

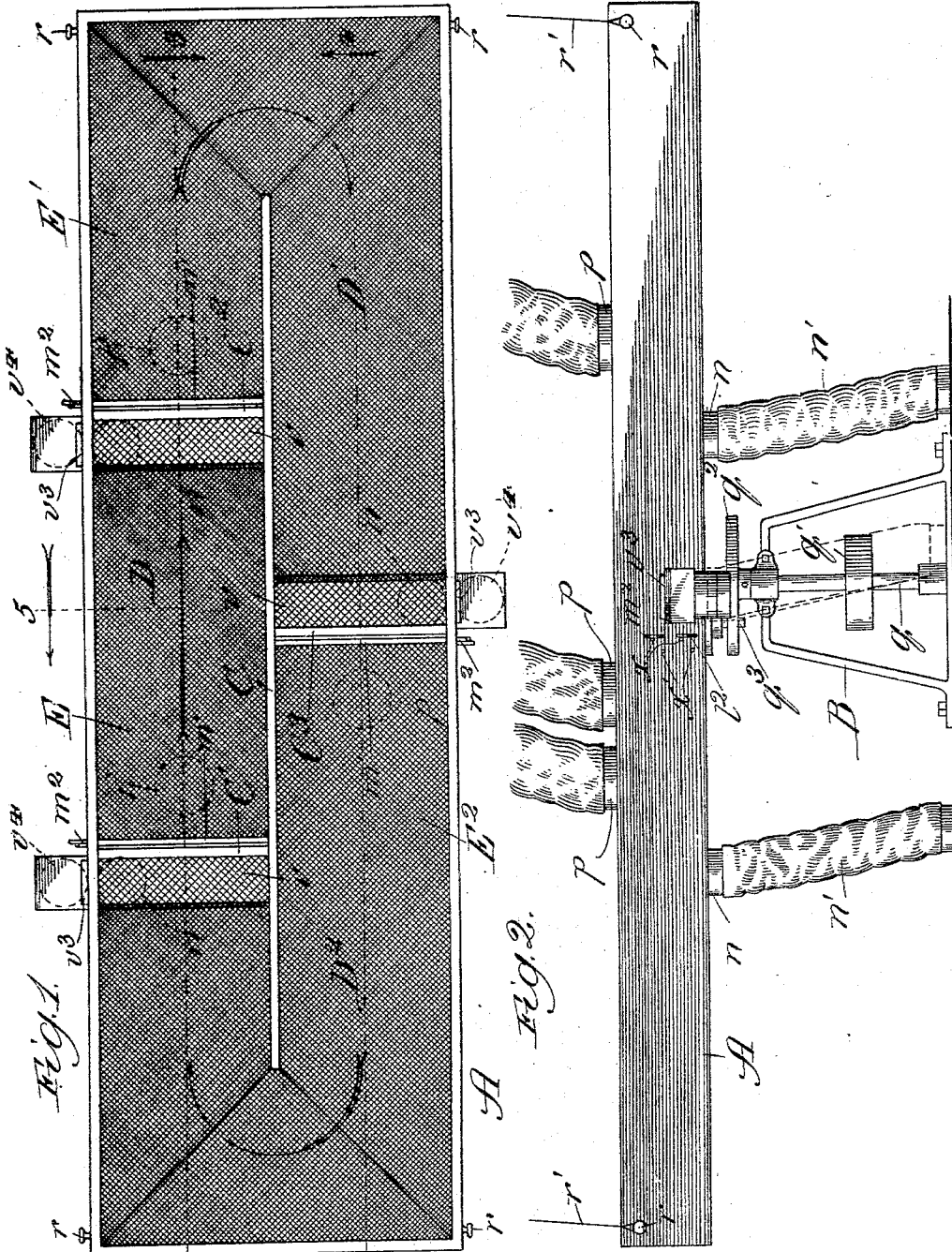
(No Model.)

5 Sheets—Sheet 1.

E. R. DRAVER.
SIFTING APPARATUS.

No. 551,309.

Patented Dec. 10, 1895.



Witnesses:
Edw. C. Gaylord,
Lute & Allen

Inventor:
Emil R. Draver,
By Dyerforth & Dyerforth,
Attys.

