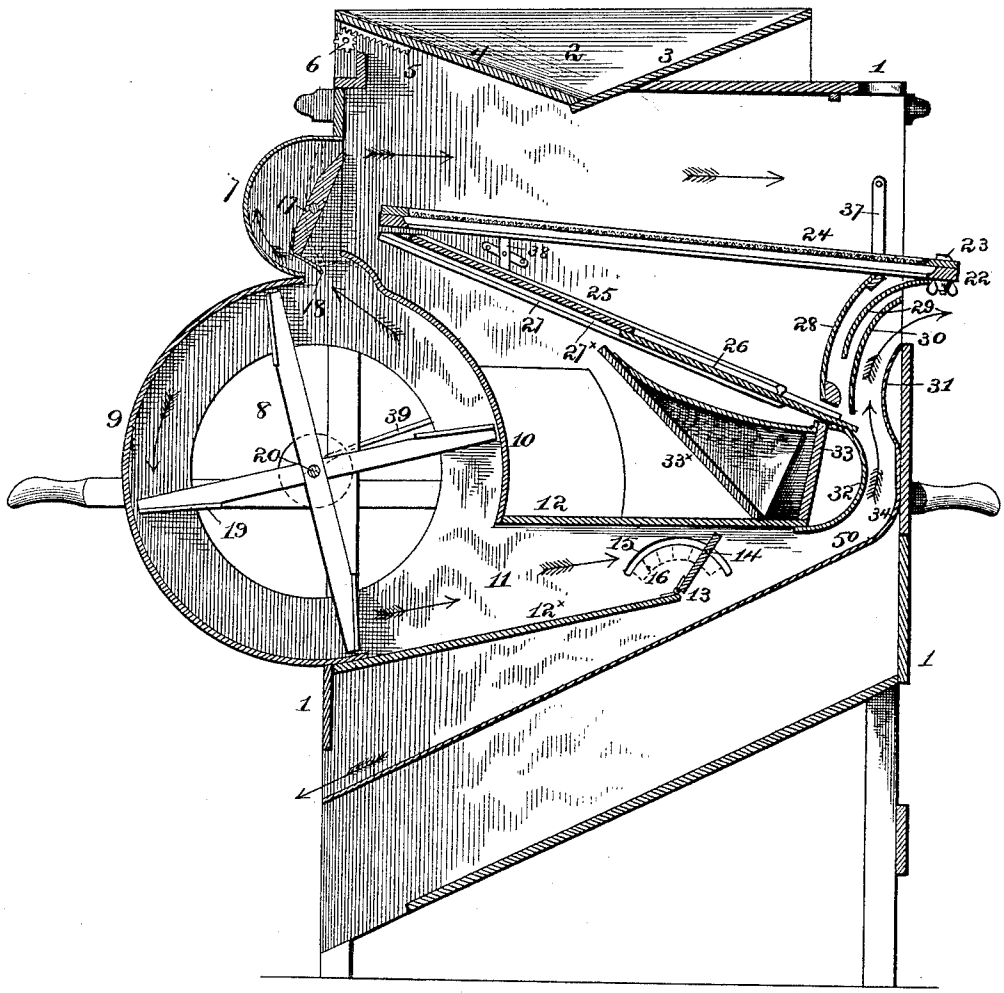
(No Model.) 2 Sheets—Sheet 1.

S. L. & W. C. WOTTRING.

FANNING MILL.

No. 450,855. Patented Apr. 21, 1891.

Fig. 1.



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(No Model.) 2 Sheets—Sheet 2.

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Fig. 2.

