Nov. 30, 1937. A. A. FREVERT 2,100,738

SEED CLEANING MACHINE

Filed Nov. 5, 1934 2 Sheets-Sheet 1

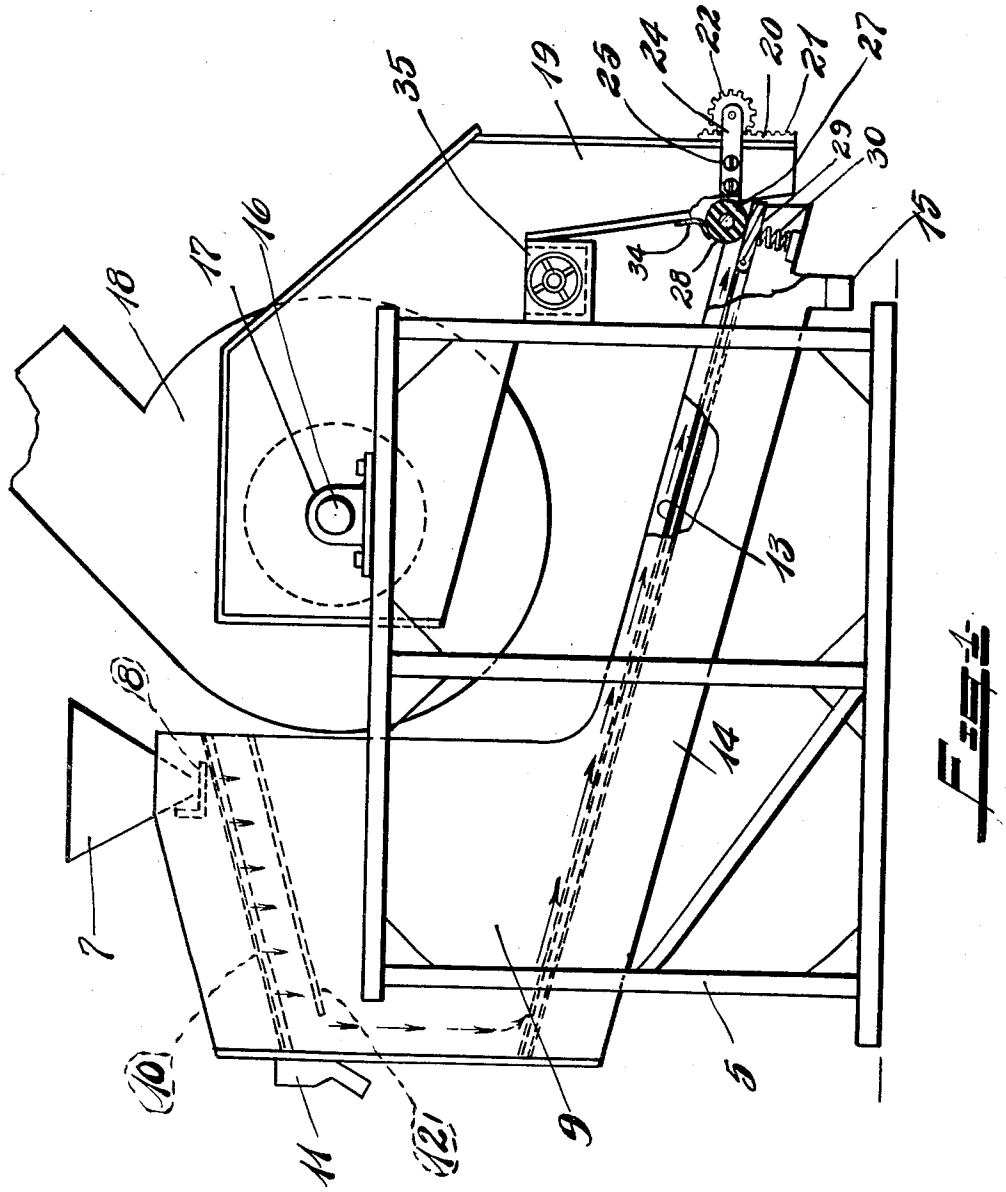


Fig. 1.

INVENTOR.
Albert A. Frevert.
BY
Frank C. Starman.
ATTORNEY.

