

Search query (2): [SP]: cross-reference to related application [0001] this application claims priority to u.s. provisional patent application no. 62/008,389, filed jun. 5, 2014, which is incorporated by reference herein. background [0002] coal preparation and processing plants are used to clean and/or separate run-of-mine (rom) coal to obtain a clean coal product of a desired size and/or quality. for example, typical coal preparation plants may include a variety of crushing, breaking, sizing, beneficiation, storage, density separation, froth flotation, refuse, and/or impoundment units. however, in typical coal processing systems, quantities of fine particle coal are lost because current systems are unable to capture the fine particle coal. accordingly, it would be desirable to provide systems, apparatuses, and methods to capture fine particle coal, and thereby improve process efficiency and reduce the amount of process waste in coal processing plants. moreover, it would be desirable to provide a high quality fine particle coal product that may be used in a variety of applications, for example in pulverized coal injection, as coking coal, i.e., metallurgical coal, or as steam coal. brief summary of the disclosure [0003] methods of collecting fine particle coal are provided herein. in embodiments, the methods comprise dewatering a clean coal effluent slurry having a solids content of 30 percent or less, by weight, to produce a fine particle coal having a particle size of 1000 micro m or smaller and a water content of from about 5 percent to about 20 percent, by weight.[0004] also provided herein are apparatuses and systems for collecting fine particle coal. the apparatuses, in embodiments, comprise a solid bowl centrifuge that retains a particle size of 1000 micro m or smaller. the systems, in embodiments, comprise a dewatering apparatus that retains a particle size of 1000 micro m or smaller.[0005] also provided herein is a fine particle coal. in embodiments, the fine particle coal has a particle size of 1000 micro m or smaller and a water content of from about 5 percent to about 20 percent, by weight.[0006] also provided herein are methods of making coke and methods of making iron or steel. the methods of making coke, in embodiments, comprise heating, in the absence of air, a fine particle coal, or a blend comprising the fine particle coal and at least one other coal, for a time and temperature sufficient to convert the fine particle coal or the blend to coke, wherein the fine particle coal has a particle size of 1000 micro m or smaller and a water content of from about 5 percent to about 20 percent, by weight. the methods of making iron or steel, in embodiments, comprise injecting a fine particle coal, or a blend comprising a fine particle coal and at least one other coal, into a blast furnace containing coke and iron ore, wherein the fine particle coal has a particle size of 1000 micro m or smaller and a water content of from about 5 percent to about 20 percent, by weight. brief description of the drawings [0007] fig. 1 is a partial plant diagram illustrating one embodiment of a system and apparatus for collecting fine particle coal in a clean coal circuit of a coal preparation plant.[0008] fig. 2 is a cross-sectional view of one embodiment of a solid bowl centrifuge for collecting fine particle coal from a clean coal effluent slurry. detailed description [0009] methods, apparatuses, and systems to collect fine particle coal are provided herein. for example, these methods, apparatuses, and systems may be incorporated into a coal processing plant to collect a portion of the fine particle coal that is normally lost in the system (e.g., fine particle coal that the system does not otherwise collect due to size and that is either recycled continuously through the system or discarded in a waste stream). in a typical clean coal processing system, 3 percent or more of the processed coal may be lost because the system is unable to capture this fine particle coal.[0010] additionally, fine particle coal and methods for its use are provided herein. the fine particle coal may have properties such as size, composition, and/or water content that make it useful in pulverized coal injection (pci), as coking coal, i.e., metallurgical coal, or as steam coal. for example, the fine particle coal may be a high quality fine particle coal.[0011] methods, apparatuses, and systems are described herein, as well as fine particle coal and methods for its use.[0012] methods, apparatuses, and systems for collecting fine particle coal[0013] in one aspect, a method of collecting fine particle coal is provided. the method may include collecting fine particle coal from a coal preparation or processing plant.[0014] in embodiments, a method of collecting fine particle coal includes dewatering a clean coal effluent slurry having a solids content of 30 percent or less, by weight, to produce a fine particle coal having a particle size of 1000 micro m or smaller and a water content of from about 5 percent to about 20 percent, by weight.[0015] as used herein, the phrase "clean coal effluent slurry" refers to a mixture of water and coal particles that is present in a system, and in which the ash and/or sulfur content of the coal particles has been reduced from that of the run-of-mine coal from which the coal particles were derived. it should be understood that while embodiments disclosed herein refer to methods, apparatuses, and systems for collecting fine particle coal from a clean coal effluent slurry, the present disclosure is also intended to encompass other particle-containing slurries, including coal-containing slurries other than clean coal effluent slurries, as well as other processing slurries, such as mineral, ore, or other particle-containing slurries.[0016] as used herein, the term "about" means plus or minus 10 percent of the numerical value of the number with which it is being used. the amounts of certain components, such as solids or water, of the effluent slurry and fine particle coal are present herein as percentages "by weight," and, unless otherwise noted, the phrase "by weight" refers to the total weight of the effluent slurry or fine particle coal, including the certain components.[0017] the clean coal effluent slurry, in embodiments, has a solids content of from about 3 percent to about 25 percent, by weight. in other embodiments, the clean coal effluent slurry has a solids content of from about 10 percent to about 20 percent, by weight. in one embodiment, the clean coal effluent slurry has a solids content of about 17 percent, by weight.[0018] in certain embodiments, the fine particle coal contains at least 95 percent, by weight, of the solids contained in the clean coal effluent slurry. in one embodiment, the fine particle coal contains at least 99 percent, by weight, of the solids contained in the clean coal effluent slurry.[0019] in embodiments, the water content of the fine particle coal is from about 5 percent to about 15 percent, by weight. in particular embodiments, the water content of the fine particle coal is from about 5 percent to about 10 percent, by weight. in further embodiments, the water content of the fine particle coal is from about 5 percent to about 7 percent, by weight. in other embodiments, the water content of the fine particle coal is from about 6 percent to about 9 percent, by weight. in a particular embodiment, the water content of the fine particle coal is about 8 percent, by weight. in another embodiment, the water content of the fine particle coal is about 7 percent, by weight. when the fine particle coal is collected by the methods provided herein, the fine particle coal may have an elevated temperature for a certain period after collection. as used herein, the phrase "water content" refers to the amount of water in the fine particle coal after the temperature of the fine particle coal has returned to ambient temperature after the fine particle coal has been collected by the methods provided herein.[0020] in embodiments, the fine particle coal has a particle size of 1000 micro m or smaller. as used herein, the phrase "a particle size of from about x micro m to about y micro m" or "particle size of about z micro m" means that the average largest dimension of the fine particle coal particles ranges from about x micro m to about y micro m, or is about z micro m. the average largest dimension may be determined using any techniques known in the art, including, but not limited to, light scattering techniques.[0021] in other embodiments, the fine particle coal has a particle size of from about 30 micro m to about 1000 micro m. in further embodiments, the fine particle coal has a particle size of from about 30 micro m to about 900 micro m. in some embodiments, the fine particle coal has a particle size of from about 30 micro m to about 800 micro m. in particular embodiments, the fine particle coal has a particle size of from about 30 micro m to about 700 micro m. in certain embodiments, the fine particle coal has a particle size of from about 30 micro m to about 600 micro m. in still further embodiments, the fine particle coal has a particle size of from about 30 micro m to about 500 micro m. in yet still further embodiments, the fine particle coal has a particle size of from about 30 micro m to about 400 micro m. in several embodiments, the fine particle coal has a particle size of from about 30 micro m to about 300 micro m. in a number of embodiments, the fine particle coal has a particle size of from about 30 micro m to about 200 micro m. in embodiments, the fine particle coal has a particle size of from about 30 micro m to about 150 micro m. in some embodiments, the fine particle coa

