

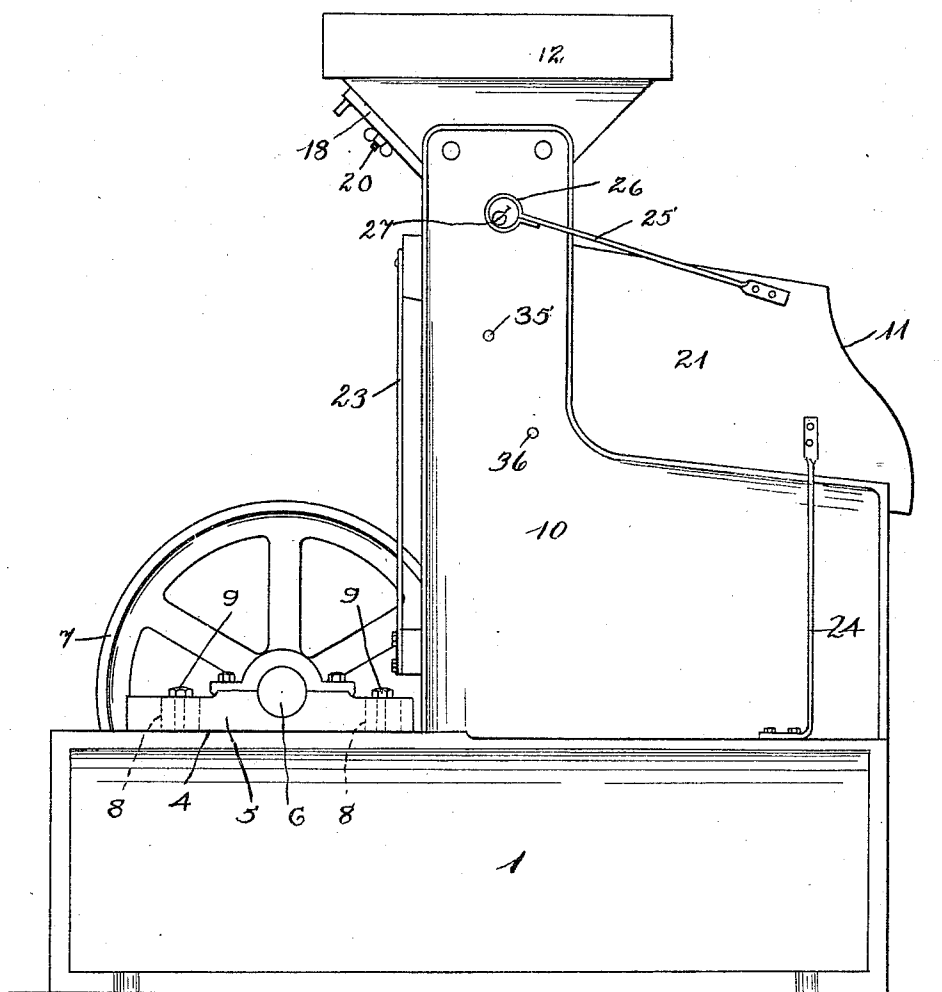
G. E. SOVEREIGN.
 SCREENING DEVICE FOR FEED CRUSHERS.
 APPLICATION FILED FEB. 1, 1910.

994,960.

Patented June 13, 1911.

2 SHEETS—SHEET 1.

Fig. 1.



