B. T. TRIMMER.

Grain Separator.

No. 45,772. Patented Jan. 3, 1865.

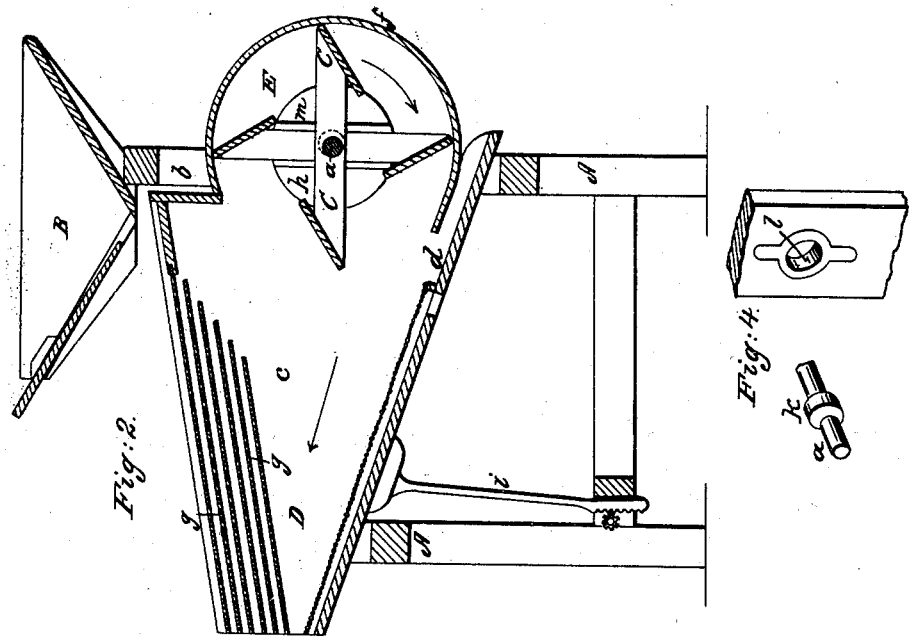

Fig: 2.

Fig: 4.

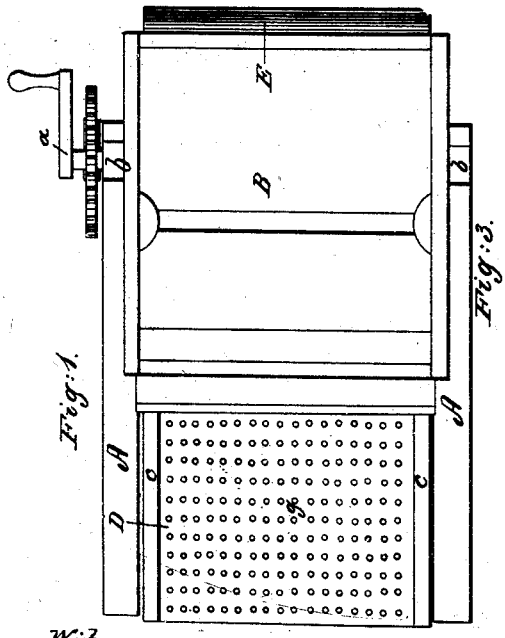

Fig: 1.

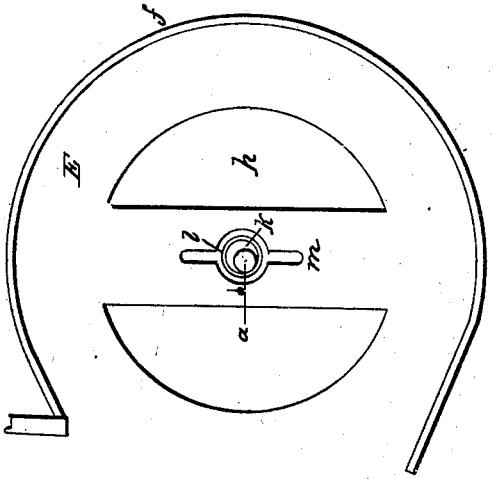

Fig: 3.

