

No. 742,518.

PATENTED OCT. 27, 1903.

C. STONE.
GRAIN SCOURER AND CLEANER.

APPLICATION FILED JULY 28, 1902.

NO MODEL.

Fig. 1.

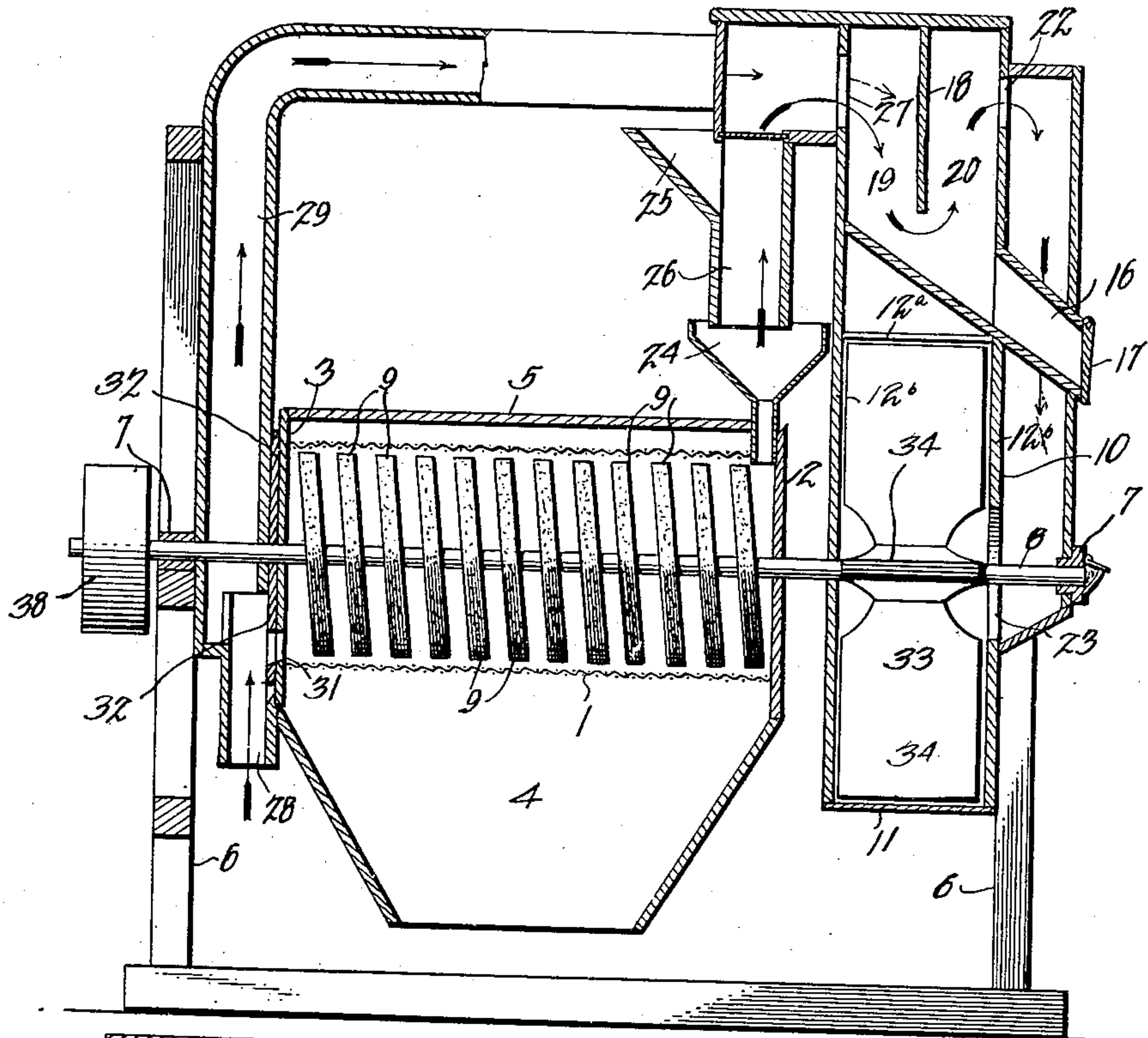


Fig. 2.

