

U. S. SHELLEY.
VERTICAL HOIST AND DUMP.
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963,478.

Patented July 5, 1910.

2 SHEETS—SHEET 1.

Fig. 1.

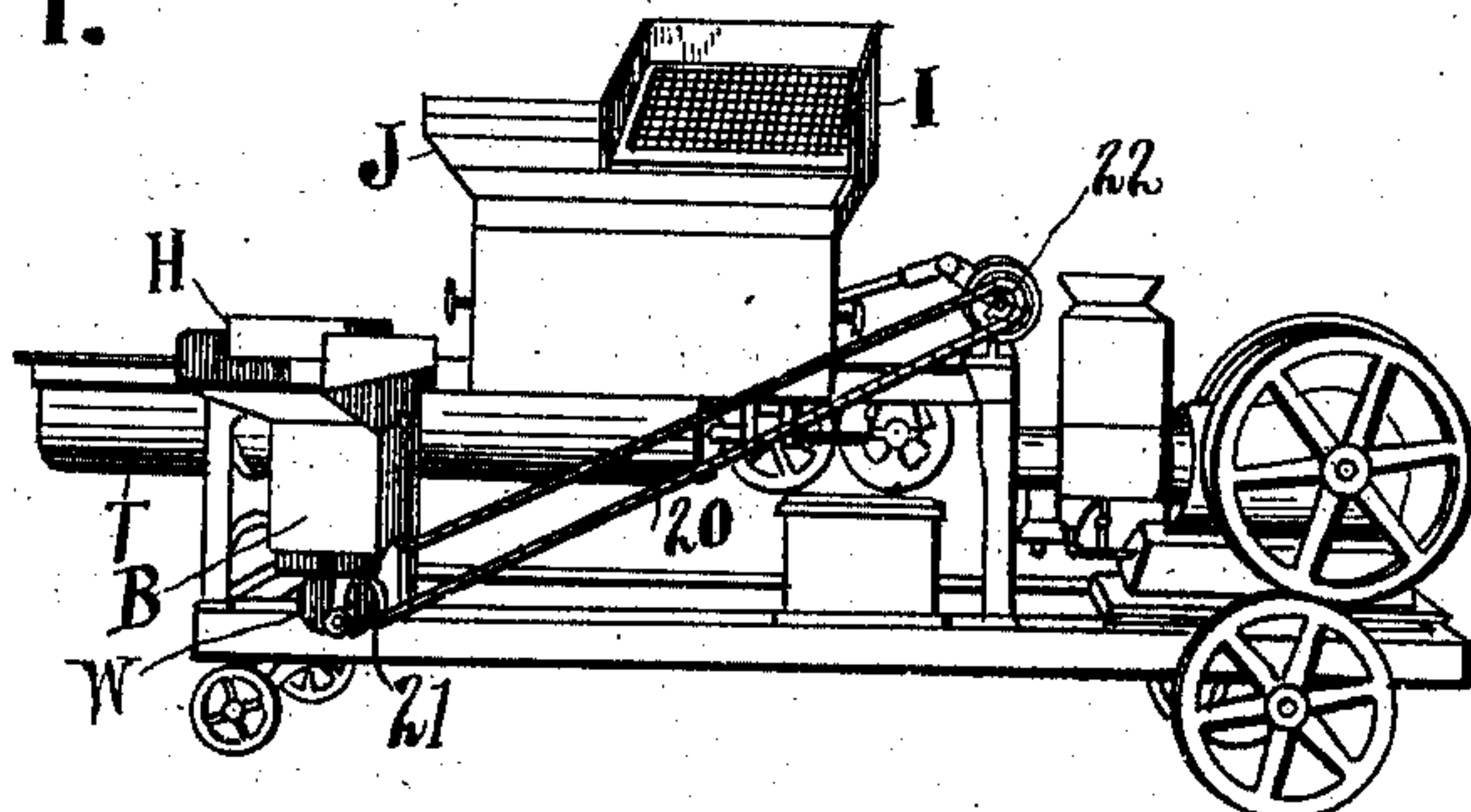
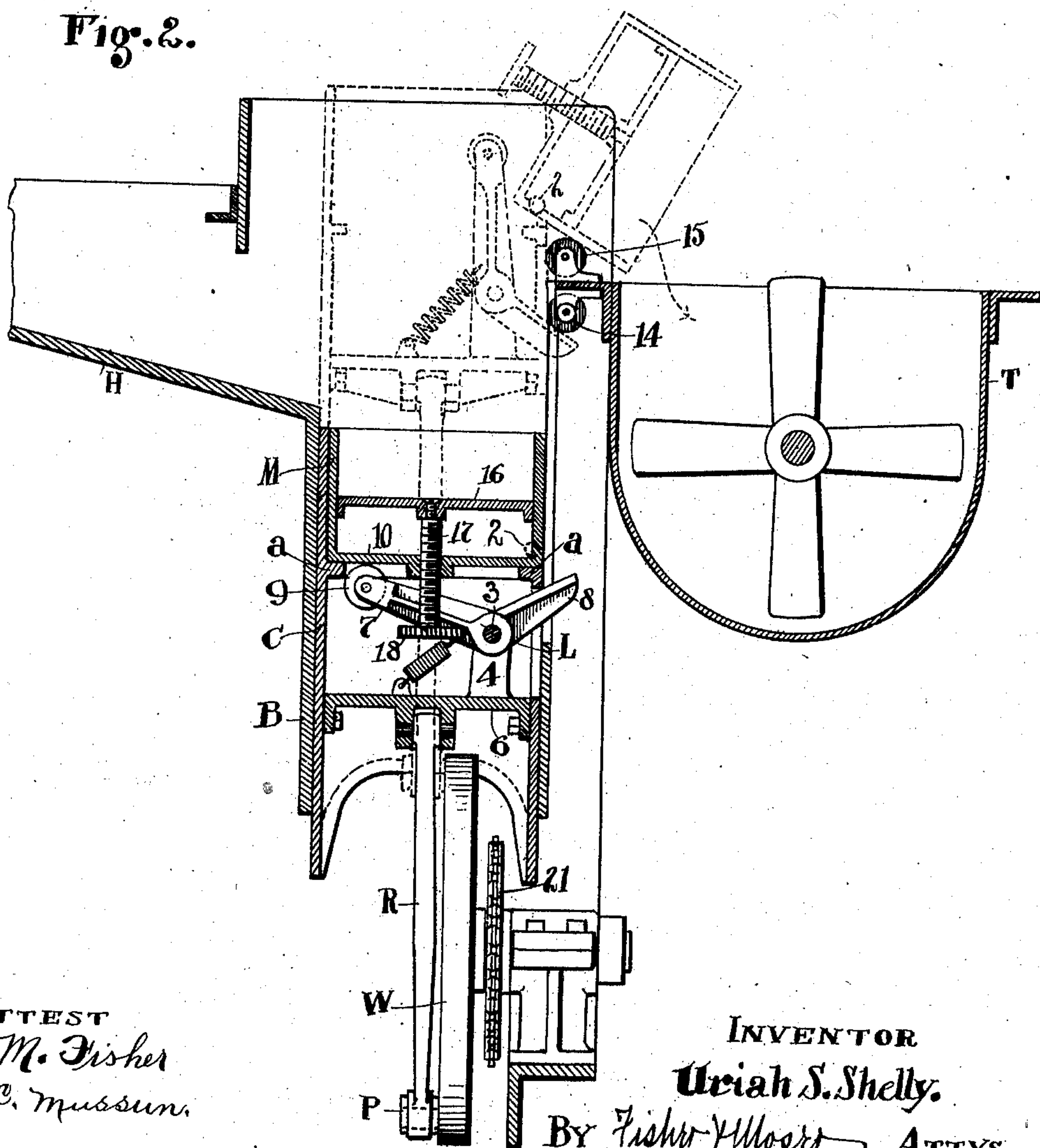


