxygen or hydrogen, oxygen, and water, provision is made for employing other fuel-oxidizer-cooling fluid combinations.

Classifications:

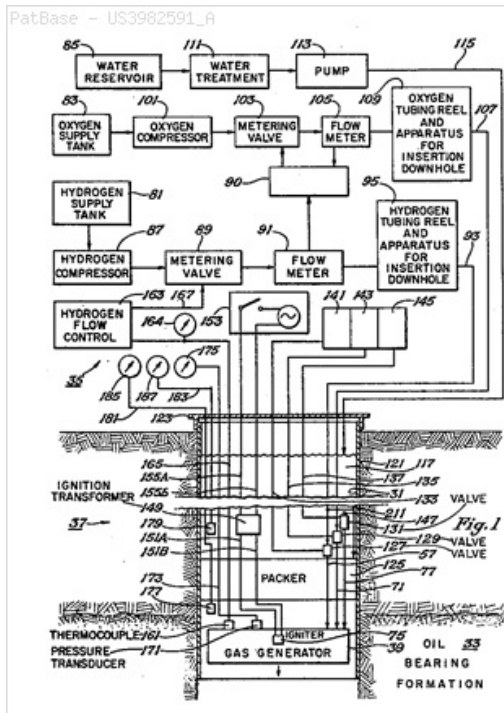
International (IPC 8-9): B01J7/02 C01B3/36 C01B3/48 E21B34/16 E21B36/00 E21B36/02 E21B43/00 E21B43/24 E21B43/243 E21B43/25 E21B43/34 (Advanced/Invention); B01J7/00 E21B36/00 E21B43/00 E21B43/16 E21B43/25 (Core/Invention)

International (IPC 1-7): B01J7/00 B01J7/02 B01J8/00 C01B3/36 C10G5/00 E21B43/00 E21B43/12 E21B43/16 E21B43/24 E21B43/243 E21B43/25 E21B47/06 E21B5/00

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European: B01J7/02 C01B3/36 C01B3/48 E21B34/16 E21B36/00 E21B36/00B E21B36/02 E21B43/24 E21B43/34 M01B203/02B4B M01B203/02D M01B203/06F2 M01B203/12B2D2 M01B203/12D M01B203/16H4 M01B203/16J2B2 M01B203/16K

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Priority:

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Probable Assignee: WORLD ENERGY SYSTEM

Assignee(s): (std): HAMRICK JOSEPH T ; ROSE LESLIE C ; WORLD ENERGY SYSTEM

Assignee(s): WORLD ENERGY SYSTEMS ; WORLD ENERGY SYSTEMS A PARTNERSHIP ; WORLD ENERGY SYSTEMS A PARTNERSHIP LTD ; WORLD ENERGY SYSTEMS TE FORT WORTH TEXAS VER ST V ; WORLD ENERGY SYSTEMS TE FORT WORTH TEXAS VER ST V AM

Inventor(s): (std): JIYOSUFU TEI HAMURITSUKU ; RESURII SHII ROOZU ; ROSE LESLIE CARL ; ROSE LESLIE C ; ROSE L ; HAMRICK JOSEPH THOMAS ; HAMRICK JOSEPH T ; HAMRICK J ; GIVEN NO NAME

Inventor(s): JOSEFU TEI HAMURITSUKU ; LESLIE CARL ROSE ; JOSEPH THOMAS HAMRICK ; T HAMRICK JOSEPH ; C
ROSE LESLIE

Agent(s): MOFFAT AND CO

Title: HIGHLY AUTOMATED AGRICULTURAL PRODUCTION **SYSTEM**

Abstract: The present invention provides a highly automated agricultural production **system** which comprises, as essential components: 1. A sensing subsystem comprising direct and indirect sensing means in an agricultural production area. The direct sensing means are generally ground or plant mounted. The indirect sensing means are remote from the area being sensed. The direct and indirect sensing means are adapted to jointly generate data on all important parameters in the homogeneous agricultural production area; 2. A data transmitting subsystem for forwarding data generated by the direct and indirect sensing means to computing means and for transmitting instructions from the computing means via interfacing means (**controllers**) to various devices (field effectors) in the agricultural area to perform various functions; 3. A computing subsystem linked by way of said data transmitting subsystem to said indirect and direct sensing means in a pattern of many feedback loops. The computing means is programmed to enable correlation of data received from the indirect and direct sensing means and to generate appropriate instructions to accomplish a substantive number of functions required for the operation of the automated agricultural production **system** of the present invention as will be later described in detail, including, but not limited to, the **control** of the following subsystems. 4. A fluid delivery subsystem which provides: Means for delivering water, chemicals in liquid or gaseous form, air, and the like to various parts of the agricultural production area; and Means for providing power to various peripheral devices which utilize the power of moving liquid and/or gases-for example, a water powered (hydromotor) platform. 5. A field operations subsystem which, in a highly preferred embodiment, comprises means to harvest agricultural products, convey the agricultural products, grade the agricultural products, store the agricultural products, and pack the agricultural products. In addition to the above means which are essentially concerned with presenting the agricultural products in a form amenable for marketing, additionally means are provided for plant care, e.g., pruning, thinning and the like. A field operations subsystem which accomplishes the functions of fruit harvesting, fruit conveying, fruit grading and fruit storage which, in a most preferred embodiment of the present invention, accomplishes the above functions utilizing fluid received from the fluid delivery subsystem of the present invention. It is also highly preferred that such fluid powered means be utilized in the agricultural **system** of the present invention for tree care, e.g., pruning of trees, thinning of trees and the like. The field operations can be accomplished, if desired, utilizing a vehicle which is powered by fluid, typically water, derived from the fluid delivery subsystem of the present invention by means of a water-to-mechanical torque converter (hereafter often called a hydromotor platform).