Results: 10

Search history

Search PN=(WO2015187450) (Results 1)

1:

Search [SP]: cross-reference to related application [0001] this application claims priority to u.s. provisional patent application no. 62/008,389, filed jun. 5, 2014, which is incorporated by reference herein. background [0002] coal preparation and processing plants are used to clean and/or separate run-of-mine (rom) coal to obtain a clean coal product of a desired size and/or quality. for example, typical coal preparation plants may include a variety of crushing, breaking, sizing, beneficiation, storage, density separation, froth flotation, refuse, and/or impoundment units. however, in typical coal processing systems, quantities of fine particle coal are lost because current systems are unable to capture the fine particle coal. accordingly, it would be desirable to provide systems, apparatuses, and methods to capture fine particle coal, and thereby improve process efficiency and reduce the amount of process waste in coal processing plants. moreover, it would be desirable to provide a high quality fine particle coal product that may be used in a variety of applications, for example in pulverized coal injection, as coking coal, i.e., metallurgical coal, or as steam coal. brief summary of the disclosure [0003] methods of collecting fine particle coal are provided herein. in embodiments, the methods comprise dewatering a clean coal effluent slurry having a solids content of 30 percent or less, by weight, to produce a fine particle coal having a particle size of 1000 micro m or smaller and a water content of from about 5 percent to about 20 percent, by weight.[0004] also provided herein are apparatuses and systems for collecting fine particle coal. the apparatuses, in embodiments, comprise a solid bowl centrifuge that retains a particle size of 1000 micro m or smaller. the systems, in embodiments, comprise a dewatering apparatus that retains a particle size of 1000 micro m or smaller.[0005] also provided herein is a fine particle coal. in embodiments, the fine particle coal has a particle size of 1000 micro m or smaller and a water content of from about 5 percent to about 20 percent, by weight.[0006] also provided herein are methods of making coke and methods of making iron or steel. the methods of making coke, in embodiments, comprise heating, in the absence of air, a fine particle coal, or a blend comprising the fine particle coal and at least one other coal, for a time and temperature sufficient to convert the fine particle coal or the blend to coke, wherein the fine particle coal has a particle size of 1000 micro m or smaller and a water content of from about 5 percent to about 20 percent, by weight. the methods of making iron or steel, in embodiments, comprise injecting a fine particle coal, or a blend comprising a fine particle coal and at least one other coal, into a blast furnace containing coke and iron ore, wherein the fine particle coal has a particle size of 1000 micro m or smaller and a water content of from about 5 percent to about 20 percent, by weight. brief description of the drawings [0007] fig. 1 is a partial plant diagram illustrating one embodiment of a system and apparatus for collecting fine particle coal in a clean coal circuit of a coal preparation plant.[0008] fig. 2 is a cross-sectional view of one embodiment of a solid bowl centrifuge for collecting fine particle coal from a clean coal effluent slurry. detailed description [0009] methods, apparatuses, and systems to collect fine particle coal are provided herein. for example, these methods, apparatuses, and systems may be incorporated into a coal processing plant to collect a portion of the fine particle coal that