Fig. 2.



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2 SHEETS—SHEET 2.

The diagram illustrates a mechanical assembly. On the left, a cross-sectional view of a cylinder or pump chamber is shown. A piston, labeled 'B', is positioned at the bottom of the cylinder. A connecting rod, labeled 'R', is attached to the piston and extends downwards to a crankshaft component labeled 'W'. The cylinder walls are labeled 'C' and 'H'. A valve mechanism is located at the top of the cylinder, featuring a curved flap labeled 'M' and a pivot point labeled 'a'. A small component labeled 'L' is also visible near the valve. To the right, a separate view shows a three-armed star-shaped component, labeled 'T', which appears to be a distributor or a valve gear mechanism. The arms of the star are labeled 'm' and 'n'.

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VERTICAL HOIST AND DUMP.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, URIAH S. SHELLY, citizen of the United States, residing at Ashland, in the county of Ashland and State of Ohio, have invented certain new and useful Improvements in Vertical Hoists and Dumps, of which the following is a specification.

My invention relates to a vertical hoist and dump adapted to feed crushed stone to concrete mixers, and the invention consists in the construction and combination of parts substantially as shown and described and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a perspective elevation of a concrete mixing machine having one form of my new and original stone supplying attachment operatively engaged therewith. Fig. 2 is a vertical sectional elevation of the said attachment having details and adapted to operate substantially as hereinafter described and showing a cross section of a mixing trough therewith. Fig. 3 is a sectional elevation of a modified form of said attachment.

The invention as thus shown will be understood as being adapted to be used with concrete mixing machines generally rather than with any particular machine alone, but in this instance it is shown as connected particularly with a concrete mixer having a mixing trough T and which is provided with separate hoppers I and J for feeding sand and cement respectively thereto, and which hoppers have means associated therewith to measure the said ingredients in suitable proportions and to stroke off the same but not shown in these drawings. But means adapted to material as fine as sand or cement obviously cannot be used to handle crushed stone, which is in pieces too large to be stroked off or otherwise measured and fed as sand or cement may be, or even gravel, and therefore different and original feeding devices must be provided for this purpose. Hence the present invention, which comprises a suitable measuring receptacle M for the stone, Figs. 1 and 2, and which is adapted to be lifted with its load and discharged by tilting its contents into trough T, dotted lines, Fig. 2. The said receptacle is mounted in this instance in or upon a square sided tubular carrier or lift C slidable up and down in a correspondingly shaped outer casing or boxing B, which is rigid with the chute or hopper H through which the stone