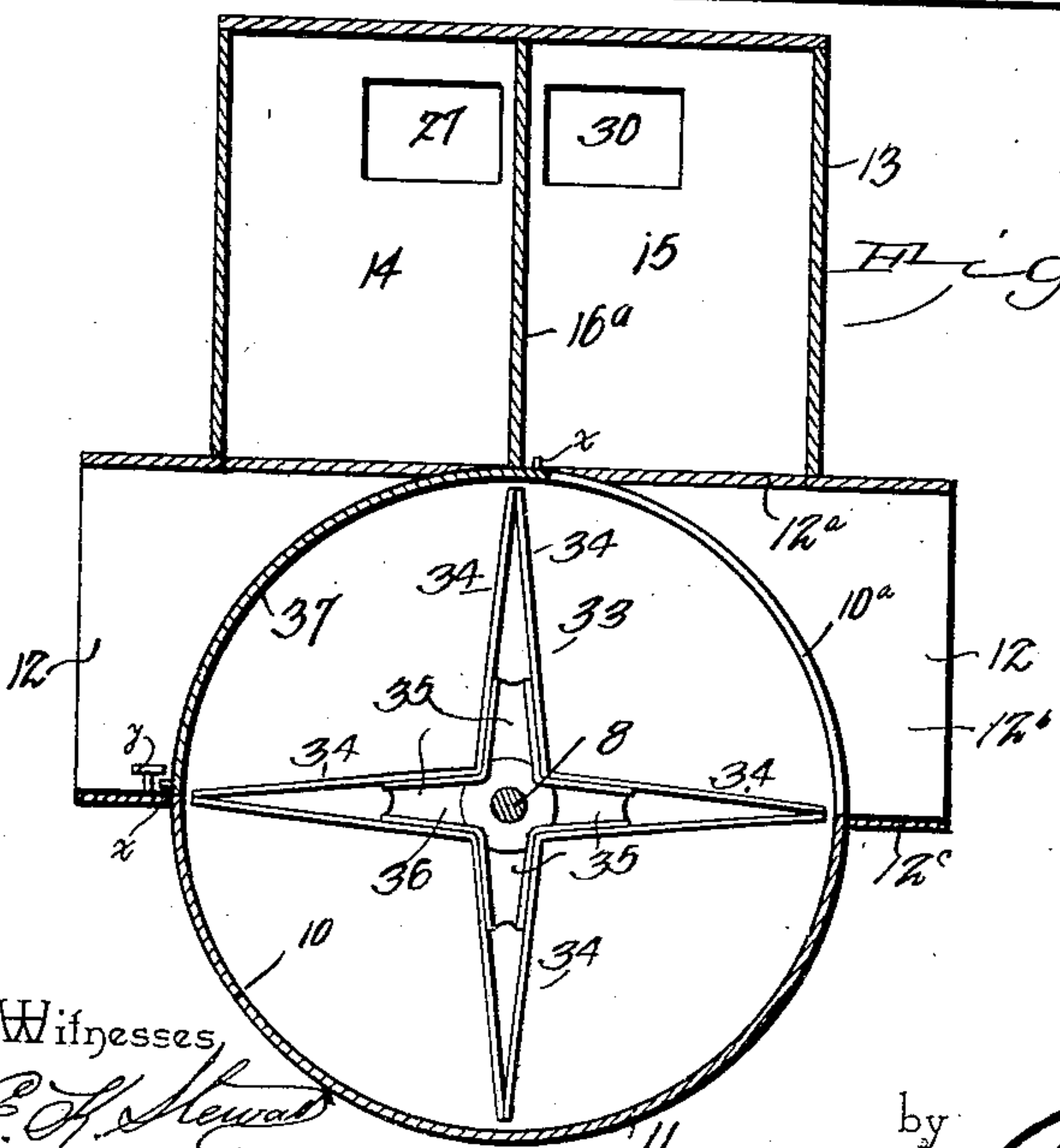
