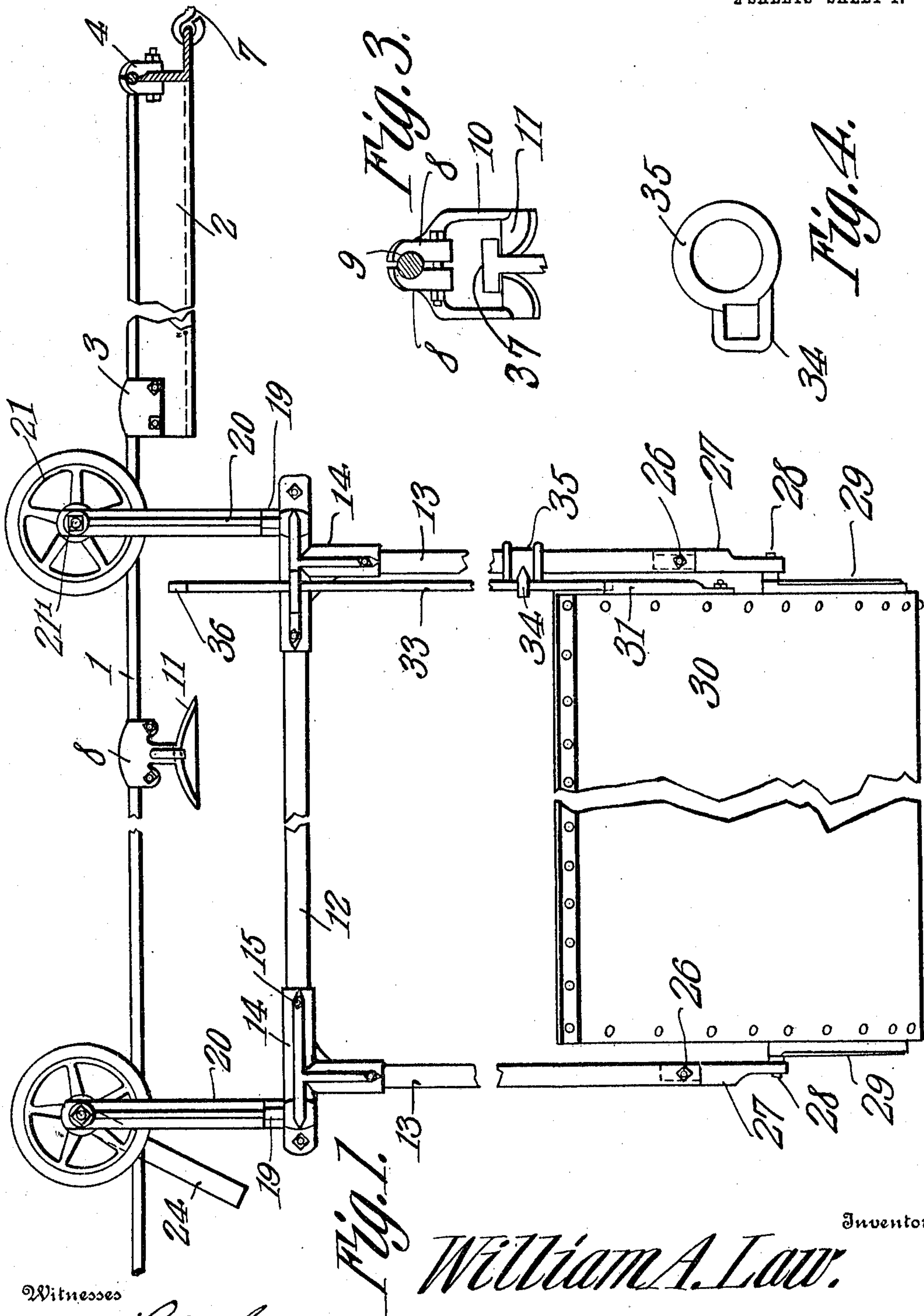


W. A. LAW.
OVERHEAD CARRIER.
APPLICATION FILED AUG. 11, 1908.

945,176.

