

Search history

- Search 1: SFT=(coke and (charge or load) and oven and compact*) (Results 1623)
Search 2: SFT=(coke and (charge or load) and oven and compact*) and IC=(C10B) (Results 382)

1) Family number: 44702068 (US2011198206A)

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AIR PROPORTIONING SYSTEM FOR SECONDARY AIR IN COKE OVENS DEPENDING ON THE VAULT VS. SOLE TEMPERATURE RATIO

Abstract: Source: US2011198206A A device for proportioning of secondary combustion air into the secondary air soles of coke oven chamber ovens is shown. The device is formed by a slide gate or a parallelepiped device or by plates moved by means of a thrust bar, the thrust bar being moved longitudinally in parallel to the coke oven chamber wall so that the plates move away from the secondary air apertures and open or close these. The thrust bar is moved by means of a positioning motor, with the power transmission being effected hydraulically or pneumatically. Via suitable measuring parameters, it is thus possible to optimize secondary heating so that heating is provided evenly from all sides, thus achieving an improvement in coke quality.

Probable Assignee: THYSSENKRUPP UHDE GMBH

Earliest Publication Date: 20100401

2) Family number: 46840753 (US2011314727A)

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METHOD FOR PRODUCING SINGLE COAL COMPACTS SUITABLE FOR COKE CHAMBERS

Abstract: Source: US2011314727A Coal compacts which are suitable for coking in coke oven chambers are prepared by pressing and compacting coal in a pressing device having a design which shapes the surface of the coal compacts to provide higher surface area. Already compacted coal blocks can be pressed to generate the surface shape. The resulting coal compacts exhibit significantly improved properties during the coking process, resulting in improved gas and heat exchange. A device for compacting coal preferably contains a plate provided with shaping elements on the pressing surface.

Probable Assignee: THYSSENKRUPP UHDE GMBH

Earliest Publication Date: 20100916

3) Family number: 33701716 (US2009283395A)

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FLOOR CONSTRUCTION FOR HORIZONTAL COKE OVENS

Abstract: Source: US2009283395A The invention relates to a coke oven of a non-recovery horizontal type of construction, known as a non-recovery or heat-recovery coke oven, in which the coke oven floor is made up of at least two layers and each layer is formed of the same or different silica materials, wherein the first layer, seen from the oven space, is formed from a solid refractory material and the second layer comprises a multiplicity of openings, gaps, apertures or the like, the gas spaces of these openings, gaps, apertures or the like being in communication with the gas space of the flue gas duct running under them.

Probable Assignee: THYSSENKRUPP INDUSTRIAL SOLUTIONS AG

Earliest Publication Date: 20061012

4) Family number: 40970742 (US2007289861A)

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METHOD AND APPARATUS FOR COMPACTING COAL FOR A COAL COKING PROCESS

Abstract: Source: US2007289861A Relatively high speed methods for increasing the bulk density of coal particles, apparatus for increasing the bulk density of coal particles and methods for making metallurgical coke. Once such method includes depositing coal particles onto a charging plate external to a coking oven to provide an elongate bed of dry, uncompacted coal having an upper surface of the charging plate. The charging plate has side walls, and at least one movable end wall An impact pressure is applied to the upper surface of the bed of dry, uncompacted coal while degassing the coal to provide a dry, compacted coal bed having a bulk density ranging from about 960 to about 1200 kilograms per cubic meter.

Probable Assignee: SUNCOKE TECHNOLOGY AND DEVELOPMENT LLC

Earliest Publication Date: 20071220

5) Family number: 45887803 (US2011253521A)

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METHOD FOR A CYCLICAL OPERATION OF COKE OVEN BANKS COMPRISED OF" HEAT RECOVERY" COKE OVEN CHAMBERS

Abstract: Source: US2011253521A A method for cyclical operation of a coke oven facility which includes an even number of coke oven banks which in turn include an even number of coke oven chambers is shown. Located downstream of the coke oven banks are boiler facilities which drive turbines with the hot waste gases from the coke oven banks. Energy is recovered in this manner. The coke oven chambers are pushed and charged in an exactly determined cycle so that the production of hot waste gas over the temporal mean can be homogenized.

Probable Assignee: UHDE GMBH

Earliest Publication Date: 20100701

6) Family number: 4885584 (US2012216454A)

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METHOD AND DEVICE FOR THE SUCCESSIVE PRODUCTION OF COAL BRIQUETTES COMPATIBLE WITH A COKE CHAMBER

Abstract: Source: US2012216454A A method for production of coke chamber-compatible coal briquettes. Horizontally feeding coal into a pressing mould formed from a plate having two parallel terminating walls, which are stationary with respect to the direction of movement of the plate, and a terminating stop wall disposed transversely to the direction of movement of the plate. The side of the pressing mould open to coal is closed by a stationary wall, and the plate is locked in the horizontal direction for the pressing operation. The coal is compacted by a tamping device, having a vertically acting force onto pressing mould to produce a coal briquette. After completion of the coal briquette, the plate is moved horizontally in the longitudinal direction so that the space in the pressing mould becoming free in the horizontal direction is used for producing the next coal briquette. A device for carrying out the method is also disclosed.

Probable Assignee: THYSSENKRUPP UHDE GMBH

Earliest Publication Date: 20110519

7) Family number: 3152992 (SU1089102A)

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DEVICE FOR COMPACTING COAL CHARGE IN ANNULAR COKING OVENS

Abstract: Source: SU1089102A 1. DEVICE FOR SEALING RING coal charge in the coke oven, designed as a roll mounted on a horizontal axis, characterized in that, in order to improve coke quality by improving the sealing of the coal charge, it comprises a plurality of rollers whose axes are rigidly interconnected by mounted on levers and hinges are disposed between the arms, the rollers are hollow and have an orifice. ballast therein.

Probable Assignee: GVI PROEKT PREDPR KOKSOKHIMICH

Earliest Publication Date: 19840430

8) Family number: 31863148 (US2007187222A)

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METHOD FOR PRETREATING AND IMPROVING COKING COAL QUALITY FOR BLAST FURNACE COKE

Abstract: Source: US2007187222A Methods for pretreating and improving coking coal quality for producing blast-furnace coke by: (a) rapid-heating the coal charge in a fluidized-bed to a temperature range between not lower than 300 degrees centigrade and not higher than the temperature at which the coal charge begins to soften, at a rate of 30 to 10³ degrees centigrade /min., (b) classifying the rapid-heated coal charge to fine- and coarse-size coal, and then (c-1) briquetting the fine-size coal or (c-2) rapid-heating the fine- and coarse-size coal individually in a pneumatic preheater to a temperature range between not lower than 300 degrees centigrade and not higher than the temperature at which the coal charge begins to soften, at a rate of 10³ to 10⁵ degrees centigrade /min., and (d) forming the fine-size coal.

Probable Assignee: JAPAN IRON AND STEEL FEDERATION

Earliest Publication Date: 20050317

9) Family number: 34973830 (US2009217576A)

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METHOD AND DEVICE FOR THE COKING OF HIGH VOLATILITY COAL

Abstract: Source: US2009217576A The invention relates to a method for the coking of coal, in particular coal with a high or alternating volatility, in coking plants comprising coking chambers, according to the non-recovery method or the heat-recovery method. The invention also relates to a device, which can be used to carry out said method simply, as the overheating of the coking furnace is prevented by the injection of water vapour. If a battery of coking furnaces is used, the disclosed method can be carried out irrespective of the number of said furnaces.

Probable Assignee: UHDE GMBH

Earliest Publication Date: 20070511

10) Family number: 40801750 (US2010232913A)

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EQUIPMENT AND METHOD FOR TRANSPORTING RED-HOT COKE

Abstract: Source: US2010232913A Equipment and a method for transporting red-hot coke are provided, which do not need increase in size of a hoist, reinforcement of a CDQ system, and the like, even when the amount capacity of a coke bucket does not correspond to an amount equivalent to the coke amount from one oven chamber. In particular, transporting equipment for red-hot coke, includes: a non-rotary coke receiving car for receiving coke out of a coke oven; a coke bucket for receiving the coke discharged from the coke receiving car; a transporting device for transporting the coke bucket to a hoist position; and a hoist for transporting the coke bucket to a coke dry quenching system.

Probable Assignee: JP STEEL PLANTECH CO

Earliest Publication Date: 20071108

11) Family number: 41016982 (US2009321980A)

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METHOD AND APPARATUS FOR PRODUCING A COAL CAKE FOR COKING

Abstract: Source: US2009321980A The invention relates to a method and apparatus for producing a coal cake for coking, in which a bed (3) of coal is compacted in a mould (2) by pulses of hammers (19) which act on the bed, and is solidified to form a block. In accordance with the invention the bed (3) is not only worked on in pulses by the hammers (19) but is also subjected to compression.

Probable Assignee: FLSMIDTH A S

Earliest Publication Date: 20080103

12) Family number: 41017220 (US2009321242A)

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METHOD AND DEVICE FOR REMOVING LOOSE MATERIAL ON WAVY SURFACES OF STAMPED COAL USED FOR COKING

Abstract: Source: US2009321242A According to the invention, the loose coal is displaced from the peaks to the valleys of the waves on the narrow, long coal cake and is beaten down on the coal cake. The inventive device comprises at least one scraper (12) and at least one vertically movable impact plate (13) that are disposed one behind another and are fitted with a connection (7) to a holder. Furthermore, means are provided for generating a relative movement between the scraper (12) and the impact plate (13) and between the scraper (12) and a stamping form. The scraper (12) and the impact plate (13) are interconnected by means of a device frame (14) so as to form a structural unit (6) that is connected to the holder. Preferably, the structural unit (6) can be moved along the stamping form and is equipped with a drive unit. For this purpose, the holder encompasses a guide that extends along the stamping form as well as a carriage or a car which can be slid or moved on said guide and to which the unit (6) is connected with the aid of a boom.

Probable Assignee: FLSMIDTH A S

Earliest Publication Date: 20080103

13) Family number: 43364261 (US2012103782A)

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REFRACTORY **OVEN DOORS AND REFRACTORY **OVEN** DOOR FRAMING WALLS OF A **COKE** **OVEN** BATTERY**

Abstract: Source: US2012103782A A heat-resistant door device for closing a horizontal **coke oven** chamber is made of a refractory material, using a material containing silica or a material containing silica and aluminum oxides, in particular. The material has a low temperature expansion coefficient and it is thermally well insulating so that the door is not deformed and/or distorted during the coal carbonization process. The door device is built of a **coke oven** wall mainly located above the door and embracing the door as well as of a mobile door located underneath. Thereby less cold ambient air enters into the **coke oven** chamber and radiation losses are minimized. The door may be comprised of an ellipsoidal bulge by, which the **coke** can be better pushed into the coking chamber. The **oven** wall embracing the **oven** door can also be made of a refractory material containing silica or of a material containing silica and aluminum oxides.

Probable Assignee: THYSSENKRUPP UHDE GMBH

Earliest Publication Date: 20090611

14) Family number: 49334753 (US2012297670A)

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METHOD FOR PRODUCING INDIVIDUAL **COMPACTS SUITABLE FOR **COKE** **OVEN** CHAMBERS BY DIVIDING A COAL CAKE IN A NON-MECHANICAL MANNER**

Abstract: Source: US2012297670A A method for producing individual **compacts** made of **coke** and suitable for **coke oven** chambers by dividing a coal cake in a non-mechanical manner, wherein the coal cake is produced by a compression method according to the prior art and the coal cake is divided by non-mechanical, energy-supplying media, and the non-mechanical media supplying shearing energy are, for example, a laser beam, a high-pressure water jet, an abrasive-solid jet, an ultrasonic beam, a compressed-air jet, or a gas jet. By using the method, coal **compacts** can be produced from coal cakes without forming dust, without wearing out cutting tools, and with high precision.

Probable Assignee: THYSSENKRUPP UHDE GMBH

Earliest Publication Date: 20110728

15) Family number: 888528 (EP0032412A2)

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PROCESS FOR MANUFACTURING METALLURGICAL **COKE FROM A COAL MIXTURE.**

Abstract: 1. Process for manufacturing metallurgical **coke** from a mixture of coal fines of low coking or non-coking quality and coal fines of coking quality, in which the moisture content of the said coal fines of low coking or non-coking quality is reduced to a value of less than 3 percent and in which a suitable quantity of binder and/or solvent is added to the said dried coal fines of low coking or non-coking quality, characterized by the fact that the aforementioned coal fines of low coking or non-coking quality, having been dried and coated with binder and/or solvent, are mixed with the said coal fines of coking quality, the mixture then being **charged** in that state into the coking **oven**.

Probable Assignee: CENTRE DE RECHERCHES METALLURGIQUES CENTRUM VOOR R

Earliest Publication Date: 19800715

16) Family number: 10092118 (US5609458A)

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METHOD OF CHARGING COAL INTO CHAMBER FURNACE-TYPE **COKE **OVEN** AND APPARATUS THEREFOR**

Abstract: Source: US5609458A A method of charging coal into a chamber furnace-type **coke oven**. The coal is fed from a table feeder from a coal hopper so as to be dropped and **charged** into a carbonization chamber of the **coke oven**, through a charging cylinder. The coal fed from the table feeder is accelerated by rotation vanes at the initial stage in which the coal starts to drop. The vanes have a rotation center which is located upward on the exterior of a locus of the stream of free fall gravitated by the coal. The rotation speed of the vanes is progressively increased in the latter half of charging of the coal. The coal is thus allowed to accumulate in the carbonization chamber so that the bulk density of the coal in the vertical direction can become uniform. Also disclosed is an apparatus for charging coal into a chamber furnace-type **coke oven**. The apparatus includes a coal hopper for storing the coal therein. A table feeder feeds the coal from the hopper. Rotation vanes increases the speed of the coal fed from the feeder at the initial stage in which the coal drops from the feeder. The vanes have a rotation center which is located upward on the exterior of a locus of the stream of free fall gravitated by the coal. A charging cylinder guides the coal, which has been accelerated by the vanes and dropped into the carbonization chamber.

Probable Assignee: KAWASAKI STEEL CORP

Earliest Publication Date: 19950927

17) Family number: 11609220 (WO0050537A1)

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INSTALLATION FOR THERMOLYSIS PROCESSING OF WASTE WITH FUMES THAT HAVE A LOW FREE OXYGEN CONTENT

Abstract: The installation comprises: a thermolysis chamber (12), a combustion chamber (19) that is connected to the thermolysis chamber for the combustion of thermolysis gas and to provide a supply of combustion gas, a turbulent burner (18) mounted on the combustion chamber (19) for the combustion of gas resulting from the thermolysis chamber (12), an afterburn chamber (23) that is connected to the combustion chamber (19) so that part of the combustion gas produced in said chamber can undergo post-combustion, whereby the other part of the gas is introduced into the thermolysis chamber (12), a preheated combustive oxygen supply line (22) for the burner (18) and means for adjusting the amount of oxygen that is supplied to the burner (18) of the combustion chamber (19) in order to produce combustion gas that is practically devoid of free oxygen at the exit thereof.

