

BENJAMIN BARTER.

Improvement in Method of Dressing Flour.

No. 125,518:

Patented April 9, 1872.

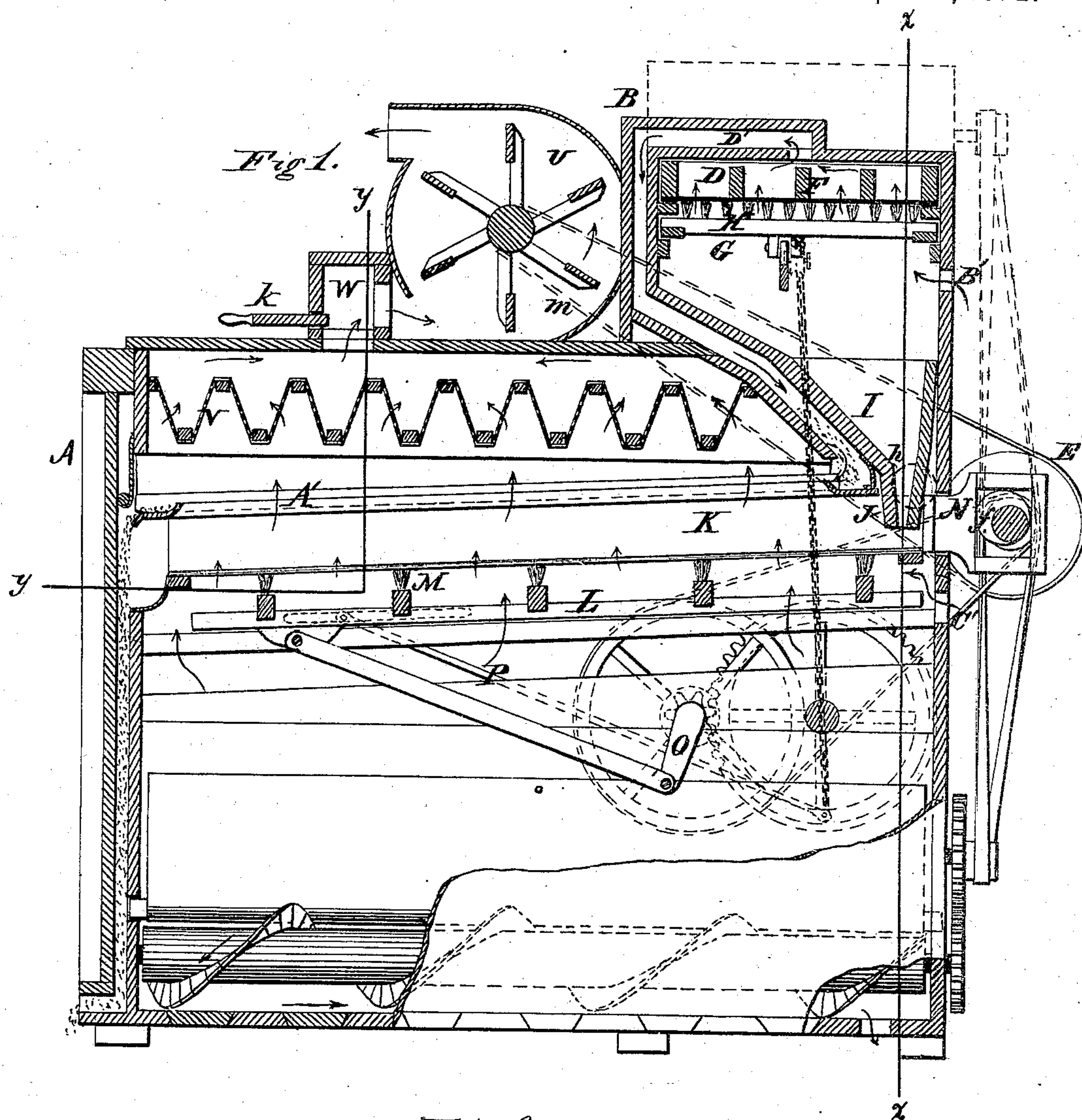
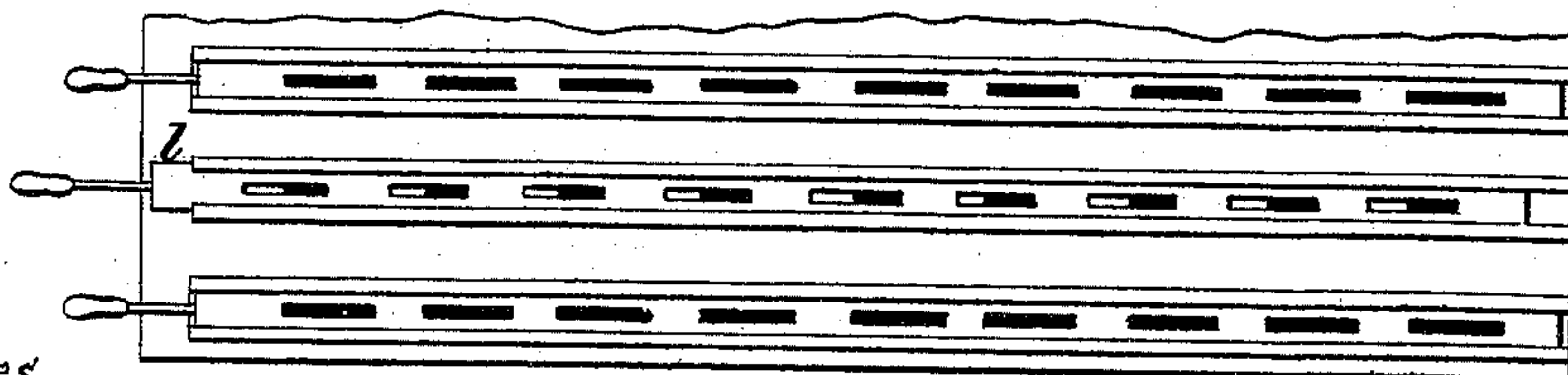