Patented Jan. 4, 1910.
2 SHEETS—SHEET 1.



Witnesses

E. H. Lawrence
Herbert S. Lawson

Inventor

William A. Law

By

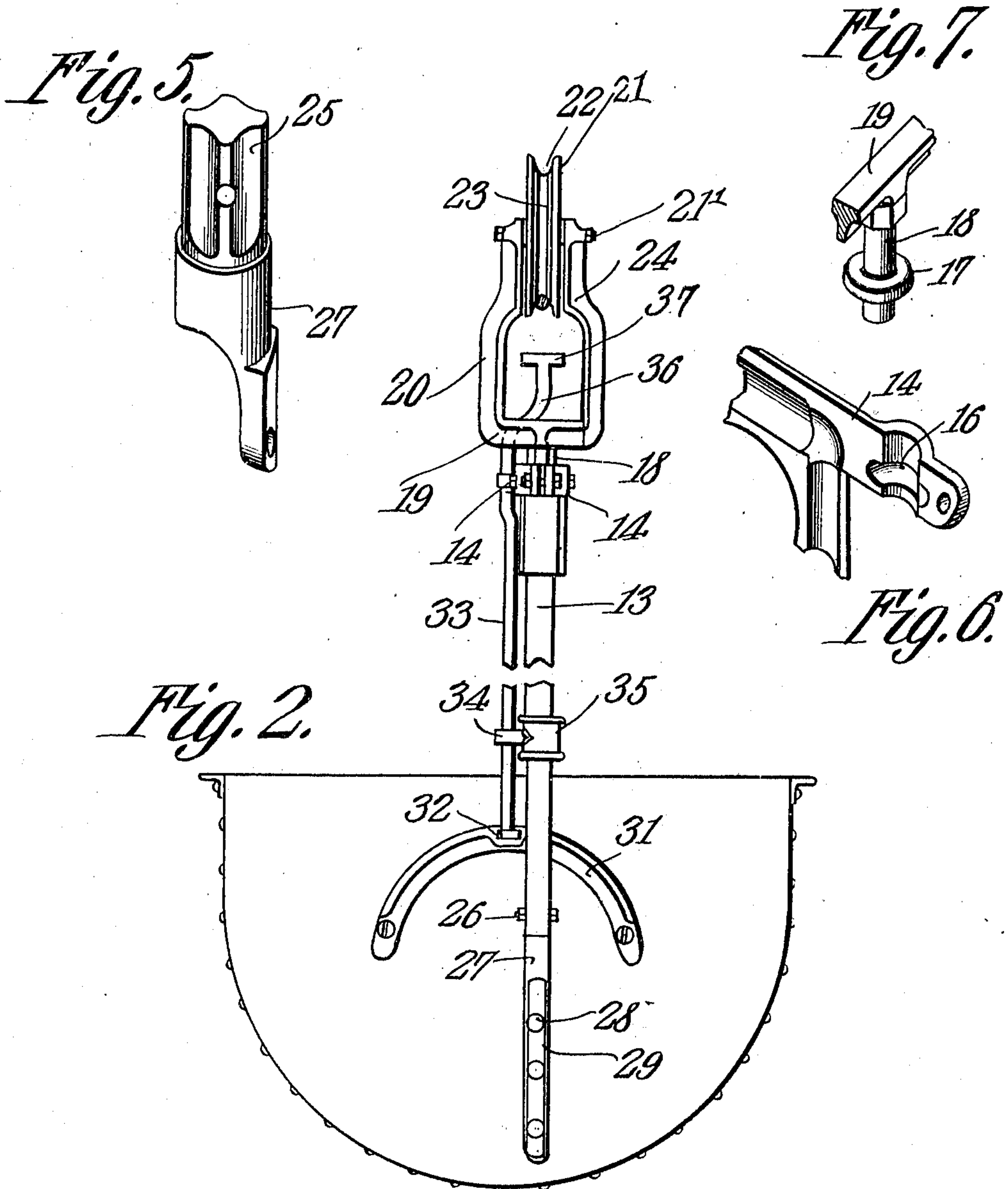
C. A. Snow & Co.
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UNITED STATES PATENT OFFICE.

