Aug. 12, 1930. H. J. MEYER 1,772,874

AUTOMATIC FEEDER FOR MILLS

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Fig. 1.

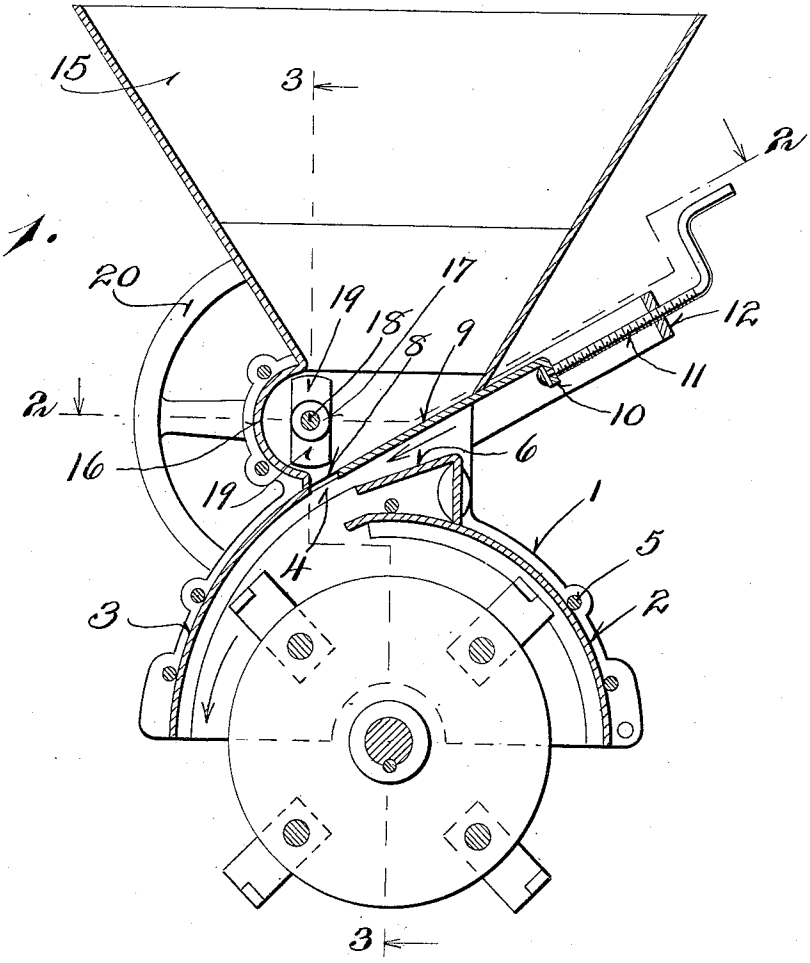
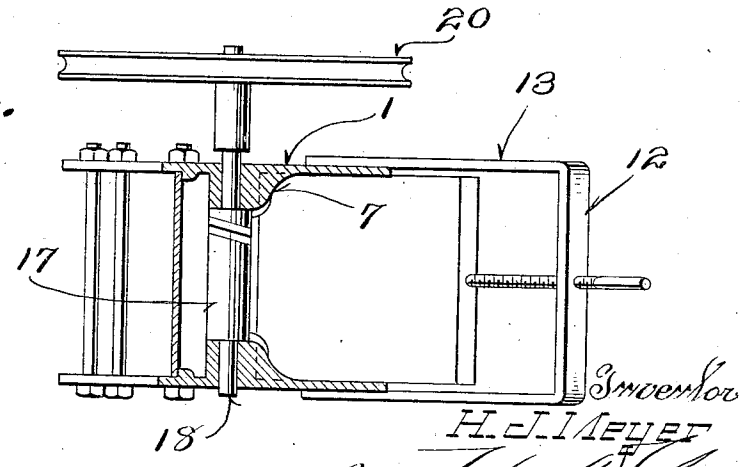


Fig. 2.



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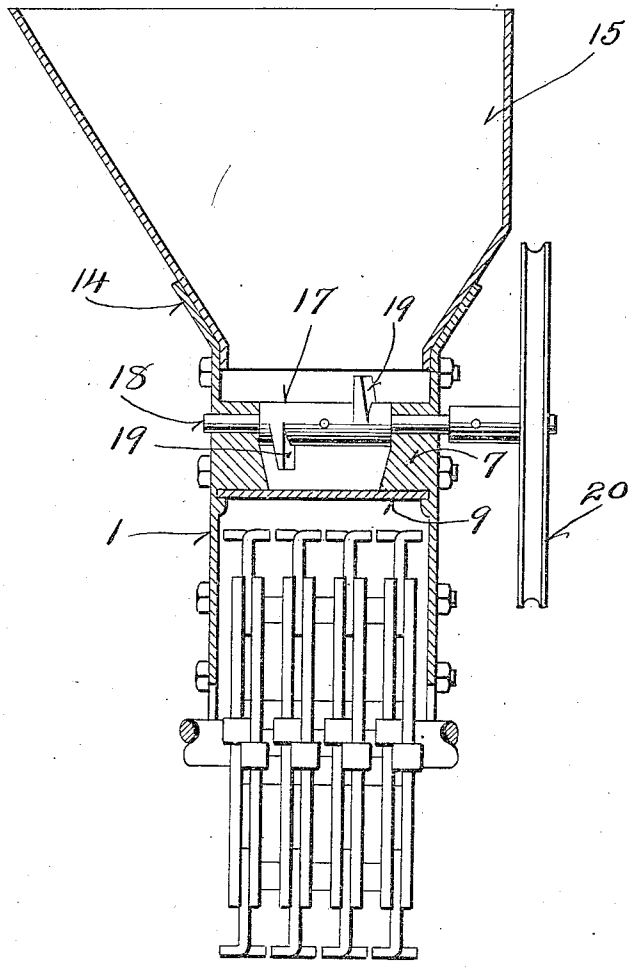


Fig. 3.

