

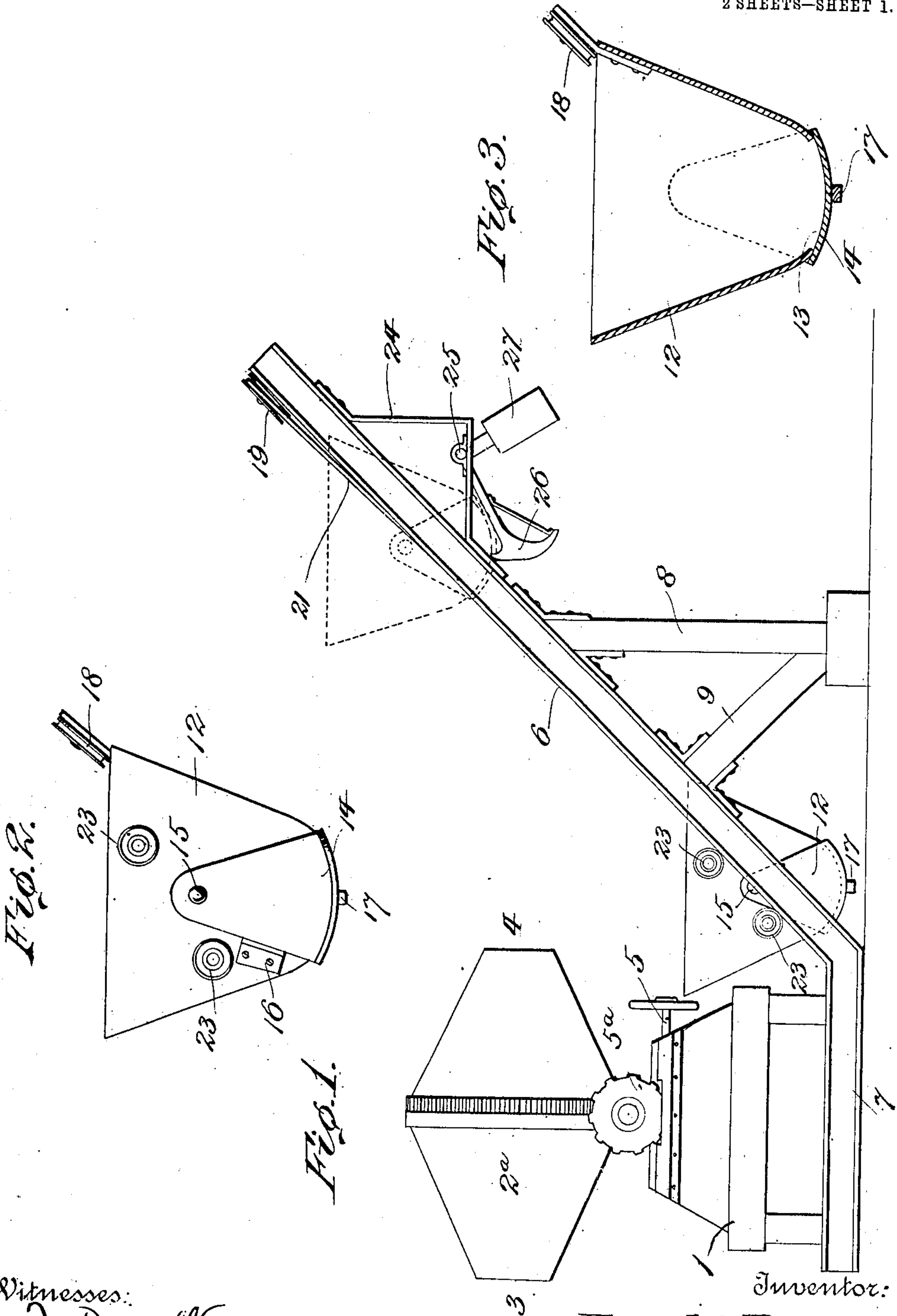
No. 885,448.

PATENTED APR. 21, 1908.

H. DAVIS.
UNLOADING APPARATUS FOR CONCRETE MIXERS.

APPLICATION FILED AUG. 3, 1907.

2 SHEETS—SHEET 1.



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2 SHEETS—SHEET 2.

Fig. 4.

