

F. R. McCUNE.  
AUTOMATIC DUMPING BUCKET.  
APPLICATION FILED DEC. 20, 1909.

994,859.

Patented June 13, 1911.

Fig. 1.

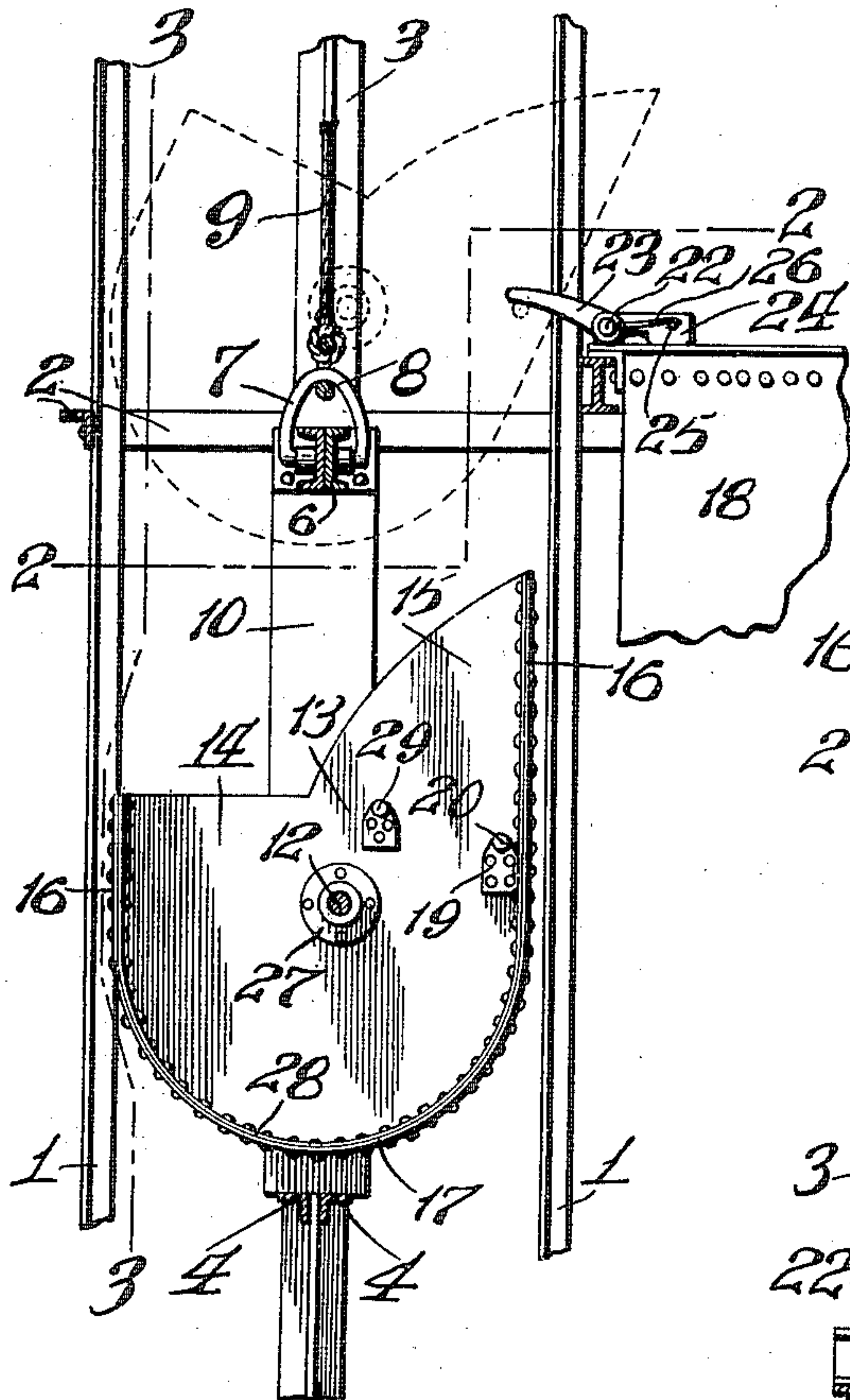


Fig. 2.

