A. HUNTER.

Improvement in Grain-Cleaners.

No. 132,664. Patented Oct. 29, 1872.

Fig. 1

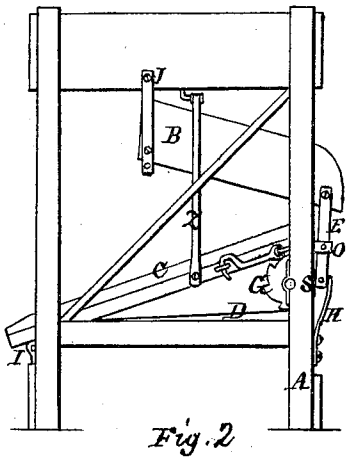


Fig. 3.

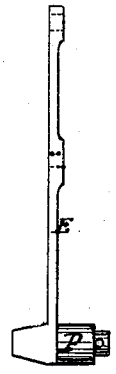


Fig. 5.

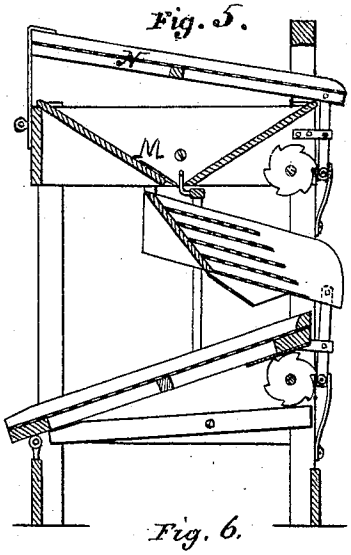


Fig. 2

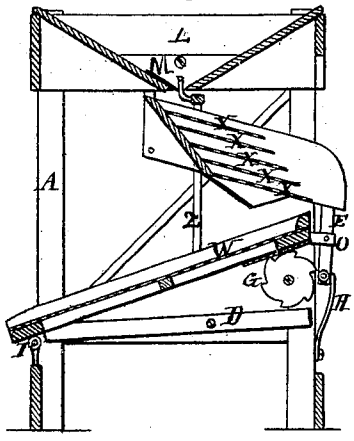


Fig. 4.



Fig. 6.

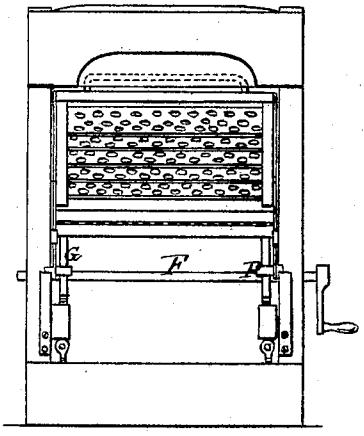


Fig. 8.

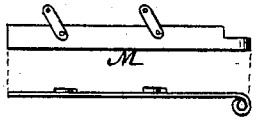


Fig. 7.

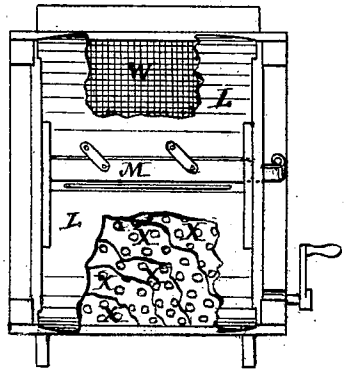
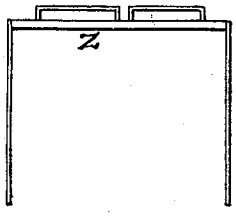


Fig. 9.



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AM. PHOTO-LITHOGRAPHIC CO. N.Y. (OSBORNE'S PROCESS.)

UNITED STATES PATENT OFFICE.

ANDREW HUNTER, OF ROCKFORD, ILLINOIS.

IMPROVEMENT IN GRAIN-CLEANERS.

Specification forming part of Letters Patent No. **132,664**, dated October 29, 1872.

To all whom it may concern:

Be it known that I, ANDREW HUNTER, of the city of Rockford, county of Winnebago, in the State of Illinois, have invented or discovered certain Improvements in Machines for Cleaning Grain, of which the following is a specification:

The first part of my invention relates to supporting and vibrating the lower end of the frame which carries the screens by means of pivoted levers operated from cams. The second part of my invention relates to a novel combination and arrangement of devices whereby both the screens and the chute-board are operated from the same shaft, the screen having a lateral motion, while the chute-board is vibrated vertically. The third part of my invention relates to combining with the series of levers above referred to a series of set-screws for regulating the throw of the screens and chute-board. The fourth part of my invention relates to combining with the hopper of a grain-separator a slide mounted upon parallel links for regulating the amount of feed. The fifth part of the invention relates to connecting the agitator with the lower chute-board, which has a rising and falling motion, the object being to impart a vertical reciprocation to the agitator in order that it shall not require an undue amount of space in the throat and thus interfere with the operation of the feed-slide. The sixth part of the invention consists in combining with the hopper a feed-slide and a vertically-reciprocating agitator, as will be set forth.