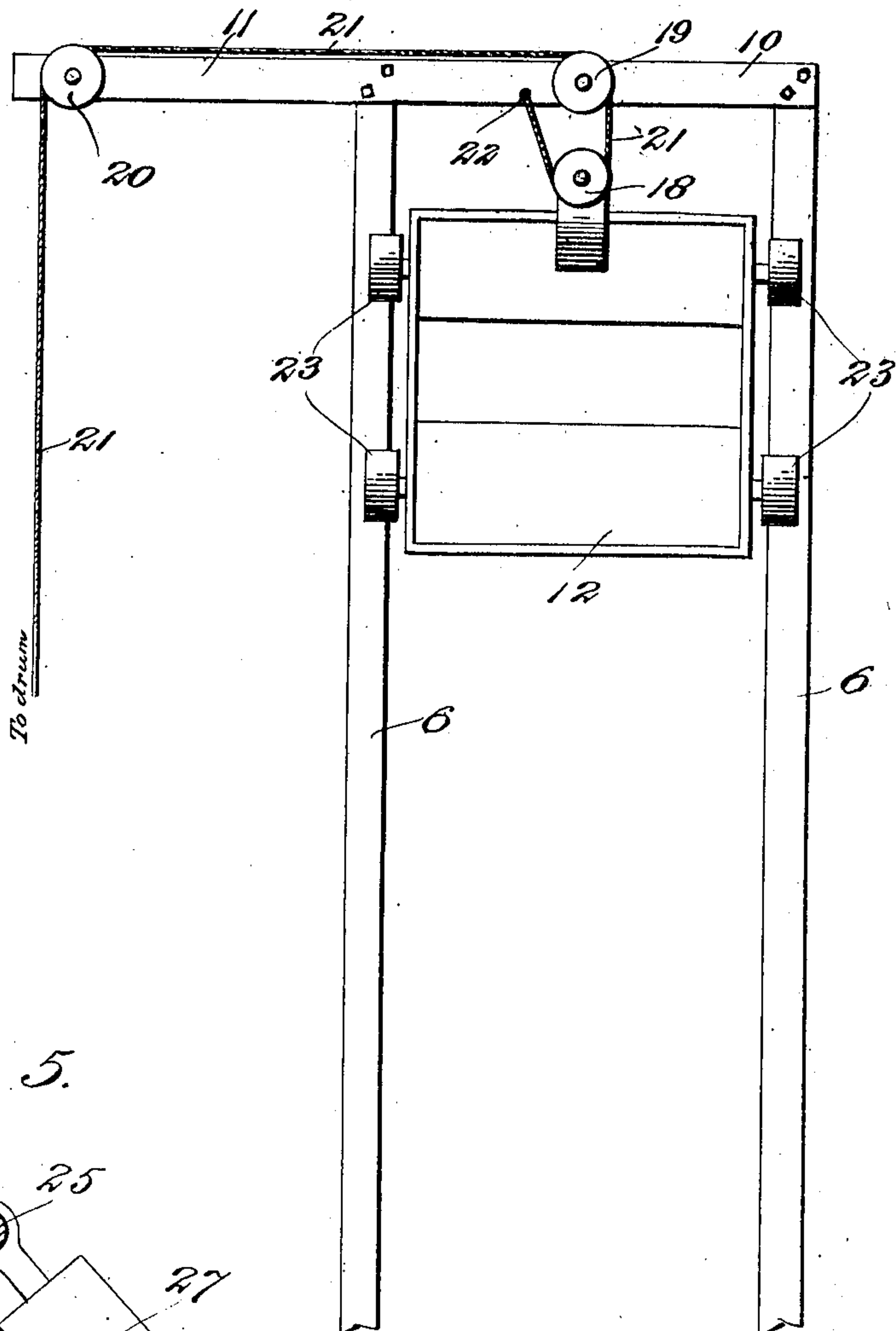
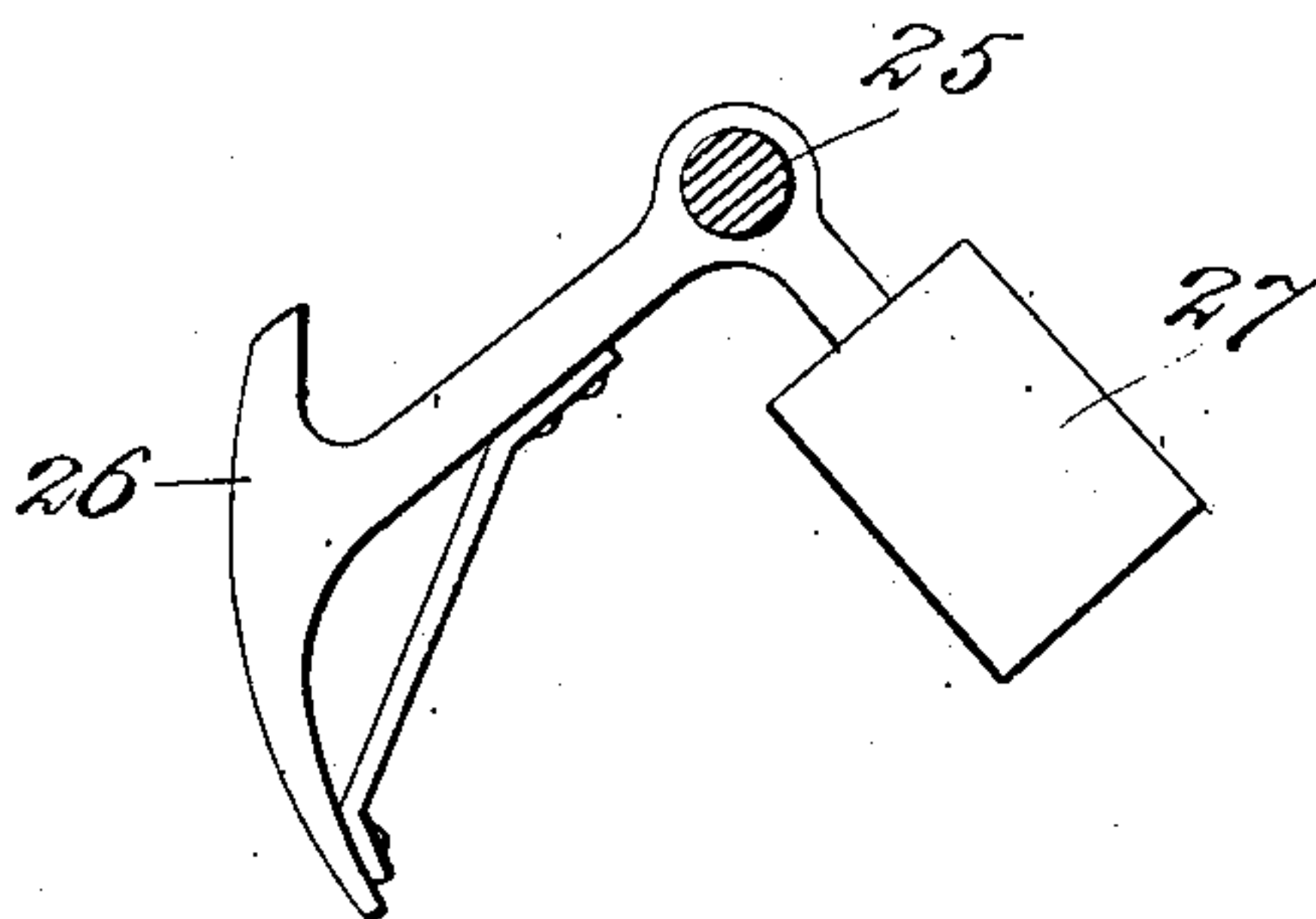


