

(No Model.)

H. GSCHWENDER.
GRAIN SCOURER.

No. 421,369.

Patented Feb. 11, 1890.

Fig. 1.

Fig. 2.

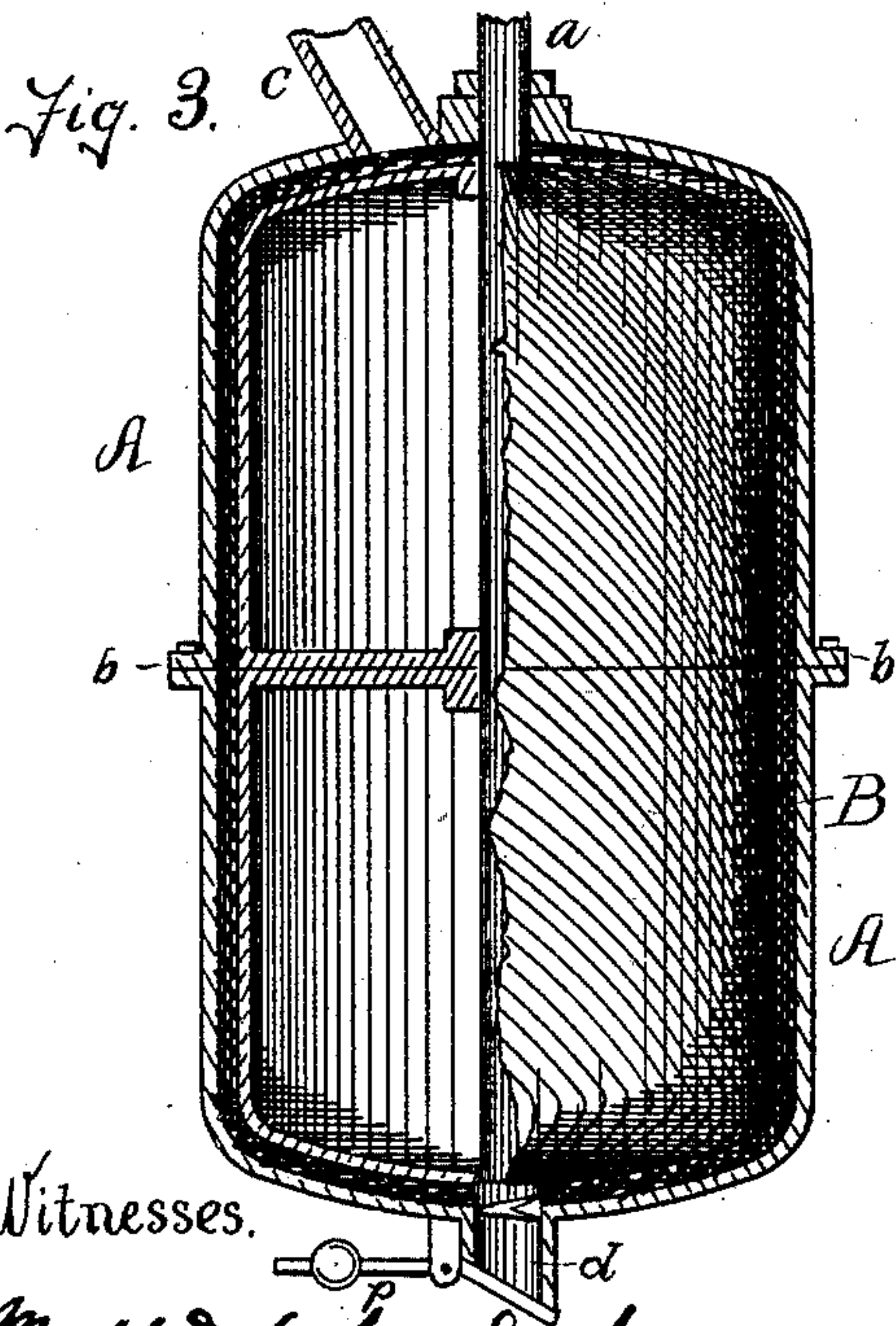
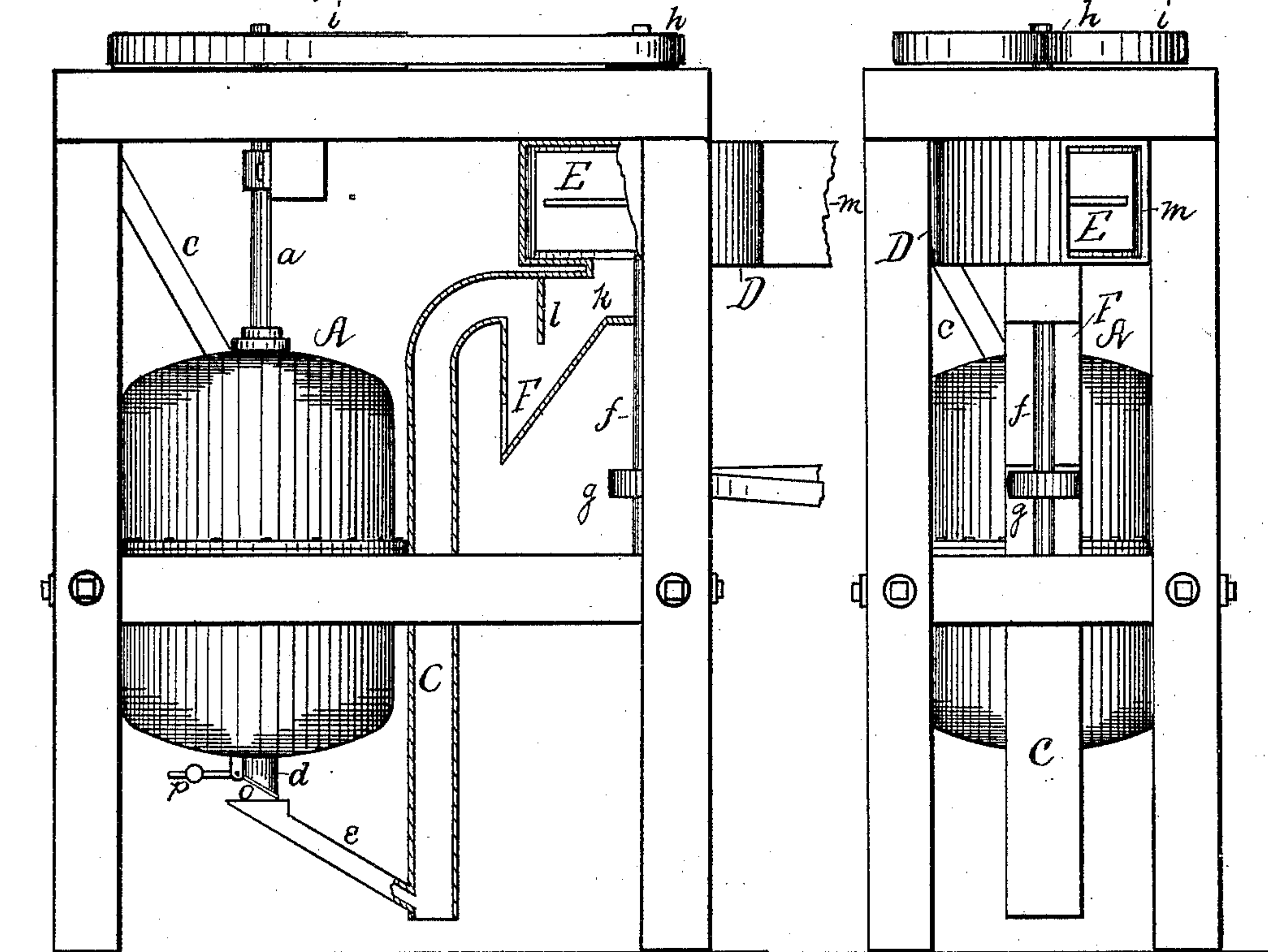
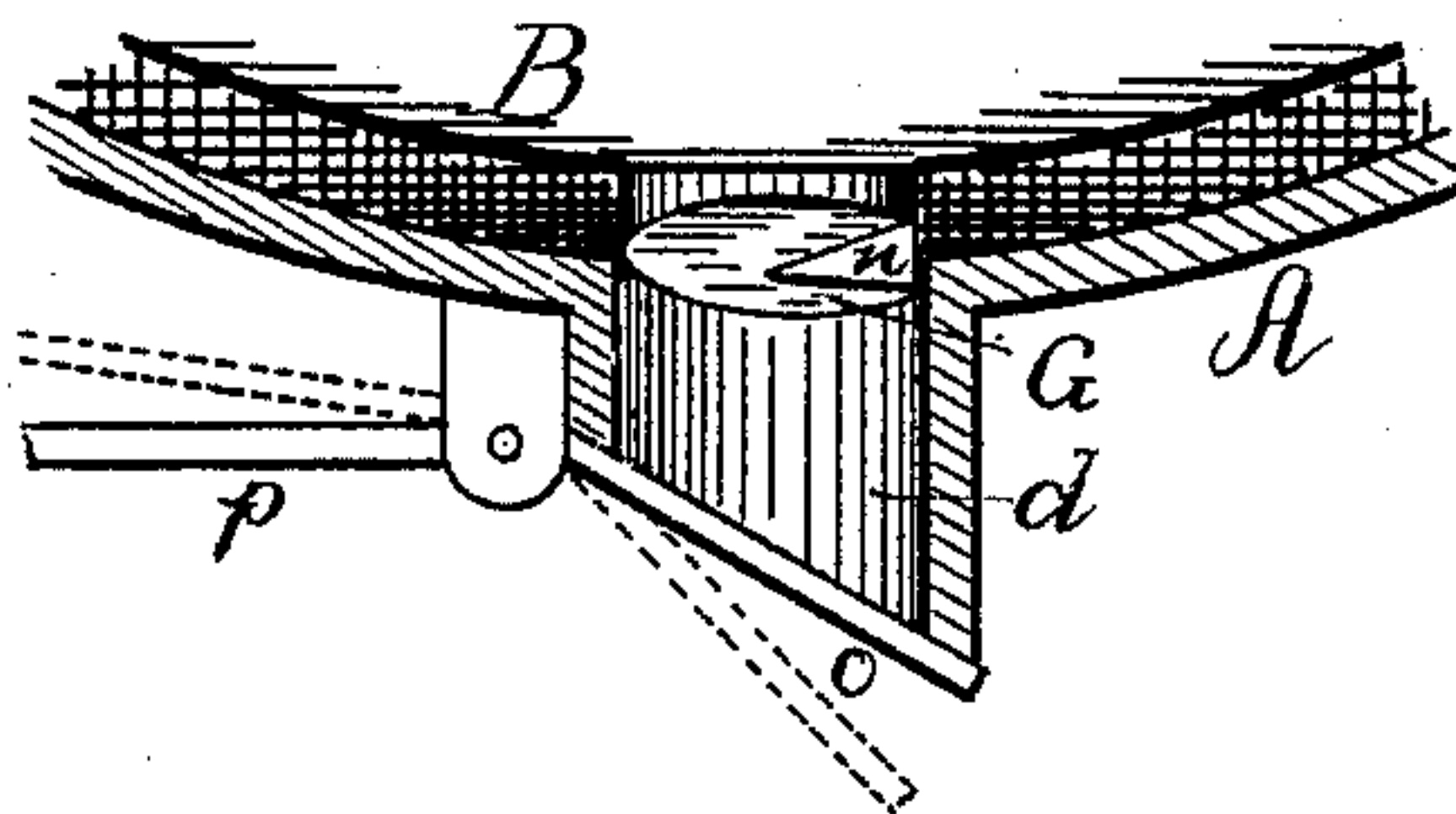


