No. 685,388. Patented Oct. 29, 1901.

B. C. RIBLET.

AUTOMATIC DUMPING BUCKET FOR WIRE ROPE TRAMWAYS.

(Application filed Feb. 23, 1901.)

(No Model.)

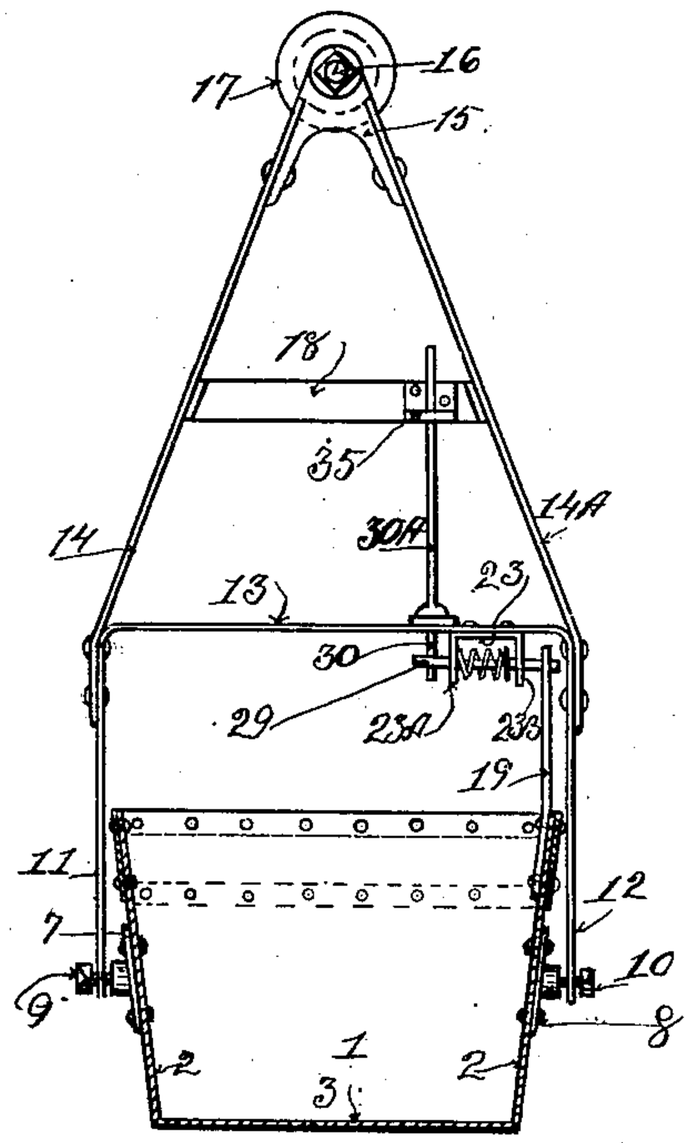


Fig. 1.

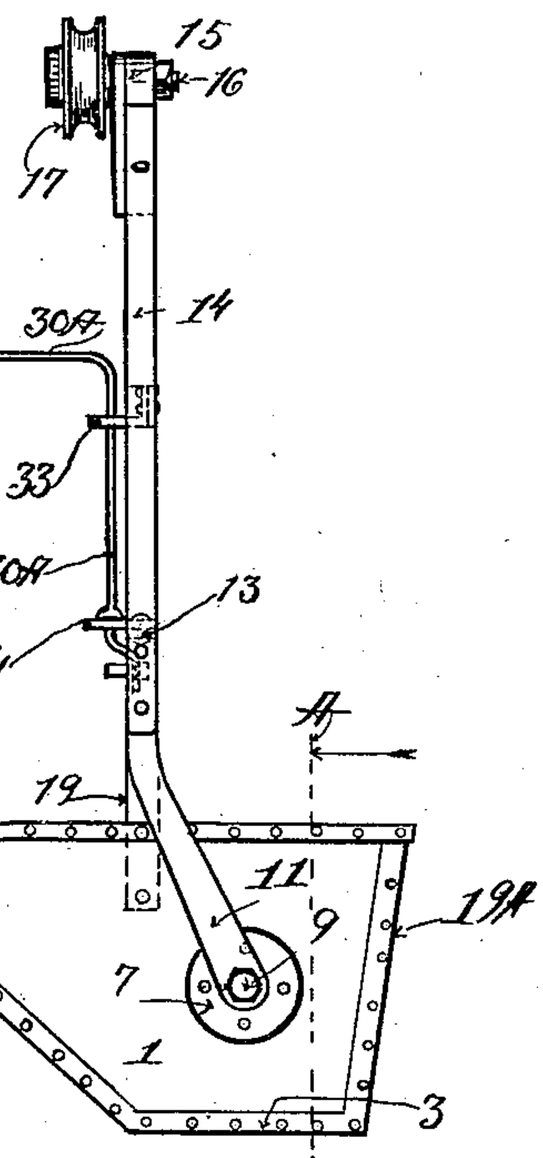
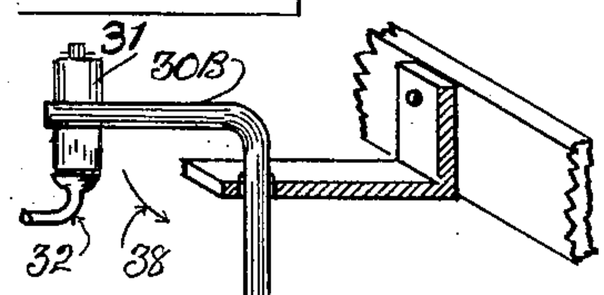


