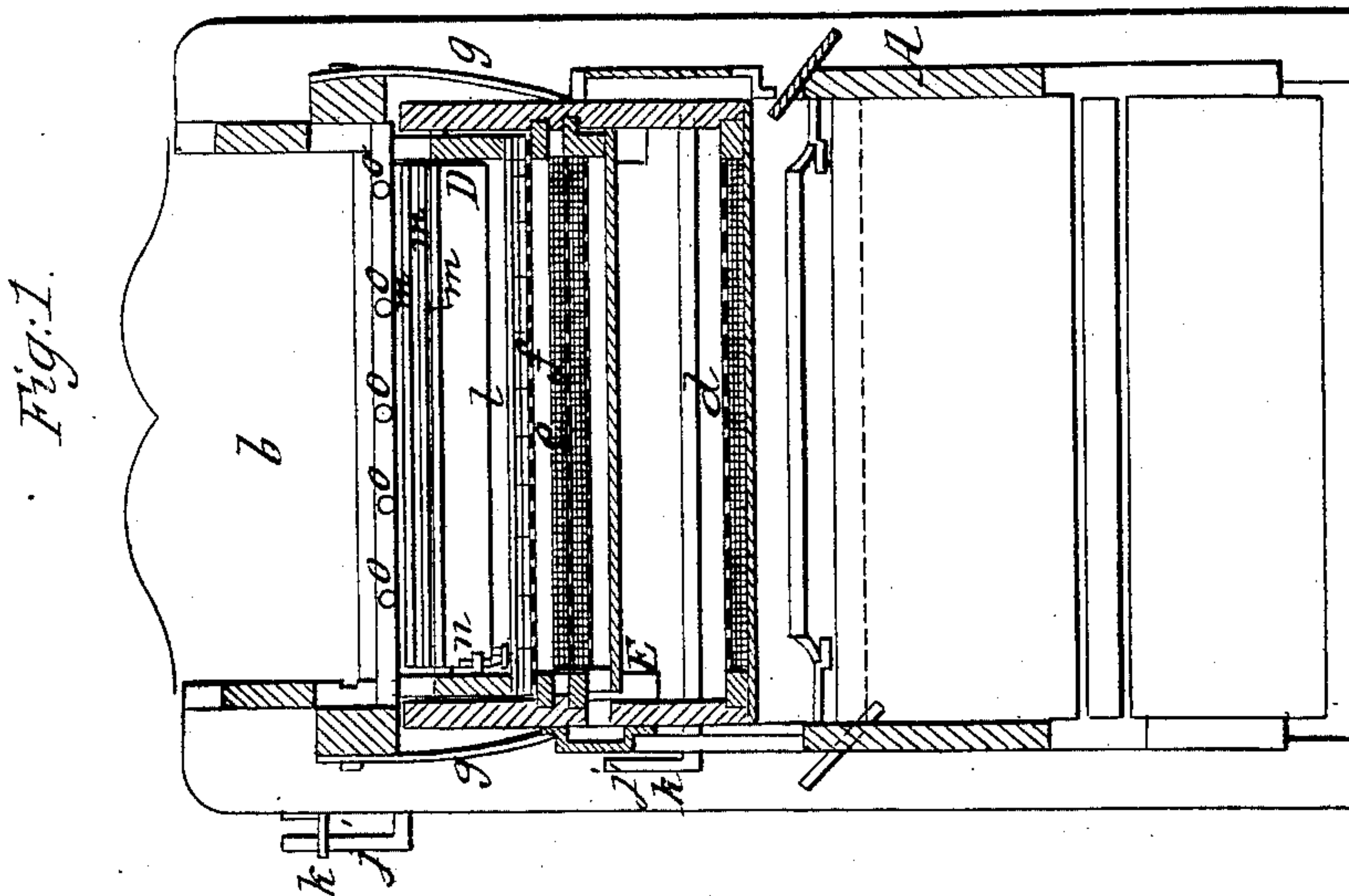
