

No. 608,049.

Patented July 26, 1898.

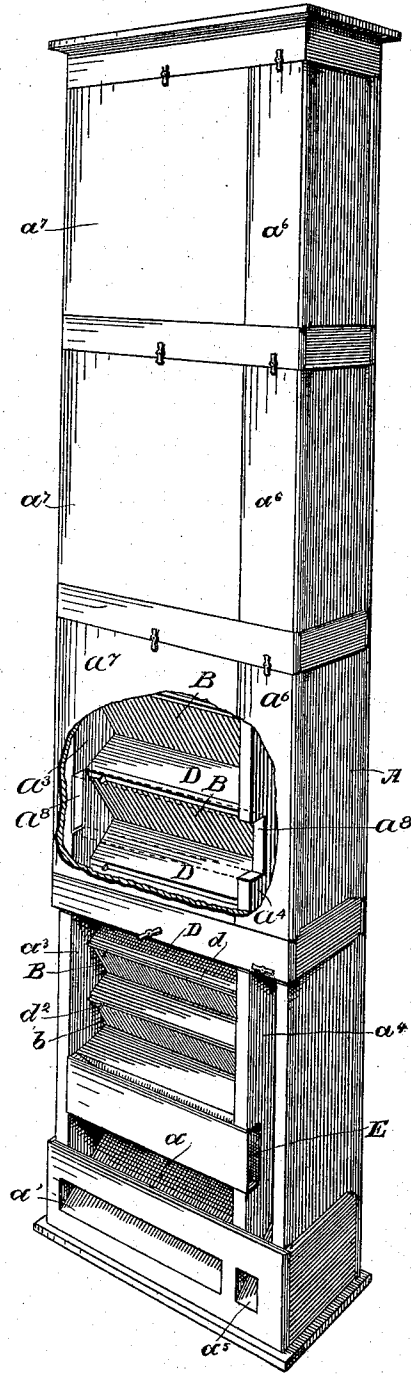
R. W. JESSUP.  
SEPARATOR.

(Application filed Aug. 26, 1897.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.



Witnesses:

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Robert W. Jessup  
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his Attorney

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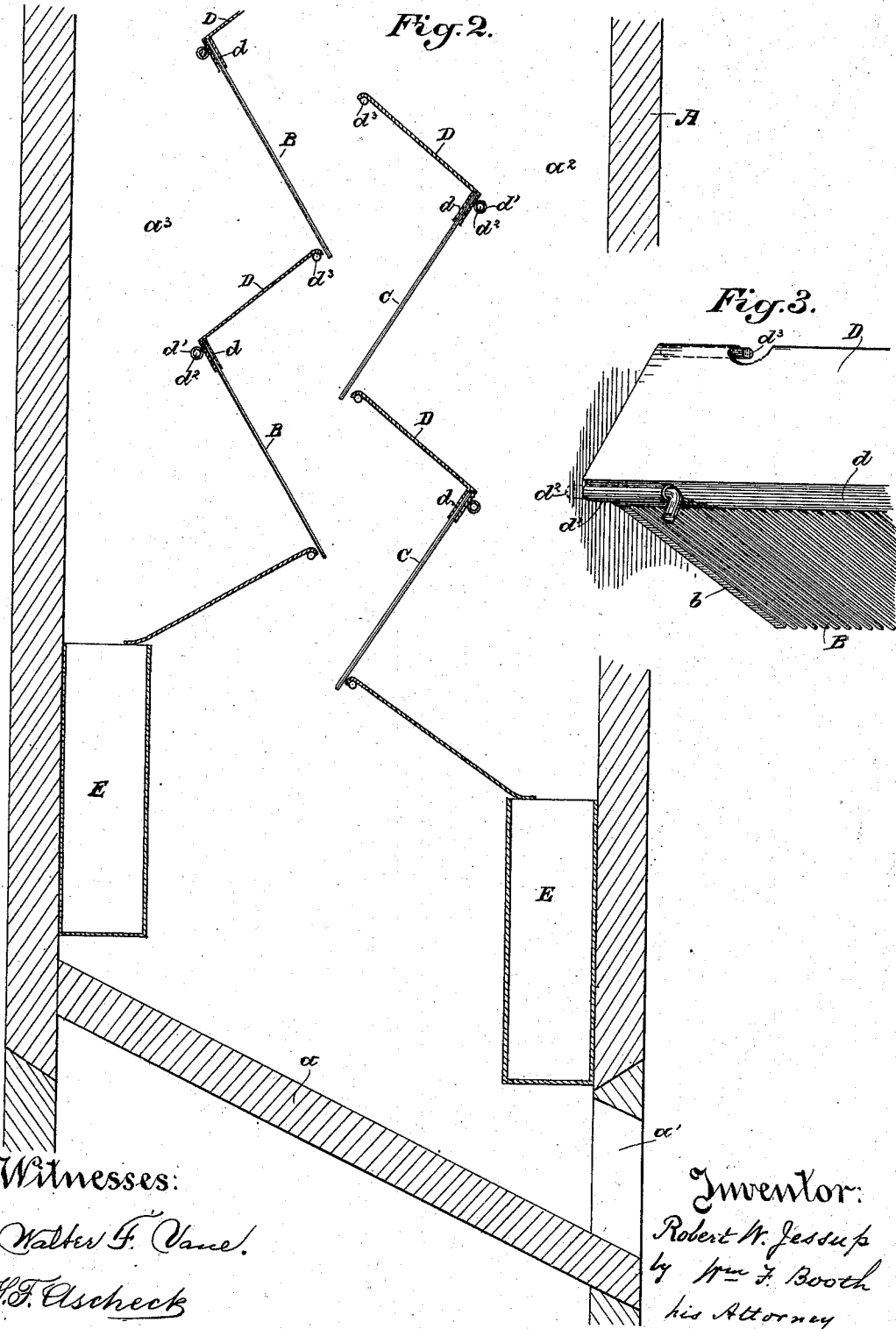
R. W. JESSUP.  
SEPARATOR.

