2 Sheets—Sheet 1.

E. DOLMAN.

MIDDLINGS SEPARATOR.

No. 188,870. Patented March 27, 1877.

Fig. 1.

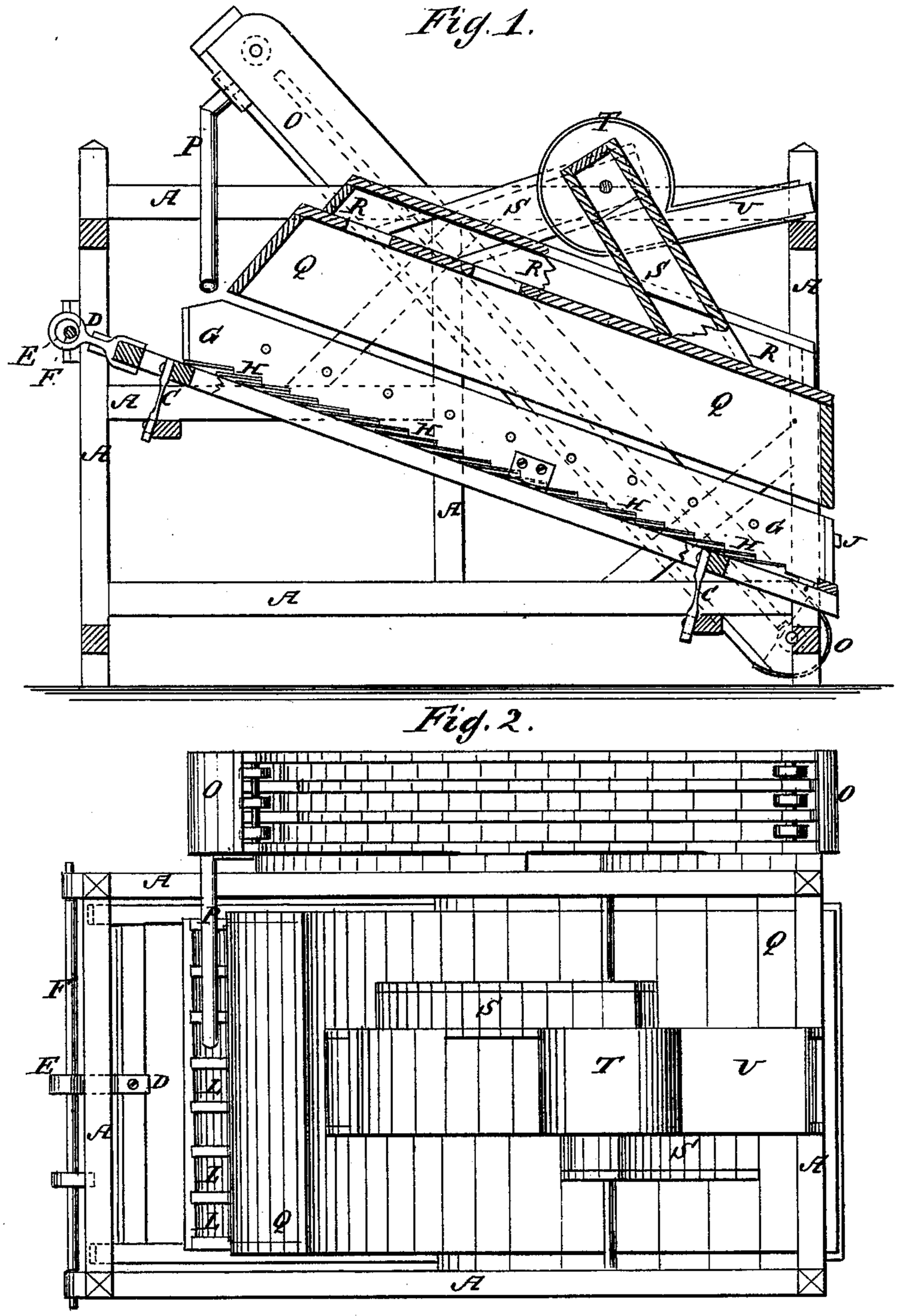

Fig. 2.

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2 Sheets—Sheet 2.