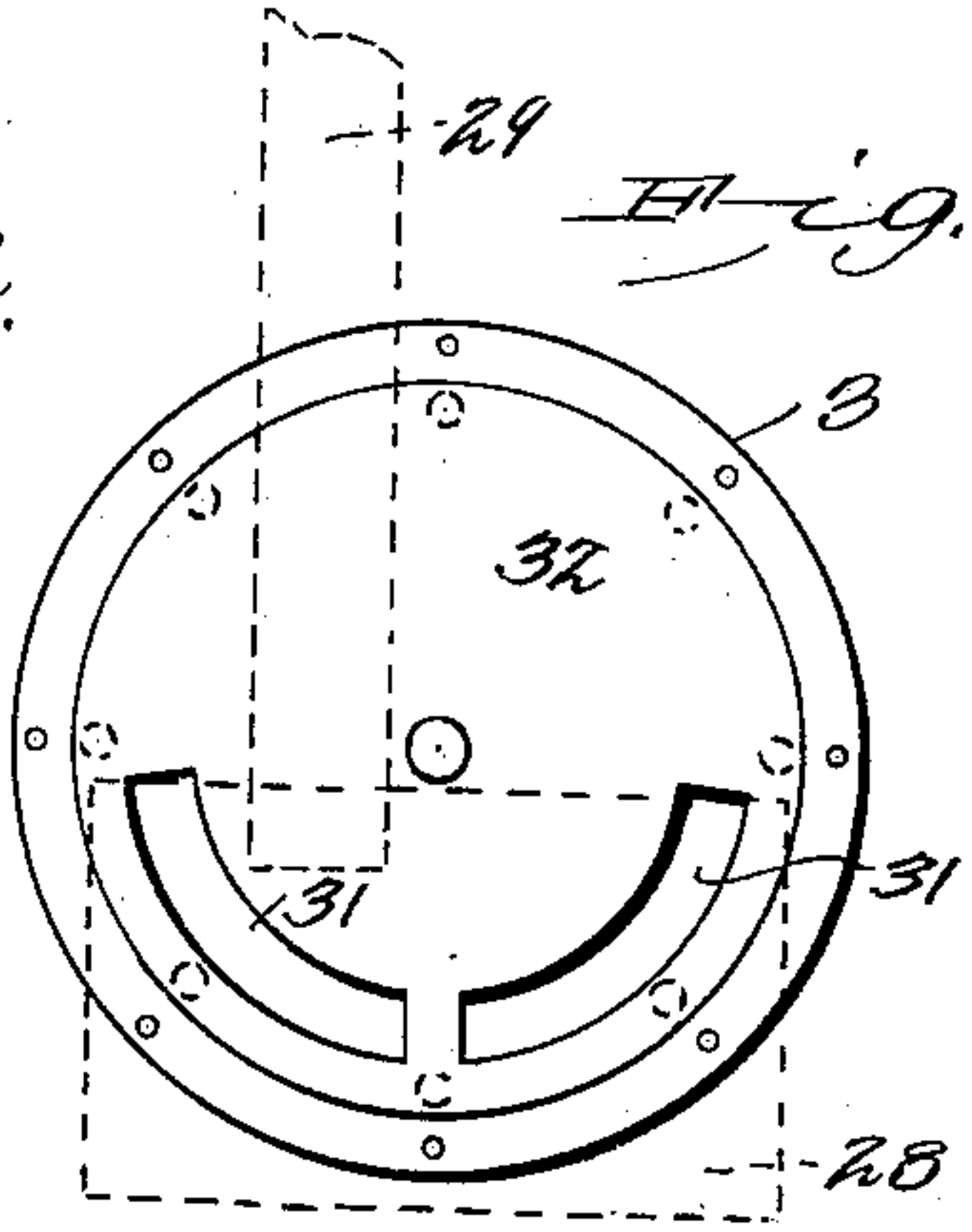


