

Diego Gonzalez

Search history

- Search 1: STAC=(train and rail and ohm and impedance) (Results 4)
- Search 2: STAC=(train and rail and impedance and speed) (Results 57)
- Search 3: STAC=(train and rail and impedance and speed and camera) (Results 2)
- Search 4: STAC=(train and rail and impedance and speed and sensor) (Results 12)

Title: DETECTION OF DYNAMIC TRAIN-TO-RAIL SHUNTING PERFORMANCE

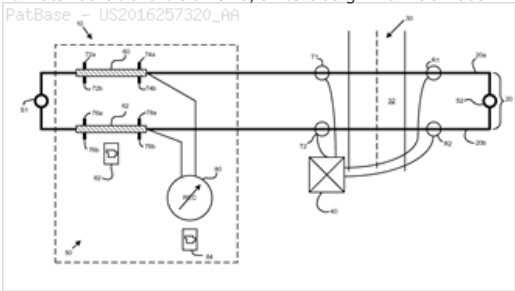
Abstract: Systems and methods for detecting the dynamic train-to-rail shunting performance of a train as it is moving along the rails of a railroad track. The systems and methods use portable equipment temporarily installed at a site where it is desired to test the shunting of one or more trains or the electrical equipment installed at the track. The systems and method use sensor plates and a high speed recording system to simultaneously capture measured train-to-rail shunting characteristics and the positioning of a train's axles and any rail conditions impacting the measurements. The captured information can be used to fine tune the train, the electrical equipment installed at the track and/or to design new devices.

Classifications:

International (IPC 8-9): B61L1/20 B61L13/00 B61L13/04 B61L23/04 B61L27/00 B61L29/22 B61L29/28 (Advanced/Invention)

CPC: B61L13/002 B61L13/04 B61L13/005 B61L27/0083 B61L29/28 B61L1/20 B61L23/041 B61L27/0088 B61L29/226

US: 246/130



Family:

Publication number	Publication date	Application number	Application date
AU2016226567 AA	20160909	AU20160226567	20160217
BR112017018298 A2	20180417	BR20171118298	20160217
CA2978465 AA	20170831	CA20162978465	20160217
CL2017002222 A1	20180112	CL20170002222	20170901
CO20170009017 A2	20170920	CO20170009017	20170901
GB201713425 A0	20171004	GB20170013425	20160217
GB2550095 A1	20171108	GB20170013425	20160217
US2016257320 AA	20160908	US20150635136	20150302
US9956972 BB	20180501	US20150635136	20150302
WO16140796 A1	20160909	WO2016US18199	20160217

Priority:

US20150635136 20150302 WO2016US18199 20160217

Probable Assignee: SIEMENS IND INC

Assignee(s): (std): SIEMENS IND INC

Assignee(s): HARP BRIAN

Inventor(s): (std): BRIAN HARP ; HARP BRIAN

Agent(s): SPRUSON AND FERGUSON; SMART AND BIGGAR; ESTUDIO CLARKE MODET AND CO CHILE LIMITADA; CAROLINA MERCEDES DAZA MONTALVO; KOWALEWSKI FILIP ALEKSANDER

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 IR IS IT JP KE KG KM KN KP KR KZ LA LC 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 SA 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 ZA ZM ZW

Title: **IMPEDANCE** OR ADMITTANCE CIRCUIT OHMIC LOSS MEASURING METHOD, INVOLVES FEEDING CURRENT PORTION INTO MEASURING **IMPEDANCE**/ADMITTANCE OF CIRCUIT AS POWER SOURCE TO REDUCE IDEAL CONDUCTIVE VALUE THAT REFERS TO CIRCUIT INDUCTIVITY/CAPACITANCE

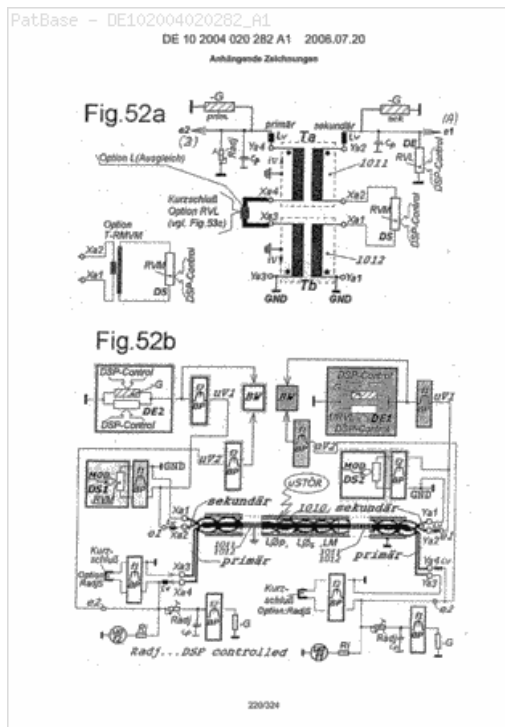
Abstract: The method involves feeding a current portion into measuring **impedance**/admittance of a circuit as a power source to reduce ideal conductive value of the **impedance**/admittance in proportion to ohmic loss of the **impedance**. The current portion is fed as a current drain in the **impedance**/admittance to increase the value. The value refers to a circuit inductivity or capacitance and to transformed **impedance** or admittance. Independent claims are also included for the following: (1) a method for coding measurement values; (2) an arrangement for measuring ohmic loss in **impedance** or admittance circuit; (3) a method for semi-automatic or fully automatic transport as well as for evaluation and addressing of goods; and (4) a shopping trolley for executing a method for semi-automatic or fully automatic transport as well as for evaluation and addressing of goods.

Classifications:

International (IPC 8-9): G01R27/02 (Advanced/Invention);
G01R27/02 (Core/Invention)

CPC: G01R27/26

European: G01D5/00 G01R27/26

**Family:**

Publication number	Publication date	Application number	Application date
DE102004020282 A1	20060720	DE200410020282	20040426

Priority:

DE20031018619 20030424	DE20031020114 20030506	DE20031021504 20030513
DE20031021505 20030513	DE20031022045 20030515	DE20031022737 20030520
DE20031027270 20030617	DE20031042538 20030915	DE20031046051 20031003
DE20031047067 20031009	DE20031048033 20031015	DE20031048360 20031017
DE20031050430 20031029	DE200410016969 20040406	DE200410020282 20040426

Probable Assignee:

KOLLER ROMAN

Assignee(s): (std):

KOLLER ROMAN

Inventor(s): (std):

KOLLER ROMAN

Title: Railway car retarder

Abstract: An improved railway car retarder, fitted with fluid power cylinders, such as hydraulic or pneumatic cylinders. The cylinders function to temporarily release the force of retarder friction **rails** on **train** car wheels. The retardation function is still carried out by conventional spring assemblies and the functional integrity of existing retarders is not disrupted.