is fed to the receptacle. The said carrier is adapted to reciprocate or to slide up and down in said casing, and operating connection is made therewith by means of wheel W mounted on the main machine and having an eccentric pin P engaged by connecting rod R. Said wheel and rod are necessarily provided with stroke enough to lift the carrier and receptacle M from filling position, full lines Fig. 2, to tilting or discharging position dotted lines higher up. To this end also the said receptacle M is hinged or pivoted at 2 in or upon one side of the carrier and means are provided for tilting it with its load on said pivot when it reaches the right elevation, said means consisting in this instance in a lever L which is pivoted in its angle at 3 on a post 4 fixed on or upon cross portion 6 in carrier C to which rod R is connected for operating the carrier. The inner and longer arm 7 of said lever has a roller 9 adapted to bear against the fixed bottom 10 of receptacle M on the side opposite its pivot or hinge 2, and the short outer arm or end 8 of said lever projects through a vertical slot in carrier C and is adapted to strike rollers 14 mounted on the edge of mixing trough T as the carrier rises and is depressed by such contact while the carrier and measure M are being raised to their maximum elevation. Before this elevation is reached or as it is being approached the said lever engages said roller 14 and lifts and turns the measure M over its center on pivot 2 and from which the measure turns into emptying position, shown in dotted lines, and rests on rollers 15 mounted just over rollers 14. Then as the return stroke of the parts begins the said measure rides on rollers 15 into righted position within the end of carrier C and descends therewith to reloading position, full lines. Said carrier has rests a inside to support receptacle M, and said receptacle has a false bottom 16 adjustably controlled as to position by screw 17 and a hand grip 18 thereon, whereby the size of the load carried by said measure can be regulated and determined. Said screw is threaded in the fixed bottom 10 of the measure which serves as a nut therefor.

Power is communicated to crank wheel W by sprocket chain 20 and wheel 21 from power driven shaft 22 of the machine, or by any other available power connections, but by running all the feed mechanisms for the several ingredients from the same shaft

as herein I am enabled to time the feed and control proportions all around.

It will be seen that receptacle M rests down in carrier C flush with the upper edge thereof, so that when it is filled from hopper or chute H and the lift begins the carrier serves as a shut off for the stone in the hopper, and this continues until the parts descend to reloading position.

The inner side of the carrier at its top is open down to pivots 2 in order that receptacle M may swing or tilt to discharging position in respect to trough T and the feed is over the side of the trough as shown.

Thus, Fig. 3 shows a modification which is entirely practical and others could be suggested. In this form of attachment the carrier C, boxing B, hopper feed H and certain other parts remain unchanged, but a crank W' is used instead of wheel W to operate the carrier, and measuring receptacle M' has a front side *m* hinged thereon at *n* and adapted to drop to form a chute for the stone to unload the same when the receptacle is raised and turned to unloading position. This position is given to the receptacle by an arm L' fixed upon its bottom and projecting laterally beyond said bottom and somewhat downward when it comes into engagement with a roller 14' fixed in this instance on a plane with the top of trough T, though it might be higher or lower, and in such position that as the receptacle rises to its maximum height the said arm will have engaged said roller and tilted the receptacle to unloading inclination. Then as the receptacle descends the engagement by said arm will continue until the receptacle practically reaches its level and drops onto stop or lug *a*. One novel advantage of arm L' over lever L is in the gradual reseating of the feed receptacle it provides, and any means that will perform this function is regarded as clearly within my invention.

It will be seen in Fig. 3 that the hinged

front *m* of the receptacle is automatically closed as said receptacle descends by bearing first against roller or rollers 14' and then against the adjacent wall of the casing or housing B for the carrier within which the receptacle also is lowered to filling position.

What I claim is:

1. A hopper adapted to feed loose material comprising a measuring receptacle adapted to be raised to be emptied and lowered to be filled, and a carrier in which said receptacle is pivotally mounted at its bottom and side adapted to cut off the supply of said material automatically when the receptacle is raised to emptying position, in combination with a crank lever projecting laterally beyond said receptacle and carrier and pivoted to tilt the receptacle.
2. A hopper and a casing therewith, a carrier adapted to slide in said casing and means to raise and lower the same therein, in combination with a measuring receptacle pivotally mounted at one side in the upper portion of said carrier and a lever pivoted between its ends on said carrier and adapted to tilt said receptacle on its pivot and unload the same when the carrier reaches the top of its stroke.
3. A fixed casing, a carrier slidably mounted therein and means to raise and lower the same, a measuring receptacle pivoted at its bottom and side to one side of said carrier, and a crank lever pivoted on said carrier and projecting outside thereof at one end, a fixed stop adapted to be engaged by said projecting end thereof as said carrier is raised and said lever engaging the bottom of said receptacle and adapted to tilt the same when its outer end engages said stop.

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

URIAH S. SHELLY.

Witnesses:

E. M. FISHER,
F. C. MUSSUN.