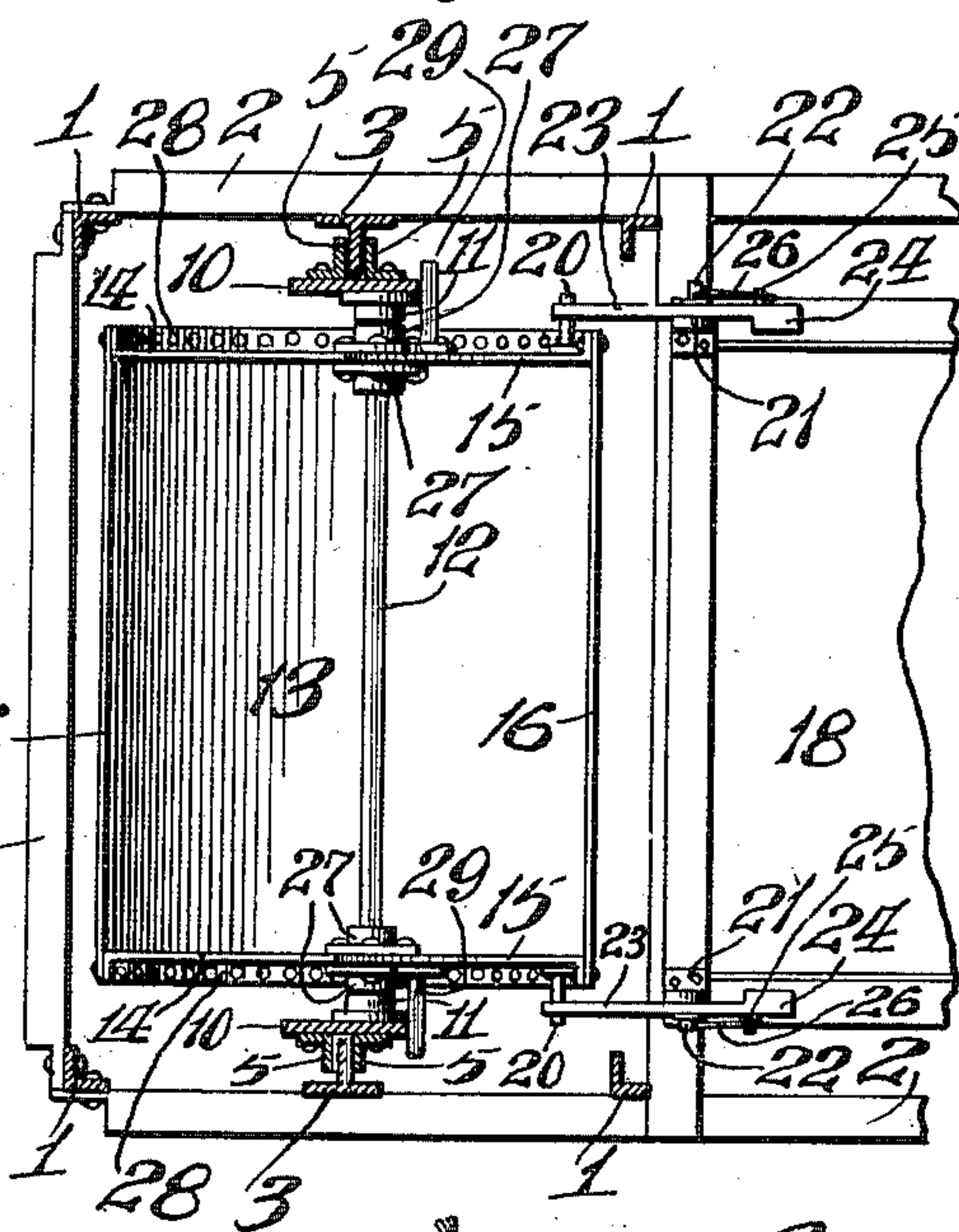


Fig. 3.