Classifications:

International (IPC 8-9): B61K7/02 (Advanced/Invention);

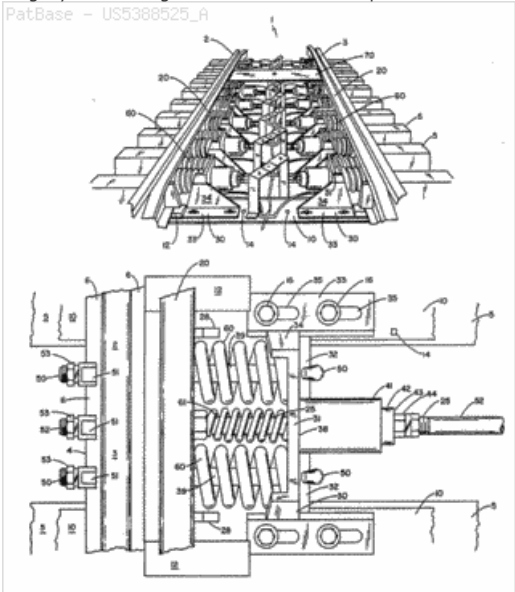
B61K7/00 (Core/Invention)

International (IPC 1-7): B61K7/00

CPC: B61K7/02

European: B61K7/02

US: 104/252 104/26.2 104/262 188/62



Family:

Publication number	Publication date	Application number	Application date
US5388525 A	19950214	US19930108545	19930819

Priority:

US19930108545 19930819

Probable Assignee:

BODKIN W ANDREW

Assignee(s):

BODKIN W ANDREW

Inventor(s): (std):

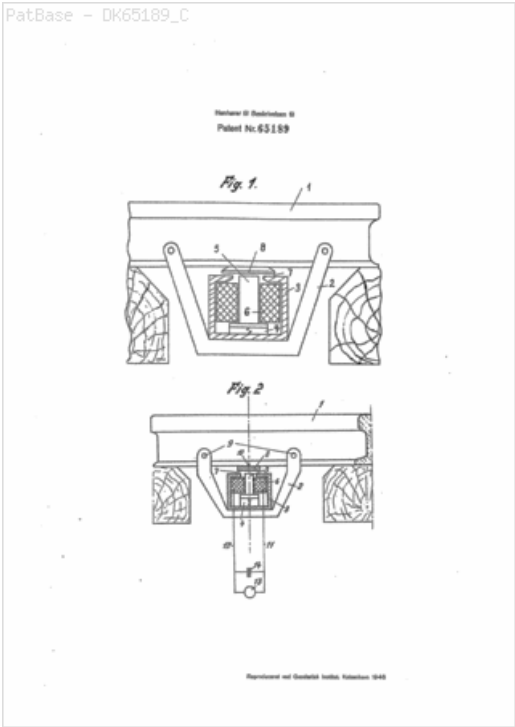
BODKIN W ANDREW

Title: Skinneimpulsgiver og Signalanlaeg med Impulsgiveren. **Rail** impetus and signals with the **sensor**. (Machine translation)

