

W. BAKER.
FEED REGULATOR.
APPLICATION FILED AUG. 15, 1904.

932,944.

Patented Aug. 31, 1909.

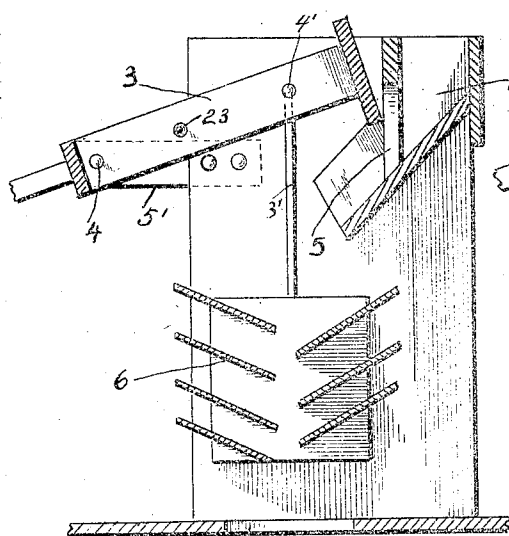


Fig. 1.

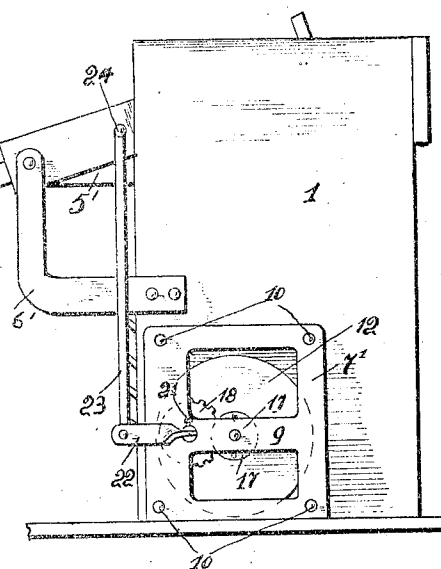


Fig. 2.

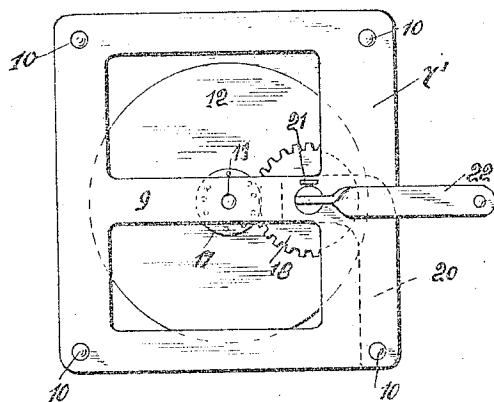


Fig. 3.

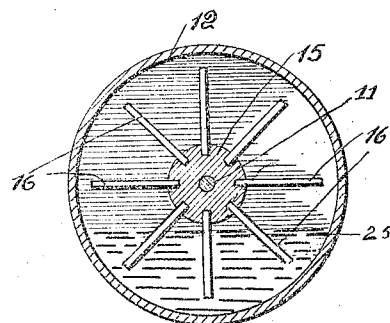


Fig. 4.

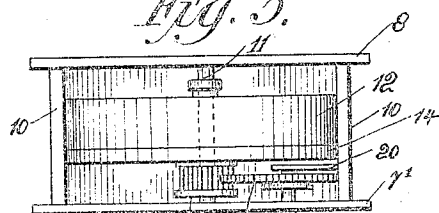


Fig. 5.

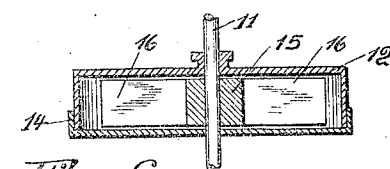


Fig. 6.

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UNITED STATES PATENT OFFICE.

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FEED-REGULATOR.

932,944.

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To all whom it may concern:

Be it known that I, WILLIAM BAKER, a citizen of the United States of America, residing at Youngstown, in the county of Mahoning and State of Ohio, have invented certain new and useful Improvements in Feed-Regulators, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention has relation to feed regulators, and has for its object to provide in a manner as hereinafter set forth a novel and new form of mechanism which will readily perform the functions of devices of such class.

The invention, as contemplated by me, comprises a drum or cylindrical casing in which is mounted a plurality of blades and in said cylindrical drum or casing I place a suitable liquid such as mercury or the like, whereby one or more of said blades will be immersed in said liquid and when said drum or casing and wheel are revolved the liquid slowly runs down around the blades to the lowest part of the drum, retarding its movement.

The above construction will be herein-after more fully described, and then specifically pointed out in the claim, and referring to the drawing accompanying this application like numerals of reference indicate similar parts throughout the several views, in which—

Figure 1 is a vertical sectional view of an apparatus to which I have connected my improved mechanism, Fig. 2 is a side elevation of the same, Fig. 3 is a side elevation of my improved compensating mechanism, Fig. 4 is a vertical sectional view of the drum or cylindrical casing of my improved compensating mechanism, Fig. 5 is a top plan view of my improved compensating mechanism, and Fig. 6 is a horizontal sectional view of the cylindrical casing or drum as illustrated in Fig. 4 of the drawing.

To facilitate an understanding of my present invention by those not conversant with the general use of compensating mechanisms, I have illustrated the same upon an automatic feed regulator for which I have been granted Letters Patent No. 771,598, dated October 4, 1904. While I intend using my improved mechanism upon automatic feed regulators, I do not care to confine myself to using the mechanism upon devices of this nature.