Witnesses:

J. S. Judson

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UNITED STATES PATENT OFFICE.

B. T. TRIMMER, OF ROCHESTER, NEW YORK.

IMPROVEMENT IN GRAIN-SEPARATORS.

Specification forming part of Letters Patent No. **45,772**, dated January 3, 1865.

To all whom it may concern:

Be it known that I, B. T. TRIMMER, of Rochester, in the county of Monroe and State of New York, have invented a new and useful Improvement in Grain-Separators; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making part of this specification.

Figure 1 is a plan of my improved machine; Fig. 2, a central longitudinal vertical section thereof; Fig. 3, a side elevation of a portion of the fan-case and shoe, showing more particularly the method of shaking the same; Fig. 4, a perspective view of the devices employed for shaking the shoe.

Like letters of reference indicate corresponding parts in all the figures.

In ordinary grain-separators and fanning-mills the outer casing, (containing the fan and forming the sides of the machine) and the shoe (for sustaining the screens) are made separate and distinct, the shoe resting within the casing and having an independent shake motion given it by suitable mechanical means.

My invention consists in forming the shoe and the fan-case in one body, and sustaining the same on the fan-shaft, and giving the whole a proper shake motion by means of cams on the fan-shaft, that operate in proper sockets or bearings secured to the sides of the case.

As represented in the drawings, A is a suitable frame for sustaining the parts; B, a grain-hopper, placed at a proper position to discharge the grain on the screens; and C, an ordinary revolving fan, whose shaft *a* rests in posts *b b* of the frame, or some equivalent bearings. Instead of casing the sides of the mill and fan chamber, and hanging a separate and independent shoe within it, as usual, I dispense with the outer casing, and form the shoe proper, D, and fan case E in one body, composed essentially of the two sides *c c*, closed bottom or floor *d*, and circular drum *f*, forming the fan-chamber. Where the machine is to be employed simply for cleaning or separating grain after it has been winnowed, I prefer to employ a set of zinc or metallic screens, *g g g*; but where chaffing or winnowing is to be done wire-mesh screens may be employed in their place. The fan-chamber is provided on each side with the ordinary air-openings, *h h*, to supply the blast.

I prefer to sustain the shoe in the rear by a spring-support, *i*, which gives the necessary reaction to the shoe as it is vibrated, and, if necessary, the support may be made to adjust higher or lower by any desirable means, so to change the angle of the screens at pleasure; but instead of this support, the ordinary pendants or suspension-rods be employed, if desired, or any other device that will sustain the shoe.

At the opposite or front end the fan-case is simply centrally suspended on the fan-shaft *a*, which at opposite ends is provided with circular cams *k k*, Figs. 3 and 4, or equivalent cranks, resting in sockets or bearings *l l* of cross-pieces *m m*. By this means not only is the fan-case sustained, but as the fan is revolved it is obvious that the cams *k* vibrate the shoe up and down and forward and back, thus giving a most efficient agitation to the grain that falls on the screens.

The advantage of this arrangement is so manifest as scarcely to require mention. I save the great expense of casing the mill and forming an independent shoe, which is as difficult to form as the corresponding combined device in my machine. I also save the complicated mechanical arrangement for imparting the shake motion to the shoe, and put the machine in the most compact form for transportation and use. There are fewer parts to become disarranged, and if disarranged the device is more easily put in order than ordinary mills. The universal motion or vibration imparted by the cams is much more effective than the simple forward and back motion of ordinary screens, since the grain is more thoroughly and uniformly distributed over the screens.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. Combining the shoe D and fan-case E in one body, thereby dispensing with an outer casing, substantially as herein set forth.

2. Supporting the shoe D and fan-case E, combined in one body, on the fan-shaft *a* by means of the cams or cranks *k*, and in such a manner as to impart a universal vibration, substantially as herein specified.

B. T. TRIMMER.

Witnesses:
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J. L. JUDSON.