No. 801,703. PATENTED OCT. 10, 1905.

J. ANDERSON.

COAL WASHING APPARATUS.

APPLICATION FILED DEC. 19, 1904.

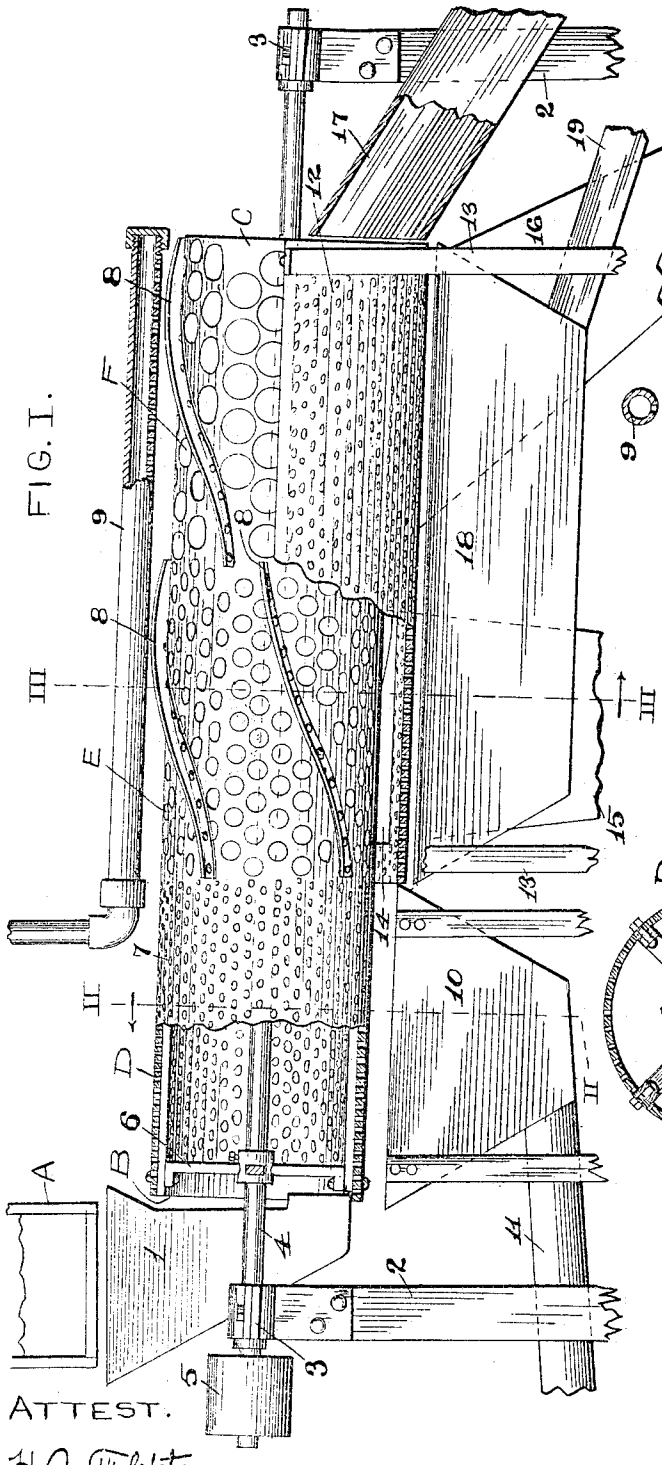


FIG. I.

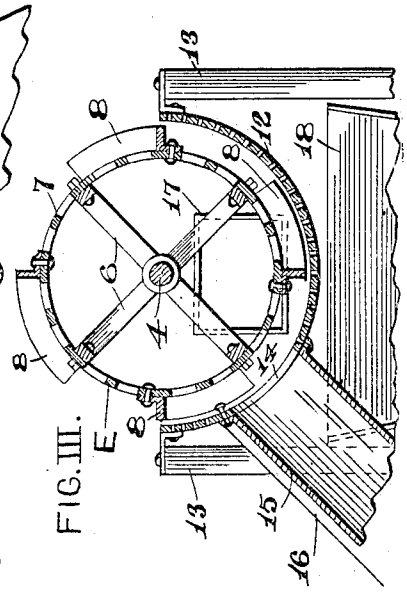


FIG. III.

