

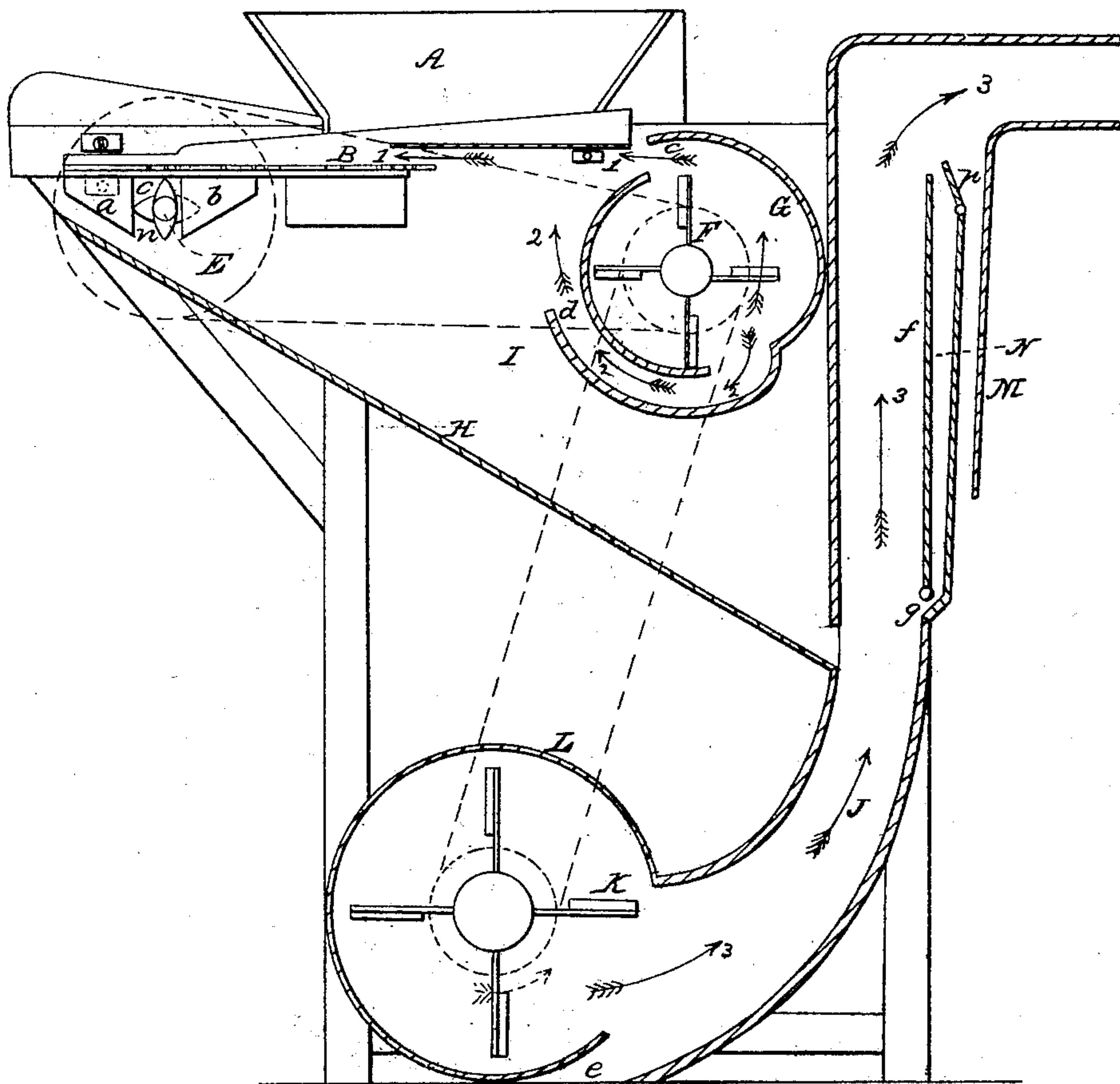
MACKEY & SMITH.

Grain Winnower.

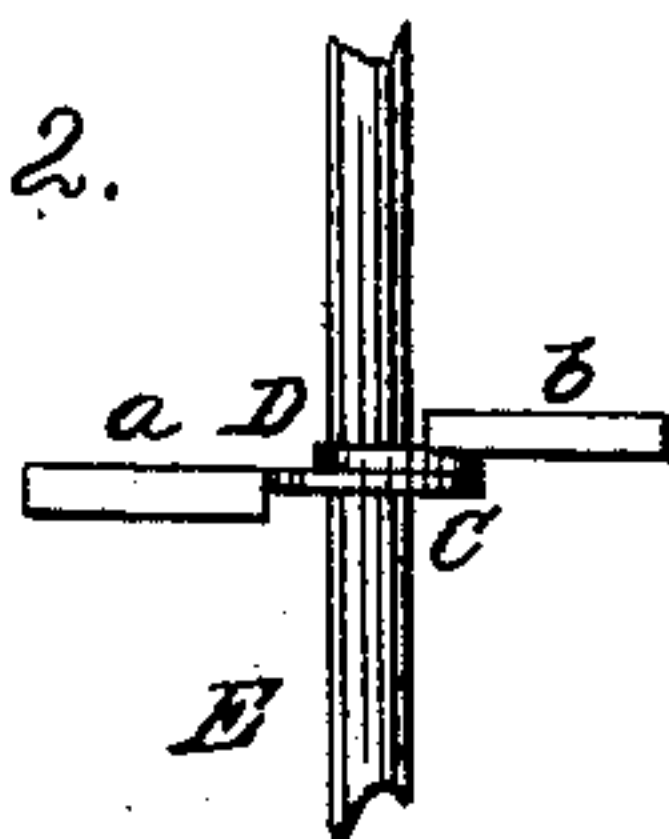
No. 10,155.