Fig. 5.



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UNITED STATES PATENT OFFICE.

HAROLD DAVIS, OF WASHINGTON, DISTRICT OF COLUMBIA, ASSIGNOR TO THE BRENNAN CONSTRUCTION COMPANY, A CORPORATION OF WEST VIRGINIA.

UNLOADING APPARATUS FOR CONCRETE-MIXERS.

No. 885,448.

Specification of Letters Patent.

Patented April 21, 1908.

Application filed August 3, 1907. Serial No. 386,954.

To all whom it may concern:

Be it known that I, HAROLD DAVIS, a citizen of the United States, residing at Washington, in the District of Columbia, have invented a new and useful Unloading Apparatus for Concrete-Mixing Machines, of which the following is a specification.

My invention relates to improvements in concrete mixing machines, and has particular reference to an apparatus for unloading concrete therefrom.

In the operation of concrete mixing machines it is customary to employ an apparatus for feeding the ingredients to the mixer, and after the concrete has been formed the contents of the mixer is usually dumped upon the ground or a platform and from the latter manually shoveled into wheel-barrows or carts so that it may be carried to the point where it is to be used; and it has also been proposed to employ an endless chain of conveyers to receive and discharge the concrete at an elevation directly into the wheel-barrows or carts; but in each instance the operation of handling the concrete discharged from the mixer is slow and consequently retards the work.