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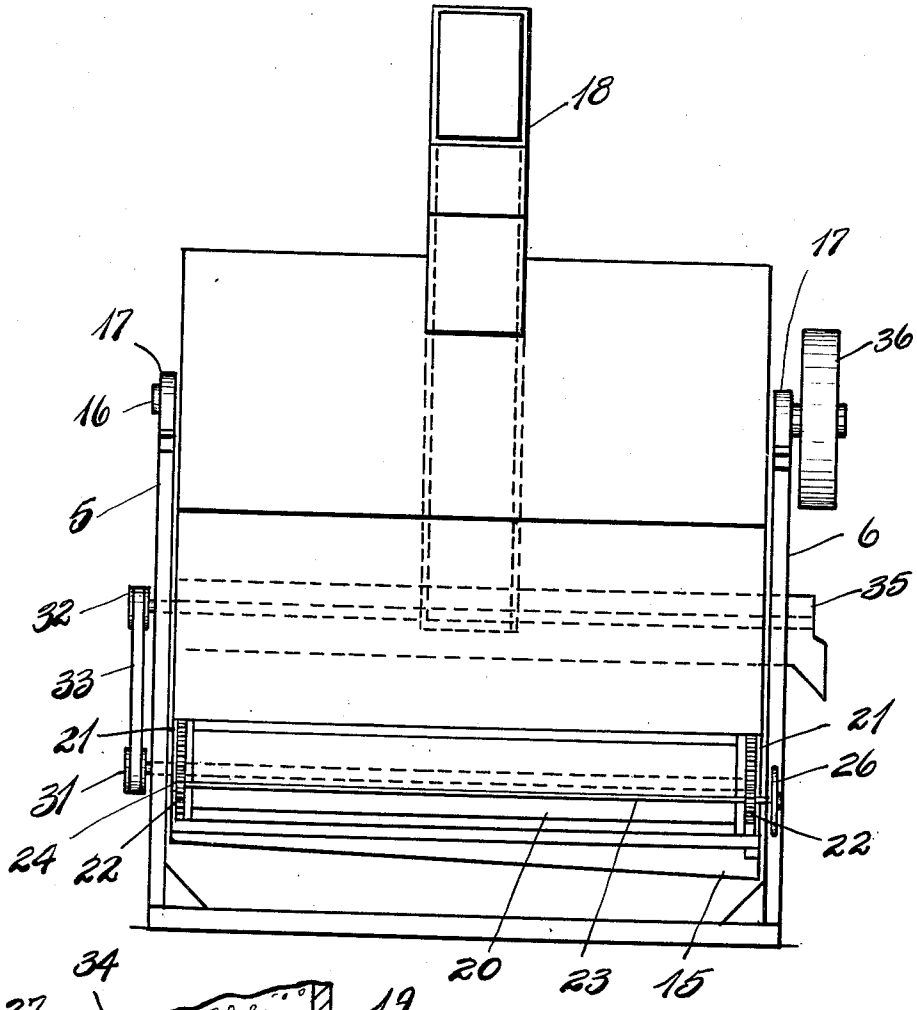


Fig. 2

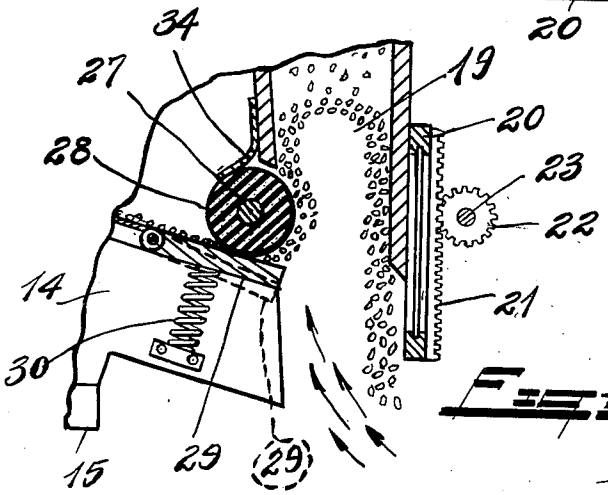


Fig. 3

INVENTOR.

BY Albert A. Frevent.

Frank C. Farman.

ATTORNEY.

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SEED CLEANING MACHINE

Albert A. Frevert, Alma, Mich.

Application November 5, 1934, Serial No. 751,517

4 Claims. (Cl. 209—30)

The prime object of the invention is to provide a seed cleaning machine for separating dirt, stones, foreign matter, and imperfect seed from the perfect seed.

One of the salient objects of the invention is to provide a seed cleaning machine having scalping and grading screens, with an air flue directly adjacent the end of the grading screen, and provide an air seal between the end of said grading screen and air flue.

Another object is to design a rugged, substantial, and economical machine, which is efficient in operation, and which is easy to adjust and operate.

These and other objects of the invention will be apparent from the following description made in connection with the accompanying drawings, wherein like characters refer to similar parts throughout the several views, and in which—

Fig. 1 is a side elevation of my improved seed cleaning machine, parts being broken away to show the interior construction.

Fig. 2 is an elevation of the front end of the machine.

Fig. 3 is an enlarged part sectional detail of the air seal at the end of the grading screen.

The present invention is directed specifically to the air seal, and I shall not attempt to describe the various parts of the machine in detail, excepting to show the course of the product, and the means for creating the suction in the air flue.

Referring now more particularly to the drawings, the machine proper comprises a pair of side frames 5 and 6 respectively which are adapted to support the various parts of the machine, and at the onset I wish it understood that while the machine can be set to separate and clean various kinds of seeds and grains, in the present illustration it is set up for cleaning and grading beans.