WITNESSES
Cornelius Galuski
Francis W. Blodgett

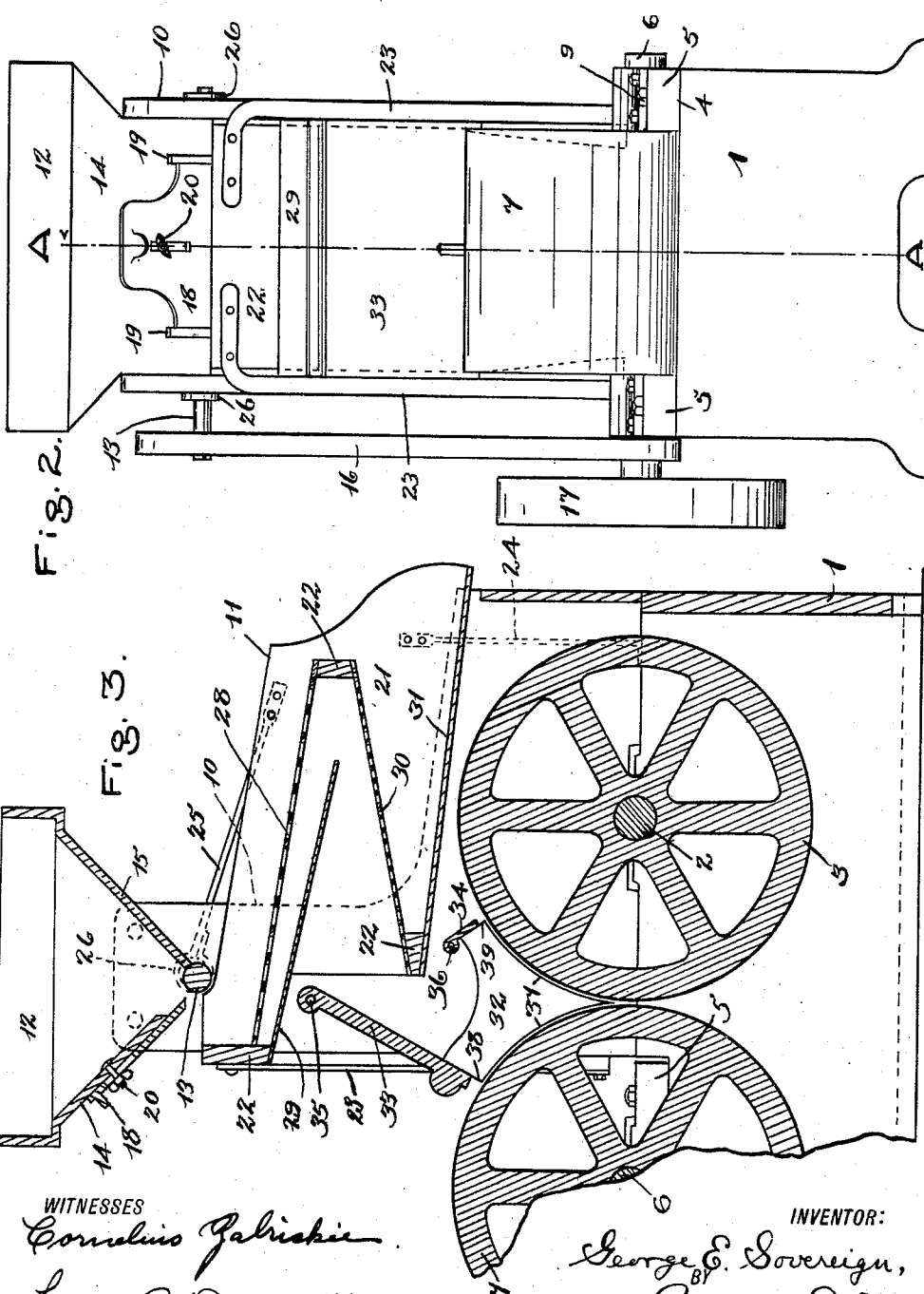
George E. Sovereign, INVENTOR:
 BY *Russell M. Everett*,
 ATTORNEY.

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UNITED STATES PATENT OFFICE.

GEORGE E. SOVEREIGN, OF POTTERSVILLE, NEW JERSEY.

SCREENING DEVICE FOR FEED-CRUSHERS.

994,960.

Specification of Letters Patent. Patented June 13, 1911.

Application filed February 1, 1910. Serial No. 541,225.

To all whom it may concern:

Be it known that I, GEORGE E. SOVEREIGN, a citizen of the United States, residing at Pottersville, in the county of Hunterdon and State of New Jersey, have invented certain Improvements in Screening Devices for Feed-Crushers, of which the following is a specification.