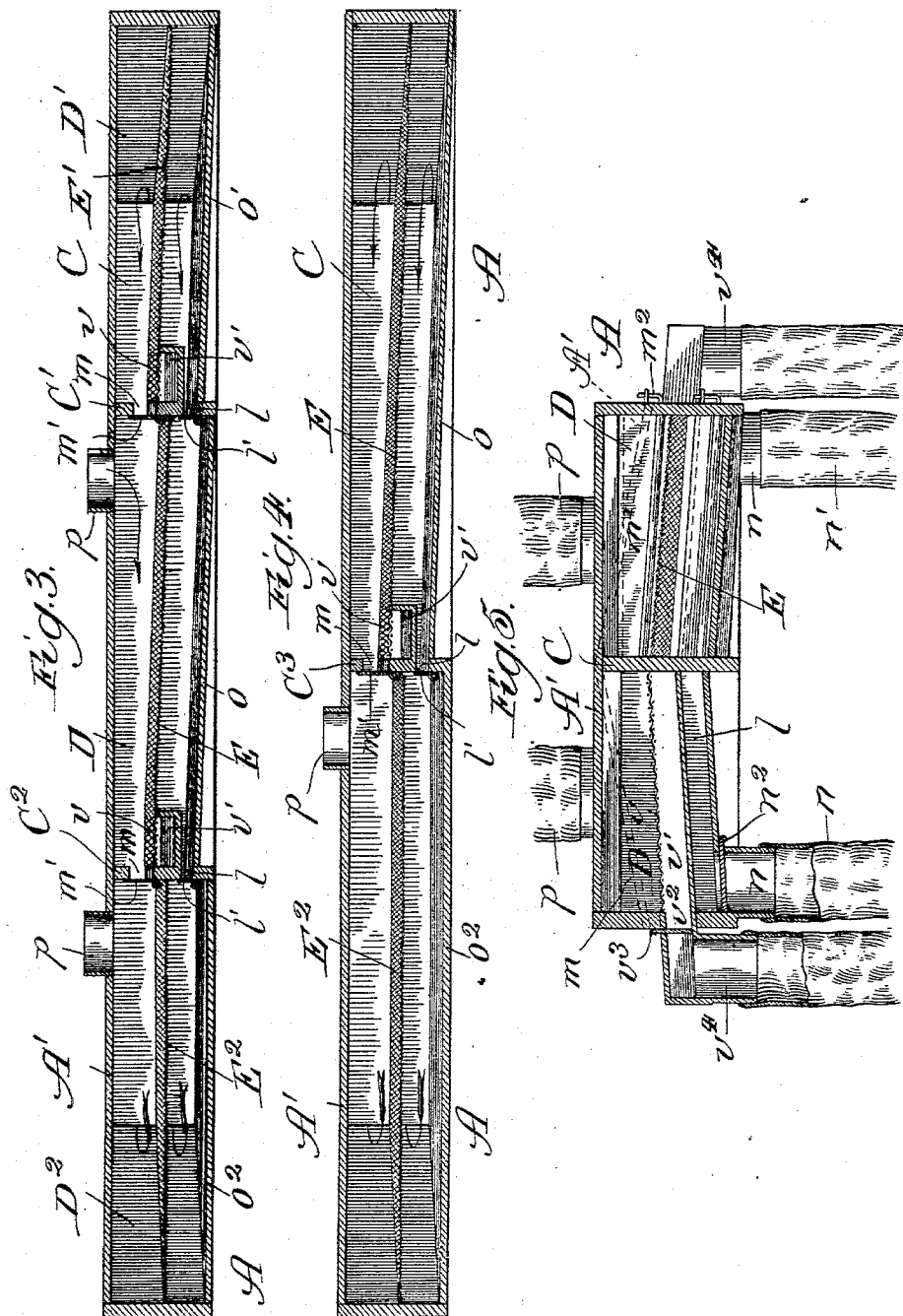
(No Model.)

5 Sheets—Sheet 2.

E. R. DRAVER.
SIFTING APPARATUS.

No. 551,309.

Patented Dec. 10, 1895.