To familiarize those not understanding my improved feed regulator and to clearly explain the operation of my improved mechanism a brief description of the regulator is herewith given.

The automatic regulator in conjunction with which I have illustrated my improved compensating mechanism comprises a casing 1 which is provided with a feeding passage 2, in which the material to be fed through the regulator is placed. A downwardly movable counterbalancing yoke 3 is pivoted as indicated at 4 in a straight arm 5' and angled arm 6' attached to the outer sides of casing 1, whereby the same will control the opening 5 of the passage 2. A partition receiver 6 is supported from said yoke by a rod 3' attached to the yoke 3 at 4' directly beneath the opening 5 of the passage 2 whereby the material will be precipitated into the receiver from where it passes through an opening 7 formed in the bottom of the casing. To control the downward movement of the movable counter-balancing yoke 3 I employ my improved mechanism which will now be described.

A preferable form of construction is illustrated in Figs. 2 to 6 inclusive and the mechanism comprises a suitable frame work consisting of the rectangular skeleton plates 7' and 8 these plates being provided with a central transverse cross-bar 9, and the plates are held apart and in position by the cross rods 10, 10'. Journaled in the cross bars 9, 9' is a shaft 11 upon which is mounted a drum or cylindrical casing 12. Said drum or casing is provided with a removable lid or cover 14. Mounted within the cylindrical casing or drum and upon the shaft 11 is a hub 15 which is provided with a plurality of radial blades 16, said blades extending outwardly to within a short distance of the cylindrical casing 12, as clearly shown in Fig. 4 of the drawing. Formed integral with or attached to lid or cover 14 is a pin wheel 17, this pin wheel being mounted upon the shaft 11 and the lid 14 fitting tightly on the casing so that they will turn together and with the shaft 11, and meshing with said pin wheel is a gear wheel 18 which is keyed to a shaft 19 that is journaled in one of the cross-bars 9 and an L-shaped standard 20 mounted upon one of the cross rods 10 of the frame. Connected to the outer end of said shaft 19 is a lever 22 the outer end of which is pivoted to a rod 23 which in turn

is pivotally connected as indicated at 24 to the counter-balance yoke 3 of the automatic feed regulator. The inner end of the lever 22 is twisted as shown and the twisted end 5 is fitted into a slot in the end of shaft 19, and is held in position by a thumb screw 21. Within the cylindrical casing or drum 12 I place a suitable liquid as designated by the reference numeral 25, this liquid submerging one or more of the radial blades 16, and I preferably employ such liquid as mercury or a heavy oil, but may dispense with the liquid and employ spherical bodies such as fine shot.

15 The operation of my improved compensating mechanism in connection with the automatic feed regulator illustrated, is as follows:—We will assume that a suitable substance or material is being fed into the passage way 2, and as the same is precipitated 20 into the receiver 6, the fall of the material will cause a downward movement of the receiver, and as said receiver is connected to the counter-balance yoke by the rod 3, the 25 quantity of the material fed into the receiver will govern the opening and closing of the opening 5 of the passage way, and the downward movement of said counter-balance yoke and receiver will be retarded by 30 the compensating mechanism. As the yoke 3 descends the lever 22 through the medium of the rod 23 will be lowered, and the shaft 19 will be partially rotated and a similar movement will be imparted through the medium of the gear 18 and the pin wheel 17 to the drum or cylindrical casing which is secured upon the shaft 11. As said shaft oscillates carrying with it the drum 12 and the radial blades 16, the liquid or counter-balancing material carried up within said 40 drum or cylindrical casing will have a tendency to assume its level, and as only a certain quantity of said liquid or material will be permitted to pass between the blades 16 and the casing, the downward movement of the yoke and receiver will be retarded, and the gradual movement of the liquid or material within the casing will correspondingly regulate the position the yoke 3 is to assume 45 in feeding a certain quantity of the substance or material through the opening 5 of the passage way 2 into the receiver 6. The liquid or counter-balancing material carried in the drum or cylindrical casing will nor-

55 mally lie at a level, and when the drum or casing is revolved carrying with it the blades 16, the liquid or material in assuming its level will have to pass between the ends of the blades 16 and the casing, and as the space between said blades and the casing is 60 very small a liquid or material carried within the drum will be retarded from assuming its level and will gradually assume its level when the rotation of the drum has been retarded by the raising of the body of liquid 65 or material, consequently retarding the movement of the yoke 3.

It will be observed from Figs. 2, 3 and 5 that I have employed a gearing in connection with the drum or cylindrical casing, but 70 this may be dispensed with and the lever 22 connected direct to the shaft 11 which supports the drum and the radial arms 16. I also wish it to be understood that the construction of the cylindrical casing and the 75 radial blades 16 may be changed without departing from the scope of the invention, and that any suitable frame work may be employed for supporting the rotary drum or cylindrical casing therein.

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

In a feed regulator, a supporting frame having a feeding passage therein, a yoke 85 swinging upon said frame and carrying a cut-off member operative over the discharge ends of said feed passage and controlling the discharge from said passage, a partition receiver suspended from said yoke within the 90 frame and below the end of said passage and arranged to receive the material from said feed device, coupling means between said receiver and yoke, a casing containing a counter-balancing media, a shaft extending 95 through and connected with said casing and provided with radially disposed blades adapted to extend in said media, a rock shaft, an operative connection between said blade shaft and said rock shaft, a lever carried by the rock shaft, and a rod connecting the lever to the yoke. 100

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

WILLIAM BAKER.

Witnesses:

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K. H. BUTLER.