This invention relates to that class of machines for crushing oats, represented by my prior applications Serial No. 493,079 and Serial No. 493,080, filed April 30, 1909, the objects of the present improvements being to screen the oats or other grist as it is fed to the machine, separating therefrom the large foreign particles which might injure the rollers and also removing the dust from the feed before it is ground; to provide an improved construction of screening devices; to discharge both the coarse and the fine tailings at the same end of the machine; to receive the tailings from both screens upon a common plate and guide them into the same stream and pile; to conduct the screened grist to the rollers without escape or loss of any of it, and to obtain other advantages and results as may be brought out in the following description.

Referring to the accompanying drawings, in which like numerals of reference indicate corresponding parts in each of the several figures, Figure 1 is a side elevation of my improved screening device applied to a feed-crusher; Fig. 2 is a rear end elevation of the same, and Fig. 3 is a central vertical longitudinal section, taken on line A—A of Fig. 2, looking in the direction indicated by the arrow.

In said drawings, 1 indicates the box-like bed or frame of a feed crusher adapted to stand upon a floor or other foundation, and have my improved screening device applied thereto. The upper edges of the opposite longer sides of said bed 1 provide at their rearward part fixed bearings for the shaft 2 of a rear roll 3, and at the front said edges provide slideways for sliding boxes 5 having bearings for the shaft 6 of the front roll 7. Said sliding boxes 5 are each slotted near its front and rear ends, as at 8, 8, and each of said slots receives a bolt 9 by which the boxes 5 are clamped rigidly, and at the same time adjustably, to the bed frame 1.

At the rear part of the bed 1 side plates 10, 10 project upward at opposite sides of the machine, and serve to support the screening device 11 and a hopper 12. Said hopper is mounted rigidly between the upper parts of said side plates 10 and has converging sides which conduct the feed to a slit or opening at the bottom of the hopper arranged transversely of the crusher or parallel to the rolls 3 and 7. In this slot or opening a roller 13 is pivoted in close proximity to the front wall 15 of the hopper, but at a little distance from the rear wall 14. This roller 13 is driven by a belt 16 from the shaft 2 of the rear crushing roll 3, which shaft is adapted to be driven by a pulley 17. As the roller 13 turns forwardly, it carries the feed out through the space between itself and the front wall 15 of the hopper. Said space just mentioned is adapted to be varied in width to control the supply issuing from the hopper by means of a gate 18 mounted in guides 19, 19 upon the front of the hopper and set wherever desired by a set screw 20. Beneath the said hopper 12, and between the same and the rolls 3, 7, is located the screening device 11, which consists of opposite vertical side walls 21, connected by cross pieces 22 and supported by means which will enable it to be given a vibratory or shaking movement. Preferably these means consist of front and rear pairs of leaf springs 23, 23, and 24, 24, said leaf springs being arranged vertically, fastened each at one end to the fixed frame of the machine and at its outer or upper end to the screening device 11, and said springs further being arranged flatwise of the direction in which the screening device is to vibrate, that is from front to rear of the machine. The screening device 11 is vibrated by means of an arm or arms 25 extending from opposite sides of the rear end forwardly to eccentric straps 26 upon eccentrics 27 fastened upon the ends of the shaft of the roller 13, outside the side plates 10, 10.

The screening device 11 comprises an upper coarse screen 28 which slants rearwardly downward and is adapted to receive at its front end the feed as it falls from the hopper 12. This screen is of a mesh large enough to let the grain, as for example, oats, pass through itself, together with any

fine dirt or dust, while large foreign particles travel the length of the screen 28, because of its vibratory motion, and go off over the rear end of the same. The grain which passes through the screen 28 is carried rearwardly by a shelf 29, preferably imperforate, so that it is all deposited upon the rear end of a forwardly slanting screen 30 which has a fine mesh. The grain thus travels forwardly upon this screen 30, and goes off the front end of the same to fall between the rolls 3 and 7, while dust and fine dirt drop through the screen onto a rearwardly sloping bottom plate 31 which conducts all the tailings, both fine and coarse, clear of the rear end of the machine into a common pile.