Probable Assignee: THERMOLYSE SOC FRANCE

Earliest Publication Date: 20000831

18) Family number: 20644043 (WO9964539A1)

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PYROLYTIC **OVEN** WITH DUST EXTRACTION OF THE GAS STREAM OUTPUT RESULTING FROM PYROLYSIS

Abstract: The invention concerns a pyrolytic **oven** comprising an airtight cavity (50), including an inlet interface for inserting waste in said cavity (50) and an outlet (54) for the gas stream resulting from pyrolysis. A combustion chamber (60) encloses the cavity (50), and a burner (80) has an inlet (84) connected to the cavity outlet (24) and an outlet (86) delivering a fuel gas into the combustion chamber (60). The cavity gas stream outlet (54) comprises at least a discharge duct (GA) comprising one first end connected to the cavity and a second end connected to the burner (80), the duct (GA) being capable of housing a coreless screw (117) for capturing at least part of the solid carbon-containing particles present in the gas stream resulting from pyrolysis and for rotating, under control, so as to send back into the **oven** cavity the captured particles.

Probable Assignee: THIDE ENVIRONNEMENT

Earliest Publication Date: 19991210

19) Family number: 20865693 (GB909809A)

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IMPROVEMENTS RELATING TO THE CHARGING OF HORIZONTAL **COKE OVEN** BATTERIES

Abstract: Source: GB909809A 909,809. Charging **coke-ovens**; operating **coke-oven** charging lids. WOODALL-DUCKHAM CONSTRUCTION CO. Ltd. Oct. 19, 1960 [Oct. 27, 1959], No. 36424/59. Classes 51(2) and 55(1). In order to prevent the discharge of smoke and gas during charging of a **coke oven** with four charging holes 1-4 and gas ascension pipes 6 leading to mains 7, charging car hoppers 12, 13, 14 and 15 have capacities so proportioned that on charging first the outer hoppers 12 and 15, then hopper 13, and finally hopper 14, a free gas space is left above mounds 18, 19 and 20, and mound 21 contains sufficient coal to fill the gaps between the mounds when leveller bar 16 is used. An existing installation may be adapted by extending hoppers 12 and 15 and fitting hoppers 13 and 14 with sleeves 22 and 23 respectively, hopper 13 being also fitted with a baffle 24. The hoppers have vibrators 55, and hopper 14 has a telescopic trunk 38, 39 lowered by an hydraulic jack 42, Fig. 2, through levers 43, 44 and 45 with a counterweight 48. Arcuate gates 49, 50, Fig. 2, are operated by hydraulic jack 53 through lever 52 and a limit switch 54 prevents travel of the car when gates 49, 50 are open. During discharge of hopper 14, charging holes 1, 2 and 4 are closed by lids 5 each operated by mechanism comprising a vertical shaft 26, Fig. 4, carrying a radial arm 27 engaging the lid stud 29 and raised and lowered by a counterweighted lever 33 actuated by an hydraulic jack 35, said shaft being also rotated by an hydraulic jack 31. In a modification, Figs. 6-8 (not shown), having a single gas collecting main at the pusher end of the **oven** hoppers 12, 14 and 15 have telescopic trunks. The trunks on hoppers 12 and 15 have upper annular chambers connected by a duct, whereby smoke and gases from charging hole 4 may be led back into the **oven** through charging hole 1 and retracted by an ascension pipe leading to said main. A sleeve is fitted round the leveller bar door opening in order to minimize leakage as in Specification 521,909. Specification 909,807 and U.S.A. Specifications 1,900,752 and 1,900,753 also are referred to.

Probable Assignee: WOODALL DUCKHAM CONSTR CO LTD

Earliest Publication Date: 19610215

20) Family number: 23265849 (US2005155281A)

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PRODUCTION OF METALLURGICAL **COKE**

Abstract: Source: US2005155281A A process and plant for producing metallurgical **coke** is disclosed. The process comprises rapidly drying coal particles in an inert atmosphere, and maintaining the particles, once dry, in an inert atmosphere. The dried particles are then compressed into a briquette without addition of a binder. The briquette is heated to a temperature between 1000 degrees centigrade and 1400 degrees centigrade for a period of between 1 and 5 hours to produce metallurgical **coke**.

Probable Assignee: COMMW SCIENTIFIC AND INDUSTRIAL ORGANISATION

Earliest Publication Date: 20030814

21) Family number: 28276975 (US2002134659A)

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COKE OVEN FLUE GAS SHARING

Abstract: Source: US2002134659A The invention provides a method and apparatus for decreasing gas flow rates in a sole flue gas system for a **coke oven** during at least an initial coking operation after charging a coking **oven** with coal. The method includes providing a duct system between a first **coke oven** having a first coking chamber and a second **coke oven** having a second coking chamber to direct at least a portion of gas from a gas space in first coking chamber to the second **coke oven** thereby reducing a gas flow rate in the first sole flue gas system of the first **coke oven**. Reduction in sole flue gas flow rates has a beneficial effect on product throughput, the life of the **coke oven** and environmental control of volatile emissions from **coke ovens**.

Probable Assignee: SUNCOKE TECHNOLOGY AND DEVELOPMENT LLC

Earliest Publication Date: 20020822

22) Family number: 29252778 (US5715328A)

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METHOD AND APPARATUS FOR DIAGNOSING WALL OF COKING CHAMBER OF **COKE** BATTERY

Abstract: Source: US5715328A The present invention provides a method and apparatus for accurately diagnosing a state of damage on a wall of a coking chamber of a **coke** battery. The method includes accurately diagnosing the damage state of the chamber wall by combination of three detection means. The three detection means include means for photographing the wall of the coking chamber of the **coke** battery, means for detecting the chamber width between chamber walls by laser range finders, and means for detecting the chamber temperature by radiation thermometers. The joints and the brick surfaces of the **coke** battery is photographed by a CCD camera. The image of the chamber wall is separated into images of the joints and the brick surfaces. The states of the joints and the brick surfaces are separately recognized to accurately detect damage of the joints and damage of the brick surfaces.

Probable Assignee: KAWASAKI STEEL CORP

Earliest Publication Date: 19960818

23) Family number: 29904463 (US3271268A)

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PROCESS OF CALCINING **COKE**

Abstract: Source: GB1024365A A continuous process for calcining **coke** comprises passing **coke** particles and an oxidant concurrently into a combustion zone under conditions such that only a minor portion of the **coke** is oxidized, e.g. 2 to 25%, preferably 5 to 10%, by weight. The oxidant is oxygen or an oxygen-containing gas, or fluorine or chlorine, or nitrogen dioxide, and temperatures in the combustion zone lie in the range 540 DEG to 1400 DEG C., preferably 815 DEG to 1360 DEG C. In the example illustrated, **coke**, which is preheated, e.g. by recycled gas, is fed downwardly into a retort to which the oxidant is delivered, the combustion zone being stabilized by regulating the volumes of the **coke** and oxidant. In another example, a stationary column of **coke** is supplied with air at the top, the combustion zone travelling up the column.

Probable Assignee: MARATHON OIL CO

Earliest Publication Date: 19640402

24) Family number: 46696766 (US2013062185A)

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TUNNEL TYPED COKING FURNACE WITH A MOVABLE SLIDING BED AND THE METHOD USING THE SAME

Abstract: Source: US2013062185A The invention refers to a tunnel typed coking furnace with a movable sliding bed and the method using the same belonging to the coking field, comprising a furnace body (48), a front sealing door (7), a back sealing door (25), a branch flue (10), a bottom flue (12) and a main flue (6), comprising a first preparation chamber (3) for coaling, a preheating segment (50), a carbonization segment (51), a **coke** dry quenching segment (52), and a second preparation chamber (23) for **coke** outlet; each part has different formation from the others, and are interconnected in series with the others; the sliding bed (37) for coaling and tamping coal material (44) passes through the abovementioned five segment in series in order to **coke**. The invention may realize a production coal material with fixed formation through formation process with pressure, so as to obtain the **coke** product with the same and big size, in addition to high strength, high utilization rate of heat energy, high degree of mechanization, and it also may realize the clean exhaustion of flue, so as to be able to protect the environment and water resource, and realize clean production.

Probable Assignee: GUIZHOU SUNNY CLEAN ENERGY TECHNOLOGY DEVELOPMENT CO LTD

Earliest Publication Date: 20100804

25) Family number: 46823176 (US2012055353A)

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METHOD FOR **COMPACTING** COAL IN A MANNER SUITABLE FOR **COKE OVEN** CHAMBERS

Abstract: Source: US2012055353A A method for **compacting** coal in a manner suitable for **coke oven** chambers is disclosed. The coal is initially compressed by means of a suitable compressing device into one or more coal cakes, and the obtained coal cakes are divided into **compacted** products by a cutting device. The **compacted** products are stacked on top of the each other such that they can be **loaded** into a **coke oven** chamber for coking. The **compacted** products enable the **coke oven** chambers to be **loaded** in a precise and a coal loss-free manner. The coal **compacted** products are easy to store.

Probable Assignee: THYSSENKRUPP UHDE GMBH

Earliest Publication Date: 20100916

26) Family number: 47012471 (US2012006668A)

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COKING PLANT WITH FLUE GAS RECIRCULATION

Abstract: Source: US2012006668A Improvement in carbonization in a carbonization furnace and simultaneous reduction in NOx emissions is achieved by recirculation of waste gas from a coking **oven** back to the **oven** chamber, the downcomers, or the sole channel system.

Probable Assignee: THYSSENKRUPP UHDE GMBH

Earliest Publication Date: 20101007

27) Family number: 47020611 (US2012055774A)

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METHOD TO REDUCE HEAT RADIATION LOSSES THROUGH **COKE OVEN** CHAMBER DOORS AND WALLS BY ADAPTING THE COAL CAKE IN HEIGHT OR DENSITY

Abstract: Source: US2012055774A A method for reducing the coking time in the **oven** area near the door or end wall and for improving **coke** quality and situation of emissions by compensating for radiation losses through **coke oven** chamber doors and end walls is disclosed. This compensation is accomplished by varying the height of the coal cake in the environment of the frontal **coke oven** chamber doors. The variation is achieved both by increasing or decreasing the coal cake over part of the length or over the entire length of the **coke oven** chamber door. The reduction in the height of the coal cake can be generated by omission of coal or coal **compacts**, the increase in height can be accomplished by stacking of coal and pressing or adding of coal **compacts**, with it also being envisaged to omit the pressing cycle so as to obtain a recess with a lower coal cake density which also has less heat radiation.

Probable Assignee: THYSSENKRUPP UHDE GMBH

Earliest Publication Date: 20101007

28) Family number: 4849796 (LU81774A)

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PROCEDE AMELIORE POUR LA FABRICATION DE COKE METALLURGIQUE IMPROVED PROCESS FOR THE MANUFACTURE OF METALLURGICAL COKE (MACHINE TRANSLATION)

Abstract: Source: LU81774A [Source: Claim 1] 1. Procède po ir la fabrication du **coke**, caracterise en ce que l'on prepare un melange compose: a) de charbon fin cokefiable, b) d1 agglomerés constitués a partir de charbons non cokefiables, additionnés d'un agent cokefiant, c) de matériaux cokefiables synthétiques élaborés a partir de charbons fins non cokefiables, additionnés d'un agent cokefiant, et en ce que le dit melange est introduit tel quel dans le four de carbonisation. ; [Source: Claim 1] 1. Method ir po manufacture of **coke**, characterized in that said we prepare a mixture composed of: a) fine coal coking, b) d1 agglomerated formed from non-coking coals, added together a coking agent, c) materials synthetic coking coal produced from non coking purposes, added together a coking agent, and in that the said mixture is introduced as such into the carbonization furnace. |

Probable Assignee: CENTRE RECH METALLURGIQUE

Earliest Publication Date: 19810604

29) Family number: 49554486 (US2012067257A)

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A LATERAL TRANSFER SYSTEM

Abstract: Source: US2012067257A A modular lateral transfer system for use in a horizontally oriented processing chamber is provided. Each module has the ability to deliver process gas in addition to moving the reactant material through the horizontally oriented processing chamber. The modular design enables the operator to remove and replace a module of the system, thereby substantially minimizing the downtime of the chamber required during servicing.

Probable Assignee: PLASCO ENERGY GROUP INC

Earliest Publication Date: 20110909

30) Family number: 1099411 (US3841974A)

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PROCESS FOR THE MANUFACTURE OF CHARCOAL

Abstract: Source: US3841974A ABSTRACT OF THE DISCLOSURE A process is provided for converting fibrous material into high quality charcoal by sequentially pulping shredded fibrous material with water, partially dewatering the resulting pulp, pressing the partially dewater pulp into briquettes, and then pyrolyzing the pulp briquettes in the presence of recycled oils and tars obtained from a previous pyrolysis treatment. In addition to the high quality charcoal briquettes, the pyrolytic treatment yields a by-product liquid condensate containing oils and tars, which can either be admixed with the pulping water or used to impregnate the partially dewatered pulp briquette prior to pyrolysis. The proces is especially applicable to the conversion of waste paper, alone or admixed with other fibrous material, to produce novel, high quality, hard charcoal briquettes having a density within the range of about 0.35 to 0.60 gram/cc.

Probable Assignee: OKLAHOMA PUBLISHING CO

Earliest Publication Date: 19741015

31) Family number: 1105763 (US3846250A)

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COKE QUENCHING METHOD AND DEVICE

Abstract: Source: GB1333813A 1333813 Quenching **coke** CARL STILL 6 Sept 1971 [18 Sept 1970] 41382/71 Heading F4B Incandescent **coke** to be quenched passes in turn through or over a bunker 2, a vibratory conveyer 6, an open shoot 7 with spray nozzles 18, a weighing quench hopper 8 with spray nozzles 19, a vibratory conveyer 16 with spray nozzles 20 and a belt conveyer 16a, the water flow rate of nozzles 18 being controlled by the rate of operation of vibratory conveyer 6. Nozzles 20 have their flow rate subject to a thermally responsive device positioned over **coke** leaving the hopper 8. The latter is pivotally mounted on a beam 11 at one side and oppositely rests on a **load** cell 12. The initial cooling of the **coke** in a relatively thin layer on said shoot 7 is said to reduce the emission of water vapour and dust.

Probable Assignee: STILL FA CARL

Earliest Publication Date: 19720117

32) Family number: 114047 (US3723054A)

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INDUSTRIAL FURNACE

Abstract: Source: US3723054A An industrial furnace has at least one furnace chamber and at least two hollow heat-exchange walls each located at and proximal to one lateral side of the furnace chamber so as to exchange heat with the same. At least two regenerators are provided each of which communicates with one of the heat-exchange walls and means is provided for alternately feeding air and flue gas to these regenerators.

Probable Assignee: KOPPERS GMBH HEINRICH

Earliest Publication Date: 19710701

COOLING OR PREHEATING DEVICE FOR COARSE OR BULKY MATERIAL WITH HEAT SPACE RECOVERY EQUIPMENT

Abstract: Source: US3795987A An apparatus for treating material in bulk. An upright bunker is provided to accommodate the material in bulk while it flows gravitationally down the interior of the bunker. The bunker has at its lower discharge end a tapered wall formed with apertures to admit to the material in the bunker a gas at a temperature different from the material of the bunker while permitting those parts of the material which are small enough to pass through the apertures to fall out of the bunker through the apertures before reaching the lower discharge end. A plenum surrounds the apertures and communicates with a gas supply through which the gas is delivered to the apertures to flow therethrough, and a gas discharge communicates with the top of the bunker to discharge the gas therefrom. The material falling through the apertures is collected in the plenum and conveyed away from the latter. Where the gas flowing up through the material in the bunker is heated by the latter material, a boiler may receive the hot gas from the bunker to use the gas for generating steam, and the gas which is cooled in the boiler is then returned to the plenum.