Fig. 4.



Witnesses.

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By

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UNITED STATES PATENT OFFICE.

HENRY GSCHWENDER, OF WINONA, MINNESOTA.

GRAIN-SCOURER.

SPECIFICATION forming part of Letters Patent No. 421,369, dated February 11, 1890.

Application filed April 20, 1888. Serial No. 271,310. (No model.)

To all whom it may concern:

Be it known that I, HENRY GSCHWENDER, a citizen of the United States, residing at Winona, in the county of Winona and State of Minnesota, have invented certain new and useful Improvements in Grain-Scourers; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to machines for scouring grain for the purpose of removing smut, chaff, or any foreign substance therefrom that may adhere to it; and it consists in the construction and arrangement of the rubber or scourer and the drum in which it is inclosed, in the projecting worm at the base of the rubber and working in the discharge-outlet for the purpose of forcing out the grain, in the valve for closing the discharge-outlet, and in the position and arrangement of the air-trunk and screenings-spout with relation to the grain-discharge-spout and the fan-case; also, in the construction and arrangement of the several parts in detail, as will be herein after more fully set forth and described.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 is a side view, partly in section, of my improved grain-scourer, showing the general position and relation of the several parts. Fig. 2 is an end view of the same. Fig. 3 is a longitudinal sectional view of the drum, showing the rubber partly in section; Fig. 4, an enlarged view of the lower end of the rubber and drum, showing the auger-shaped projection for forcing out the grain and the valve for closing the spout.

Like letters designate corresponding parts in all of the figures.