is normally lost in the system (e.g., fine particle coal that the system does not otherwise collect due to size and that is either recycled continuously through the system or discarded in a waste stream). in a typical clean coal processing system, 3 percent or more of the processed coal may be lost because the system is unable to capture this fine particle coal.[0010] additionally, fine particle coal and methods for its use are provided herein. the fine particle coal may have properties such as size, composition, and/or water content that make it useful in pulverized coal injection (pci), as coking coal, i.e., metallurgical coal, or as steam coal. for example, the fine particle coal may be a high quality fine particle coal.[0011] methods, apparatuses, and systems are described herein, as well as fine particle coal and methods for its use.[0012] methods, apparatuses, and systems for collecting fine particle coal[0013] in one aspect, a method of collecting fine particle coal is provided. the method may include collecting fine particle coal from a coal preparation or processing plant.[0014] in embodiments, a method of collecting fine particle coal includes dewatering a clean coal effluent slurry having a solids content of 30 percent or less, by weight, to produce a fine particle coal having a particle size of 1000 micro m or smaller and a water content of from about 5 percent to about 20 percent, by weight.[0015] as used herein, the phrase "clean coal effluent slurry" refers to a mixture of water and coal particles that is present in a system, and in which the ash and/or sulfur content of the coal particles has been reduced from that of the run-of-mine coal from which the coal particles were derived. it should be understood that while embodiments disclosed herein refer to methods, apparatuses, and systems for collecting fine particle coal from a clean coal effluent slurry, the present disclosure is also intended to encompass other particle-containing slurries, including coal-containing slurries other than clean coal effluent slurries, as well as other processing slurries, such as mineral, ore, or other particle-containing slurries.[0016] as used herein, the term "about" means plus or minus 10 percent of the numerical value of the number with which it is being used. the amounts of certain components, such as solids or water, of the effluent slurry and fine particle coal are present herein as percentages "by weight," and, unless otherwise noted, the phrase "by weight" refers to the total weight of the effluent slurry or fine particle coal, including the certain components.[0017] the clean coal effluent slurry, in embodiments, has a solids content of from about 3 percent to about 25 percent, by weight. in other embodiments, the clean coal effluent slurry has a solids content of from about 10 percent to about 20 percent, by weight. in one embodiment, the clean coal effluent slurry has a solids content of about 17 percent, by weight.[0018] in certain embodiments, the fine particle coal contains at least 95 percent, by weight, of the solids contained in the clean coal effluent slurry. in one embodiment, the fine particle coal contains at least 99 percent, by weight, of the solids contained in the clean coal effluent slurry.[0019] in embodiments, the water content of the fine particle coal is from about 5 percent to about 15 percent, by weight. in particular embodiments, the water content of the fine particle coal is from about 5 percent to about 10 percent, by weight. in further embodiments, the water content of the fine particle coal is from about 5 percent to about 7 percent, by weight. in other embodiments, the water content of the fine particle coal is from about 6 percent to about 9 percent, by weight. in a particular embodiment, the water content of the fine particle coal is about 8 percent, by weight. in another embodiment, the water content of the fine particle coal is about 7 percent, by weight. when the fine particle coal is collected by the methods provided herein, the fine particle coal may have an elevated temperature for a certain period after collection. as used herein, the phrase "water content" refers to the amount of water in the fine particle coal after the temperature of the fine particle coal has returned to ambient temperature after the fine particle coal has been collected by the methods provided herein.[0020] in embodiments, the fine particle coal has a particle size of 1000 micro m or smaller. as used herein, the phrase "a particle size of from about x micro m to about y micro m" or "particle size of about z micro m" means that the average largest dimension of the fine particle coal particles ranges from about x micro m to about y micro m, or is about z micro m. the average largest dimension may be determined using any techniques known in the art, including, but not limited to, light scattering techniques.[0021] in other embodiments, the fine particle coal has a particle size of from about 30 micro m to about 1000 micro m. in further embodiments, the fine particle coal has a particle size of from about 30 micro m to about 900 micro m. in some embodiments, the fine particle coal has a particle size of from about 30 micro m to about 800 micro m. in particular embodiments, the fine particle coal has a particle size of from about 30 micro m to about 700 micro m. in certain embodiments, the fine particle coal has a particle size of from about 30 micro m to about 600 micro m. in still further embodiments, the fine particle coal has a particle size of from about 30 micro m to about 500 micro m. in yet still further embodiments, the fine particle coal has a particle size of from about 30 micro m to about 400 micro m. in several embodiments, the fine particle coal has a particle size of from about 30 micro m to about 300 micro m. in a number of embodiments, the fine particle coal has a particle size of from about 30 micro m to about 200 micro m. in embodiments, the fine particle coal has a particle size of from about 30 micro m to about 150 micro m. in some embodiments, the fine particle coa (Results 10)

Title: PROCESS OF BENEFICIATING COAL AND PRODUCT

Abstract: Mine run coal is pulverized and the extended surfaces of the coal particles are rendered hydrophobic and oilophilic by a chemical bonding and graft polymerization reaction with a water unsoluble organic polymerizable monomer under peroxidation influence in a predominantly water reaction medium. The mineral ash present in the coal and particularly the iron pyrites remains hydrophilic and is separated from the polymeric organic surface bonded coal product in a water washing step wherein the washed coal floats on and is recovered from the water phase and the ash is removed with the separated wash water in a critical wash step. The hydrophobic and oilophilic organic polymeric surface bonded coating about the coal particles is fortified by inclusion of additional unbound free fatty acids by further small additions thereof. Excess water is removed from the beneficiated hydrophobic surface-altered coal product mechanically, and the carboxylic acid groups present in the coal-oil product are thereafter converted to a metal soap. The beneficiated coal product can be used "dry", or additional quantities of a liquid hydrocarbon fuel can be incorporated with the "dry" beneficiated coal product to produce a flowable fluid or liquid coal product having the rheological property of marked thixotropy. Introduction of this physically induced property into the liquid coal-oil-mixture prevents settling out of the heavier coal particles from the relatively ash-free fluid fuel composition under extended storage periods.

Classifications:

International (ipc 8-9): B03B5/00 B03B7/00 B03B9/00 B03D1/00 B03D1/004 B03D1/016 B03D1/02 B03D3/00 B03D3/06 C10L1/32 C10L9/00 C10L9/02 C10L9/10 (Advanced/Invention); B03D3/00 C10L1/32 C10L9/00 (Advanced/Non-invention); B03B9/00 B03D1/00 B03D1/004 B03D3/00 C10L1/32 C10L9/00 (Core/Invention); B01D B03B C10G C10L (Subclass/Invention)

International (ipc 1-7): B01D B01J8/00 B03B5/00 B03B7/00 B03B9/02 B03D1/00 B03D1/02 B03D3/00 B03D3/02 C10B C10G C10L1/32 C10L5/00 C10L5/22 C10L9/00 C10L9/02 C10L9/10 C10M1/32

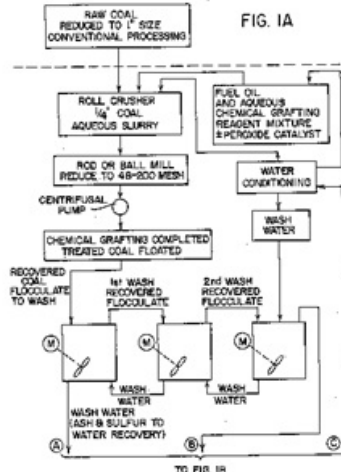
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European: B03B9/00B B03D1/00 B03D1/004 B03D1/016 B03D1/02 B03D3/06 C10L1/32 C10L1/32A C10L1/32C C10L9/00 C10L9/10