Patented July 26, 1898.

(Application filed Aug. 26, 1897.)

(No Model.)

2 Sheets—Sheet 2.



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# UNITED STATES PATENT OFFICE.

ROBERT W. JESSUP, OF SAN FRANCISCO, CALIFORNIA, ASSIGNOR OF ONE-HALF TO FAIRFAX H. WHEELAN, OF SAME PLACE.

## SEPARATOR.

SPECIFICATION forming part of Letters Patent No. 608,049, dated July 26, 1898.

Application filed August 26, 1897. Serial No. 649,581. (No model.) Patented in England February 2, 1897, No. 2,725.

To all whom it may concern:

Be it known that I, ROBERT W. JESSUP, a citizen of the United States, residing in the city and county of San Francisco and State of California, have invented certain new and useful Improvements in Separators, (which have been patented in England, No. 2,725, dated February 2, 1897;) and I do hereby declare the following to be a full, clear, and exact description of the same.

My invention relates generally to that class of separators in which successive screens are employed together with means for directing the flow of the material from one screen to another and keeping the separated particles distinct; and it relates particularly to a separator illustrated and described in my previous Letters Patent No. 576,195, granted February 2, 1897.

My present invention consists of certain improvements in that separator, said improvements, briefly stated, being the provision of a double series of screens instead of a single series with opposing directing-plates, in the manner of and means for mounting the screens whereby each may be turned or swung sufficiently to permit the fingers of the operator to readily and conveniently reach the opposing screen to clean or to clear it, in the means for accurately stopping and holding each screen in proper position, in a rigid or partially rigid end or side finger or needle for each screen, in the arrangement of the side channels and passages for the worthless materials and the means for taking out said materials therefrom at any convenient point in the height of the machine, all of which, together with the object of each improvement, I shall hereinafter fully describe by reference to the accompanying drawings, in which—

Figure 1 is a perspective view of my separator, one of the front covers being removed to show the interior. Fig. 2 is a vertical section showing the relative arrangement of the interior devices. Fig. 3 is a perspective detail showing the way in which the screens are mounted.

This separator is particularly adapted for and is applied to what may be termed "grain separation," by which is meant the separation from wheat of oats, ches, sweet clover,

and mustard, from barley of oats, small kernels of barley, mustard, ches, or seeds, and from oats of the smaller oats, mustard, &c. It is also adapted for the separation of all the smaller seeds.

