

W. B. BOLLES.
MEASURED FEED APPARATUS.
APPLICATION FILED JUNE 30, 1909.

972,804.

Patented Oct. 18, 1910.

2 SHEETS—SHEET 1.

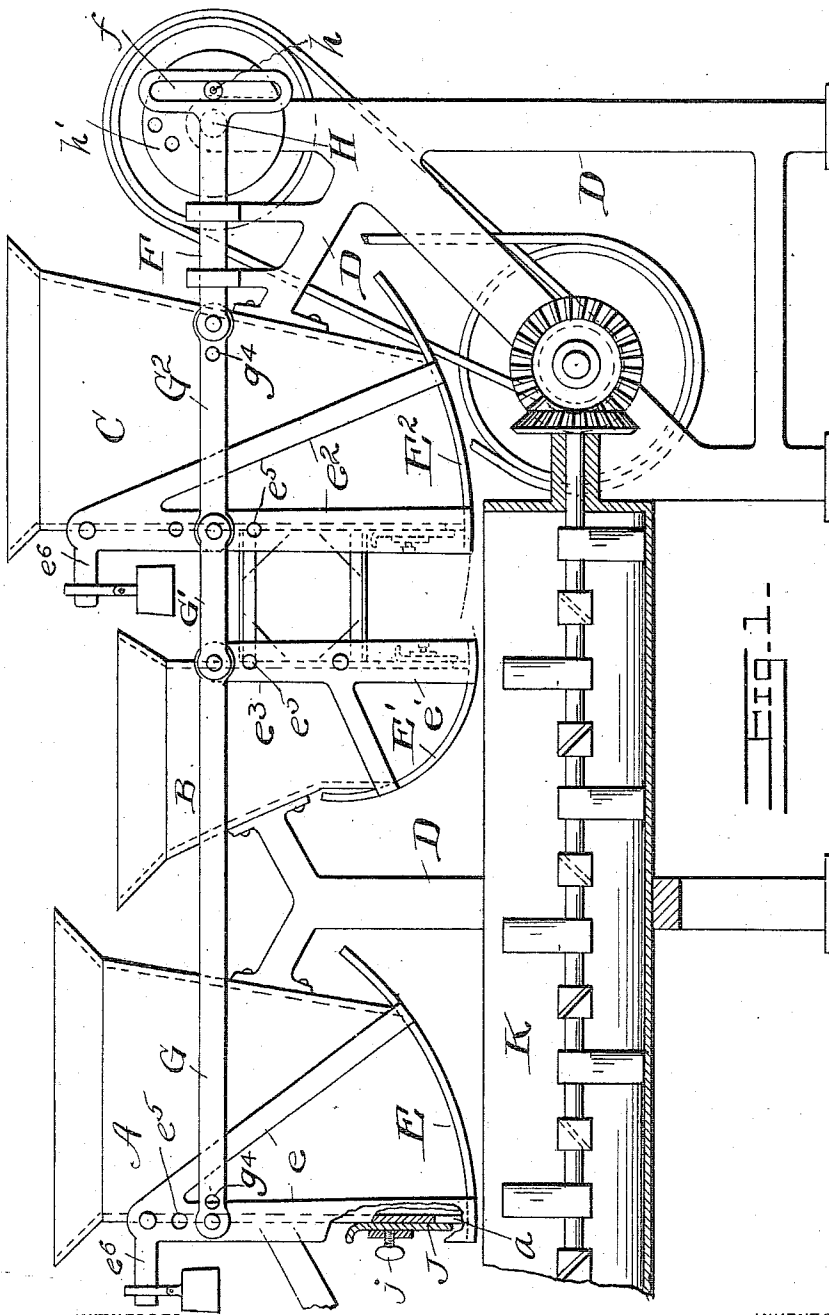


FIG. 1--

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INVENTOR
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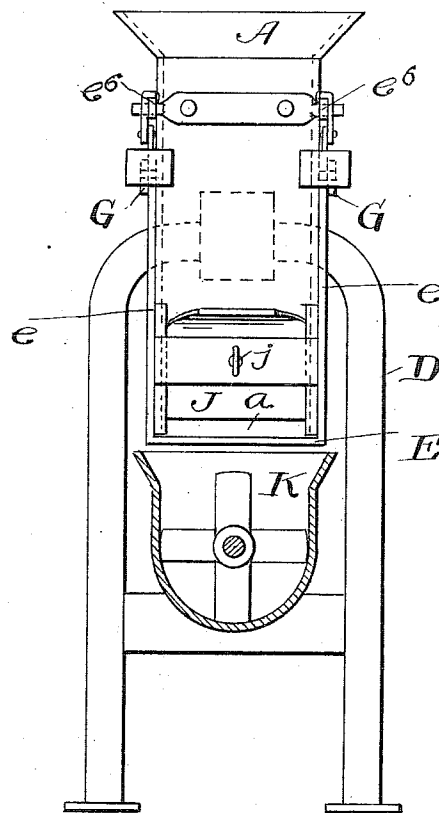


FIG. 2.

WITNESSES.
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UNITED STATES PATENT OFFICE.

WILLIAM B. BOLLES, OF CLEVELAND, OHIO.

MEASURED FEED APPARATUS.

972,804.

Specification of Letters Patent.

Patented Oct. 18, 1910.

Application filed June 30, 1909. Serial No. 505,133.

To all whom it may concern:

Be it known that I, WILLIAM B. BOLLES, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and useful Improvement in Measured Feed Apparatus, of which the following is a full, clear, and exact description.

