2 Sheets—Sheet 1.

R. J. SKINNER.
Middlings-Separator.

No. 218,583. Patented Aug. 12, 1879.

Fig. 1

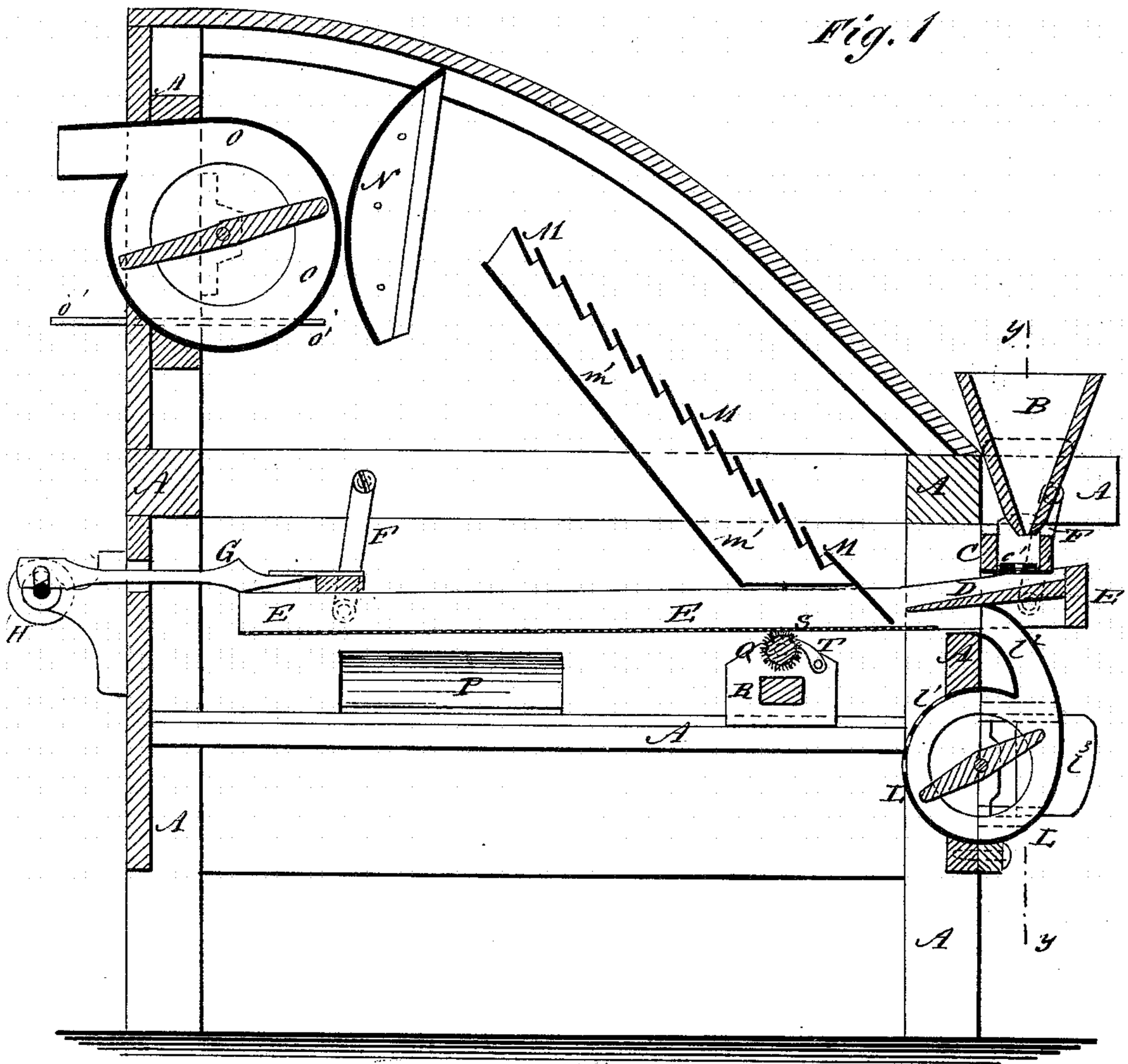
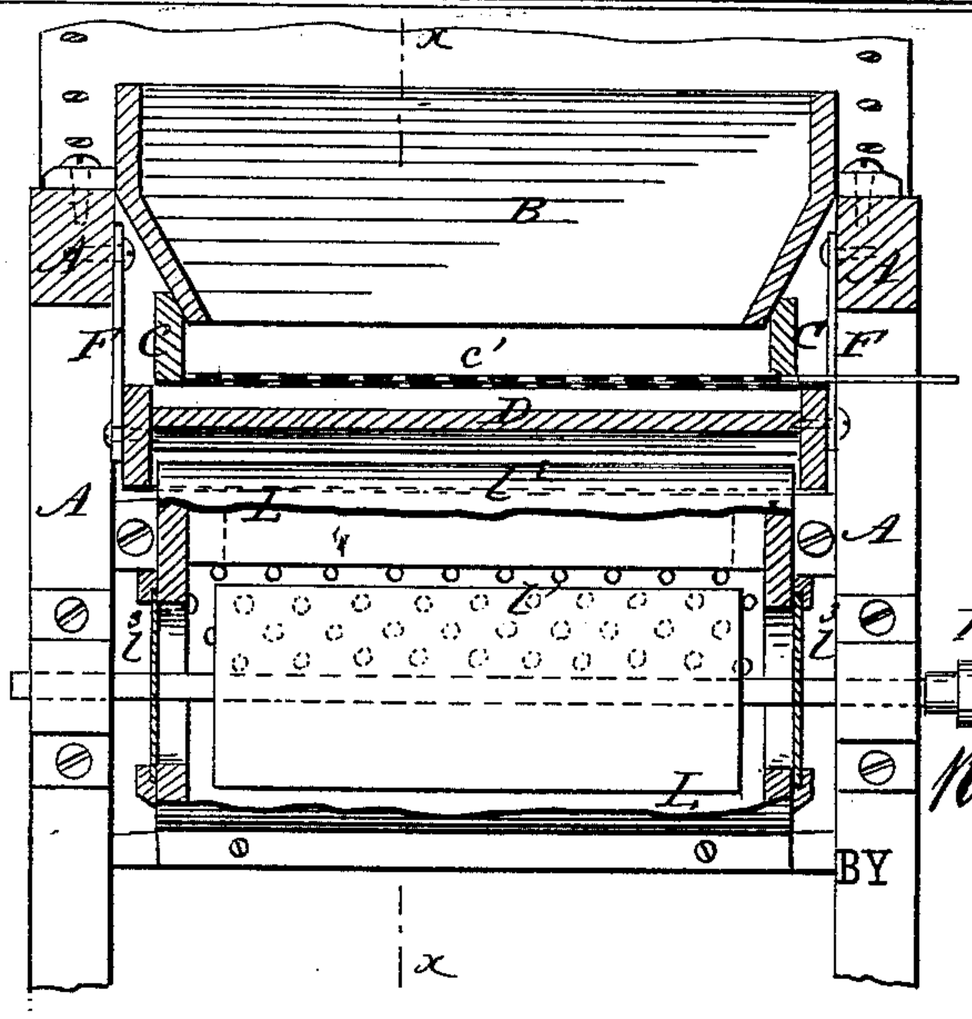