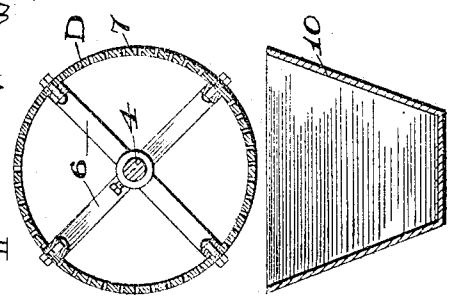


FIG. II.

ATTEST.

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COAL-WASHING APPARATUS.

No. 801,703. Specification of Letters Patent. Patented Oct. 10, 1905.

Application filed December 19, 1904. Serial No. 237,460.

To all whom it may concern:

Be it known that I, JOHN ANDERSON, a citizen of the United States, residing in Peoria, in the county of Peoria and State of Illinois, have invented certain new and useful Improvements in Coal-Washing Apparatus, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to a coal-washing apparatus which is more particularly intended as a rewasher for utility in subjecting the coal to a further washing after it has been passed through the usual coal-washer jig commonly in use.

The washing apparatus involves a construction in which provision is made for the discharge first of the sludge existing in the coal and the continued washing thereafter of the sludge-freed coal and delivery thereof through various outlets in graded condition.

Figure I is a view, partly in side elevation and partly in longitudinal section, of my coal-washing apparatus. Fig. II is a vertical cross-section taken on line II II, Fig. I. Fig. III is a vertical cross-section taken on line III III, Fig. I.

1 designates a hopper into which the coal to be washed in my apparatus is first introduced, the coal being preferably fed to said hopper from a jig A. (Seen in Fig. I.)

2 designates a pair of standards provided with journal-boxes 3, in which is rotatably mounted a shaft 4, that may be driven by power supplied from a suitable source and having connection with the shaft through the medium of a belt running on a pulley 5, fixed to said shaft.

6 designates spiders fixed to the shaft 4.

7 is a rotatable cylinder that surrounds the shaft 4 and is rigidly connected to the spiders 6, the said cylinder being preferably disposed in an inclined position, its receiving end being highest and open to communication with the lower end of the hopper 1 and its discharge end C being lowermost and being also open. The portion of the cylinder 7 at and adjacent to its receiving end is provided with a plurality of small perforations extending throughout the section thereof marked D. Immediately adjacent to the perforated section D is an intermediate perforated section E, in which the perforations are larger than those in the section D, and at and adjacent to the discharge end of the cylinder is a perforated section F, in which the perforations are larger than those in the section E.

8 designates a plurality of flights spirally arranged on the portions of the cylinder in which the sections E and F exist.

9 is a perforated water-spray pipe surmounting the cylinder 7 and extending longitudinally thereof and from which water is discharged onto the cylinder-sections E and F.

10 designates a sludge-receiving hopper located beneath the cylinder-section D and provided with a discharge-pipe 11, through which the sludge discharged from said section into said hopper finds escape and is conducted to a suitable point of delivery.

12 designates a perforated trough located beneath the sections E and F of the cylinder 7 and resting upon supports 13. This trough is provided with an outlet 14, (see Figs. I and III,) that communicates with a discharge-chute 15. The outlet 14 is located immediately beneath the cylinder-section E. The trough 12 also has a second outlet that communicates with a chute 16 and is located beneath the cylinder-section F.

17 designates a conveyer-chute extending from the discharge end C of the cylinder 7 and into which the large lumps of coal which are in sizes too large to find egress in the cylinder-sections E and F pass.

