3 Sheets--Sheet 1.

S. CRITTENDEN & J. WATERS.

Middlings-Purifier.

No. 162,276. Patented April 20, 1875.

Fig. 1

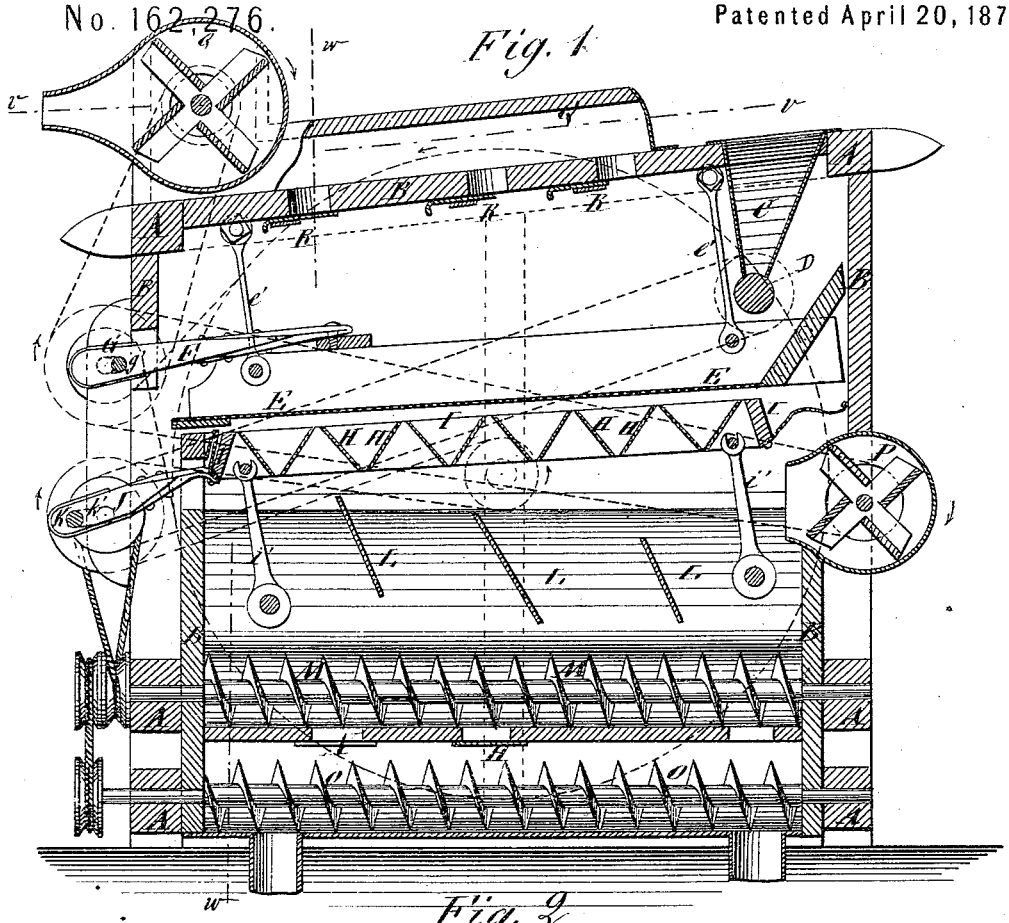
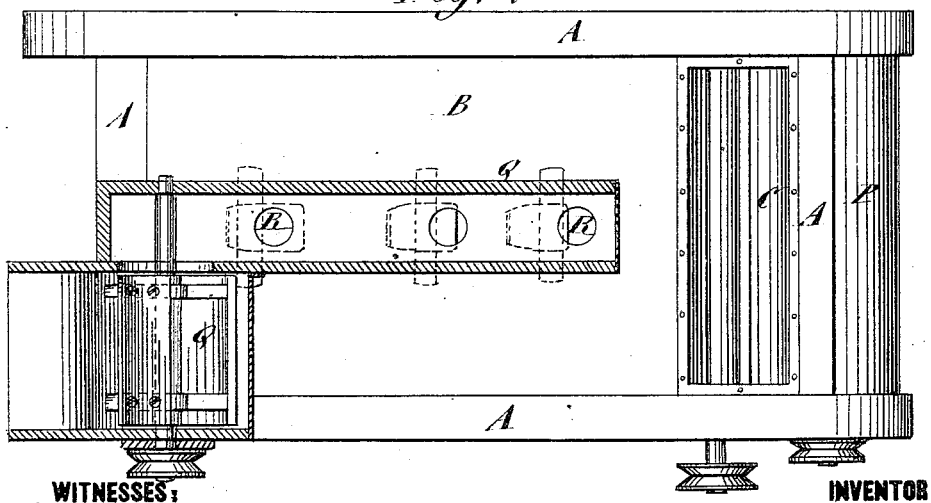


Fig. 2



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THE GRAPHIC CO. PHOTO-LITH. 39 & 41 PARK PLACE, N.Y.

