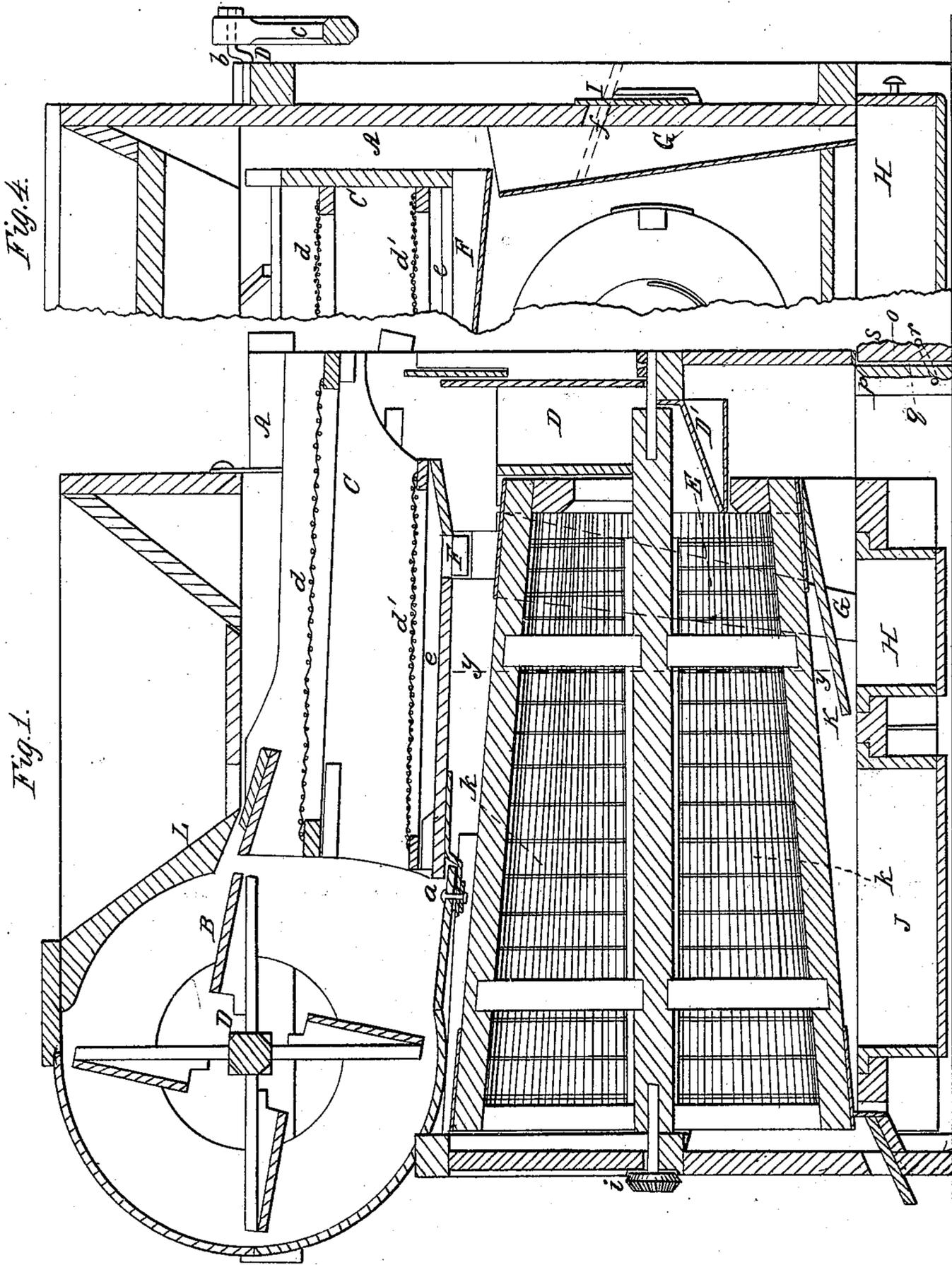


J. A. & J. W. MILLER.

Grain Separator.

No. 40,767.

Patented Dec. 1, 1863.