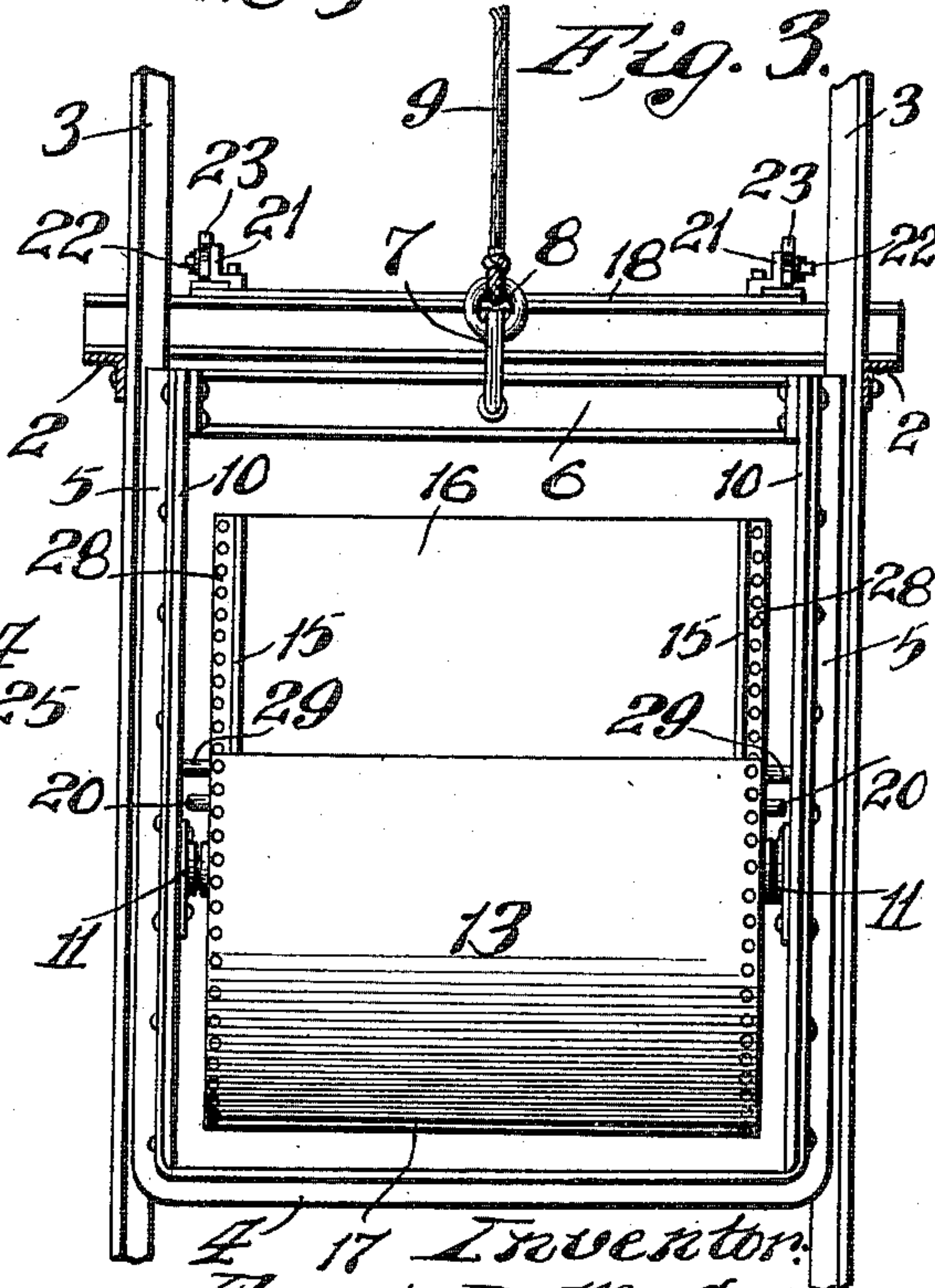
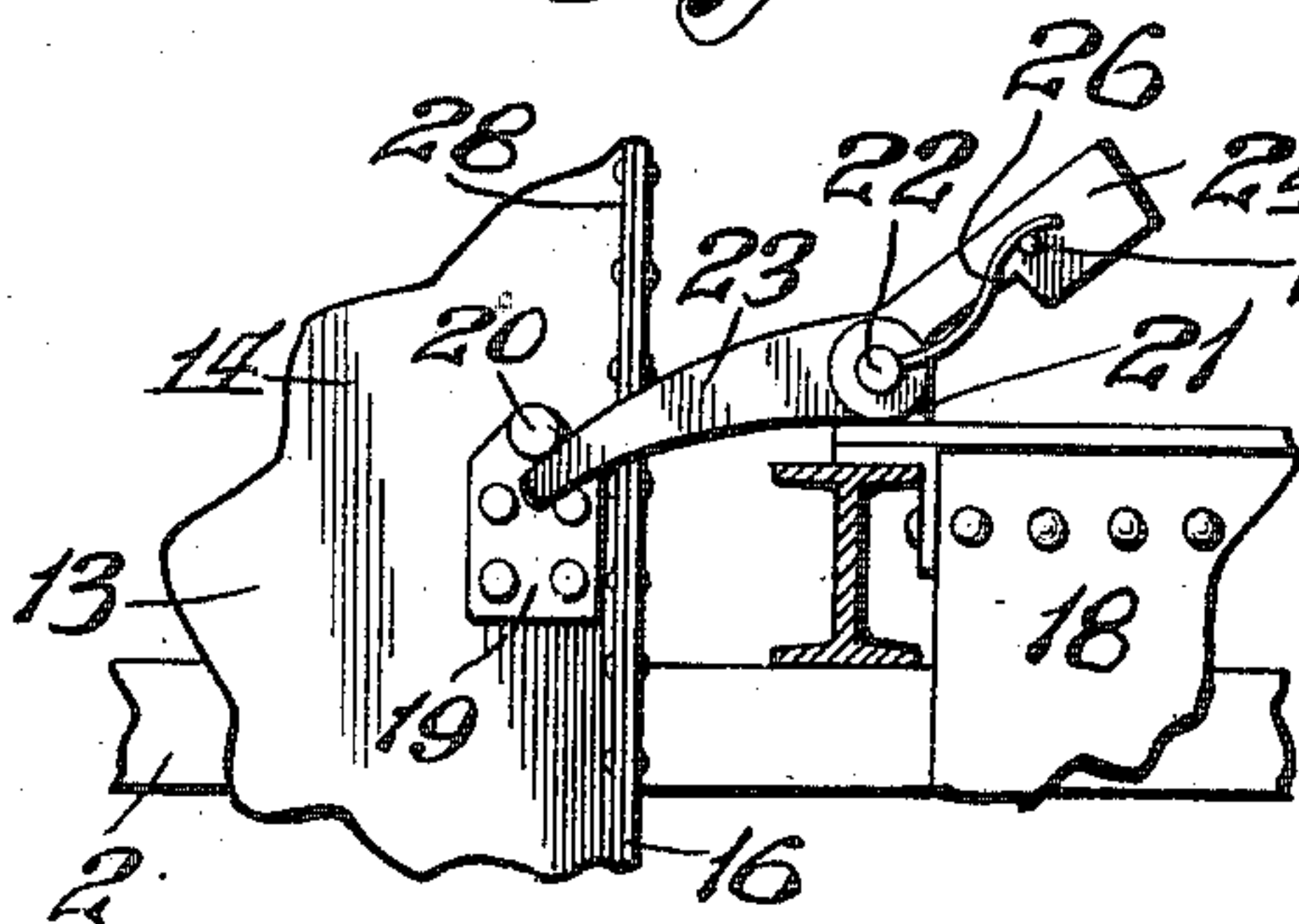