Fig. 2.



Witnesses.

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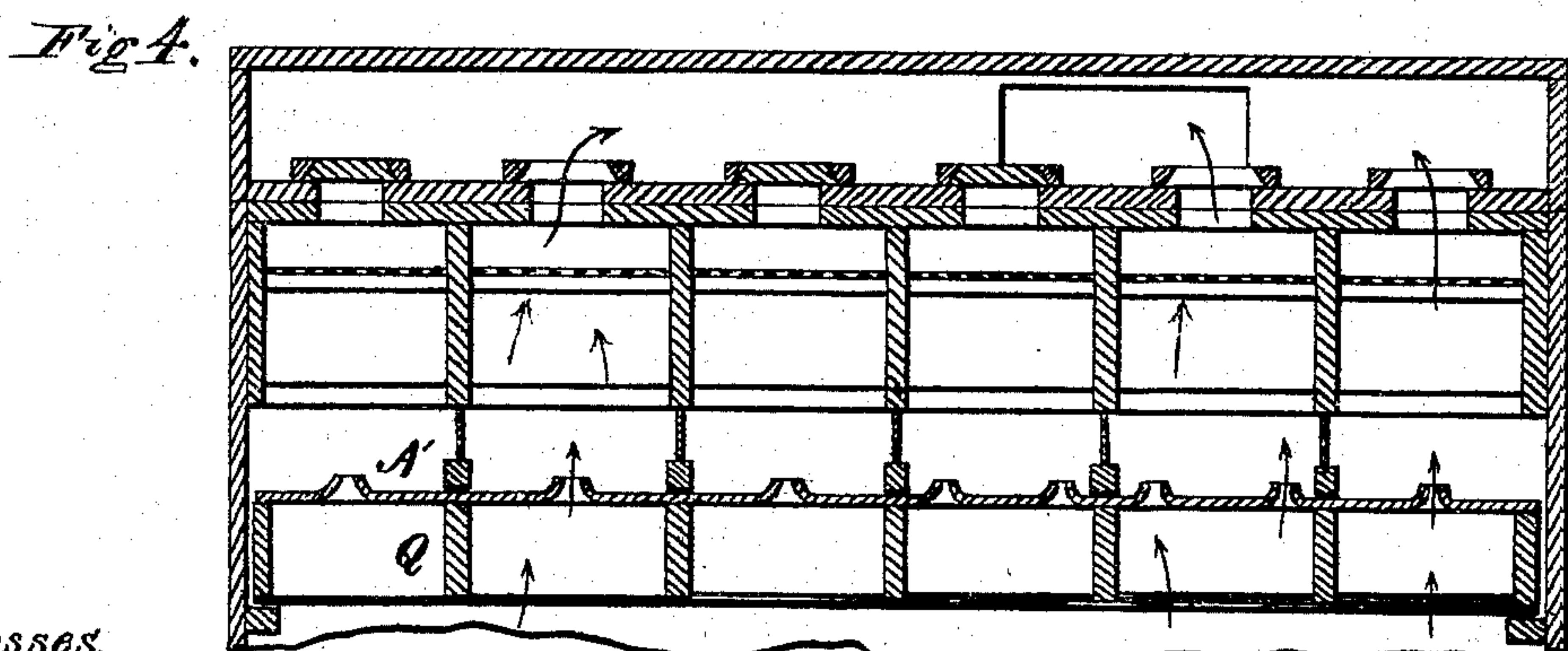