In my former patent, upon which the present is an improvement, I have fully described the essential construction of the screens from which the great advantage of the separator flowed. The screens consisted of parallel spaced needles of a pliant or springy character fixed to a common head at one end and thence extending free and independent to the other end. The advantage of these screens lay in their clearing action, avoiding clogging and remaining always in perfect working order. In that prior patent, however, I described but one series of screens, said series being in a single vertical line and the continuous course of the material from one to the other was effected by opposing directing-plates. In my present improvement I make screens of these plates similar in construction to the first screens, so that I now have a double series of screens, thereby increasing the capacity and effectiveness of the separator at the same time that each set of screens serves as directing-plates for the other set. This will be seen by referring to Fig. 2 of the drawings, wherein A is the box or casing, B are the screens of the first set or series, and C are the screens of the second or opposing set or series. The material fed into the top of the box or casing of Fig. 1 flows down from screen B to screen C, and thence back again to a lower screen B, and thence to a lower screen C again, and so on throughout until it is delivered on the inclined floor *a* of the box and flows out through delivery-aperture *a'*, Figs. 1 and 2. These screens B and C are constructed, as before stated, of parallel spaced needles of a pliant and springy character (see Fig. 3) secured fixedly at one end to a common head *d*, Figs. 2 and 3, and thence extending free and independent to the other end. They are adapted to vibrate under the contact of the material and its passage over them. The head *d* is formed or provided with a plate D, which may be called a "stop-plate." It traverses the space between adjacent ends of the screens of

each series and catches and keeps distinct the worthless material which sifts through the screens. The stop-plates D are the same and have the same function as the plates D of my previous patent, though in the present instance I apply them not only to the series B, but also to the series C of screens, and the series C must therefore be set in far enough from the casing-walls to leave a channel  $a^2$  on that side similar to a channel  $a^3$  on the other side. The worthless or smaller material which sifts through the screens B and C falls upon the stop-plates D on one side or the other, and thence passes down through channels  $a^2$  and  $a^3$ . In Fig. 2 I have shown let into these channels the chute-boxes E, one of which is also seen in Fig. 1. These have inclined bottoms and communicate with a side passage  $a^4$  in one side of box A, said passage having a front discharge-opening  $a^5$  alongside of the discharge-aperture  $a^1$ , Fig. 1. This side passage  $a^4$  is supposed to extend the whole height of the box, as is indicated in Fig. 1, and to be provided with removable covers  $a^6$  at different sections similar to the removable covers  $a^7$  of the main box-sections. Such covers are at the back as well as at the front of the box. Thus access for inspection or for any purpose, such as adjustment or cleaning or clearing, can be had to all portions of the box and its channels and passages; but a decided advantage of the continuous side passage  $a^4$  lies in the fact that it enables me to take out the screenings or worthless or smaller material at any point desired or at as many points as may be thought best. To do this, I have but to direct this material, by any suitable means, from the channels  $a^2$  and  $a^3$  into the side passage  $a^4$  wherever or as often as I please. A simple means to effect this would be to provide for the insertion of such chute-boxes, as E, at different heights in a manner similar to their adjustment below, as seen in Fig. 1, wherein I have shown the chute-box E as at the lowest point; but said box, or one similar to it, may be inserted higher up in the notches  $a^3$ , as I have indicated by the dotted lines.

Now as I employ, as before stated, a double series of screens it becomes of importance to be able to reach all the screens easily to clear them. They may for this purpose be made removable, so that by removing one the opposing one may be reached without having to remove it also; but the best construction is to hinge the screens. This I do in any suitable manner; but the simplest construction in this regard is to form each head  $d$  with a socket  $d'$ , Figs. 2 and 3, and pass through the sockets a pintle-pin  $d^2$ , one at each end, into the wall of the casing A, as seen in Fig. 3. This hinges the screen at its head and permits it to be swung inwardly, thereby exposing the opposing screen and permitting the fingers to be easily introduced to clear said opposing screen. At the same time by re-

moving the pintle-pins  $d^2$  the whole screen may be removed when required.

In order to hold the screen in its proper position or angle, I have a cross-bar or, preferably, a dowel-pin  $d^3$ , Figs. 2 and 3, driven into the walls of box A, one on each side, and against these the upper edge of the stop-plates D fall, thus limiting the swing of the screens and holding them at the proper angle.