Classifications:

International (ipc 8-9): A01D46/00 A01D46/24 A01G25/16 A01G3/04 A01G7/00 A01M7/00 B07C5/342 (Advanced/Invention); A01D46/00 A01G25/16 A01G3/00 A01G7/00 A01M7/00 B07C5/342 (Core/Invention)

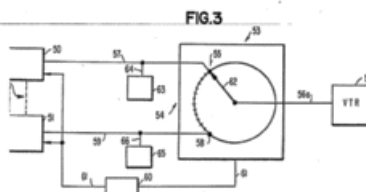
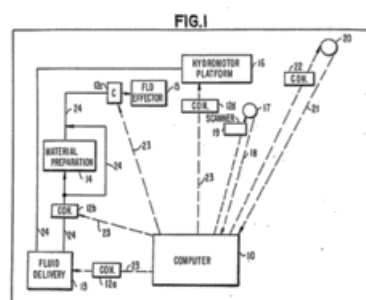
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European: A01D46/00B A01D46/24 A01G25/16 A01G3/04 A01G7/00 A01M7/00G B07C5/342

US: 137/236.1 137/386 137/79 138/111 180/305 193/25E 198/570 209/173 239/210 239/69 239/727 239/745 348/143 382/100 382/110 405/37 47/1.43 47/1R 47/2 47/DIG.6 56/237 56/328.1 700/14 700/283 700/30 700/67 700/90 702/2

PatBase - US4015366_A

U.S. Patent Sep. 7, 1982 Sheet 1 of 33 Re. 31,023

**Family:**

Publication number	Publication date	Application number	Application date
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Priority:

US19750567322 19750411 US19790016845 19790302

Probable Assignee: ADVANCED DECISION HANDLING INC

Assignee(s): (std): ADVANCED DECISION HANDLING INC

Inventor(s): (std): HALL III ARTHUR D

Title: BEHIND WELL CASING WATER FLOW DETECTION SYSTEM

Abstract: Equipment for the detection of undesired behind casing water flow in a producing well is provided. A well logging sonde having a modular fluid tight structure is disclosed. Basically, three modules which when joined together form a fluid tight assemblage comprise the sonde. A first module houses a 14 MEV neutron generator and a 125 kilovolt high voltage power supply for operating the neutron generator. A second module houses dual spaced gamma ray detectors for detecting characteristic gamma rays from the decay of radioactive nitrogen 16 at two different longitudinal distances from the neutron source. A third module houses control electronics and data transmission circuits for controlling the neutron generation and receiving detected signals from dual gamma ray detectors and for transmitting data to the surface from the sonde. The modules are constructed so that they may be assembled with the neutron generator either above or below the dual detectors while maintaining the same spacing distances from the generator to the detectors. Surface instrumentation for receiving and interpreting the gamma ray measurements are also provided.

Classifications:

International (IPC 8-9): E21B47/10 G01F1/64 G01F1/704 G01N23/12 G01V3/18 G01V5/00 G01V5/10 G01V9/00 (Advanced/Invention);

E21B47/10 G01F1/56 G01F1/704 G01V5/00 (Core/Invention)