Patented Oct. 25, 1853.

*Fig. 1.*



*Fig. 2.*



# UNITED STATES PATENT OFFICE.

D. S. MACKEY AND J. R. SMITH, OF BATAVIA, NEW YORK.

## WINNOWER.

Specification of Letters Patent No. 10,155, dated October 25, 1853.

*To all whom it may concern:*

Be it known that we, DAVID S. MACKEY and JARVIS R. SMITH, of Batavia, in the county of Genesee and State of New York, have invented certain new and useful Improvements in Grain-Separators; and we do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1, is a longitudinal vertical section of the separator, taken through the center. Fig. 2, is a section showing the eccentrics and blocks by which the screen is operated.

Similar letters of reference indicate corresponding parts, in each of the two figures.

The nature of our invention consists:—

1st. In a peculiar manner of operating the screen, viz, by means of two eccentrics working between blocks attached to the under side of the screen.

2d. Our invention consists in having two blasts proceed from a single fan; said blasts crossing each other, and being so arranged that the grain is subjected to one of the blasts before passing through the screen, while the other blast prevents the screen from being clogged with chaff and other matter.

To enable others skilled in the art to make and use our invention, we will now proceed to describe its construction and operation.

A, represents the hopper, in which the grain is placed.

B, is the screen, on which the grain falls from the hopper.

The screen is sufficiently coarse to allow the grain to pass through it, but will prevent coarser articles. These coarser articles fall off the screen at its outer and depressed end; the screen being somewhat inclined. The screen has a vibrating motion communicated to it, by means of two eccentrics, C, and D, which are placed on a shaft, E, underneath the front end of the screen. These two eccentrics work between two blocks, (a), (b), attached to the under side of the screen; as seen in both figures. The eccentrics are of elliptical form, and each one acts against a block; the eccentric, C, working against the block, (a), and the eccentric, D, against the block, (b). The eccentric, C, when it acts against the block, (a), throws the screen forward; and the eccentric, D, when it acts against the block, (b), throws

the screen backward. Now, as the eccentrics are placed in a reverse manner upon the shaft, E, it naturally follows that the screen will have a reciprocating motion communicated to it.

F, is a fan, placed in a box, G. The box and fan are placed underneath the back part of the screen, or screen frame. The box, G, is provided with two apertures, (c), (d); the aperture, (c), being at the upper part of the box, and the aperture, (d), at the lower part. The box, G, is of an irregular circular shape, so that two blasts may be obtained from the same fan. This will be understood by referring to Fig. 1. The fan rotates in the direction indicated by the dotted arrow; and the arrow, No. 1, shows the direction of the upper blast, and the arrows, 2, the direction of the lower blast. The upper blast passes over the top of the screen, and carries off the chaff and other light particles; while the lower blast passes upward through the screen, and prevents the chaff from settling upon the screen, and thereby prevents the said screen from being clogged. The two blasts therefore cross or intersect each other.

The grain, after passing through the screen, falls upon the inclined plane, H; which forms the bottom of the box, I, which incloses the fan-box. This inclined bottom or plane, H, conveys the grain into a blast spout, J, at the lower end of which is placed a fan, K, inclosed in a suitable box, L. The fan, K, rotates in the direction indicated by the dotted arrow; and the arrows, 3, show the direction of the blast. The grain passes down the blast spout, J, and out at the aperture, (e), at the bottom of the blast spouts; the blast forcing all light matter upward and out of the upper end of the blast spout.

In the upper part of the blast spout, there is a partition, (f), the lower end of which does not quite touch the outer side of the spout, but leaves a small passage, as seen at, (g). The outer side of the spout is provided with a small valve, (h), by which the opening, N, between the partition, (f), and outer side of the spout, may be made larger or smaller, as desired.

The light screenings which possess too much gravity to be blown out at the end of the spout, J, fall through the passage, M, upon the floor; while the heavier screenings fall into the opening, N, and pass through



the passage, (*g*), into the blast spout, and are thus subjected a second time to the blast.

By regulating the valve, (*h*), all but the heavier screenings are prevented from entering the passage, N.

Thus by the foregoing improvement, the grain is perfectly separated, the screen prevented from clogging, and a reciprocating motion is given to the screen, by an extremely simple device, attended with very little friction.

Having thus described our invention, what we claim as new, and desire to secure by Letters-Patent, is,—

15 1. The peculiar manner of operating the screen, viz, by means of the eccentrics, C, D,

placed in a reverse manner upon the shaft, E; said eccentrics working between the blocks, (*a*), (*b*), attached to the under side of the screen, as shown and described. 20

2. We claim producing two blasts from a single fan, as shown, and having the two blasts cross or intersect each other, by which, a blast passes horizontally over the top of the screen, and a blast also passes upward 25 through the screen, preventing the screen from being clogged or choked by the chaff.

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Witnesses:

A. LEONARD,  
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