

MARTIN SHREINER.

Improvement in Grain Separators.

No. 116,229.

Patented June 20, 1871.

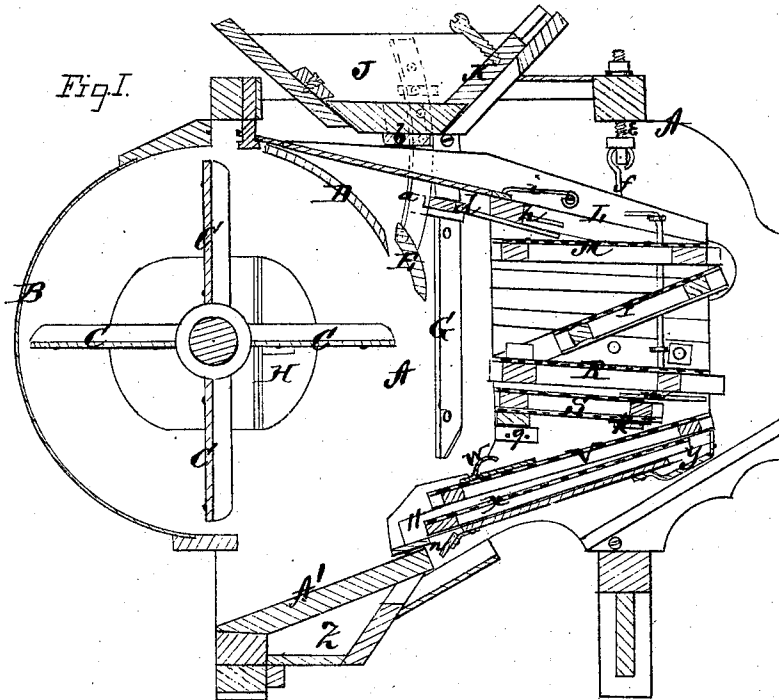
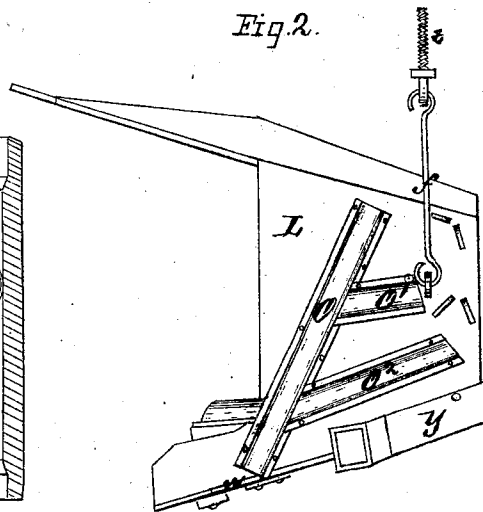
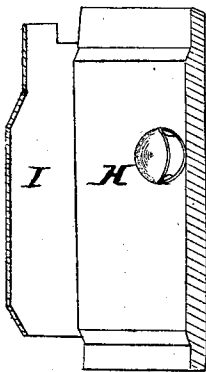


Fig. 2.

Fig. 3.



Witnesses.

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Inventor.

*Martin Shreiner
per Alexander Mason*

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Fig. 4.

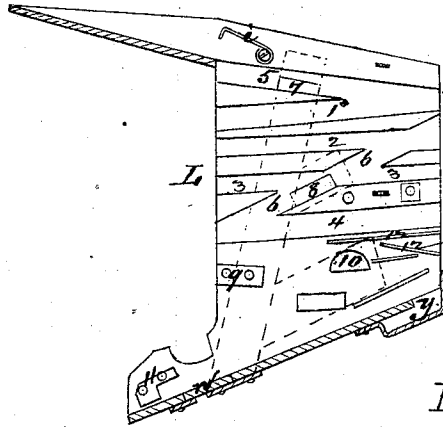


Fig. 5.

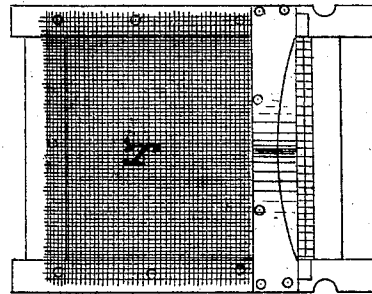


Fig. 6.