Abstract: Source: DK65189C [DA] [Source: Claim 1] kortvarig Magnetiseringsstroem. Tvaersnittet af Spolekaernen 5 behoever derfor blot at vaere saa stort, at det ved sin Maetningskraftlinietaethed kan foere den til Magnetisering af Magnetstaa- let 4 kortvarigt noedvendige store Flux. Da den maksimale Magnetiseringskraftlinietaethed for moderne Magnetstaa, f. Eks. Al-Ni-Staal, er vaesentlig mindre end Maetningskraftlinietaetheden af bloedt Jaern, kan Tvaersnittet af Kaer- nen 5 vaelges vaesentlig mindre end Tvaersnit- tet af Magnetstaalet 4. Forholdet mellem Kaer- netvaersnit og Staaletvaersnit skal blot vaere mindst lige saa stort som Forholdet mellem Staalets maksimale Magnetiseringskraftlinietaethed og Kaernejaernets Maetningskraftlinietaethed. Ved den lille Dimension af Spolekaerne- tvaersnittet i Forhold til Magnetstaalets Tvaer- snit kan der ved given Totalstoerrelse af Im- pulsgiveren opnaas stor Viklingsplads til Kob- beret med lille gennemsnitlig Vindingslaengde, d. v. s. lille Viklingsmodstand og stor effektiv Kraftstroem og dermed stor Effektafgivelse. Dersom Magnetstaalet magnetiseres foer Impulsgiverens Samling, risikerer man, at det paa ny afmagnetiseres saa staerkt, at en foreoget Magnetisering efter Samlingen bliver noedven- dig, og det er derfor hensigtsmaessigt at vente med denne foerste Magnetisering, indtil Impuls- giveren er samlet og monteret paa sin Plads. I Almindelighed vil det i Praksis vaere saerlig fordelagtigt at give Impulsgiveren en rund lukket Udformning koaksialt med Spole- kaernen j's Midtlinie. De opfinderislsce Foran- staltninger kan imidlertid ligeledes realiseres ved en flad Konstruktion, f. Eks. af lignende Form som en Kappetransformator eller en an- den Transformator med en eller flere Spoler. Opfindelsens Tanke kan imidlertid ogsaa reali- seres, naar Magnetstaalet ikke er anbragt un- der, men oever Spolen, eller paa et andet Sted i den magnetiske Kreds. Jaerndelene kan vaere massive eller paa kendt Maade vaere lamelleret. Ved saadanne Konstruktioner er der imid- lertid yderligere den uoenskede Egenskab, at Impulsrelaeets Reaktion ogsaa kan fremkaldes ved induktiv eller kapacitiv Virkning ved Ind- eller Udkobling af store Stroemstyrker i Led- ninger, der ligger i Naerheden, f. Eks. Koere- stroemme for elektriske Baner. Dette kan ifoelge Opfindelsen undgaas ved, at der foran Relaeet eller parallelt med dette er indskudt en Impe- dans eller en Impedanskombination, hvorved Relaeet goeres ufoelsomt over for de hurtige Felt- aendringer, der optraeder ved saadanne Koblings- stoed. Herved opnaas samtidig den Fordel, at ogsaa kortvarige tunge Slag paa Skinnen, paa hvilken Impulsgiveren er anbragt, ikke faar nogen Indvirkning. I Fig. 2 er vist en anden Udfoerelsesform for en Impulsgiver ifoelge Opfindelsen. Baere- konstruktionen 2, som baerer Jaernhuset 5 for Impulsgiveren, er ogsaa her fastgjort til Skin- nen i. Impulsgiverens Spole 6 er anbragt paa Jaern kaernen 5. Mellem Jaernkaernen 5 og Huset 3 er anbragt en permanent Magnet 4 med Poler N og and Den af Magneten 4 frembragte Flux forloeber hovedsagelig fra Kaernen 5 gennem Luftspalten y og Ankeret 8, der deltager i Skin- nebevaegelsen, til Huset 3. Til Spolen 6's Vik- lingsender er der gennem Ledninger 11 og 12 tilsluttet et Impuls relae, der fortrinvis er ud- formet som et polariseret Relae. Ifoelge Opfin- delsen forbindes der f. Eks. en Kondensator 14 parallelt med Relaeet 13. Den ved Overkoersel mellem Punkter p og 10 paa Skinnen indtrae- dende Nedboejning aendrer forbigaende Impuls- giverens Luftspalte y og dermed Stoerrelsen af den fra Magneten 4 gennem Spolen 6 gaende Kraftliniestroem. Den derved i Spolen 6 induce- rede, elektromotoriske Kraft frembringer en Stroem, der faar Impulsrelaeet 13 til at reagere. Over for meget kortvarigt forloebende Impulser, som kan optraede ved induktive eller kapacitive Paavirkninger ved Ind- eller Udkobling af stoerre Stroemstyrker i Ledninger, der ligger i Naerheden, udgoer Kondensatoren 14 praktisk talt en Kortslutning for Relaeet 13, saa at en saadan Paavirkning ikke kan faa Relaeet 13 til at reagere. Hastigheden, hvormed Spaendings- og Stroemimpulsen forloeber, stiger med Hastig- heden, hvormed Skinnenedboej ningen forloeber. Den Del af Stroemimpulsen, der gaar gennem Kondensatoren 14, er desto stoerre, jo hurtigere Stroemimpulsen forloeber, saa at Relaeet 13, naar en vis Impulshastighed overskrides, ikke laen- gere faar tilfoert den for dets Reaktion noed- vendige Energi. Ved passende Dimensionering af Kondensatoren 14 kan det opnaas, at Kon- struktionen bliver praktisk talt ufoelsom over for uoenskede Impulser med relativ stor Hastig- hed, d. v. s. Impulser med meget stoerre Hastig- hed end den, der forekommer ved et Togs Passage, uden at der derved sker nogen utilla- delig Begraensning af Foelsomheden over for Impulser, der frembringes af Tog, der koerer over Impulsgiveren. Til Opnaaelse af et saerligt Forloeb af Hastighedsafhaengigheden af Impulsfoelsomheden kan der i Stedet for en enkelt Kondensator anvendes Impedanskombinationer med flere Koblingselementer. Disse kan indbyrdes og i Forhold til Relaeet ligge parallelt eller i Serie. Patentkrav. 1. Skinneimpulsgiver, hvor de af et over Impulsgiveren koerende Toghjul frembragte Skinnenedboejninger tjener til Frembringelse af Luftspalteaendringer i et magnetisk System med permanente Magneter og Impulsspole, kende- tegnet ved, at den permanente Magnet 4 er saaledes dimensioneret, at Forholdet mellem den indre magnetiske Modstand for den perma- nente Magnet og den magnetiske Modstand i dens ydre magnetiske Kreds er forholdsvis lille, f. Eks. mindre end 20. 2. Impulsgiver ifoelge Krav 1, kende- tegnet ved, at Forholdet mellem Spolekaer- netvaersnit og Magnetstaaletvaersnit er mindre end i, men dog mindst saa stort som Forholdet mellem Magnetstaalets maksimale Magnetise- ringskraftlinietaethed og Kaernejaernets Maet- ningskraftlinietaethed. 3. Impulsgiver ifoelge Krav 1 eller 2, ken- detegnet ved, at den er opbygget i rund, lukket Form koaksialt med Spolekaernen 5's Midtlinie. 4. Impulsgiver ifoelge Krav 1, 2 eller 3, kendetegnet ved, at Magnetstaalet er an- bragt paa den bort fra Luftspalten vendende Side af Spolen 6.5. Impulsgiver ifoelge Krav 1, 2, 3 eller 4, kendetegnet ved, at dens Hus 3 ved Hjaelp af en Baerekonstruktion 2 er fastgjort til Skinnen 1. 6. Signalanlaeg med en Impulsgiver ifoelge et eller flere af de foregaaende Krav, kende- tegnet ved, at et til Impulsgiveren sluttet Relae 13, Fig. 2, er forbundet med en Impedans eller en Impedanskombination, som ved en Im- pulshastighed, der er meget stoerre end den, der forekommer ved et Togs Passage, ikke lader Impulsrelaeet 13 tilfoeres til dets Reaktion tilstraekkkelig Energi eller Energiaendring. 7. Signalanlaeg ifoelge Krav 6, kende- tegnet ved, at Impedansen bestaar af en med Impulsgiveren 1-8, Fig. 2, parallelfor- bundet Kondensator 14. København 1946. J. H. S c h n 11 z A/S. **Machine translation:** [Source: Claim 1] short-term excitation current. The cross section of Spolekaernen 5 therefore need only be so large that it by its Saturation Power Line Density can lead to the magnetization of the magnetic stand- easy 4 briefly necessary large flux. Since the maximum Excitation Power Line Density of modern Magnetic steel, e. For example. Al-Ni-steel are significantly less than Saturation power line near- density of mild Jaern, can the Cross Section of Caress- nen 5 is selected substantially less than cross-section- tet of the magnetic steel 4. The relationship between Caress- netvaersnit and Steel Cross-section must only be at least as large as the ratio between Stand Lets maximum Excitation Power Line- density and Kaernejaernets Saturation Power line density. By the small dimension of Spolekaerne- cross- sectional area in relation to the magnetic stand lets transverse slices can be given by the total amount of the IM- pulse giver obtained large Winding Space for Kob- beret with small average Gain Length, D. v. p. small winding resistance and high effective force flow and thus High Power Delivery. If the magnetic steel the energized before the impulse to the collection, there is a risk that the new demagnetized such that an increased magnetization after assembly will be necessary- you, and it is therefore appropriate to wait with this first magnetization until the pulsed giver assembled and installed at its place. In general it will in practice be particularly advantageous to give the **sensor** a round closed design coaxial with the coil- kaernen j's Mid Line. The opfinderislsce measures may however also realized by a flat design, F. For example. of similar form as a sheath transformer or a an- the transformer with one or more coils. The invention Tanks can however also reali- seres where the magnetic steel is not placed un- there but oever coil or to a place in the Magnetic Circuit. Jaerndelene can be massive or at the known way be multidisc loam. Such structures are there imide- lertid further the undesirable characteristic that Pulse Relay reaction can also be called up by inductive or capacitive effect at check-in or the declutch of large flow forces in the led which is located in the vicinity, e. For example. Driving- flows for electrical Courses. This can according to the invention avoided by that in front of the relay or in parallel with this subscribed a Impe- dance or an **impedance** Combination whereby the Relay published ufoelsomt over to the rapid field changes that occur under such Clutch shocks. It has at the same time the advantage that also short-term heavy impact on the **rail**, on which the **sensor** is positioned, do not receive any effect. In Fig. 2 is shown another execution form of a pulse gives according to the invention. Carry- construction 2, bearing the Jaernhuset 5 for the **sensor** is also attached to the skin- NEN I. Pulse the coil 6 is located on the Jaern kaernen 5. Jaernkaernen between 5 and Housing 3 is located a permanent magnet 4 with the buffing N and The of the Magnet 4 produced Flux precursor mainly from Kaernen 5 through the air gap y and the armature 8, participating in the skin- nebevaegelsen, to the housing 3. To the coil 6's Vik- ling sender is carried Lines 11 and 12 connected to a pulse relay intended mainly out- shaped like a polarized Relay. According to the Opfin- extension connect F. For example. A CAPACITOR 14 parallel to the Relay 13. The at the journeys between points p and 10 on the **rail** indtrae- current Nedboejning changes the transient Pulse- the air gap y and thus the amount of from the magnet 4 through the coil 6 bill of Power Line Flow. The thereby in the Coil 6 induce- already, electric motor power produces a flow of sheep Pulse Relay 13 to respond. To very briefly two pulses that can occur at the inductive or capacitive influences at check-in or the declutch of major flow forces in wires that are nearby, constitutes the condenser 14 virtually a short of the relay 13 so that such effect cannot obtain the relay 13 to respond. The **speed** at which the voltages and current pulse operations increases with **speed**, which

