April 8, 1924. 1,489,739

T. P. CHISHOLM

FEED DEVICE FOR GRAIN CLEANING MACHINES

Filed Jan. 29, 1923

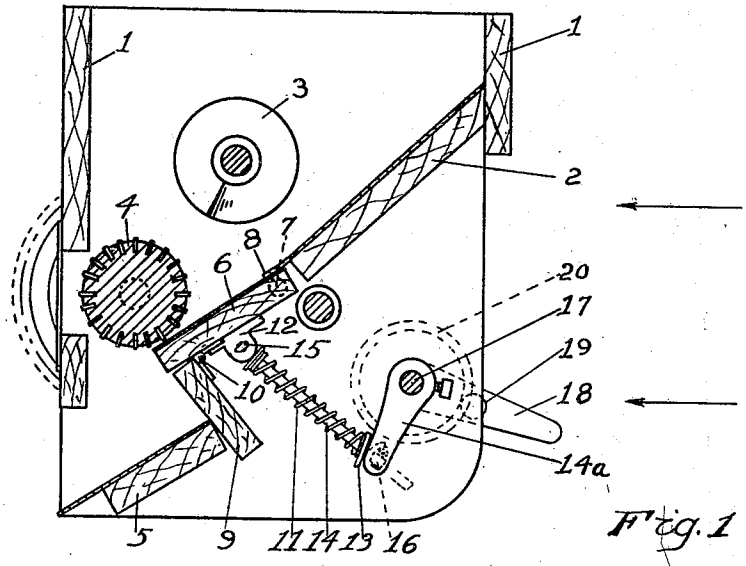


Fig. 1

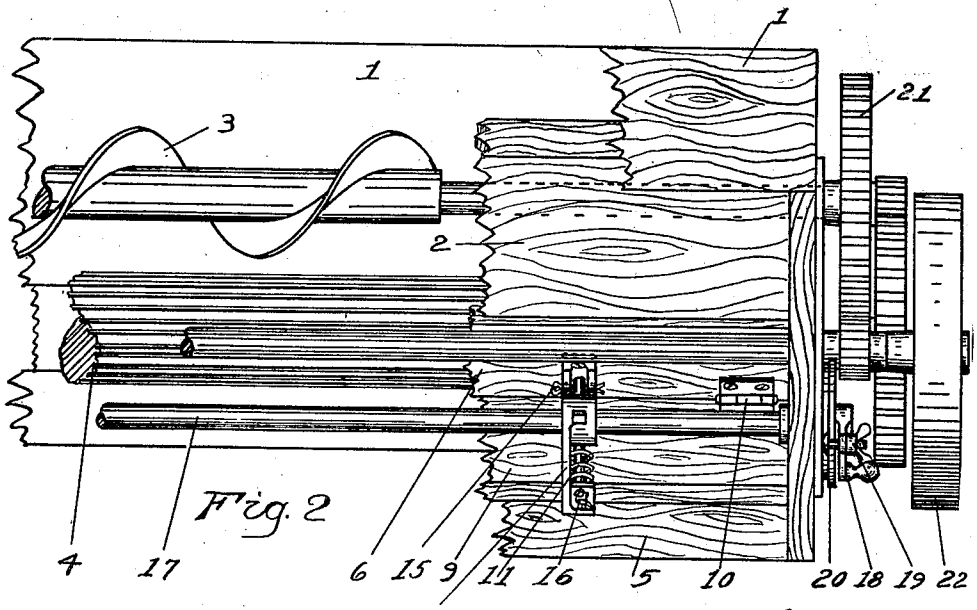


Fig. 2

Thomas P. Chisholm

INVENTOR

BY Geo. B. Willcox

ATTORNEY

Patented Apr. 8, 1924. 1,489,739

UNITED STATES PATENT OFFICE.

THOMAS P. CHISHOLM, OF SAGINAW, MICHIGAN, ASSIGNOR TO A. T. FERRELL & CO., OF SAGINAW, MICHIGAN, A CORPORATION OF MICHIGAN.

FEED DEVICE FOR GRAIN-CLEANING MACHINES.

Application filed January 29, 1923. Serial No. 615,660.

To all whom it may concern:

Be it known that I, THOMAS P. CHISHOLM, a citizen of the United States, residing at Saginaw, in the county of Saginaw and State of Michigan, have invented certain new and useful Improvements in Feed Devices for Grain-Cleaning Machines; and I do hereby 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.

This invention relates to feed hoppers for grain cleaning machines and the like. The invention pertains more particularly to a novel means for effecting a fine and accurate adjustment of the distance between the hopper bottom and the out-feeding roll and for making the hopper bottom yieldable without disturbing the said adjustment.

