

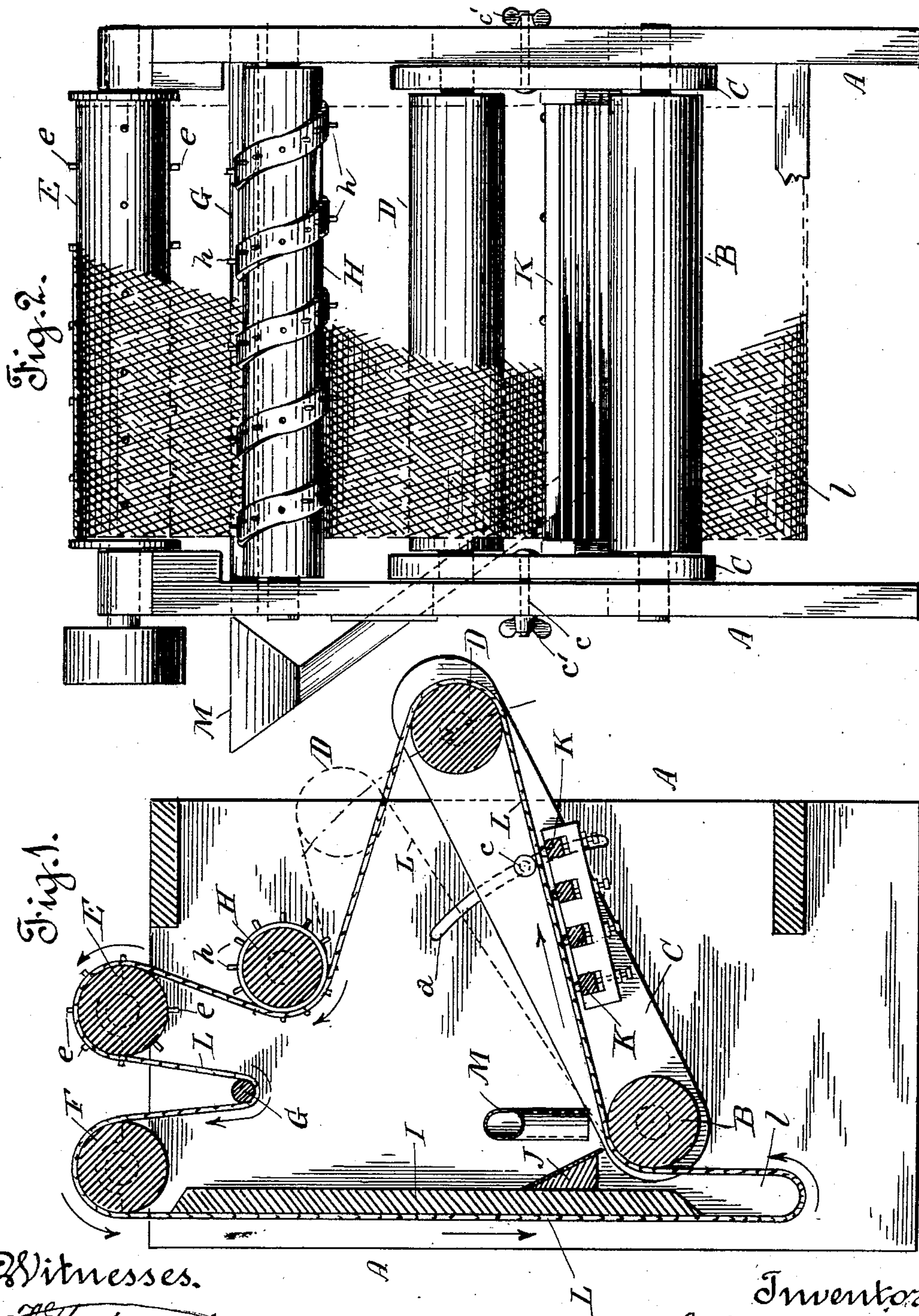
No. 710,982.

Patented Oct. 14, 1902.

R. W. JESSUP.  
SEPARATOR.

(Application filed Jan. 2, 1902.)

(No Model.)



Witnesses.

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Inventor.  
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# UNITED STATES PATENT OFFICE.

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## SEPARATOR.

SPECIFICATION forming part of Letters Patent No. 710,982, dated October 14, 1902.

Application filed January 2, 1902. Serial No. 87,999. (No model.)

*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, State of California, have invented certain new and useful Improvements in Separators; and I do hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to that class of separators for grains and other small seeds in which an endless traveling flexible screen is employed. Its object is, more particularly, for the preliminary or rough process of grain-cleaning, by which the larger particles—such as corn, straws, sticks, and like material—are separated from the wheat prior to subjecting the latter to the later and more careful treatment of removing from it other particles, such as oats, barley, and small seeds.

My invention consists in the novel arrangement, construction, and combinations of parts, which I shall hereinafter fully describe and claim.