Probable Assignee: WAAGNER BIRO AMERICAN

Earliest Publication Date: 19740312

COAL BED VIBRATION COMPACTOR FOR NON-RECOVERY COKE OVEN

Abstract: Source: US6059932A A coal **compaction** system and method for a non-recovery **coke oven** having refractory roof, floor, side walls and end doors for coal charging and **coke** discharge provides an improved coal charging machine carrying a coal conveyor supported intermediate the ends of the conveyor to avoid conveyor sagging and non-uniform depth of a deposited coal bed, a number of pressurized fluid-driven vibratory **compactors** mounted on an end of the charging machine and spaced-apart across the width of the coal bed and serving to **compact** the coal bed on a retraction stroke of the charging machine, a pivoted lifting frame mounted on the charging machine above the **compactors** and from which the **compactors** individually are suspended and are provided with individual supply of pressurized fluid, and a **coke** pusher head mounted on the charging machine behind the **compactors** and serving, when the lifting frame and associated **compactors** are raised, to push finished **coke** from the **coke oven**.

Probable Assignee: PENNSYLVANIA COKE TECHNOLOGY INC

Earliest Publication Date: 20000509

METHOD OF RECOVERING THERMAL ENERGY IN A GAS PRODUCTION PROCESS

Abstract: Source: GB1449760A 1449760 Dry cooling **coke**; preheating WAAGNER-BIRO AG 26 July 1974 [6 Aug 1973 14 Aug 1973] 33236/74 Headings F4B and F4G In a gas production process heat for drying and/or preheating the coal **charge** is recovered by cooling the **coke** produced in a closed primary inert gas circuit, utilising this primary gas circuit to heat a secondary circuit and utilising the inert gas in the second circuit to dry and preheat the coal, dust being separated from both gas circuits. As shown, a **coke** dry quenching chamber 2 has a primary inert gas circuit including a dust separator 6, heat exchanger 7, dust separator 8 and blower 5. The secondary inert gas circuit includes a heating element 11 in heat exchanger 7 supplied with gas through pipes 9 and 10 controlled by valve 40, a preheater 12, cyclone 13, drier 14, cyclone 15, blower 16, dust separator 17, return pipe 19 with valve 39 and waste pipe 18 with valve 38. By closing valves 38 and 40 and opening valve 39 a closed circuit is obtained and by closing valve 39 and opening valves 38 and 40 an open circuit is obtained. A further heating element 23 in the heat exchanger 7 produces hot gas used to generate steam or for another utility. Preheated coal collects in a chamber 22 and dried coal is fed by line 21 to the preheater. Fine **coke** and coal dust is collected in a mixer 41 which feeds it to chamber 22 with the addition of a binder. In a modification (Fig. 2) the drier 26 incorporates a fluidised bed and another modification (Fig. 3) has both drier and preheater operating on the fluidised bed principle. A final modification (Fig. 4) has the secondary inert gas circuit passing through a **coke oven** regenerator. The inert gas may be nitrogen.

Probable Assignee: WAAGNER BIRO AG

Earliest Publication Date: 19750227

RAMMING UNIT, FOR COMPACTING COAL FOR A COKE OVEN, HAS COMBINED LIFTING AND HOLDING CAMSHAFT DISKS ASSOCIATED WITH AN OSCILLATING LEVER PAIR FOR ADJUSTING THE CAM SEATING FORCE ON RAMS

Abstract: A ramming unit, comprising combined lifting and holding camshaft disks (15) associated with an oscillating lever pair (16, 17) for adjusting the cam seating force on rams (2), is new. A ramming unit comprises camshafts (5) which extend at both sides of rams (2), distributed over the length of the ramming die and having friction coatings (4), and which are provided with a central drive (9) and contra-rotating lifting disks having projecting lifting cams (7) for pressing on the friction coatings (4) and having recessed portions. The lifting disks (6) are designed as combined lifting and holding disks (15) and are associated with an oscillating lever pair (16, 17) which allows adjustment of differential forced seating of both the lifting cams and the recessed portions. An Independent claim is also included for coal cake production using the above device.

Probable Assignee: RAG AG

Earliest Publication Date: 20001130

VIBRATING BED COAL PYROLYSIS SYSTEM

Abstract: Source: US5496465A A vibrating bed pyrolysis system has a vibrating bed which is supplied with hot solid particles. Dry coal particles are rapidly heated by the hot solid particles to drive off hydrocarbon vapors. The vapors are condensed in a jet condenser, and products are flowed to a header tank. A portion of the liquid product is stored at room temperature for later use. A small portion of the liquid product is pumped from the header tank and cooled to ambient temperature and is sprayed in the jet condenser, which is positioned above the vibrating pyrolysis bed. A dryer bed vibrated by the same vibrating machine which vibrates the pyrolysis bed is supplied with hot solid particles and the crushed coal. Moisture in the coal particles is evaporated, and water vapors entrain coal fines before the coal particles are passed to the pyrolysis bed. The hot solid particles are taken from a fluidized bed combustor and are returned to the combustor with the coal char particles by entrainment into the gas lift system. The water vapor and entrained coal fines from the dryer flow into the combustor and a non-condensable gaseous portion of the product flows from the header tank to the combustor.

Probable Assignee: FRAAS ARTHUR G

Earliest Publication Date: 19960305

38) Family number: 12729458 (JP7216357A)

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METHOD FOR COMPACTING COAL FOR CHARGE INTO COKE OVEN AND APPARATUS THEREFOR

Abstract: Source: JP7216357A PURPOSE: To facilitate the release of the air introduced in the course of charging of coal and, consequently, to prevent an increase in pressure derived from expansion of the air, by forming an uneven compact layer as a top layer of charge coal when coal is introduced into a coke oven chamber and is then leveled by a leveler. CONSTITUTION: A roller 9 for the formation of an uneven surface is provided on the underside of the front end of a leveler 7 mounted on an extruder 6. Coal, for coke making from a coal charging car 3 is charged through a plurality of charging ports 2 which are openings located above a coke oven chamber 1. Then, a leveler 7 is inserted through an insert port 5 into the coke oven chamber 1 and moved forward and backward on the top surface of a stacked coal layer 8, and, at the same time, a compacted uneven stripe 81 is formed in the forward and backward directions of the leveler 7 on the top surface of the stacked coal layer 8. By virtue of this constitution, a protruded portion in the uneven stripe 81 serves to compact the coal, while the recessed portion serves to conduct evacuation. This constitution facilitates the release of the air included within the coal layer 8 and prevents an increase in pressure derived from expansion of the air, thereby maintaining the compact state.

Probable Assignee: NIPPON STEEL CORP

Earliest Publication Date: 19950815

39) Family number: 12940348 (US5885913A)

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PREFABRICATED PART MADE OF VITREOUS FUSED SILICA FOR USE AS A REFRACTORY AND PROCESS FOR PRODUCING SUCH PREFABRICATED PARTS

Abstract: Source: US5885913A A prefabricated part made of vitreous fused silica for use as a refractory, and in particular, for use in repairing coke ovens, which contains over 90 percent by weight of SiO₂. The prefabricated part includes about 20 to 50 percent by weight of vitreous fused silica having 1 to 6 mm grain size, 20 to 40 percent by weight of vitreous fused silica having 0.1 to 1 mm grain size, 15 to 35 percent by weight of finely ground vitreous fused silica having grains less than 0.1 mm in size, 1 to 10 percent of finely ground vitreous fused silica having a specific surface area according to BET larger than 20 m² per gram, 1 to 10 percent by weight of cement and 0.1 to 8 percent by weight of a phosphorous compound.

Probable Assignee: LICHTENBERG FEUERFEST GMBH

Earliest Publication Date: 19940728

40) Family number: 1317227 (ZA7806371A)

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PROCESS AND EQUIPMENT TO PRODUCE COKE

Abstract: The process for producing coke, in particular furnace coke, uses considerable amounts of lean or relatively lean caking coal which is submitted to compaction so as to obtain pressed substances; these pressed substances are used on their own or mixed with additional material as charge in a coke furnace for the coking. The coal (A) is submitted during compaction to forces acting upon different directions (D, T) in order to create shearing and/or rotating stress. This causes the mutual fixing of the coal particles thus giving highly resistant pressed material with a high degree of conservation. During compaction, heat can be brought to the material. A device for application of this process comprises a matrix and an element which makes the material pass through the channels of the matrix. These channels have different diameters and can also have different lengths.

Probable Assignee: PROJEKTIERUNG CHEM VERFAHRENST

Earliest Publication Date: 19790517

41) Family number: 131984 (US3862015A)

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QUENCHING TOWER FOR QUENCHING COKE AND SIMILAR MATERIALS, AND A QUENCHING DEVICE AS PART OF SUCH A TOWER

Abstract: Source: US3862015A For increased efficiency of coke quenching, the quenching water is supplied to the surface of the hot coke being quenched in the form of essentially vertically directed solid jets of substantial diameter (as distinguished from the conventional fine spray). These solid jets are preferably provided by a multiplicity of syphon tubes operating under very little hydrostatic head. In the illustrated embodiment the syphon tubes may have inside diameters of about 17 mm, and mouth opening diameters of about 14 mm located about 1.5 meters above the coke surface and spaced about 20 cm, substantially uniformly above the entire surface of the coke bed. The arrangement improves the uniformity and efficiency of quenching by reducing deflection, carry-over and evaporation of quenching water by the rising steam in the region above the coke bed and assures a more uniform distribution of water over the mass of coke, so that more of the water reaches and is uniformly distributed on the coke bed to be vaporized in contact therewith.

Probable Assignee: HOOGOVENS EN STAAL KONINKL

Earliest Publication Date: 19720726

42) Family number: 1325285 (US4186054A)

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PROCESS AND APPARATUS FOR PRODUCING BLAST FURNACE COKE BY COAL COMPACTION

Abstract: Source: US4186054A The method of producing blast furnace **coke** by (1) **compacting** a finely divided coal wherein at least about 60 percent by weight of the coal has a diameter of less than about 1/8 inch to form a coal **compact**, which **compact** immediately after removal from the **compacting** means comprises at least about 20 percent by weight of particles having a particle size of less than 1/4 inch in diameter; (2) breaking the thus formed **compact** such that the bulk density is sufficiently increased to be capable of conversion into **coke** suitable for use in large blast furnaces upon carbonization thereof; and (3) carbonizing the broken **compact** to thereby produce blast furnace **coke** having a minimum hardness of about 68 and a minimum stability of about 55. The **compacting** is preferably performed at a pressure equivalent to that achieved by passing the finely divided coal between rolls at a pressure applied to the coal of between about 20 and about 60 tons per lineal inch. Also preferably in the breaking step at least about 95 percent of the **compact** coal is reduced to particle sizes ranging from about one inch to less than about 100 mesh. The invention also includes apparatus for carrying out the above-described process.

Probable Assignee: UNITED STATES STEEL CORP

Earliest Publication Date: 19790705

43) Family number: 1337261 (US4280033A)

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PROCESS AND APPARATUS FOR THE THERMAL TREATMENT OF COAL

Abstract: Source: US4280033A Coal, particularly ground coal, is thermally treated at a treatment zone by exposing the coal to microwave radiation, preferably at a frequency of from 20 to 3,000 MHz. The treatment zone may be a system for forming the coal into pellets or briquettes. The treatment zone may also be an area between a coal supply bin and a furnace or **oven** for utilization of the coal, whereby the coal is dried and/or preheated before use in the furnace or **oven**.

Probable Assignee: DIDIER ENG

Earliest Publication Date: 19790716

44) Family number: 134871 (GB1339400A)

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REGENERATIVE **COKE OVEN** BATTERY

Abstract: Source: GB1339400A 1339400 **Coke oven** heating walls HEINRICH KOPPERS GmbH 15 May 1972 [11 June 1971] 22667/72 Heading F4B In a regenerative Coffee type **coke oven**, the heating walls are divided by a longitudinal central wall 3, corresponding flues 4, 5 on either side of the central wall being connected to form a flue pair. The **coke oven** side walls 2 and the central wall 3 of each heating flue are formed of stretcher bricks 20, co-operating with header bricks 24, 25, 26 forming the transverse partitions between the flues, Fig. 3. The bricks are tongued and grooved, and the tongues and grooves on the horizontal surfaces of the header bricks are interrupted at 31 to prevent leakage between flues.

Probable Assignee: KOPPERS GMBH HEINRICH

Earliest Publication Date: 19721002

45) Family number: 1389965 (US4318779A)

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METHOD OF MANUFACTURE OF BLAST FURNACE **COKE**S CONTAINING SUBSTANTIAL AMOUNTS OF LOW GRADE COALS

Abstract: Source: US4318779A Blast furnace **coke** containing low grade coal in a high blending ratio is manufactured by a method which comprises blending not less than 60 percent of a blended coal having an adjusted total moisture content of not more than 4 percent with not more than 40 percent of briquettes and carbonizing the resultant mixture. The blended coal consists essentially of not less than 80 percent of coking coal and not more than 20 percent of low grade coal. When coking coal of a kind which has its coking property segregated according to its grain size distribution is pulverized and classified by sifting and the portion of fine particles is used as mixed with the coking coal, the blending ratio of the low grade coal in the blended coal can be increased to up to 35 percent. The briquettes consist essentially of not less than 10 percent of coking coal and not more than 90 percent of low grade coal.

Probable Assignee: SUMIKIN COKE CO LTD

Earliest Publication Date: 19801118

46) Family number: 1396162 (US4024024A)

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HOPPER FOR PREDRIED FINE COAL CARRIED ON HOPPER TRUCKS FOR COKING BATTERIES

Abstract: Source: US4024024A A hopper for predried fine coal for use with a **coke oven** battery or a plurality of batteries arranged in a row, comprises a wheeled support truck which is adapted to be moved along over the top of the **oven** batteries. A fine coal hopper is mounted on the truck and it includes a bottom discharge to facilitate discharging of the fine coal therethrough into the individual batteries. An inert gas system is connected to the fine coal hopper and it includes an inert gas distributor located alongside the hopper on the truck, and includes nozzles directed at a plurality of locations around the periphery and along the height of the fine coal hopper into the hopper and the fine coal contained therein. The hopper is closed by a hood which includes a hood drain connected through an inert gas return line to a plurality of filters where the coarse particles are removed and fed to a source for using the coarse coal particles and the inert gases are again returned to a compressor, along with a fresh supply of inert gases, which discharges into a pressure storage tank. The pressure storage tank is connected through an inert gas feedline to the distributor. In one embodiment, the inert gas feed and return line comprises an extensible, flexible connection, which is effected by the use of a small wheeled carriage containing a windup reel which moves inwardly and outwardly in respect to the fine coal hopper to accommodate the slack between the hopper and the inert gas system which is located at a fixed station. In another embodiment, the inert gas system, which includes filters for filtering the return inert gases, and a compressor for compressing the gases along with a fresh supply of inert gas and delivering it to a pressure storage tank mounted on a carriage which also moves along with the hopper and is coupled to the hopper truck.

Probable Assignee: STILL FA CARL

Earliest Publication Date: 19761021

47) Family number: 1429701 (US4287024A)

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HIGH-SPEED SMOKELESS COKE OVEN BATTERY

Abstract: Source: US4287024A A plurality of sole flue-heated, non-recovery coke ovens constructed in side-by-side relation in a battery have their chimney uptake outlets connected to a common combustion tunnel extending longitudinally of and above the battery and connected to stacks at spaced intervals along its length. Each oven has a bypass flue directly connecting the top of its coking chamber to the combustion tunnel, and a normally closed valve in each bypass is operable to selectively connect the coking chamber to the tunnel to permit charging gases to be drawn from the chambers to be burned in the tunnel and stack. The bypass valve is closed during coking so that the partially burned gases from the crown of the coking chambers are led through downcomers in the oven walls to the sole flues where a controlled amount of combustion air can be admitted to promote the continued burning process and provide maximum heat in the sole flues. The gases then pass through the chimney uptakes to the tunnel where additional combustion air can be admitted to assure complete combustion in the tunnel and stack before being discharged to the atmosphere. Combustion air admitted into the sole flues can be preheated in pipes extending through the base slab beneath the sole flues where waste heat is extracted to protect the foundation of the ovens while increasing the temperature in the sole flues.

