

1,241,476.

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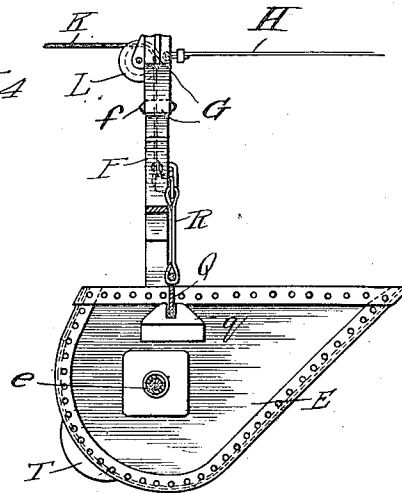
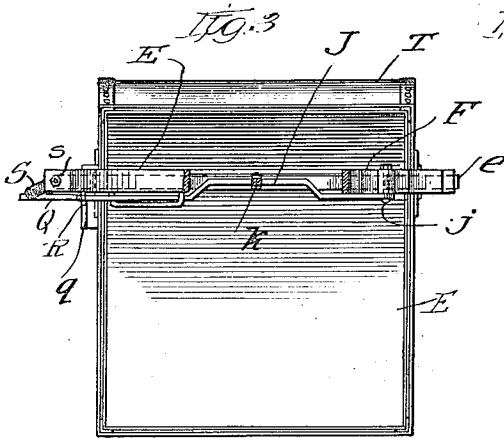
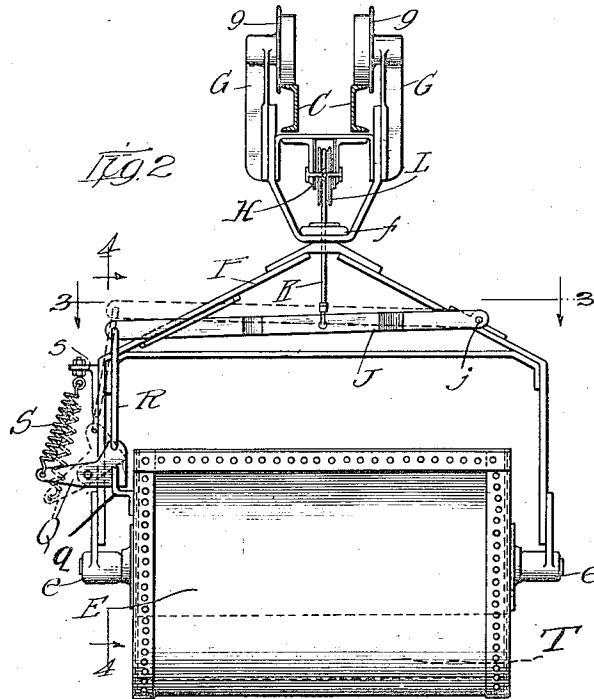
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TRAVELING BUCKET APPARATUS.
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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

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TRAVELING-BUCKET APPARATUS.

1,241,476.

Specification of Letters Patent. Patented Sept. 25, 1917.

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To all whom it may concern:

Be it known that I, JAMES C. FRENCH, a citizen of the United States of America, and resident of Kenosha, Kenosha county, Wisconsin, 510 Exchange street, have invented a certain new and useful Improvement in Traveling-Bucket Apparatus, of which the following is a specification.

This invention relates to apparatus for conveying materials from one point to another, and more particularly to the apparatus of this kind which is commonly employed for carrying the mixture from a concrete mixer, or other mixing machine, to the point where it is desired to discharge the same on the street, as in putting down different kinds of paving, and especially those in which a bucket which travels on a movable track or boom is employed for this purpose.

Generally stated, the object of the invention is to provide a novel and improved arrangement or construction for causing the bucket to automatically discharge its load, when the direction of travel of the bucket is reversed, after reaching the dumping position or place where the load is desired, thereby to facilitate the handling of the materials, as will hereinafter more fully appear.

It is also an object to provide a bucket of this character and mode of operation with simple and efficient mechanism of improved form and which can be controlled at will for causing the bucket to automatically gravitate into dumping position, as by tilting about a horizontal axis, after the point of discharge is reached, and when the direction of travel of the bucket is reversed by the reversal of movement of the cables or other operating connections thereof.