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PatBase - US4304573_A

U.S. Patent Dec. 8, 1981 Sheet 1 of 4 4,304,573

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Priority:

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Probable Assignee: THE STANDARD OIL COMPANY

Assignee(s): (std): GULF AND WESTERN IND ; GULF AND WESTERN IND INC ; STANDARD OIL CO OHIO ; STANDARD OIL CO ; GULFF AND WESTERN IND INC ; GULF AND WESTERN INDUSTRIES US ; THE STANDARD OIL CO OF OHIO US

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MACGARRY P E ; LESTER E BURGESS ; KARL M FOX ; KAARU EMU FUOTSUKUSU ; HERMANN D E ;
HERMAN DAVID E ; HERMAN D E ; HERMAN D ; FUIRITSUPU II MATSUKUGYARII ; FUIRITSUPU II
MATSUKUGIYARII ; FUIRITSUPU II MAKUGARII ; FOX KARL M ; FOX K M ; FOX K ; DEBITSUDO II
HAAMAN ; DAVID E HERMAN ; BURGESS LESTER E ; BURGESS L E ; BURGESS L ; PHILLIP E MCGARRY ;
PE MCGARRY ; D E HERMAN ; GARRY PHILLIP E MC ; K M FOX ; L E BURGESS ; LE BURGESS ; KM FOX ;
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MCGARRY PE ; HERMANN DE ; FOX KM ; M FOX KARL

Agent(s): SPRUSON AND FERGUSON; ASPEN PHARMA PTY LTD; MACRAE AND CO; MCFADDEN FINCHAM; OSLER
HOSKIN AND HARCOURT LLP

Designated states: AT BE CH DE FR GB IT LI LU NL SE

Title: DECANTING TYPE CENTRIFUGE

Abstract: A decanting type centrifuge having a main bowl which is adapted to be rotated about its longitudinal axis and which contains a helical scroll conveyor which is arranged to rotate about the main bowl axis at a slightly different speed to the main bowl for scrolling separated solids to a solids discharge end of the bowl. The centrifuge includes a means which acts to isolate a gas volume radially inwardly of the inner liquid surface within the bowl and also a passage arrangement which enables gas to be extracted continuously from the isolated gas volume to a location external to the main bowl.

Classifications:

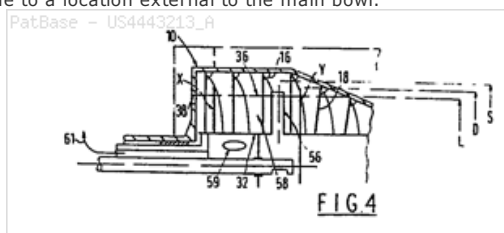
International (IPC 8-9): B04B1/20 (Advanced/Invention);
B04B1/00 (Core/Invention)

International (IPC 1-7): B04B1/00 B04B1/20 B04B11/00 B04B11/02
B04B11/06 B04B11/08 B04B15/00 B04B3/00 B04B3/04 B04B7/00
B04B7/12 B04B9/00

CPC: Y10S494/90 B04B1/20

European: B04B1/20

US: 494/38 494/53 494/900



Family:

Publication number	Publication date	Application number	Application date
AU198316772 A1	19840119	AU19830016772	19830712
AU562368 B2	19870611	AU19830016772	19830712
DE3381284 D1	19900412	DE19833381284	19830712
EP0099267 A2	19840125	EP19830304030	19830712
EP0099267 A3	19841107	EP19830304030	19830712
EP0099267 B1	19900307	EP19830304030	19830712
GB2123717 A1	19840208	GB19820020297	19820713
GB2123717 B2	19851002	GB19820020297	19820713
IN171301 A	19920912	IN1983CA00871	19830713
NO165578 B	19901126	NO19830002536	19830712
NO165578 C	19910306	NO19830002536	19830712
NO832536 A	19840116	NO19830002536	19830712
US4443213 A	19840417	US19830513044	19830712

Priority:

GB19820020297 19820713

Probable Assignee: BROADBENT AND SONS THO LTD

Assignee(s): (std): BROADBENT AND SONS LTD THOMAS ; BROADBENT AND SONS THO LTD ; BROADBENT AND SONS LIMITED THO ; THOMAS BROADBEND AND SONS LIMITE

Assignee(s): THOMAS BROADBENT AND SONS LTD HUDDERSFIELD WEST YORKSHIRE GB ; THOMAS BROADBEND AND SONS LTD ; BROADBENT AND SONS LIMITED THOMAS ; BROADBENT AND SONS THOMAS LTD ; THOMAS BROADBENT AND SONS LTD ; BROADBENT THOMAS AND SONS LTD ; THOMAS BROADBENT AND SONS LIMITED ; THOMAS BROADBEND AND SONS LIMITED

Inventor(s): (std): LUTHER GRIMWOOD GEOFFREY ; JOHN WRIGHT ; GRIMWOOD GEOFFREY LUTHER ; WRIGHT JOHN ; GRIMWOOD GEOFFREY L

Inventor(s): GEOFFREY LUTHER GRIMWOOD ; WRIGHT JOHN DALTON HUDDERSFIELD WEST YORKSHIRE GB ; GRIMWOOD GEOFFREY LUTHER NR HUDDERSFIELD WEST YORKSHIRE GB ; GRIMWOOD GEOFFREY LUTHER NR HUDDERSFIELD WEST YORK

Agent(s): CALLINANS; FISHER ADAMS KELLY CALLINANS; SPRUSON AND FERGUSON

Designated states: DE FR IT NL

Title: METHODS OF ENHANCING FINE PARTICLE DEWATERING

Abstract: A new method of improving the process of dewatering fine particulate materials is disclosed. In this method, an aqueous slurry of fine particles is treated with appropriate hydrophobizing reagents so that the particulate material becomes moderately hydrophobic with its water contact angle considerably below 90 degrees. A low hydrophile-lipophile balance (HLB) number surfactant is then added to the slurry, so that the surfactant molecules adsorb on the moderately hydrophobic surface primarily by hydrophobic attraction and, thereby, increase its contact angle close to or above 90 degrees. By virtue of the greatly enhanced hydrophobicity, the water molecules adhering to the surface are destabilized and removed more readily by a mechanical dewatering process. Any nonionic surfactant with its HLB number below about 15 may be used for the hydrophobicity enhancement. The surfactants may be used in conjunction with appropriate solvents such as light hydrocarbon oils and short-chain alcohols. The moisture reduction can be further improved by using appropriate electrolytes in conjunction with the low HLB surfactants, spraying surface tension lowering reagents onto the filter cake, subjecting the cake to a suitable vibratory means, and by using combinations thereof.