Probable Assignee: ELK RIVER RESOURCES INC

Earliest Publication Date: 19800103

48) Family number: 1498205 (US4123216A)

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COAL COMPACTING APPARATUS

Abstract: Source: US4123216A Coal is pounded in a pounding box to form it into a cake which is then introduced into a coke oven. The pounding is effected by members that are repeatedly lifted and then allowed to drop onto the coal in the pounding box. When the coal is thus formed into a cake, the members are retained in lifted condition by a locking-cam mechanism so that the cake can be pushed from beneath the members.

Probable Assignee: SAARBERGWERKE AG

Earliest Publication Date: 19770427

49) Family number: 15320504 (WO0118150A2)

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ENERGY RECOVERY COKE OVEN FACILITY PRODUCING HIGH QUALITY METALLURGICAL COKE WITH POLLUTION LEVELS MUCH BELOW THE ACCEPTABLE NORMS

Abstract: This invention therefor comprises a complete arrangement of ovens, underflues, cooling air ducts under the oven, the feeder flue, to control dampers in the feeder flues, the common flues, the charge car operating over the ovens, the ram car operating on one side of the ovens and the hot coke car operating on the other side of the ovens, the oven doors, the door opening/closing mechanism, the coal bin tower with the weighbridge, the quench tower and the feed of the flue gases to boilers of the power plant. A determined amount of blended coal is fed into a charge car consisting of a container of 28 tonnes capacity which moves over the oven, opens and discharges the coal into the oven. The oven is a specially designed structure made of various qualities and shapes of refractory bricks designed to withstand the high temperatures required to carry out the coking process effectively within the required cycle time and to break up the pollutants into combustible components. During the 48 hours (approximate) of coking process in the oven, volatile matter goes out of the coal in the oven, burns in the oven space below and above the oven floor at a regulated temperature of 1250 Deg C or thereabout. The combustion is controlled by allowing air in and the hot waste gases are led to a common flue refractory lined inside to withstand the high temperature. The waste gases are led to the boiler for producing steam and electric power in a turbine/generator for energy recovery or alternatively led to an oven stack of sufficient height to maintain a draft in the oven to sustain the coking process. After approximately 48 hours the doors of the oven are opened and the ram car of steel frame mounted on wheels and controlled by an operator through a control cabin pushes the red hot coke out of the oven into a waiting hot coke car at the other end. The hot coke car is a container mounted on wheels which carried the hot coke to the quench tower where water is sprayed on the hot coke car and the coke is quenched. The coke is then discharged into a hopper and transported to an area where the coke is separated to the required sizes.

Probable Assignee: SESA GOA LIMITED

Earliest Publication Date: 20010315

50) Family number: 1532292 (US4165260A)

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PIPELINE CHARGING OF COAL INTO COKE OVEN

Abstract: Source: US4165260A Coal mixed with steam is carried through a pipeline to a coke oven where the mixture is introduced through an opening in the oven top directly downwardly into the oven at a location remote from the exhaust outlet in the top of the coke oven.

Probable Assignee: INLAND STEEL CO

Earliest Publication Date: 19790821

51) Family number: 15671527 (US6290494B)

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METHOD AND APPARATUS FOR COAL COKING

Abstract: Source: US6290494B The invention provides a coke oven charging machine including a mobile frame and a coke oven feed device on the mobile frame. The coke oven feed device includes a movable, elongate charging plate having a first end and a second end, retractable side-walls adjacent the charging plate, first and second end walls adjacent the first and second ends of the charging plate and a shuttle section adjacent the first end of the charging plate for spanning an area between the first end of the charging plate and an entrance to the oven. The shuttle section has opposed shuttle side walls and a shuttle end wall. A charging plate moving device is provided for moving the charging plate into and out of the oven. The charging machine apparatus provides a means for quickly charging coking ovens with a compacted coal charge so that lower quality coals may be used to make metallurgical coke.

Probable Assignee: SUNCOKE TECHNOLOGY AND DEVELOPMENT LLC

Earliest Publication Date: 20010918

52) Family number: 1579120 (FR2346431A)

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PROCEDE POUR PREPARER DU COKE REDUCTEUR EN PETITS MORCEAUX SMALL REDUCTION COKE WITH HIGH ELECTRICAL RESISTANCE AND REACTIVITY - PREPD. FROM COMPRESSED LOW-COKING FUELS

Abstract: Source: FR2346431A (Claim 1) 1. Procède pour préparer du coke reducteur en petits morceaux, d'une grande résistance électrique et d'une grande réactivité, destiné à être utilisé dans des fours d'électrometallurgie, lequel procédé est caractérisé en ce que des houilles hautement volatiles, faiblement agglutinantes, contenant plus de 35 percent d'éléments composants volatils, sont broyées à environ 950 selon un morcellement inférieur à 3 mm, sont tassées dans une machine fondeuse jusqu'à une densité d'au moins 0,9 t/m³ (teneur en eau de 7 à 12 percent) et sont cokéifiées dans un four à coke agencé de manière à être chargé avec tassement. Prod. of small sized reduction coke from (A) low-coking coal with more than 35 percent volatiles, or (B) mixts. of coking coal with >28 percent volatiles, and low- or non- coking carbonaceous material with high volatile content e.g. peat, brown coal, crushed brown coal briquettes or flame coal. Process comprises milling until around 95 percent is below 3 mm., compressing in a stamping machine to density of greater than or equal to 0.9 t/m³ with water content 7-12 percent and coking. Used as a reducing agent in electro-metallurgical processes, e.g. prepn. of Ca₂C, P or ferrous alloys. The coke is of high electrical resistance and reactivity, with high strength. The coarse coke shows increased crack formation and breaks down into small sized coke or leaving the oven, so that further comminution is inhibited.

Probable Assignee: SAARBERGWERKE AG

Earliest Publication Date: 19771013

53) Family number: 16230381 (DE7507271U)

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KOHLEFUELLWAGEN COAL CHARGING (MACHINE TRANSLATION)

Abstract: Source: DE7507271U (Claim 1) 1. Kohlefuellwagen, insbesondere fuer vorerhitzte Kohle. welcher auf einer Verkokungs-ofenbatterie verfahrbar ist, mittels welchem die Kohle durch ein mittels einer Hebe- vorrichtung gegenueber einem feststehenden Fuehrungsrohr senkrecht teleskopartig verschiebbares Fuellrohr hindurch in die Fuelloeher einer Ofenkammer im wesentlichen staubdicht austragbar ist, dadurch gekennzeichnet, dass das Fuellrohr als Zwischenteleskop (27; 81; 105) ausgebildet ist, das mit seinem unteren Ende auf ein Eintragrohr (40,230) abdichtend absenkbar ist, die an einer Tragvorrichtung (49,80, 223, 223a) raumbeweglich aufgehängt sowie mit ihrem unteren Ende auf einen Billochrahmen dicht ausetzbar ist (Fig. I-9).

Machine translation: (Claim 1) 1 Kohlefuellwagen, especially for preheated coal. which moved on a Verkokungs-ofenbatterie is, by which the coal is by means of a lifting device, compared to a fixed guide tube vertically telescopically movable fill pipe and into the Fuelloeher a furnace chamber substantially dustproof dischargeable, wherein the filling tube 27 as intermediate telescope (, 81, 105) is formed, which with its lower end to a feed pipe (40.230) is sealingly lowered, the load on a device (49.80, 223, 223a) and hanged mobile space with its lower end to a tight Billochrahmen ausetzbar (Fig. I-9).

Probable Assignee: HARTUNG KUHN AND CO MASCHF

Earliest Publication Date: 19780713

54) Family number: 1633548 (DE2615098A1)

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VERFAHREN ZUR RAUCHLOSEN BEGICHTUNG VON KOKSBRENNOEFEN MIT KOKSKOHLENGICHT UND KOKSBEGICHTUNGSMASCHINE ZU DESSEN DURCHFUEHRUNG TWO STAGE COKE OVEN CHARGING SYSTEM - CHARGING EXTREME END PILES OF ONE AND CENTRE PILE OF PRECEDING CHAMBER

Abstract: Source: DE2615098A1 PATENTANSPRSCB: 1 Verfahren zur rauchlosen Begichtung von Koksoefen mit Kohlengicht, bei dem die Kohlengicht in die Kammern der Koks oefen ueber Rand- und Mittelbegichtungsoeffnungen aus Bunkern einer Kohlenbegichtungsmaschine eingeschuettet wird und sich gleichzeitig ueber Abzugsstandrohre # dabei entwickelnde Gase abgefuehrt werden, d a d u r c h g e k e n n z e i c h n e t, dass jede Kammer des Koksofens in zwei Stufen begichtet wird, zunaechst die Kohlengicht in die Koksofenkammer ueber die Randbegichtungsoeffnungen eingeschuettet, in diesem Koksofen waehrend der Zeitperiode gehalten wird, die zur Befoerderung einer neuen Gichtmenge zur Begichtung des der Begichtungsreihe nach folgenden Koksofens notwendig ist, und hiernach die Koksofenkammer mit der Kohlengicht bis zu deren voller Raumausfuellung ueber die Mittelbegichtungsoeff eine nungen nachgeladen wird, wobei @ Begichtung mit der Kohlengicht ueber die Randbegichtungsoeffnungen des der Begichtungs zusalmmenw reihe nach folgenden Koksofens # mit der Nachbeschickung mit der Kohlengicht bis zu voller Raumausfuellung ueber die Mittelbegichtungsoeffnungen des der Begichtungsreihe nach vorigen Koksofens durchgefuehrt wird 2. Coke ovens of the horizontal chamber type are charged from a coal charging car in two stages. In the first stage, coal is charged into a chamber through the charging holes at the two extreme ends (pusher side and coke side) to form two conical piles. In the second stage, the space between these piles is filled by a conical pile from the central charging hole when the coal charging car is in the position to charge the extreme ends of the next chamber. This reduces the overall time required for the coal charging operation. The conditions for the circulation of the charging fumes are improved. Levelling and compacting of the coal charge are facilitated.

Probable Assignee: GVI PROEKT PREDPRIJATIJ KOKSOC

Earliest Publication Date: 19771020

55) Family number: 1687561 (FR2414535A)

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DISPOSITIF DE CAPTAGE ET D'ASPIRATION DES FUMÉES D'ENFOURNEMENT D'UN FOUR A COKE STAMPED COKING COAL CHARGING FRAME - SEALS CHAMBER DOOR OPENING AS CAKE ENTERS

Abstract: Source: FR2414535A L'invention concerne un dispositif de captage et d'aspiration des fumées d'enfournement d'un four à coke chargé à l'aide de pains de charbon. Le dispositif de captage et d'aspiration selon l'invention est adapté à un four à coke pourvu d'au moins une cellule comportant au moins une ouverture susceptible d'être fermée à l'aide d'une porte et d'un système servant à aspirer les fumées émises dans la cellule, le charbon étant enfourné par ladite ouverture sous forme d'un pain de charbon aggloméré, et il est caractérisé par le fait qu'il comporte d'une part un cadre annulaire susceptible de fermer l'espace annulaire formé à l'extrémité de la cellule entre le pain et ladite cellule, ce cadre étant pourvu d'une ouverture permettant le passage d'un pain de charbon aggloméré et de moyens d'étanchéité pour assurer l'étanchéité entre l'ouverture et le pain, d'autre part des moyens de support et de déplacement de ce cadre propres à le déplacer entre une position de repos telle que la porte puisse être manœuvrée et une position de travail, contre la cellule. A device to prevent the emission of charging gases when a coke oven chamber receives a stamped coal charge cake consists of a sealing frame which can be swivelled aside. It surrounds the cake on all sides but leaves a space and a passage through which the developed gases can be drawn into the chamber. The frame seals against the chamber door frame. This prevents any emission of gases and vapours into the environment during a charging operation.

Probable Assignee: DELATTRE LEVIVIER

Earliest Publication Date: 19790719

56) Family number: 1717125 (DE2820751A1)

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VORRICHTUNG ZUR VERDICHTUNG EINES KOHLEKUCHENS ZUR BESCHICKUNG EINES KOKSOFFENS COKING COAL CHARGE STAMPING PLANT - WITH RECIPROCATING CENTRAL GROUP AND STATIC END GROUPS OF STAMPERS

Abstract: Source: DE2820751A1 Betr: Vorrichtung zur Verdichtung eines Kohlekuchens zur Beschickung eines Koksoffens Patentansprüche: 1 Vorrichtung zur Verdichtung eines Kohlekuchens zur Beschickung eines Koksoffens in einem Stampfkasten einer Stampfanlage, in der eine vorgegebene Anzahl von im wesentlichen frei fallenden Stampfern beweglich gelagert ist, und die auf einer Fahrbahn oberhalb des Stampfers verfahrbar angeordnet sind, dadurch gekennzeichnet, dass eine mittlere Stampfergruppe (1) vorgesehen und beweglich mit äusseren Stampfergruppen (5,6) mittels an sich bekannter Kuppelglieder (7) gelenkig verbunden ist, wobei die äusseren Stampfergruppen (5,6) zur Betaetigung in den jeweiligen Endabschnitten vorgesehen sind, in denen sie die spezifische Verdichtung der Endabschnitte des Kohlekuchens automatisch und in einem vorgegebenen Arbeitszyklus bewirken und dass die mittlere Stampfergruppe (1) mit einem Antrieb (8) versehen ist, mittels dessen diese in einem vorgegebenen Fahrweg zur Hin- und Herbewegung ausgestaltet ist 2. A mechanism for stamping a coke oven coal charge to increase the charging density consists of groups of vertical stampers which are supported by a roller track above the stamping box. The central group which can be reciprocated across the middle of the stamping box is linked by lazy tongs couplings to the two end groups. This ensures that the end sections of the coal charge are stamped firmly enough not to break away during the actual charging operation. The uniform charging density results in a high coke quality.

