

(No Model.)

O. M. MORSE.

FLOUR BOLT.

No. 353,698.

Patented Dec. 7, 1886.

Fig. 2.

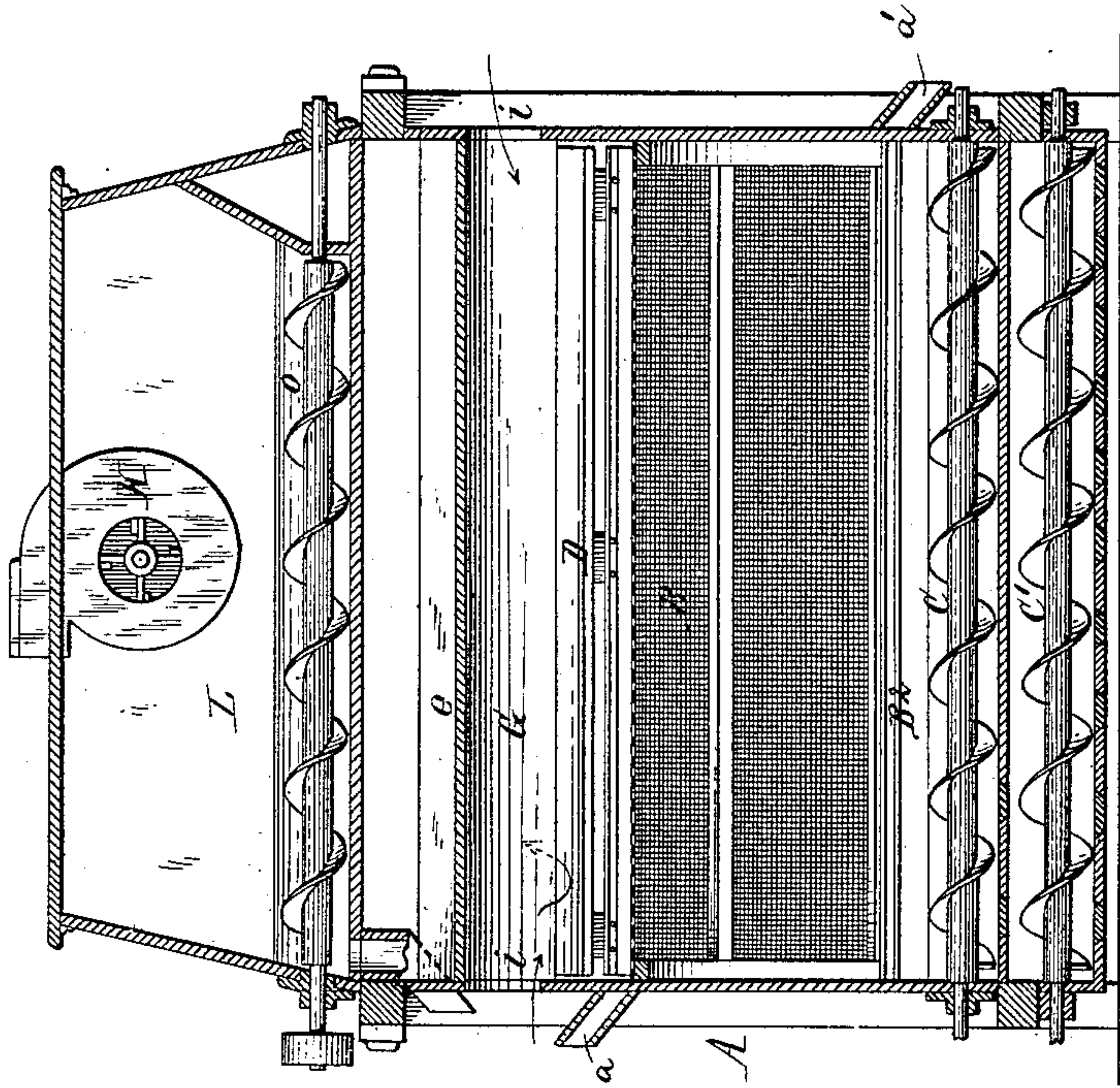
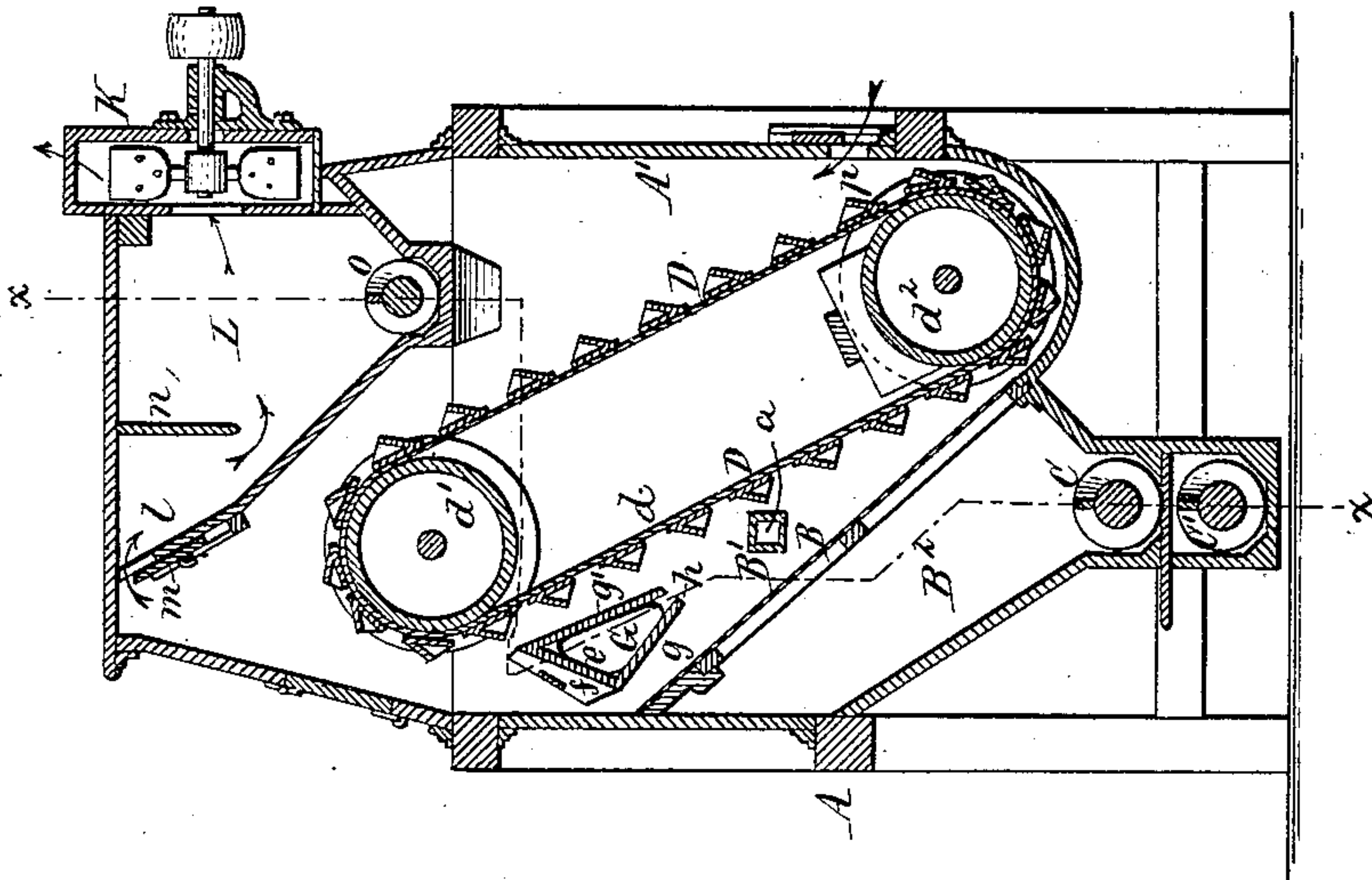