Classifications:

International (IPC 8-9): B01D21/01 B01D37/02 C02F1/52 F26B5/00 (Advanced/Invention)

International (IPC 1-7): B01D37/02 C02F1/52

CPC: B03D1/08 C02F1/26 C02F11/14 C02F2103/10 C02F2301/063 C10L5/04 F26B5/005 F26B2200/18

European: B03D1/08 C02F11/14 C10L5/04 F26B5/00B M02F1/26 M02F103/10 M02F301/06B R26B200/18

US: 209/5 210/710 210/723 210/723S 210/727 210/728 210/729 210/732 210/770 210/778 34/338 44/626

Family:

Publication number	Publication date	Application number	Application date
US2005139551 AA	20050630	US20050057432	20050214
US2008053914 AA	20080306	US20070833402	20070803
US6855260 BA	20050215	US19990327266	19990607
US7820058 BB	20101026	US20070833402	20070803

Priority:

US19990327266 19990607 US20050057432 20050214 US20070833402 20070803

Probable Assignee: MINERAL AND COAL TECHNOLOGIES INC

Assignee(s): (std): MINERAL AND COAL TECHNOLOGIES ; YOON ROE H

Assignee(s): YOON ROE HOAN ; MINERAL AND COAL TECHNOLOGIES INC

Inventor(s): (std): YOON ROE HOAN ; YOON ROE H

Inventor(s): YOON ROE

Agent(s): GROSSMAN TUCKER PERREAULT AND PFLEGER PLLC

Title: METHODS OF PRODUCING WATER-RESISTANT SOLID FUELS

Abstract: The invention provides a method by which high moisture low rank coal or other carbonaceous material may be transformed into a high-energy, water resistant product. The raw feed is comminuted then mechanically compacted by a roller press with rolls of a specified profile to mobilize the inherent moisture and collapse most of the interstitial pore space. The mobilized moisture is then removed by low-temperature drying and the material is sized and shaped to form a product that is resistant to re-absorption of water or other liquids. The present invention will promote the use of low rank coal for liquefaction and gasification.

Classifications:

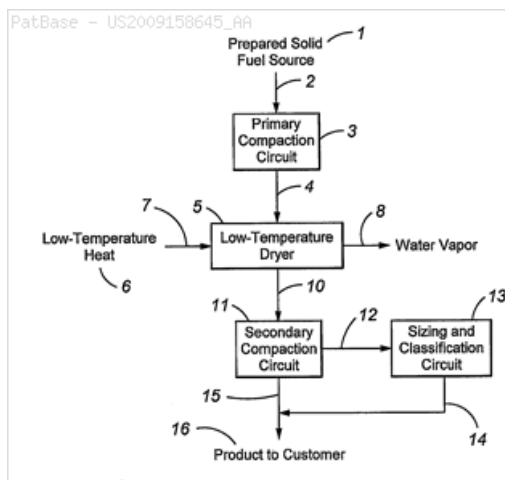
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B30B15/04 B30B15/30 B30B3/00 B30B3/04 B30B7/00 B30B9/20
C10L5/00 C10L5/08 C10L5/10 C10L5/28 C10L5/36 C10L9/00
C10L9/10 (Advanced/Invention);
B02C4/00 B30B3/00 B30B9/02 C10L5/00 C10L9/00 (Core/Invention)

International (IPC 1-7): C10L5/10

CPC: C10L5/28 C10L5/08 B30B3/005 B30B3/04 B30B9/20
B30B9/205 B30B11/16 B30B11/165 B30B15/04 B30B15/308
C10L5/361 C10L5/366 C10L9/10

European: C10L5/08 C10L5/36B C10L5/36H C10L9/10

US: 100/176 100/176S 44/505 44/505P 44/592 44/635

**Family:**

Publication number	Publication date	Application number	Application date
AU2008255240 AA	20090219	AU20080255240	20080801
AU2008255240 BB	20110414	AU20080255240	20080801
CA2690906 AA	20090205	CA20082690906	20080801
CA2690906 C	20131210	CA20082690906	20080801
DE602008039155 D1	20150903	DE200860039155T	20080801
EP2171022 A1	20100407	EP20080797070	20080801
EP2171022 A4	20111005	EP20080797070	20080801
EP2171022 B1	20150722	EP20080797070	20080801
IN00114DN2010 A	20100806	IN2010DN00114	20100106
IN271984 B	20160318	IN2010DN00114	20100106
NZ572827 A	20110826	NZ20080572827	20080801
NZ594100 A	20130125	NZ20080594100	20080801
US2009158645 AA	20090625	US20080185025	20080801
US2014311022 AA	20141023	US20140215188	20140317
US8673030 BB	20140318	US20080185025	20080801
US9499756 BB	20161122	US20140215188	20140317
WO09018550 A1	20090205	WO2008US72024	20080801

Priority:

US20070953253P 20070801	WO2007US72024 20070801	WO2008US72024 20070801
US20070953253P 20070901	EP20080797070 20080801	US20080185025 20080801
WO2008US72024 20080801	US20140215188 20140317	

