No. 869,357. PATENTED OCT. 29, 1907.

G. FINK.

CARRIER.

APPLICATION FILED APR. 29, 1907.

2 SHEETS—SHEET 1.

Fig. 2.

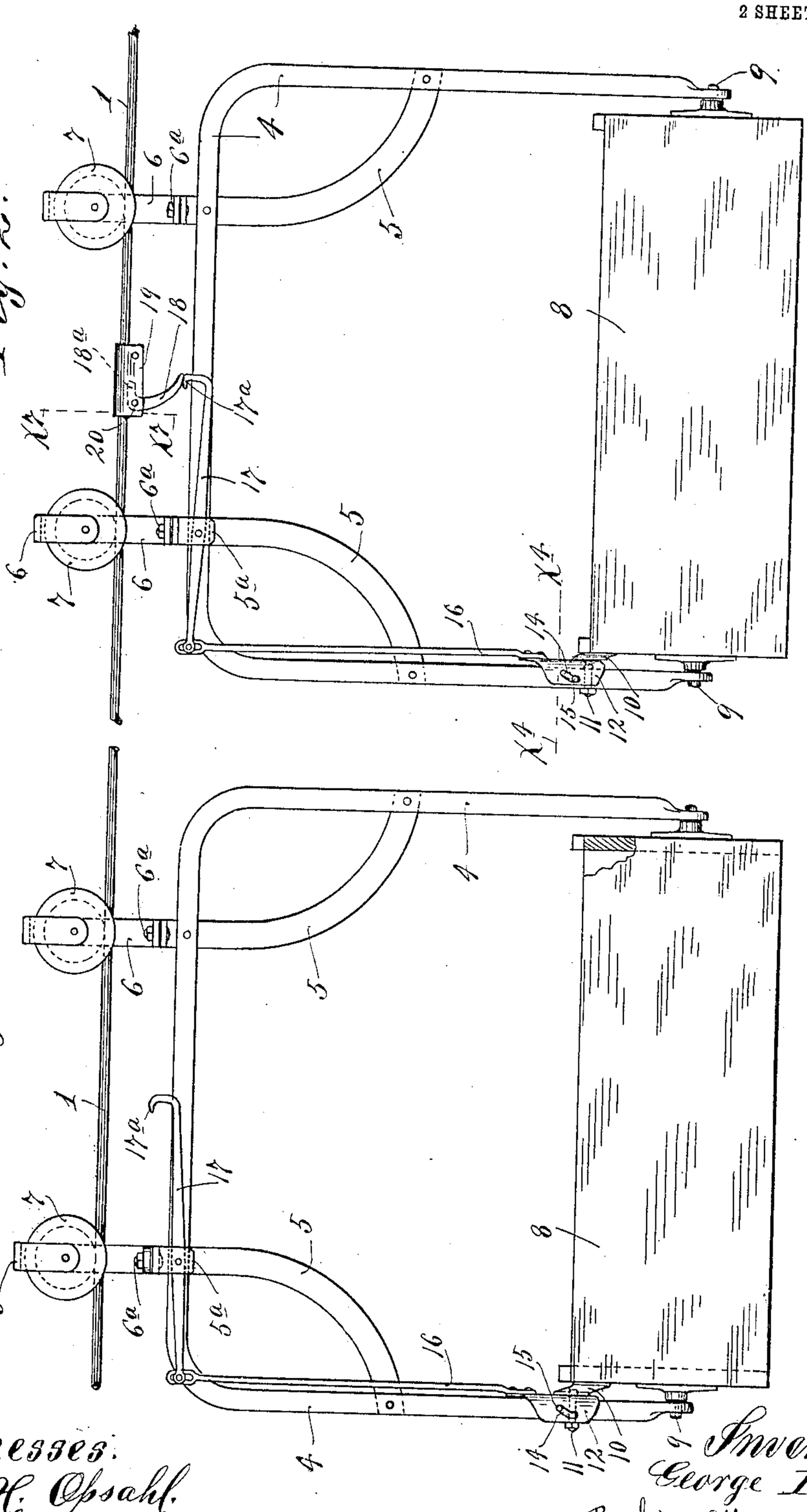

Fig. 1.