Skinnenedboej withdrawal operations. The part of the current pulse passing through the condenser 14 is the greater the faster the current pulse is progressing so that the relay 13, where a show Pulse **speed** is exceeded, not just sit- founding fathers of sheep brought it to its emergency response- required energy. By the corresponding dimension of the condenser 14 it may be achieved that Kon- structure section will be practically ufoelsom against undesirable pulses with relatively high **speed** stated d. v. p. pulses with much greater **speed** than stated the that occur on a **train** Crossing, without thereby is no utilla- delig limitation of the sensitivity of the impulses, produced by the **train** is traveling over the **sensor**. For the acquisition of a specific course of **speed** dependence of pulse sensitivity may be instead of a single Condenser used **Impedance** Combinations with several coupling elements. These can be among themselves and in relation to the Relay lie in parallel or in series. Patent requirements. 1. **Rail** impetus, where the of a **sensor**-propelled Toghjul produced Skinnenedboejninger serve to produce Air Gap changes in a Magnetic System with permanent magnets and pulsed coil, known signed by the fact that the Permanent Magnet 4 is thus dimensioned, that relations between the internal magnetic resistance of the perma-nente magnet and magnetic resistance in its external magnetic circuit is relatively small, e. For example. less than 20. 2. Impulse gives according to the requirements 1, known signed by the fact that the relationship between the Coil Caress- netvaersnit and Magnetic Steel Cross-section is less than in, but at least as large as the ratio between the magnetic stand lets maximum Magnetise- force line density and Kaernej aernets on breastmilk- aligning force line density. 3. Impulse gives according to requirements 1 or 2, Ken- this day by the fact that it is built up in the round, closed Form coaxial with Spolekaernen 5's in the Middle Line. 4. Impulse gives according to the requirements 1, 2 or 3, characterized by the fact that the magnetic steel is an- placed on it away from the air gap facing side of the coil 6..5. Impulse gives according to the requirements 1, 2, 3 or 4, characterized by the fact that its housing 3 by means of a carrier 2 is attached to the **rail** 1. 6. Signals with an impulse gives according to one or more of the foregoing requirements known signed by the fact that a to the **sensor** circuit relay 13, Fig. 2, is associated with an **impedance** or an **impedance** combination that at a Im- pulse rate that is much larger than the that occur on a **train** Crossing, do not allow Pulse Relay 13 added to its reaction sufficient energy or energy change. 7. Signals according to requirements 6, known signed by the fact that the **impedance** of the consists of a pulse-giver 1-8, Fig. 2, parallelfor- bound Condenser 14. Pry Bar Harbor 1946. J. H. S C H N 11 z A/S.

Classifications:



Family:

Publication number	Publication date	Application number	Application date
DK65189 C	19461209	DK19430001587	19430610

Priority:

19420701

Probable Assignee: VER EISENBAHN SIGNALWERKE GMBH
Assignee(s): (std): VER EISENBAHN SIGNALWERKE GMBH
Assignee(s): VEREINIGTE EISENBAHN SIGNALWERKE GESELLSCHAFT MIT

Title: METHOD AND APPARATUS FOR DETERMINING RELATIVE CONTRIBUTIONS OF INDIVIDUAL CYLINDERS OF INTERNAL COMBUSTION ENGINE USING CONTACT TACHOMETER

Abstract: A linearly moving external part on a multi-cylinder internal combustion engine is contacted with a hand-held rotary encoder, contact tachometer having a hollow handle in which processing circuitry is disposed for converting the rotary encoder output to a waveform signal. This signal, along with a signal responsive to the firing of the number one cylinder, are applied to an engine analyzer processor for display of a single engine cycle of the waveform signal on the CRT oscilloscope of the engine analyzer. The variations in amplitude of the waveform signal correspond to speed variations of the moving part over an engine cycle to give an indication of the relative power contributions of the individual cylinders.

Classifications:

International (IPC 8-9): G01M15/00 G01M15/04 (Advanced/Invention); G01M15/04 (Core/Invention)

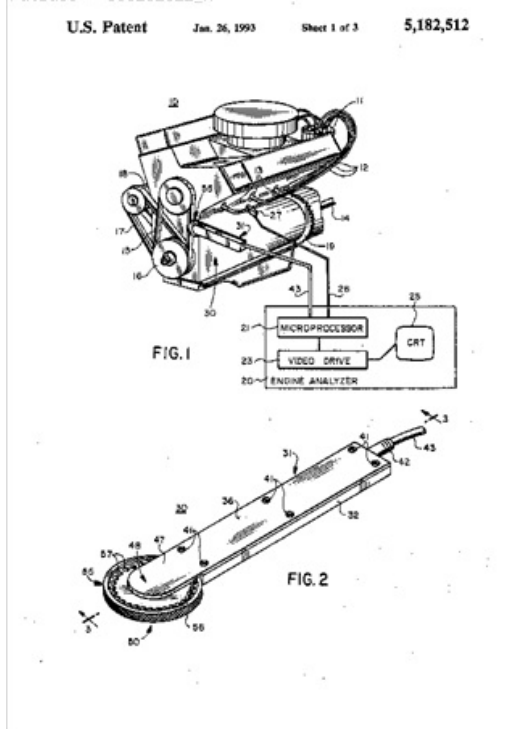
International (IPC 1-7): G01M15/00 G01P3/50

CPC: F02D2200/1015 G01M15/046

European: G01M15/04D8 R02D200/1015

US: 324/175 324/378 73/114.25 73/116 73/529

PatBase - US5182512_R



Family:

Publication number	Publication date	Application number	Application date
CA2053436 AA	19920430	CA19912053436	19911015
CA2053436 C	19990727	CA19912053436	19911015
DE69116797 D1	19960314	DE19916016797	19911016
DE69116797 T2	19960530	DE19916016797T	19911016
EP0483594 A2	19920506	EP19910117598	19911016
EP0483594 A3	19931013	EP19910117598	19911016
EP0483594 B1	19960131	EP19910117598	19911016
US5182512 A	19930126	US19900604191	19901029

Priority:

US19900604191 19901029 CA19912053436 19911015

Probable Assignee: SNAP ON INC

Assignee(s): (std): SNAP ON TOOLS CORP

Assignee(s): SNAP ON TOOLS WORLDWIDE INC ; SNAP ON TECHNOLOGIES INC ; SNAP ON TOOLS CORP KENOSHA WIS US ; SNAP ON TOOLS A CORP OF DELAWARE CORP ; WOLLERT GARY S ; BECKER THOMAS P ; BRAUN ROBERT D ; CRASS MATTHEW M ; MUECKL JERRY W ; PIEHL JAMES R ; SCHEND DAVID J ; SNAP ON INC

Inventor(s): (std): BECKER THOMAS P ; BRAUN ROBERT D ; CRASS MATTHEW M ; MUECKL JERRY W ; PIEHL JAMES R ; SCHEND DAVID J ; WOLLERT GARY S