Fig. 2.



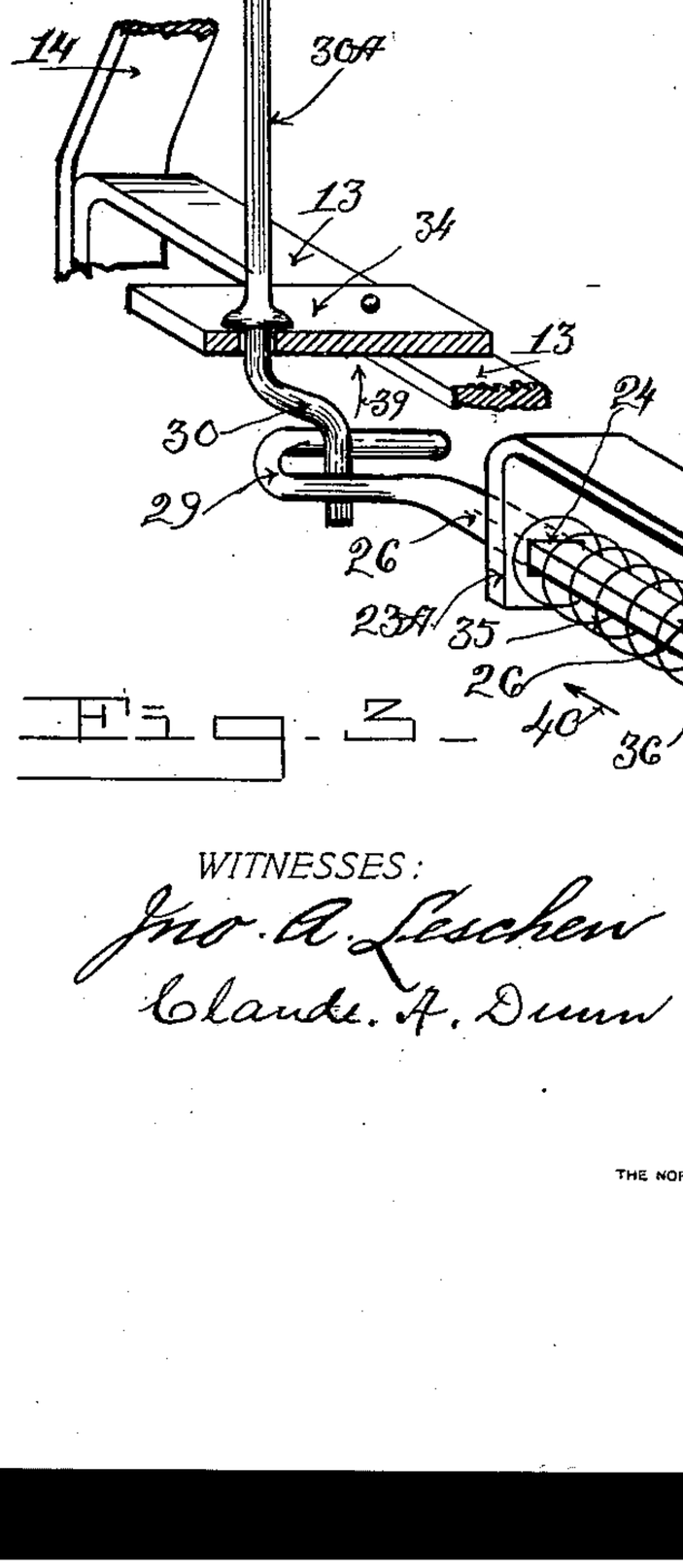


Fig. 3.