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Patented Aug. 12, 1930 1,772,874

UNITED STATES PATENT OFFICE

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AUTOMATIC FEEDER FOR MILLS

Application filed July 9, 1928. Serial No. 291,208.

This invention relates to an automatic feeder for mills, such as mills adapted to operate upon grain, or other similar material.

Objects of this invention are to provide a novel form of feeding device which is associated with the hopper and with a slot through which the material is fed to the mill, and which is so constructed that it will shift the material back and forth across the slot so as to insure a uniform and automatic feeding of the material to the mill.

Further objects are to provide a construction in which a hopper is formed as a unitary member with the cover to the mill, in which provision is made for adjusting the slot to any desired width, and in which the feeding means cooperates with the slot, irrespective of variations in its width due to adjustment.

An embodiment of the invention is shown in the accompanying drawings in which:

Figure 1 is a vertical sectional view through the upper portion of the mill with the device in place;

Figure 2 is a sectional view on the line 2—2 of Figure 1;

Figure 3 is a sectional view on the line 3—3 of Figure 1.

Referring to the drawings, it will be seen that a hammer type mill has been illustrated as provided with a cover formed of side plates 1 and curved transverse members 2 and 3. The members 2 and 3 are spaced apart to form a slot 4 through which the material is fed. The side plates 1 are secured together by means of tie bolts 5, or, in any other suitable manner. Preferably, an intermediate spacing member 6 is provided immediately above the upper portion of the member 2, as shown in Figure 1.

The side plates 1 are provided with inwardly bulged portions 7, which, as may be seen from Figure 2, merge into the inner walls of the side plates and form a somewhat constricted throat. Further, the side plates are provided with grooves 8 (see Figure 1) within which are carried the opposite edges of an adjusting slide. This adjusting slide is formed from plate material and has a downturned outer flange 10 within which is swivelled the inner end of the adjusting screw 11. The adjusting screw 11 is threaded through the transverse strap 12 carried by suitable arms 13, as shown most clearly in Figures 1 and 2. This screw may be provided with a crank or hand wheel whereby it may be readily operated.

The side plates 1 are provided with outwardly divergent upper portions 14 to which a hopper 15 is secured. This hopper is adapted to contain the grain or other material and is provided with a bulged hollow portion 16 in one of its walls.

Within this bulged portion, which is also arranged adjacent the inwardly projecting portion 7 of the side plates, a hub 17 (see Figures 1 and 2) is positioned and is carried by a shaft 18 extending through the hopper. This hub is provided with diametrically opposed arms 19 (see Figure 3). These arms extend radially from the hub and are oppositely slanted and axially spaced from each other. Any suitable means, such as the pulley 20, may be employed for rotating the shaft 18.

In operation, it will be seen that the width of the slot 14 may be adjusted by means of the slide 9 to the desired width and consequently the feed may be accurately controlled as required. Further, as the shaft 18 rotates, the arms 19 alternately engage the material adjacent opposite ends of the slot and due to their reverse slanting arrangement, shift the material back and forth longitudinally of the slot and thus insure a uniform and regular feed of the material without any possibility of clogging.

It is to be noted particularly that only one arm at a time engages the material and that this arm moves the material in one direction only, that is to say, longitudinally of the slot. When the other arm engages the material, the first arm is out of the way and the material is bodily shifted longitudinally of the slot, but in the opposite direction.

It is to be noted that the center of the shaft 18, and consequently the center of the hub 17, is directly over the rear edge of the slot 4.

From actual experiments with different types of devices and different locations, it

has been found that by positioning the parts in the manner just described, that clogging of the slot is wholly avoided. It is believed that the freedom from clogging obtained by the construction described and illustrated is due to the fact that the agitator extends over the slot a sufficient distance to keep the material agitated at the slot, but that it does not extend over the slot a sufficient distance to shield or cause a clogging of the slot.

Further, it is to be noted that an air inlet passage is provided between the members 6 and 9 and that the air flows in, in the direction shown by the arrows and causes a uniform distribution of the fed material as it enters the mill.

It will be seen that a very simple, self-contained feeding unit has been provided for mills, which may be cheaply constructed and which will prevent clogging and insure a uniform, steady feed.

Although the invention has been described in considerable detail, such description is intended as illustrative rather than limiting as the invention may be variously embodied and as the scope of such invention is to be determined as claimed.

I claim:

In a mill of the character described, the combination of a pair of side plates, transverse members extending between the side plates with their opposed edges spaced apart to form a slot, a hopper mounted above said transverse members and contracting towards said slot, an intermediate spacing member between the lower end of the hopper and one of said transverse members, an inclined movable slide at the lower end of the hopper for regulating the width of said slot, an adjusting screw connected to the outer end of said slide for imparting movement to the same, means for supporting said adjusting screw adjacent the hopper, said hopper having a lateral bowed semi-hollow portion, a shaft co-axial with the hollow portion and mounted with its center over the rear edge of said slot, a hub carried by the shaft and radially projecting arms formed on said hub.

In testimony that I claim the foregoing I have hereunto set my hand at Waukesha, in the county of Waukesha and State of Wisconsin.

HENRY J. MEYER.