Probable Assignee: POHLIG HECKEL BLEICHERT

Earliest Publication Date: 19791115

57) Family number: 1790968 (JP55145790A)

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PRODUCTION OF COAL FOR COKE OVEN

Abstract: Source: DE2917333A1 (Claim 1) 1. Verfahren zur Herstellung einer Koksofeneinsatzkohle aus mehr oder weniger verkokungsfähigen Feinkohlen, die fallweise in vorbestimmten Anteilen aus vorzugsweise Fettkohle und/oder Kohlen mit höherem oder niedrigerem Anteil an flüchtigen Bestandteilen, mit oder ohne Magerungsmittel, bei fallweise Zugabe von Teerbriketts, Abrieb und bituminösem Bindemittel, zusammengesetzt ist, in einer Anlage, dadurch gekennzeichnet, dass die vordosierten Komponenten der Kokskohle in einer Trocken- und Mischtrommel gemischt, durch saure Stoffe bis inerte Heizgase - die im wesentlichen in Querströmung zur Durchlaufrichtung des Gutes durch dieses geführt werden - getrocknet, während der Trocknung mit der erforderlichen Menge bituminösem Bindemittel vermischt, weiter erhitzt und, bei Absichtung des nicht gebundenen Reststaubanteils durch eine Entstaubungsanlage 1 zu einem Brikettiergut aufbereitet werden, und dass das so aufbereitete Gut über einen Förderweg im Durchlauf durch Fördererlemente aufgelockert und bei weitestgehender Oberflächendarbietung der durch Binde mittel umhüllten Körnungen und/oder der gebildeten moertelähnlichen Agglomerate fallweise durch dispergiertes Wasser und/oder strömende Luft auf eine brikettierfähige Temperatur gekühlt und entwastrt, und der so vorbereitete Gutstrom ganz oder teilweise brikettiert wird, oder dass ganz oder teilweise das ungekühlte heisse Gut einem zweiten Förderweg aufgegeben wird, und dass die Briketts und/oder gegebenenfalls nicht brikettiertes, ungekühltes, heisses Gut direkt oder aber nach einer schichtweisen Pufferung der Koksofenbeschickung zugeführt werden. A coking blend for coke ovens is prepared from fine coal, briquette waste and coal dust in a drying and mixing drum where a bituminous binder is added. After cooling the mixt. is passed through a two-part worm conveyor and fed to roller presses. The briquettes produced are taken by a conveyor straight to the cokeovens or stock piled on the shifting conveyor until the next charge can be delivered. This system offers great flexibility in the raw material composition of the blend and over a wide temperature range. A homogeneous charge ensures uniform coke quality.

Probable Assignee: WIBAU GMBH

Earliest Publication Date: 19800924

58) Family number: 1794127 (DE2917800A1)

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VERFAHREN ZUR HERSTELLUNG VON KOKS COKING BLEND WITH HIGH VOLATILE COAL - YIELDING GOOD COKE BY ADDN. OF INDIGENOUS PITCH

Abstract: Source: DE2917800A1 Verfahren zur Herstellung von Koks Patentansprüche 1 Verfahren zur Herstellung von Koks unter Einsatz einer Mischung aus gutbackender Steinkohle, schwach backender Steinkohle, sowie Magerungskohlenstoffträgern und einem Pech, dadurch gekennzeichnet, dass das Pech aus dem bei der Verkokung anfallenden Hochtemperaturteer gewonnen und der Einsatzkohle, die aus einem Charge consisting of hard coal of high caking power, mixed with grades of low caking power, smelling power reducing agents, and pitch. The pitch which is obtained from the high-temperature tar yielded by the coking process is blended with the charge to suit the content of high-volatile matter. The mixt. is carbonised at 1250-1350 degrees C. This makes the viscosity of the softening charging coal blend more homogeneous and permits the utilisation of 30 percent of hard coal with a volatile matter content of greater than or equal to 40 percent without deterioration in the coke qualities.

Probable Assignee: SAARBERGWERKE AG

Earliest Publication Date: 19801113

59) Family number: 1801204 (US4314787A)

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CHARGING CAR FOR COKE OVENS

Abstract: Source: US4314787A A coal-charging apparatus includes a charging car with charging bins to discharge coal through filling tubes into charging holes in the roof of an oven chamber. A feed-screw conveys coal from the bottom of a charging bin to a trough communicating with a fixed filling tube. A peripheral trough on the bottom of this tube is filled with sand or liquid and receives a peripheral seal lip on the inside of a movable sealing tube. Hooks on the outside and at the top of the movable sealing tube engage a ring that is suspended by bearings at both ends of a stirrup. The filling tube is raised and lowered by a linkage system that includes a lever supported by a platform and operated by a piston and cylinder assembly. A closure plate is operated by a linkage including a lever supported by a platform and engaged with a piston and cylinder assembly. The closure plate is a leading edge that engages below a wall just above the fixed charging tube.

Probable Assignee: DR C OTTO AND COMP GMBH

Earliest Publication Date: 19801211

IMPROVEMENTS RELATING TO REGENERATIVE COKE OVENS OR THE LIKE

Abstract: Source: GB138124A 138,124. American **Coke** and Chemical Co., (Assignees of Roberts, A.). Jan. 3, 1916. [Convention date]. **Coke ovens**. - In a " flueless " regenerative **oven**, for example of the kind described in Specification 1570/15, a common airdelivery passage is associated with each heating- wall and is connected with regenerators situated one beneath each half of the wall. The burners 11 are at the upper end of the heating - wall, and are supplied with air from a common flue 13 connected at both ends to regenerators, each consisting of a pair of superposed connected chambers 19, 20 and 21, 22. The regenerators also communicate with a waste gas collecting-flue 18 at the foot of the heating-wall, and dampers 41, 42 are provided for controlling the connexions. At their lower ends the regenerators are connected to tunnels 27, 28 in communication through a reversing-device with an exhaust fan or stack and a source of air supply. In the position shown of the dampers 41, 42, air is supplied through the tunnel 27 and flows through the chambers 20. 19 and the uptake 16 to the flue 13. Combustion is effected in the heating-wall, and the products are exhausted through the flue 18, chambers 21, 22. and the tunnel 28. The vertical partitions between the regenerative chambers of adjacent **ovens** are arranged beneath the soles of the **ovens**, so that the weight of the **charge** is transmitted direct to the foundation structure. The width of the regenerator chambers is made less than the distance between the mid points of adjacent heating-walls.

Probable Assignee: AMERICAN COKE AND CHEMICAL COMPA

Earliest Publication Date: 19210425

VORRICHTUNG ZUM VERDICHTEN VON KOHLE ZU EINER QUADERFOERMIGEN, EIGENGEWICHTSSTABILEN KOKSOEFENFUELLUNG COKE OVEN CHARGE COMPACTING - USING PRESS BOX WITH BOTTOM LOWERED BY RAYS AND TOP PRESS RAMS ABOVE SIDE FILLER HOLE

Abstract: Source: DE2929700A1 Vorrichtung zum Verdichten von Kohle zu einer quaderfoermigen, eigengewichtsstabilen Koksofenfuellung mit Presskasten, Pressengestell und einer Mehrzahl von ueber die Laenge des Presskastens verteilt angeordneten Pressstempeln, die gegen den Presskastenboden als Presswiderlager arbeiten, wobei die Pressstempel an eine oder mehrere Arbeitszylinderkolbenanordnungen angeschlossen sowie mit ihren Presskoeppen in oberhalb von Zulauffoefnungen fuer die lagenweise zu verdichtenden Kohlen angeordnete Wartestellungen zurueckfahrbar sind, d a d u r c h g e k e n n z e i c h n e t dass der Presskastenboden (4) an Verstellzylinderkolbenanordnungen (11) angeschlossen ist, die auf- und niederverfahrbar sind, und dass der Presskastenboden (4) nach Massgabe zu verdichtender Kohlenlagen absenkbar ist. System of **compacting** a coal **charge** to a solid block in the shape of a parallelepiped consists of a rectangular press box with a movable common bottom which is supported by several (six) power cylinders. The top press heads, e.g. three in line, each with two press cylinders, are originally at a level above the lateral coal filling holes. They descend to complete the **compacting** process. The common bottom starts at a level just below the filling holes and is lowered as filling proceeds. This eliminates the troublesome noise caused by the conventional drop hammers both for the personnel and the environment. It speeds up the **compacting** operation esp. for modern 6 m high **coke oven** chambers.

Probable Assignee: COC LUXEMBOURG SA

Earliest Publication Date: 19810129

PLANIERSTANGENFUEHRUNG FUEH KOKSOEFEN USW PLANIERSTANGENFUEHRUNG COKE OVEN USW (MACHINE TRANSLATION)

Abstract: Source: DE332106A (Claim 1) 1. P.'TENT-ANSPRUE CH: Plan:ierstangenfuehr.ung fuer Koksoefen usw., dadurch gekennzeichnet, dass die die Fuehrung und Abstuetzung- unmittelbar uebernehmenden Rollen oder Schlitten (na, m') in Gruppen (h, i) zusammen- geschadtet und durch jeweilige Zu- sammenfassung mittels eines Systems von sich gegenseitig aufeinander abstuetzenden Waagebalken (k, I und k', I') die Ab stuetzung der Planierstange (f) unter Ausnutzung des grossten zur Verfuegung stehenden Hebelarms zur uebernahme der Kipplast statisch bestimmt gemacht wird,,o dass die Beanspruchung des Materials unter der Quetschgrenze gehalten werden kann und keine Absenkungen des in die Ofenkammer ragenden freitragenden Planierstangenendes eintreten.

Machine translation: (claim 1) 1 P. 'claims TENT CH: Location: ierstangenfuehr.ung for **coke ovens**, etc., characterized in that the guidance and support, directly or slides about participating roles (well, m') in groups (h, i) together and geschadtet by respective To-mary means of a system of mutually support each other balance beam (k, I and k', I'), the Ab support the lever (f), utilizing the largest made for the disposal stationary lever arm for about commissioning of tipping **load** statically determined,, o that the stress of the material can be kept below the yield stress, and that no subsidence of the project into the furnace chamber cantilever Planierstangenendes .

Probable Assignee: KOPPERS GMBH HEINRICH

Earliest Publication Date: 19210121

VERFAHREN UND VORRICHTUNG ZUM AUSGLUEHEN KOHLENSTOFFHALTIGEN MATERIALS ROTARY KILN FOR PETROLEUM COKE CALCINATION - PASSES COMBUSTION AIR OVER PREHEATED CHARGE IN PARALLEL FLOW

Abstract: Source: DE2303165A1 (Claim1) PATENTANSPRUECH E1 Verfahren zum Ausgluehen kohlenstoffhaltigen Materials in einem rotierenden Trommelofen durch allmaehliches Erwaermen dieses Materials auf eine Temperatur von ungef2hr 1 250. Carbonaceous material (petroleum **coke** for mfr. of electrodes) is preheated, prior to introduction in a rotary kiln, to a temp. where the liberation of volatile matter begins. In the kiln, heated to 1250-1350 degrees centigrade the volatile matter is burned in air which is admitted in a parallel flow to the **charge** over the whole length of the zone in which the volatile matter is extracted. High quality finished prod. is obtd. even from **coke** high in sulphur. Good carbon yield (up to 95 percent) and high thermal efficiency are obtd. No extraneous fuel is required.

Probable Assignee: WORMS

Earliest Publication Date: 19740725

APPARATUS FOR FILLING CARBONIZING CHAMBER OF COKE OVEN WITH POWERED COAL WITH

VIBRATION APPLIED THERETO

Abstract: Source: US4375388A A carbonizing chamber is **charged** with powdered coal, and then the powdered coal is **loaded** down with a predetermined **load** from above with vibration to control the packing density of the powdered coal by means either of a pressing and vibrating member provided on a leveling beam body or a beam body arranged to act also as a pressing and vibrating member.

Probable Assignee: NIPPON STEEL CORP

Earliest Publication Date: 19810428

65) Family number: 18397079 (GB193061A)

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IMPROVEMENTS IN AND RELATING TO THE PRODUCTION OF **COKED**, SEMI **COKED** OR FUSED FUEL

Abstract: Source: GB193061A 193,061. Trent Process Corporation, (Assignees of Trent, W. E.). Feb. 13, 1922, [Convention date]. Charging.-Fuel is made from comminuted coal with or without a binder such as hydrocarbon oil by forming a number of openings in the mass and applying heat, preferably in the form of hot gases, to the walls of the openings. A series of cylindrical containers A with perforated bottoms B<2> are supported on trucks C having rods D<1> which serve, when the containers are **charged** at the filling station B<5> by a feeder F and the **charge** compressed by a tamper G<1> to form passages or openings B<9> through the **charge** when the compressed mass is lifted at the station H from the support C to be transferred to the heating apparatus. The Specification as open to inspection under Sect. 91 (3) (a) states that the comminuted coal may be formed into balls or blocks of half an inch diameter and these bodies placed in the container so that passages exist between them due to their shape. This subject-matter does not appear in the Specification as accepted. Specification 151,236, [Class 50, Fuel, Manufacture of], is referred to.

Probable Assignee: TRENT PROCESS CORP

Earliest Publication Date: 19240117

66) Family number: 18511987 (GB206712A)

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IMPROVEMENTS IN APPARATUS FOR DISTILLING GAS FROM NON-COKING, BITUMINOUS MATERIALS AT LOW TEMPERATURES

Abstract: Source: GB206712A 206,712. Koppers, H. Nov. 22, 1922. Retort furnaces. - In the continuous low temperature distillation of non-coking materials the **charge** is caused by slats 12 to move downwards in thin layers against the heated walls of chambers 10 of rectangular section. Several of these chambers may be arranged in one setting and separated by heating walls. The chambers 11 are heated by passing air and gas preheated in recuperators 20 into a combustion chamber 21 leading to channels 22 from which the hot gases enter the chambers 11 through nozzles 23 extending into the interior of the chambers so that the gases do not touch the heating wall until after the re-ascension and intermixing with the partly cooled gases.

Probable Assignee: KOPPERS GMBH HEINRICH

Earliest Publication Date: 19231115

67) Family number: 18534168 (GB213040A)

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IMPROVEMENTS IN OR RELATING TO THE CARBONISATION OF FUEL SUCH AS COAL, LIGNITE AND THE LIKE

Abstract: Source: GB213040A 213,040. Davies, W. E. Jan. 18, 1923. Coking processes.-The carbonization of fuels such as coal, wood, peat, lignite or cannels is effected by an increased heat transmission varying from one inch per hour at a temperature of 1000 C. and upwards to one quarter of an inch per hour at temperature of 500 C. by application of internal and external heating, the material being blended if necessary to have a, volatile content of 15 to 45 per cent, and the distillates preferably being withdrawn by suction. The **oven** may be heated on one side only the gases passing transversely across the **charge**. The apparatus may comprise a trio of flues, a frontal triangular shaped combustion chamber with its base contacting with the side wall of the retort and triangular infiltrating flues as described in Specification 165,825, and flues of silicon carbide may be employed.

Probable Assignee: WILLIAM EVERARD DAVIES

Earliest Publication Date: 19240327

68) Family number: 18534918 (GB213363A)

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IMPROVEMENTS IN OR RELATING TO CARBONISATION AND/OR GASIFICATION OF FUELS

Abstract: Source: GB213363A 213,363. Davies, W. E. Jan. 18, 1923. Coking processes.-The **charge** is divided into zones or stages and heated externally or internally on one side only, and the distillation products are withdrawn separately from each stage from the cooler side of the retorts. Gases such as flue gases, steam, hydrogen, oxygen, air, inert gases, carbon dioxide, carbon monoxide or hydrocarbons may be introduced and the heating may be a combination of external and internal means. The heating wall serves to preheat the gases introduced which are passed transversely across the **charge**, the combustion gases being used first for external heating and then for internal heating by passage through the **charge**. In addition to a pre-drying zone a zone of preliminary intensive heat treatment is employed to facilitate coking and to which pitch or tar may be supplied. The vapours from the first stage of 450 to 600 C. are forced downwards into and cracked in the bottom part of this zone and in a second stage of 550 to 750 C. a **coked** mass is obtained which passes into the third stage in which superheated steam is used to generate water gas. In a fourth stage a lower grade water gas is obtained which may be used for heating the retorts. Suitable apparatus comprises two retorts 1 with heating zones 3, 3, 3 and enclosing with their non- heated sides gas offtakes 2, 2, 2. Gas and air for combustion enter by openings 4, 5 respectively and the combustion products pass through flues 6 to flues 7, 8 a portion of the gas passing through inclined openings 9 through the **charge** to the outlets 10 and the waste gases from flue 8 are led to the chimney. The extraneous gases passed through the retorts take the same path as the heating gases. Specifications 136,880 and 165,825 are referred to.