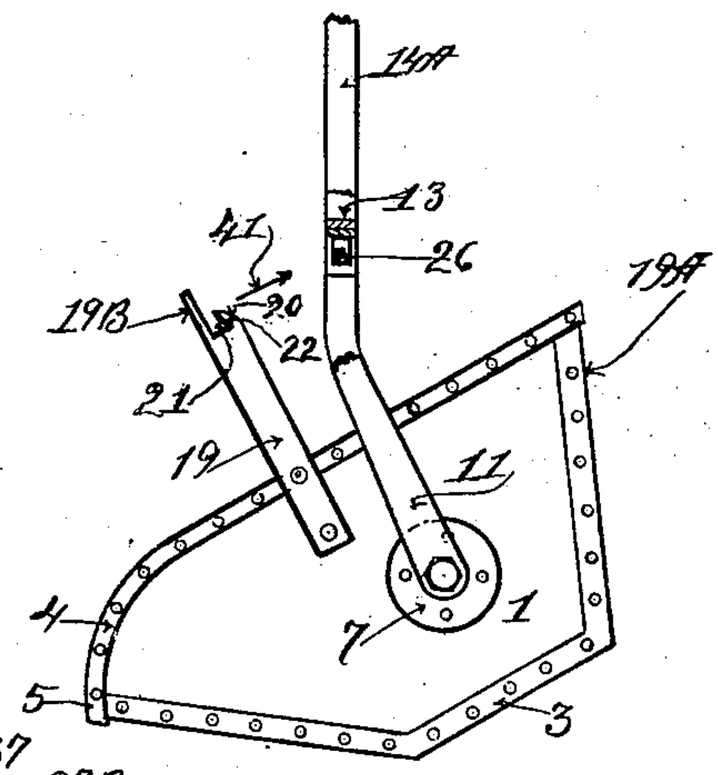


Fig. 4.

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AUTOMATIC DUMPING-BUCKET FOR WIRE-ROPE TRAMWAYS.

SPECIFICATION forming part of Letters Patent No. 685,388, dated October 29, 1901.

Application filed February 23, 1901. Serial No. 48,596. (No model.)

To all whom it may concern:

Be it known that I, BYRON C. RIBLET, a citizen of the United States of America, residing at Nelson, in the Province of British Columbia and Dominion of Canada, have invented certain new and useful Improvements in Automatic Dumping-Buckets for Wire-Rope Tramways; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in automatic dumping-buckets for wire-rope tramways; and the object of my invention is to provide a bucket attached to side pendants and having a trolley-wheel at its top adapted to run on a wire rope and in which the bucket is overbalanced at its discharge end and that is locked in a load-carrying position to its pendants and is released from them and turns over and discharges its load at a predetermined point by contact with an unlocking device. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is an elevation of my improved automatic dumping-bucket, showing the bucket in section on line A in the direction of the arrow in Fig. 2. Fig. 2 is a side elevation of my improved bucket. Fig. 3 is a perspective fragmentary view of the bucket-locking mechanism; and Fig. 4 is a fragmentary side elevation of the pendant and bucket, showing the bucket unlocked from the pendant and tipped down out of normal position.

Similar figures of reference refer to similar parts throughout the several views.

Referring to the drawings, the numeral 1 designates the bucket. It is preferably made of rectangular outline, with tapering sides 2, which are arranged to make the top larger than the bottom 3, and with a downward-curved end 4 at the discharge end 5 of the bucket, with an inclined end 6 extending from the rounded end to the bottom.