Fig. 3.



Witnesses
E. J. Stewart
J. W. Garner

by C. Stone, Inventor.
C. A. Snow & Co.
Attorneys

UNITED STATES PATENT OFFICE.

COLUMBUS STONE, OF MANCHESTER, TENNESSEE.

GRAIN SCOURER AND CLEANER.

SPECIFICATION forming part of Letters Patent No. 742,518, dated October 27, 1903.

Application filed July 28, 1902. Serial No. 117,355. (No model.)

To all whom it may concern:

Be it known that I, COLUMBUS STONE, a citizen of the United States, residing at Manchester, in the county of Coffee and State of Tennessee, have invented a new and useful Grain Scourer and Cleaner, of which the following is a specification.

My invention is an improved grain scourer and cleaner; and it consists in the peculiar construction and combination of devices hereinafter fully set forth and claimed.

In the accompanying drawings, Figure 1 is a vertical central longitudinal sectional view of a grain scourer and cleaner constructed in accordance with my improvements. Fig. 2 is a detail sectional view of the same, taken on a plane indicated by the line *xx* of Fig. 1. Fig. 3 is a detail elevation of the discharge-head of the screen-case.

In the embodiment of my invention I provide a horizontally-disposed cylindrical screen-case 1 of any suitable construction, which is provided with the heads 2 3, the latter being the discharge-head. This screen-case is disposed above a discharge-hopper 4 for the impurities, and the said discharge-hopper, together with the upper casing 5, serves to inclose the screen-case. The said hopper and screen-case are supported by a suitable frame 6, and the latter is also provided with bearings 7 for a longitudinally-disposed revoluble shaft 8, which extends centrally through the screen-case, as shown. That portion of the shaft which is within the screen-case 1 is provided with a series of inclined scouring-disks 9, which are made of corundum or other suitable material. The said scouring-disks are inclined with reference to the axis of the said shaft and coact with the screen-case to scour the grain, dislodge the impurities, and take off the outer husk therefrom.

At the head of the screen-case 1 and at a slight distance therefrom is a fan-casing 10. The lower side of the same is semicylindrical in form, as at 11, and on the upper side of the fan-casing are oppositely-extending spouts 12, which are approximately rectangular in cross-section, being inclosed by the top piece 12^a, side pieces 12^b, and bottom pieces 12^c, which latter form extensions of the lower segmental portion of the fan-casing. The inner sides of

the side pieces 12^b are also provided with segmental grooves 10^a for the reception of a segmental closure to be hereinafter described, whereby one of the spouts 12 may be closed, so as to cause the discharge from the fan-casing to be open to one side only. The upper side of the said spouts forms the lower side of an air-separating box 13, which is divided into two vertical compartments 14 15, disposed side by side by a vertical partition 16^a. The lower side of each of the said compartments is inclined and is provided with a discharge-spout 16, having at its outer end a gravity-valve 17, which forms a closure therefor. In each of the compartments of the air-separator is a downwardly-extending baffle 18, whereby each of the said compartments is formed with a descending leg 19 and an ascending leg 20. A wind-trunk leads from the respective air-discharge openings 22 of the compartments of the air-separating box to the intake 23 of the fan-casing, the back of said wind-trunk being constituted by one of the side pieces 12^b of the upper portion of the fan-casing.

On the upper side of the screen-case, at the head thereof, is a feed-funnel 24. A feed-hopper 25 is provided with a vertical descending trunk 26, which discharges into the feed-funnel 24 and is open at its lower end to the intake of air. The upper end of the said feed-trunk 26 communicates with the compartment 14 of the air-separating box through an opening 27. At the discharge end of the screen-case is a spout 28 for the grain, which spout, in effect, forms a lower continuation of an air-trunk 29, that communicates with the compartment 15 of the air-separating box through an opening 30.