Probable Assignee: WILLIAM EVERARD DAVIES

Earliest Publication Date: 19240403

69) Family number: 18585845 (GB234053A)

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IMPROVEMENTS IN OR RELATING TO THE CHARGING OF COAL INTO **COKE-OVENS**

Abstract: Source: GB234053A Addition to 227,470. Charging. The method of the parent Specification is used for providing a compressed **charge** in the boxes or containers by which the **charge** is separately fed to the **oven**. In the apparatus shown in Fig. 1 the bunkers a are formed with a discharge orifice c of approximately the same dimensions as the horizontal cross section of the charging-box b, so that the coal during its free fall will acquire sufficient velocity to form a **compact** mass in the box. Alternatively the ordinary small discharge orifices may be retained, and an intermediate container provided having a controlled orifice corresponding with the cross section of the box. The velocity of the falling **charge** may be increased by the use of mechanical projectors.

Probable Assignee: JOSEF SCHAEFER

Earliest Publication Date: 19260218

70) Family number: 18754879 (GB329542A)

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IMPROVED PROCESS FOR THE LOW TEMPERATURE DISTILLATION OF BITUMINOUS COAL AND LIGNITE

Abstract: Source: GB329542A Coking processes.-In a low temperature carbonization process bituminous coal or lignite is heated slowly in a thin layer (8 to 10 cms.) until the external temperature reaches 450° C., this being maintained until certain volatiles are distilled off, and until the least hot portions of the mass is at 350 C. In this stage the temperature is raised by 25° every 15 minutes. The temperature is then rapidly increased to 500 to 550 C. Semi-**coke** containing 8 to 12 per cent of volatiles, and uncracked low temperature tar are obtained. Suitable retorts for the process are described in Specification 229,880 and 308,760..

Probable Assignee: CIE GENERALE DE DISTILLATION E

Earliest Publication Date: 19300522

71) Family number: 18756212 (GB322332A)

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PROCESS AND DEVICE FOR THE LOW TEMPERATURE DISTILLATION OF FUELS

Abstract: Source: GB322332A Coking processes; retorts.Solid fuel is distilled at low temperature by being dried and passed through a heating chamber on a pervious endless chain grate, the **coke** residue being either burned to generate steam or recovered as **coke**, or gasified in a water gas generator. The fuel from a drier S is received on a chain grate G and is moved through a distillation chamber D heated to 600-650 C. by burners O. The semicoke passes into a combustion chamber C in which it is burned with air from conduits A, to raise steam in boiler V. The distillates pass by conduits H to a tar main B from which the tars are returned by pipe L to the distillation chamber to bind the small particles of fuel. The cleaned gas is returned to the burners O from which excess gas passes under a screen and is burned in the combustion chamber C. In a modification, hot gases are passed through the **charge** and powdered **coke** may be recovered. In Fig. 4, the gases evolved are passed through a superheater R and then through the fuel which is pressed while soft by an endless chain K, the lump coke being cooled by distillation gases from a pipe I before it is recovered. In Fig. 5, the hot **coke** is collected in a hopper Y from which it is fed on to an endless chain grate, G1. Water gas is generated by blowing air from a fan W through the fuel which is brought to a red heat and is then subjected to a steam blast from covered spaces F, the water gas being passed through a heat exchanger N in which the steam is superheated. A superheating boiler V1 produces steam for the process. Blowers Z1, Z2 supply the distillation gas and water gas to a holder. The **coke** remaining is burnt with air from the blower W.

Probable Assignee: ALFRED JEAN ANDRE HERENG

Earliest Publication Date: 19291205

72) Family number: 18766029 (GB322765A)

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IMPROVEMENTS IN OR RELATING TO A PROCESS OF AND APPARATUS FOR THE DISTILLATION AND GASIFICATION OF SOLID CARBONACEOUS MATERIAL

Abstract: Source: GB322765A Coking processes; producers.Carbonaceous material such as coal is passed in the form of powder together with steam through a heated conduit, the solid residue separated, and the hot vapours and gases used to generate a further supply of steam which may be used to gasify more powdered fuel from which the hot gases are again employed to carbonize lump coal by direct contact therewith, **coke**, resins oils and gas being recovered. Pulverized fuel from a hopper 13 in which it is preheated, is fed by a conveyer 17 to a pipe 4 together with steam under pressure through a valve 6, the pipe being heated by burners 11 to between 700 and 1200 F., when low temperature distillation is effected, but from 1350 to 1850 F. when water gas is required. Pieces of metal fed from a hopper 20 serve to scour the inside of the pipe 4. The gases are separated from the ash and **coke** in a cyclone separator 23 and pass through a cooling coil 27 to a vessel 29 in which resinous substances, tar acids, ammonia, water, gases and oil, are separated. Steam generated in the cooler 26 is used for the complete gasification of powdered fuel in a coil 38 functioning in a manner similar to pipe 4, the solid residue being removed in a cyclone separator 49. The hot gases at 1200 to 1850 F. are led by pipe 51 to a retort 53 in which lump coal is carbonized by direct contact with the gases, which enter either through inlets 56 or 58 and leave through outlets 60 or 85, passing through a cyclone separator 61 to a condenser 63 and bye-product separator 64. The coal may be preheated by the passage through it of hot gases in a hopper 55, these gases passing downwards and preventing distillates from below entering the hopper. Steam from a main 81 may be heated by being passed by pipes 78, 79 through the hot **coke** and through the **charge** above, and this steam supply may also be used to preheat the fuel in the hopper by admission through a pipe 87. This steam supplied to the **coke** may contain salts such as sodium nitrate, sodium chlorate or a halogen salt or odoriferous materials such as oil of pine or cedar so as to impregnate the **coke** discharged.

Probable Assignee: LEWIS CASS KARRICK

Earliest Publication Date: 19291209

73) Family number: 18945687 (GB355956A)

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PROCESS AND APPARATUS FOR WORKING COAL DISTILLATION OVENS

VERFAHREN ZUR VERBESSERUNG DER STANDFESTIGKEIT VON FUER DIE KOKSHERSTELLUNG VORGESEHENEN KOHLENGEMISCHEN COKING COAL BLEND OF HIGHER STABILITY - BY ADDING EMULSIFIED DISTN. RESIDUE OF CRUDE OIL TO PREHEATED COAL

Abstract: Source: DE3012304A1 Verfahren zur Verbesserung der Standfestigkeit von fuer die Koksherstellung vorgesehenen Kohl engemi schen Patentansprueche 1 Verfahren zur Herstellung von Hochofenkoks aus Steinkohlen, insbesondere Steinkohlen minderer Verkokungsqualitaet, wobei die zu verkokenden Kohlen vermahlen, vorerhitzt, mit Bindemitteln vermischt, anschliessend verdichtet und schliesslich in der Ofen kammer verkocht werden, dadurch gekennzeichnet, dass der Destillationsrueckstand eines Rohoeles in Wasser emulgiert und dann als Bindemittel eingesetzt und mit den vorerhitzten Kohlen gemischt wird 2. Blast furnace **coke** is made of hard coal of low coking quality by grinding, preheating, mixing with binders, **compacting** and carbonizing in an **oven** chamber. The preferred binder is the distillation residue of crude oil, emulsified in water, and used as admixture to the preheated coal **charge**. The coal is preheated to a temp. where, after admixture of the binder emulsion, the temp. in the mixture exceeds 100 deg.C. This results in a higher stability of the coal blend and of the resulting **coke** cake.

Probable Assignee: ELF MINERALOEL GMBH

Earliest Publication Date: 19811008

IMPROVEMENTS IN AND RELATING TO CARBONIZATION

Abstract: Source: GB563037A 563,037. Carbonising process and apparatus. SHAWINIGAN CHEMICALS, Ltd. Jan. 26, 1943, No. 1299. Convention date, July 16, 1942. [Class 55 (i)] The material to be carbonised is fed from a hopper 16 and passed in a thin layer on a travelling grate 12 through a heating chamber 8 in which a portion of the volatile constituents is burned in a controlled amount of air passed upwardly through the **charge** from compartments 30-30e, the air supply to the separate zones through pipes 40 being controlled by valves 42 according to the amount of volatiles given off in the respective zones. The air is supplied by a blower 51 and supply box 50, and each air duct includes a venturi meter 41 and is provided with a pipe 44 leading to an indicator 45, the air supply being adjusted so that in the earlier heating stages combustion takes place in the upper part of the bed and above the bed the combustion working downwards as any given portion of the bed progresses until finally it reaches the lower strata, combustion of the fixed carbon being substantially avoided by limiting the air supply. Unburned volatiles pass out through a flue 11 to be burned for providing heat or to be cooled and collected, and **coke** is discharged through a conduit 19. Specification 533,988 is referred to.

Probable Assignee: SHAWINIGAN CHEM LTD

Earliest Publication Date: 19440726

[CLASS 55 (I)] IN APPARATUS FOR CARBONIZING FUEL IN WHICH A NUMBER OF RETORTS D OF ELONGATED RECTANGULAR CROSS-SECTION ARE...

Abstract: Source: GB479793A [Class 55 (i)] In apparatus for carbonizing fuel in which a number of retorts d of elongated rectangular cross-section are placed stationarily side by side with their long sides adjacent within a heating chamber and spaced apart to form heating gas passages s therebetween, the fuel is inserted into the retorts in containers a through their open tops, the retorts being provided with removable covers g for the latter purpose. Gas outlets f are provided with valves e which are opened or closed, when the covers are in the closed or open positions respectively, by means of interconnecting levers v <11> , v <1> and v. The retorts are externally heated by burners h arranged along the bottom of one longitudinal side of the heating chamber, the gases being withdrawn through similarly arranged flues k on the opposite side of the chamber. Slides i enable the heating to be regulated, and fins on the retorts increase the heating surface thereof. The fuel containers a may comprise superimposed iron or steel shallow open-topped cases. In a modification, the single case is constituted by a number of small boxes p, Fig. 6, welded together, apertures r being provided in their bases to facilitate removal of the **coke**. The boxes p may be made from drawn metal or from strip bent and welded at the joint in which latter instance the bases of the boxes are open. In another modification, the fuel containers each comprise a single subdivided box built up from prismatic tubes l, Fig. 8, welded together at their narrow sides and preferably comprising a double row of such tubes. These containers are closed by common upper and lower plates 2, 5. The distilling temperature is preferably below 530 C.

VORRICHTUNG ZUR HERSTELLUNG VERDICHTETER KOHLEKUCHEN DEVICE FOR PRODUCING COMPRESSED COAL CAKE (MACHINE TRANSLATION)

Abstract: Source: DE549643A (Claim 1) 1. PATENTANSPRUECHE: i. Vorrichtung zum Herstellen verdichteter Kohlekuchen fuer die Beschickung von Kammeroefen zur Erzeugung von Gas und Koks, bei der die Verdichtung vor mittels einer auf beide Seitenwaende der Form einwirkenden Pressvorrichtung er folgt, die mechanisch oder hydraulisch angetrieben wird, dadurch gekennzeichnet, dass auf der einen Seitenwand der Press- form Winkelhebel (i3). angeordnet sind, die an den auf eine Seitenwand einwirken den Druckstuecken auf einer gemeinsamen Welle gelagert und mit ihrem einen Arm mit der Antriebsvorrichtung verbunden sind, waehrend sie mit ihrem anderen Arm auf Querholme einwirken, die die Press- kraefte,auf die Druckstuecke der anderen Seitenwand uebertragen.

Machine translation: (claim 1) 1 Claims: i An apparatus for producing **compacted** ended coal cake for feeding chamber furnaces for production of gas and **coke**, wherein the **compaction** Ver follows by means of a **load** applied to both Seitenwaende the compression molding apparatus it, which is driven mechanically or hydraulically to, characterized in that on the one side wall of the press-form angle lever (i3). are arranged, which on the one side wall affect the Druckstuecken on a common shaft mounted and connected with its one arm with the drive device, while on its other arm transverse spars act, the forces pressing the, transmitted to the Druckstuecke the other side wall.

Probable Assignee: KOPPERS HEINRICH AG

Earliest Publication Date: 19320429

VERFAHREN ZUR BESCHICKUNG VON RINGKAMMEROEFEN METHOD FOR FEED RING SECTION FURNACES (MACHINE TRANSLATION)

Abstract: Source: DE460748A (Claim 1) 1. PATENTANSPRUECI3R: i. Verfahren zur Beschickung von Ringkammeroefen, dadurch gekennzeichnet net, dass die Kohle in Form von zwei im gewissen Abstände ineinanderstehenden, ringfoermigen Saeulen gestampft bzw. ge- presst Wird. z. Ringkammerofen zur Ausfuehrung des Verfahrens nach Anspruch i, dadurch gekennzeichnet, dass auf der Ofenkammer ein als Fressform dienender und mit der Fuellvorrichtung versehener Aufsatz ange bracht ist, der einen in der Beschickung einen Hohlraum erzeugenden ringfoermi gen Einbau enthaelt, so dass.der Aufsatz in. zwei konzentrische Ringraeume unterteilt.ist. 3. Ringkammerofen nach Anspruch 2, dadurch gekennzeichnet, dass der die Fuel lung unterteilende Einbau als Gasabzugs vorrichtung ausgebildet ist.

Machine translation: (claim 1) 1 PATENTANSPRUECI3R: i method for feeding Ringkammeroefen, net characterized in that the coal pounded into shape by two lengths together some standing columns and annular loop-GE is pressed. such ring chamber furnace for performing the method according to claim i, characterized in that on the furnace chamber as a scavenger form serving and with the filling apparatus provided attachment be introduced is that contains a generating in the feed a cavity annular gene installation, so dass.der attachment unterteilt.ist in. two concentric Ringraeume. Third Ring furnace according to claim 2, characterized in that said fuel distribution under dividing mounting device is formed as a gas in discharge.

Probable Assignee: JOHANN LUETZ

Earliest Publication Date: 19280604

81) Family number: 19356231 (DE485895A)

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VERFAHREN ZUR HERSTELLUNG VERDICHTETER KOHLEKUCHEN FUER DIE BESCHICKUNG VON KOKSOEFEN METHOD FOR PRODUCING COMPRESSED COAL CAKE FOR FEED **COKE OVENS** (MACHINE TRANSLATION)

Abstract: Source: DE485895A (Claim 1) 1. PATENTANSPRUECHE: x. Verfahren zur Herstellung verdichteter Kohlekuchen fuer die Beschickung von Koks oefen, dadurch gekennzeichnet, dass die in einer Pressvorrichtung hergestellten Einzel bloecke fuer den Aufbau des Kohlekuchens mittels eines Sanghebers erfasst und zur Bodenplatte des Kohlekuchens befoerdert werden.

Machine translation: (claim 1) 1 CLAIMS: x. Furnace process for the production of compressed coal cakes for the charging of **coke**, characterized in that the products manufactured in a single pressing device, blocks for the construction of the coal cake covered by a lift Sang and conveyed to the bottom plate of the coal cake.

Probable Assignee: KOPPERS HEINRICH AG

Earliest Publication Date: 19291111

82) Family number: 19369835 (DE565732A)

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SCHACHTOFEN ZUR ERZEUGUNG VON HALB- ODER GANZKOKS SHAFT FURNACE FOR PRODUCING HALF OR GANZKOKS (MACHINE TRANSLATION)

Abstract: Source: DE565732A (Claim 1) 1. PATENTANSPRUECHE: i. Schachtofen zur kontinuierlichen oder diskontinuierlichen Erzeugung von festem, stueckigem und dichtem Halb- oder Ganzkoks aus bituminoesen Brenn stoffen, insbesondere aus schlecht backen der Kohle, dadurch gekennzeichnet, dass im Ofenraum ein Verdichter (2) nach Art eines frei fallenden Stampfkolbens ange ordnet ist, welcher mit oeffnungen (2') fuer die Zufuehrung des Brennstoffes in den Verdichtungsraum (3) versehen ist, die gleichzeitig fuer den Austritt der ver draengten atmosphaerischen Luft und der Feuchtigkeit aus dem Besatz dienen.