WILLIAM A. LAW, OF ST. PAUL, MINNESOTA.

OVERHEAD CARRIER.

945,176.

Specification of Letters Patent.

Patented Jan. 4, 1910.

Application filed August 11, 1908. Serial No. 448,059.

To all whom it may concern:

Be it known that I, WILLIAM A. LAW, a citizen of the United States, residing at Merriam Park, St. Paul, in the county of Ramsey and State of Minnesota, have invented a new and useful Overhead Carrier, of which the following is a specification.

This invention relates to overhead carriers or conveyers of that type especially designed for conveying litter, grain, merchandise and the like.

The object of the invention is to provide a supporting track of novel construction whereby the carriage of the carrier can be directed along curves without causing derailment of the carriage or being interfered in its movements by the stays or other reinforcing or supporting devices ordinarily employed at the curves of devices of this character.

Another object is to provide simple and efficient means which can be readily placed at any desired point upon the track, and which will operate to efficiently unlock the receptacle of the carrier, so as to cause the contents thereof to become discharged.

A still further object is to provide unlocking mechanism consisting of cooperating parts upon the carriage and the track, that portion of the mechanism mounted on the carriage being so positioned relative to one of the wheels of the carriage as to cause the same to be maintained at all times in substantially the same relation to the track.

A further object is to provide a receptacle which is so mounted as to automatically dump to either side desired.

A still further object is to provide a carriage frame of novel construction, the parts of which can be readily taken apart and new ones substituted therefor in the event of wear or breakage.

A still further object is to provide a wheel for the carriage having its bearing surface or tread so formed as to readily travel over the various clamping-plates engaging the track or rail, without danger of derailing the carriage wheels.

With these and other objects in view, the invention consists of certain novel details of construction and combination of parts, which will be hereinafter more fully described and pointed out in the claims.

In the accompanying drawings the preferred form of the invention has been shown.

In said drawings:—Figure 1 is a side ele-

vation of a portion of the track and of the carriage mounted thereon. Fig. 2 is an end elevation of the carriage and receptacle. Fig. 3 is an enlarged transverse section through a portion of the track and showing the cooperating portions of the receptacle unlocking mechanism. Fig. 4 is an enlarged plan view of one of the guides of the locking latch. Fig. 5 is a perspective view of the lower or pivot member of one of the hangers of the carriage frame. Fig. 6 is a perspective view of a portion of one of the corner brackets of the carriage frame. Fig. 7 is a detail view of one of the swivel connections between the carriage frame and one of the yokes.

Referring to the figures by characters of reference, 1 designates a heavy wire or cable constituting the main track of the conveyer, and, where it is desired to curve the track, a curved angle iron 2, is employed. The wire or cable is placed upon the upper edge of this angle iron and is fastened in position thereon by means of clamping plates 3, which are bolted or otherwise secured to opposite faces of the upstanding portion of the angle iron, and have oppositely disposed longitudinal grooves 4, in their adjoining faces, within which the wire or cable 1, is seated. The stays or supporters 7, are connected at one end to the lower or horizontal flange of the angle iron and are designed to be fastened at their other ends to supporting poles or other structures not shown.

At the point where it is desired to dump the contents of the conveyer a tripping device of novel form is provided. As shown particularly in Figs. 1 and 3 this tripping device consists of two oppositely disposed clamping plates 8, having oppositely disposed grooves 9, in their inner or adjoining faces, which are designed to receive the wire or cable 1. Arms 10, extend downwardly from the middle portion of these plates and formed at the lower ends of the arms are cams 11, the inner or adjoining edges of which diverge from their centers toward their ends. This is clearly indicated in Fig. 3. The upper faces of the cams are preferably convex, but if desired these faces may be flat and disposed in an inclined plane, without departing from the spirit of the invention.