Probable Assignee: GTL ENERGY HOLDINGS PTY LTD

Assignee(s): (std): AUPELL PATRICK B ; FRENCH ROBERT R ; GTL ENERGY LTD ; GTL ENERGY HOLDINGS PTY LTD ; REEVES ROBERT A

Assignee(s): GTL ENERGY ; GTL ENERGY LIMITED

Inventor(s): (std): AUPELL PATRICK B ; FRENCH ROBERT R ; REEVES ROBERT A

Inventor(s): ROBERT A REEVES ; PATRICK B AUPELL ; ROBERT R FRENCH ; REEVES ROBERT ; REEVES ROBERT A ARVADA ; FRENCH ROBERT ; FRENCH ROBERT R WELLINGTON ; AUPELL PATRICK B GOLDEN ; AUPELL PATRICK

Agent(s): ALLENS ARTHUR ROBINSON PATENT AND TRADE MARKS ATTORNEYS; ALLENS PATENT AND TRADE MARK ATTORNEYS; SIM AND MCBURNEY; RPK PATENTANWALTE REINHARDT POHLMANN U KAUFMANN PARTNERSCHAFT MBB; DUNNE EMMA LOUISE; EXELL JONATHAN MARK; SHERIDAN ROSS PC; TRAVER ROBERT D

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

Title: COAL FINE DRYING METHOD AND SYSTEM

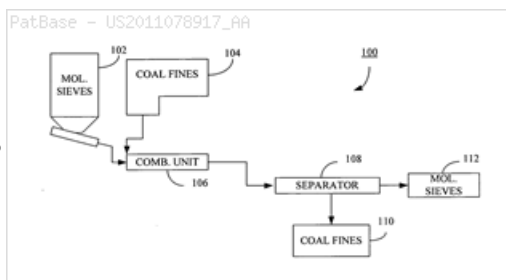
Abstract: The present invention provides a method and system for drying coal fines using molecular sieves. The method and system dries the coal fines by combining coal fines with the molecular sieves. While in combination, the mixture is agitated to maximize surface contact between the molecular sieves and the coal fines. As the coal fines contact the molecular sieves, the surfactant moisture on the coal fines is then absorbed by the molecular sieves. The molecular sieves allow for the water molecules to pass into the sieves, thus being removed from the coal fines. After a period of agitation, the method and system thereby separates the molecular sieves and the coal fines.

Classifications:

International (IPC 8-9): C10L1/00 C10L5/00 C10L5/02 C10L9/10 F26B13/10 F26B13/26 F26B17/00 F26B5/00 F26B5/16 F26B7/00 F26B9/00 F26B9/08 H01L21/768 H01L23/528 (Advanced/Invention)
CPC: F23G5/04 F26B25/04 F26B25/22 C10L5/04 F26B17/00 H01L21/78 C10L9/10 F26B5/16 C10L2250/04 C10L2250/06 C10L2290/06 C10L2290/12 C10L2290/145 C21B13/0066 Y02P10/136 Y02P10/212 C10B57/10 C10L5/366 C10L9/00 C10L2230/02 C10L2290/02 C10L2290/08 C10L2290/24 C10L2290/52 C10L2290/546 C10L2290/60 F23K1/00 F23K2201/20 F23K2201/30 F23K2201/505

European: C10B57/10 F23G5/04 F23K1/00 F26B25/04 F26B25/22 F26B5/16 H01L23/552 R23K201/20 R23K201/30 R23K201/505

US: 210/133 34/329 34/329S 34/333 34/333P 34/334 34/334S 34/353 34/354 34/354P 34/354S 34/523 34/523S 34/573 34/573S 34/95 34/95.1 34/95.100S 34/95S 423/228 44/280 44/280P 44/505 44/505P 44/626 44/626S 44/629 44/629S

**Family:**

Publication number	Publication date	Application number	Application date
US2011078917 AA	20110407	US20100924570	20100930
US2011179695 AA	20110728	US20100942805	20101109
US2011247233 AA	20111013	US20110168186	20110624
US2011252662 AA	20111020	US20110168169	20110624
US2012167457 AA	20120705	US20120415446	20120308
US2014144072 AA	20140529	US20130841003	20130315
US2014190036 AA	20140710	US20140205996	20140312
US8302325 BB	20121106	US20120415446	20120308
WO11040965 A2	20110407	WO2010US02649	20100930
WO11040965 A3	20111117	WO2010US02649	20100930
WO12047335 A1	20120412	WO2011US41762	20110624
WO12047336 A2	20120412	WO2011US41765	20110624
WO12047336 A3	20121227	WO2011US41765	20110624

Priority:

US20090247688P	20091001	US20100924570	20100930	US20100942805	20101109
US20110168169	20110624	US20110168186	20110624	US20120415446	20120308
US20130841003	20130315	US20140205996	20140312		

Probable Assignee: ROSS TECHNOLOGY CORP

Assignee(s): (std): BLAND RICHARD W ; HARSH PHILIP ; HURLEY MICHAEL ; JONES ANDREW K ; MCDANIEL BRUCE ; SIKKA VINOD K ; VITRINITE SERVICES LLC ; ROSS TECHNOLOGY CORP ; NANO DRYING TECHNOLOGIES LLC

Inventor(s): (std): BLAND RICHARD W ; HARSH PHILIP ; HURLEY MICHAEL ; JONES ANDREW K ; MCDANIEL BRUCE ; SIKKA VINOD K

Agent(s): PERKINS COIE LLP; BECHEN TIMOTHY; BECHEN TIMOTHY J

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

Title: CLEANING AND DEWATERING FINE COAL

Abstract: Fine coal is cleaned of its mineral matter impurities and dewatered by mixing the aqueous slurry containing both with a hydrophobic liquid, subjecting the mixture to a phase separation. The resulting hydrophobic liquid phase contains coal particles free of surface moisture and droplets of water stabilized by coal particles, while the aqueous phase contains the mineral matter. By separating the entrained water droplets from the coal particles mechanically, a clean coal product of substantially reduced mineral matter and moisture contents is obtained. The spent hydrophobic liquid is separated from the clean coal product and recycled. The process can also be used to separate one type of hydrophilic particles from another by selectively hydrophobizing one.

