W. WATTS.

FEED REGULATOR.

APPLICATION FILED JULY 16, 1912.

1,073,193.

Patented Sept. 16, 1913.

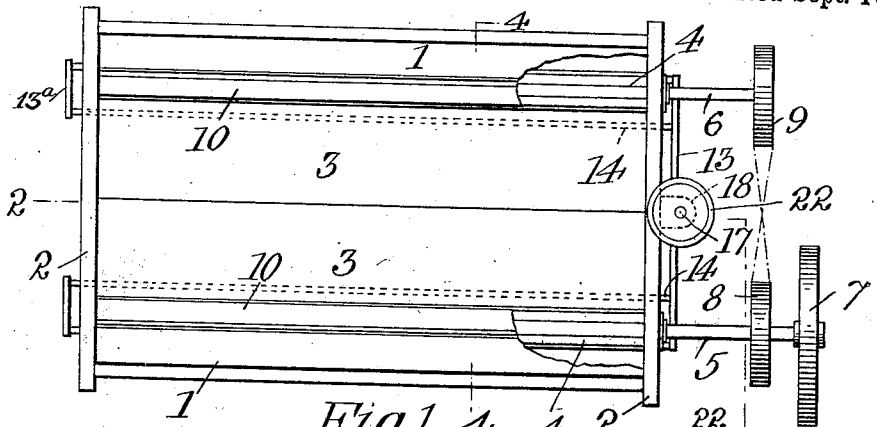


Fig. 1

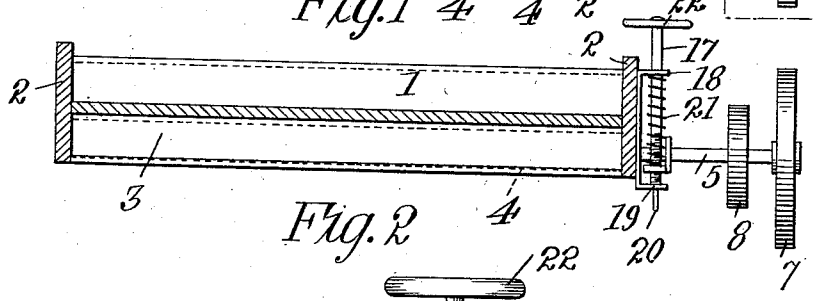


Fig. 2

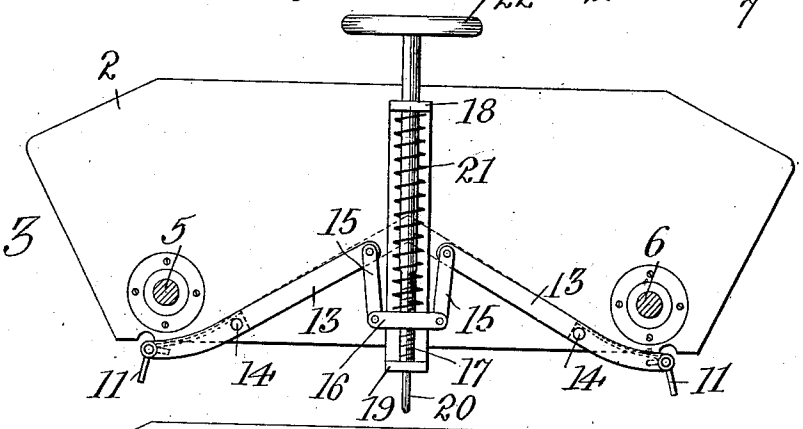


Fig. 3

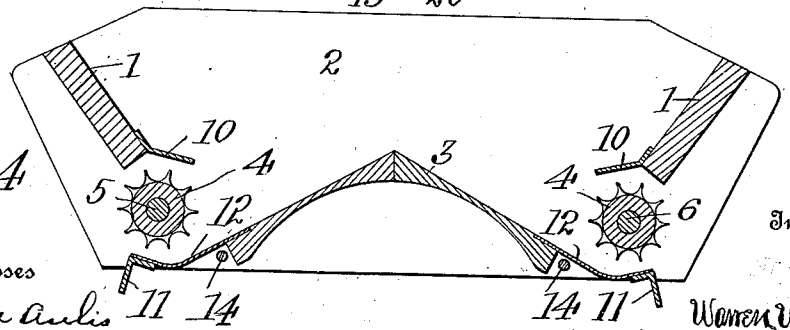


Fig. 4

Witnesses

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UNITED STATES PATENT OFFICE.

WARREN WATTS, OF HAYES TOWNSHIP, CLAY COUNTY, KANSAS.

FEED-REGULATOR.

1,073,193. Specification of Letters Patent. Patented Sept. 16, 1913.

Application filed July 16, 1912. Serial No. 709,721.

To all whom it may concern:

Be it known that I, WARREN WATTS, a citizen of the United States, and a resident of Hayes township, in the county of Clay and State of Kansas, have invented new and useful Improvements in Feed-Regulators, of which the following is a specification.