In detail the objects of my invention are to provide a feed adjusting device for the delivery end of grain hoppers and the like whereby the grain delivery space between the hopper bottom and the feed delivery roll can be easily and accurately adjusted for properly delivering grains of different sizes to machines adapted to clean and sort the material.

For example, the setting of my improved feed adjustment may be quickly changed to feed beans, corn, wheat, or other grains as desired.

A further object is to provide the adjusting device with an operating mechanism so constructed that it not only holds the adjusted position firmly under normal conditions, but also permits the feed device to yield and permit larger obstructions to pass through and it then automatically returns the feed device to its adjusted position.

With the foregoing and certain other objects in view which will appear later in the specifications my invention comprises the devices described and claimed and the equivalents thereof.

In the drawings, Fig. 1 is a vertical section through a hopper embodying my improvement.

Fig. 2 is a part front view of the same as viewed in the direction of the arrows in Fig. 1, the front walls of the hopper partly broken away.

As is clearly shown in the drawings, the hopper 1 is provided with the usual inclined bottom 2 and the revolving rotatable agitating screw 3.

It also employs the usual rotatable feed roller 4 located above and in proximity to the inclined hopper bottom and having longitudinal flights or blades.

My improved means for adjustably raising and lowering the lower end of the inclined bottom of the hopper in order to bring it more or less close to the working edges of the flights on the rotating feed roll, is shown in Fig. 1, where 5 is the lower discharge apron of the hopper bottom. This apron is preferably fixed to the frame of the hopper, as is also section 2 of the hopper bottom. 6 indicates a vertically adjustable section of the hopper bottom. It may be hinged at one edge, as at 7, and the joint between the hinged section 6 and the stationary section 2 of the hopper bottom may be covered by a flexible flap 8 of sheet metal or other suitable material.

By raising and lowering the adjustable section 6 with respect to feed roller 4, the feed may be readily changed to suit various kinds of material such as those above referred to.

My invention includes the device for effecting fine up-and-down-adjustment of section 6, whereby the lower end of the hopper bottom, being the lower end of section 6 as shown in Fig. 1, is accurately located in various adjusted positions with relation to the feed roll, but section 6 is also held yieldingly in that accurately adjusted relation so that obstructions or larger objects may pass through, after which the hopper bottom immediately resumes its adjusted position.

The device for effecting this adjustment comprises a compression spring 11, one end of which bears against a bracket 12 carried by the adjustable section 6. The other end of spring 11 bears against a washer 13 which in turn rests against a rocker arm 14^a. Loosely extending through the helical spring 11 is a rod 14 pin-connected at one end 15 to bracket 12 and also provided with a pin 16 to prevent the rod from slipping out of engagement with arm 14^a.

This arm is mounted on a rock shaft 17 which also carries a radial adjusting lever 18 which is adapted to be clamped in any suitable position by means of a clamp 19 and a stationary disk 20, which serves as a fixed quadrant.

The clamp 19 is preferably a threaded bolt having a wing nut. The bolt is carried by lever 18 and its head engages underneath the rim of disk 20 so as to clamp the lever to the disk and thereby fix arm 14^a in any angularly adjusted position.

The screw 3 and roller 4 may be actuated by a suitable train of gears 21 driven by a driving pulley 22, as shown in Fig. 2.

My improvement also includes means to prevent loss of material through the hopper bottom when the bottom is in its various adjusted positions, as above described, and also to prevent air blasts from entering. For this purpose I provide a hinged door or closure 9 suspended from section 6 by means of a hinge 10, or otherwise. Normally the member 9 bears against the end of section 5 of the hopper bottom and prevents escape of material without interfering with the vertical adjustment of section 6.

By the means above described I have produced a simple and relatively inexpensive, yet effective means for adjusting the feed from a grain hopper or similar receptacle, whereby the hopper may be quickly changed from feeding coarse grains to properly feed smaller grains or vice versa.

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

In combination, a feed roller, a hopper having an inclined wall, a part of said wall beneath said roller movable toward and from the periphery of said roller, an adjusting device adapted to locate and to yieldingly support the movable part of said bottom in various adjusted positions, said device including a pivotally supported rocker arm, means for holding said arms in various angularly adjusted positions, a rod pivotally secured at one end to said movable part of the hopper bottom and a spring on said rod adapted to yieldingly hold said arm and the movable part of the hopper bottom in spaced relation, and a swinging closure hinged to the free end of the movable part of said hopper bottom.

In testimony whereof, I affix my signature.

THOMAS P. CHISHOLM.