

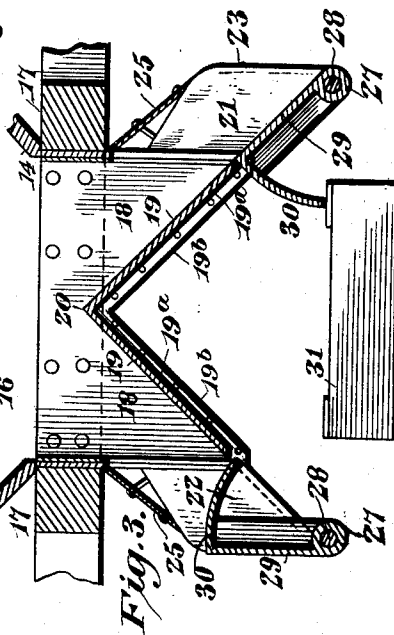
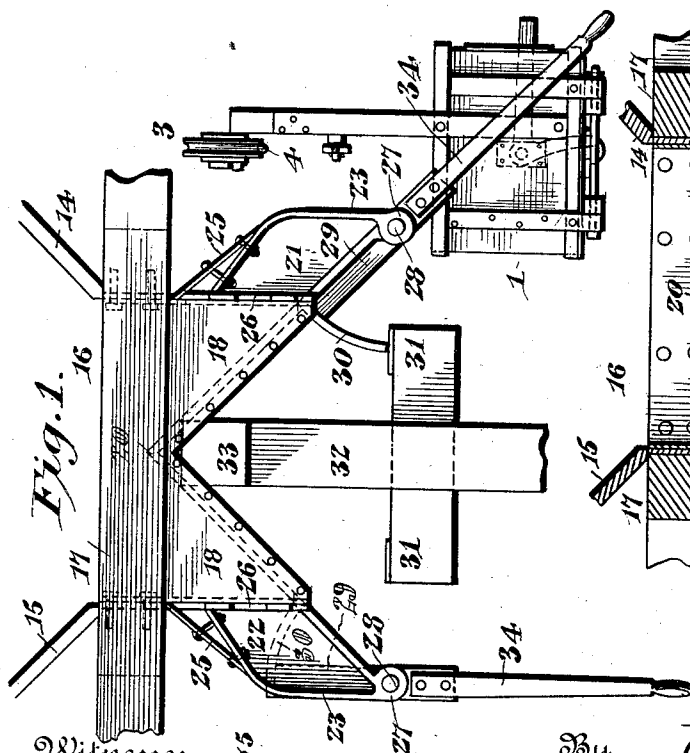
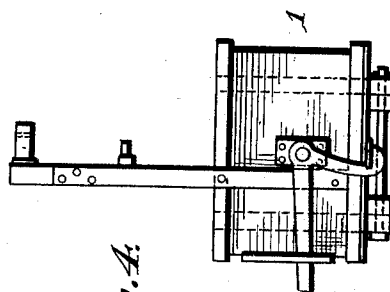
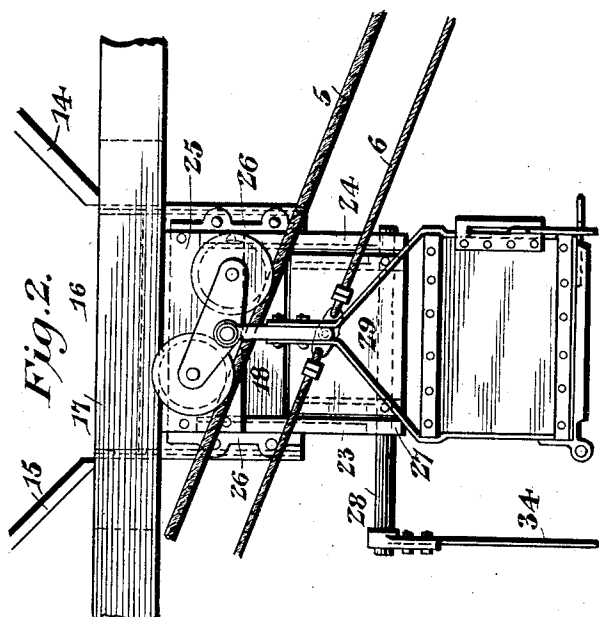
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H. M. SACKETT.  
LOADING APPARATUS FOR TRAMWAYS.

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NO MODEL.



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## UNITED STATES PATENT OFFICE.

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## LOADING APPARATUS FOR TRAMWAYS.

SPECIFICATION forming part of Letters Patent No. 757,777, dated April 19, 1904.

Application filed June 7, 1902. Serial No. 110,663. (No model.)

*To all whom it may concern:*

Be it known that I, HOMER MASON SACKETT, a citizen of the United States, residing at Telluride, in the county of San Miguel and State of Colorado, have invented a new and useful Loading Apparatus for Tramways, of which the following is a specification.

This invention relates to improvements in two-bucket cable-tramways, characterized by a pair of buckets designed to travel back and forth upon standing cables between loading and dumping stations or terminals, the buckets being connected by an endless cable, so that as one bucket travels under the impulse of gravity or otherwise from the loading-station to the dumping station or terminal the other bucket will travel back from the dumping-station to the loading-station to receive its load while the contents of the first-named bucket are being dumped.