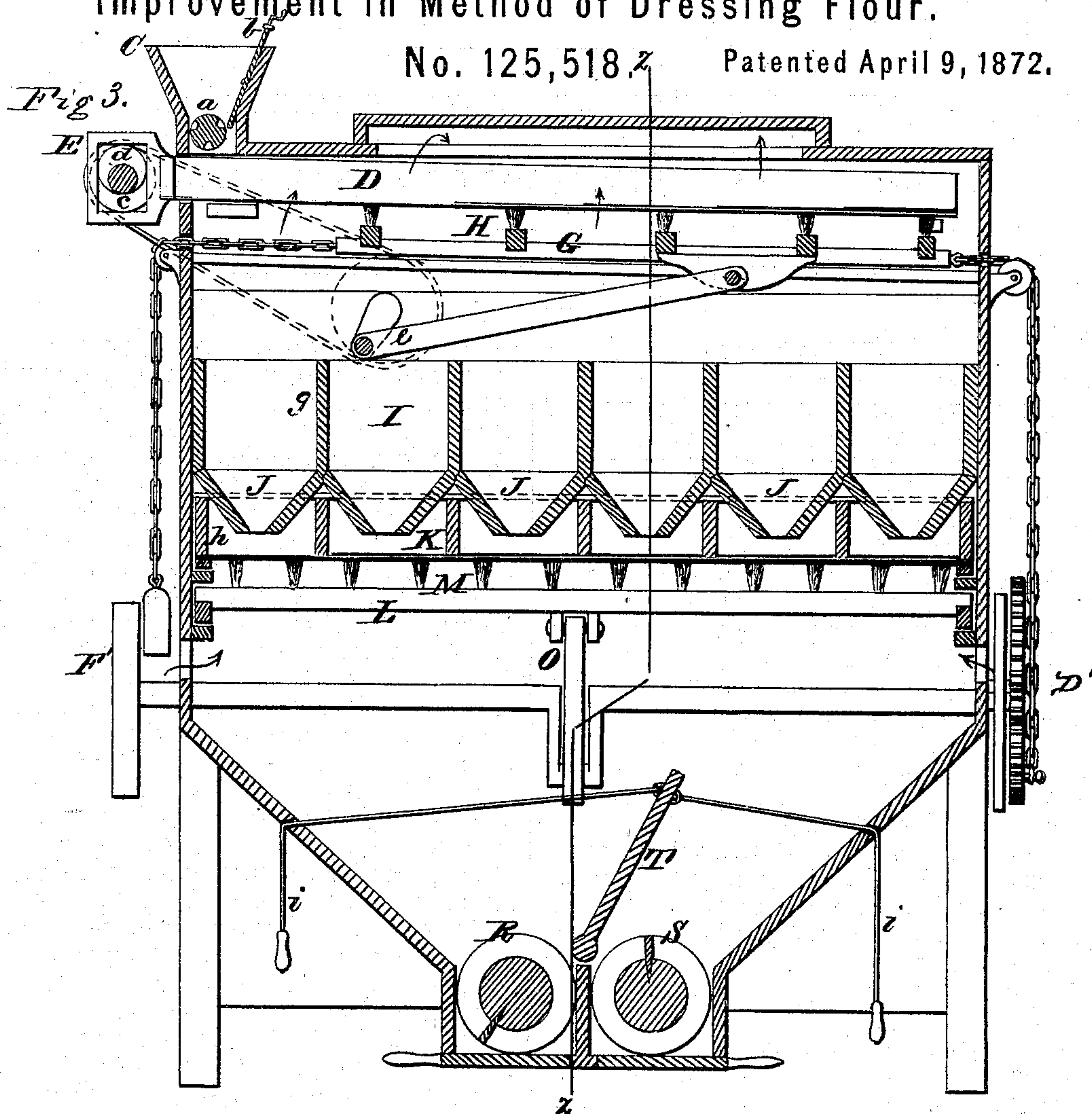
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UNITED STATES PATENT OFFICE.