The carriage used in connection with the apparatus preferably consists of a top rod 12, which may be formed of a metal tube,

and depending end arms or hangers 13, which are also preferably tubular. These arms or hangers 13 are connected to the end portions of the rod 12 by means of corner castings 14. As shown in Fig. 7 each of these castings is preferably T shaped, and is grooved so as to receive the end portions of the rod 12 and arm 13. By drawing together the castings at each corner of the frame, they will be caused to bind tightly upon the tubular members 12 and 13 and thus hold them rigidly connected. These castings can be fastened together and to the tubular members by means of bolts 15 extending through said tubular members. Those ends of the castings which project beyond the member 12 and in alinement therewith are provided in their inner or meeting faces with recesses 16, in which are swiveled heads 17, formed upon stems 18. These stems extend downwardly from the centers of arms 19, formed at the lower ends of hangers 20. Bearing pins 21' extend at right angles from the upper ends of these hangers 20 and constitute bearings for the grooved wheels 21 of the carriage. Each of these wheels has a peripheral groove 22 therein of such size as to readily travel over the various clamping plates 3 and 8 used in connection with the track. In order that derailment of the wheels at these points may be prevented the innermost portion of the wall of each groove is provided with a supplemental annular groove 23, the width of which is less than that of the outer groove 22. A hanger 24 is pivotally mounted upon each of the pins 21', and the wheels 21 are interposed between the hangers 24 and the hangers 20. The hangers 24 are normally disposed by gravity with their ends lapping the free ends of the arms 19, as shown in Fig. 2. Both of the hangers 20 and 24 have their inner or adjoining faces curved so as to direct the wheels 21 back on to the track 1, should they, for any reason, become displaced relative thereto.

The lower end of each arm or hanger 13 receives a stem 25 designed to be held in place by means of a set screw 26, or in any other suitable manner. Each of these stems projects from an extension 27, and the two extensions constitute bearings for trunnions 28, extending outwardly from the upper ends of brackets 29. These brackets are riveted or otherwise secured to the ends of a bucket or receptacle 30, they being preferably disposed at one side of the center of the bucket, so that if the bucket should be unlocked from the frame it will automatically swing in one direction only under all conditions. The receptacle 30 may be of any preferred shape, but is preferably substantially semi-cylindrical.

Secured upon one end of the receptacle 30 is an arcuate locking strip, 31, having a cen-

tral notch 32 therein. This notch constitutes a seat for one end of a locking rod 33. This rod 33 is slidably mounted within guides 34, consisting of eyes extending from sleeves 35. These sleeves are secured in any preferred manner upon one of the arms or hangers 13, as shown in Fig. 1. The upper end of the rod 33 extends above the frame member 12 and is off-set laterally, as indicated at 36, the same terminating in a T shaped head 37, normally disposed in a plane above the ends of the cams 11.

In using the apparatus herein described the tripping device indicated in Fig. 3 is first placed at a desired point upon the wire or cable 1 by clamping the plates 8 upon said wire or cable. This tripping device is of course placed at the point where it is desired to dump the load. The bucket or receptacle 30 is placed in an upright position and is held by permitting the rod 33 to rest at its lower end within the notch 32 of the curved strip 31. Said bucket can then be filled and the carriage can be started along the track, it being desired to have the same move therealong by gravity. It is to be understood that all the stays 7 extend outwardly from the same side of the track, and it will be seen therefore that as the carriage travels along the track the hangers 24 will be brought into contact with the various stays successively and will be swung backwardly thereby so that the hangers can slide thereover. The movement of the carriage will not therefore be interfered with. These hangers will of course swing by gravity back to their normal positions as soon as they pass over the stays, and will therefore cooperate with the hangers 20 so as to prevent the wheels from jumping off the track. When the carriage reaches the tripping device the T shaped head 36 of the rod 33 will strike the end portions of the cams 11 and will ride upward thereon. The rod will therefore be shifted longitudinally out of engagement with the curved strip 31 and the bucket or receptacle 30 will thus be free to swing by gravity to one side and discharge the contents thereof. As the carriage continues in its movement the head 36 will pass completely over and beyond the cams. As soon as it is released from the cams the head together with the rod 33 will drop, so that said head 36 will assume a position below the plane occupied by the cams. It will be seen therefore that when the carriage is moved back upon its return movement the head will pass completely under the cams. Upon the return of the carriage to its starting point the parts can be reset and the foregoing operation repeated.