Witnesses:
J. W. Coombs
G. W. Reed

Inventors:
J. A. Miller
J. W. Miller
per Messrs H. C. attorneys

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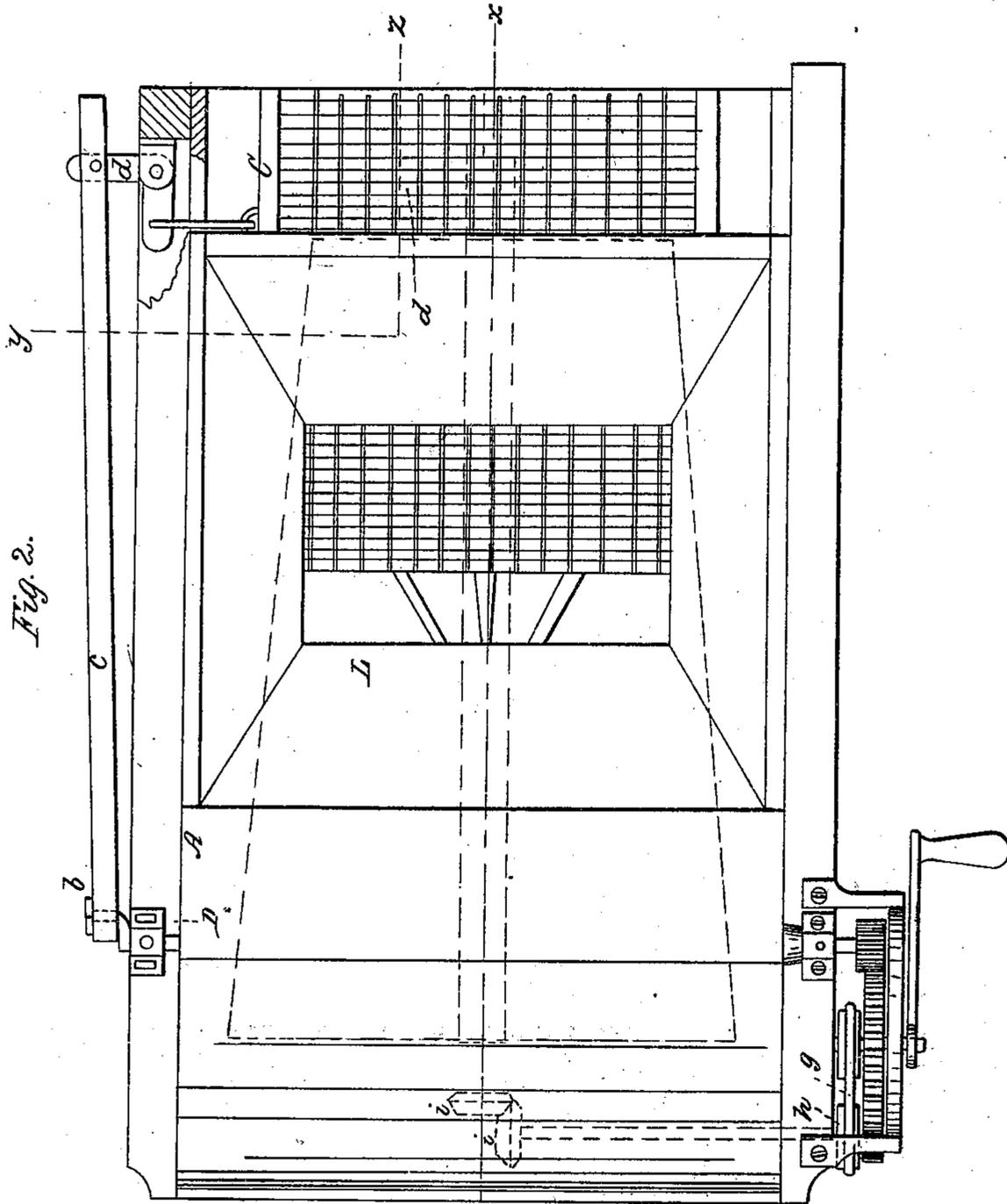


Fig. 2.

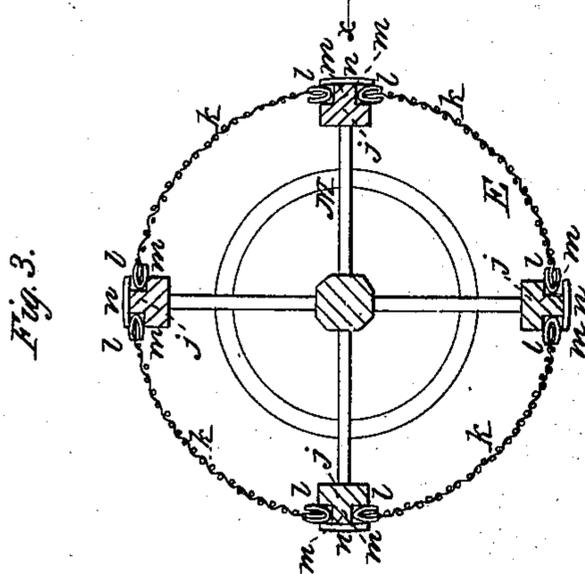


Fig. 3.

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UNITED STATES PATENT OFFICE.

J. A. MILLER AND J. W. MILLER, OF LA GRANGE, INDIANA.

IMPROVEMENT IN GRAIN-SEPARATORS.

Specification forming part of Letters Patent No. 40,767, dated December 1, 1863.

To all whom it may concern:

Be it known that we, J. A. MILLER and J. W. MILLER, of La Grange, in the county of La Grange and State of Indiana, have invented a new and Improved Grain-Separator; and we do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a side sectional view of our invention, taken in the line *xx*, Fig. 2; Fig. 2, a plan or top view of the same; Fig. 3, a transverse section of the revolving screen, taken in the line *yy*, Fig. 1; Fig. 4, a transverse section of a portion of the same, taken in the line *zz*, Fig. 2.

Similar letters of reference indicate corresponding parts in the several figures.

This invention consists in the employment or use of a shoe provided with screens and used in connection with a rotary conical screen, fan, and grain-passages, all being arranged in such a manner as to admit of the device being very readily adapted for operating upon different kinds of grain.