Witnesses:
E. R. Draver,
L. F. Atty

Inventor:
Emil R. Draver,
By Dyrnforth & Dyrnforth,
Attys

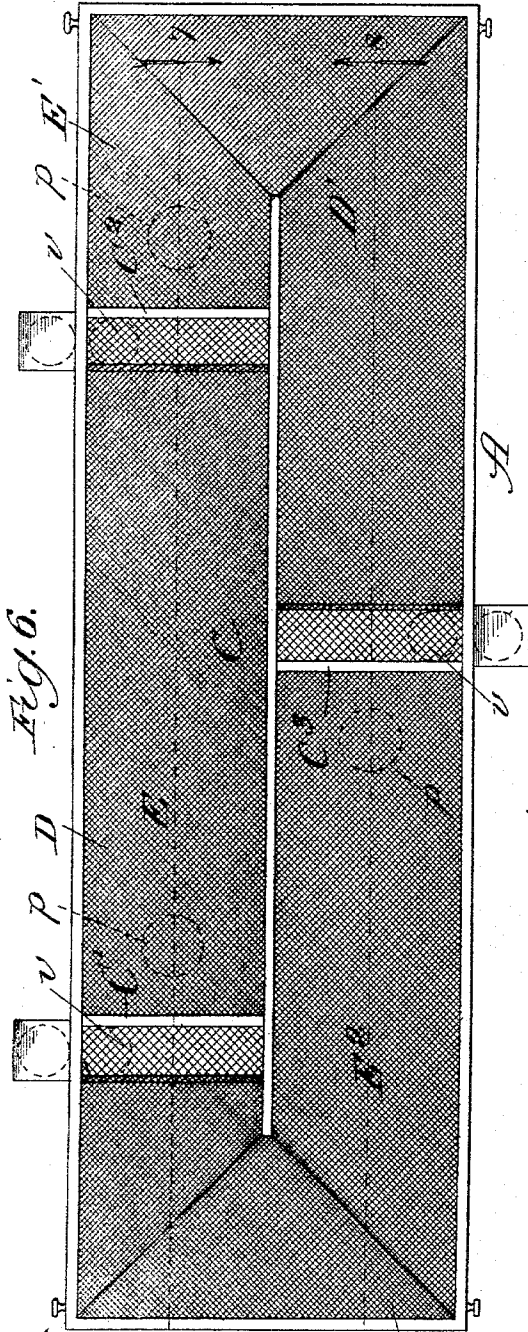
(No Model.)

5 Sheets—Sheet 3.

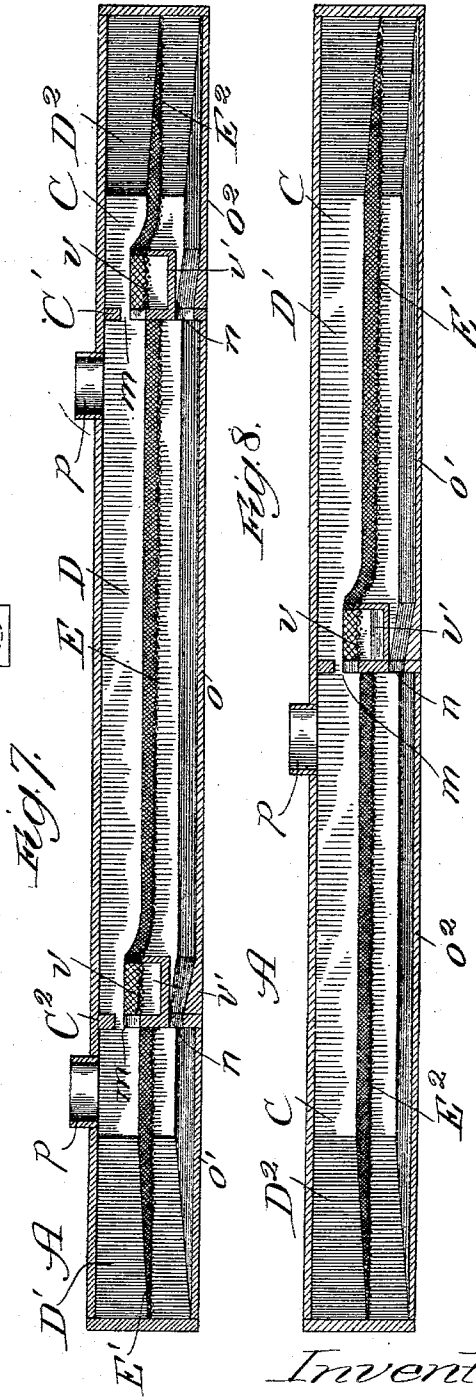
E. R. DRAVER.
SIFTING APPARATUS.

