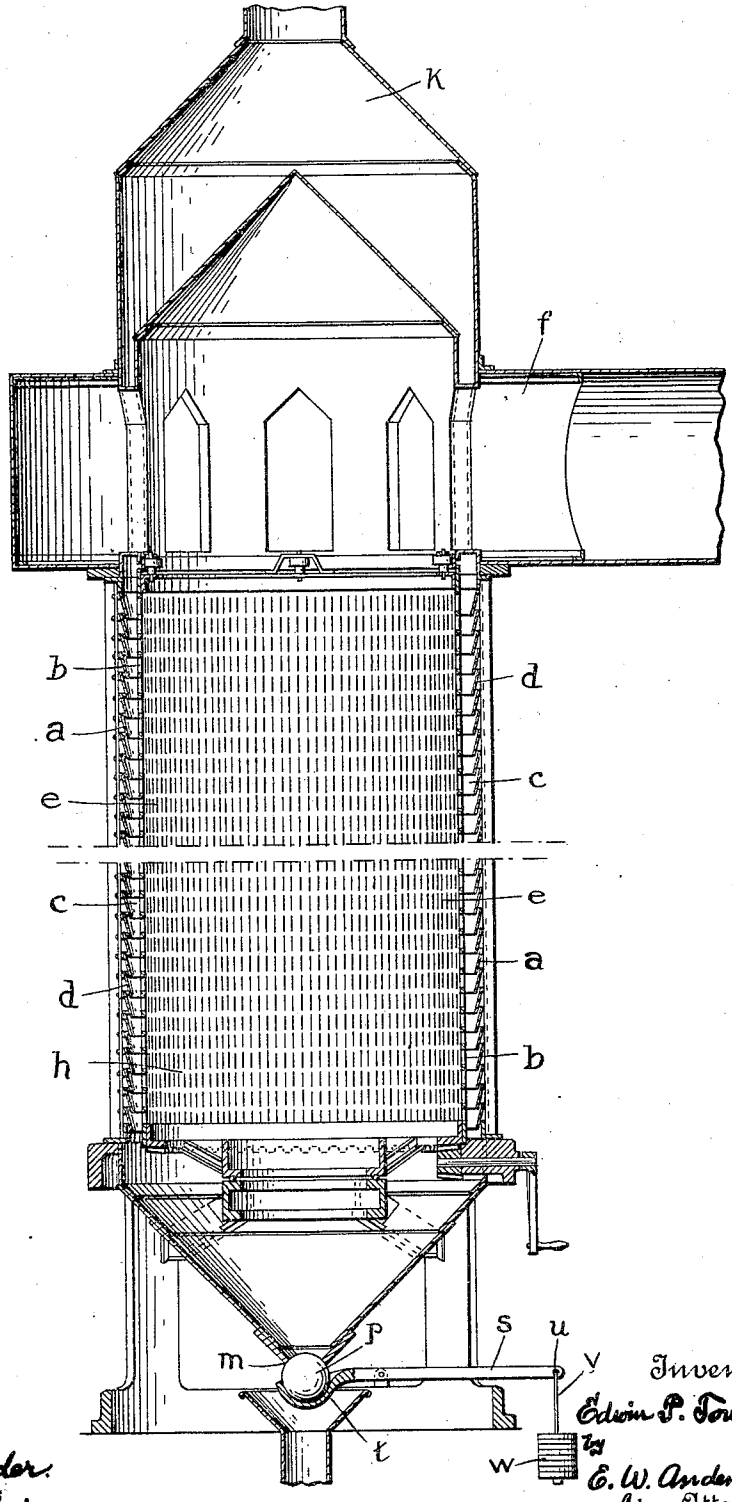
E. P. TOWLES.

VERTICAL CYLINDRICAL DRIER.

APPLICATION FILED NOV. 10, 1909.

1,000,211. Patented Aug. 8, 1911.



Witnesses

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UNITED STATES PATENT OFFICE.

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VERTICAL CYLINDRICAL DRIER.

1,000,211. Specification of Letters Patent. **Patented Aug. 8, 1911.**

Application filed November 10, 1909. Serial No. 527,168.

To all whom it may concern:

Be it known that I, EDWIN PALMER TOWLES, a citizen of the United States, and resident of Niagara Falls, in the county of Niagara and State of New York, have made a certain new and useful Invention in Vertical Cylindrical Driers; and I declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to which it appertains to make and use the invention, reference being had to the accompanying drawing, and to letters or figures of reference marked thereon, which form a part of this specification.

The figure represents a central vertical sectional view showing the invention.

The invention relates to upright cylindrical drying machines of the class in which an annular interspace is provided between perforated cylinders for the downward passage of grain, which is during such passage subjected to air draft for the purpose of absorbing surface moisture, and it consists in the construction and novel combination of parts whereby it is designed to equalize the drying action, as hereinafter shown and described and pointed out in the appended claim.

In the accompanying drawing, illustrating the invention, the letter *a*, designates the external cylinder, the wall of which consists mainly of a series of reversed louver-form slats *d*, which have an upward and outward slope, so as to provide air passages, and at the same time prevent the escape of the grain, which is designed to descend in the annular interspace or chute *c*, between this cylinder and the interior cylinder *b*, which is provided with series of small perforations *e*, for the passage of air into the interior or flue passage *h*, of said cylinder *b*.

Above the cylinders is provided an exhaust chamber *f*, which communicates with the flue passage *h*, of the interior cylinder. Also an entrance or feed chamber *k*, having a cone-shaped spreader floor, and which communicates with the upper end of the annular interspace or chute *c*, between the cylinders. Below said cylinders is a concentrating chamber of conical form communicating with the lower end of the annular interspace *c*, and terminating in a discharge opening *m*, which is controlled by means of a ball valve *p*. This opening or valve seat is circular and ground to fit the ball *p*, which is designed to be held up against the seat, by means of an adjustable pressure device, such for instance as a lever *s*, having at one end a circular bearing *t*, for the ball, and at the other end a perforation *u*, for the attachment of a holder *v*, for a weight *w*, designed to control the discharge.

The circular bearing for the ball is concave, and the ball is loose therein, being designed to have motion of accommodation in centering itself. The weight on the end of the lever is composed of a number of layer-weights, and is in this way made adjustable, so that while the valve will open under a certain pressure of grain, it will close automatically to stop the flow when there is irregularity due to a failure of the grain to come down on one side or another to the valve opening in sufficient quantity to operate the lever.

The object of this machine being to absorb surface moisture from the grain preparatory to further treatment, it is essential that its action shall be such as to deliver the grain in the same condition at all points around the valve, and this is designed to be accomplished by means of the circular cylindrical and conical construction coöperating with the adjustable ball valve discharge, and the automatic closure in connection therewith, because the ball valve will thus allow the grain to flow evenly at all points of the circular valve seat in the discharge, and in case of an irregular and therefore a diminished flow, will shut off the discharge automatically.

What I claim, therefore, and desire to secure by Letters Patent is:

In a vertical drier, the combination with an outer vertical cylinder having series of draft openings, an exhaust chamber, an in-

ner vertical perforated cylinder concentric with said outer cylinder and communicating with said exhaust chamber, said cylinders being spaced apart to form an annular chamber therebetween, of a feed chamber communicating with said chute, a concentrating receiving chamber having a circular opening, an automatically closing ball valve, a lever support therefor, and an adjustable weight device substantially as specified.

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

EDWIN P. TOWLES.

Witnesses:
F. EUGENE WALSH.
JAS. TRAVERSE.