Inventor(s): WOLLERT GARY S KENOSHA WISCONSIN 53142 US ; SCHEND DAVID J KENOSHA WISCONSIN 53140 US ; PIEHL JAMES R KENOSHA WISCONSIN 53142 US ; MUECKL JERRY W FRANKLIN WISCONSIN 53132 US ; CRASS MATTHEW M KENOSHA WISCONSIN 53142 US ; BRAUN ROBERT D KENOSHA WISCONSIN 53142 US ; BECKER THOMAS P KENOSHA WISCONSIN 53142 US

Agent(s): SMART AND BIGGAR

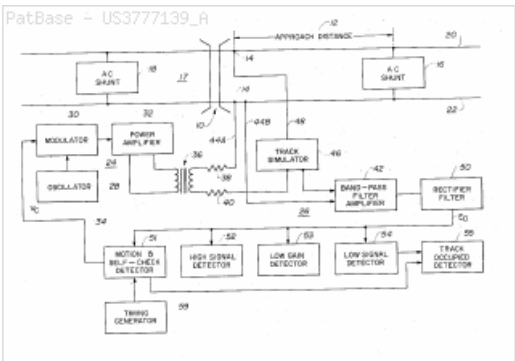
Designated states: DE FR GB IT

Title: DISPOSITIF DE COMMANDE DU FREINAGE AUTOMATIQUE DES **TRAINS** BRAKING CONTROL DEVICE AUTOMATIC **TRAIN** (Machine translation)

Title: MOTION **SENSOR** SYSTEM

Abstract: A system for providing grade crossing protection by sensing the presence of **trains** exceeding a preselected velocity in an approach track section defined by shunts across the **rails**. Detector circuits provide fail-safe protection from defects in the associated track section such as a broken **rail** or low ballast **impedance** between **rails**. A time-sharing self-test subsystem simulates an approaching high **speed train** by applying a fraction of a second test signal to the system every few seconds to monitor the operation of the overall system; and a low gain detector checks the gain of the system to assure that the **train's speed** is accurately measured.

Classifications:
International (IPC 8-9): B61L29/28 (Advanced/Invention);
B61L29/00 (Core/Invention)
International (IPC 1-7): B61L1/06 B61L29/32
CPC: B61L29/286
European: B61L29/28C
US: 246/125 246/128



Family:

Publication number	Publication date	Application number	Application date
US3777139 A	19731204	US19700094955	19701203

Priority:

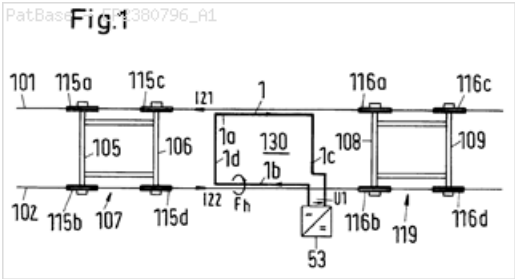
US19700094955 19701203

Probable Assignee:	PEEL R
Assignee(s): (std):	PEEL R
Assignee(s):	PEEL R US
Inventor(s): (std):	PEEL R
Inventor(s):	PEEL R US

Title: Guarantee of a low-ohm electric connection between wheels of a **rail** vehicle and **rails**

Abstract: The railway vehicle has an induction loop (1) for verification of low resistive electric connection between wheels (115a-115d,116a-116d) of the railway vehicle and running **rails** (101,102). A feeder is provided, which connects the electric alternating current voltage to the induction loop in an intermittent manner such that the induction loop is supplied with temporal interruptions with the alternating current. The duration of the temporal interruption of the supply is longer than the duration of the supply of the induction loop occurred before the interruption. An independent claim is also included for a method for operating a railway vehicle.

Classifications:
International (IPC 8-9): B61L1/18 (Advanced/Invention)
CPC: B61L1/18
European: B61L1/18



Family:

Publication number	Publication date	Application number	Application date
AT547308 E	20120315	AT20090008541T	20090630
DE502009002878 D1	20120426	DE200950002878T	20090630
DE502009003630 D1	20120719	DE200950003630T	20090630
EP2277763 A1	20110126	EP20090008541	20090630
EP2277763 B1	20120229	EP20090008541	20090630
EP2380796 A1	20111026	EP20110174941	20090630
EP2380796 B1	20120523	EP20110174941	20090630

Priority:

EP20090008541 20090630 EP20110174941 20090630

Probable Assignee: BOMBARDIER TRANSP GMBH

Assignee(s): (std): BOMBARDIER TRANSP GMBH

Assignee(s): BOMBARDIER TRANSPORTATION GMBH

Inventor(s): (std): STILL LUDWIG

Agent(s): PATENTANWAELTE BRESSEL U PARTNER MBB; PATENTANWAELTE BRESSEL UND PARTNER; BRUNOTTE JOACHIM WILHELM EBERHARD

Designated states: AL AT BA BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK TR

Title: ELECTRICALLY ISOLATING INSULATED CONDUCTOR HEATER

Abstract: A heating system for a subsurface formation includes an electrical conductor and an insulation layer at least partially surrounding the electrical conductor. A jacket that includes ferromagnetic material at least partially surrounds the insulation layer. The outside surface of the jacket is configured to be at little or no electric potential while the electrical conductor is conducting electricity and while the jacket is at temperatures below the Curie temperature of the ferromagnetic material.

Classifications:

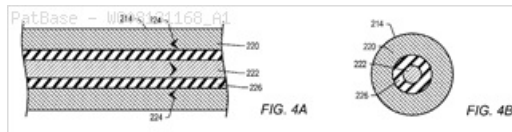
International (IPC 8-9): E21B36/00 E21B36/02 E21B36/04

E21B43/16 E21B43/24 (Advanced/Invention);

E21B36/00 E21B43/16 (Core/Invention)

CPC: Y10T29/49083 E21B43/2401 C10G1/02 E21B43/16 C09K8/845 C09K8/86 C10G1/008 C10G1/04 C10G1/042 E21B43/24 E21B36/04

European: E21B36/04 E21B43/24B



Family:

Publication number	Publication date	Application number	Application date
AU2008242796 AA	20081030	AU20080242796	20080418
AU2008242796 BB	20110707	AU20080242796	20080418
AU2008242803 AA	20081030	AU20080242803	20080418
AU2008242803 BB	20110623	AU20080242803	20080418
BRPI0810026 A2	20170606	BR2008PI10026	20080418
BRPI0810053 A2	20170808	BR2008PI10053	20080418
CA2684430 AA	20081030	CA20082684430	20080418
CA2684430 C	20151208	CA20082684430	20080418
CA2684485 AA	20081030	CA20082684485	20080418
CA2684485 C	20160614	CA20082684485	20080418
CN101680286 A	20100324	CN200880017260	20080418
MX2009011190 A1	20091030	MX20090011190	20080418
WO08131168 A1	20081030	WO2008US60740	20080418
WO08131169 A2	20081030	WO2008US60741	20080418
WO08131169 A3	20081224	WO2008US60741	20080418
WO08131171 A1	20081030	WO2008US60743	20080418
WO08131173 A1	20081030	WO2008US60746	20080418
WO08131175 A1	20081030	WO2008US60748	20080418
WO08131177 A1	20081030	WO2008US60750	20080418
WO08131179 A1	20081030	WO2008US60752	20080418
WO08131180 A1	20081030	WO2008US60754	20080418
WO08131182 A1	20081030	WO2008US60757	20080418
WO08131212 A2	20081030	WO2008US60811	20080418
WO08131212 A3	20100114	WO2008US60811	20080418