No. 551,309.

Patented Dec. 10, 1895.



Witnesses:
Eas. E. Gaylord,
Lute J. Alter



Inventor:
Emil R. Draver
By Dyrnforth & Dyrnforth
Attys

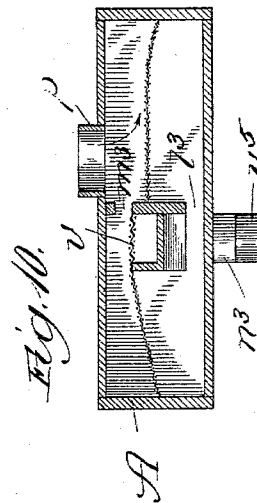
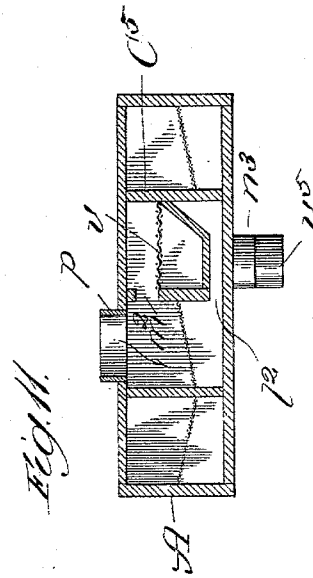
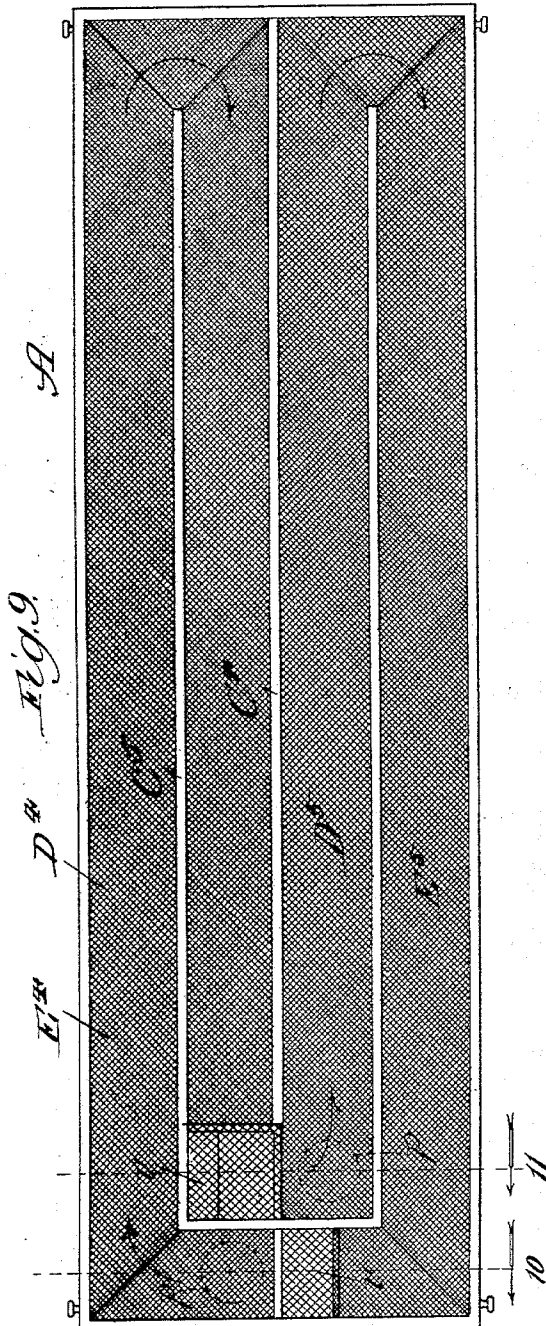
(No Model.)