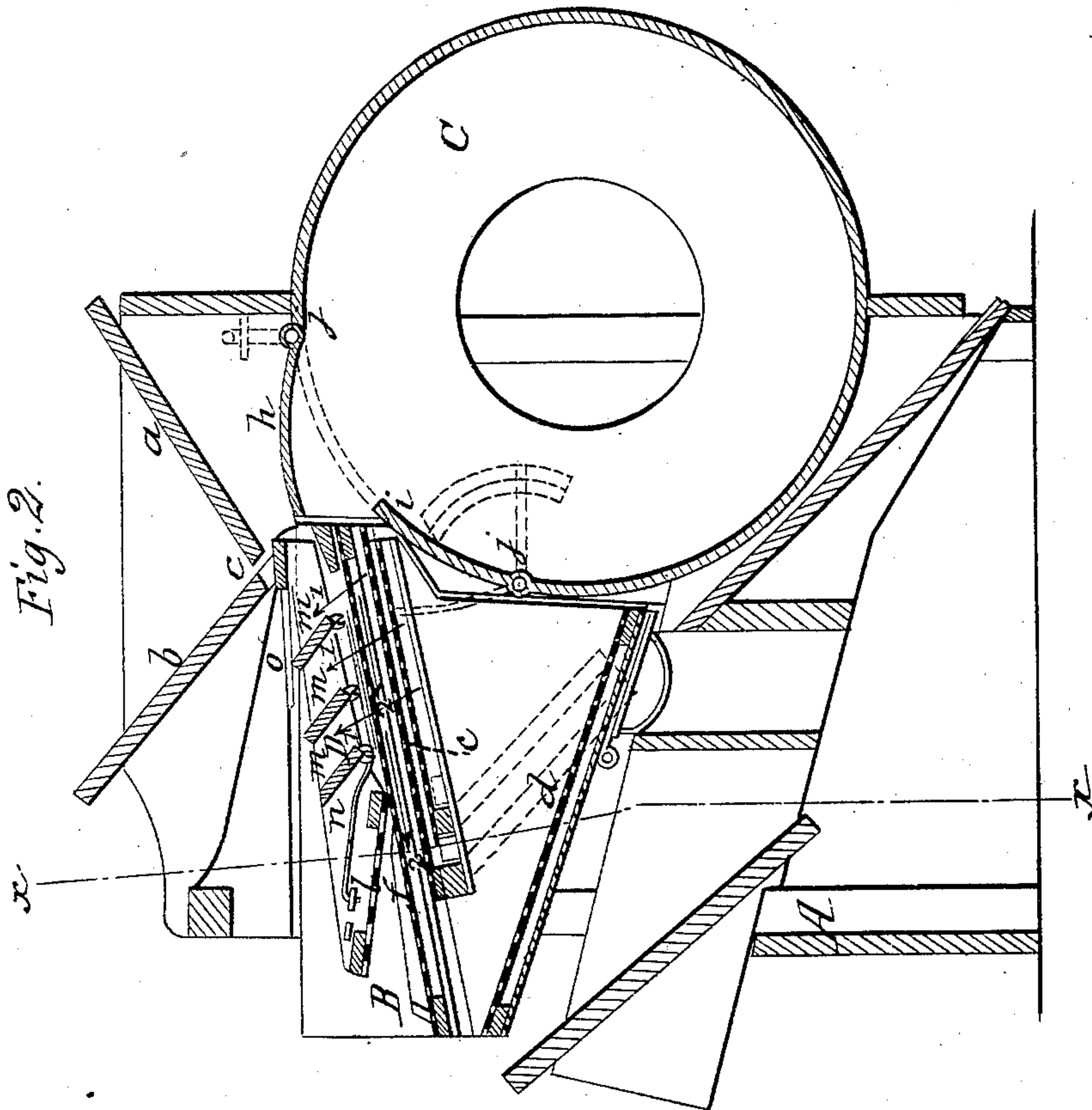