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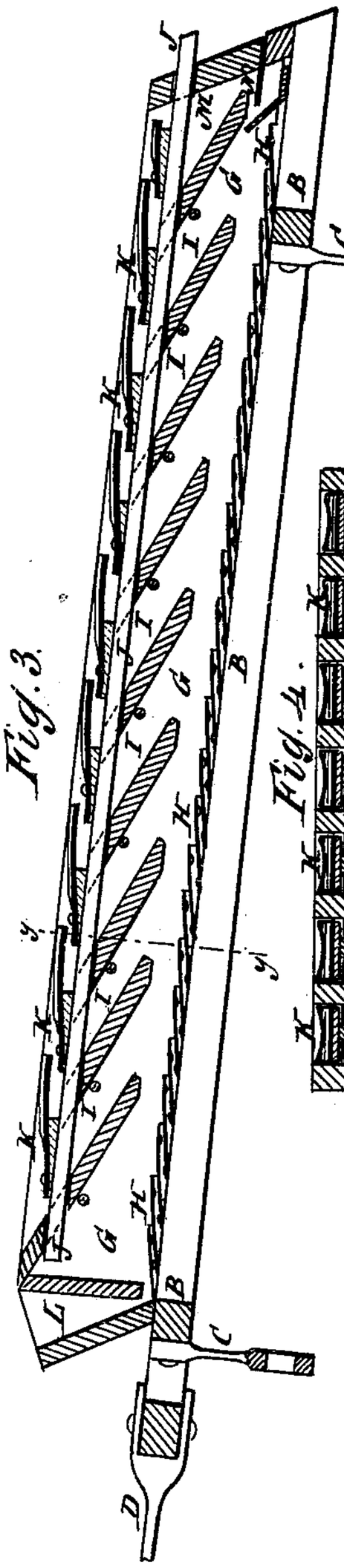

Fig. 3.

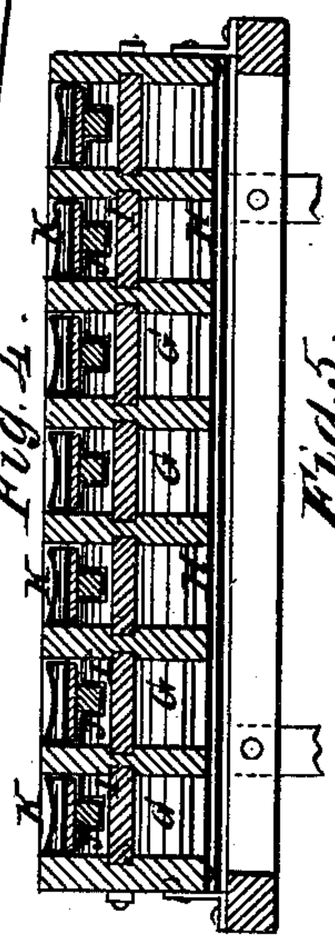

Fig. 4.

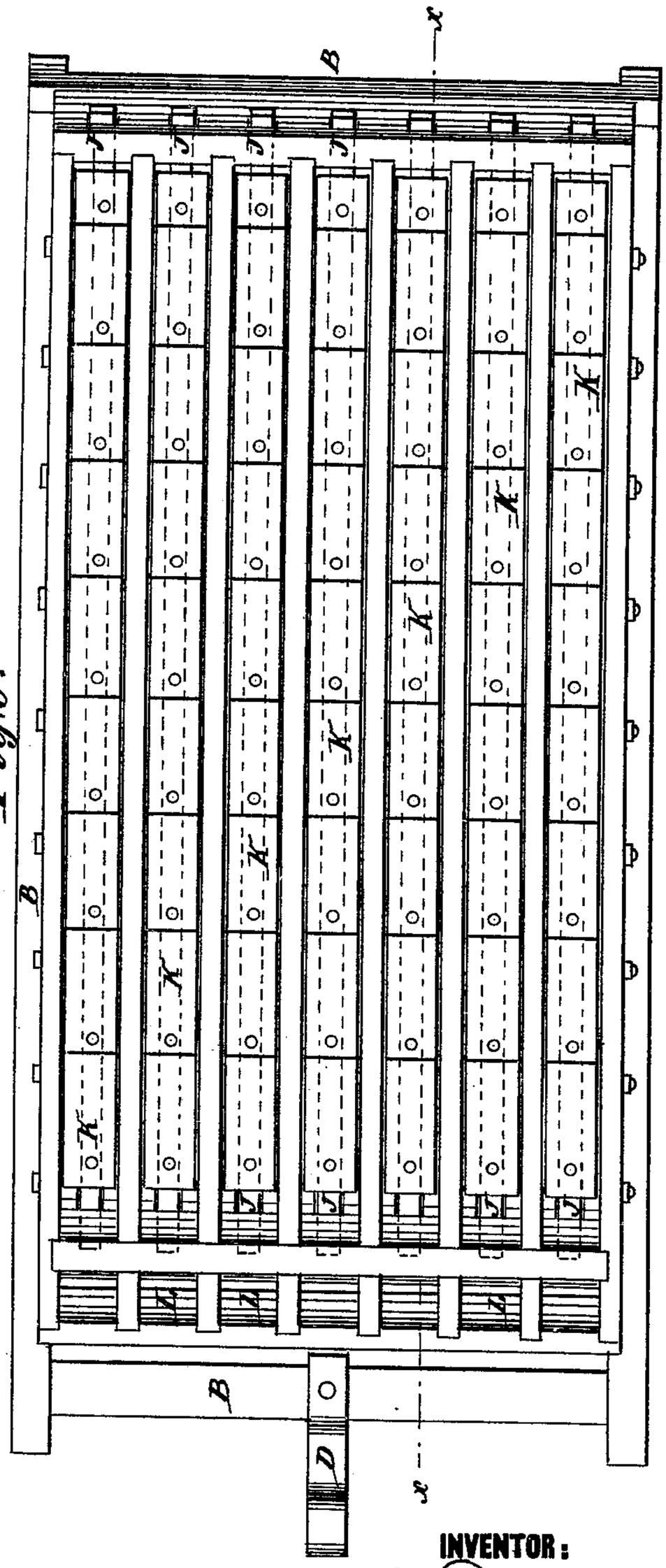

Fig. 5.