Classifications:

International (IPC 8-9): B03B B03B1/04 B03B5/28 B03B5/62 B03B9/00 B03D1/00 C02F1/28 C10L1/32 C10L5/00 C10L5/04 C10L5/36 C10L9/02 C10L9/06 C10L9/10

C10L9/12 (Advanced/Invention);

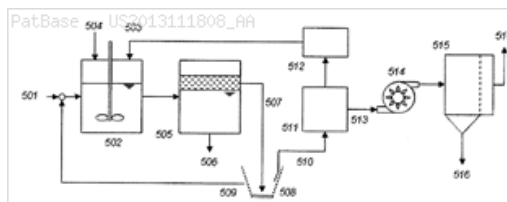
B03D1/00 (Core/Invention);

B03B (Subclass/Invention)

CPC: C10L1/328 C10L1/324 B03B9/00 C10L9/02 C10L2290/24 C10L2290/34 B03B9/005 B03B1/04 C10L5/366 C10L9/10 B03B5/28 B03D1/00

European: B03B1/04 B03B9/00B C10L5/36H C10L9/10

US: 44/500 44/505 44/629



Family:

Publication number	Publication date	Application number	Application date
AP201508183 A0	20150131	AP20150008183	20130611
AU2011210630 AA	20110804	AU20110210630	20110131
AU2013274408 AA	20131219	AU20130274408	20130611
AU2013274408 BB	20171221	AU20130274408	20130611
AU2016247055 AA	20161103	AU20160247055	20161010
AU2018202003 AA	20180412	AU20180202003	20180321
BR112014030622 A2	20170627	BR20141130622	20130611
CA2789218 AA	20120725	CA20112789218	20110131
CA2875024 AA	20141127	CA20132875024	20130611
CL2014003345 A1	20150731	CL20140003345	20141209
CN102834181 A	20121219	CN201180016309	20110131
CN102834181 B	20150715	CN201180016309	20110131
CN104582856 A	20150429	CN201380030621	20130611
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EP2861352 A1	20150422	EP20130804117	20130611
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IN06622DN2012 A	20151023	IN2012DN06622	20120726
IN10312DN2014 A	20150807	IN2014DN10312	20141203
RU2014152482 A	20160727	RU20140152482	20130611
RU2644181 C2	20180208	RU20140152482	20130611
US2013111808 AA	20130509	US20110576067	20110131
US2013340328 AA	20131226	US20130915428	20130611
US2017101597 AA	20170413	US20160294377	20161014
US2018036741 AA	20180208	US20170786079	20171017
US9518241 BB	20161213	US20130915428	20130611
US9789492 BB	20171017	US20110576067	20110131
WO11094680 A2	20110804	WO2011US23161	20110131
WO11094680 A3	20111229	WO2011US23161	20110131
WO13188419 A1	20131219	WO2013US45199	20130611
ZA201205610 A	20130925	ZA20120005610	20110131

Priority:

US20100300270P	20100201	AU20110210630	20110131	US20110576067	20110131
WO2011US23161	20110131	US20120658153P	20120611	US20130576067	20130117
AU20130274408	20130611	US20130915428	20130611	WO2013US45199	20130611
AU20160247055	20161010	US20160294377	20161014	US20170786079	20171017
AU20180202003	20180321				

Probable Assignee: VIRGINIA TECH INTELLECTUAL PROPERTIES INC

Assignee(s): (std): ERAYDIN KEREM ; ERAYDIN MERT K ; FREELAND CHAD ; VIRGINIA TECH INTELLECTUAL PROPERTIES INC ; YOON ROE HOAN ; VIRGINIA TECH INTELL PROP ; VIRGINIYA TEK INTELLEKTUAL PROPRTIZ INK

Assignee(s): VIRGINIA TECH INTELLECTUAL PROPERTIES INC1050 - 2200 KRAFT DRIVEBLACKSBURGVA24060US ; UNITED STATES DEPARTMENT OF ENERGY ; VIRGINIA POLYTECHNIC INST AND STATE UNIV

Inventor(s): (std): ERAYDIN KEREM ; ERAYDIN MERT K ; ERAYDIN MERT KEREM ; FREELAND CHAD ; YOO ROE HOAN ; YOON ROE HOAN ; ROE HOAN YOON

Inventor(s): YOON ROEHOAN ; YOON ROE HOANUS

Agent(s): GRIFFITH HACK ; STIKEMAN ELLIOTT SENCRL SRL LLP; JOHANSSON AND LANGLOIS LTDA; GILLARD MATTHEW PAUL; EM GIZATULLINOJ; BLANK ROME LLP; GROSSMAN TUCKER PERREAULT AND PFLEGER PLLC; WHITHAM MICHAEL M ET AL; GREENBAUM MICHAEL C

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

Title: METHOD FOR PRODUCING FUEL BRIQUETTES FROM HIGH MOISTURE FINE COAL OR BLENDS OF HIGH MOISTURE FINE COAL AND BIOMASS

Abstract: An apparatus and method are provided for producing fuel briquettes from high moisture fine coal. The apparatus includes a coal fine pelletizer, a pellet dryer and a fuel briquette former all provided in-line for the efficient production of fuel briquettes. The method comprises forming pellets from coal fines, drying those pellets to a desired moisture content of about 1 to about 10 percent and forming fuel briquettes from the dried pellets.

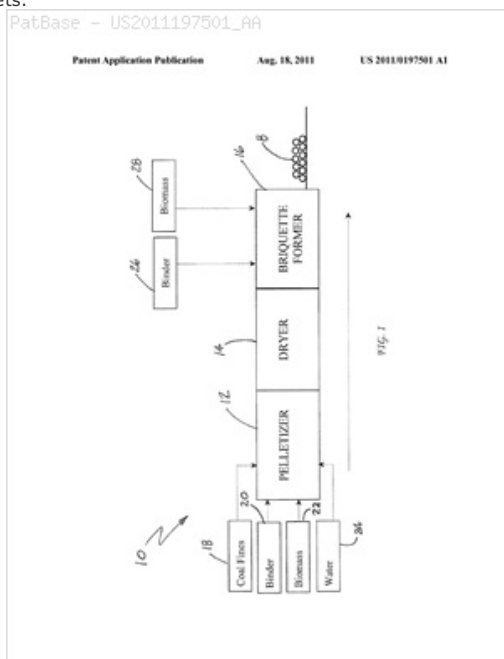
Classifications:

International (IPC 8-9): B30B11/00 B30B9/28 C10L5/06 C10L5/08 C10L5/10 C10L5/14 C10L5/16 C10L5/22 C10L5/34 C10L5/36 C10L5/38 (Advanced/Invention)

CPC: B30B11/22 C10L5/361 C10L5/04 C10L5/143 C10L5/16 C10L5/20 C10L5/363 C10L5/44 C10L5/445 Y02E50/10 Y02E50/30

European: C10L5/04 C10L5/14B C10L5/16 C10L5/20 C10L5/36B C10L5/36D C10L5/44 C10L5/44D Y02E50/10 Y02E50/30

US: 44/530 44/550 44/551 44/553 44/553P 44/554 44/554S 44/564 44/564S 44/569 44/569S 44/573 44/577 44/577S 44/578 44/578S 44/579 44/579S 44/580 44/580S 44/589 44/590 44/593 44/594 44/594S 44/595 44/606 44/636 44/636S



Family:

Publication number	Publication date	Application number	Application date
US2011197501 AA	20110818	US20100704895	20100212
US2012317878 AA	20121220	US20120596572	20120828
US8753410 BB	20140617	US20120596572	20120828

Priority:

US20090153087P 20090217 US20100704895 20100212 US20120596572 20120828

Probable Assignee: OF KENTUCKY RESEARCH FOUNDATION UNIV

Assignee(s): (std): TAULBEE DARRELL NEAL ; UNIV KENTUCKY RES FOUND

Assignee(s): OF KENTUCKY RESEARCH FOUNDATION UNIV ; THE UNIVERSITY OF KENTUCKY RESEARCH FOUNDATION

Inventor(s): (std): TAULBEE DARRELL NEAL

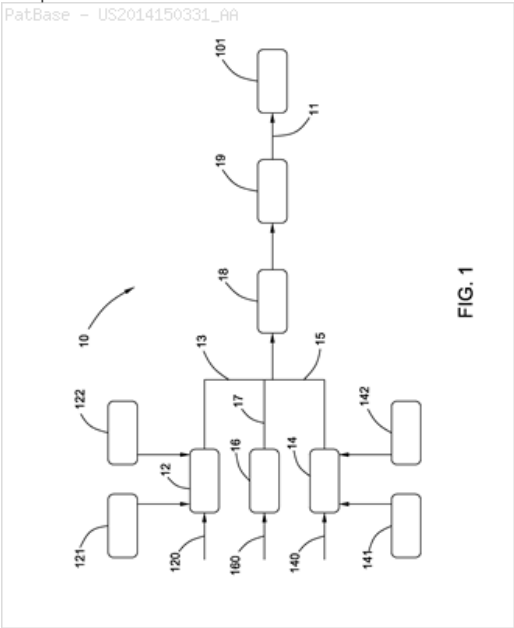
Agent(s): KING AND SCHICKLI PLLC

Title: SYSTEM AND METHOD FOR PREPARING COAL WATER SLURRY

Abstract: A system for preparing a coal water slurry, comprising: a first unit for providing a stream of coarse coal water slurry; a second unit for providing a stream of ultrafine coal water slurry; a third unit for providing a stream of dry coarse coal particles; and a mixing unit for mixing the stream of coarse coal water slurry, the stream of ultrafine coal water slurry and the stream of dry coarse coal particles. An associated method is also presented.

Classifications:

International (ipc 8-9): C10J3/46 C10J3/48
C10L1/32 (Advanced/Invention)
CPC: C10L1/326
US: 1/1 44/280 44/639



Family:

Publication number	Publication date	Application number	Application date
AU2013260745 AA	20140619	AU20130260745	20131125
AU2013260745 BB	20161201	AU20130260745	20131125
CA2833972 AA	20140530	CA20132833972	20131121
CN103849440 A	20140611	CN201210506847	20121130
CN103849440 B	20180327	CN201210506847	20121130
US2014150331 AA	20140605	US20130089825	20131126
US9296965 BB	20160329	US20130089825	20131126

Priority:

CN201210506847 20121130

Probable Assignee: GENERAL ELECTRIC CO

Assignee(s): (std): GEN ELECTRIC

Assignee(s): GENERAL ELECTRIC CO ; WANG DEJIA ; XUE JUNLI ; BI XIJING

Inventor(s): (std): BI XIJING ; DEJIA WANG ; JUNLI XUE ; WANG DEJIA ; XIJING BI ; XUE JUNLI

Agent(s): PHILLIPS ORMONDE FITZPATRICK; CRAIG WILSON AND CO; GE GLOBAL PATENT OPERATION; PETER T

Title: FINE PARTICLE COAL, AND SYSTEMS, APPARATUSES, AND METHODS FOR COLLECTING AND USING THE SAME

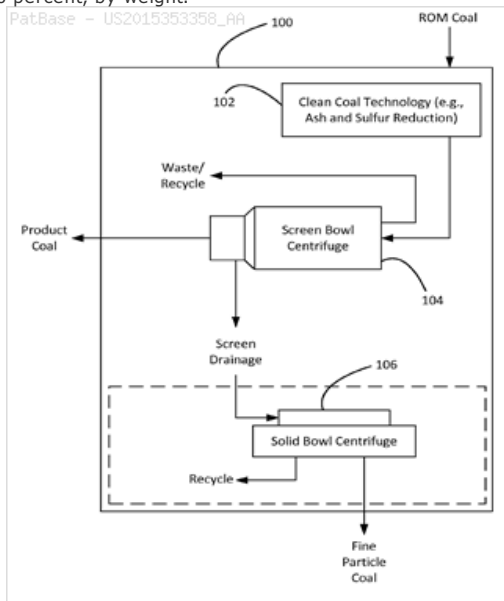
Abstract: Methods, apparatuses, and systems to collect fine particle coal are provided herein. For example, these methods, apparatuses, and systems may be incorporated into a coal processing plant to collect a portion of the fine particle coal that is normally lost in the system. A fine particle coal also is provided. The fine particle coal may have a particle size of 1000 micro m or smaller and a water content of from about 5 percent to about 20 percent, by weight.

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