The objects of the invention are to economize the space required for the installation of the apparatus and the labor incident to the supervision thereof and to reduce to a minimum the time consumed by the delay of the buckets at the loading-terminal of the tramway. These objects and others subordinate thereto are accomplished by the provision of novel loading apparatus comprising a double hopper adapted to be inserted in an opening in the bottom of the ore-bin and equipped with chutes disposed in opposite directions and controlled by valves capable of easy manipulation to permit or prevent the discharge into the buckets of ore or other material intended to be conveyed.

In the accompanying drawings, in which I have illustrated a preferable embodiment of the invention, Figure 1 is an elevation showing the hopper and related parts and one of the buckets on a somewhat enlarged scale, one of the valves being open to permit the loading of the bucket and the other valve being closed to prevent the discharge of material during the absence of the other bucket from the loading-station. Fig. 2 is an elevation of the subject-matter of Fig. 1 looking from a

different direction. Fig. 3 is a sectional view through the hopper and its complementary parts, and Fig. 4 is a front elevation of one of the buckets.

Like numerals of reference are employed to designate corresponding parts throughout the several views.

It is of course understood that the purpose of an apparatus of this character is to convey ore, coal, or other material from one point to another. The conveyance is effected by means of a pair of conveyer-buckets 1, supported by bail-shaped hangers from carriages 3, mounted to travel upon stationary or standing cables 4 and 5. These cables extend from a loading to a dumping station, and the buckets travel alternately back and forth to receive a load and to dump the material at a remote point. The standing cables, which merely serve the purpose of tracks for the carriages, are downwardly inclined toward the dumping-station, the gravitation of a loaded bucket to the dumping-terminal serving to effect the return of an empty bucket to the loading-station. The hangers of the buckets are connected to the opposite runs of an endless cable 6 in a manner well understood.

At the upper or loading terminal of the tramway is located a bin 14, containing the ore, coal, or other material to be trammed. One of the essential features of the invention is a novel arrangement of parts whereby the terminal of the tramway constitutes the lower story of the ore-bin, which is the second story of the combined building. Instead, therefore, of providing a loading-chute at one side or end of the bin, as is customary, the bottom walls 15 of said bin are sloped toward a central discharge-opening 16, defined by suitable rectangular framing 17, constituting a part of the frame structure which supports the bin and the various other elements of the apparatus at the loading station or terminal. Into this framing 17 is introduced the upper end of a rectangular hopper 18, the walls of which are bolted or otherwise secured to the framing. This hopper, which is preferably

constructed of sheet-metal plates, is of double form, and its bottom wall 19 slopes downwardly in opposite directions from an apex 20, formed by the meeting edges of a pair of bottom plates 19<sup>a</sup>, of which the bottom 19 is composed. These plates are preferably cast with side flanges 19<sup>b</sup>, bolted to the front and back walls of the hopper, as shown; but obviously this specific construction while preferable is by no means essential.

At the opposite sides of the hopper 18, which sides are open, as shown in Fig. 3, are located the loading-chutes 21 and 22, comprising side walls 23 and 24 and top walls 25. The side walls of the chutes are preferably formed at their upper or rear ends with bolt-flanges 26, bolted, as shown in Fig. 2, to the side walls of the hopper, and are also cast at their lower outer corners with bearing-lugs 27, in which are journaled rock-shafts 28. To each of these rock-shafts is fixed the lower edge of a swinging chute-floor 29, constituting the bottom wall of the chute and a continuation of the adjacent bottom plate of the hopper. At the upper or inner end of each chute-floor is formed, preferably integral therewith, an arcuate gate-valve 30, extending substantially at right angles from the floor and designed to close the chute, and thereby cut off the further discharge of material when the chute-floor is swung to the position indicated at the left-hand side of Fig. 3. When, however, the chute-floor is in position to constitute a continuation of the bottom of the hopper, the valve will be disposed in an unobstructing position below the hopper, with its lower edge resting upon a stop 31. Any character of stop for limiting the movement of the chute-floor to accurately position the latter in alinement with the bottom wall of the hopper may be provided; but in the present instance the stop 31 is in the form of a cross-bar, having its ends disposed for engagement with either of the valves and supported by a vertical post 32, having at its upper end a beam 33, constituting a central support for the hopper, as shown in Fig. 1.

For the purpose of facilitating the control of the discharge of material by a single attendant stationed at the loading-terminal each of the rock-shafts 28 is provided with an operating-handle 34, located in rear of its chute.

Ordinarily the valves when moved to their closed positions will be held by the weight of material in the chutes. It is desirable, however, that provision be made for preventing the premature opening of the valves in the event of the hopper being empty, as this would obviously permit the discharge of material which might afterward be deposited in the bin. I therefore arrange the operating handles or levers 34 in line with the movable chute-floors

29. This disposition of the handles not only presents them within convenient reach of a single operator, but it will be noted by reference to the left-hand side of Fig. 1 that when the valves are closed these handles hang perpendicularly at the center of gravity, and their weight therefore assists in retaining the chute-floors in vertical position and the valves closed. In other words, the handles are so disposed that they constitute counterbalancing devices for the valves.