To the sides of the bucket I rivet trunnion-flanges 7 and 8, in which trunnion-bolts 9 and 10 are threadedly secured. Upon the trunnion-bolts I pivotally mount the ends 11 and 12 of a yoke-shaped bar of metal 13, that extends over the top of the bucket and which I term the "bucket-bail." To the sides of this bucket-bail I secure the lower ends of the pendants 14 and 14^{A}, the upper ends of which converge toward each other and are secured to a casting 15, which forms the apex of the pendant. An axle 16 is secured to this casting, and a trolley-pulley 17 is mounted on the axle. A tie-brace 18 is also placed across the pendants between the bucket-bail and the trolley-wheel casting.

To the inside of one side of the bucket I secure an arm 19, which projects vertically above the bucket close to the bucket-bail and which I term a "bucket-arm." The side edge of this keeper-arm nearest to the rear side 19^{A} of the bucket is stepped down an inch or two lower than the opposite edge, leaving an upward point 19^{B}, that acts as an abutting shoulder. The corner 20 of the stepped-down portion is rounded or sloped off, and in the top of the step portion a recess 21 is cut, and the side 22 of the recess adjacent to the rounded corner is beveled inward and forms a semidovetailed recess. This recess forms a locking-socket of the bucket. Adjacent to the end of this keeper-arm a strip of metal, which I term the "locking-bolt holder," is secured to the top bar 23 of the bucket-bail 13. This bolt-holder is provided with two depending ends 23^{A} and 23^{B}, in each of which there is formed a rectangular hole 24 and 25. A locking-bolt 26 fits slidably in these two holes of the bolt-holder. The hole 25 is made longer than the thickness of the bolt, so that the bolt can be raised up at its outer or locking end 27 in this hole. The locking end 27 of the locking-bolt extends to and normally rests in the recess of the bucket-arm 19, and the side 28 of the locking-bolt facing the beveled side of the recess is also beveled to match or register against it. The opposite end of the locking-bolt extends beyond the bolt-holder, and its end is formed into a loop or yoke 29, through which extends the lower end of a crank 30, that forms the lower part of a vertical bolt-actuating rod 30^{A}, that extends above the tie-brace 18. The upper end of this rod is bent at right angles to the vertical portion and forms a pro-

jecting arm 30^B, that contacts with any suitable abutment, such as a pulley or roller 31, which is revolubly mounted on a vertical axle and bracket 32, which is secured to a suitable support 33 at the dumping-station of the tramway, where the bucket is dumped. The bolt-actuating rod is supported at its upper end by a bracket 33, which is riveted to the tie-brace 18, and at its lower end by a bracket 34, that is riveted to the top part of the bucket-bail 13.

Around the locking-bolt between its depending ends I place an expanding spring 35, one end of which bears against the inside of the depending end 23^A of the bolt-holder, and the opposite end bears against a washer or collar 36, which forms an abutment for the spring and is held against slipping on the bolt by a split pin 37, which extends through the bolt near the depending end 23^B of the bolt-holder.

The operation of my automatic dumping-bucket is as follows: When the bucket as it travels along a tramway arrives at the dumping-station, the arm of the bolt-actuating rod strikes the pulley 31, and it is swung around in the direction of the arrow 38 in Fig. 3 as the bucket passes by the pulley and moves its crank at the opposite end of the bolt-actuating rod in the direction of the arrow 39, which draws the bolt back in the direction of the arrow 40 out of the recess 21 of the keeper-arm, which releases the keeper-arm and the bucket and allows the bucket to swing down in the direction of the arrow 41 and turn upside down, as the weight of the load and bucket is greater in its discharge end than in its remaining portion, which discharges its load, after which as the bucket continues on or stops, as the case may be, the buckets may be permanently attached to the running rope of a tramway or may be automatically detached from the running rope and stop at the dumping-station, as desired; but as these features do not comprise any part of my invention they are not shown. It is swung upright by an attendant and relocked to the locking-bolt, which has been forced back into the path of the keeper-arm by the coiled expansion-spring that surrounds it, which was compressed when the bolt was moved back by the engagement of the unlocking-rod with the pulley. Consequently the keeper-arm of the bucket strikes the locking-bolt as it is righted up with its rounded corner, and the locking-bolt is forced to ride up over it, the long hole in the end 23^B of the bolt-holder permitting it to rise vertically at this end to ride over the round corner and strike against the shoulder formed by the end of the keeper-arm that projects above the stepped portion, after which it drops into the recess, where the greater weight of the discharge end of the bucket over the opposite end keeps the beveled side of the recess of the keeper-arm bearing hard against the beveled side of the end of the locking-bolt.