Fig. 2



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2 Sheets—Sheet 2

R. J. SKINNER.
Middlings-Separator.

No. 218,583. **Patented Aug. 12, 1879.**

Fig. 3

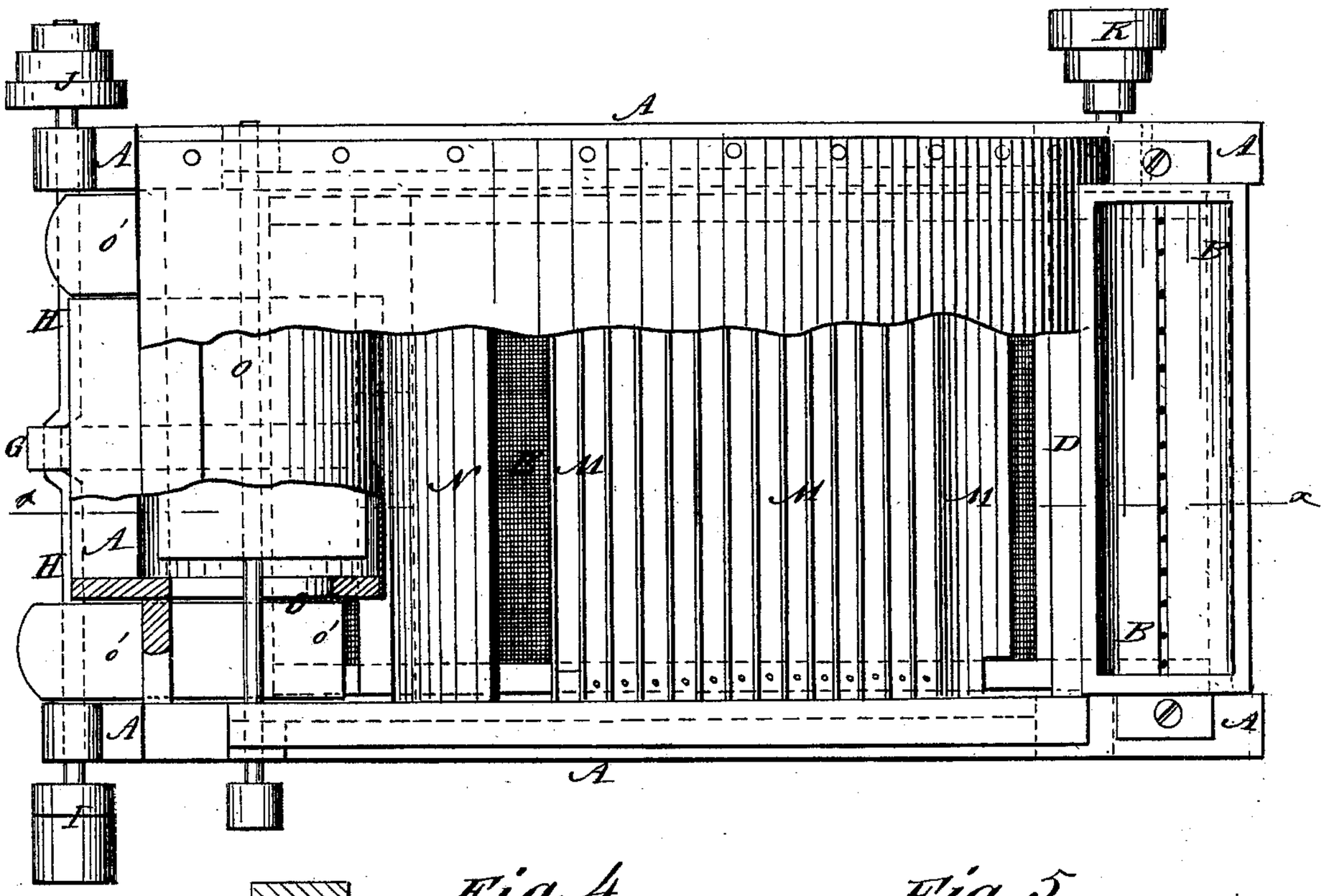


Fig. 4

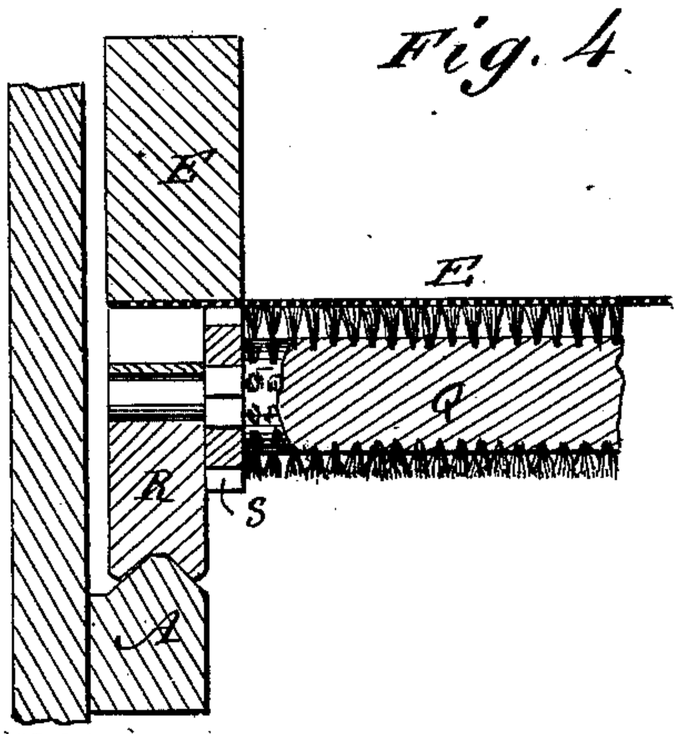
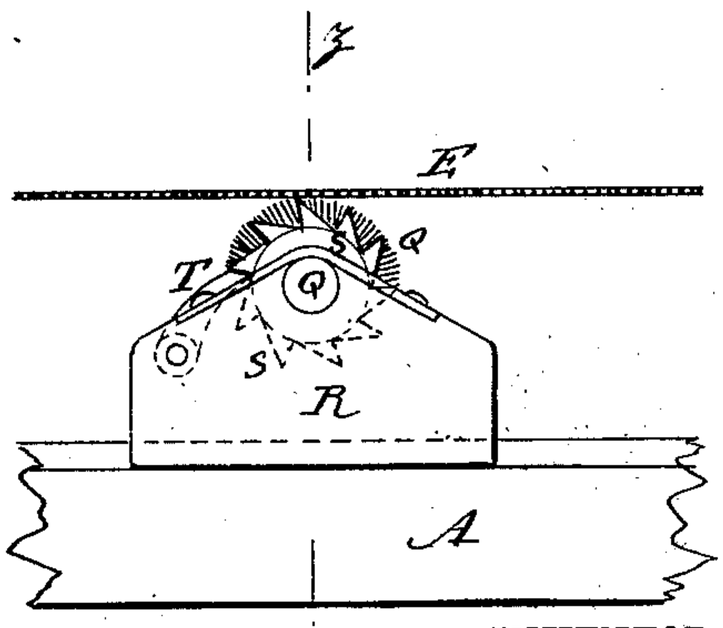


Fig. 5



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UNITED STATES PATENT OFFICE.

RICHARD J. SKINNER, OF OSWEGO, NEW YORK.

IMPROVEMENT IN MIDDLINGS-SEPARATORS.

Specification forming part of Letters Patent No. **218,583,** dated August 12, 1879; application filed December 9, 1878.

To all whom it may concern:

Be it known that I, RICHARD J. SKINNER, of Oswego, in the county of Oswego and State of New York, have invented a new and useful Improvement in Middlings-Separators, of which the following is a specification.

Figure 1, Sheet 1, is a vertical longitudinal section of my improved machine, taken through the line *x x*, Figs. 2 and 3. Fig. 2, Sheet 1, is a vertical cross-section of the same, taken through the line *y y*, Fig. 1. Fig. 3, Sheet 2, is a top view of the same, partly in section to show the construction. Fig. 4, Sheet 2, is a detail section of the brush and its sliding block, taken through the line *z z*, Fig. 5. Fig. 5, Sheet 2, is a detail view of the brush and its sliding block.

Similar letters of reference indicate corresponding parts.

The object of this invention is to furnish an improved middlings-purifier which shall be simple in construction and effective in operation, doing its work rapidly and thoroughly.

The invention will first be described in connection with the drawings, and then pointed out in the claims.

A represents the frame of the machine, which is inclosed at its sides and ends, and the top of which is made in the form of a half-arch, as shown in Fig. 1.