5 Sheets—Sheet 4.

E. R. DRAVER.
SIFTING APPARATUS.

No. 551,309.

Patented Dec. 10, 1895.



Witnesses:
C. E. Hayward,
L. F. Hester

Inventor:
Emil R. Draver,
By Drenforth & Drenforth,
Attys.

(No Model.)

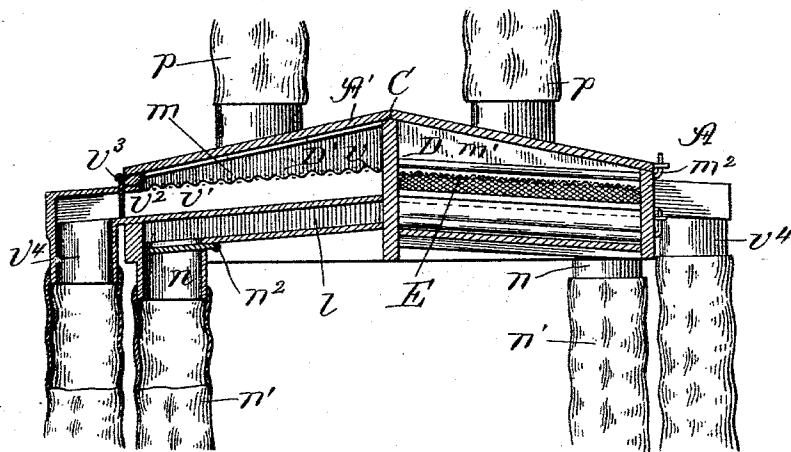
5 Sheets—Sheet 5.

E. R. DRAVER.
SIFTING APPARATUS.

No. 551,309.

Patented Dec. 10, 1895.

Fig. 12.



Witnesses:
E. R. Draver,
Lute J. Allen

Inventor:
E. R. Draver,
By Dyrnforth & Dyrnforth,
Attys.

UNITED STATES PATENT OFFICE.

EMIL R. DRAVER, OF ALLIANCE, NEBRASKA, ASSIGNOR TO FLORENCE N. DRAVER, OF SAME PLACE.

SIFTING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 551,309, dated December 10, 1895.

Application filed August 3, 1895. Serial No. 558,101. (No model.)

To all whom it may concern:

Be it known that I, EMIL R. DRAVER, a citizen of the United States, residing at Alliance, in the county of Boxbutte and State of Nebraska, have invented a new and useful Improvement in Sifting Apparatus, of which the following is a specification.

The primary object of my present improvement is to provide, principally for milling purposes, a sifting apparatus involving a number of controllably-intercommunicating sections or compartments, to enable different materials or kinds of material to be operated on and to be mixed in the sifting operation according to the desire of the operator.

Referring to the accompanying drawings, Figure 1 is a plan view of my improved sifting apparatus with the top or cover removed; Fig. 2, a view of the same in side elevation; Fig. 3, a section taken at the line 3 on Fig. 1 and viewed in the direction of the arrow; Fig. 4, a section taken at the line 4 on Fig. 1 and viewed in the direction of the arrow; Fig. 5, a section taken at the line 5 on Fig. 1, viewed in the direction of the arrow, and showing by a dotted representation a modified construction of the cover; Fig. 6, a view like that presented by Fig. 1 of my improved sifting apparatus containing a modified construction; Fig. 7, a section taken at the line 7 on Fig. 6 and viewed in the direction of the arrow; Fig. 8, a section taken at the line 8 on Fig. 6 and viewed in the direction of the arrow; Fig. 9, a view like that presented by Fig. 1, but showing another modified construction of the apparatus; Fig. 10, a section taken at the line 10 on Fig. 9 and viewed in the direction of the arrow, and Fig. 11 a section taken at the line 11 on Fig. 1 and viewed in the direction of the arrow. Fig. 12 is a view like that presented by Fig. 5, but showing the cover inclined.