Fig. 1.



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ORVILLE M. MORSE, OF JACKSON, MICHIGAN, ASSIGNOR TO THE KNICKER-
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FLOUR-BOLT.

SPECIFICATION forming part of Letters Patent No. 353,698, dated December 7, 1886.

Application filed September 1, 1885. Serial No. 175,943. (No model.)

To all whom it may concern:

Be it known that I, ORVILLE M. MORSE, of Jackson, in the county of Jackson and State of Michigan, have invented a new and useful
5 Improvement in Flour-Bolts, of which the following is a specification.

This invention relates to an improvement in that class of flour-bolts which consist of an inclined screen and an elevating mechanism fac-
10 ing the screen, whereby the meal or other material to be bolted is elevated and delivered upon the upper end of the inclined screen, and then caused to flow over the screen, whereby the desired sifting operation is effected.

15 The object of this invention is to remove the light impurities from the meal or other material under treatment by means of an air-current in a simple and inexpensive manner.

My invention consists, to that end, of the
20 improvements, which will be hereinafter fully set forth, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a vertical cross section of a flour-bolt provided with my improvement. Fig. 2 is a longitudi-
25 nal sectional elevation of the machine.

Like letters of reference refer to like parts in the several figures.

A represents the stationary frame of the machine, provided with a casing or chest, A',
30 which incloses the principal working parts of the flour-bolt.

B represents the inclined screen, supported in the chest A' and extending lengthwise through the same, so as to separate the upper or meal
35 chamber, B', from the lower or flour chamber, B².

C C' are two conveyers arranged lengthwise in the bottom of the flour-chamber B², and provided with suitable slides in a well-known
40 manner, to enable the operator to draw off the several products of the separations at certain points, as may be desired.