The invention also consists in a novel construction of the rotary conical screen, whereby the same may be readily changed from fine to coarse, and vice versa, as circumstances may require.

To enable those skilled in the art to fully understand and construct our invention, we will proceed to describe it.

A represents a box or case, which contains the working parts of our invention, and B represents a rotary fan, which is placed in the upper part of the box or case, just behind a shoe, C, in the upper part of the box or case. This shoe C is secured at its back end in the box or case by a pivot, *a*, and a shake-motion is communicated to it from the fan-shaft D by the usual means—to wit, a crank, *b*, pitman *c*, and bent lever *d*, as shown in Fig. 2. The shoe C has two screens, *dd'*, placed in it, the upper one, *d*, projecting beyond the lower one, *d'*, so that its offal will be discharged out of the box or case A, and the grain which cannot pass through the lower screen, *d'*, is discharged into a spout, D, and conveyed thereby into a concave chute, D', which conducts said grain into the small end of a revolving conical screen, E, as shown in Fig. 1. The bottom board, *e*, of

the shoe C has a spout, F, attached to it transversely near its front end. This spout extends entirely across the bottom board, *e*, and extends over (at one end) an upright or slightly-inclined spout, G, attached to the inner side of the box or case A, said spout leading down into a drawer, H, which is underneath the conical screen E, near its small end.

In the side of the box or case A there is made an opening, *f*, which communicates with the upright spout G. This opening, when not designed to be used, is covered by a slide, I.

J is a drawer which is underneath the conical screen E near its large end, and K is an inclined board or chute which conducts the substance that passes through the screen E over the drawer H into the drawer J.

The conical screen E is driven from the fan-shaft D by means of a belt, *g*, shaft *h*, and bevel-gears *i*. (See dotted lines in Fig. 2.)

On the top of the box or case A there is placed a hopper, L, into which the grain to be cleaned or operated upon is placed, and from which it passes down on the upper screen, *d*, of the shoe C, and is subjected to a blast from the fan B. The coarse foreign substances which cannot pass through the screen *d* are discharged from its outer end and out from the box or case A, while the grain which passes through said screen falls upon the lower screen, *d'*. The sound or good grain is discharged from the outer end of screen *d'*, and is conducted by the spout D into the concave chute D', which conducts it into the conical screen E, the small foreign substances and inferior grain passing into the drawer J, and the good or sound grain discharged from the large end of the screen E. The fine foreign substances—such as cockle, &c.—pass through the lower screen, *d'*, in the shoe C, and are conducted by the spout F into the spout G, which conveys it to the drawer H.

In certain cases a different separation of the grain from that just described may be required, as follows: The lower screen, *d'*, in the shoe C is removed and the slide I drawn out or taken from over the opening *f* in the side of the box or case A. This slide is then inserted in said opening and shoved into the spout G, so as to extend obliquely across it and cut off the communication with the drawer H, (see Fig. 4,) in which this adjustment of the slide is shown in red. By this arrangement

the substance—such as grass-seed, &c.—which passes through the upper screen, *d*, will be discharged directly from the side of the machine.

Different-sized screens may be used in the shoe C, according to the nature of the work required to be performed, and the conical screen E is so constructed that it may be changed from fine to coarse, and vice versa, with the greatest facility. This is effected as follows: A conical frame, M, is constructed with longitudinal bars *j*, (four, more or less,) to which sectional screens *k* are attached. These screens *k* have their edges fitted in metal strips *l*, which are bent so as to clamp the screens *k* at both sides, as shown in Fig. 3. The metal strips *l* extend the whole length of the screens, and they are fitted in rabbets, *m*, made in the sides of the bars *j*. Each bar *j* has a metal plate, *n*, attached to it at each end, said plates fitting over the ends of the metal strips *l* of each screen *k*, and retaining it in proper position. By this arrangement the screens *k* may be readily withdrawn from the frame M, and those of different sizes, finer or coarser, used as required.

The box or case A may be placed or adjusted in a horizontal or a more or less inclined position, as required, by means of adjustable supplemental legs *o*, which are affixed to the lower ends of the legs *p* at one end of the machine. These legs are fitted in grooves *q*, made longitudinally in the lower ends of the

legs *p*, the legs *o* being allowed to slide in the grooves *q* and secured therein at any desired point by a pawl, *r*, which catches into racks *s* on the legs *o*. By this means the box or case may, with the greatest facility, be adjusted in a horizontal position, or more or less inclined, so as to regulate the position of the screens and the passage of the grain over them, as may be required.

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

i. Constructing the revolving conical screen E with sectional removable or detachable screens *k*, arranged as described, so as to admit of coarser or finer screens being applied or used, as occasion may require.

2. The combination and arrangement of the shoe C, fan B, spout D, concave chute D', and revolving screen E, as and for the purpose set forth.

3. The spout F at the bottom of the shoe C, in combination with the spout G, opening *f* in the side of the box or case A, slide I, and drawer H, or other receptacle, all arranged as and for the purpose set forth.

JOHN A. MILLER.
JOHN W. MILLER.

Witnesses:

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S. K. RUICK.