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2 SHEETS—SHEET 2.

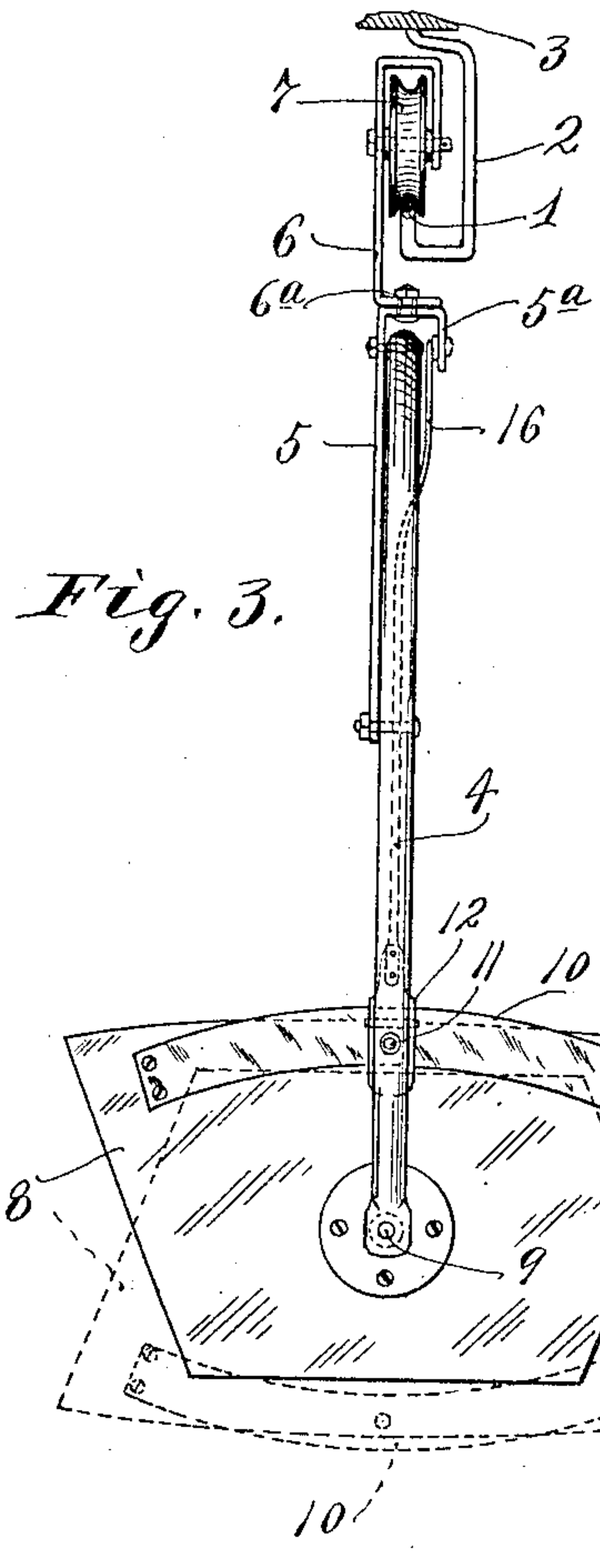

Fig. 3.

Fig. 5

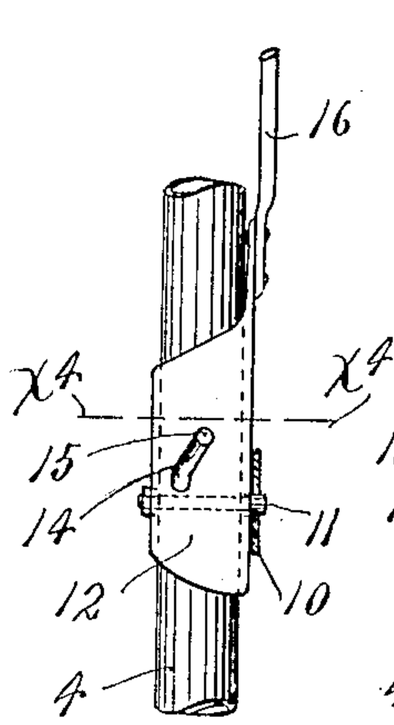

Fig. 6.