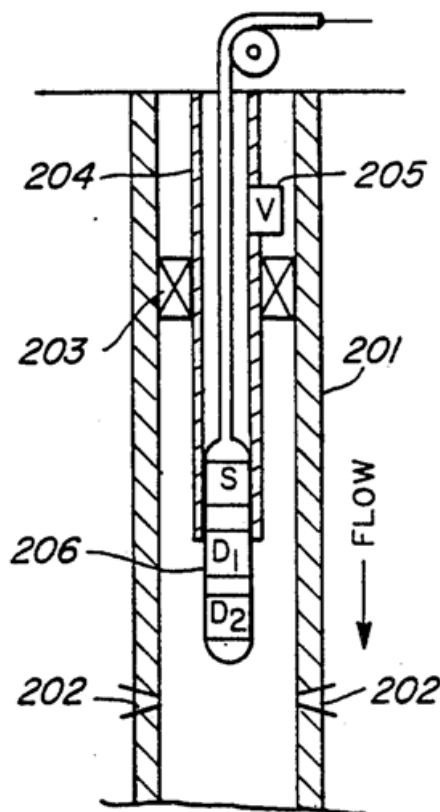
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Probable Assignee: TEXACO INC

Assignee(s): (std): TEXACO INC ; TEXACO DEVELOPMENT CORP

Assignee(s): TEXACO DEVELOPMENT CORP US ; TEXACO DEVELOPMENT CORP WHITE PLAINS N Y US ; ARNOLD DAN M ; LANGFORD OBIE M ; PAAP HANS J ; PEELMAN HAROLD E ; SCHULTZ WARD E ; SMITH HARRY D ; TEXACO DEV CORP

Inventor(s): (std): ARNOLD D ; ARNOLD D M ; ARNOLD DAN M ; ARNOLD DAN MCCAY ; ARNOLD DAN MCKAY ; ARNOLD M D ; PAAP H ; PAAP H J ; PAAP HANS J ; PAAP HANS JUERGEN ; PAAP J J ; PEELMAN H ; PEELMAN H E ; PEELMAN HAROLD E ; PEELMAN HAROLD ELMER ; PEELMAN HAROLD F ; SCHULTZ W ; SCHULTZ W E ; SCHULTZ WARD E ; SCHULTZ WARD EDWARD ; SMITH H ; SMITH H D ; SMITH H D JR ; SMITH HARRY D ; SMITH HARRY D JR ; SMITH HARRY DAVIS JR ; SMITH JR H D ; SMITH JR HARRY D ; LANGFORD O ; LANGFORD O M ; LANGFORD OBIE M ; LANGFORD OBIE MARTIN ; LENGFORD O M ; MCCAY DAN A ; SMITH JUN HARRY DAVIS

Inventor(s): W E SCHULTZ ; WARD EDWARD SCHULTZ ; MCKAY ARNOLD DAN ; O M LANGFORD ; OBIE MARTIN LANGFORD ; MARTIN LANGFORD OBIE ; SMITH JUN ; D M ARNOLD ; DAN MCCAY ARNOLD ; DAVIS SMITH JUN ; DAVIS SMITH JUN HARRY ; EDWARD SCHULTZ WARD ; ELMER PEELMAN HAROLD ; H D SMITH ; H E PEELMAN ; H J PAAP ; HANS JUERGEN PAAP ; HAROLD ELMER PEELMAN ; HARRY DAVIS SMITH JR ; JUERGEN PAAP HANS

Agent(s): SMART AND BIGGAR

Title: **METHOD** AND APPARATUS FOR HIGH VOLUME DISTILLATION OF LIQUIDS

Abstract: A **method** and apparatus for high volume distillation of impure liquid comprises evaporating the impure liquid in an evaporator to form a vapor at a temperature above the freezing point and at or below the boiling point of said liquid at atmospheric **pressure** and at a **pressure** corresponding to the evaporation temperature under saturated conditions; compressing said vapor adiabatically; admixing in a mixing chamber the compressed vapor under substantially isobaric conditions directly with hot gases having a temperature sufficiently greater than the temperature of the compressed vapor that the resulting vapor-gas mixture temperature is greater than the temperature of the compressed vapor prior to the mixing; passing the vapor-gas mixture through an expansion engine to motivate the engine and to produce shaft energy, whereby the vapor-gas mixture adiabatically expands and cools; compressing the expanded vapor-gas mixture adiabatically in an independently powered compressor to a predetermined **pressure** corresponding to a predetermined temperature differential between the compressed vapor-gas mixture and the impure liquid; cooling the vapor-gas mixture in heat transfer relation with the impure liquid whereby the vapor at least partially condenses, transferring sufficient heat to the impure liquid for evaporating the liquid and to form the aforementioned vapor; and collecting the condensed vapor.