3 Sheets--Sheet 2.

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Fig. 3

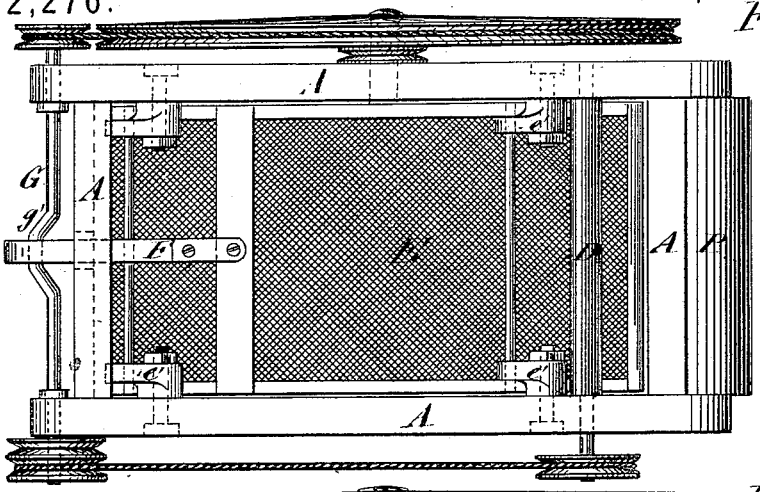

Fig. 4

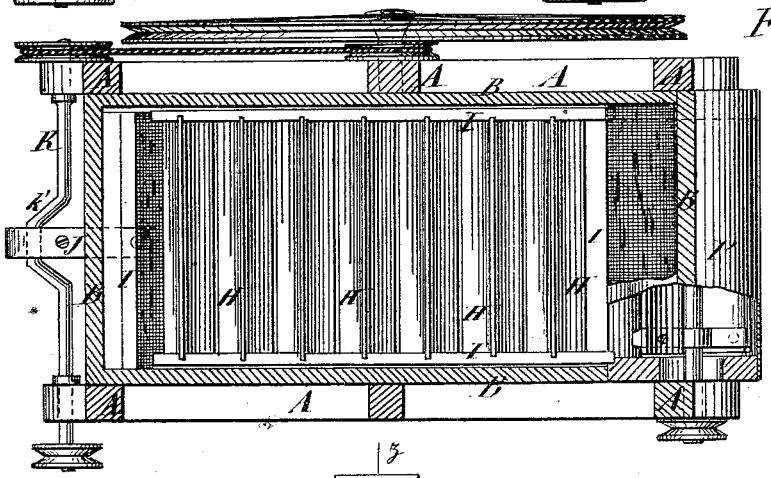

Fig. 5

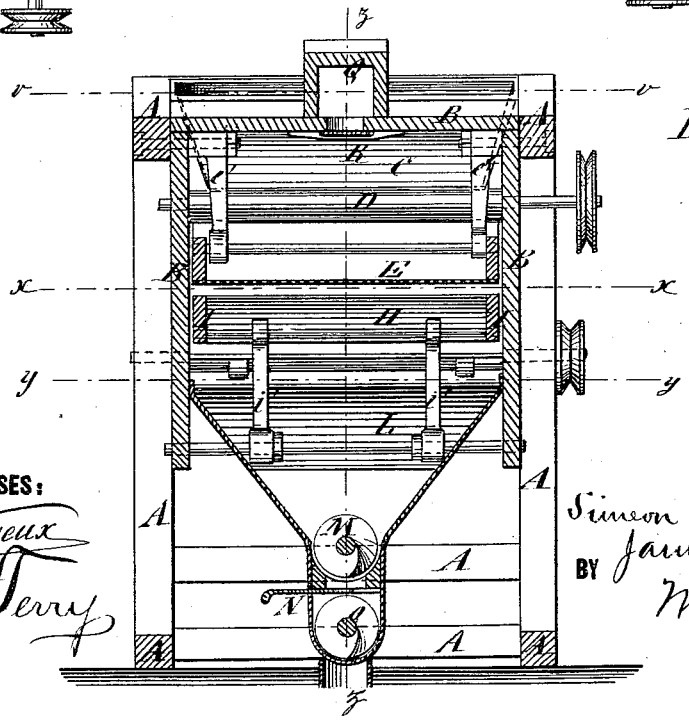

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Fig. 6

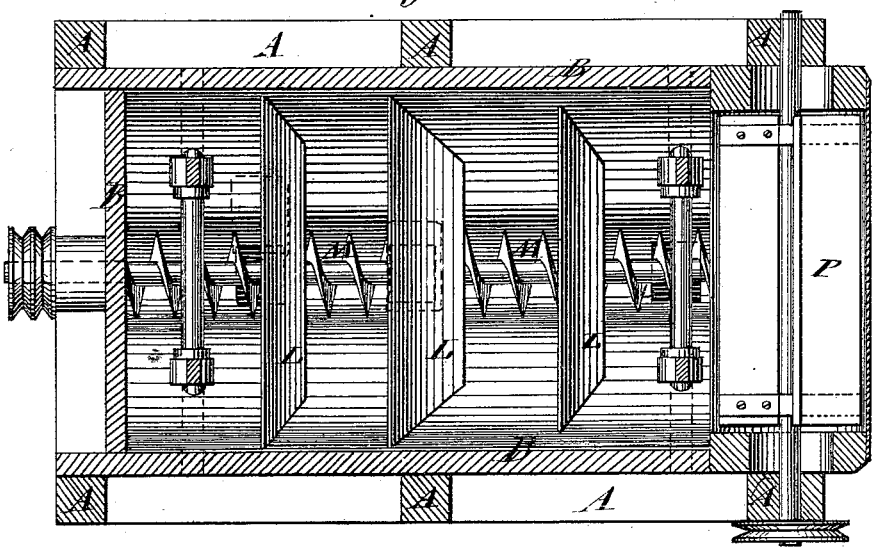