The object of this invention is to provide an efficient and practical measured feed apparatus which may be quickly and easily adjusted so as to vary, both actually and relatively, the quantities of the various kinds of materials delivered therefrom; and which may operate with a minimum expenditure of power.

The apparatus in the particular form which is shown in the drawing is intended particularly for use in delivering cement, sand and crushed stone in the desired proportions, and at the desired rate to a pug mill, but it will be understood that the invention is not limited to this particular use.

In the drawing Figure 1 is a side elevation of an apparatus embodying the invention, a part of one of the hoppers being broken away, and the associated pug mill being shown in section. Fig. 2 is an end view of said apparatus, the pug mill being again sectioned.

In the apparatus, as shown, three hoppers A, B and C are fixed to a suitable frame D, in such position that the material placed therein may be delivered by the mechanism shown, into a receptacle, as, for example, a pug mill K. There may, of course, be more or less of such hoppers, depending upon the particular use to which the invention is to be put. The bottoms of these hoppers respectively are the curved plates E, E', E². These plates are severally the bottom members of swinging frames e, e' and e² which are pivoted to suitable supports, preferably the sides of the hoppers with which they are severally associated. The plates E, E', E² are curved about the axes of the frames of which they, severally, are parts.

The rocking frames specified are connected together in such manner that they rock in unison. A link G is connected at one end with the frame e at a point below the axis of said frame; and at the other end this link is connected with an arm e² which is a part of the frame e' projecting above the axis thereof. This arm is also connected by a link G' with the frame e² at a point

below the axis of said frame. Any suitable mechanism may be provided for rocking one of said frames and thereby, through the connecting links, rocking them all. The means shown consist of a horizontally movable bar F having in one end a vertical slot f into which projects a crank pin h which projects from a disk h' fixed to the shaft H. The other end of the bar F is connected by a link G² with the frame e². By reason of the described connections these three frames will rock at the same time, but the frame e' will rock in the opposite direction to that in which the frames e and e² rock. The plates E, E' and E² will likewise be rocked through different distances because they are located different distances from the axes of the supporting frames, and because, also, the power to rock them is applied at different distances from said axes. All of these plates are shown in Fig. 1 in the position they occupy after they have fed a measured quantity of material from the associated hopper to the pug mill. The rocking of the three frames from this position carries the plates E and E² to the left and the plate E' to the right.

In the left wall of each of the hoppers A and C just above the associated curved bottom plate is an opening substantially like that shown at a, at the left of Fig. 1. The effective height of each opening may be varied by means of a vertically adjustable gate J which may be fixed in any desired position by means of a thumb screw j. When the three frames are rocked from the position shown, each of the curved bottom plates will carry out of the hopper and through the described opening a stratum of the material in the hopper, the thickness of this stratum being equal to the distance between said plate and the lower edge of the associated gate. The material remaining in the hopper will settle down upon that part of each bottom plate which, by the movement of said frames, has been carried beneath it. When each frame is rocked in the contrary direction, this stratum of material resting upon the associated curved plate cannot be carried back again into the hopper, but will remain outside thereof; and as the bottom plates move from beneath it said material will fall into the pug mill.

The actual quantity of material delivered from each hopper may be varied by varying the position of the associated gate J; and it

may also be varied and so may the proportions of the materials delivered from the several hoppers by changing the points of connection between the several links and the
 5 several frames. There may, for example, be more than one hole e^5 in frame e , into any of which may be placed the pivot pin connecting the link G with said frame. Similar holes e^5 may be formed in the arm e^3 , and
 10 similar holes e^5 may be formed in the side member of the frame e^2 , and the pivot pins connecting links with said frames may be placed in either hole. So also the links may be provided with several holes g^4 , and the
 15 pivot pins may be passed through any of them. This permits the apparatus to be very quickly, and very easily adjusted so as to vary both the actual and relative quantities of materials which are automatically delivered from the three hoppers and discharged into the pug mill.

One or more or all of the three swinging frames may be provided with horizontal arms e^6 on which weights may be hung in
 25 such manner as to serve to counterbalance the weight of the frames so as to make it easy to move them in either direction stated.

Having described my invention, I claim:

1. In a measured feed apparatus, the combination of a plurality of hoppers, each having for its bottom a curved plate, a pivoted frame associated with each hopper and of which the associated curved plate is the bottom member, each hopper having the lower
 30 edge of one of its ends cut away just above the associated curved plate, and a link connected with one of said frames above its pivot and with the adjacent frame below its pivot.

2. In a measured feed apparatus, the combination of a plurality of hoppers, each having for its bottom a curved plate, a pivoted frame associated with each hopper and of which the associated curved plate is the bottom member, each hopper having the lower
 45 edge of one of its ends cut away just above the associated curved plate, links connecting said frames, and means whereby said links may be connected with said frames at different distances from their pivots.

3. In a measured feed apparatus, the combination of a plurality of hoppers, each having for its bottom a curved plate, a pivoted frame associated with each hopper and of which the associated curved plate is the bottom member, each hopper having the lower
 55 edge of one of its ends cut away just above the associated curved plate, links connecting said frames, at least one of said links having a plurality of holes near one end adapted for the reception of a pivot pin by which it is connected with a swinging frame.

4. In a measured feed apparatus, the combination of a plurality of feed hoppers each having for its bottom a movable plate and
 65 each hopper having the lower edge of one of its ends cut away just above the path of its bottom plate, means for simultaneously operating the several bottom plates, and means whereby the throw of any of said plates may be varied with respect to the throws of the other plates.

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

WILLIAM B. BOLLES.

Witnesses:

E. B. GILCHRIST,
 E. L. THURSTON.