Another object is to provide certain details and features of construction and combinations tending to increase the general efficiency and serviceability of a conveyer bucket and apparatus of this particular character, and whereby, for example, the bucket may be turned around about a vertical axis and dumped anywhere along the path of travel thereof.

To the foregoing and other useful ends this invention consists in matters hereinafter set forth and claimed.

In the accompanying drawings Figure 1 is a side elevation of an apparatus embody-

ing the principles of this invention, showing the same arranged for delivering the materials from a concrete mixer, or other mixing machine, to a point some distance therefrom.

Fig. 2 is an enlarged vertical section on line 2—2 in Fig. 1.

Fig. 3 is a horizontal section on line 3—3 in Fig. 2.

Fig. 4 is a vertical section on line 4—4 in Fig. 2.

It will be observed that Figs. 3 and 4 are on a smaller scale than Fig. 2, but on a larger scale than Fig. 1.

As thus illustrated, the invention comprises a body frame A disposed adjacent the discharge spout B of a concrete mixer, or other mixing machine, of any suitable character. A vertical swivel *a* is mounted on said body frame, in any suitable manner, and the track or runway C, which is in the form of a swinging boom, has its proximal end pivoted at *c* to the lower end of said swivel, whereby said boom is adapted to swing from side to side about said swivel as an axis, and also up and down about said pivot. Any suitable means, such as the supporting rods D, provided with turn-buckles *Z*, can be attached to the outer end of the boom for supporting the latter, as well as for raising and lowering the boom.

The bucket E is pivoted at *e* to the lower ends of the bail F, which latter is provided with a vertical swivel *f* at its upper end, this swivel being in turn carried by a carriage G having wheels *g* which travel on said track or boom thereby to form a traveling carrier for the bucket. A front line or cable H is attached to the carriage G and travels around a sheave *h* at the outer end of the boom and then back to the other end of the said track or boom where it then passes upward under a sheave I which is disposed immediately below the swivel. A lever J is pivoted at *j* on the bail F and has a rear line or cable K which extends upward therefrom and through the swivel *f*, thence over a sheave L of the carriage G, and then under another sheave similar to the sheave I and adjacent the latter. These front and rear operating connections or lines H and K then pass upward through the swivel *a*, which latter is made hollow for that purpose.

From this swivel the two lines or cables

H and K then extend upward and over the sheaves M and N and then down to the winding drums O and P on the body frame of the apparatus.

5 A latch Q, pivoted on the bail F, is adapted to engage the notched plate *q* on the side of the bucket to lock the latter in carrying position. The inner end of this latch is connected by a rod R with the outer
10 end of the lever J, whereby the upper movement of the latter, when a pull is exerted on the rear hauling line K, serves to unlock the bucket. A spring S connects the outer
15 end of said latch Q with a bracket *s* on the bail of the bucket, whereby the said latch is yieldingly held in locking position, and is adapted to spring into the notch of the plate *q* when the bucket returns of its own
20 accord to loading position, or to carrying position, as shown in Figs. 1 and 4, and after discharging its load.

In this connection, it will be seen that the bucket is of such shape that the weight of the load is greater at one side of the axis *e*
25 than at the other side thereof, whereby the bucket gravitates downward at its longer or discharge end when unlocked. A weight T on the short side of the bucket then returns the latter to carrying position as soon
30 as the bucket is relieved of its load.

From the foregoing it will be seen that the bucket automatically discharges its load when it reverses its direction of travel, after arriving at the desired point of discharge,
35 and as soon as the initial pull on the line or cable K by which it is returned to loading position in front of the mixing machine. The swivels *a* and *f*, being hollow or provided with vertical bores, accommodate the
40 said lines or operation connections and, by thus keeping the latter substantially at the necessary axes of horizontal movement, permit the boom C and the bucket E to turn freely about these vertical axes at all times
45 and whenever such movement is necessary in order to facilitate the handling of the materials. In other words, the bucket can be freely moved about and into the different positions necessary for conveniently receiving and discharging the load. Moreover,
50 the bucket automatically discharges the load when it reaches the point of discharge, and then automatically returns to carrying position, or rights itself, as soon as the load is
55 discharged. With the arrangement shown, the bucket can be made to turn around and discharge its load practically any where along the length of the swinging boom. When the bucket returns to the mixer, it
60 can be turned around to receive the load, regardless of the angle or direction of the boom or track.