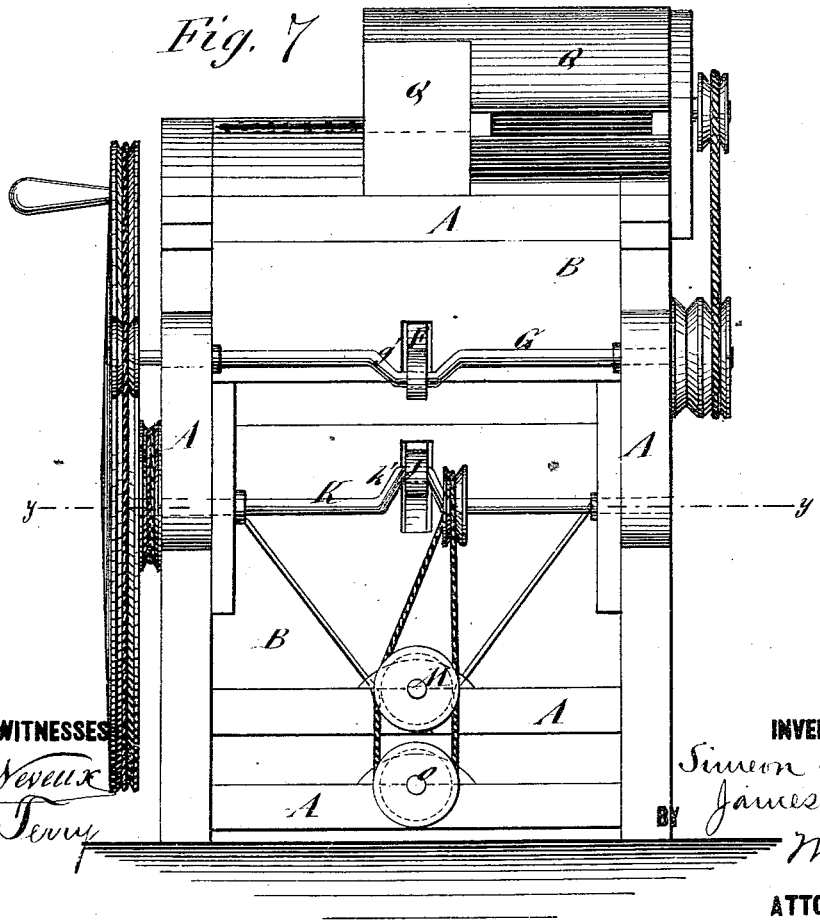


Fig. 7



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UNITED STATES PATENT OFFICE

SIMEON CRITTENDEN AND JAMES WATERS, OF CHATFIELD, MINNESOTA.

IMPROVEMENT IN MIDDLINGS-PURIFIERS.

Specification forming part of Letters Patent No. **162,276**, dated April 20, 1875; application filed March 1, 1875.

