

No. 645,228.

Patented Mar. 13, 1900.

J. M. LASSWELL.  
SELF LEVELING GRAIN CLEANER.

(Application filed Nov. 7, 1899.)

(No Model.)

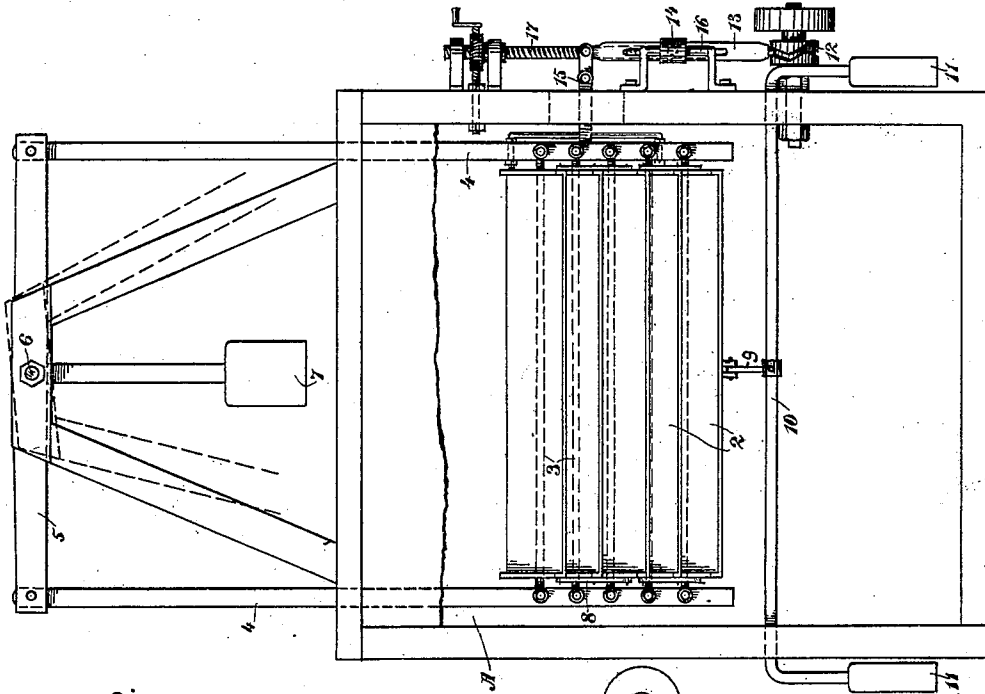


Fig. 2.

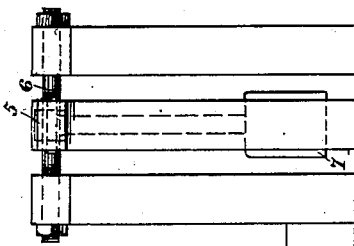
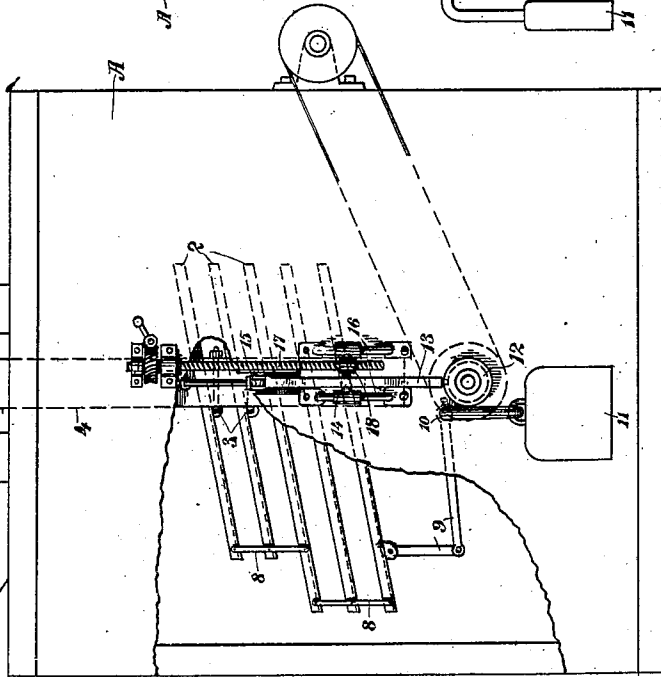


Fig. 1.



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# UNITED STATES PATENT OFFICE.

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## SELF-LEVELING GRAIN-CLEANER.

SPECIFICATION forming part of Letters Patent No. 645,228, dated March 13, 1900.

Application filed November 7, 1899. Serial No. 736,090. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN M. LASSWELL, a citizen of the United States, residing at San Miguel, county of San Luis Obispo, State of California, have invented an Improvement in Self-Leveling Grain-Cleaners; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to a mechanism by which the cleaning-shoe of grain-cleaners is automatically kept level transversely and at the proper inclination longitudinally without reference to the tilting of the machine while passing over uneven ground.

It consists of the parts and the constructions and combinations of parts hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a side elevation of the cleaner. Fig. 2 is an end elevation of the same.

As shown in the drawings, A is an exterior casing within which the cleaning-shoe is suspended. In my present illustration the shoe is represented as containing the cleaning-screens 2. These screens are centrally supported upon transverse shafts 3, about which they are fitted to tilt longitudinally. The ends of these shafts are bent at right angles and pass through the vertically-slidable bars 4, in which they are loosely turnable. These bars 4 are connected at the upper end with a walking-beam 5, which is fixed upon a shaft 6, and this shaft has suspended from it a weight 7. The shaft 6 is so journaled that the weight 7 will swing transversely of the machine, and as it swings it raises one side of the transverse beam 5 and at the same time depresses the other side. This movement takes place whenever the machine is tilted to one side or the other, and as one vertical bar 4 goes up and the other goes down the ends of the shafts 3 turn freely in the bars, and this allows the screens 2 to maintain an approximately horizontal position, although the frame and casing of the machine may be tilted to a considerable angle to one side or the other of the vertical.