The center line of the hopper—that is to say, the line of the apex 20—is the center line of the tramway, since, as shown in Fig. 1, the standing cables 4 and 5 are located at similar distances beyond the opposite sides of the hopper to support the buckets in position to receive material from the chutes 21 and 22, although, obviously, it is not essential that the hopper be located at the center of the bin. At the right-hand side of Fig. 1 I have shown the bucket 1 in position to receive a load of ore or the like from the chute 21, which latter is open and extends over the bucket.

The operation of the apparatus is as follows: Assuming the parts to be in the positions shown, the material to be trammed—as, for instance, ore, coal, or the like—will escape from the bin 14, through the opening 16 in the bottom thereof, to the subjacent hopper 18 and gravitating down the bottom plate 9<sup>b</sup> of said hopper and over the floor 29 of the chute 21 will be discharged into the bucket 1. When the bucket has been completely loaded, the single attendant of the apparatus, who is stationed at the loading-terminal of the tramway, will swing the valve 30 by the manipulation of the handle 34 to close the chute and will release a brake (not shown) to permit the movement of the endless cable 6. The bucket 1 will now gravitate to the dumping-station to dump the load. During the transit of the loaded bucket from the loading-terminal to the dumping-station the other bucket will move back from the dumping-station to the loading-terminal and will be positioned below the chute 22. The operator will now reapply the brake to prevent the premature gravitation of the bucket and will swing the adjacent lever 34 to open the chute-valve and to present the chute-floor in alinement with the bottom wall of the hopper. The loading operation will now be repeated and the loaded bucket will, as heretofore described, proceed to the dumping-station to deliver its contents and to effect the return of an empty bucket into position to receive a load.

It is thought that from the foregoing the construction and operation of my tramway will be clearly apparent; but while the illustrated embodiment of the invention is believed at this time to be preferable I wish to be dis-

tinctly understood as reserving to myself the right to effect such changes, modifications, and variations of the illustrated structure as may be properly embraced within the scope of the protection prayed.

What I claim is—

1. In an apparatus of the character described, the combination with a hopper having its bottom wall inclined in opposite directions from the center thereof; of valves controlling the discharge of material from opposite sides of the hopper, a support disposed under the apex of the bottom wall of the hopper, and a stop member carried by said support and disposed to be engaged by the valves to limit the movement thereof in one direction.

2. In an apparatus of the character described, the combination with a hopper having its bottom wall inclined in opposite directions from the center thereof; of chutes extending in opposite directions from the hopper, swinging bottom walls in said chutes provided with arcuate valves, a support disposed under the apex of the bottom wall of the hopper, and a stop member carried by said support and disposed to be engaged by the valves to insure the alinement of the bottom walls of the chutes and hopper.

3. In an apparatus of the character described, the combination with a hopper having its bottom wall inclined in opposite directions from the center thereof, of chutes extending in opposite directions from the hopper, rock-shafts journaled at the outer ends of the chutes, bottom walls carried by the rock-shafts, arcuate valves connected to the upper ends of said bottom walls, levers connected to the rock-shafts to operate the same, a support disposed under the apex of the bottom wall of the hopper, and a stop member carried by said support and disposed to be engaged by the valves to insure the alinement of the bottom walls of the chutes and hopper.

4. In an apparatus of the character described, the combination with the hopper having openings at opposite sides thereof, and a bottom wall inclined in opposite directions toward said openings; of oppositely-extending

chutes, each comprising side walls bolted to the hopper at opposite sides of an opening and a movable floor-section, and an arcuate valve depending from one end of the movable floor-section of each chute.

5. In an apparatus of the character described, the combination with a hopper having openings at opposite sides thereof and a bottom wall inclined in opposite directions toward said openings, of oppositely-extending chutes each comprising side walls bolted to the hopper at opposite sides of an opening, a top wall connecting the side walls and a movable floor-section, an arcuate valve depending from one end of the movable floor-section of each chute, means for operating the valves independently of each other, and means for limiting the movement of each valve.

6. In an apparatus of the character described, the combination with a hopper and a chute extending therefrom; of a swinging bottom wall for said chute, a valve operated by said wall, and an operating-handle connected to the movable chute-wall and extending in an opposite direction from the axis thereof and arranged to assume a substantially perpendicular position when the valve is closed.

7. In an apparatus of the character described, the combination with a hopper and a chute extending therefrom and having a swinging bottom wall; of an arcuate valve extending from one extremity of said bottom wall, a rock-shaft constituting the axis of the chute-wall, and an operating-handle secured to the rock-shaft and extending therefrom in a direction exactly opposite to the direction in which the chute-wall extends from the shaft, whereby when the chute-wall is moved to a vertical position to close the valve, said handle will hang directly in the center of gravity and thus aid in retaining the chute wall and floor in their proper positions.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

HOMER MASON SACKETT.

Witnesses:

W. E. GRAY,  
L. W. ALLEN.