Referring particularly to Figs. 1 to 5, inclusive, A is a rectangular box provided near each of its four corners with a button *r* at which to suspend it from overhead by cords *r'*, or the like; and for imparting desired motion to the apparatus to cause it to perform its sifting function any of various means may be provided, the means shown comprising a stand B, in which is journaled an upright

rotary shaft *q* carrying a belt-pulley *q'* and, at its upper end, a crank *q²* engaging the bottom of the box A at a pin *q³* near its center.

The box is divided along its horizontal center by a partition C, which extends short of the ends of the box to leave passage-ways about its opposite ends.

C', C² and C³ are transverse partitions, two of which extend from one side of the partition C, toward its ends, to the adjacent side of the box, and the other transverse partition C³ extends from about the center of the opposite side of the partition C to the adjacent side of the box. Thus one compartment, D, is formed between the partitions C' and C², another, D', between the partitions C² and C³, and a third, D², between the partitions C³ and C'. Inlet-openings *p* are provided in the box-cover A', through which to feed the material or materials to be sifted.

I find that in practice it is desirable to slant the box-cover, as indicated in Fig. 5, and clearly represented in Fig. 12, to form a pocket or contraction in the passage along each side of the sifter, which causes the material to travel better. In the several compartments are screens E, E' and E², each of which inclines slightly upward from its part adjacent to the feed-inlet leading to it, to the transverse partition at the opposite end of the compartment, and along the higher sections adjacent to transverse partitions the several screens are of coarser mesh, as shown at *v*, than throughout the remainder of their extents, the coarse sections being provided, underneath them, with chutes *v'*, each of which leads through an opening *v²* in a side of the box, and equipped with a slide-valve *v³* to a discharge-spout *v⁴* at that side.

The bottoms *o*, *o'* and *o²* of the compartments D, D' and D² incline parallel with the screens therein and afford conveying-bottoms, and in each of the bottoms, at its lowest point, is a discharge-opening *n* leading to a spout *n'* and provided with a slide-valve *n²*.

In each of the transverse partitions C', C² and C³ there is provided, above the screens, an opening *m* covered by a hinged valve *m'*, and in each said partition below the screens there is provided an opening *l* covered by a hinged valve *l'*, the valves *l'* and *m'* having

the handles l^2 and m^2 , respectively, projecting beyond one side of the box A, where each is propped in its raised or lowered position by a pin x adjustable in either of the two holes x' suitably located to receive it.

The material to be sifted in each compartment is introduced upon the screens therein, at their lower ends, through the inlets p , and the motion imparted to the apparatus by rotating the shaft q works it upon the screens to cause the flour to pass through them upon the bottoms o , o' and o^2 , whence it may discharge through the outlets n , and to cause the coarse product, or tailings, to attain the coarser-mesh screen-sections, through which they pass into the discharge-outlets v^4 .

When it is desired to mix any of the material or materials of one or more of the compartments, one or more of the large-mesh screen-sections v may be covered by any suitable means to prevent the passage through them of the coarse material, and with one or more of the valves m' open this coarser material may pass from one compartment into another through the openings m . Similarly when it is desired to mix the product of sifting through the finer mesh of a screen, which falls on a bottom o , o' or o^2 , with the product on the bottom of either end of the other compartments, it is only necessary to close the proper valve or valves n^2 and open the valve or valves l' to produce intercommunication of the compartments below the screens, thereby causing the material to pass from one compartment to another until the outlet which has been left open is reached.

It will be noticed that the feed and discharge ends of the various sections are adjacent to one another, with the feed ends of the screens and bottoms lower than the discharge ends thereof, to prevent any of the material from one compartment passing out with the tailings from the adjacent section.

The construction illustrated by Figs. 6, 7 and 8 differs from that shown in the preceding figures in having the screens E, E' and E² and the bottoms o , o' and o^2 mainly horizontal but inclined abruptly upward toward their discharge ends. Thus, as seen in Figs. 7 and 8, the coarse-mesh sections v are horizontal, and on a higher plane than the finer-mesh portions of the screens, which abruptly incline upward to join them, and the bottoms o , o' and o^2 turn abruptly from the horizontal and incline upward to the opening l .

