A. Major.

Thrashing Mach.

No. 37,549. Patented Jan. 27, 1863.

Fig. 5.

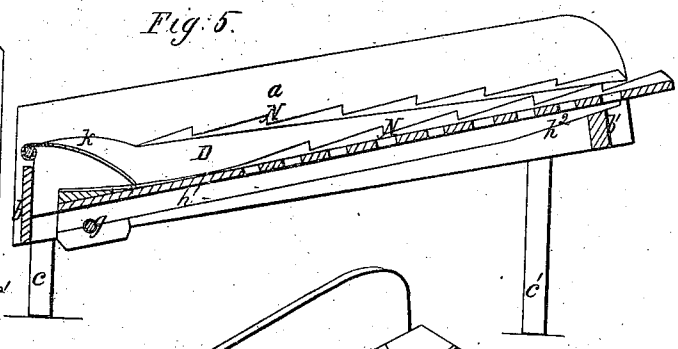


Fig. 2.

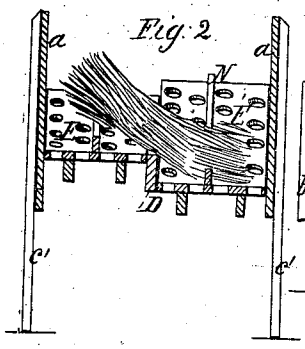


Fig. 1.

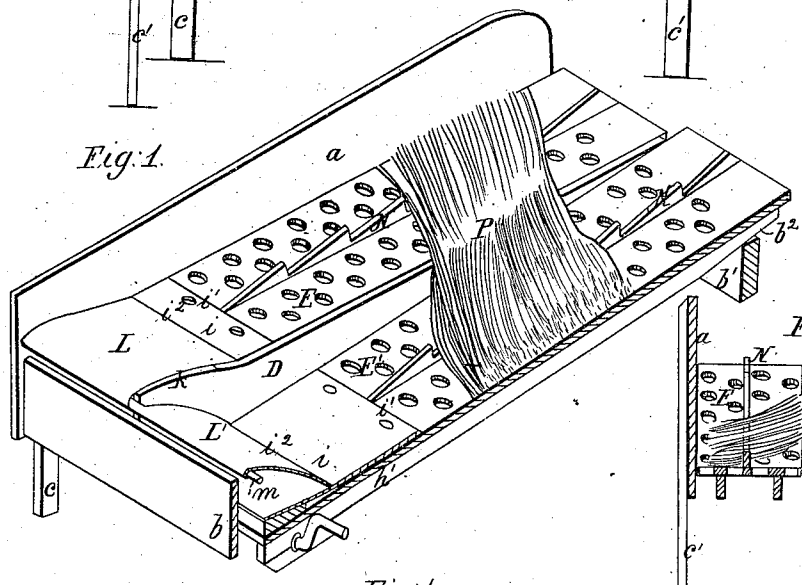


Fig. 3.

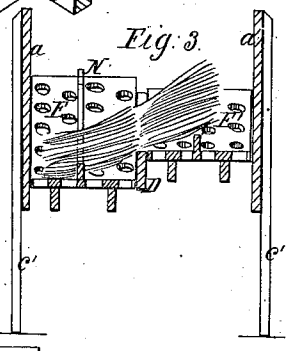
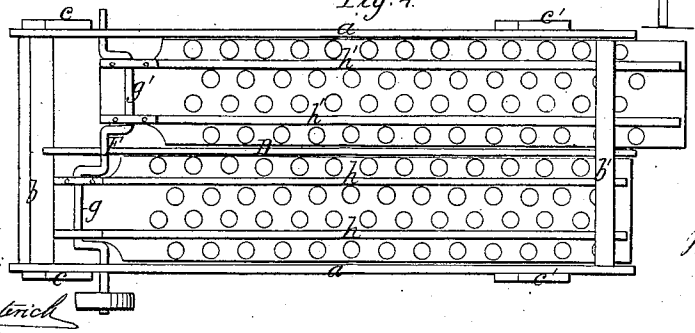


Fig. 4.



Witnesses;

Gustave Dieterich

D. C. Lawrence

Inventor;

Alexander Major

by his atty's

Mason, Fenwick & Lawrence

UNITED STATES PATENT OFFICE.

ALEXANDER MAJOR, OF LEBANON, PENNSYLVANIA, ASSIGNOR TO HIMSELF AND WILLIAM M. MAJOR.

IMPROVEMENT IN GRAIN AND STRAW SEPARATORS.

Specification forming part of Letters Patent No. **37,549**, dated January 27, 1863.