Machine translation: (claim 1) 1 Claims: Materials I. shaft furnace for the continuous or discontinuous production of solid, lumpy and dense half or Ganzkoks from bituminous fuel, in particular of poorly bake the coal, characterized in that in the furnace chamber, a compressor (2) in the manner of a free falling ramming piston in is arranged, which with openings (2 ') for supplying the fuel into the compression chamber (3) is provided, which simultaneously serve for the exit of the various face paints atmospheric air and the moisture from the stocking.

Probable Assignee: E H GUSTAV HILGER DR ING

Earliest Publication Date: 19321203

83) Family number: 19396124 (GB398160A)

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IMPROVEMENTS IN OR RELATING TO APPARATUS FOR LOW TEMPERATURE CARBONISATION

Abstract: Source: GB398160A 2740. [Classes 51 (ii) and 55 (i).] Charging.-Retorts 5 for the low-temperature carbonization of coal admixed with crude oil or tar are **charged** by means of drag-link conveyers 6 which are pulled through the retorts and carry sealing devices 14, Fig. 3, and 16, Fig. 4, which automatically close the ends of the retorts when the latter have received a full **charge**. The conveyers 6, which consist of cross plates pivoted to side chains, are attached at one end to chains 7 connected to a single chain 23 which passes over a drum 24 operated by a motor 25 and carries a counterweight 35. The other ends of the conveyers are secured to a chain 9 which passes over pulleys 8a and is connected to a drum 21 driven by a motor 22. In operation, as each conveyer is drawn into the retort, **charge** material is fed to the successive cells thereof from a hopper 1 through valve-controlled shoots 3; when carbonization is completed, the **coke** is discharged by a reverse movement of the conveyer, there being provided a hand-operated hammer device 28, Fig. 6, for loosening the **coke** which falls through the door-controlled opening 26 into a sealed cooling hopper 33. A spring connection 19 is provided between the conveyer and the sealing-plate 16, while the sealing member 14 consists of a plug adapted to engage in a conical ring 13 resiliently mounted at the rear end of the retort.

Probable Assignee: HENRY ALEXANDER SHERWIN GOTHAR

Earliest Publication Date: 19330829

84) Family number: 19400587 (DE589894A)

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VERFAHREN ZUR HERSTELLUNG EINES BESATZES FUER ENTGASUNGSOEFEN, INSBESONDERE AUS SCHLECHT BACKENDER BITUMINOESER KOHLE METHOD FOR PRODUCING A MATTER FOR ENTGASUNGSOEFEN, PARTICULARLY FROM BAD CAKING BITUMINOUS COAL (MACHINE TRANSLATION)

Abstract: Source: DE589894A (Claim 1) 1. PATENTANSPRUECHE: i. Verfahren zur Herstellung eines Be satzes fuer Entgasungsoefen, insbesondere aus schlecht backender bituminoeser Kohle, dadurch gekennzeichnet, dass die Besatz kohle nach Abtrennung der Teile ueber io mm und unter 2 mm Korngroesse auf eine Korngroesse bis etwa 3 bis 5 mm ge mahlen wird und dass so viel einer staub foermigen, reinen Kohle zugemischt wird, dass praktisch alle Zwischenraeume zwi schen den groeberen- Koernern ausgefullt sind.

Machine translation: (claim 1) 1 Claims: i method for producing a **loading** rate for Entgasungsoefen, in particular of poorly caking bituminous coal, characterized in that the stocking coal after separation of the parts by io mm and less than 2 mm grain size to a grain size to about 3 to 5 mm GE grind and that so much of a dusty, clean coal is mixed, that virtually all Zwischenraeume between between the coarser grains are filled.

Probable Assignee: E H GUSTAV HILGER DR ING

Earliest Publication Date: 19331218

85) Family number: 19463627 (GB787195A)

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IMPROVEMENTS RELATING TO THE PREPARATION OF COAL FOR CARBONISATION

Abstract: Source: GB787195A 787,195. Roller mills. SOC. DE, TECHNIQUE INDUSTRIELLE. March 23, 1955 [June 14, 1954], No. 8496/55. Class 59 [Also in Group XII] In preparing coal or coal mixtures containing powdered **coke** or coals of different qualities prior to its introduction into a **coke oven** particulate coal or coal mixture is compressed by passing it between a pair of rolls having peripheral grooves arranged parallel with the roll axes. The grooves of the rolls are shown in profile in Figs. 1-3; the arrangements of the rolls being such that while there is no intermeshing in Figs. 1 and 2, the rolls in Fig. 3 intermesh in the manner of. gear teeth. One or both of the rolls may be driven and the degree of compression achieved may be varied by varying the rate of feed of uncompressed material to the rolls or by varying the separation between the rolls. The above rolls are preferably associated with a device for breaking down the compressed coal or coal mixture into a mixture containing appropriate proportions of coarse, medium and fine particle sizes - to obtain maximum density in the resultant mixture. Such a device may comprise a pair of rolls having peripheral grooves of a variety of widths in planes perpendicular to the roll axes so that the compressed coal is cut into strips of a variety of widths. As shown in Fig. 6 the rolls are mounted at the base of the hopper 7 of the coal charging car of a **coke oven** battery, the rolls 8 compressing the coal from the hopper 7 and the rolls 9 breaking down the coal into particles of a desired size. The rolls 8 and 9 are rotated at high peripheral speed so that coal from the hopper 7 is eventually discharged downwardly at considerable speed into the **coke oven** 10.

Probable Assignee: TECH IND SOC D

Earliest Publication Date: 19571204

86) Family number: 19496637 (GB788446A)

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CARBONIZATION OF COAL

Abstract: Source: GB788446A 788,446. Coking Coal. KRUPPA, W. J., and RINCKOFF, J. B. Aug. 30, 1954, No. 25132/54. Class 55 (1). In a process for producing **coke** from badly swelling and coking coals pulverized coal is entrained in an air stream and passed through a heating zone to heat it to a temperature within the plastic range of the coal, e.g. between 500-800° F., for a controlled brief period of time, e.g. between 10-15 seconds, followed by cooling to a temperature at which oxidation is inhibited and mixing the oxidized coal with a binder and carbonizing formed units of the mixture. The air stream may have a velocity of the order of 1000 ft. per minute and the coal is preferably predried before the oxidation to a moisture content of 1 per cent. The binder for the oxidized coal may be a coal tar pitch to which may be added sulphuric acid, a wetting agent, waste sulphite liquor, amylaceous and saccharogenic compounds. The formed units are carbonized by contact with a hot inert gas and the heat input is such that the temperature increases at 2.5-5.0° C. per minute up to 500° C. and thereafter at 0.75-1.25° C. per minute to the final coking temperature, e.g. 800-1000° C. In Fig. 1A, coal fed in at 1 and crushed in a mill 2 is entrained in a stream of hot gas from a gas-fired furnace 3 and passed by conduit 6 to a separator 7, dried coal being collected in a bin 17. Gases from the separator 7 are in part recycled and in part passed to a stack 15 through a separator 13, separated solids from separator 13 being returned to the conduit 6. Dried coal from bin 17 is entrained in an air stream and passed through an externally heated coil 29, the oxidized coal and air mixture being then cooled in a cooling coil 27 and separated in a separator, 37. The oxidized coal is mixed with the binder and briquetted, the briquettes being then heated in a progressive manner by direct contact with hot gas. The gas and tar obtained from the carbonization may be used in the process as heating gas and as binder respectively.

Probable Assignee: WILLIAM JOSEPH KRUPPA

Earliest Publication Date: 19580102

87) Family number: 19526350 (DE591416A)

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VERFAHREN ZUR HERSTELLUNG VON KOKS METHOD FOR PRODUCING **COKE** (MACHINE TRANSLATION)

Abstract: Source: DE591416A (Claim 1) 1.PATENTANSPRUCH: Verfahren zur Herstellung von Koks durch stufenweise Destillation der Kohle in ein und derselben von aussen beheizten Koksofenkammer, zunaechst bei Schwel- temperatur von etwa 300 bis 500 und dann unter entsprechender Umstellung der Heizung bei Verkokungstemp.eratur, da durch gekennzeichnet, dass meine zuvor auf etwa 2 bis 3 percent Wasser vorgetrock- nete Kohlenbeschickung. des Ofens Koks- schichten so eingelagert werden, dass sie das Entweichen der Gase aus dem Innern der Beschickung erleichtern.

Machine translation: (Claim 1) 1.PATENTANSPRUCH: A process for producing **coke** by stepwise distillation of coal in one and the same **coke oven** chamber initially heated from the outside, wherein threshold temperature of about 300 to 500 and then changed using the heater at Verkokungstemp. erature, as characterized by that my previously percent to about 2 to 3 water vorgetrock- designated carbon feed. furnace **coke** layers be stored to facilitate the escape of gases from the interior of the feed.

Probable Assignee: E H GUSTAV HILGER DR ING

Earliest Publication Date: 19340120

88) Family number: 19592046 (GB497066A)

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IMPROVEMENTS IN AND RELATING TO LOW-AND MEDIUM-TEMPERATURE CARBONISATION PROCESSES AND APPARATUS

Abstract: Source: GB497066A 16032. [Class 55 (i)] In a narrow coking chamber for low or medium temperature coking, the **charge** is consolidated by **compacting** screws which are lowered into the chamber which is then substantially filled, the screws being then rotated to effect a downward pressure as they are withdrawn upwardly. Coking chambers 13, 14 are disposed between heated walls 10, 11, 12 which can be moved apart to facilitate discharge, and which may have vertical ribs to divide the chambers into vertical compartments. Coal is fed from a jig feeder 30 and is tamped down into the coking chambers by **compacting** screws 23 carried by rods 35 suspended from a platform 34, the rods being rotated by gearing 36 and passing through bearings 41 mounted on a platform 42 suspended by chains 43 from platform 34. The rods may have fins 40 to feed the **charge** downwardly. In operation, the platform 34 is lowered by motor 45, gearing 51, and cables 48, until the guiding platform 42 rests on the **oven**, after which the platform 34 above is lowered, the suspension chains being wound up on self-winding drums 46 rotated by helical springs until the screws reach the chamber bottom. The chambers are then filled with coal up to the girders 15, and the screws rotated by motor 38, the platform 34 being gradually raised, and the coal being tamped down. After discharge, any **coke** adhering to the chamber walls may be removed by chisels 54 suspended from beam 55, these chisels being described in Specification 497,067. Specification 385,038 also is referred to.

Probable Assignee: FRANZ PUENING

Earliest Publication Date: 19381209

89) Family number: 19605656 (DE581145A)

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VERFAHREN ZUM VERDICHTEN DER KOHLE INNERHALB DER VERKOKUNGSKAMMERN VON KOKSOEFEN METHOD FOR COMPRESSION OF COAL WITHIN THE COKING CHAMBERS OF **COKE OVENS** (MACHINE TRANSLATION)

Abstract: Source: DE581145A [Source: Claim 1] 1.PATENTANSPRUECHE: z. Verfahren zum Verdichten der Kohle innerhalb der Verkokungskammern von Koksoefen, bei denen das Einfuellen des Brennstoffes durch an der Kammerdecke angebrachte Fuelleffnungen erfolgt, dadurch gekennzeichnet, dass nach erfolgter__ Be schickung _der Besatz, _der_ von den Kammer wandungen und von dem auf der Oberflaeche des verdichteten oder unverdichteten Be satzes ruhenden bekannten Belastungsorgan eingeschlossen ist, eine Verdichtung oder eine zusaetzliche Verdichtung dadurch erfahrt, dass durch geeignete oeffnungen des gleichzeitig als Sicherungsorgan gegen eine uebermaessige Beans uchung der. Kammerwaende dienen den Belastungsorgans `` stangenartige, am unteren Ende zugespitzte oder keilfoermig gestaltete Verdichtungs koerper beliebigen Querschnitts hauptsaechlich in vertikaler Richtung ein oder mehrmals in den Besatz eingefuehrt werden. z. Verfahren nach Anspruch i, dadurch gekennzeichnet, dass die stangenartigen, unten keilfoermig gestalteten Verdichtungs koerper so in den Besatz eingefuehrt werden, dass die Keilflaechen senkrecht zur Laengs richtung der Ofenkammer stehen, damit die Verdichtung vorzugsweise in der Laengsrich tung der Ofenkammer erfolgt. 3. Verfahren nach Anspruch i und 2, da durch gekennzeichnet, dass die vertikal in den Besatz eingefuehrten Verdichtungs koerper eine seitliche Vibrationsbewegung vollfuehren. q.. Verfahren nach Anspruch i bis 3, da durch gekennzeichnet, dass die Oberflaeche der beim Herausziehen der Verdichtungs koerper entstehenden, an sich bekannten ver tikalen Gasabzugskanaele durch an der Aussen seite der Verdichtungs koerper angebrachte buckelartige oder sonstwie geeignet geformte Erhoehungen aufgerauht wird, um das Ent weichen der fluechtigen Bestandteile des Be satzes zu erleichtern. 5. Verfahren nach Anspruch i bis q, da durch gekennzeichnet, dass die Eintauchtiefe der Verdichtungs koerper allmaehlich vermin dert wird, wobei die Verdichtungs koerper jedesmal mit einem gleichbleibenden einstell- baren Gegendruck in den Besatz eingefuehrt werden. 6. Vorrichtung zur Durchfuehrung des Ver fahrens nach Anspruch i bis 5 unter Ver wendung eines mit dem Gasabzug dienenden oeffnungen versehenen Belastungsorgans, da durch gekennzeichnet, dass diese oeffnungen dem Querschnitt von stangenartigen Ver dichtungsorganen angepasst sind, welche nach Beendigung des Einfuellens durch die oeffnungen zum Verdichten des allseitig ein geschlossenen Besatzes vertikal in dasInnere desselben gefuehrt werden. 7. Vorrichtung nach Anspruch 6, dadurch gekennzeichnet, dass die Verdichtungs koerper hohl ausgefuehrt und mit Loechern versehen sind, durch welche waehrend der Verdichtung die Luft und die Feuchtigkeit des Besatzes entweichen koennen. B. Vorrichtung nach Anspruch 6 und 7, dadurch gekennzeichnet, dass sich innerhalb der Verdichtungs koerper Pressorgane befinden, welche nach dem Einfuehren derselben seit lich in den Besatz heraustreten und eine Ver dichtung der benachbarten Brennstoffschich ten herbeifuehren. g. Vorrichtung nach Anspruch 6, dadurch gekennzeichnet, dass das Belastungsorgan, welches auch aus mehreren, die gesamte Oberflaeche des Brennstoffbesatzes bedecken den Teilen bestehen kann, mit Kuehlkammern versehen ist, durch welche ein geeignetes gasfoermiges oder.fluessiges Kuehlmittel ge leitet wird. [Source: Claim 1] 1.PATENTANSPRUECHE. Z method of **compacting** the coal within the coking chambers of **coke ovens**, which means putting the fuel carried by accessories fitted to the chamber ceiling filling openings, characterized in that destiny after erfolgter__ Be _the stocking _der_, walls of the chamber and is enclosed by the on the surface of the compressed or uncompressed be rate dormant known **load** organ, a compression or provide additional compression experienced by the fact that the same as a safety element against excessive Beans uchung through suitable openings of. Kammerwaende serve the **load** organ `` bar-like, at the lower end of tapered or keilfoermig designed Verdichtungs koerper arbitrary cross section mainly in the vertical direction one or more times Introduced in the stocking. z. The method of claim i, characterized in that the rod-like, keilfoermig bottom designed **compaction** are bodies thus Introduced in the stocking that Keilflaechen are perpendicular to the longitudinal direction of the **oven** chamber so that the compression preferably in Laengsrich processing the **oven** chamber. 3. The method of claim i and 2, characterized in that the vertically inserted into the stocking EXPORTED Verdichtungs koerper fully lead a lateral vibration movement. q.. The method of claim i to 3, as the through in that the surface of the pulling out of the **compaction** body arising, known per se ver tical Gasabzugskanaele is roughened by accessories fitted to the outer side of Verdichtungs koerper hump-like or otherwise suitably shaped elevations to Ent soft the volatile components of the **loading** rate easier. 5. The method of claim i to q, characterized in that the immersion depth of Verdichtungs koerper is gradually becoming vermin changed, said Verdichtungs koerper each time Introduced with a constant settable counterpressure in the stocking. 6. Apparatus for carrying out of the proceedings according to claim i to 5 under Ver use of the gas discharge serving ported **load** institution, as characterized by, that these openings are adapted seal organs to the cross section of the rod-like Ver, which for after completion of charging through the openings compressing the sides a closed impurities are vertically led in this environment inside thereof. 7. The apparatus of claim 6, wherein the Verdichtungs koerper are hollow executed and provided with holes through which during the **compaction** can escape the air and the moisture of stocks. B. An apparatus according to claim 6 and 7, characterized in that there are within the Verdichtungs koerper press organs that same since Lich emerge after insertion into the stocking and a compression ratio, th the adjacent Brennstoffschich Induce. g. The apparatus of claim 6, wherein the **loading** organ which also cover of several, the entire surface of the fuel impurities can pass the parts is provided with Refrigerating chambers, through which a suitable gasfoermiges oder.fluessiges Coolant ge passes.