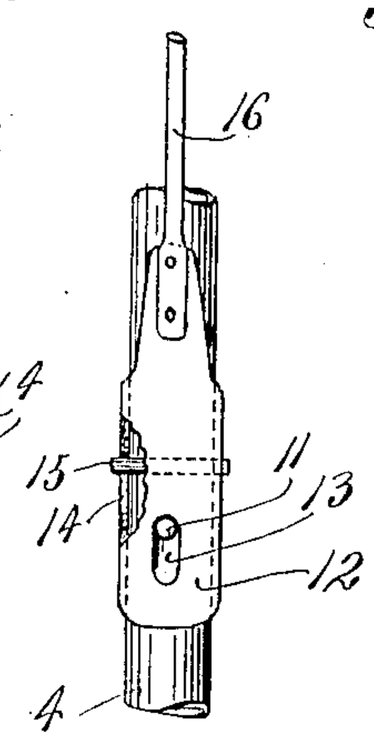

Fig. 4.

Fig. 7.

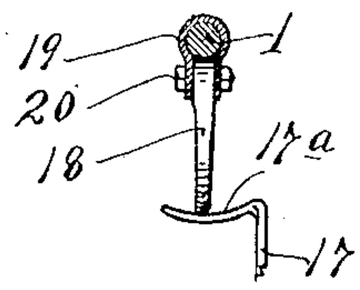

Fig. 8

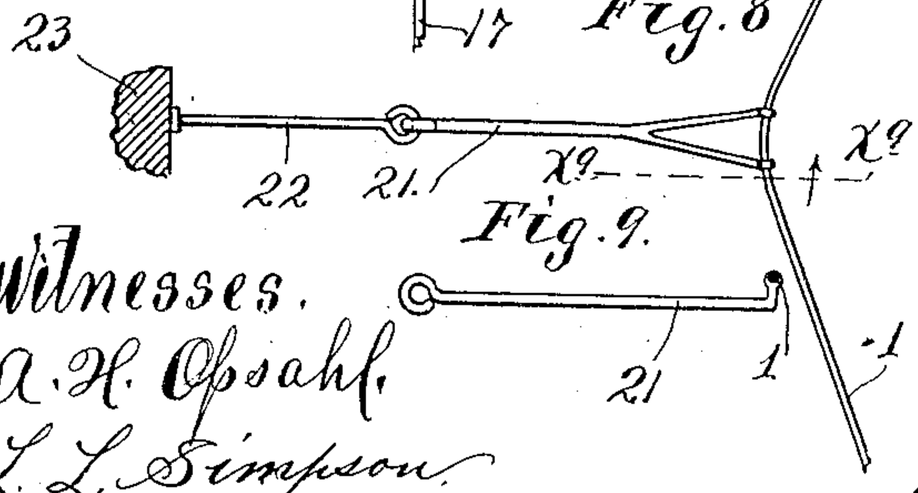

Fig. 9.

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UNITED STATES PATENT OFFICE.

GEORGE FINK, OF NORTHFIELD, MINNESOTA.

CARRIER.

No. 869,357. Specification of Letters Patent. Patented Oct. 29, 1907.

Application filed April 29, 1907. Serial No. 370,783.

To all whom it may concern:

Be it known that I, GEORGE FINK, a citizen of the United States, residing at Northfield, in the county of Rice and State of Minnesota, have invented certain new and useful Improvements in Carriers; and I do hereby 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.