Figures 1 and 2 are side views. Fig. 3 is a view of lever E, full size. Fig. 4 is a side view of frame R, to be used in place of frame B for cleaning oats, barley, and grass-seeds. Fig. 5 is a side view of a machine for grist-mills or warehouse use. Fig. 6 is a front view. Fig. 7 is a top view with a portion of same removed to better show the various parts of machine. Fig. 8 is a side and edge view of parallel slide. Fig. 9 is a view of agitator.

A A is a frame-work of wood. B is a frame with perforated plates inclining to front of machine. C is a chute of any required length, having a downward inclination from front to rear. D D are levers for striking against and vibrating the lower end of chess-screen. E E are levers arranged with friction-rollers P for the cam-wheels to strike against or revolve. The levers are attached to posts by straps O O, forming a fulcrum. The levers impart a horizontal end movement to frame B, and suspend the lower end of same. F is a shaft with cam or ratchet wheels G G for giving a vertical vibratory motion to chute C and levers D D; also, for giving a horizontal end motion to frame B through levers E E. H H are springs for keeping the levers E E in contact with cam-wheels G G. I I are set-screws for regulating the vibration of lower end of chess-screen. J J are hangers for suspending upper end of frame B. L is a hopper, arranged with parallel slide and agitator. M is a parallel slide attached to side of hopper by two pieces, forming a hinge, whereby the slide always moves parallel with the lower edge of hopper and an even feed obtained. N is a frame in Fig. 5, with perforated plate for separating the straw or rough particles from the wheat. Z is an agitator that moves vertically in the bottom of hopper and connected with chute C for imparting a vertical motion, thereby preventing the grain from clogging in the bottom of hopper.

In Fig. 5 an extra shaft, cams, and levers E E are used for giving motion to frame N.

Operation.

The machine being set in motion, the parallel slide is raised sufficient to let the grain pass onto frame B with perforated plates X X X X X; the wheat passes through said plates; the oats, barley, straw, &c., pass off over the end of the plates; the wheat falls near the upper end of chute C; the small and imperfect grains and foul seeds pass through screen W W; the wheat passes over the lower end of screen clean and fit for market. By the use of screws having different-sized meshes any number of separations can be made. For cleaning oats, barley, and the different kinds of seed, frame B is removed and sieve R, having suitable meshes, used in place thereof. In cleaning the different kinds of grain and seeds the vibrations for the separations are produced by cam or ratchet wheels G G and levers D D striking against the bottom of chute C; the levers E E imparting an end motion to frame B. The degree of vibration of frame B is regulated by set-screws S S and springs H H. The cam-wheels strike

against the levers E E, giving a horizontal end vibration and percussion movement to frame B sufficient to move the oats, barley, straw, &c., freely off the plates, and pass the wheat rapidly through onto screen C. The upper and lower end of chute C receives a blow or jar by means of cam or ratchet wheels G G and levers D D, producing a vertical vibratory motion sufficient to move the grain freely down and off the screen. The constant tapping prevents the meshes from clogging.

Having thus described my machine and its mode of operation, what I claim as my invention, and desire to secure by Letters Patent, is—

1. In combination with the lower end of frame B, the vibrating levers E E, friction-rollers P P, and cams G G for suspending and operating said frame, substantially as described.

2. The combination and arrangement of cams G G, vibrating levers D D E E with frame B, and chute C, whereby a lateral movement is imparted to frame B and a vertical vibration to chute C, substantially as described.

3. The combination of cams G G, levers D and E, set-screws S I, and springs H with the frame B and chute-board C, substantially as described.

4. In combination with the hopper L, I claim the slide M supported by parallel links, operating substantially as set forth.

5. The agitator Z, mounted on the chute-board C and arranged in the described relation to the throat of the hopper L, and having a vertical vibration therein, substantially as set forth.

6. The combination of hopper L, parallel slide M, and the agitator Z, substantially as and for the purpose set forth.

ANDREW HUNTER.

Witnesses:
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G. W. FORD.