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UNITED STATES PATENT OFFICE.

EDWARD DOLMAN, OF WESTVILLE, INDIANA.

IMPROVEMENT IN MIDDLINGS-SEPARATORS.

Specification forming part of Letters Patent No. **188,870**, dated March 27, 1877; application filed January 19, 1877.

To all whom it may concern:

Be it known that I, EDWARD DOLMAN, of Westville, in the county of La Porte and State of Indiana, 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 my improved machine. Fig. 2, Sheet 1, is a top view of the same. Fig. 3, Sheet 2, is a vertical longitudinal section of the system of vibrating tubes, taken through the line *x x*, Fig. 5. Fig. 4, Sheet 2, is a cross-section of the same, taken through the line *y y*, Fig. 3. Fig. 5, Sheet 2, is a top view of the same.

Similar letters of reference indicate corresponding parts.

The object of this invention is to furnish an improved apparatus for purifying middlings, 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 drawing, and then pointed out in the claims.

A represents the frame of the machine. B is a frame which is placed in an inclined position in the frame A, and is supported by spring-bars C attached to it and to the said frame A. The upper end of the inclined frame B is connected by a spring-bar, D, with a cam, E, attached to the shaft F, which revolves in bearings attached to the frame A, and is driven from the power that drives the mill. To the inclined vibrating frame B are attached seven, more or less, tubes, G, the bottoms of which are formed of narrow plates H. The plates H are attached to the lower edges of the side and partition boards of the tubes G, with the lower edge of each upper plate overlapping the upper edge of the next lower plate, so that the air drawn in between the said plates H may enter the tubes G in the same direction in which the middlings are moving through said tubes G. In the upper part of the tubes G are secured parallel inclined boards, forming upwardly-inclined tubes I. In the upper edges of the boards that form the tubes I are formed notches to receive the bars J, to which are attached the valves K, so that by adjusting the bars J the valves K may be adjusted to close the upper ends of the tubes I to any desired extent to regulate the currents of air passing up through the said tubes I. The valves K are so formed that the lower part of each upper valve may overlap the upper part of the next lower valve.

By this construction the air will enter the tubes G through the spaces between the plates H, will pass through the middlings, and will pass out between the valves K in numerous thin sheets. The upper sides of the valves K serve for the second-grade middlings that may be carried out from the tubes G to slide down upon. At the upper ends of the tubes G are formed seven, more or less, small hoppers, L, into four of which the middlings are introduced from the bolts by spouts. The other three, more or less, hoppers L are reserved to receive the second-grade middlings from the four tubes G that receive middlings from the bolts. The purified middlings drop through small openings at the lower ends of the tubes G into a receiver. The second-grade middlings that slide down the valves K drop into small chambers M at the lower ends of the tubes G, press down small cloths N placed in the bottoms of said chambers, and escape through small openings into spouts, by which they are conducted into the well of the elevator O, and which are not shown in the drawings.

The elevator-case O is divided into compartments, and is provided with three or more belts, by which the second-grade middlings are discharged into three spouts, P, by which they are conducted into the three reserved hoppers L. The elevator O is designed to extend below the floor, so that the middlings may pass freely into its well.

Q is an air-chamber placed above, parallel with, and close to the upper side of the system of vibrating tubes. In the top of the air-chamber Q are formed four openings leading into the small chambers R, placed above the said air-chamber Q, and with which the exhaust-tubes S of the exhaust-fan T are connected. One of the exhaust-tubes S is inclined upward, and the other downward, and each is designed to be divided longitudinally into two parts, so that the air may be taken equally from all parts of the air-chamber Q. The air and the specks and light particles carried with

it are discharged through the spout U into a suitable receiving-chamber.

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

1. The system of vibrating tubes formed of the inclined tubes G, the narrow overlapping bottom plates H, the upwardly-inclined tubes I, the adjustable overlapping valves K, and their adjusting-bars J, substantially as herein shown and described.

2. The combination of the elevator O, divided into compartments, and having spouts P, with the system of vibrating tubes G H I J K, substantially as herein shown and described.

3. The combination of the air-chamber Q, provided with the small upper air-chambers R, the exhaust-tubes S, the exhaust-fan T, with the system of vibrating tubes G H I J K, substantially as herein shown and described.

EDWARD DOLMAN.

Witnesses:
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CHARLES COLE.