Referring to the accompanying drawings, Figure 1 is a vertical section of my separator. Fig. 2 is a side view of same, the screen mesh being broken.

A is the frame of the machine. In the lower portion of this frame is mounted a stationary roller B. In the axis of this roller is pivoted a frame C, in the outer or free end of which is carried a roller D. The frame C may be raised or lowered and is set in any position desired by means of a screw-bolt *c*, which projects through a slot *a* in the frame end and takes a thumb-nut *c'*. In the upper portion of the frame is mounted the driver-roller E, having pins *e* to engage the screen mesh.

F is a top guide-roller mounted in the frame, and G is a rod mounted between the two rollers E and F, but in a lower plane.

H is roller provided with pins *h*, which enter the screen meshes to clear them of clogging particles.

I is a vertically-disposed guide-board mounted in the frame and extending down to the plane of the roller B.

J is a shed or guard-plate just above roller B.

K represents agitator-pins mounted in the adjustable frame C.

L is an endless flexible screen of any suitable character. The screen I prefer is that known as "spiral mesh" or "spiral fabric," composed of freely-interlaced spiral wires so engaging as to form diagonal channels. This screen I have frequently illustrated in detail in my previous patents and applications, and it will be sufficient herein to refer to it as being the same as that shown in Patent No. 672,982, dated April 30, 1901, and in my application, Serial No. 66,634, filed July 1, 1901.

The course of the screen is as follows: Starting with the driver-roller E and going in the direction of the arrows, which indicate its direction of travel, it passes down to and under the rod G, thence up to and over the top roller F, and thence down the guide-board I, which prevents it from swaying to the lower end, where it forms a freely-hanging slack portion, (indicated by *l*.) It forms this slack because the screen is made longer than the direct course over its guides, being in this respect similar to the screen of my application above referred to. From this slack *l* it passes up to and over the roller B and thence direct to roller D. These two rollers B and D define the functionally-operative inclined portion of the screen, for it is upon this portion that the separation takes place. In its course between the two rollers the screen passes over and in contact with the agitator-pins K, whereby it is shaken or agitated. The screen passes under and around roller D, thence under the mesh-clearing roller H, and thence to the driver and point of beginning.

M is a feeder of suitable character, adapted to deliver the material to the screen near roller B, just in advance of guard-plate J.

The operation is as follows: The material is constantly being carried up by the screen in the direction of roller D. The smaller particles fall through the screen meshes, while the larger particles, failing to pass through, are continually lifted and fall back again, the



whole material turning over and over, being carried up and rolling back, the sticks, straws, and other large particles carrying along at the bottom and working over constantly to the edge of the screen, from which they are discharged. The guard-plate J prevents them from passing down below roller B, and it also serves to guide them sidewise to the discharge. Now for different degrees of separation or for different kinds of material the inclination of the functionally-operative portion of the screen between rollers B and D may be varied to suit circumstances. This is done by swinging the frame C, which carries roller D, and I have here shown in dotted lines the change in such inclination. This change is made possible by having the screen of a length in excess of the direct course over its guides, thereby providing for the slack *l*, which may be considered a "give and take," to compensate for the change in the position of roller D and the inclination of the portion of the screen between rollers B and D; but the slack *l* serves another purpose, which may be termed a "whipping-out effect." By this I mean that any particles which may still remain in the meshes will by the rapid running of the screen in the freely-hanging loop be forcibly jarred or thrown out. The pins *h* of roller H will force out most of the clogging particles from the mesh, and the small rod G will further this result of cleaning the screen by causing the mesh to open as the screen passes around it in abrupt course.

The weight of the screen from the top roller F down is sufficient to enable the driver, which pulls from the roller B, to run the screen without strain.

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

1. A separator consisting of an endless traveling flexible screen, guides for the screen on the uprising side thereof between which said screen is adapted to travel at an inclination, means for adjusting one of said guides to vary such inclination of the screen, and a feeder disposed to deliver material on the inner surface of the screen at the lower end of the inclined portion thereof, substantially as described.

2. A separator consisting of an endless, traveling flexible screen of a length in excess of the direct course over its guides, suitable guides for the screen on the uprising side thereof and between which said screen is adapted to travel at an inclination, a feeder disposed to deliver material on the inner surface of the screen at the lower end of the inclined portion thereof, and other guides for the screen arranged to provide a slack for the excess of length of the screen at a point adjacent to one of said first-mentioned guides, substantially as described.

3. A separator consisting of an endless traveling flexible screen, guides for said screen on the uprising side thereof between which said

screen is adapted to travel at an inclination, and a feeder disposed to deliver material on the inner surface of the inclined portion of the screen, substantially as described.

