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IMPROVEMENT IN MIDDLEINGS-SEPARATORS.

Specification forming part of Letters Patent No. **220,355**, dated October 7, 1879; application filed June 13, 1879.

To all whom it may concern:

Be it known that I, MARCELLUS DORSEY, of Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Middlings-Separators; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being made to the accompanying drawings, forming a part of this specification, and in which—

Figure 1 is a side view of my improved machine; Fig. 2, a longitudinal vertical section; Fig. 3, an end view with the casing removed.

This invention relates to certain new and useful improvements in the class of middlings-separators employing both suction and blast fans, and perforated pipes arranged under the screen, through which air-currents pass for keeping the meshes of the screen clean; and the invention consists in the general construction and arrangement of parts, all as will be hereinafter fully described, and specifically pointed out in the claim.

In the drawings, A represents the main frame and casing of the machine; a' , removable doors in the ends of the machine, and a'' sliding windows on the sides thereof.

B represents a shaker-frame, suspended by hangers b , in the usual manner. The inner sides of the shaker-frame are provided with grooved ways or guides b' for the reception of the screen-frame C, said ways or guides permitting of a longitudinal adjustment of the screen when deemed expedient.

The shaker-frame is vibrated or reciprocated through the medium of a crank or cam, D, working in a slot, d , in the lower end of a pendent lever, d' , pivoted in brackets d'' , secured to the main frame or casing of the machine, the upper end of said lever passing through a bracket, d''' , secured to the forward end of the shaker-frame, all as clearly shown in Fig. 2.

E represents the usual feed-hopper, provided with a feed-roll, e , in the bottom thereof, and a regulating-slide, e' .

F represents an inclined transverse partition, extending from the screen up under the hopper, and over which the material passes from the hopper to the screen, said partition

being provided with inclined gathering-slats f , with air-openings f^1 between them, by which the material is subjected to air-currents produced by a suction-fan, G, for removing the light impurities from the middlings in their passage from the hopper to the screen.

Near the forward portion or end of the shaker-frame a transverse feed-board, f^2 , inclining in an opposite direction from the transverse partition F, is secured, and upon which the material passing over the partition F is received and fed onto the head of the screen. The inclined feed-board, being secured to and vibrating with the shaker-frame, distributes the material more evenly upon the screen.

H represents the usual inclined hopper under the screen, formed by overlapping slats h , for receiving and conducting the material to the conveyers arranged in the bottom of the machine, and also permitting the introduction of air-currents into the machine produced by the suction-fan.

In the present instance two conveyers, g g' , are employed, one arranged above the other, with suitable devices for cutting off and separating into different grades the material passing through the screen, when deemed expedient.

Arranged under the screen are a series of longitudinal perforated pipes, I I, extending the entire length of the machine, and through the perforations of which air-currents are forced from a blast-fan, J, communicating with said pipes, the air-currents passing up through the screen, thus keeping the meshes clean and raising up the light impurities, so that they are subjected to and carried off by a suction-blast from fan G. By using a series of longitudinal perforated pipes extending the entire length of the machine, the air-currents are more equally distributed through all portions of the screen.

A valve, k , is arranged above the forward end of the inner ceiling, l , of the machine, for controlling and regulating the air-currents passing through the inclined partition F to the suction-fan G; and m m' are valves for regulating the currents of air passing through the openings m' in the ceiling l .

M represents the main driving-shaft, pass-

ing transversely through the machine, having mounted on one end thereof the driving-pulley M^1 , and on the opposite end a pulley, M^2 , which is connected, respectively, with pulleys on the shafts of the feed-roll and suction-fan by endless bands n n^1 , for driving the same, and an endless band, n^2 , connecting the pulleys on the shafts of the suction and blast fans for driving the blast-fan.

O represents a driving-shaft for communicating motion to the conveyers and the crank or cam shaft for vibrating the shaker-frame, said driving-shaft having mounted thereon a driving-pulley, o , a pulley, o^1 , connected by an endless band with a pulley, o^2 , on the crank or cam shaft, and a bevel-gear wheel, s , meshing with a bevel-gear, s^1 , on one end of the upper conveyer-shaft for operating the same, said conveyer-shaft having mounted on its opposite end a gear-wheel, s^2 , which meshes with a gear-wheel, s^3 , on the lower conveyer-shaft, through the medium of which the lower conveyer is operated.

Further description of the operation of my improved machine is deemed unnecessary, it being obvious from the foregoing description.

I am aware that movable perforated pipes and movable frames with zigzag plates, for in-

termittently distributing jets of air against and through different portions of the bolting-cloth, are common in middlings-separators, and such I distinctly disclaim as my invention. By employing a series of longitudinal perforated pipes, in connection with a blast-fan, I am enabled to deliver the air currents or jets continuously against and through all portions of the screen, thus keeping the meshes open, and raising and holding the light materials or impurities above the screen, to be subjected to and carried off by the suction-blast.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

In a middlings-separator, the combination, with the screen C , suction-fan G , and inclined hopper H , having air-inlet openings, of a series of longitudinal perforated pipes, I , extending the entire length of the machine, and arranged in said hopper below the screen, and a blast-fan for forcing air-currents through the perforations of said pipes, substantially as and for the purpose specified.

MARCELLUS DORSEY.

Witnesses:

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