The beans to be cleaned are dumped into a hopper 7, and a conventional gate 8 is provided for regulating the flow from the hopper, a conventional shoe 9 is hung in the frame in the usual manner, and an inclined scalping screen 10 is mounted therein, the beans flowing from the hopper onto the screen 10, the lumps of dirt and other tailings being discharged into the tailings hopper 11, the beans passing through the screen 10 and onto the inclined apron 12 which is provided directly below and from which they are discharged onto the grading screen 13, an endless apron 14 being provided below the screen, and the screenings discharge into a transversely disposed inclined trough 15 provided at the end of the screen.

A transversely disposed shaft 16 is journaled in suitable bearings 17 provided on the frame, and an exhaust fan 18 is mounted thereon, an air flue or passage 19 communicating therewith, said flue being slightly tapered, and the lower end thereof being disposed slightly below the end of the grading screen.

An adjustable gate 20 is mounted on the lower end of the flue and racks 21 are provided on the ends thereof, said racks meshing with spur gears 22 which are mounted on the transversely disposed shaft 23, the ends of the shaft being journaled in bar members 24 which are secured to the flue by means of screws 25, and a hand wheel 26 is provided to facilitate the operation of the gate.

A shaft 27 is journaled in the opposite ends of the bar members 24, and a resilient sleeve 28 is mounted thereon, said sleeve being formed of rubber to permit the passage of the product without admitting air, this assembly of the shaft and sleeve being the same as used on picking machines in general use.

An extension apron 29 is hingedly secured to the end of the grading screen, and spring members 30 are mounted therebeneath and normally urge the apron upwardly, so that the face is level with the screen, and as the beans flow from the screen onto the apron, the shaft 27 will be rotated by means of the pulley 31, said pulley being geared to a similar pulley 32 by means of the belt 33, so that as the beans are discharged from the end of the apron, no air can be drawn from over the beans on the grading screen, the rubber sleeve forming a tight and effective seal, and cooperating with the guard member 34 which is mounted on the flue, and should any foreign matter become wedged between the sleeve and the apron, the springs 30 will permit it to swing downwardly, and as clearly shown in dotted lines in Fig. 3 of the drawings.

In operation, the rotation of the fan naturally creates a suction in the flue 19, the air currents in the flue draw the beans upwardly, the air passing through the stream and carrying any remaining foreign matter, cracked or heavier product up and into the cross conveyor 35, which discharges at the opposite side of the machine into a bin or other receptacle, the perfect product floats up and into the lower pressure area of the flue, rising until the weight of the beans is not sustained by the pressure, when they fall, and aided by gravity, drop into a suitable bin or receptacle (not shown), provided to receive them, the position of the gate, of course, controls the aspirating

of the beans in the flue and is regulated to suit the product being cleaned.

The machine can be driven from any suitable source of power, and a pulley **36** is provided on the end of the fan shaft to facilitate the connection.

No vibrating means is shown for vibrating the shoe, but this can be done in the conventional manner, and it is not deemed necessary to describe this or the machine in detail as this invention is broadly directed to the air seal.

From the foregoing description it will be obvious that I have perfected a very simple, practical, and economical seed cleaning machine.

What I claim is:

1. In a seed cleaning machine, the combination with a flat screen, of a nonperforated hinged section forming an extension of said screen, an air flue adjacent the end of the screen and provided with an opening communicating with said nonperforated section, a resilient roll journaled on said machine and positioned in said opening to form an air seal between the screen and the flue without interrupting the flow of the product to the flue, and resilient means urging said hinged section against said roll.

2. In a seed cleaning machine, the combination with a screen having a nonperforated section hingedly secured to the discharge end thereof, an air flue adjacent the end of the hinged section and forming a wall at the end of the nonperforated section, and opening in said wall, a resilient roll mounted on said hinged section and forming a closure for said opening and an air seal between the screen and the flue without interrupting the flow of the product being screened, and resilient means urging said nonperforated section against said roll.

3. In a seed cleaning machine, the combination with a screen having a nonperforated section hingedly secured to the discharge end thereof, resilient means for holding the free end of said section in its raised position, an air flue adjacent the discharge end and open thereto, and a resilient roller journaled on the machine and cooperating with the nonperforated section and the wall of the air flue to form an air seal between the screen and the flue without interrupting the flow of the product being cleaned.

4. In a seed cleaning machine, the combination with a screen, of a nonperforated section connected to and forming an extension thereof, an air flue adjacent the end of the screen and provided with an opening communicating with the screen, a resilient roll engaging said nonperforated section and forming a closure for said opening and an air seal between the flue and the screen, and resilient means permitting a variation between the horizontal center line of the roll and the face of the nonperforate screen section.

ALBERT A. FREVERT.