To all whom it may concern:

Be it known that I, ALEXANDER MAJOR, of Lebanon, in the county of Lebanon and State of Pennsylvania, have invented a new and Improved Machine for Separating Grain from its Straw; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, like letters in the several figures indicating like parts, and in which drawings—

Figure 1 is a sectional perspective view of my improved machine, with one of its side boards removed. Figs. 2 and 3 are central transverse sections, the view being toward the rear of the machine; Fig. 4, an inverted plan, and Fig. 5 a longitudinal section, of my improved machine.

In the drawings, *a a* are the side boards. *b b'* the end pieces, and *c c c' c'* the legs, which together constitute an oblong rectangular-formed frame to support the working parts of my improved machine, and which legs are proportioned in length, as indicated in Fig. 5, in order to give a pitch to the frame toward its receiving end, or the end upon which the straw is fed. Central of this frame, and extending longitudinally thereof, I secure in any proper manner a partition-board, D, tapered from its front to rear end, as indicated in the drawings, and having a width on a vertical line throughout its length from its front to its rear end equal to the greatest elevation as well as greatest depression of the perforated shakers situated on either side of it.

E E' are perforated shakers, made to oscillate or operate with a reciprocating movement forward and back longitudinal of the frame of the machine, said shakers being suspended at their forward ends upon a double crank, F, the bearings of which pass through the side boards, *a*, and partition-board D, as represented in the figures, and with their rear ends supported upon the cross-tie or end piece, *b'*, as shown. The opposite arms, *g g'*, of the double crank F are made to engage with longitudinal strips *h h h' h'*, as indicated in Figs. 1, 4, and 5, and in such manner that during a revolution of the crank one of the said shakers shall become elevated and moving with a thrust longitudinal of, and in a direction toward, the rear of the machine, while its fellow shaker becomes depressed and moving with a thrust toward the front of the machine, and vice versa, the forward ends of the said shakers during such revolution of the crank F being made to describe a movement coincident with that described by the arms *g g'* of said crank.

The strips *h* and *h'* of the shakers may be tapered off at their rear ends, as at h^2, Fig. 1, or they may be made of uniform dimensions throughout.

As clearly represented in Fig. 1, the forward ends of the shakers E E' are provided with metallic friction-plates *i i*, slightly curved, and having their ends, as at *i'*, set either flush with or upon the working-face of the shakers. Said plates may, however, be made plane-faced, instead of slightly concave, and however made act in conjunction with loosely-hinged grain-stops L L'. which articulate upon a rod, *m*, situated at the head of the machine, as clearly shown in Fig. 1. Thus, during a forward and back movement of the shakers, the edge i^2 of the grain-stops L L' are in constant contact with the face of the plates *i*, and so prevent any kernels of grain or portion of the straw from working their way out of the machine at its front end.

In order that the straw, from which grain is to be shaken, may be retained upon the machine the requisite length of time, or not too readily be passed from its forward to its rear end, I so proportion the length of the legs *c c'* as to give a pitch to the machine, as represented in Fig. 5. The straw thus in its passage through the machine travels up an inclined plane, the tendency of which would be to accumulate the straw at the forward end, in which the crank F is situated. I therefore obviate such tendency by providing the shakers with notched straw-carriers N, whose function is to carry the straw up the inclined-plane position, which the working parts of the machine are made to assume.

As shown in Fig. 1, the greatest width of the partition D is at its forward end, at which point its upper edge is curved, as at *k*, in such manner as to correspond with the curvature of the grain-stops, and so that when the shaker E is in the elevated position, as represented in said figure, the grain-stop L will have its face coincident with the curve *k*, while at the same time the grain-stop L' is de-

pressed and in contact with the correspondingly-depressed shaker E′. Thus, while the shakers are in the position just described, the straw P, Fig. 1, will in part be depressed with the shaker E′, and elevated with the shaker E over the partition-board D, and when the relative positions of the said shakers become changed, as shown in Fig. 3, the straw will be thrown into the reversed position, as indicated in last-named figure.

It will thus be seen that as the crank F is rotated, and with great speed, the straw is violently agitated with a movement longitudinal of the machine, at the same time that is thrown crosswise of the machine over the partition D, and upon the shakers E and E′, as they alternately become elevated and depressed. The grain is thus thoroughly separated from the straw, and passes through the perforations in the shakers into any proper receptacle beneath.

It will be evident that my invention may be applied in place of the ordinary straw-carrier and separator-apron, as used with combined thrashers and separators, or that it may be used as an attachment to a common thrashing-machine.

It is also apparent that more than two shakers, and more than one partition, D, might be used for the purpose specified.

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

Subjecting the straw to a longitudinal and a lateral undulating motion along and across a stationary partition, by means of a vibrating apron made in two or more sections, and operated substantially as set forth.

Witness my hand in the matter of my application for a patent for a grain separator this 19th day of November, A. D. 1862.

ALEXANDER MAJOR.

Witnesses:

GUSTAVE DIETERICH,

D. C. LAWRENCE.