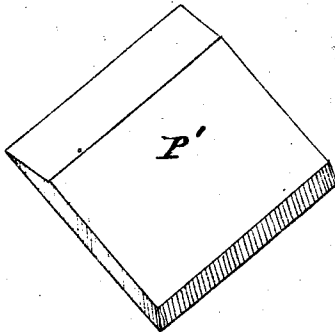
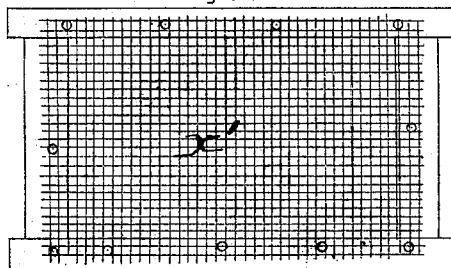


Fig. 7.



Witnesses.

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Fig. 8.

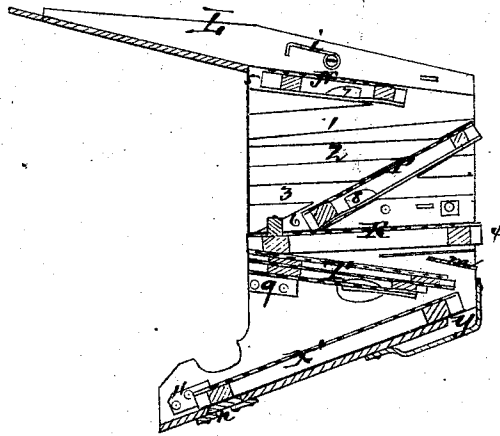
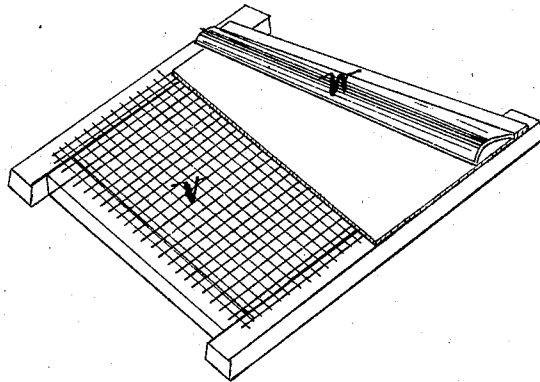


Fig. 9.



Witnesses.

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UNITED STATES PATENT OFFICE.

MARTIN SHREINER, OF CARLISLE, PENNSYLVANIA.

IMPROVEMENT IN GRAIN-SEPARATORS.

Specification forming part of Letters Patent No. 116,229, dated June 20, 1871.

To all whom it may concern:

Be it known that I, MARTIN SHREINER, of Carlisle, in the county of Cumberland and in the State of Pennsylvania, have invented certain new and useful Improvements in Grain-Fan and Separators; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing and to the letters of reference marked thereon making a part of this specification.

The nature of my invention consists in the construction and arrangement of a grain-fan and separator, as will be hereinafter more fully set forth.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawing, in which—

Figure 1 is a longitudinal vertical section of my machine for separating the chaff from the grain. Fig. 2 is a side view of the shoe. Fig. 3 is a perspective view of one of the side slides. Fig. 4 is a view of the inner side of the shoe. Fig. 5 is a plan view of a combined dividing-sieve and screen. Fig. 6 is a perspective view of a dividing-board. Fig. 7 is a plan view of a screen with long meshes, to be substituted for the one shown in Fig. 1 in the bottom of the shoe. Fig. 8 is a longitudinal vertical section, showing the position of the sieves and screens for the second separation. Fig. 9 is a perspective view of a separating-sieve with conveying-spout.

A represents the frame of my machine, and B the fan-case, within which latter the fan C is placed. From the upper edge of the fan-case, or nearly from said edge, a concave board, D, extends forward, forming, as it were, a continuation of the fan-case, for the purpose of carrying the wind a certain distance to throw it direct in the mouth of the shoe. Near the front edge of the fan-case extension D is pivoted or hinged a wind-regulating board, E, which is operated by the strap *a* for directing the wind up or down in the shoe. In the sides of the frame A are also placed wings G G, the better to direct the wind into the shoe. On the outside of the sides of the frame A are side slides H, each of which is provided with a wing,