18 designates a water-box located beneath the trough 12 and into which the water discharged from the spray-pipe 9 and passing through the cylinder-sections E and F and perforated trough 12 descends. The water descending into the box 18 finds escape therefrom through a discharge-pipe 19.

In the practical use of my coal-washer the cylinder 7 is first set in motion, and the coal is then delivered into the hopper 1, from which it enters the receiving end of said cylinder. Water having been turned into the spray-pipe 9 finds escape therefrom to descend onto the sections E and F of the cylinder 7. Then as the cylinder continues to rotate, the sludge entering the cylinder with the coal finds escape from the cylinder through the perforated cylinder-section D and descends into the hopper 10, to be discharged therefrom. The coal relieved of the sludge continues its travel through the cylinder and first reaches the section E, in which it is washed by the water descending from the spray-pipe and the smallest lumps of the coal pass through the perforations in the section E and fall into the trough 12, immediately beneath said section. The accu-

mulation of coal in said trough is discharged therefrom into the chute 15 by the flights 8 on the cylinder-section E. The coal that does not find escape through the section E continues to travel through the cylinder, and on reaching the section F the lumps of the next larger grade pass through the perforations in the section F and fall into the trough 12 beneath said section, from which they are discharged into the chute 16 by the flights 8, carried by the cylinder at said section. The lumps of coal that are too large to pass through the perforations of either section of the cylinder find egress at the discharge end of the cylinder into the chute 17 and constitute the largest and last grade of the coal.

I claim as my invention—

1. In a coal-washer, the combination of a rotatable cylinder having open receiving and discharge ends and consisting of sections containing perforations increasing in size from the receiving to the discharge ends of the cylinder, a perforated trough surrounding the lower part of said cylinder and located only beneath said sections having the larger perforations, and conveyer-chutes leading from said trough, substantially as set forth.

2. In a coal-washer, the combination of a rotatable cylinder having open receiving and discharge ends and consisting of sections containing perforations increasing in size from the receiving to the discharge ends of the cylinder, a perforated trough surrounding the lower part of said cylinder and located only beneath said sections having the larger perforations, conveyer-chutes leading from said trough, and a conveyer-chute leading from the discharge end of said cylinder, substantially as set forth.

3. In a coal-washer, the combination of a rotatable cylinder having open receiving and discharge ends and consisting of sections containing perforations increasing in size from the receiving to the discharge ends of the cylinder, a perforated trough located only beneath said sections having the larger perforations, conveyer-chutes leading from said trough, and flights carried only by the sections of the cylinder having the larger perforations and arranged to move in said trough, substantially as set forth.

4. In a coal-washer, the combination of a rotatable cylinder having a plurality of sections containing perforations of different sizes, the perforations in the section at the receiving end of the cylinder being the smallest, a sludge-receiving hopper located beneath the receiving-end section, a perforated trough located beneath the remainder of the cylinder-sections, conveyer-chutes leading from said trough and a water-box located beneath said trough, substantially as set forth.

5. In a coal-washer, the combination of a rotatable cylinder having a plurality of sections containing perforations of different sizes, the perforations in the section at the receiving end of the cylinder being the smallest, a sludge-receiving hopper located beneath the receiving-end section, a perforated trough located beneath the remainder of the cylinder-sections, conveyer-chutes leading from said trough, a water-box located beneath said trough, and a spray-pipe located above said cylinder, substantially as set forth.

6. In a coal-washer, the combination of a rotatable cylinder consisting of sections containing perforations increasing in size from one end of the cylinder to the other, a perforated trough located beneath said cylinder and having a discharge-opening below each of the cylinder-sections having the larger perforations, and flights for feeding the coal to said discharge-openings and carried only by the sections of the cylinder having the larger perforations, substantially as set forth.

JOHN ANDERSON.

In presence of—
E. S. KNIGHT,
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