To all whom it may concern:

Be it known that we, SIMEON CRITTENDEN and JAMES WATERS, of Chatfield, in the county of Fillmore and State of Minnesota, have invented a new and useful Improvement in Middlings-Purifiers, of which the following is a specification:

Figure 1, Sheet 1, is a vertical longitudinal section of our improved machine, taken through the line *z z*, Fig. 5. Fig. 2, Sheet 2, is a top view of the same, partly in horizontal section, through the line *v v*, Figs. 1 and 5. Fig. 3, Sheet 2, is a top view of the same, the cover being removed. Fig. 4, Sheet 2, is a horizontal section of the same, taken through the line *x x*, Fig. 5. Fig. 5, Sheet 2, is a cross-section of the same, taken through the line *w w*, Fig. 1. Fig. 6, Sheet 3, is a horizontal section of the same, taken through the line *y y*, Figs. 5 and 7. Fig. 7, Sheet 3, is an end view of the same.

Similar letters of reference indicate corresponding parts.

The invention will first be fully described, and then pointed out in the claims.

A is the frame of the machine, to which is attached the casing B, by which the operating parts of the machine are inclosed. C is the hopper, into which the middlings to be operated upon are introduced, and which projects downward through a hole in the head part of the top of the casing B at the head of the machine. In the bottom of the hopper C is placed a roller, D, the journals of which revolve in bearings in the casing B, and one of them projects and has a pulley attached to it to receive the band by which the said roller is driven. The roller D is designed to distribute the middlings and feed them in a thin sheet to the bolt E, which is hung in a slightly-inclined position from the casing B by pivoted arms *e'*. The bolt E is agitated by a connecting-rod, F, pivoted to a crank, *g'*, formed upon a shaft, G, which revolves in bearings attached to the frame A, and has a pulley attached to one of its ends to receive the band by which it is driven. The bran escapes from the tail end of the bolt E, and the flour passes through the bolt-cloth and falls upon zigzag plates H, the ends of which are inserted in grooves in the side bars of the frame I. The frame I is supported by, and pivoted to, the upper ends of the arms *i'*, the lower ends of which are pivoted to the casing B. This arrangement of the supporting-arms *i* enables the frame I and plates H to be placed close to the bolt E. The grooves in the side bars of the frame I and the plates H are so formed as to leave narrow slits or openings between the upper and lower edges of the plates H. The frame I is agitated by a pitman, J, which is pivoted to a crank, *k'*, formed upon the shaft K, which revolves in bearings attached to the frame A, and has a pulley attached to one of its ends to receive the band by which it is driven. As the flour from the bolt E falls upon the plates H it slides down upon said plates, passes through the narrow slits between their lower edges, and falls into the upper carrier-trough. L are a number of plates placed between the zigzag plates H and the upper carrier-trough, and the ends of which are secured to the sides of the casing B. The lower edges of the plates L are inclined toward the head end of the machine to prevent the flour in its descent from passing toward the tail end of the machine. The upper edge of each successive plate L rises above the preceding plate from the head end of the machine toward its tail end, for the purpose hereinafter set forth. The flour is moved along the upper carrier-trough by a screw, M, swiveled to the frame A, and having a pulley attached to one end to receive the band by which it is driven. In the bottom of the upper carrier-trough are formed holes or openings leading into the lower carrier-trough, and which are provided with slides N, so that all or any of them can be fully or partly closed to regulate the grading of the flour. The flour is moved along the lower carrier-trough to the discharge-openings in the bottom of said trough by the screw O, swiveled to the frame of the machine, and having a pulley attached to one end to receive the band by which it is driven.

In the head end of the machine, between the zigzag plates H and the upper carrier-trough, is placed a fan-blower, P, the wind from which is discharged into the machine below the said zigzag plates H. The blast from the fan-blower P is directed upward by the inclined plates L, and is divided by the

graduated heights of said plates L, so as to be about equally distributed from one end of the machine to the other. The blast passes into the angular spaces between the plates H, and passes up between the upper edges of the said plates H, so as to strike the bolt-cloth in sharp jets, and so as to be distributed evenly over said bolt-cloth, to blow off the dust and specks that would otherwise pass through the said bolt-cloth with the flour, and thus lower its grade.

Upon or above the top of the case B is placed a suction-fan, Q, the air or suction chamber of which extends along the top of the casing B, and has a number of holes leading from it through the said top of the casing, which holes are provided with slides R, so that any or all of said holes may be partially or wholly closed to enable the suction to be regulated and controlled, as desired.

By this construction the dust and specks raised from the bolt-cloth by the blast from the fan-blower P can be drawn out and disposed of, as may be desired, and the suction may be made to act straight over any desired part of the said bolt-cloth.

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

1. The combination of the vibrating frame I and the zigzag plates H, having narrow openings between their top and bottom edges, with the fan-blower P and the bolt E, substantially as herein shown and described.

2. The series of graduated plates L, in combination with the fan-blower P, the frame and plates I H, and the bolt E, substantially as herein shown and described.

SIMEON CRITTENDEN.
JAMES WATERS.

Witnesses:
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