Importance is attached to the fact that the rod 33 is located under the wheel 21, because should the tripping device be located at a curve on the track, the head 36 of the rod 33

would not be shifted laterally so as to fail to pass between and on to the cams 11. In devices of this character such as heretofore constructed it has been customary to locate the locking rod at points far removed from the axes of the wheels. This construction however has been found objectionable, because should the tripping device be located upon a curve the locking rod would be swung laterally out of position for engaging the same and the tripping operation would not always take place. By arranging the parts as described in the claims this objection is overcome. Importance is also attached to the particular construction of the frame of the carriage because the same permits any of the members of the frame to be removed and new ones substituted in the event of wear or breakage.

The entire device is very simple, durable and efficient, and as it is formed of comparatively few parts it will not readily get out of order.

What is claimed is:—

1. In an overhead carrier the combination with a track comprising a cable; of a tripping device including cooperating clamping plates arranged to grip the track, and spaced oppositely inclined members, suspended below said plates.

2. In an overhead carrier the combination with a cable; of a tripping device connected thereto and comprising oppositely disposed clamping plates, arms depending from said plates, and spaced cams upon the arms, each cam having a convex upper face, the adjoining edges of said cams diverging toward their ends from the center thereof.

3. In an overhead carrier a carriage comprising a sectional frame, corner-plates embracing and cooperating to connect the sections of the frame, hangers swiveled between and retained by said plates, supporting wheels journaled upon the hangers, and pivoted guard hangers supported from the wheels, said wheels being interposed between the two hangers.

4. In an overhead carrier a carriage comprising a sectional frame, corner-plates embracing and binding upon the end portions of the sections to hold them together, hangers swiveled between and retained solely by

the corner plates, and supporting wheels journaled upon the hangers.

5. In an overhead carrier a carriage comprising a sectional frame, corner-plates embracing and detachably securing said sections together, hangers swiveled between and retained solely by said plates, and supporting wheels journaled upon the hangers.

6. In an overhead conveyer the combination with the track and oppositely disposed spaced cooperating tripping cams suspended therefrom; of a carriage comprising a frame, supporting wheels connected thereto and mounted upon the track, a receptacle mounted within and disposed to partly rotate relative to the frame, and a locking device movably mounted upon the frame for holding the receptacle against movement, said device having means for riding over the cams to elevate said device and release the receptacle.

7. In an overhead carrier the combination with a track and oppositely disposed spaced cooperating cams suspended therefrom; of a carriage comprising a frame, supporting wheels connected thereto and mounted upon the track, a receptacle suspended within and disposed to partly rotate relative to the frame, a gravity-operated locking device mounted upon the frame for holding the receptacle against movement, and means upon said device for engaging the cam, to shift the device out of engagement with the receptacle, one of said supporting wheels overhanging said device.

8. In an overhead carrier the combination with a track, and a tripping cam suspended therefrom, of a frame mounted to travel upon the track and extending therebelow, a tiltable receptacle carried by the frame, cooperating means upon the frame and receptacle for locking said receptacle against the tilting movement, and means carried by the frame and movable against and disposed to be elevated by the cam to unlock the receptacle.

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

WILLIAM A. LAW.

Witnesses:

E. L. LAW,
M. J. KUEHN.