A. CURTIS.
Grain Winnower.

No. 17,728.

Patented July 7, 1857.



UNITED STATES PATENT OFFICE.

AMASA CURTIS, OF LENA, ILLINOIS.

GRAIN-SEPARATOR.

Specification of Letters Patent No. 17,728, dated July 7, 1857.

To all whom it may concern:

Be it known that I, AMASA CURTIS, of Lena, in the county of Stephenson and State of Illinois, have invented a new and Improved Grain-Separator or Winnowing; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a transverse vertical section of my improvement, (x), (x), Fig. 2 indicating the plane of section. Fig. 2 is a longitudinal vertical section of ditto; the plane of section passing through the center.

Similar letters of reference indicate corresponding parts in the two figures.

My invention consists in the employment or use of an auxiliary shoe provided with pivoted or adjustable slats and used in connection with valves applied to the fan box, the whole being arranged as will be hereinafter fully shown and described, whereby perfect control over the blast, as regards its direction, is obtained and the grain and chaff properly exposed to the blast whereby different kinds of grain may be cleaned or separated from foreign substances or impurities and the blast directed and slats adjusted as the condition or state of the grain may require, in order to insure the thorough separation of the foreign substances therefrom.

To enable those skilled in the art to fully understand and construct my invention, I will proceed to describe it.

A represents a frame on the upper part of which a hopper is placed, said hopper being formed of two inclined boards (a), (b), one of which (a) is stationary and the other (b) movable, so that the orifice (c) at the bottom may be enlarged or contracted as circumstances require.

B is a shoe which is constructed in the usual manner and provided with screens (d), (e), (f) arranged in the usual way. The shoe B is suspended within the frame A by springs or elastic metallic strips (g) as usual, and the necessary shake motion may be given it in any proper manner.

C represents the fan box which is of cylindrical form and is provided with a fan of usual construction. The fan box C, directly back of the shoe B, has two valves (h), (i). These valves may be described as being segments of the periphery of the fan box hinged

or jointed as shown at (j), so that they may be opened and closed as desired. The valves are operated by having the rods (j'), on which they are hinged or jointed, extend through one side of the fan box, the end of the rods being bent in crank form and secured at any desired point by notched plates or racks (k) attached to the side of the fan box or frame.

In the upper part of the shoe B an auxiliary shoe D is placed. The outer and under side of this shoe is provided with a screen (l) and the back part has a series of slats (m) fitted transversely within it. These slats are arranged within the shoe similar to blind slats, the slats working on pivots and all connected to a rod (n) by which they are all operated simultaneously. The slats when closed slightly overlap each other.

When the lower valve (i) is opened or turned down as indicated by dotted lines in Fig. 2 and the upper valve (h) is closed as indicated by dotted lines, the blast will pass up through the screens (e), (f) as indicated by arrows (1), but when the screens are turned in a reverse position as shown by the blue tint, the blast will pass longitudinally over the screens (e), (f) as indicated by arrows (2).

When the grain is mixed with considerable chaff, straw, and light foreign substances the valves should be so adjusted that the blast may pass through the screens as indicated by the arrows (1) in order to prevent the screens from being choked; but when the grain is mixed with dust and finer and heavier foreign substances the valves should be so adjusted that the blast may pass over the screens as indicated by arrows (2) in order that the dirt may be blown directly out of the shoe and insure its perfect separation from the grain.

In cases where long straw, chaff, etc., and such substances are mixed in considerable quantities with the grain the slats (m) are opened rather wide so that a free passage is allowed the blast which is in the direction of arrows (1), but if the grain contains dust and fine particles the slats are nearly closed so that it can not pass between them and down through the screens, the blast which is then in the direction of arrows (2) ejecting the dust from the shoe B.

I would remark that a screen of wires (o) is placed directly over the slats (m) in order to

guide and spread out the straw and chaff as it passes on the slats.

This improvement, though simple, is valuable and it may be applied at a small expense to the ordinary separators and winnowers in use.

I do not claim the adjustable slats (*m*) nor the valves (*i*) (*h*) in the fan box C, that is, separately or in themselves considered, for they or their equivalents have been previously used, but,

Having thus described my invention,

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

The auxiliary shoe D, provided with the adjustable slats (*m*), in combination with the valves (*i*) (*h*) in the fan box C, the above parts being arranged as shown for the purpose set forth.

AMASA CURTIS.

Witnesses:

JOHN GODSLEEVE,
DANIEL WILSON.