My invention relates to feeding devices for granular materials and is especially designed for use in connection with grain treating and cleaning machines.

The invention has utility, however, in any apparatus where it is desired to regulate the discharge of granular material from a hopper, my improved construction providing means for discharging such material in a uniform sheet or stream and for varying the thickness of such stream.

In order that my invention may be thoroughly understood reference is had to the accompanying drawings forming a part of this specification and in which,

Figure 1 is a plan view of my improved hopper and feed regulating devices; Fig. 2 is a section substantially on the line 2—2 of Fig. 1, parts being shown in elevation; Fig. 3 is a side elevation on an enlarged scale, parts being in section; and, Fig. 4 is a vertical transverse section through the hopper on a scale corresponding to Fig. 3.

Referring to the drawings in detail, the hopper shown comprises the inclined end walls 1 and vertical side walls 2. The hopper is shown as provided with a bottom 3 which slopes downwardly on each side of the center, as clearly illustrated in Fig. 4.

Mounted in the hopper at each side thereof, and at a point slightly above the lower edge of the inclined bottom, is a fluted feed roller 4. One of these rollers is secured to a shaft 5, and the other to a shaft 6. A drive wheel 7 and a pulley 8 are also secured to shaft 5 and a pulley 9 to shaft 6, these pulleys adapted to be connected by means of a cross belt so as to be driven in opposite directions. Thus when power is applied to the wheel 7 in any suitable way, the rollers 4 are caused to revolve in such a direction as to feed the material outwardly from beneath them. Secured to the end walls 1 above the rollers 4 are guard strips 10 which prevent the escape of material above the rollers.

Disposed underneath each roller 4 is an adjustable gage strip 11, shown as formed of a piece of angle iron, and a flexible apron 12 extends from such gage strip to the lower edge of the inclined bottom 3. Each gage strip 11 is supported by means of arms 13 and 13ª secured to a cross shaft 14, journaled in the side walls of the hopper. The adjacent ends of the arms 13 are connected by means of links 15 with a nut 16, adapted to work upon a screw threaded portion 17 of a vertically disposed shaft mounted upon the hopper. This shaft is journaled in brackets 18 and 19 and is provided at its lower end with a reduced portion 20. This reduced portion extends through the bracket 19 and the downward movement of the shaft is limited by the engagement of the shoulder formed at the upper end of such reduced portion with said bracket. A coiled spring 21 surrounds the shaft and bears at one end upon the nut 16 and at the other end against the bracket 18, and a hand wheel 22 is secured to the upper end of the shaft, by means of which it may be turned.

From the above it will be evident that by rotating the shaft 17 by means of the hand wheel, the nut 16 may be raised or lowered and, through the links 15 and arms 13, the gage strips 11 are moved toward and from the rollers 4, thereby regulating the width of the discharge opening underneath such rollers. The flexible aprons 12 admit of the free movement of the gage strips.

It will, of course, be understood that the apparatus at each side of the hopper is a duplicate of that on the other side, and that I may in certain instances use only a single roller, gage strip, and apron, instead of the two as shown.

What I claim is:—

1. In a device for feeding granular material, the combination with a hopper having an inclined bottom, of a flexible apron secured at one side to the lower edge of said bottom, an adjustable gage strip supporting the other side of said apron, a feed roller mounted above said apron, and means for raising and lowering said gage strip to vary the distance between said roller and apron.

2. In a device for feeding granular material, the combination with a hopper having an inclined bottom, of a feed roller mounted adjacent the lower edge of said bottom, and spaced therefrom to provide a discharge opening, an adjustable gage strip for regulating the size of said opening, a pivoted arm by which such gage strip is supported, and a nut and screw device for shifting said arm and strip.

3. In a device for feeding granular material, a hopper having a bottom sloping downwardly on each side of the center, a feed roller mounted in the hopper at each side thereof adjacent such sloping bottom, and spaced therefrom to provide a discharge opening, a gage strip coöperating with each roller to vary the size of such discharge opening, a screw shaft mounted on said hopper, a nut working on said screw shaft, and a connection between said nut and each of said gage strips, whereby, when said shaft is rotated, said strips are moved as desired.

4. In a device for feeding granular material, a hopper having a bottom sloping downwardly on each side of the center, a feed roller mounted at each side of the hopper above such bottom, means coöperating with each roller to vary the size of the discharge opening between such roller and said bottom, a screw shaft mounted on said hopper, a nut on said screw shaft, links pivoted to said nut, and pivoted arms connecting said links with said discharge varying means.

In witness whereof, I have hereunto set my hand in the presence of two subscribing witnesses, at Clay Center, Kansas, this 12th day of July, 1912.

WARREN WATTS.

Witnesses:
MARGARET TOOMEY,
JOS. W. WILSON.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."