Fig. 4.



Attest:  
L. G. Fletcher.  
E. L. Wallace.

Inventor:  
Frank R. McCune.  
By Higdon & Longawattys.



# UNITED STATES PATENT OFFICE.

FRANK R. McCUNE, OF ST. LOUIS, MISSOURI, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO ACME HOISTING MACHINERY COMPANY, OF ST. LOUIS, MISSOURI, A CORPORATION OF MISSOURI.

## AUTOMATIC DUMPING-BUCKET.

994,859.

Specification of Letters Patent. Patented June 13, 1911.

Application filed December 20, 1909. Serial No. 534,127.

*To all whom it may concern:*

Be it known that I, FRANK R. McCUNE, a citizen of the United States, and resident of St. Louis, Missouri, have invented certain new and useful Improvements in Automatic Dumping-Buckets, of which the following is a specification containing a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention relates to improvements in automatic dumping buckets, the object of my invention being to construct a bucket having a rounded bottom and an integral discharging spout, and to provide means for suspending the bucket off of its vertical center as required to counterbalance the discharging spout so that the bucket will be self-maintaining in a vertical position.

A further object of my invention is to construct an improved means for carrying a self-dumping bucket, and a still further object of my invention is to construct an improved means for automatically dumping a bucket.

For the above purposes my invention consists in certain novel features of construction and arrangement of parts as will be hereinafter more fully described, pointed out in the claim and illustrated by the accompanying drawing, in which:

Figure 1 is an elevation of the bucket illustrating the means for suspending the bucket from a tower together with the means for automatically dumping the bucket, there being dotted lines indicating the bucket in a position about to be dumped; Fig. 2 is a sectional plan taken on the line 2—2 of Fig. 1; Fig. 3 is an end elevation of the bucket showing a portion of the tower and taken approximately on the line 3—3 of Fig. 1; and Fig. 4 is an enlarged, detail view illustrating the means whereby the bucket is automatically dumped.