The middlings are fed into the hopper B, which is made long and narrow, and V-shaped in its cross-section, and has a long narrow opening in its bottom.

The hopper B is placed in the feed-box C, which is made with a perforated bottom, and is provided with a sliding false bottom, *c'*. The sliding bottom *c'* is perforated to correspond with the perforation of the true bottom, so that the size of the discharge-openings may be regulated by adjusting the said sliding bottom *c'*.

From the feed-box C the middlings fall upon the inclined feed-board D, which is attached to the forward part of the frame of the screen E. The screen E is provided with a bolt-cloth in the usual way. The screen E is suspended from the frame A by pivoted straps F in the usual way.

To a cross-bar attached to the frame of the screen E is attached the inner end of a connecting-bar, G, the outer end of which is pivoted to a cam or crank of a shaft, H. The shaft H revolves in bearings attached to the frame A, and has pulleys I attached to one end to receive the driving-belt.

To the other end of the shaft H is attached a cone-pulley, J, to receive a belt, which also passes around a cone-pulley, K, attached to the end of the shaft of the fan-blower L, secured to the front end of the frame A.

The fan-blower L is provided with discharge-perforations l^1 in the inner side of its case to direct a blast of air against the lower side of the forward part of the screen E.

The fan-blower L is also provided with a discharge-spout, e^2, upon its upper side to direct a blast of air between the forward end of the bolt-cloth of the screen E and the inner edge of the feed-board D to strike the middlings as they fall from the lower edge of the said feed-board D and drive them up the separator M.

The separator M is inclined at an angle of about forty-five degrees, (45°,) and is formed of a number of narrow strips of sheet metal or other suitable material, attached at their ends to side bars, having their adjacent edges overlapping each other with narrow openings between them.

The lower edge of the lowest strip is placed close to the screen-cloth, and at a little distance from the inner edge of the feed-board D, so that the blast, as it comes from the discharge-spout l^2, will be directed up the separator, carrying the middlings with it.

As the middlings pass up the separator the particles of middlings drop through the openings between the strips and fall down upon the forward part of the screen-cloth, while the specks, fuzz, and other light impurities pass over the upper end of the separator M with the blast, strike the curved shield or guide-board N, and are guided downward into the rear part of the machine, and are carried out by the exhaust-fan O into the dust-room.

To the rear edges of the side bars of the separator is attached a plate, *m'*, for the double purpose of guiding the particles of middlings to the forward part of the screen and to separate the blast and the exhaust from each other.

The force of the blast from the fan-blower L

is regulated by dampers l^3 in the ends of its case, and the force of the exhaust through the exhaust-fan O is regulated by dampers o', placed in the passages leading to the ends of its case.

In the sides of the casing of the machine, below the rear part of the screen E, are formed openings to admit air to pass up through the screen-cloth and out through the exhaust-fan O, and which are closed, or partially closed, by plates or doors P.

The screen-cloth is kept clean by a cylindrical brush, Q, formed by covering a roller with plush, velvet, carpeting, or other suitable material. The brush Q is pivoted to blocks R, which slide upon side bars of the frame A, and may be drawn back and forth by a belt or other suitable gearing, which gearing is not shown in the drawings.

To one end of the cylindrical brush Q is attached a ratchet-wheel, S, with the teeth of which engages a pawl, T, pivoted to one of the sliding blocks R, so that the said brush Q will rotate when moving in one direction, and will be held from rotating and caused to brush the screen cloth when moving in the other direction.

If desired, the brush Q may be rotated while moving in both directions.

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

1. The fan-blower L, provided with the discharge-perforations l^1 and spout l^2 in the case, in combination with the feed-board D, separator M, and screen E, as and for the purpose specified.

2. The combination of the cylindrical brush Q, the sliding blocks R, the ratchet-wheel S, and the pawl T with the screen E and the frame A, substantially as herein shown and described.

3. The combination of the inclined separator M, having back plate, m', the feed-board D, the double blast-fan blower L, the guide-board N, and the screen E, as shown and described.

RICHARD J. SKINNER.

Witnesses:

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JAS. KERNAN.