I. These wings form in front a great suction, and on the rear it forms an eddy, which, as stuff or chaff falls from the shovel in putting the grain in the hopper, prevents the same from going into the fan. These slides with wings may be applied to any fan or separator. J represents the hopper, one side of which is provided with a slide, K, to be raised or lowered at will; and in the bottom of the hopper are two holes with a pivoted slide, *b*, underneath, to open and close said holes at pleasure. For chaffing the entire bottom of the hopper is removed. In the sides of the frame A, at a suitable point, is a rake, *d*, which can be put in or removed at pleasure. L represents the shoe, which is suspended by means of links *f* and screws *e*, as shown in Figs. 1 and 2. In the sides of the shoe L are straight or horizontal grooves 1, 2, 3, and 4, and two inclined grooves, 5 and 6, the groove 5 leading upward from the groove 1, and the groove 6 leading diagonally downward from near the entrance of the groove 2. The arrangement of these grooves is fully shown in Fig. 4. In the inclined groove 5 is inserted a rake, *h*, which is held by hooks *i*, as shown in Fig. 1, and in groove 1 is inserted the sieve M. This is for separating the chaff from the grain; but for separating the grain after it has been chaffed the sieve M and rake *h* are removed and the screen N placed in the groove 5. This screen has a metal plate underneath, with vents at the sides corresponding with openings 7 leading through the sides of the shoe into spouts O, on the other side thereof. In the inclined groove 6 is inserted the dividing-screen P, which carries the grain back on to the sieve R inserted in groove 4. This dividing-screen is provided with a metal plate underneath, having vents at the sides corresponding with openings 8, which lead into branches O¹ of the spouts O. In place of this dividing-screen P the board P', shown in Fig. 6, may be substituted if so desired. Under the sieve R is the screen S, resting upon blocks 9. This screen is made double, and so that the wind can pass through it. It is provided on the sides with plates *k*, which close the openings 10 to the branches O² of the spout O. In separating grain after it has been chaffed the double screen S is taken out and the combined dividing-sieve and screen T, shown in Fig. 5,

is substituted. This screen is so constructed that the wind can pass through it, and it is curved or raised in the middle, so that the screenings will pass off with ease, and in this case no plates *k* are used. From the screen *S* the grain falls onto the separating-sieve *V*, which rests upon blocks 11, and is provided with conveying-spouts *W*. This spout is placed on the lower end of the sieve, at an angle of about ninety degrees, for the purpose of conveying the grain to the side of the mill. The spout is made in two parts, one part attached to the shoe and the other to the sieve, so that when put together it forms one. In small grooves 12, between the screens *R* and *S*, is inserted a smut or white-cap board, *m*, which carries off all the light stuff that comes on it. *X* is a long screen, that rests on the bottom of the shoe; and at the end of the shoe is a conveying-spout, *Y*, which carries off the large grains from the separating-sieve and screen *T*. For cleaning oats or corn, when the screen *S* is used, this spout is closed up by a shut-off; but when the screen *T* is used the spout *T* is left open. For taking out rye, oats, and cheat, or for the second separation, the separating-sieve *V* and screen *X* are removed, and the screen *X'*, Fig. 7, with long meshes, is substituted.

In Fig. 1 I have shown the arrangement of the screens for chaffing or the first separation. The rake *h* is in the inclined groove 5, the screen *m* in the groove 1, the dividing-screen *P* in the inclined groove 6, the sieve *R* is the groove 4, the screen *S* underneath the sieve, and in the bottom of the shoe the separating-sieve *V* and screen *X*, the board *m* between the screens *R* and *S*, as shown.

In Fig. 8 is represented the arrangement of the screens for the second separation; the screen *N* in the inclined groove 5, the dividing-screen *P* in the inclined groove 6, the sieve *R* in groove 4, the combined sieve and screen *T* underneath the sieve *R*, the board *m* between them, and in the bottom of the shoe the screen *X'*. In the

bottom of the shoe *L* is a small trap-door, *n*, through which the screenings pass from the long screen into the screen-box *Z*. *A'* is a screen or chute-board, which carries the grain back.

The shoe obtains its motion by means of a pitman attached at one end to a crank on the fan-shaft, and at the other end to one arm of a two-armed lever pivoted at the side of the frame. The other arm of this lever is, by a rod, connected with the shoe.

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

1. The concave fan-case extension *D*, wind-regulating board *E*, and wings *G G*, when said parts are constructed and arranged substantially as herein set forth.

2. The side slides *H*, provided with wings *I*, substantially as and for the purposes herein set forth.

3. The construction and arrangement of the shoe *L* with the grooves 1, 2, 3, 4, 5, 6, and 12, openings 7 8 10, blocks 9 11, door *n*, and spouts *O*, *O'*, *O''*, and *y*, all substantially as shown and described, and for the purposes set forth.

4. The screen *T*, having a coarse sieve on its upper face and a fine sieve on its under surface, the latter provided with a metal plate, and curved upward in the center, and so constructed as to allow an end discharge and two side discharges, substantially as and for the purposes herein set forth.

5. In combination with the shoe *L*, provided with the grooves, openings, and spouts, as herein described, the rakes *d h*, sieves *T V*, and interchangeable screens, as and for the purposes set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 28th day of March, 1871.

MARTIN SHREINER.

Witnesses:

DAVID SMITH,
JOSEPH NEELY.