The screens are connected together by suspending-rods 8 at each corner in addition to their support upon the central horizontal shafts 3, and in order to adjust the screens and maintain their proper angle when the

machine is tilted forward or back the lowermost screen is connected by a central link or rod 9 with a crank-shaft 10, the ends of which are journaled in the sides of the case A, through which they extend and have suspended from them the weights 11. These weights are sufficiently heavy to swing whenever the machine tilts forward or back, and acting through the crank-arm they either depress or raise the end of the shoe with which they are connected by the central link or bar 8, previously described. Thus when the machine tilts in one direction the swinging of the weights will correspondingly raise the rear end of the shoe and depress the front end about the horizontal fulcrum-shafts 3 and when tilted in the opposite direction the weights will produce an opposite movement of the shoe and screens. These two movements longitudinally and the peculiar connection of the shoe or screens with the vertically-movable side arms produces a practically universal-joint movement which will keep the screens in their proper position whatever may be the variation in the inclination of the machine, either sidewise, longitudinally, or diagonally.

In order to produce a shaking motion of the apparatus, I have shown a serpentine cam 12, with which the lower end of a swinging lever 13 is connected. This lever is fulcrumed, as shown at 14, and it will be seen that the rotation of the serpentine cam by belt-pulley or other connection with some moving part of the machine will cause the oscillation of the swinging lever 13 about its fulcrum-point. The upper end of the lever 13 is connected by a link or connecting-rod 15 with the side of the shoe carrying the screens, and this connection transmits the shaking motion to the shoe and screens. In order to regulate the amount of shake given the shoe, the fulcrum 14 is slidable upon a guide or guides 16, which support it, and is similarly slidable with relation to the swinging arm 13. By means of a vertical screw-shaft 17, turnable through a threaded portion of the fulcrum-block 18, the latter may be raised or depressed with relation to the support 16 and the swinging arm 13, upon which it is slidable. Thus it will be seen that if the fulcrum-block 18 is moved down toward the cam 12 it will shorten the lower arm

of 13 and correspondingly lengthen the upper arm, and this will increase the throw or shake of the shoe, while a reverse movement of the fulcrum-block will correspondingly lengthen 5 the lower arm of 13 and shorten the upper one, thus reducing the shake.

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

10 1. In a grain-cleaning apparatus, the cleaning - screens, a shaft passing transversely across each screen at a point about midway between the ends, and upon which the screen 15 is fulcrumed to tilt longitudinally, a crank-arm journaled in the sides of the machine and connected with one end of the screens, and weights depending from the ends of the shaft 20 and adapted to tilt and correspondingly move the screens about their central transverse axis when the machine is tilted longitudinally.

2. In a grain-cleaning apparatus, a casing, cleaning-screens supported upon horizontal shafts, a weighted crank-shaft connected with 25 the end of the screens and movable in unison with the tilting of the machine, vertically-slidable side bars in which the screens are supported, a transverse centrally-fulcrumed bar, to the ends of which the vertical side 30 bars are connected, and a transverse swinging weight connected with the fulcrum-shaft of the transverse bar whereby the latter is oscillated and the screens are tilted transversely in unison with the side tilting movements of 35 the machine.

3. In a grain-cleaning apparatus, a casing, a transversely-fulcrumed arm having a weight connected with its shaft whereby the arm is tilted by the swinging of the weight, vertical 40 bars extending downward from the ends of said arm, horizontal shafts having their ends bent at right angles and journaled to and turnable in the vertical arms, cleaning-screens centrally supported upon the transverse 45 shafts and movable by the action of the swinging weight, a crank-shaft extending across

the end of the machine having weights suspended from the shaft ends so as to swing when the machine is tilted longitudinally, and a connection between the crank-shaft 50 and the screens whereby the latter are moved in unison with the swinging of the weight and the crank-arm.

4. In a grain-cleaning apparatus, the combination of cleaning-screens, fulcrumed at 55 points between their ends whereby the ends move in opposite directions when the screens are tilted longitudinally, a shaft having a depending weight and means connecting the shaft with one end portion of the screens, 60 a longitudinal shaft having a depending weight, and connections between the longitudinal shaft and the screens, said screens having their axes mounted in and carried by the connections from the longitudinal shaft. 65

5. In a grain-cleaning apparatus, transversely and longitudinally tiltable screens, correspondingly - swinging weights and connections between the screens and the weights, 70 a screen-shaking mechanism consisting of an adjustable fulcrumed lever, a serpentine cam with which one end of the lever engages, means connecting the lever with the screens, and means for moving the fulcrum whereby 75 the amount of shake is regulated.

6. In a grain-cleaning apparatus, transversely and longitudinally tiltable screens, correspondingly - swinging weights, connections between the weights and the screens, a fulcrumed lever connected with the screens 80 and a serpentine cam with which the lever engages, a slide upon which the fulcrum is carried and a guide upon which it is movable, in combination with a screw and worm-gear 85 whereby the fulcrum is moved to lengthen or shorten the stroke of the lever.

In witness whereof I have hereunto set my hand.

JOHN M. LASSWELL.

Witnesses:

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JESSIE C. BRODIE.