My invention relates to litter carrying devices, particularly to those adapted for use in connection with stables or barns for carrying the litter therefrom and dumping the same at suitable distant points outside of the stable or barn.

The invention is in the nature of an improvement in the device disclosed and claimed in U. S. Letters Patent 834,896, issued of date November 6, 1906 to myself, George Fink, and Charles J. Carlson, and entitled "Carrier."

The present invention has for its object to improve the construction of carriers of the character above indicated, and to this end it consists of the novel devices and combinations of devices hereinafter described and defined in the claims.

My present invention relates particularly to the improvement of the lock mechanism for holding the so-called bucket or carrier receptacle in an operative position with respect to the carrier frame on which it is pivotally mounted, and also to an improved form of trip device which is applied to the wire track or supporting cable.

The invention is illustrated in the accompanying drawings, wherein like characters indicate like parts throughout the several views.

Referring to the drawings, Figures 1 and 2 are views in side elevation, showing the improved carrier mounted on a supporting wire or cable. Fig. 3 is a view in end elevation, showing the improved carrier. Fig. 4 is a detail view taken in horizontal section approximately on the line x^4 x^4 of Figs. 2 and 5, some parts being broken away, and the parts shown being on a larger scale than in Fig. 2. Fig. 5 is a detail view on an enlarged scale, showing the bucket carrying device and certain associated parts, some of the said parts being sectioned and some being broken away. Fig. 6 is an elevation of the parts shown in Fig. 5, looking at the same in a direction longitudinally of the carrier bucket, some parts being broken away; Fig. 7 is an enlarged view in section, taken approximately on the line x^7 x^7 of Fig. 2. Fig. 8 is a plan view, showing a special form of hanger for holding the track or wire cable at a curved portion of the track; and Fig. 9 is a detail view in section on the line x^9 x^9 of Fig. 8.

The heavy wire or cable 1 which constitutes the carrier track is supported in an elevated position by means of crooked hanger brackets 2 attached thereto and to suitable overhead supports 3 at suitable intervals along the line of travel of the carrier.

The carrier frame 4 is, as shown, in the form of an approximately U-shaped member that is set with its legs turned downward and is provided with brace bars 5 that rigidly connect the depending leg and transverse portions thereof. To the upper end portions of the brace bars 5 are rigidly secured upwardly extended angular wheel brackets 6 in which are journaled grooved truck wheels 7 that run upon the overhead track or rail 1. The hanger brackets 2 and wheel brackets 6 are so constructed (see Fig. 3) that they will clear each other under traveling movements of the carrier.

The brackets 6 are swiveled or pivotally connected to the upper ends of the brace bars 5 by means of swivel joints, shown as afforded by short nutted bolts 6^a. These swivel joints permit the brackets 6 and wheels 7 to oscillate slightly, as required when the device is running around the curved portion of the track.

The trough-like bucket or carrier receptacle 8 is pivotally supported by the depending legs of the carrier frame 4, and to this end said bucket is shown as provided at its ends with trunnions 9 that are journaled in the flattened lower ends of the legs of the said carrier frame 4. The trunnions 9 are located below the center of gravity of the bucket 8, so that the latter when not locked to the frame 4 will turn upside down or automatically rotate into a dumping position shown by dotted lines in Fig. 3.

On one end of the bucket 8 is a spring latch bar 10 which is attached to said bucket, preferably at both ends, and the intermediate portion of which, under its own spring tension, tends to press outward against the adjacent depending leg of the frame 4. At its central portion, the spring latch bar 10 is provided with a perforation that is adapted to engage with the inwardly projecting end of a detent or lock projection 11, shown as afforded by a bolt rigidly secured to the adjacent leg of said frame 4. Between the latch bar 10 and the adjacent leg of the frame 4 is a tripping plate 12, which, as shown, is of channel shape and straddles the said frame leg. This tripping plate 12 is provided with a vertical slot 13 through which the lock bolt 11 projects and which permits vertical movements of the said plate 12. In its sides, the tripping plate 12 is provided with oblique cam grooves 14 that are engaged by a transverse cam pin 15 secured to that portion of the leg of the frame 4 which is embraced by the said tripping plate 12. The lower ends of the slots 14 are vertically extended for an important purpose which will presently appear. The cam slots 13 and pin 15 are of such arrangement that when the tripping plate 12 is drawn upward it will be moved inward and will press the latch bar 10 inward and

release the same from the lock bolt 11, thereby permitting the bucket 8 to rotate into its dumping position shown by dotted lines in Fig. 3.