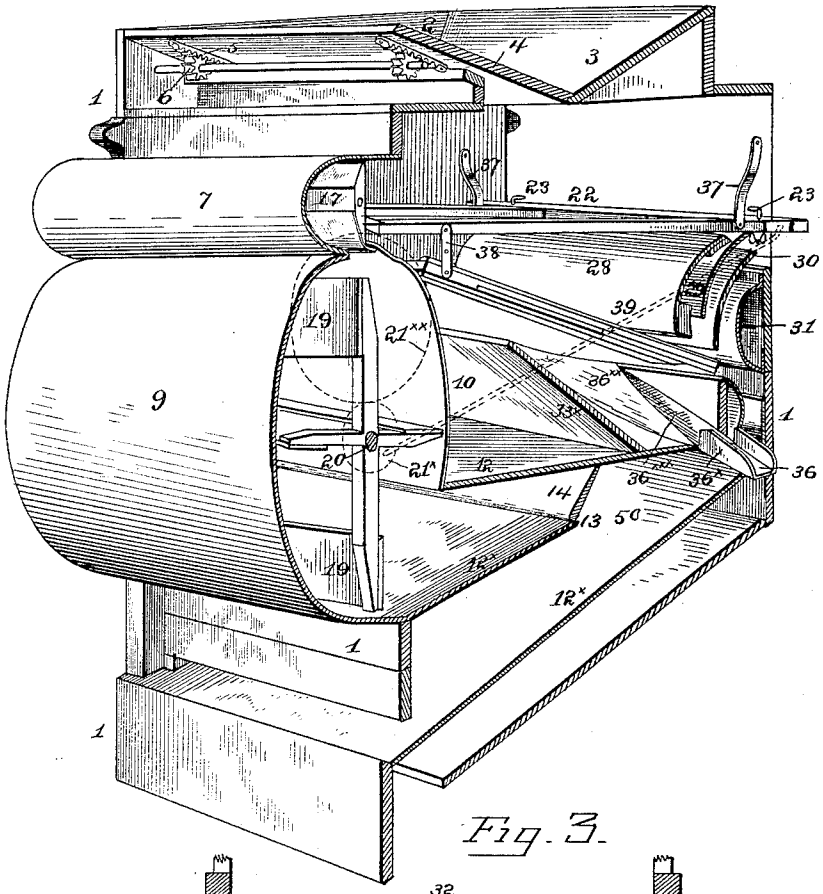
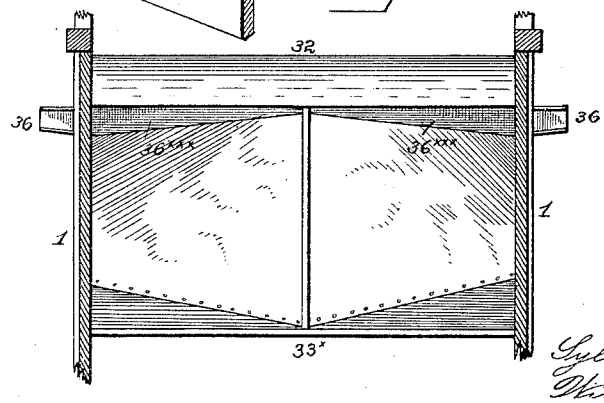


Fig. 3.



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UNITED STATES PATENT OFFICE.

SYLVANUS L. WOTTRING AND WILLIAM C. WOTTRING, OF PROSPECT, OHIO.

FANNING-MILL.

SPECIFICATION forming part of Letters Patent No. 450,855, dated April 21, 1891.

Application filed January 2, 1891. Serial No. 376,541. (No model.)

To all whom it may concern:

Be it known that we, SYLVANUS L. WOTTRING and WILLIAM C. WOTTRING, citizens of the United States of America, residing at Prospect, in the county of Marion and State of Ohio, have invented certain new and useful Improvements in Fanning-Mills, of which the following is a specification, reference being had therein to the accompanying drawings.

Our invention relates to improvements in fanning-mills—that is to say, a mill adapted to clean grain of all characters by means of a blast of air produced by a fan.

The object of our invention is the provision of a mill of this character which will clean grain rapidly and in a perfect manner, and which possesses merit in points of simplicity and durability, and which can be manufactured at a comparatively low price.

The invention consists in the novel construction, combination, and arrangement of parts composing the mill, substantially as herein illustrated, described, and specifically defined and distinguished by the claims.

In order that the construction, advantages, and operation of our improved mill may be more readily understood, we have illustrated a mill embodying our invention in the accompanying drawings, in which—

Figure 1 represents a vertical longitudinal section of the mill. Fig. 2 represents a perspective view with a part or side of the casing removed to more clearly illustrate the construction and relation of the interior, and Fig. 3 represents a plan view of the discharge-spouts and the board to which they are secured.