Classifications:

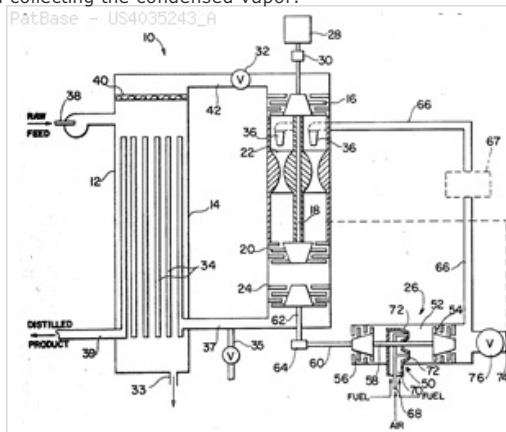
International (IPC 8-9): A01K59/00 B01D1/28 B01D3/00 B01D3/06 B01D3/14 C02F1/04 C02F1/16 C07C29/80 (Advanced/Invention); A01K59/00 B01D1/00 B01D3/00 B01D3/14 C02F1/04 C02F1/16 C07C29/00 (Core/Invention)

International (IPC 1-7): A01K59/00 B01D1/28 B01D3/00 B01D3/06 B01D3/10 B01D3/14 B01J8/02 C02B1/04 C02C5/00 C02F1/04 C02F1/06 C07C29/80 C12F1/00

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Priority:

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Probable Assignee: REBACK ELMER BUFFALO NY

Assignee(s): (std): KATZ J ; KATZ JEROME ; KATZ JEROME FOGEL SIDNEY J ; FOGEL S ; FOGEL S J

Assignee(s): FOGEL SIDNEY J ; REBACK ELMER BUFFALO NY REBACK LEONARD BUFFALO NY ; REBACK ELMER BUFFALO NY ; REBACK LEONARD BUFFALO NY ; REBACK ELMER ; REBACK LEONARD

Inventor(s): (std): FOGEL S ; FOGEL S J ; KATZ J ; KATZ JEROME ; FOGEL SIDNEY J

Inventor(s): J KATZ ; SJ FOGEL ; S J FOGEL

Agent(s): MACRAE AND CO

Designated states: AU BR DE FR GB JP NO SE

Title: Gas-fired radiant heater

Abstract: Radiant heater having supported porous refractory panel through which combustion mixture passes and on the surface of which mixture burns as it emerges, has a narrow stream of incombustible relatively cold gas like air pumped through the panel adjacent the support to act as a barrier seal and minimize the leakage of combustible gas around the margin of the panel, and the consequent burning of such leaking gas, which burning can damage the marginal support and cause flashback. Panel can have edges held on tubular frame sealed to a back plate to provide a simpler heater construction with combustion mixture plenum defined by back plate and frame, and with cold gas supply to the tubular passageways in frame.

Classifications:

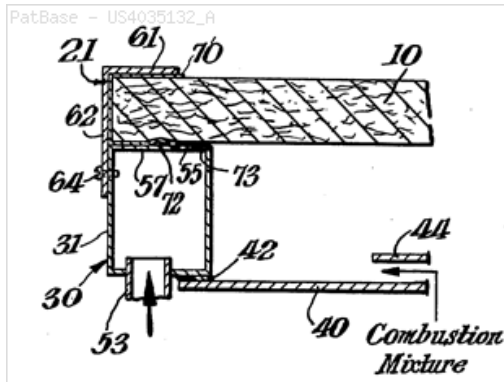
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International (IPC 1-7): B23K1/12 B23K3/04 B23K31/00 B65G23/44 C03B29/04 C21D9/52 C21D9/54 F16L39/00 F23D13/12 F23D13/14 F23D13/16 F23D13/18 F23D14/12 F23D14/16 F23D14/18 F23D14/78 F23D3/40 F23N5/00 F23Q3/00 F24C3/04 F24D14/12 F26B13/00 F26B13/10 F26B3/32 F27B9/28

CPC: F23D2900/14001 F28F9/18 B23K1/0012 B23K1/005 F23D14/12 B23K1/0053 B23K3/04 Y10T428/2933 B31F1/285 D21F5/002 F23D14/16 F23D2203/1012 F24C3/042 F24C3/062 F26B3/305 Y02E20/344

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Probable Assignee: SMITH T M

Assignee(s): (std): FIRST CITY NAT BANK HOUSTON ; FIRST CITY NATIONAL BANK OF HO ; KOOMEY INC ; SMITH T M ; SMITH THOMAS M ; SMITH THOMAS MARSDEN ; TOOMASU MAAZUDEN SUMISU ; TOMASU EMU SUMISU

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Inventor(s): (std): TOOMASU MAAZUDEN SUMISU ; TOMASU EMU SUMISU ; TOMLIN JERRY BENJAMIN ; TOMLIN JERRY B ; O NEIL MICHAEL ARNOLD ; O NEIL MICHAEL A ; LEVEY GUSTAVE STANLEY ; LEVEY GUSTAVE S ; SMITH THOMAS MARSDEN ; SMITH THOMAS M

Inventor(s): M SMITH THOMAS ; THOMAS MARSDEN SMITH

Agent(s): SMART AND BIGGAR