BENJAMIN BARTER, OF FARIBAULT, MINNESOTA.

IMPROVEMENT IN METHODS OF DRESSING FLOUR.

Specification forming part of Letters Patent No. 125,518, dated April 9, 1872.

SPECIFICATION.

To all whom it may concern:

Be it known that I, BENJAMIN BARTER, of Faribault, Rice county, Minnesota, have invented certain new and useful Improvements in Machines for Dressing Flour; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing making part of this specification and to the letters of reference marked thereon, like letters indicating like parts wherever they occur.

My invention consists in the novel construction and arrangement of certain novel devices in one machine, by which the flour, middlings, and offal are separated and entirely freed from dust, and delivered into separate bins or chests by one continuous operation.

In the drawing, Figure 1 is a cross-vertical section on the line *z z* of Fig. 3, with a portion broken away. Fig. 2 is a plan view of a modification of a part detached. Fig. 3 is a cross-vertical section on the line *x x* of Fig. 1, and Fig. 4 is a sectional view on the line *y y* of Fig. 1.

In constructing this machine, a strong rectangular frame, A, with a smaller frame, B, extending above and across one end of it, is made as shown in Fig. 1. These frames are of any size desired. Upon one end of the frame B is placed a hopper, C, into which the flour to be dressed is fed, and is provided with four or more cross-partitions, not shown, and also, if desired, with a grooved feed-roller, *a*, and a feed-regulator, *b*. In the upper part of the frame B is arranged, in suitable ways or guides, a shaking bolter, D, with a projection, E, on its outer end, provided with a square opening through which passes a shaft, *c*, having rigidly attached to it, so as to be eccentric with it, a cam, *d*, so that when motion is imparted to the shaft by the mechanism of the machine, a reciprocating motion will be given to the shaker D. This shaker is divided into sections by longitudinal partitions F, as shown in Fig. 1, equal in number to those in the feed-hopper; and its bottom, between these partitions, is made of wire or silk cloth, of six or more different degrees of fineness—that is,

each space is divided into six parts, and the part or portion nearest the hopper is provided with the finest cloth, the next with the next coarser, and so on to the end, so that the flour coming from the feed-hopper will be separated by them. Underneath this shaker D, a frame, G, provided with brushes, H, is also arranged in guides or ways so that the brushes will bear against its under side, and it is also so connected with the driving mechanism that a reciprocating motion may be imparted to it, but in such a manner as to be always moving in a direction contrary to that of the shaker. This motion may be given to it by means of a crank-shaft, *e*, or by means of a wheel, chain, and weight, as clearly shown in Fig. 3. The action of the brushes H is to aid in bolting the flour through the shaker. Below the brushes is an inclined partition, I, leading to a series of hoppers, J, equal in number to the different kinds of wire or silk cloth on the bottom of the shaker D, and so arranged as to receive, as near as may be, the different grades of fineness of flour bolted by the different kinds of cloth, as shown in Figs. 1 and 3.

In the body of the frame A a second shaker, K, is arranged, at right angles with the upper one, D, with a frame, L, provided with a series of brushes, M, underneath. Both run in guides or ways, and are operated similar to the upper shaker and brushes, by means of the driving mechanism of the machine—that is, the shaker may be driven by an eccentric cam, *f*, revolving in a square opening in a projection, N, of its frame, and the brushes by means of a crank-shaft, O, or by a rod, P, connected to one of the gear-wheels, as shown in Fig. 1. The shaker K is divided into sections by longitudinal partitions Q, so as to make as many sections as there are hoppers J, and so that each hopper will feed into one of the sections. The bottoms of the sections are made of wire or silk cloth, of the same texture throughout each, but of a different texture or degree of fineness in the different sections, the finest being opposite the hopper receiving the finest flour from the upper shaker, and the next coarser opposite the hopper receiving the next coarser flour, and so on. There may

be partitions *g* extending up the incline *I* from the hoppers *J*, and also a feed-roller, *h*, between the hoppers and the shaker *K*, as shown in Figs. 1 and 3.

In the lower part of the frame *A* are a couple of conveyers, *R* and *S*, with a pivoted partition, *T*, between them, so arranged that it may be adjusted as desired, by means of cords *i* through the sides of the body of the machine, as shown in Fig. 3. These sides are inclined so that the flour passing through the shaker will be directed to the conveyers, and the partition is made adjustable, so as to separate the flour as desired. The conveyers *R* and *S* are operated by belts and gear-wheels *F'* and *D'*, connected with the driving mechanism, as shown.