Referring by numerals to the drawings, in which similar numerals of reference are employed to designate corresponding parts in the three views, the numeral 1 designates the casing of the mill, which is of proper shape and size and is supported by corner-posts and provided with handles, by means of which the mill can be easily removed from place to place, as circumstances require. On the top of the casing or housing is supported a hopper 2, having on one side the inclined board 3 for directing the grain, and on the other side having ways, in which moves the slide or door 4, which slide is provided with racks 5, operated by pinions 6, to effect the opening and closing of the slide.

The upper-valve casing 7 is made of a piece of sheet metal, preferably of substantially semicircular shape and secured to the mill-casing, and the fan-casing 8 is substantially circular, being formed of the outer curved wall 9 and the inner curved wall 10; and leading from the fan-casing is the air-passage 11, formed of the upper board or plate 12 and the lower board or plate $12^{\times}$. The lower board $12^{\times}$ is inclined, and at or near the inner end thereof is pivoted the lower end of the valve 13. The valve 13 is made, preferably, of a piece of flat board or plate and is provided with a pin 14, which passes through segmental slots 15 in the casing, a scale 16 being provided below one of the slots, which permits the valve to be regulated in its movements, and the distance at which the valve is opened governing or controlling the blast of air, as is evident.

Mounted in the upper-valve casing is the valve 17, which is a board or plate mounted by a shaft passing centrally therethrough and having at the lower end the strip 18, which is normally adjacent to the inner wall of the casing, as clearly shown. This upper valve operates in connection with the valve in the air-passage, or what may be termed the "lower valve," and these valves control the blast of air in the mill.

The fan 19 is mounted in the fan-casing upon a shaft 20, which is journaled in the casing, and on one end of this shaft is a wheel or disk 21, and on the other end is a pinion $21^{\times}$, and meshing with the pinion $21^{\times}$ is a gear-wheel $21^{\times\times}$, operated by a crank or otherwise to rotate the shaft.

The screen-frame 22 is arranged immediately under the feed-hopper, and is formed of two side bars and two end bars, making a rectangular frame, and the outer ends of the screen-frame are provided with headed bolt-catches 23 for securely holding the screen proper 24 in place.

When it is desired to change the screens to suit the character of grain to be cleaned, it is only necessary to turn the headed bolts and the screen may be removed through the open end of the casing and another quickly inserted. Below the screen is the grain-board, which is

inclined with relation to the screen and is composed of the parts 25 and 26. The part 25 is secured rigid to the side rails or frame 27, and part 26 is adapted to slide in the ways $27^{\times}$ of said frame to permit the removal of any accumulations through the discharge-spouts.

Near the end of the grain-board frame is the curved plate 28, which is secured at its ends in the casing; then next to the curved plate or board 28 is the curved plate 29, secured to the screen-frame; then next to the plate 29 is the curved plate 30, and next to the plate 30 is the curved plate 31, this arrangement of plates being best to prevent any of the grain being wasted through the casing of the machine, and also directing the blast of air in the proper manner.

The end of the screen-frame rests on the curved plate 32, secured to the upper wall of the air-passage and the board 33, and adjacent to the curved plate is the plate 34, thus forming the passage or channel 50, through which the grain passes and is discharged. The plate 28 acts as a distributer for the grain and causes the grain to spread out and be thoroughly acted upon by the blast of air, and also prevents the grain from discharging too rapidly.

Below the lower end of the grain-board frame and secured to the boards 33 and $33^{\times}$ are the discharge-spouts 36. These spouts discharge from each side of the machine, and are constructed as clearly shown in Fig. 3—that is, they are formed of two curved or inclined plates $36^{\times}$, tapering toward the center of the machine and meeting to form the apex $36^{\times\times}$, by which the screenings or foreign matter is directed to the gutters $36^{\times\times\times}$, and this construction insures the discharge of the screenings from both sides.

The screen-frame is hung or supported in the casing near one end thereof by the links 37, one of which is pivoted to the casing and the other end to the screen, and at the other end by the levers 38, fulcrumed at or near the center to the casing. The upper ends of the levers 38 are connected to the under side of the screen-frame and the lower ends thereof are connected to the grain-board frame. By this manner of connecting and supporting the screen-frame and grain-board frame the proper swinging movement is imparted thereto, and to move the said screen and grain-board frame we employ the two rods 39, one end of which is connected—that is, the upper end—to the screen-frame and the lower ends are connected to the pinion and wheel, said lower end being connected eccentrically with reference to the center of the pinion and wheel, as by this manner of connecting the screen-frame and grain-board frame are properly moved, as will be readily understood.