There is a filler piece 32 at each end of the hopper-like space between the rolls 3 and 7 to guide the grain away from the side plates 10, 10, as set forth in my prior application Serial No. 493,080 above referred to, and shields 33, 34 extend between the side plates 10, 10, upon pivots 35, 36 to rest at their lower edges against the said filler pieces 32 by gravity and confine any dust from the moving grain. Of said transverse shields, one as 33 is thus pivoted at its upper edge above and forward of the discharge end of the screening device, and slants forwardly downward while the pivoted upper edge of the other shield 34 is beneath and back of the discharge end of the screening device and slopes rearwardly downward. The lower free edges of said shields are normally contiguous to the rolls 3, 7 and yet either or both of them can be raised or swung aside at any time for inspection of the feed or any other purpose.

The filling pieces 32 incline each away from its adjacent side-plate 10 downwardly toward the rolls, 3, 7, so as to guide the grain away from the ends of the rolls, and the edge 37 of each filling piece is shaped to conform to the rolls, while at its upper part are opposite converging edges 38, 39 for the shields 33 and 34 to engage, respectively. The shields 33, 34 thus form with the filling pieces 32, 32 upon the side plates 10, 10 a closed passage leading to the rolls 3, 7, and furthermore because of the peculiar arrangement of the upper pivoted edges of the shields, as set forth, such passageway practically incloses the discharge end of the screening device. Said construction also enables the discharge end of the screening device to be very close to the rolls 3, 7, as shown, and both the entrance for grain to the rolls and the lower screen 30 can be exposed by lifting up the single shield 33.

Having thus described the invention, what I claim is—

1. The combination of a supply hopper for uncleaned feed, an upper inclined screen coarse enough for the feed to pass through

having its high end beneath the discharge opening of said hopper, a lower screen too fine for the feed to pass through inclined downward from beneath the low end of said upper screen in the opposite direction, the lower end of said screen constituting a discharge over and beyond which the material too coarse to pass through said upper screen goes off over its end clear of the said lower fine screen, a plate beneath said lower screen inclined in the same direction as the upper screen, said plate and said discharge means for the upper screen being arranged and adapted to both discharge their tailings into a common pile at one end of the machine, and means for receiving feed from the lower end of said lower screen.

2. The combination of a supply hopper for uncleaned feed, an upper inclined screen coarse enough for the feed to pass through having its high end beneath the discharge opening of said hopper, a lower screen too fine for the feed to pass through inclined downward from beneath the low end of said upper screen in the opposite direction, the lower end of said screen constituting a discharge over and beyond which the material too coarse to pass through said upper screen goes off over its end clear of the said lower fine screen, a plate beneath said lower screen inclined in the same direction as the upper screen and extending outward beyond the said discharge means therefor beneath the same, whereby said plate receives the tailings from both screens and discharges them at the same end of the machine, and means for receiving feed from the lower end of said lower screen.

3. The combination of a bed frame, side plates extending upward from said bed frame at opposite sides thereof, means between said side plates for receiving grain, a screening device between said side plates adapted to discharge into said receiving means, transverse shields between said side plates pivoted therein at their upper edges one beneath and back of the discharge end of said screening device and the other above and forward of said discharge end of the screening device, the lower edges of said shields being free, and means for supporting the lower ends of said shields with said lower edges contiguous to the said receiving means, whereby said shields are adapted to guide the feed to the receiving means and yet be swung aside for inspection of the feed or the like.

4. The combination of a bed frame, side plates extending upward from said bed frame at opposite sides thereof, means between said side plates for receiving grain, filling pieces upon said side plates above said receiving means each inclining downwardly away from its side plate toward the grain-receiving means, a screening device between said

side plates adapted to discharge into the receiving means, and transverse shields between said side plates pivoted therein at their upper edges one beneath and back of the discharge end of said screening device 5 and the other above and forward of said discharge end of the screening device, the lower edges of said shields being free and adapted to normally rest against the opposite edges of said filling pieces by gravity. 10

GEORGE E. SOVEREIGN.

In the presence of—

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."