Referring by numerals to the accompanying drawing: 1 designates uprights, 2 horizontally disposed ledgers supported by the uprights and 3 track rails secured to said ledgers of an all-metallic tower.

Arranged to slide between the track rails 3 is a U-shaped frame 4 having projecting flanges 5 embracing the track rails. Uniting the upper ends of the U-shaped frame 4 is a beam 6 which is perforated adjacent its lon-

gitudinal center and inserted therethrough is a link 7. Embracing the link 7 is a link 8 to which is secured a cable 9. Secured to the uprights of the frame 4 are the plates 10 and secured to the plates 10 are the bearings 11 which are arranged to one side of the vertical center of the plates 10. Loosely mounted in the bearings 11 is a shaft 12 arranged to support the tilting bucket 13. The bucket comprises the end walls 14 provided with integral vertical extensions 15, the side walls 16, one of which is considerably longer than the other, and the rounded bottom portion 17. The walls 16 and bottom 17 are preferably formed of a continuous piece of sheet metal. The rear-most wall 16 and extension 15 constituting an apron or chute for directing material carried by the bucket in the receiving hopper 18, a portion only of which is shown. Carried by each of the walls 14, in positions adjacent the rear walls 16 and preferably above the pivotal center of the bucket 13, are brackets 19 having integral, laterally projecting stubs 20. Secured to the hopper 18 are brackets 21 having integral stub-shafts 22 and supported by the stub-shafts 22 are tilting levers 23 which levers project beyond said bearing and in the path of travel of the stubs 20. Formed integral with each lever is a weighted arm 24 and secured to each arm 24 is a pin 25 and carried by each stub-shaft is a spring 26 arranged for engagement with the pins 25. Embracing the shaft 12 and secured to each of the walls 14 are the reinforcing bearings 27, the outer-most ones of which engage the bearings 11 carried by the plates 10.

The cable 9 is connected with a hoisting apparatus such as an engine (not shown) and the bucket is designed primarily for hoisting concrete or the like from a mixing machine (not shown) to the receiving and distributing hopper 18, a portion only of which is shown but is common in the art. The bearings 11 are arranged off the vertical center of the plates 10 and the bearings 27 and shaft 12 are arranged off the vertical center of the bucket 13 as required to counterbalance the extended rear wall 16 and projections 15 of the side walls.

Carried by the end walls 14 of the bucket are the projecting stubs 29 which stubs are arranged in such positions as to normally



engage the plates 10 of the frame which supports the bucket. The function of said stubs is to restrict and limit the movement of the bucket relative to the frame and tower in one direction as required to prevent the apron or chute from engaging with the ledgers of the tower.

In the practical operation of my improved bucket, assuming that it is in a position adjacent the bottom of the tower and filled with concrete, in a semi-liquid state, it is obvious, by reason of the positioning of its pivotal point off the vertical center, that the extra weight of the extensions on one side of its walls will be counter-balanced and that the bucket will always assume a substantially vertical position. Power is applied to the hoisting cable, secured to the bucket frame, and the entire frame and bucket are drawn to a position permitting the stub-shafts to engage the tilting levers 23, and, by reason of the weighted ends 24 of the levers 23 engaging with the hopper, the same are held in positions engaging the stubs 20 thus causing the bucket to swing on its pivot and thus automatically dump the bucket into the hopper 18. If, for any reason, the bucket is drawn with its stubs 20 in a plane above the levers 23, it is obvious that, by reason of the pivotal connection of the levers 23, the stubs 20 may be moved downwardly and the levers 23 will move to permit downward movements of

the stubs and by reason of the springs 26 the levers 23 will automatically assume their normal operative positions.

By reason of the rounded bottom joining with the rear wall 16 without angles all of the material carried by the bucket will be discharged without the employment of hoes or the like when the bucket is in a dumping position. The walls 14 are provided with laterally projecting integral flanges 28 which are riveted or otherwise secured to the rounded bottom 17 and wall 16.

By such a construction of bucket the same is very light in weight and possesses great strength and durability.

I claim:

In an automatic dumping bucket, a vertically guided frame, a bucket, having an extended apron, eccentrically pivoted to said frame so that the bucket and its apron are normally balanced, projections carried by the apron side of the bucket, and tilting spring-held levers for engagement with said projections, substantially as shown and for the purposes stated.

In testimony whereof, I have signed my name to this specification, in presence of two subscribing witnesses.

FRANK R. McCUNE.

Witnesses:

E. E. LONGAN,  
E. L. WALLACE.