The drums O and P are driven by a gearing T extending downward to the mixing
65 machine V, which latter may be of any suit-

able character. In this way, and by using any suitable power-transmitting connection, the rotary mixer drives the said drums. Suitable clutch mechanism W may be used
70 for controlling this transmission of power, and for reversing the motion at will to move the bucket back and forth on the boom.

As shown, the swivel *a* has a gearing V, such as a worm gearing, for swinging the boom from one side to the other. This gearing is also operated by a belt *v* leading
75 downward to some element operated by the engine of the mixing machine. Thus the boom is operated at the proximal end and has its distal end free to swing to either
80 side of the machine.

Thus, it will be seen that the bucket E can not only travel back and forth to dump the load at any desired point on the track, but also that it can be swung laterally to
85 carry the load to any desired point on the ground, or on the street, within reach of the swinging track. The operating connections extend upward through the swivel *a*, and one of said connections, the line or cable K,
90 has a vertical portion which serves as the axis about which the bucket E is mounted to turn in order to face in any direction. Consequently this line or cable K has one
95 vertical portion which serves as the axis about which the track C swings in the horizontal plane, and another portion which serves as the vertical axis about which the bucket is free to turn on its swivel.

A bucket of this type has certain advantages in connection with a concrete mixer, inasmuch as a bucket of this kind
100 does not leak. Buckets having doors or hinged gates have been found to be more or less objectionable for this purpose, as the
105 water in the mixture will leak through in an objectionable manner, because the door or gate cannot be made watertight. Hence, as stated, a bucket such as shown, which has a water-tight body, is advantageous and
110 desirable.

While the particular construction shown and described as being illustrative of this invention is capable, of course, of operation
115 in the manner described, to produce the desired results, it is obvious that changes can be made without departing from the scope of the invention, and for the broader purposes thereof, the invention is not, therefore, limited to the exact construction shown
120 and described.

What I claim as my invention is:—

1. An apparatus for conveying materials from one place to another, comprising a track, a bucket, means traveling on said
125 track to support the bucket, connections for operating said bucket back and forth on said track, and mechanism for automatically dumping the load by reversing the motion of said bucket at any point in the path of
130

travel thereof, said mechanism including a lever pivoted at one end thereof to extend crosswise of said bucket, and a latch connected with and operated by the raising of said lever at the other end thereof to dump the load, said connections comprising a line attached to said lever between its ends and arranged for pulling said bucket back to loading position after the initial pull thereon has raised the lever and thereby dumped the load, said mechanism having a support to engage said line above said lever.

2. An apparatus for conveying material from one place to another, comprising a track, a bucket, means traveling on said track to support the bucket, connections for operating said bucket back and forth on said track, and mechanism for automatically dumping the load by reversing the motion of said bucket at any point in the path of travel thereof, said mechanism including a lever pivoted at one end thereof to extend crosswise of said bucket, and a latch operated by the raising of said lever to dump the load, said connections comprising a line attached to said lever and arranged for pulling said bucket back to loading position after the initial pull thereon has raised the lever and thereby dumped the load, said connections having relative movement to automatically dump the load at any point along said track.

3. An apparatus for conveying materials from one place to another, comprising a track, a bucket, a carriage traveling on said track to support the bucket, connections for operating said bucket back and forth on said track, mechanism for automatically dumping the load by reversing the motion of said bucket at any point in the path of travel thereof, and means to automatically restore the bucket to carrying condition before it reaches the loading position, said bucket having a swivel carried on said means, said connections including a line to operate said mechanism and pull the bucket backward, and said swivel containing a vertical portion of said line, so that upward movement of said line in said swivel operates said mechanism to dump the load, and means to operate said connections.