Mounted in an upright frame-work, to which it is firmly secured by any convenient means of attachment, is the scouring-drum A, inclosing the rubber B, mounted upon an upright shaft *a*, revolving in suitable bearings at the top of the drum and attached to the upper part of the frame-work. The drum A is of

oblong cylindrical form, made in two sections riveted or bolted together by means of annular flanges *b b*, formed around the adjacent edges of the two sections on the outside thereof, the corners at the upper and lower ends being somewhat rounded, and the ends bulging outwardly toward the center. The rubber B is of similar form, having an arm extending across the open end of each section, through which the shaft passes, and it is of slightly smaller dimensions, so as to turn easily within the drum, leaving a narrow space upon all sides for the reception of the grain, which is delivered to the drum by a spout *c*, connecting with the interior of the drum at a point near the center of the upper end of the same. The upper end of the rubber B sloping gradually from its center in all directions, the tendency of its revolution is to cause the grain to work slowly toward the bottom of the drum in the space between the rubber and the interior surface of the drum, and the bottom of the drum sloping similarly downward toward its center facilitates the passage of the grain toward the discharge-outlet *d*, whence it passes into the discharge-spout *e*. The outer surface of the rubber is formed with corrugations extending from top to bottom at an angle of about forty-five degrees to the axis of revolution; and the inner surface of the drum is similarly corrugated in the opposite direction. When the drum is filled to the top with grain, the rubber is caused to revolve by means of its shaft, and the grain is subjected to a rubbing process between the corrugated outersurface of the rubber and the inside of the drum throughout its entire passage from the top to the bottom of the drum. The corrugations upon the outersurface of the drum being at an angle, as above stated, to the axis of revolution, the downward progress of the grain is assisted, and it is thus subjected to a thorough rubbing before being allowed to pass from the discharge-outlet.

Extending partially within the discharge-outlet and formed upon or attached to the lower end of the rubber B is a cylindrical projection G, having its lower end surface of a spiral form and with a vertical radially-extending surface *n* connecting the adjacent

edges of the spiral surface. The purpose of this projection is to force out the grain in the discharge-spout in proper quantities, a valve *o*, actuated by a weighted arm *p*, normally closing the outlet and preventing the grain from discharging so readily as not to insure its thorough cleansing.

The air-trunk *C* extends upwardly from the outer end of the discharge-spout connecting with the fan-case *D*, located at the upper part of the frame-work, and containing the fan *E*, mounted upon an upright shaft *f*, turning in suitable bearings upon the frame-work. A pulley *g*, mounted upon the shaft *f*, carries a belt connected with any convenient driving mechanism, and a small pulley *h*, mounted upon the upper end of the same shaft, is connected by belt with a larger pulley *i*, located on the upper end of the shaft *a*, upon which the rubber is mounted, by which arrangement the rubber is driven at a less rate of speed than is required for the fan.

The upper end of the air-trunk *C* curves outwardly and extends horizontally underneath the fan-box *E*, and is connected with the interior thereof by a closed passage *k*. Underneath the air-trunk, with its upper end open to the interior thereof, is the screening-spout *F*, for the discharge of such dust, smut, &c., as shall be drawn from the grain by the action of the current of air raised by the revolution of the fan.

A vertical partition *l*, extending across the air-trunk, over the inner end of the screenings-spout *F* and extending downwardly a short distance within the same, causes the current of air as drawn upward in the air-trunk by the revolution of the fan to take a short turn downward within the spout *F* and thence upwardly into the fan-case and out at the opening *m* in the fan-case. The current striking the partition *l* and thence turning downward the screenings drawn upward in the current are thrown to the bottom of the spout *F*, whence they are discharged through a small aperture therein.

The construction of this machine is simple and inexpensive, its parts are durable and not liable to get out of order, while its purpose of scouring the grain and separating

foreign substances therefrom is perfectly accomplished.

I claim as my invention—

1. In a grain-scourer, in combination with an upright cylindrical scouring-drum and a rubber of similar form mounted upon an upright shaft within the drum, a downwardly-extending cylindrical projection upon the center of the lower end of the rubber and working in the discharge-outlet, the lower end of said projection having a spiral surface, and a radial vertical surface joining the adjacent edges of the spiral surface, substantially as and for the purpose herein specified.

2. In a grain-scourer, an upright cylindrical scouring-drum formed in two cross-sections united at their adjacent edges by means of outwardly-extending annular flanges, said drum having its inner surface diagonally corrugated, a rubber of similar form but of smaller dimensions, having corrugations upon its outer surface extending in a direction opposite to those upon the inner surface of the drum, and means for revolving the said rubber within the drum, substantially as and for the purpose herein specified.

3. In a grain-scourer, in combination with an upright cylindrical drum having a grain inlet and outlet, respectively, located in the top and bottom thereof, the inlet being near the center of the end of the drum and the outlet at the center of the bottom, and a similarly-shaped rubber mounted upon an upright shaft within the drum and means for operating the same, a valve having a weighted arm acting normally to close the said outlet, and a worm projection upon the lower end of said rubber working in said outlet to force the grain through said outlet, substantially as specified, whereby the grain is retained within the drum until thoroughly scoured.

In testimony whereof I affix my signature in presence of two witnesses.

HENRY GSCHWENDER.

Witnesses:

C. R. TUPER,
N. B. FULMER.