My invention is simple and durable and is not apt to get out of order.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In an automatic dumping apparatus for wire-rope tramways, the combination with the trolley-wheel and the bucket and the pendants, of an arm secured to said bucket containing a semidovetailed recess at its free end and a reciprocal locking-bolt connected slidably to said pendants and adapted to fit with one of its ends easily in said semidovetailed recess and to rest normally therein and spring-controlled in the locking direction of its movement, the locking end of said locking-bolt being arranged to automatically lodge in the end of and lock to the semidovetailed recess in said bucket's keeper-arm, an unlocking-rod connected to said pendants and to the opposite end of said locking-bolt, an arm at one end projecting normally away from said pendants and arranged to move said bolt to withdraw it from the recess in said bucket-arm, and a suitable stationary abutment arranged at the dumping-station in the traveling path of said arm and adapted to be struck and swung around by it to operate said bolt to release said bucket from said pendants and thereby dump it, substantially as described.

2. In an automatic dumping apparatus, the combination with the bucket, the pendants and trolley-wheel, of the keeper-arm secured to said bucket, and having a stepped portion at its free end, a sloping corner to the stepped portion and a semidovetailed recess in the top of the stepped portion, with a reciprocating locking-bolt slidably secured to said pendants the spring arranged to control and hold said locking-bolt in its normal locked position, an unlocking-rod arranged to move said locking-bolt in the opposite direction of its movement and to unlock said bolt from said keeper-arm, and an obstruction at the dumping-station arranged to be struck by said unlocking-rod as said bucket passes it, substantially as described.

3. In an automatic dumping apparatus for wire-rope tramways, the combination of the bucket having a bail extending over it and pivotally secured to its sides at a point that will allow its discharge end to outweigh the opposite end, of the bucket-pendants secured at one of their ends to the opposite sides of said bail and converging together from said bucket toward a point centrally between them, a trolley-supporting casting secured to the converging ends of said bucket-pendants, a wire-rope-trolley wheel revolubly mounted in said casting, with a locking-keeper-bolt device attached to said bucket, a locking-bolt reciprocally secured to the supporting member of said bucket and arranged to be held normally in locking engagement with said keeper, an unlocking-arm operatively connected to said locking-bolt and an obstruction arranged at the dumping-station in the

path of the unloading-arm, substantially as described.

4. In an automatic dumping apparatus for tramways, the combination of the bucket, the keeper-arm having a semidovetailed recess in its end, with the bail and pendants pivotally attached to said bucket, a reciprocating locking-bolt mechanism arranged on said bail and pendants in operative relation to said bucket and keeper, an obstructive member arranged in the traveling path of the bucket and pendants, and locking mechanism arranged and adapted to actuate the locking mechanism of said bucket and pendants, substantially as described.

5. In an automatic dumping tramway apparatus, the combination of the bucket having a bail pivotally secured to trunnions at its sides in a position to allow the discharging end to overbalance the rest of the bucket, the pendants secured at one of their ends to said bail, the trolley-wheel-supporting casting secured to the opposite ends of said pendants, the keeper-arm secured to said bucket and having a shouldered step in its free end in the side opposite from the discharge end of said bucket, a sloping corner to said step at its edge, and a semidovetailed recess in the top of said step having its beveled side opposite from the shouldered step and from the discharge end of said keeper, the locking-bolt reciprocally secured to said bail and having a loop formed on one end and a locking end at its opposite end its locking end fitting loosely in the semidovetailed recess of said bucket-keeper the side of the locking end of said locking-bolt adjacent to the beveled side of said semidovetailed recess being beveled to register against it and arranged and adapted relative to said bucket to prevent said locking-bolt's accidental displacement from said keeper and arranged to be raised vertically by the sloping corner of said step in said keeper, the expansion-spring arranged to hold said locking-bolt normally in engagement with said keeper, the unlocking-rod supported by said bail and pendant and having a crank at its lower end engaging said looped end of said locking-bolt, the arm at the opposite end of said rod arranged in the opposite direction from said crank, the pulley, the bracket and the support at the dumping-station for engaging the arm of said unlocking-rod at the dumping-station, substantially as described.

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

BYRON C. RIBLET.

Witnesses:

BESSIE THOMPSON,

CLAUDE A. DUNN.