4. An apparatus for conveying materials from one place to another, comprising a track, a bucket, means traveling on said track to support the bucket, connections for operating said bucket back and forth on said track, and mechanism for automatically dumping the load by reversing the motion of said bucket at any point in the path of travel thereof, said mechanism including a lever pivoted at one end thereof to extend crosswise of said bucket, and a latch operated by the raising of said lever to dump the load, said connections comprising a line attached to said lever and arranged for pull-

ing said bucket back to loading position after the initial pull thereon has raised the lever and thereby dumped the load, said bucket having a swivel carried on said means, and said swivel containing a vertical portion of said line, so that upward movement of said line in said swivel operates said mechanism to dump the load, and means to operate said connections.

5. An apparatus for conveying material from one place to another, comprising a track, a bucket, means traveling on said track to support the bucket, connections for operating said bucket back and forth on said track, mechanism for automatically dumping the load by reversing the motion of said bucket at any point in the path of travel thereof, and means to automatically restore the bucket to carrying condition before it reaches the loading position, said mechanism including a catch, and said connections comprising a line attached to an element of said mechanism, which element is arranged for operating said latch to dump the load, and said line being arranged for pulling the bucket back to loading position after the initial pull thereon has operated said latch, said bucket having a swivel carried on said means, and said swivel containing a vertical portion of said line, so that upward movement of said line in said swivel operates said mechanism to dump the load, and means to operate said connections.

6. In combination, a track having a bucket mounted to travel thereon, mechanism to dump the load at any desired point along said track, a swivel to permit rotation of the bucket about a vertical axis, so that the bucket may turn around and dump at any point along said track, devices to operate the bucket along its path of travel, a connection to control said mechanism at will and to return the bucket along said track to loading position, and means to automatically restore the bucket to carrying condition after the dumping of the load.

7. The structure of claim 6, as stated, said bucket being pivoted to tilt over and dump the load from one side thereof, when released by a pull on said connection, and said means being a weight to tilt the bucket back into operative relation to said mechanism.

8. The structure of claim 6, as stated, said connection extending downward through said swivel, to operate said mechanism, so that the load is released by upward movement of said connection in the swivel.

9. The structure of claim 6, as stated, having a spring to restore said connection and mechanism to the normal positions thereof relative to the bucket.

10. The combination of a track, a carrier to travel on said track, a bucket having a bail, a swivel to support said bail on said carrier, dumping mechanism on said bail,

means to move the carrier forward on said track, and a line to draw the carrier backward, said line extending downward through said swivel to operate said mechanism, and means to automatically restore the bucket to carrying condition while the bucket is turned in any direction on said swivel, so that the load is dumped at will by upward movement of the line in said swivel, and whereby said bucket can turn around and be dumped at different points along said track by the initial pull on said line.

11. The said apparatus, as set forth in claim 10, said mechanism comprising a lever pivoted on said bail, a latch pivoted on the bail, means to connect the movable end of said lever with said latch, a spring to hold said latch in locking position, and means on the bucket to engage said latch, said lever having its middle portion connected to the lower end of the depending portion of said line, with means to support the line on said carrier.

12. In combination, a track having a bucket mounted to travel thereon, a swivel to permit rotation of the bucket about a vertical axis, so that the bucket may turn around freely at any point along said track, devices to operate the bucket along its path of travel, means operative in any rotated position of the bucket for at will controlling

the bucket through said swivel to dump the load at any desired point along said track and for returning the bucket to loading position, whereby the bucket is under control at all times and while free to turn in any direction, and means operable to automatically restore the bucket to carrying condition after each dumping operation and before reaching the loading position.

13. The combination of a track, a traveler on said track, a carrying and dumping bucket, a swivel to support said bucket on said traveler, so that said bucket may turn freely about a vertical axis, means to pull the bucket along the track, instrumentalities including a line operative in any rotated position of the bucket for at will controlling said bucket to dump the load at any point along said track, whereby the bucket is under control at all times and while free to turn in any direction, and means operable to automatically restore the bucket to carrying condition after each dumping operation and before reaching the loading position.

Signed by me at Chicago, Illinois, this 30th day of January, 1915.

JAMES C. FRENCH.

Witnesses:

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