Probable Assignee: E H GUSTAV HILGER DR ING

Earliest Publication Date: 19330721

90) Family number: 1960591 (US4385962A)

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METHOD FOR THE PRODUCTION OF **COKE**

Abstract: Source: US4385962A Production of **coke** from coal is improved by mixing self-feeding coal with **compacted** non self-feeding coal prior to carrying out the coking process. Preferably, there is about 10 percent to about 60 percent by weight of the non self-feeding coal based on the total **charge**. Binders may be used and it is preferred that the non self-feeding coal be preheated to approximately 150 degrees C. to 250 degrees C. prior to mixing. In the event that an aqueous emulsion is used as the binder, the preheating step may be omitted. **Coke** of superior abrasion resistance is obtained by the foregoing method.

Probable Assignee: RUHRKOHLE AG

Earliest Publication Date: 19811223

VERFAHREN UND VORRICHTUNG ZUR ERZEUGUNG VON HOCHWERTIGEM HALB- ODER GANZKOKS AUS BRENNSTOFFEN BELIEBIGER ART
METHOD AND DEVICE FOR THE PRODUCTION OF HIGH QUALITY SEMI OR GANZKOKS FROM FUELS OF ANY KIND (MACHINE TRANSLATION)

Abstract: Source: DE545350A (Claim 1) 1. PATENTANSPRUECHE: i. Verfahren zur diskontinuierlichen Erzeugung von hochwertigem Halb- oder Ganzkoks aus Brennstoffen beliebiger Art, dadurch gekennzeichnet, dass der lose oder verdichtet in einer Schmelretorte bzw. Verkokungskammer befindliche Brennstoff nach allseitiger Vorwärmung des selben bis auf eine unterhalb der Schmel- bzw. Verkokungstemperatur liegende Temperaturhöhe lediglich an einzelnen Stellen zusätzlich so erhitzt wird, dass die Schmel bzw. Verkokungstemperatur erreicht wird und die Verschmelzung bzw. Verkokung des Brennstoffes an diesen Stellen beginnt und je nach Lage der Heizquellen konzentrisch oder linear im Brennstoffbesatz fortschreitet.

Machine translation: (claim 1) 1 Claims: i method for generation of high-quality diskontinuierlichen Er-half or Ganzkoks from fuels of any type, characterized in that the loose or **compacted** in a Schmelretorte bzw. Verkokungskammer befindliche Brennstoff fabric of preheating of the same on all sides except one below the threshold or. liegende Temperaturhöhe-carbonization temperature is only in certain places additionally heated so that the threshold is reached or carbonization temperature and begins smoldering and coking of the fuel at these points and depending on the location of heat sources concentrated symmetrically or linearly in the fuel trim is progressing.

Probable Assignee: E H GUSTAV HILGER DR ING

Earliest Publication Date: 19320303

METHOD OF CHARGING COKE OVENS

Abstract: Source: US1886948A 1.-The method of charging a, horizontally elongated retort **coke oven** with coal which comprises delivering pulverized coal to the **oven** at the top thereof through coal conducting means in the **oven** roof while the Walls of the **oven** are hot. The **oven** evolves gas from the coal with such rapidity that substantially as it enters the **oven** the coal distributes by gravity from beneath said coal conducting means to approximately a uniform height throughout the length of the **oven**.

Probable Assignee: NEW ENGLAND FUEL AND TRANSP AT

Earliest Publication Date: 19321108

IMPROVEMENTS IN PLANT FOR THE DRY-COOLING OF COKE

Abstract: Source: GB769765A 769,765. Screening apparatus. KOPPERS GES, H. May 19, 1955 [July 30, 1954], No. 14497/55. Addition to 762,631. Class 117 [Also in Group XII] In plant for the dry-cooling of **coke** of the type disclosed in the parent Specification, each of the inclined containers 9 disposed within the housings 6 is formed with a bottom grate section 42, the serrated bars of which allow the passage of small **coke** into a producer 52 before the **coke** has been appreciably cooled by the inert cooling gas. As in the prior Specification the central axial grate 19 acts as a classifier, allowing the passage therethrough of medium and small **coke**, and is twisted through 90 degrees to divide the lower part of the container into two compartments one of which will contain the large **coke** and the other the medium **coke** retained by the grate 42. The **coke** is discharged through rotary valves 44 on to a conveyor 36, and the openings for the valves may be closed by hydraulically or pneumatically operated cover plates 45.

Probable Assignee: KOPPERS GMBH HEINRICH

Earliest Publication Date: 19570313

APPARATUS FOR CARBONIZING AND DISTILLING CARBONACEOUS MATERIALS

Abstract: Source: US1785645A 1. A vertical apparatus for carbonizing and distilling solid carbonaceous materials providing a vertically disposed passage, and a plurality of air ducts arranged in horizontal pairs at different levels, with the ducts of the pairs on opposite walls of the passage, each duct being partially embedded in the wall with one side flush with the inner surface of the passage and each having a bottom portion which overhangs the passage, which overhanging portion has discharge openings communicating with the passage.

Probable Assignee: NORTHERN LIGHT COAL CO

Earliest Publication Date: 19301216

VERFAHREN ZUR THERMISCHEN BEHANDLUNG VON STAUBFOERMIGEM BEHANDLUNGSGUT
METHOD FOR HEAT TREATMENT OF DUSTY TREATED (MACHINE TRANSLATION)

Abstract: Source: DE482559A (Claim 1) 1. PATENTANSPRUECHE: i. Verfahren zur thermischen Behandlung von staubfoermigem Behandlungsgut auf einer wandernden Arbeitsflaeche, dadurch gekennzeichnet, dass das Behandlungsgut auf der Arbeitsflaeche durch elektrische Haftwirkung festgehalten wird. z. Vorrichtung zur thermischen Behandlung von staubfoermigem Gut gemäss Anspruch i, dadurch gekennzeichnet, dass die wandernde Arbeitsflaeche mit Mitteln ausgerüstet ist, die ihr eine schwach elektrische Ladung erteilen und erhalten.

Machine translation: (claim 1) 1. PATENTANSPRUECHE: i thermal treatment process for development of dust-treated on a traveling working surface, since in that the treatment lungsgut on the work surface, using electrical bonding effect is noted. such device for thermal treatment of dust-treated development according to claim i, wherein the working surface is prepared against traveling with funds from which it is a weakly electrical Ladung ... give and receive

Probable Assignee: TROCKNUNGS VERSCHWELUNGS U V

Earliest Publication Date: 19301211

VERFAHREN ZUR BEGICHTUNG VON KOKSBRENNOFEN MIT KOKSKOHLENGICHT UND KOHLENBEGICHTUNGSMASCHINE ZU DESSEN DURCHFUEHRUNG HORIZONTAL COKE OVEN CHARGING SYSTEM - INVOLVES INTRODUCING INERT GAS INTO COKE OVEN GASES TO DILUTE THEM TO SAFE CONCEN.

Abstract: Source: DE3028724A1 VERFAHREN ZUR BEGICHTUNG VON KOKSBRENNNOEFEN MIT KOKS KOHLENGICHT UND KOHLENBEGICHTUNGSMASCHINE ZU DESSEN DURCHFUEHRUNG PATENTANSPRUECHE: 1 Verfahren zur Begichtung von Verkoksungsoefen mit Kohlengicht, bei dem die letztere ueber Randbegichtungsoeffnungen unter gleichzeitigem Abfuehren der sich dabei ausscheidenden Gase in den Verkoksungsofen eigenschuettet und in diesem waehrend einer Zeitperiode gehalten wird, welche fuer die Befoerderung einer neuen Gichtmenge zur Begichtung des der Begichtungsreihenfolge nach naechstfolgenden Verkoksungsofen und zur darauffolgenden Nachbeschickung des Verkoksungsofens mit Kohlengicht bis zu dessen voller Raumausfuellung ueber dessen Mittelbegichtungsoeffnungen mit der Kohlenbegichtungsmaschine unter Abfuehren der dabei anfallenden Gae notwendig ist, wobei die Nachbeschickung des Verkoksungsofens bis zu dessen voller Raumausfuellung gleichzeitig mit der Begichtung des der Begichtungsreihenfolge nach naechstfolgenden Verkoksungsofens durchgefuehrt wird, d a d u r o h g e k e n n z e i o h n e t, dass das Abfuehren von Gas waehrend der Begichtung des Verkoksungsofens ueber dessen Randbegichtungsoeffnungen (9) und (10) ueber die Mittelbegichtungsoeffnung (14) des Verkoksungsofens erfolgt, und dass die Nachbeschickung des Verkoksungsofens mit Kohlengicht ueber dessen Mittelbegichtungsoeffnung (11) unter gleichzeitigem Abfuehren von dabei anfallenden Koksofengasen ueber dieselbe Mittelbegichtungsoeffnung (11) sowie Zufuehren eines gegenueber dem Kokaofengas inerten Gases in einer Menge von 15 biB 20 percent von der Gesamtmenge des abgefuehrten Koksofengases durchgefuehrt wird 2. Method is described for charging a coke oven battery whose coking chambers each have at least three charging holes. Coal is charged into a coking chamber through its extreme charging holes whilst simultaneously withdrawing gases through a middle charging hole. Subsequently, the charging is completed by charging and into the chamber through the middle charging hole whilst simultaneously withdrawing gases through the same hole. The gases are withdrawn are diluted with inert gaseous diluent constituting 15 to 20 percent of the total amt. of the gases withdrawn. The method permits the safety of the charging to be improved by withdrawing the coke oven gases from the charging zone and simultaneously introducing a gas inert to the coke oven gas in an amt. sufficient to dilute the latter to a safe concn.

Probable Assignee: G K BJURO KOKSOCHIMICESKOGO MA

Earliest Publication Date: 19820211

VERFAHREN ZUM HERSTELLEN VON GASABZUGSKANAELEN IN DER BESCHICKUNG LIEGENDER KAMMEROEFEN METHOD FOR PRODUCING GASABZUGSKANAELEN IN FEEDING LYING CHAMBER (MACHINE TRANSLATION)

Abstract: Source: DE579389A (Claim 1) 1. PATENTANShRueCHL, r. 'Verfahren zum Herstellen von Gas abzugskanaelen in der Beschickung liegen der Kammeroefen, dadurch gekennzeichnet, dass die senkrecht vor dein Einfuellen der Kohle in die Ofenkammern eingebrachten Rohre aus der Kammer zurueckgezogen werden, nachdem die gesamte Beschickung durch lagenweises Stampfen oder Pressen verdichtet worden ist, und die so entstan denen Hohlkanaele in an sich bekannter Weise mit Koks- oder Halbkoksstueckchen ausgefuellt werden.

Machine translation: (claim 1) 1 PATENTANShRueCHL, r. 'A method for producing gas abzugskanaelen in the feed are the furnaces, characterized in that the be withdrawn vertically in front of your charging the coal into the oven chambers introduced tubes from the chamber after the entire feed is by layerwise stamping or pressing been compacted, and so that to create a highly Hohlkanaele in a conventional manner, filled with coke or Halbkoksstueckchen.

Probable Assignee: E H GUSTAV HILGER DR ING

Earliest Publication Date: 19330624

IMPROVEMENTS IN AND RELATING TO THE CARBONIZATION OF COAL FINES AND LIKE FINELY DIVIDED FUEL AND APPARATUS FOR USE THEREWITH

Abstract: Source: GB735026A 735,026. Carbonizing coal fires; consolidating charges. COPPEE CO. (GREAT BRITAIN), Ltd. March 21, 1952 [March 23, 1951], No. 7435/52. Classes 51 (2) and 55 (1). Coal fires c. are subjected within a retort or auxiliary chamber to vibratory treatment by a number of parallel rods or tubes mounted on a cross bar actuated to produce longitudinal oscillations of the rods such that the vibrations set up are absorbed by the coal which is compacted without the chamber walls being affected. The frequency of the oscillations may vary from 8,000 to 20,000 per minute, oil c., may be added as a lubricant. A gantry 4 or rails 5 is moved successively over coke oven compartments 1 just before or after charging with coal fires is completed through openings 3, 3¹, and bars, pipes c. 13 are inserted through individual apertures 14, the bars depending from a girder 10 vibrated by a member 11 driven from a motor 8 mounted on a girder 7 to which girder 10 is elastically connected and which is suspended from the gantry. In the embodiment shown which has a gas offtake 16 at one end horizontal vibrators 18 on a wheeled stand are introduced below the offtake through apertures in the door 2.

Probable Assignee: COPPEE COMPANY GREAT BRITAIN L

Earliest Publication Date: 19550810

COKE OVEN CHARGE COMPACTION SYSTEM - USING SETS OF RECIPROCATING CARRIAGES WITH FREE FALL STAMPERS

Abstract: Source: FR2234983A A stamping unit to increase the charging density for a coke oven of the horizontal chamber type includes free falling stampers grouped in sets of 4 on carriages which can be reciprocated by a hydraulic cylinder on rails over the stamping mould. The stampers are so distributed that >8 (11-13) deal with every 10 m of stamping mould length. Their action covers greater than or equal to 80 percent of the stamping mould length. This provides the greatest possible uniformity of compaction in the stamping mould. The compaction performance is improved without overstressing the mould walls. The hydraulic drive causes a smooth and uniform progression of the stampers.

Probable Assignee: SAARBERGWERKE AG

Earliest Publication Date: 19750109