The primary object of my invention, therefore, is to facilitate the operation of handling the concrete from a concrete mixing machine by providing an apparatus which will take each full charge of concrete from the mixer, elevate the same to the desired height, and then deposit such full charge into a wheel-barrow or cart.

A further object of the invention is to provide an unloading apparatus for concrete mixing machines which will operate to automatically dump the load from the carrier when the latter has arrived at the proper elevation.

Other objects and advantages of the invention will hereinafter appear, and the novel features thereof will be particularly pointed out in the claims.

Referring to the drawings—Figure 1 is a side elevation of the conventional form of rotary tilting concrete mixer showing my apparatus applied to the dumping side or end thereof. Fig. 2 is a side elevation of the preferred form of dumping-bucket. Fig. 3 is a transverse vertical section of the same. Fig. 4 is a plan view of my delivery attachment; and, Fig. 5 is a detail of the bucket-trip.

Similar numerals of reference indicate similar parts in all the figures of the drawings.

For the purpose of illustrating the application of my invention, I have shown the same in conjunction with what is known on the market as "The Smith Mixer", but it will be understood that my invention is not limited to the application shown, but is intended for use in conjunction with any mixer so constructed as to be capable of dumping its contents into an awaiting receptacle, such as a dumping-bucket, &c. In the present instance, however, 1 designates the base of the mixer, 2^a the drum having the inlet and outlet-openings 3 and 4 respectively, and the worm-shaft and gear 5 and 5^a respectively, the latter serving to dump the drum or tilt it so as to discharge its contents.

Located at and extending from one side, namely, the discharge side of the mixer, is a pair of inclined ways 6 preferably formed of I-beams, the lower portions of the beams being disposed horizontally, as at 7, to form sills for the mixer and lend stability to the ways. These beams 6 may be and preferably are braced or supported by both vertical and inclined braces, 8 and 9, respectively, and are connected at their upper ends by a cross-beam, 10, one end of which projects beyond the ways, as at 11, the ways and cross-beam being securely bolted together.

The two ways 6 are arranged at each side of the rotary mixer 2^a, and arranged to ride up and down the ways, is a dumping bucket 12. The bucket 12 has a curved bottom provided with a discharge opening 13, and designed to cover the opening, is a swinging or pivoted gate 14, the sides of which are pivoted to the walls of the bucket by bolts 15. A stop 16 may be located on one of the walls of the bucket, whereby the gate 14 is held in position. The underside of the gate is preferably provided with a depending lug or rib 17, the latter being designed to be engaged by a trip hereinafter referred to. The front wall of the bucket may have projecting upwardly therefrom, a pulley 18, and corresponding pulleys 19 and 20 are respectively located on the beam 10 centrally between the upper ends of the inclined ways and at the outer end of the extended portion of said beam 10. A cable 21 is preferably secured at one end in a convenient opening 22, formed in the cross-beam 10 at one side of the

pulley 19, and has its remaining end passed about the pulley 18 of the bucket, thence over the pulley 19 and the pulley 20, and is finally secured to an ordinary winding-drum (not shown) and which may be geared to and operated by the same mechanism that operates or rotates the mixing-drum. This windlass is of the usual construction, and is preferably of the friction variety known on the market as the "Lidgerwood patent friction drum." Suitable rollers 23, are journaled at the opposite sides of the bucket 12, and these rollers operate upon the inclined I-beams or ways 6, as the bucket travels up and down said ways.

Supported immediately below the ways or I-beams 6 in any convenient manner, in this instance, by a pair of depending angle-irons 24, bolted to the under sides of the beams, is a transverse shaft 25, from which, at about its center, extends downwardly and forwardly a shouldered trip 26, which through the influence of a weighted arm 27, which likewise extends from the shaft 25 but in an opposite direction, is normally held in a yielding manner in the path of the rib or lug 17 of the bucket.