4. A separator consisting of an endless traveling flexible screen of a length in excess of the direct course over its guides, guides for the screen at the uprising side thereof between which said screen is adapted to travel at an inclination, means for adjusting one of said guides to vary such inclination, a feeder disposed to deliver material on the inner surface of the screen at the lower end of the inclined portion thereof, and auxiliary guides for the screen arranged to provide a slack from the excess of length of the screen at a point adjacent to one of said first-mentioned guides, substantially as described.

5. A separator consisting of an endless traveling flexible screen of a length in excess of the direct course over its guides, guides for the screen on the uprising side thereof between which said screen is adapted to travel at an inclination, means for adjusting one of said guides to vary such inclination, a feeder for delivering material on the inner surface of the screen at the lower end of the inclined portion thereof, a driver for the screen, and suitable guides on the down-moving side of the screen disposed to provide a slack of the excess of length of the screen at a point adjacent to one of said first-mentioned guides, substantially as described.

6. A separator consisting of an endless, traveling, flexible screen, a fixed guide over which the screen passes on its uprising side, a frame pivotally mounted in the axis of said guide, a second guide carried in the free end of the frame by which guide the screen is directed, means for adjusting the frame to vary the inclination of the screen between the two guides, a feeder for supplying the material to the inner surface of its screen near the fixed guide, and a driver and suitable directing means for the screen, disposed in its course beyond the two guides.

7. A separator consisting of an endless, traveling, flexible screen, a fixed guide over which the screen passes on its uprising side, a frame pivotally mounted in the axis of said guide, a second guide carried in the free end of the frame by which guide the screen is directed, means for adjusting the frame, to vary the inclination of the screen between the two guides, agitators carried by the frame, and with which the screen in traveling comes in contact, a feeder for supplying the material to the inner surface of the screen near the stationary roller, and a driver and suitable directing means for the screen, disposed in its course beyond the two guides.

8. A separator consisting of an endless traveling flexible screen, having a length in excess of the direct course over its guides, a fixed guide over which the screen passes on its uprising side, a frame pivotally mounted in the



axis of said guide, a second guide carried in the free end of the frame by which guide the screen is directed, means for adjusting the frame to vary the inclination of the screen  
 5 between the two guides, a feeder for supplying the material to the inner surface of the screen near the fixed guide, and a driver and suitable directing means for the screen disposed in its course beyond the two guides,  
 10 and arranged to provide a slack of the excess of the length of the screen, as it approaches the fixed guide.

9. A separator consisting of an endless traveling flexible screen of a length in excess of  
 15 the direct course over its guides, guides for the screen on the uprising side thereof between which said screen is adapted to travel at an inclination, means for adjusting one of said guides to vary such inclination, a feeder  
 20 for delivering material to the inner surface of the screen near the lower end of the inclined portion thereof, a driver-roller engaging the screen above the inclined portion thereof, and a guide-board on the down-moving  
 25 side of the screen arranged to provide a slack therein at a point adjacent to the lower end of said board, substantially as described.

10. A separator consisting of an endless traveling flexible screen of a length in excess  
 30 of the direct course over its guides, guides for the screen on the uprising side thereof between which said screen is adapted to travel at an inclination, means for adjusting one of said guides to vary such inclination, a feeder  
 35 for delivering material to the inner surface of the screen near the lower end of the inclined portion thereof, a driver-roller engaging the screen above the inclined portion thereof, a top guide-roller, an intervening rod  
 40 occupying a plane below that of the top guide-roller and the driver-roller, and a guide-board on the down-moving side of the screen arranged to provide a slack therein at a point

adjacent to the lower end of said board, substantially as described.

11. A separator consisting of an endless  
 45 traveling flexible screen of a length in excess of the direct course over its guides, guides for the screen on the uprising side thereof between which said screen is adapted to travel  
 50 at an inclination, means for adjusting one of said guides to vary such inclination, a feeder for delivering material to the inner surface of the screen near the lower end of the inclined portion thereof, a driver-roller engaging the  
 55 screen above the inclined portion thereof, a top guide-roller, an intervening rod occupying a plane below that of the top guide-roller and the driver-roller, a mesh-clearing roller adjacent to the driver-roller, and a guide-  
 60 board on the down-moving side of the screen arranged to provide a slack therein at a point adjacent to the lower end of said board, substantially as described.

12. A separator consisting of an endless  
 65 traveling flexible screen of a length in excess of the direct course over its guides, guides for the screen on the uprising side thereof between which said screen is adapted to travel  
 70 at an inclination, means for adjusting one of said guides to vary such inclination, a feeder for delivering material to the inner surface of the screen near the lower end of the inclined portion thereof, a guide-plate below the line  
 75 of feed to prevent the material from falling below the lowermost guide, a driver, and suitable guides for the screen arranged to provide a slack therein at a point adjacent to one of said first-mentioned guides, substantially  
 80 as described.

In witness whereof I have hereunto set my hand.

ROBERT W. JESSUP.

Witnesses:

C. W. GRASHO,  
 L. H. BRAND.