A rod 16 connects the tripping plate 12 to one end of a trip lever 17, which latter is intermediately pivoted to a projection 5ª of the adjacent brace bar 5. The other end of this trip lever 17 is bent laterally, as shown at 17ª, for engagement with the tripping abutment which is supported by the track 1. The tripping abutment is in the form of a pivoted arm 18 that is pivotally supported below, but in vertical plane of the track or cable 1, so that under force applied thereto from the tripping lever 17 there will be but little or no tendency to move the said tripping abutment laterally or pivotally on the supporting track or cable. As a simple and efficient means for supporting the tripping abutment 18, a sheet metal sheath 19 is bent around the track or cable 1, and is bolted or otherwise rigidly secured thereto; and the said abutment or arm 18 is pivotally connected at 20 between the depending flanges of the said sheath. The said tripping lever 18 is provided at its upper end with a short stop arm 18ª that engages the adjacent portion of the track or cable 1 and limits the movement of the said abutment or rod toward the right with respect to Fig. 2, to the position shown in said Fig. 2.

With the construction described it is evident that when the carrier moves from the left toward the right with respect to Figs. 1 and 2, with the loaded bucket locked in its upturned position, the said bucket will be thus held until the laterally bent end 17ª of the tripping lever 17 is thrown against the tripping abutment 18, whereupon the engaged end of said lever 17 will be pressed downward and the tripping plate 12 will be moved upward, thereby forcing the latch bar 10 out of engagement with the lock bolt 11 and releasing the bucket. When the emptied carrier makes its return movement, the end 17ª of the tripping lever 17 will engage the tripping abutment 18, but the latter will then move pivotally toward the left and slide freely over the said lever, without action thereon. When the emptied bucket 8 is turned from its dumped position into its upright operative position, the perforation in the spring latch bar 10 automatically engages with the projecting end of the lock bolt 11, and thereby locks the said bucket to its supporting frame 4.

When the latch plate 12 is raised into the position shown in Fig. 2, by engagement of the tripping abutment 18 with the end of the lever 17, the pressure of the spring latch bar 10 against the said latch plate will hold the latter raised and in its latch releasing position, until the bucket has been turned upside down. This arrangement, therefore, serves to positively prevent the bucket from being again locked after it has been once released, even though the bucket does not move from its upright position until after the end of the tripping lever 17 has passed beyond and out of engagement with the tripping abutment 18. This construction is, therefore, very important, and I believe it to be broadly new, regardless of the specific arrangement shown for accomplishing the above result. Of course, when the bucket turns upside down, the spring latch bar 10 is moved out of engagement with the latch plate 12, and the latter then being free, falls by its own gravity into the position shown in Fig. 5, in which position it stands ready to permit the locking of the bucket in its upright position as soon as it has again turned right side up. In practice I have found that when the bucket is oscillated by its load, it will make a complete rotation, under which rotation it will first dump the load and then under momentum imparted thereto will aright itself or complete its rotation.

In Figs. 8 and 9 the track cable or rod 1 is shown as supported at a curved portion of the track by a pronged arm 21, the outer end of which is connected to an eye-bolt 22 which, in turn, is attached to a suitable post or support 23. By reference to Fig. 9 it will be noted that the ends of the prongs of the arm 21 are turned upward and attached to the cable 1, in such manner as to afford clearance for the flanges of the wheels 7. In passing over this curved portion of the track, the wheel brackets 6 oscillate on their swivel joints 6ª so as to permit the wheels to follow approximately the line of the said track or cable, and thus prevent derailment of the device.