According to the construction illustrated in Figs. 9, 10 and 11, the box A has provided in it a rectangular partition C⁵ open at one end and divided along its center by a partition C⁴, which extends from one end of the box to the other. Thus two compartments D⁴ and D⁵ are formed, in the nature of channels, the former extending from an inlet p in the box-cover along the outer side of the rectangular partition C⁵ and about the end back along the inner side, and the channel D⁵ extending from the inlet p in the cover along

the inner side of the rectangular partition and about the end thereof back along the outer side. The compartments D⁴ and D⁵ contain screens E⁴ and E⁵ inclining from the inlets to the mouths of the outlets v^5 , where the screen is of coarse mesh, as indicated at v , to permit the tailings to pass through. The discharge-outlets n^3 for the flour which sifts through the screens extend from the bottom o^4 , which in this construction is shown horizontal for both compartments. In the partition C⁵ are the openings m^2 and m^3 , respectively, adjacent to the coarser-mesh sections v in the compartments D⁴ and D⁵ to render them intercommunicating, and below the screens in the same partition are provided the openings l^2 and l^3 to render the compartments there intercommunicating, all for the purpose hereinbefore described. These openings may also be provided with valves, though all valves are omitted from the illustration of the modified constructions to avoid confusion.

The operation of the modification last described is precisely the same as that of the construction represented by Figs. 1 to 5 inclusive.

The details of construction of my improved sifting apparatus shown and described are the best known to me. They may be variously modified, however, and the construction may be amplified, as by providing a series of the sifters one above the other, without departure from my invention.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a sifting apparatus, a box adapted to be suspended and provided with means for imparting to it the sifting motion, said box being divided into intercommunicating compartments provided with discharge outlets for the sifted product, an inclined cover provided with one or more feed-inlets for the said compartments, a screen in each compartment extending between its bottom and said cover and forming a pocket with said inclined cover and having a finer-mesh section and a coarser-mesh section, and discharge-outlets for the tailings leading from said coarser-mesh sections, substantially as and for the purpose set forth.

2. In a sifting apparatus, a box adapted to be suspended and provided with means for imparting to it the sifting motion, said box being divided into intercommunicating compartments provided with discharge-outlets for the sifted product, a cover provided with separate feed-inlets, one for each compartment, a screen in each compartment extending between its bottom and said cover and inclining upward toward the discharge end of the compartment, said screen having a finer-mesh section and a coarser-mesh section at the higher end, and discharge outlets for the tailings leading from said coarser-mesh sections, substantially as and for the purpose set forth.

3. In a sifting apparatus, a box adapted to be suspended and provided with means for

imparting to it the sifting motion, said box being divided into compartments intercommunicating through openings provided above and below the screens therein, valves at said openings, affording means for opening and closing, at will, said compartments to each other, discharge outlets for the sifted product from said compartments, a cover provided with feed-inlets leading to the compartments, a screen in each compartment extending between its bottom and said cover and inclining upward from the inlet to the discharge-end of the compartment, said screen having a finer-mesh section and a coarser-mesh section at its higher end, and discharge-outlets for the tailings leading from said coarser-mesh sections, substantially as and for the purpose set forth.

4. In a sifting apparatus, a box A adapted to be suspended and provided with means for imparting to it the sifting motion, a partition C and partitions C' C² C³ in said box dividing it into compartments D, D' and D², a cover A' on the box provided with feed-inlets *p*, inclining screens E, E' and E² in said compartments having coarser-mesh sections *v* at their

higher ends, openings *m* and *l* in the transverse partitions respectively above and below the screens and provided with valves *m'* and *l'*, bottoms *o*, *o'* and *o²* for the compartments inclining parallel with the screens therein and having discharge-outlets *n* provided with valves *n²*, and valve-controlled discharge-outlets leading from underneath the coarser-mesh screen - sections, substantially as and for the purpose set forth.

5. In a sifting apparatus, a box adapted to be suspended and provided with means for imparting to it the sifting motion, said box being divided into intercommunicating compartments, an inclined screen in each compartment, an inclined cover above the screens provided with feed-inlets, and forming a pocket along a side of the sieve for enhancing the travel of the material and an inclined bottom below said screen provided with a discharge-outlet, substantially as and for the purpose set forth.

EMIL R. DRAVER.

In presence of—

H. V. SCHAUPP,
F. W. SCHAUPP.