From the foregoing description, taken in connection with the drawings, the operation of our fanning-mill will be readily understood, and, briefly stated, is as follows: The proper screen is secured upon the screen-frame, the valves are adjusted to regulate and control the blast, and motion is imparted to the fan and screen and grain-board. The grain passes down the inclined wall of the hopper and falls upon the screen and from thence drops upon the grain-board, being discharged at the lower end through the throat 50 into the passage 51, leading to a suitable vessel or receptacle, and the screenings are discharged through the spouts by sliding the lower section or part of the grain-board up, which uncovers the spouts and permits the chaff or other particles to fall into the spouts and be discharged. The throat 50 is by means of the curved plates made narrow and the air-passage is also made narrow, and by this means the full blast of air is thrown upon the grain, effectually removing all screenings and the like from the grain. The arrangement of the curved "plates" or "drums," as they might be called, reduces the size of the throat and air-passage, and a small fan will produce a strong draft. It will thus be seen that the grain is partially cleaned after passing through the screen and at the end of the grain-board is subjected to the action of the blast, entirely removing all chaff and other foreign matter from the grain which passes out of the inclined passage free from chaff and other foreign matter. The upper and lower valves must be adjusted according to the character of grain to be cleaned, and the fan must be turned at the proper rate and the grain fed regularly to insure the proper cleaning of the grain. After the grain has been cleaned and it is desired to remove the screenings or foreign matter the lower movable section of the grain-board is slid upward, uncovering the discharge-spouts and allowing the screenings to fall thereon and be discharged. It will thus be seen that we produce a fanning-mill which will separate the foreign matter from the grain in a rapid and perfect manner and which is of simple and durable construction and can be manufactured at a comparatively low price. The direction of the air-blast is shown by arrows.

We reserve the right to make minor changes in the construction and arrangement of parts of our mill without departing from the spirit or sacrificing any of the advantages of our invention.

We claim as our invention—

1. In a fanning-mill, the combination of the casing, the screen therein, the links having their upper ends pivoted to the casing and their lower ends connected to the outer ends of the screen, the levers fulcrumed to the casing and having their upper ends connected to the inner ends of the screen, the grain-board connected at its inner ends to the lower ends of said levers, the board on which the outer lower end of the grain-board rests, the deflectors secured to the casing, the deflector carried by the screen, and the fan, all arranged and adapted to operate as described.

2. In a fanning-mill, the casing having a hopper, the screen in the casing, the links pivoted to the casing and to the outer ends of the screen, the levers fulcrumed to the casing and having their upper ends connected to the inner ends of the screen, the grain-board having the movable section and connected at its inner end to the lower ends of the levers, the curved plates below the grain-board having the discharge-spouts, the series of curved plates or deflectors near the lower end of the grain-board, and the fan and valves, all as and for the purpose described.

3. In a fanning-mill, the casing having the hopper and fan and valve-casing, the valve mounted in the valve-casing, the fan mounted in the fan-casing, the screen connected with the fan-shaft, the links pivoted to the casing and having their lower ends connected near the outer ends of the screen, the levers fulcrumed to the casing and having their upper ends connected near the inner ends of the screen, the grain-board connected near its inner end to the lower ends of said levers and having the movable section, the board supporting the lower end of the grain-board, the curved plate secured to said board, the curved plates under the grain-board having the discharge-spouts, the curved plates secured to the casing, and the curved plate carried by the screen, all as described.

4. In a fanning-mill, the casing having the valve and fan casings, the valve in the valve-casing having a plate at the lower end thereof, the fan mounted in the fan-casing, the air-passage having the valve therein, the screen in the casing, the links pivoted in the casing and connected to the outer ends of the screen, the levers having their upper ends connected to the inner ends of the screen, the grain-board connected to the lower ends of said levers, the board supporting the grain-board, the plates below the grain-board having the discharge-spouts, the curved plates secured to the casing, the curved plate carried by the screen, the discharge-passage, and the mechanism for operating the screen and grain-board, all as described.

In testimony whereof we affix our signatures in presence of two witnesses.

SYLVANUS L. WOTTRING.
WILLIAM C. WOTTRING.

Witnesses:
WILLIAM B. DETWILLER,
GEORGE A. FRITCH.