The importance of mounting the tripping abutment 18 directly below or in the vertical plane of the supporting cable or track 1 will be evident when it is considered that the supporting cable is quite easily rotated, at least to some extent, and that it is, therefore, necessary that the upward pressure thereon be radial or in a plane intersecting the axis thereof, in order to prevent torsional strains on said cable or wire 1.

The general utility and operation of litter carriers of this character for use in connection with barns and stables is so well understood that further description and comment thereon is not deemed necessary.

The term "cable" used to describe the overhead track is used in a broad sense to include not only twisted wire cables, but also wires or rods.

What I claim is:

1. The combination with an overhead track cable, of a carrier frame having wheels running over said cable, a bucket pivotally mounted on said carrier frame, a latch for locking said bucket to said carrier frame, and means for tripping said latch, comprising a sheath 19 embracing said cable and rigidly secured thereto, an abutment 18 having a stop arm 18ª and pivotally connected between the depending sides of said sheath and located below and in the vertical plane of said cable, a tripping lever pivotally mounted on said carrier frame and engageable at one end with the depending end of said pivoted abutment 18, and a connection between the other end of said lever and said latch, substantially as described.

2. The combination with an overhead track and a carrier frame mounted to travel thereon, of a bucket pivotally mounted on said carrier frame and provided with a laterally yielding spring latch bar, extended concentric to the bucket's pivots, a lock projection on said carrier frame engageable with said latch bar to lock said bucket in operative position, and a latch tripping device operative to press said latch bar laterally and thereby release the same from said lock projection, substantially as described.

3. The combination with an overhead track, of a carrier frame mounted to travel thereon, a bucket pivotally mounted on said frame, a latch bar and coöperating lock bolt, one on said frame and the other on said bucket, said latch bar being extended concentric to the bucket's pivots and means for moving said latch bar laterally to disengage the same from the coöperating lock bolt, substantially as described.

4. The combination with an overhead track, of a carrier frame mounted to travel thereon, a bucket pivotally mounted on said carrier frame, a lock bolt or projection on said frame, a coöperating laterally movable latch bar on said

bucket, said latch bar being extended concentric to the bucket's pivots and a tripping device movable on said frame to disengage said latch bar from said coöperating lock bolt, substantially as described.

5. The combination with an overhead track, of a carrier frame having wheels arranged to travel on said track, a bucket pivotally mounted on said frame, automatic latch mechanism for securing said bucket to said frame in an operative position, means for tripping said latch to release said bucket and permit the same to turn into a dumping position, and means for preventing said latch mechanism when once released from again becoming operative until the said bucket has been moved from its operative position, and for automatically releasing said latch when said bucket is moved from its operative position, substantially as described.

6. The combination with an overhead track, of a carrier frame having wheels arranged to travel on said track, a bucket pivotally mounted on said carrier frame, an automatic latch for normally locking said bucket in an operative position, a trip adjacent to said track, operative to trip said latch and thereby cause the latter to release said bucket, and means for holding said latch in its inoperative or tripped position, while the said bucket remains in its normal or upright position, and for automatically releasing said latch when the said bucket moves from its normal or upright position, substantially as described.

7. The combination with an overhead track, of a carrier frame mounted to travel on said track, a bucket pivotally mounted on said frame, a lock bolt or projection on said frame, a coöperating laterally movable latch bar on said bucket, a tripping plate interposed between said latch bar and a depending portion of said frame, provided with oblique cam slots 14 with vertical lower extremities, cam pins on said frame engaging with said cam slots, a tripping abutment adjacent to said track, and a tripping lever connected to said latch plate and coöperating with said abutment to move said latch plate into a releasing position, in which releasing position the said latch plate will be held by said latch bar until the bucket is moved from its normal position, substantially as described.

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

GEORGE FINK.

Witnesses:
WILLIAM W. PYE,
JOSEPH J. WINTER.