This completes the construction of my apparatus, and the operation may be briefly described as follows: The concrete mass within the drum 2^a having been thoroughly mixed, as is usual, the drum is dumped through the operation of the worm-shaft 5 and the gear 5^a. In this manner the contents of the mixing-drum, or so much thereof as is desired, is discharged into the bucket 12, which latter, through the instrumentality of the cable and windlass, heretofore described, is drawn up the inclined ways. When the bucket has about reached its highest point, or immediately before, the rib or lug 17 thereof passes over and depresses the trip 26. At this point the windlass or drum is thrown out of operative engagement with its driving mechanism and permitted to reverse, the weight of the bucket and its contents being sufficient for this purpose. As the bucket begins its downward travel or reverse movement, the catch or trip engages with the lug 17. The weight of the bucket and its contents are sufficient to cause the bucket to continue its downward movement while the gate of the bucket is temporarily held by the trip, whereby the gate is caused to swing and open the bucket, so that the latter discharges its contents into a cart or wheel-barrow located immediately therebelow. The bucket passes on in its downward course, and it will be apparent that the lug will pass beyond the trip and become disengaged therefrom, permitting the gate to fall by gravity against the stop 16, so that by the time the bucket has reached its position for a subsequent filling the bottom is again closed. In this manner and by re-

peating the operation briefly described, it will at once be apparent that the necessity of employing the usual gang of shovelers at the discharge-end of the concrete-mixer, is entirely obviated, and that the operation of discharging the contents of the mixer into the usual carts or wheel-barrows to be conveyed away to the points of use is entirely mechanically accomplished, whereby a great saving is effected on each machine in use.

I do not limit my invention to the precise details of construction herein shown and described, but hold that I may vary the same in any manner and to any extent within the scope of my claims, without departing from the invention or sacrificing any of the advantages thereof.

It will be observed that the parts constituting the inclined ways are merely bolted together, and by this, as is apparent, the structure is rendered knock-down and hence readily portable.

Having described my invention, what I claim, is:

1. In an unloading apparatus for concrete mixers, the combination of an inclined way, a bucket mounted to travel along the way and having an outlet opening therein, a gate adapted to cover said opening, means for moving the bucket along the way, and means located along the point of travel of the bucket for automatically opening the gate during a return movement thereof, whereby the bucket is dumped.

2. In an unloading apparatus for concrete mixers, the combination of a way, a bucket mounted to travel along the way and having an outlet opening therein, a gate adapted to cover said opening, means for moving the bucket along the way, and means located along the travel of the bucket and adapted to engage and hold the gate during a return movement of the bucket, whereby the bucket is dumped.

3. In an unloading apparatus for concrete mixers, the combination of a way, a bucket mounted to travel along the way and having an outlet opening in the bottom thereof, a swinging gate pivoted to the bucket and adapted to cover the opening in the bottom thereof, means for moving the bucket along the way, and means located along the travel of the bucket and adapted to engage and swing open the gate during a return movement of the bucket, whereby the bucket is dumped.

4. In an unloading apparatus for concrete-mixers, the combination, of a way, of a bucket having a curved bottom provided with an opening and a curved swinging-gate covering the same, means for operating or moving the bucket along the way, and a trip arranged in the path of the bucket and adapted to engage the swinging-gate thereof as the bucket returns, whereby the bucket is dumped.

5. In an unloading apparatus for concrete-mixers, the combination, of a pair of inclined beams, supports for the beams, a dumping-bucket mounted for movement on the beams
5 and having a swinging-gate normally covering an opening in the bottom of the bucket, a shaft journaled below the beams and supported thereby, a trip carried by the shaft and adapted to yieldingly engage the swinging-gate of the bucket, and means for drawing
10 the bucket up the beams to a position to be engaged by the trip.

6. In an unloading apparatus for concrete mixers, the combination, of a pair of beams,
15 constituting an inclined way, a cross-beam connecting the upper ends of the beams and extending to one side thereof, pulleys located on the cross-beam between the inclined beams and upon the extension of the cross-
20 beam, a bucket having an opening in its bot-

tom and provided with rollers for riding upon the pair of beams, a swinging-cover or gate for the bucket, a pulley at one edge of the bucket, a pair of brackets depending from the pair of beams, a rock-shaft journaled in the
25 brackets, a weighted arm and trip extending from the shaft, said trip being adapted to engage the said swinging-gate and uncover the opening in the bucket, and an operating
30 cable connected at one end to the cross-beam, passed about the pulley on the bucket and thence around the pulleys on the cross-beams, substantially as shown and described.

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

HAROLD DAVIS.

Witnesses:

W. S. DUVALL,

H. S. BEALL.