The end needles of each screen B and C are stiffened or rendered rigid or nearly so, that they will not vibrate to any extent. This is to keep the material from passing down between the end needles and the walls of the casing and clogging. This stiffening may be effected in various ways, as by making them heavier or by soldering several together. I have shown such heavier or stiffened needles at  $b$  in Fig. 3.

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

1. In a separator for grains and small seeds, the opposing series of screens and stop-plates, in combination with the exterior box or casing inclosing said series in such manner as to leave a channel on each side thereof, to receive the material from the stop-plates, said box or casing having a continuous passage at the ends of and separated from said screens and stop-plates, and chute-boxes adapted to be set at different heights within the side channels in position to receive the material from the stop-plates at required points, said boxes communicating with and adapted to deliver said material to the continuous passage.

2. In a separator for grains and small seeds, the combination of a screen, composed of a series of parallel, spaced needles of a springy and pliant character, said needles being fixed at one end in a common head, and thence extending, free and independent, to the other end, means in front of the screen for directing the material to said screen, a stop-plate behind the screen for keeping the separated materials apart, and a hinge connection for said screen whereby it may be swung inwardly, to permit access to the parts in front of it.

3. In a separator for grains and small seeds, the combination of a series of screens, composed of parallel spaced needles of a springy and pliant character, said needles being fixed at one end in a common head, and thence extending, free and independent, to the other end, means in front of the screens for directing the material to them, stop-plates connected with the screen-heads and traversing the spaces between adjacent screens and adapted to keep apart the separated materials, and a hinge connection for the screen-heads, whereby the screens may be swung inwardly, to permit access to the parts in front of it.

4. In a separator for grains and small seeds, the combination of a series of screens, composed of parallel spaced needles of a springy

and pliant character, said needles being fixed at one end in a common head, and thence extending, free and independent to the other end, a hinge connection for said screen-heads, whereby the screens may be swung inwardly, to permit access to the parts in front of them, means in front of the screens for directing the material to them, and stop-plates connected with the screen-heads so as to swing therewith, said plates traversing the spaces between adjacent screens and adapted to keep apart the separated materials.

5. In a separator for grains and small seeds, the combination of a series of screens, composed of parallel spaced needles of a springy and pliant character, said needles being fixed at one end in a common head, and thence extending, free and independent to the other end, a hinge connection for said screen-heads, whereby the screens may be swung inwardly, to permit access to the parts in front of them, means in front of the screens for directing the material to them, stop-plates connected with the screen-heads so as to swing therebetween adjacent screens and adapted to keep apart the separated materials, and fixed stops against which the stop-plates come in contact, to limit the swinging of the screens and to hold them at the proper angle.

6. In a separator for grains and small seeds, the combination of a double or opposing series of screens each composed of the pliant and springy needles fixed at one end in a common head, said screens being relatively arranged to direct the material back and forth between them, a hinge connection for each screen-head, adapting its screen to be pushed inwardly, to permit access to the opposing screen, and the stop-plates connected with the screen-heads so as to swing therewith.

7. In a separator for grains and small seeds, the combination of a double or opposing se-

ries of screens each composed of the pliant and springy needles fixed at one end in a common head, said screens being relatively arranged, to direct the material back and forth between them, a hinge connection for each screen-head, adapting its screen to be pushed inwardly, to permit access to the opposing screen, the stop-plates connected with the screen-heads so as to swing therewith, and fixed stops for the stop-plates, to hold the screens in proper position.

8. In a separator for grains and small seeds, the combination of an exterior casing or box, and a screen composed of parallel, spaced needles of a pliant and springy character, said needles being fixed at one end to a common head and thence extending, free and independent to the other end, said screen being mounted in the exterior casing or box with its end needles in close proximity to the walls thereof, said end needles being stiffened, to render them substantially non-vibrative under the contact and flow of the material.

9. In a separator for grains and small seeds, the combination of an exterior casing or box, a series of screens each composed of parallel, spaced needles of a springy and pliant character fixed at one end in a common head and thence extending free and independent to the other end, said screens having their end needles lying in close proximity to the walls of the exterior casing or box, said end needles being stiffened to render them substantially non-vibrative under the contact and flow of the material, and the stop-plates traversing the spaces between the adjacent screens, and adapted to keep apart the separated materials.

In witness whereof I have hereunto set my hand.

ROBERT W. JESSUP.

Witnesses:

D. B. RICHARDS,  
WALTER F. VANE.