This machine, it will be seen, bolts and separates the flour into different grades; but for the purpose of more thoroughly clearing or freeing it from dust and other impurities at the same time, a continuous current of air is caused to pass through the machine, and in such a manner that it may be regulated by the operator in passing through the sections of the lower shaker, if desired.

On the upper side of the frame *A* is placed a suction air-fan, *U*, which communicates with a rectangular longitudinal box, *W*, placed upon the frame *A* at right angles with the lower shaker. This box has a series of openings into the body of the machine, equal in number to the sections in the shaker, if desired, and each opening is provided with a slide, *k*, for regulating its size or closing the same, as shown in Figs. 1 and 4. Below this box, and within the machine, a cloth, *V*, is arranged over a balloon frame in a zigzag manner, as shown in Fig. 1. From this frame partitions extend to the upper side of the partitions in the shaker *K*, and so as to be in line with them; but so as to leave a sufficient space for a zinc cover, *A'*, which is attached to the upper side of the shaker, and which is provided with longitudinal slots with curved edges, as shown in Fig. 4. This zinc cover *A'*, instead of having longitudinal slots extending the whole length of each section of the shaker, may be provided with shorter ones, and have slides, *l*, with slots therein of a corresponding size, so that the openings from the shaker may be adjusted as to size as desired, as shown in Fig. 2. Openings *B'* and *C'*, for the admission of air, are placed in the end of the machine, the former being just below the brushes *H*, and similar opening are in its sides below the brushes *M*. Above the upper shaker *D* is an air-passage, *D'*, leading down under the zigzag balloon cloth *V*, as shown in Fig. 1, and on the rear end of the machine there is a space with which the ends of the sections of the shaker *K*, as well as the ends of the partitioned space above the zinc cover *A'* communicate, which space at its lower end may be

partitioned so as to separate the clean middlings from the offals as they pass from the machine.

The operation of this device for causing currents of air to pass through the machine when in operation, together with the effects of the same, will now be readily understood. When motion is given to the suction-fan *U*, which may be done by means of the belt *m*, communicating with the driving-wheel *E'*, a current of air is drawn up through the upper shaker *D*, and passing along the air-passage *D'*, carries with it all the dust and light materials rising from it, down under the zigzag cloth balloon; at the same time a current of air is drawn up through the lower shaker *K*. The two currents united are drawn up through the zigzag cloth balloon, then on through the box *W*, and then through the fan-case, from which, with all the dust it has gathered in its passage, it is blown out, as described.

It will be noticed that the upper shaker serves both to grade and bolt the flour, so that the different grades may be delivered to the different sections in the lower shaker. It is obvious that in place of the upper shaker an ordinary bolt for bolting and grading the flour might be used; but a shaker constructed as described is preferred, as it produces better results.

I do not confine myself to any specific mechanical devices for operating the different parts of my machine, but use such connections with the driving-wheel and its shaft as may be found most suitable.

By means of adjusting devices it is obvious that the brushes may be made to bear uniformly against the bolting-cloths, so as to compensate for any wear.

By this machine everything of value is preserved, the dust alone being carried off by the air-currents.

Having thus described my invention, what I claim is—

1. The method herein described of dressing flour, by means of an upper shaker provided with cloth of different degrees of fineness arranged transversely for grading and bolting, and a lower shaker, divided into longitudinal sections, with cloth of the same fineness in each section, but differing in fineness from each other, for receiving the different grades of flour, in connection with a fan or its equivalent, for producing an air-current, as set forth.

2. In a flour-dressing machine, a shaker, *K*, divided into longitudinal sections, with cloth of the same fineness in each section, but differing in fineness from each other, for receiving and bolting different grades of flour, as herein described.

3. The combination of the shakers *D* and *K* with the brushes *G* and *M*, constructed and arranged to operate substantially as and for the purpose set forth.

4. The combination of the shaker K and adjustable partition T, when constructed and arranged to operate substantially as and for the purpose set forth.

5. The combination of the fan U, zigzag cloth V, zinc cover A', and shakers D and H, when constructed and arranged to operate substantially as and for the purpose set forth.

6. In combination with the fan U and shakers D and K, the box W, provided with slide-valves *k* therein, for the purpose of regulating the air-currents, as set forth.

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Witnesses:

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