Priority:

US20070925685P 20070420
WO2008US60740 20080418

US20070999839P 20071019

WO2008US60748 20080418

Probable Assignee: SHELL INT RESEARCH

Assignee(s): (std): ABBASI FARAZ ; ANDERSON KARL GREGORY ; BASS RONALD J ; BEER GARY LEE ; BEERS GARY LEE ; BURNS DAVID ; FARMAYAN WALTER ; BRIGNAC JOSEPH P JR ; GEDDES CAM ; FONSECA ERNESTO ; DAVIDSON IAN ALEXANDER ; CLOMBURG LLOYD ANTHONY ; COSTELLO MICHAEL ; DEN BOESTERT JOHANNES LEENDERT WILLEM CORNELIS ; DEN BOESTERT JOHANNES LEENDERT ; KARANIKAS JOHN MICHAEL ; SANDBERG CHESTER LEDLIE ; NGUYEN SCOTT VINH ; KIM DONG SUB ; RYAN ROBERT CHARLES ; HARRIS CHRISTOPHER KELVIN ; HWANG H JAY ; RUDOLF RANDY ; HARVY BERT ; GILES STEVEN PAUL ; MANSURE ARTHUR J ; PIERCE ROBERT ; PIERCE DENNIS ; PRINCE WRIGHT ROBERT ; GUIMERANS ROSALVINA ; MARWEDE JOCHEN ; MUNSHI ABDUL ; GOODWIN CHARLES R ; RENKEMA DUURT ; MACDONALD DUNCAN ; SHELL OIL CO ; SHELL INT RESEARCH ; VINEGAR HAROLD J ; ZHANG ETUAN ; STANECKI JOHN ANDREW ; SIDDOWAY MARK ALAN ; TSAI KUOCHEN ; STANECKI JOHN ; SELBY BRUCE ; SHELL INT RES MAARTSCHAPPIJ BV

Assignee(s): SHELL INT RESEARCH MAARTSCHAPPIJ BV ; SHELL INTERNATIONAL RESEARCH MAARTSCHAPPIJ B V ; SHELL INT RESEARCH MIJ BV ; SHELL INTERNATIONALE RESEARCH MAARTSCHAPPIJ B V ; SHELL OIL COMPANY

Inventor(s): (std): ABBASI FARAZ ; ANDERSON KARL GREGORY ; BASS RONALD J ; BEER GARY LEE ; BEERS GARY LEE ; BRIGNAC JOSEPH P JR ; BURNS DAVID ; CHESTER LEDLIE SANDBERG ; CLOMBURG LLOYD ANTHONY ; COSTELLO MICHAEL ; DAVIDSON IAN ALEXANDER ; DEN BOESTERT JOHANNES LEENDERT WILLEM CORNELIS ; DONG SUB KIM ; FARMAYAN WALTER ; FONSECA ERNESTO ; GEDDES CAM ; GILES STEVEN PAUL ; GOODWIN CHARLES R ; GUIMERANS ROSALVINA ; HAROLD J VINEGAR ; HARRIS CHRISTOPHER KELVIN ; HARVY BERT ; HWANG H JAY ; KARANIKAS JOHN MICHAEL ; KIM DONG SUB ; LEDLIE SANDBERG CHESTER ; MACDONALD DUNCAN ; MANSURE ARTHUR J ; MARWEDE JOCHEN ; MUNSHI ABDUL ; NGUYEN SCOTT VINH ; PIERCE DENNIS ; PIERCE ROBERT ; PRINCE WRIGHT ROBERT ; RENKEMA DUURT ; RUDOLF RANDY ; RYAN ROBERT CHARLES ; SANDBERG CHESTER LEDLIE ; SCOTT VINH NGUYEN ; SELBY BRUCE ; SIDDOWAY MARK ALAN ; STANECKI JOHN ; STANECKI JOHN ANDREW ; DEN BOESTERT JOHANNES LEENDERT ; SUB KIM DONG ; TSAI KUOCHEN ; VINEGAR HAROLD J ; VINH NGUYEN SCOTT ; ZHANG ETUAN

Agent(s): SPRUSON AND FERGUSON; NORTON ROSE FULBRIGHT CANADA LLP SENCRL SRL; CHRISTENSEN DEL S

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BR BW BY BZ CA CF CG CH CI 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 LR LK 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 PG PH PL PT RO RS RU SC SD SE SG SI SK SL SM SN SV SY SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

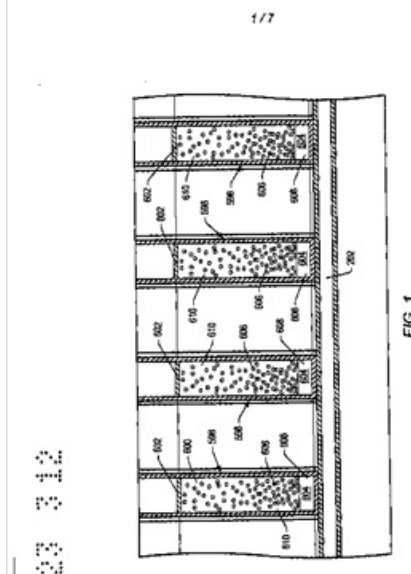
Title: SYSTEMS, METHODS, AND PROCESSES FOR USE IN TREATING SUBSURFACE FORMATIONS

Abstract: Systems, methods, and/or heaters for treating a subsurface formation are described herein. Some embodiments also generally relate to heaters that have novel components therein. Such heaters may be obtained by using the systems and methods described.

Classifications:

International (IPC 8-9): B21C37/08 B21C47/24 C09K8/592
C10G1/02 E21B10/00 E21B17/20 E21B34/04 E21B36/00 E21B36/02
E21B36/04 E21B43/14 E21B43/22 E21B43/24 E21B43/241
E21B43/243 E21B43/34 E21B47/022 E21B7/18 F23D14/32 F24J3/08
H01B3/12 H01B7/02 H01F27/06 H01F29/02 H01F29/04 H1B3/12
H1B7/02 H1F27/06 H1F29/02 H1F29/04 (Advanced/Invention);
E21B36/00 E21B43/16 E21B47/02 (Core/Invention)
CPC: Y10T29/49083 E21B43/243 E21B47/02216 C10G1/02
E21B43/2401 E21B43/16 C09K8/845 C09K8/86 C10G1/008
C10G1/04 C10G1/042 E21B43/24 E21B36/04
European: E21B36/04 E21B43/243 E21B43/24B E21B47/022M

PatBase - GB2462020_B2



Family:

Publication number	Publication date	Application number	Application date
CA2684471 AA	20091016	CA20082684471	20080418
GB200917869 A0	20091125	GB20090017869	20080418
GB2462020 A1	20100127	GB20090017869	20080418
GB2462020 B2	20120808	GB20090017869	20080418
NZ581359 A	20120831	NZ20080581359	20080418

Priority:

US20070925685P 20070420 US20070999839P 20071019 WO2008US60811 20080418

Probable Assignee: SHELL OIL CO

Assignee(s): (std): SHELL INT RESEARCH ; SHELL OIL CO

Assignee(s): SHELL INTERNATIONALE RESEARCH MAATSCHAPPIJ B V ; SHELL INT RESEARCH MIJ BV ; STANECKI JOHN ; SIDDOWAY MARK ALAN ; RUDOLF RANDY ; SANDBERG CHESTER LEDLIE ; HWANG H JAY ; TSAI KUOCHEN ; PIERCE ROBERT ; PIERCE DENNIS ; NGUYEN SCOTT VINH ; MACDONALD DUNCAN ; SELBY BRUCE ; PRINCE WRIGHT ROBERT ; KARANIKAS JOHN MICHAEL ; KIM DONG SUB ; MANSURE ARTHUR J ; RYAN ROBERT CHARLES ; MUNSHI ABDUL ; MARWEDE JOCHEN ; RENKEMA DUURT ; VINEGAR HAROLD J ; ZHANG ETUAN ; ABBASI FARAZ ; ANDERSON KARL GREGORY ; BASS RONALD J ; BEERS GARY LEE ; BRIGNAC JOSEPH P JR ; BURNS DAVID ; GILES STEVEN PAUL ; GOODWIN CHARLES R ; GUIMERANS ROSALVINA ; DEN BOESTERT JOHANNES LEENDERT WILLEM CORNELIS ; FARMAYAN WALTER ; FONSECA ERNESTO ; HARRIS CHRISTOPHER KELVIN ; COSTELLO MICHAEL ; DAVIDSON IAN ALEXANDER ; HARVY BERT ; CLOMBURG LLOYD ANTHONY ; GEDDES CAM ; SHELL OIL COMPANY

Inventor(s): (std): ABBASI FARAZ ; ANDERSON KARL GREGORY ; ANGELO CHARLES D III ; BOESTERT JOHANNES LEENDERT WILLEM CORNELIS DEN ; BOND WILHELMUS MARIA ; BRADY MICHAEL PATRICK ; BRIGNAC JOSEPH P ; BRIGNAC JOSEPH P JR ; BRIGNAC JOSEPH PHILLIP JR ; BURNS DAVID ; BURNS DAVID BOOTH ; CARL FREDERICK GORDON ; BASS RONALD J ; BASS RONALD MARSHALL ; BEERS GARY LEE ; CHERRILLO RALPH ANTHONY ; CHRISTENSEN DEL SCOT ; CLOMBURG LLOYD ANTHONY ; COIT WILLIAM GEORGE ; COSTELLO MICHAEL ; COSTELLO MICHAEL SCOTT ; COWAN KENNETH MICHAEL ; DEN BOESTERT JOHANNES LEENDERT WILLEM CORNELIS ; DIAZ ZAIDA ; FAIRBANKS MICHAEL DAVID ; FARMAYAN WALTER ; FONSECA ERNESTO ; FOWLER THOMAS DAVID ; DAVIDSON IAN ALEXANDER ; DEEG WOLFGANG FRIEDRICH JOHANN ; GEDDES CAM ; GILES STEVEN PAUL ; GINESTRA JEAN CHARLES ; GOEL NAVAL ; GOODWIN CHARLES R ; GRIFFIN PETER TERRY ; GUIMERANS ROSALVINA ; HALE ARTHUR HERMAN ; HAMILTON PAUL TAYLOR ; HARIHARAN PERINGANDOO RAMAN ; HARRIS CHRISTOPHER KELVIN ; HARVY BERT ; HERON GOREM ; HINSON RICHARD A ; HIRSHBLOND STEPHEN PALMER ; HORTON JR JOSEPH ARNO ; HSU CHIA FU ; HWANG H ; HWANG H JAY ; JOHN RANDY CARL ; KIM DONG SUB ; KUHLMAN MYRON IRA ; LAMBIRTH GENE RICHARD ; MARWEDE JOCHEN ; MASON STANLEY LEROY ; MAZIASZ PHILIP JAMES ; MCKINZIE BILLY JOHN ; MENOTTI JAMES LOUIS ; LENKE ROBERT ; LI RUIJIAN ; MACDONALD DUNCAN ; MANDEMA REMCO HUGO ; MANSURE ARTHUR J ; MILLER DAVID SCOTT ; MINDERHOUD JOHANNES KORNELIS ; MO WEIJIAN ; MUNSHI ABDUL ; MUNSHI ABDUL WAHID ; MUYLLE MICHEL SERGE MARIE ; KARANIKAS JOHN MICHAEL ; KELTSNER THOMAS JOSEPH ; NAIR VIJAY ; NELSON RICHARD GENE ; NGUYEN SCOTT VINH ; PAGGIO ALAN ANTHONY DEL ; PIERCE DENNIS ; PIERCE ROBERT ; PINGO ALMADA MONICA M ; PRINCE WRIGHT ROBERT ; RENKEMA DUURT ; ROES AUGUSTINUS WILHELMUS MARIA ; ROUFFIGNAC ERIC PIERRE DE ; RUDOLF RANDY ; RYAN ROBERT CHARLES ; SAMUEL ALLAN JAMES ; SANDBERG CHESTER LEDLIE ; SANTELLA MICHAEL LEONARD ; SCHNEIBEL JOACHIM HUGO ; SCHOEBER WILLEM JAN ANTOON HENRI ; SCHOEHLING LANNY ; SELBY BRUCE ; SHINGLEDECKER JOHN PAUL ; SIDDOWAY MARK ALAN ; SIKKA VINOD KUMAR ; STANECKI JOHN ; STEGEMEIER GEORGE LEO ; STONE JR FRANCIS MARION ; TSAI KUOCHEN ; VINEGAR HAROLD J ; WATKINS RONNIE WADE ; WONG SAU WAI ; XIE XUEYING ; ZHANG ETUAN

Inventor(s): XUEYING XIE ; ZAIDA DIAZ ; WEIJIAN MO ; WILHELMUS MARIA BOND ; WILLEM JAN ANTOON HENRI SCOEBER ; WILLIAM GEORGE COIT ; WOLFGANG FRIEDRICH JOHANN DEEG ; VINOD KUMAR SIKKA ; WALTER FARMAYAN ; VIJAY NAIR ; THOMAS DAVID FOWLER ; THOMAS JOSEPH KELTNER ; STEPHEN PALMER HIRSHBLOND ; STEVEN PAUL GILES ; STANLEY LEROY MASON ; SCOTT VINH NGUYEN ; SAU WAI WONG ; RUIJIAN LI ; RONALD MARSHALL BASS ; RONNIE WADE WATKINS ; RICHARD A HINSON ; RICHARD GENE NELSON ; ROBERT CHARLES RYAN ; ROBERT LENKE ; RALPH ANTHONY CHERRILLO ; RANDY CARL JOHN ; REMCO HUGO MANDEMA ; PAUL TAYLOR HAMILTON ; PERINGANDOOR RAMAN HARIHARAN ; PETER TERRY GRIFFIN ; PHILIP JAMES MAZIASZ ; NAVAL GOEL ; KENNETH MICHAEL COWAN ; MYRON IRA KUHLMAN ; MONICA M PINGO ALMADA ; MARK ALAN SIDDOWAY ; MICHAEL DAVID FAIRBANKS ; MICHAEL LEONARD SANTELLA ; MICHAEL PATRICK BRADY ; MICHAEL SCOTT COSTELLO ; MICHEL SERGE MARIE MUYLLE ; LANNY SCHOELING ; JOSEPH PHILLIP BRIGNAC JR ; JR FRANCIS MARION STONE ; JR JOSEPH ARNO HORTON ; IAN ALEXANDER DAVIDSON ; JAMES LOUIS MENOTTI ; JEAN CHARLES GINESTRA ; JOACHIM HUGO SCHNEIBEL ; JOHANNES KORNELIS MINDERHOUD ; JOHANNES LEENDERT WILLEM CORNELIS DEN BOESTERT ; JOHN MICHAEL KARANIKAS ; JOHN PAUL SHINGLEDECKER ; HAROLD J VINEGAR ; GOREM HERON ; GENE RICHARD LAMBIRTH ; GEORGE LEO STEGEMEIER ; DEL SCOT CHRISTENSEN ; FREDERICK GORDON CARL ; DONG SUB KIM ; ERIC PIERRE DE ROUFFIGNAC ; ETUAN ZHANG ; DAVID BOOTH BURNS ; DAVID SCOTT MILLER ; CHRISTOPHER KELVIN HARRIS ; CHESTER LEDLIE SANDBERG ; CHIA FU HSU ; BILLY JOHN MCKINZIE ; CHARLES D ANGELO III ; CHARLES R GOODWIN ; ARTHUR HERMAN HALE ; AUGUSTINUS WILHELMUS MARIA ROES ; ABDUL WAHID MUNSHI ; ALAN ANTHONY DEL PAGGIO ; ALLAN JAMES SAMUEL