The discharge-head 3 of the screen-case is provided on its under side with a pair of segmental ports 31. On the outer side of the discharge-head is a circular valve-head 32, which is revoluble, or partially so, on the shaft 8, and the said valve-head has ports which are similar to the discharge-ports 31 of the discharge-head and which are adapted to register therewith. By appropriately turning the valve-head the discharge-ports 31 may be partially covered or entirely uncovered, and hence their effective area may be varied as may be required to regulate the discharge of

the wheat or other grain from the screen-case. By this means the grain may be caused to pass through the screen-case under the action of the scouring-disks 9 at the required rate of speed to cause the grain to be thoroughly cleaned and scoured. The ports 31 communicate directly with the discharge-spout 28.

In the fan-casing 11 and secured on and revolved by the shaft 8 is an exhaust fan or blower 33, which is provided with oppositely-faced wings or blades 34, that are disposed tangentially with reference to a circle concentric to the said shaft, as shown in Fig. 2. The inner portions of the said oppositely-faced wings or blades are here shown as riveted to the arms 35 of a central spider 36, which forms a portion of the exhaust-fan and is secured to the shaft 8. I also provide a curved segmental closure 37 of the same radius as the semicylindrical lower side 11 of the fan-casing. This closure is placed in engagement with the segmental groove 10^a and is thereby adapted to close either of the discharge-spouts 12 of the fan-case to cause the blast to be discharged to either side of the machine, as may be desirable. The segmental closure 37 is provided at its edges with flanges *x*, whereby it may be supported upon either one of the projecting discharge-spouts of the fan-case, suitable means, such as turn-buttons *y*, being provided to retain the said closure in operative position. It will be readily understood that by reversing the position of the closure 37 and reversing the direction of rotation of the fan the latter will be caused to discharge in either direction. This is a desirable feature of my invention, inasmuch as the combined right and left discharge enables the apparatus to be located in various positions. It will be understood that the construction of the fan with the oppositely-disposed blades or wings adapts the fan to be driven in either direction. The inclined scouring-disks 9, which rotate with the shaft 8, are equally effective when turned in either direction.

In the operation of my improved grain scourer and cleaner the action of the exhaust-fan causes the current of air to be drawn up through the feed-trunk 26, to pass through the compartment 14 of the separating-box, and to be discharged into the fan-casing and out therefrom and also causes a current of air to be maintained upwardly through the discharge-spout 28 and to pass through the wind-trunk 29 into the compartment 15 of the air-separating box and from said compartment into the fan-casing. Hence the grain

is winnowed as it is fed to the screen-case, and the particles separated therefrom become lodged in the lower portion of the compartment 14 of the air-separating box, from which they are discharged from time to time through the discharge-spout and by the gravity gate-valve of said compartment. The major portion of the impurities scoured and separated from the grain in the screen-case by the action of the disks 9 is discharged through the meshes of the screen-case and the hopper 4. The bran is separated from the grain as it is discharged from the screen-case by the up-draft through the spout 28 and air-trunk 29. Hence the bran is carried to the compartment 15 of the air-separating box, becomes lodged therein, and is discharged from time to time through the spout and gravity gate-valve of said compartment.

The herein-described improved construction of the fan-casing with the oppositely-extending spouts 12, having segmental grooves 10^a and the adjustable curved closure 37, enables the latter to be conveniently adjusted from either side of the machine, so as to cause the material discharged from the fan-casing to be expelled to either side of the machine.

A grain scourer and cleaner thus constructed is exceedingly cheap and simple, is not likely to get out of order, requires but little power to operate it, and needs but little attention when in operation. A pulley 38 is here shown on the shaft 8, by which it may be driven. As hereinbefore stated, the shaft and the exhaust-fan thereon may be driven in either direction.

Having thus described my invention, I claim—

In a machine of the class described, a vertically-disposed fan-casing having spouts disposed to discharge in diametrically opposite directions from the fan-case, a shiftable closure for said spouts, and a horizontally-disposed top piece constituting the upper wall of said spouts and of the fan-case, in combination with separating-chambers mounted upon said horizontal top piece, scouring means, and wind-trunks connecting the separating-chambers with the intake of the fan-case and with the intake and the exit of the scouring device.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

COLUMBUS STONE.

Witnesses:

C. E. PRICE,
CHAS. T. WILSON.