D represents the elevating mechanism, arranged in the meal-chamber B' above the inclined screen B and facing the same. As represented in the drawings, the elevating mechanism consists of an endless belt, d, provided with suitable elevator-buckets, and running
45 around pulleys or drums d' d², so as to pick up the material to be bolted from the bottom of the chest A' and deliver it upon the upper

portion of the inclined screen B. The head-pulley d' is arranged at a suitable distance above the upper portion of the inclined screen, to accommodate an inclined board, e, which is
55 arranged between the elevating mechanism and the inclined screen, and which directs the falling material upon the tight inclined board at the upper end of the inclined screen. The board e is provided at its face with adjustable
60 cant-boards f, whereby the lateral movement of the material on the screen is regulated in a well-known manner. The board e extends from end to end of the chest A', and is secured to the end boards thereof. The material to be
65 bolted is fed into the chest A' at one end through a spout, a, and the tailings escape from the screen B at the opposite end through a spout, a'. The movement of the material through the machine from one end of the in-
70 clined screen to the other is effected either by said cant-boards or by a slightly-inclined position of the machine, or both.

G is an air-inlet chamber formed underneath the inclined board e by boards g g', and provided at its lower end with an elongated air-
75 outlet opening or slot, h, between the boards g g'.

i represents air-inlet openings formed in the end boards of the chest A', opposite the air-chambers G, to admit the external air to both
80 ends of said chamber.

K represents a suction-fan mounted in the upper part of the machine, and having its eye connected with the upper part of the chest A', so as to withdraw the air therefrom. As the
85 chest is practically tight, the air which is withdrawn from it by the fan K is displaced by air entering through the openings i into the chamber G and issuing in a thin stream from the slot h into the chest underneath the upper por-
90 tion of the elevating mechanism. The material which is discharged from the elevating mechanism falls through this ascending stream of air, whereby the light impurities or fuzzy matters are separated from the material and
95 carried off with the air-current.

L is a settling-chamber, through which the air-current passes before entering the eye of the fan, and which is arranged in the upper portion of the chest A'. The inlet-opening l
100 of the settling-chamber L is provided with an adjustable valve or slide, m, by which the

force and volume of the air-current can be regulated.

n is a vertical deflecting-board arranged in the chamber *L*, and preventing the direct passage of the air-current from the inlet-opening *l* to the eye of the fan.

o is a conveyer arranged in the bottom of the settling-chamber, for removing the material which is deposited therein. The air-current is weakened in passing through this settling-chamber, whereby the heavier particles, which are removed by the air-current from the material under treatment, are permitted to drop out of the air-current and are recovered, while the very light impurities pass onward into the fan, and are discharged from the latter either outdoors or into a suitable dust-room.

An air-inlet opening, *p*, is formed longitudinally in the rear wall of the chest *A'*, above the lower portion of the elevating mechanism, and provided with a suitable slide or valve for regulating its size. The air-current, entering the chest *A'* through the opening *p*, removes the light floating matters or impurities which are stirred up by the buckets passing through the material which is collected on the bottom of the chest *A'*, and carries this light matter upwardly toward the fan. The air-current, issuing from the slot *h*, passes through the material, which is discharged in a disintegrated or finely-divided condition from the head of the elevating mechanism, whereby the air-current is enabled to come in contact with all parts of the material, and effectually separates and removes the light impurities therefrom. In bolting flour out of meal or chop a considerable quantity of fluff or light fibrous matter is in this manner removed by a gentle air cur-

rent, whereby the quality and color of the flour are materially improved. In bolting middlings or wheat-breaks a similar result is obtained. It is obvious that the air-current also operates to cool and dry the material.

When two or more machines of this kind are used in a mill, a single fan may be connected with the several machines by proper spouts.

I claim as my invention—

1. The combination, with an inclined screen and elevating mechanism, of a chest which incloses the screen and elevating mechanism, a fan connected with said chest, and an air-inlet arranged below the head of the elevating mechanism and above the screen, whereby an air-current is caused to flow through the material as it is discharged from the elevating mechanism, substantially as set forth.

2. The combination, with an inclined screen and elevating mechanism, a fan connected with said chest, and an air-inlet arranged on the rear side of the elevating mechanism, whereby an air-current is caused to flow through the light matter floating in the chest on the rear side of the elevating mechanism, substantially as set forth.

3. The combination, with the inclined screen *B*, elevating mechanism *D*, and inclosing chest *A'*, of the fan *K*, connected with said chest, and the air-inlet chamber *G*, arranged between the head of the elevating mechanism and the screen, substantially as set forth.

Witness my hand this 26th day of June, 1885.

ORVILLE M. MORSE.

Witnesses:

JNO. G. MUNDY,
C. H. WILTON.