Agent(s): NORTON ROSE FULBRIGHT CANADA LLP SENCRL SRL

Title: AUTOMATIC BRAKING SYSTEM AND APPARATUS FOR USE THEREIN

Abstract: ABSTRACT OF THE DISCLOSURE

Automatic braking-control equipment is provided which is suitable for use in reducing the impact between **rail**-road cars during car-sorting Operations. A pulse-reflection type object-detector on the front of each car detects the car ahead when within a first predetermined distance of it and applies the brakes to bring the car to a slow **speed** for safe impacting. A closing-**speed sensor** utilizing a special capacity-charging circuit prevents initiation of braking during sorting unless the equipment-carrying car is approaching the car ahead at more than a predetermined closing **speed**. An "early gate" circuit prevents initiation of braking if the equipment-carrying car is within a second, smaller distance of a car ahead, as when the equipment-carrying car is part of a **train**. An integrat-ing memory circuit is also preferably used to prevent braking in response to transient, spurious reflective objects. Cross-reference to related applications Portions of the apparatus described herein are described and/or claimed in copending application Ser. No. 529,081 of James J. DaRold and Rudolph F. Trevisin, filed Feb. 21, 1966, now Patent No. 3,370,166, and entitled "Object Detector and Control System Employing Same." B

Classifications:

International (IPC 8-9): B60T13/66 B60T7/12 B61K7/12 G01S1/72 G01S13/18 G01S13/93 (Advanced/Invention); B60T13/66 B60T7/12 B61K7/00 G01S1/00 G01S13/00 (Core/Invention)

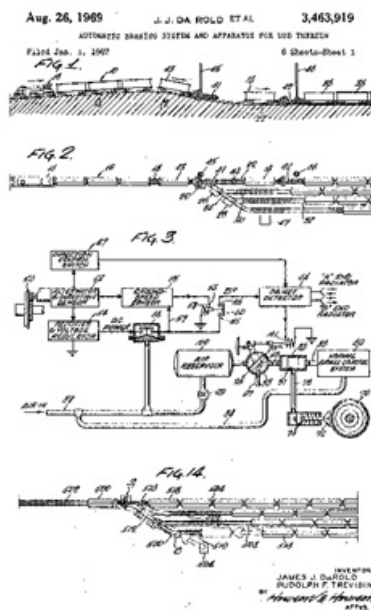
International (IPC 1-7): B60T13/68 B60T7/12 B61B1/00 B61K7/12 B61L27/00 B61L3/00

CPC: G01S2013/9321 G01S2013/9328 G01S2013/9346 G01S2013/9353 G01S2013/9364 G01S2013/9375 G01S13/931 B60T7/128 B60T13/665 B61K7/12 G01S1/72 G01S13/18

European: B60T13/66C B60T7/12E B61K7/12 G01S1/72 G01S13/18 G01S13/93C

US: 104/26.2 246/182 246/182.0BH 246/182BH

PatBase - US3463919_A



Family:

Publication number	Publication date	Application number	Application date
FR1550028 A	19681213	FR19680135103	19680105
GB1207721 A	19701007	GB19680000652	19680104
GB1207722 A	19701007	GB19690018984	19680104
US3463919 A	19690826	US19670607512	19670105

Priority:

US19670607512 19670105 GB19690018984 19680104

Probable Assignee:

AMBAC IND

Assignee(s): (std):

AMBAC IND

Assignee(s):

AMBAC IND INC

Inventor(s): (std):

ROLD JAMES J DA ; TREVISIN RUDOLPH F

Inventor(s):

RUDOLPH F TREVISIN ; JAMES J DA ROLD

Title: Improvements in and relating to electric indicating, measuring or control apparatus

Abstract: 1,015,862. Determining moisture content. FIDELITY CARS Ltd. April 18, 1963 [April 19, 1962], No. 15269/62. Heading G1N A device for measuring moisture content includes a test capacitor 10, Fig. 3, located in the frequency determining circuit of an oscillator 11 and means for measuring the resultant frequency, the test capacitor including in its dielectric a sample of the material being tested. A cell 14, similarly affected by temperature and other variations is included in the circuit of an oscillator 12 and a signal having the difference frequency is produced in a mixed stage 13 including transistor 33, and transmitted via a coaxial cable 41, emitter follower 15, and amplifier 16 to a Schmitt trigger circuit 17 which produces a rectangular waveform of the same frequency. A bi-stable multi vibrator 18 then produces an output of half the frequency, the amplitude of which is limited by zener diodes 70, 72 of a limiter 20 and a signal of amplitude proportional to the pulse repetition rate is developed in the load circuit of transistor 75 for application to indicator 23. A switch 5 is provided for calibration and monitoring. The measuring cell preferably comprises plane strips in an insulating block over which the sample passes.

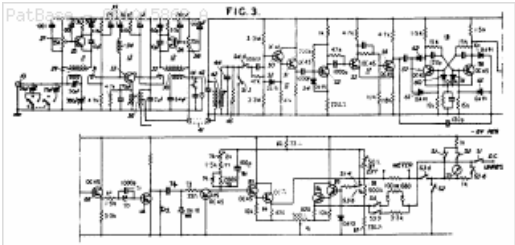
Classifications:

International (IPC 8-9): G01N27/22 G08C19/12 (Advanced/Invention); G01N27/22 G08C19/12 (Core/Invention)

International (IPC 1-7): G01N27/02

CPC: G01N27/22 G08C19/12

European: G01N27/22 G08C19/12



Family:

Publication number	Publication date	Application number	Application date
GB1015862 A	19660105	GB19620015269	19620419

Priority:

GB19620015269 19620419

Probable Assignee:

FIDELITY CARS LTD

Assignee(s): (std):

FIDELITY CARS LTD

Assignee(s):

FIDELITY CARS LIMITED

Inventor(s): (std):

SMITH PETER HAROLD