

(No Model.)

3 Sheets—Sheet 1.

R. M. GOODWYNE.

WATER ELEVATOR.

No. 358,152.

Patented Feb. 22, 1887.

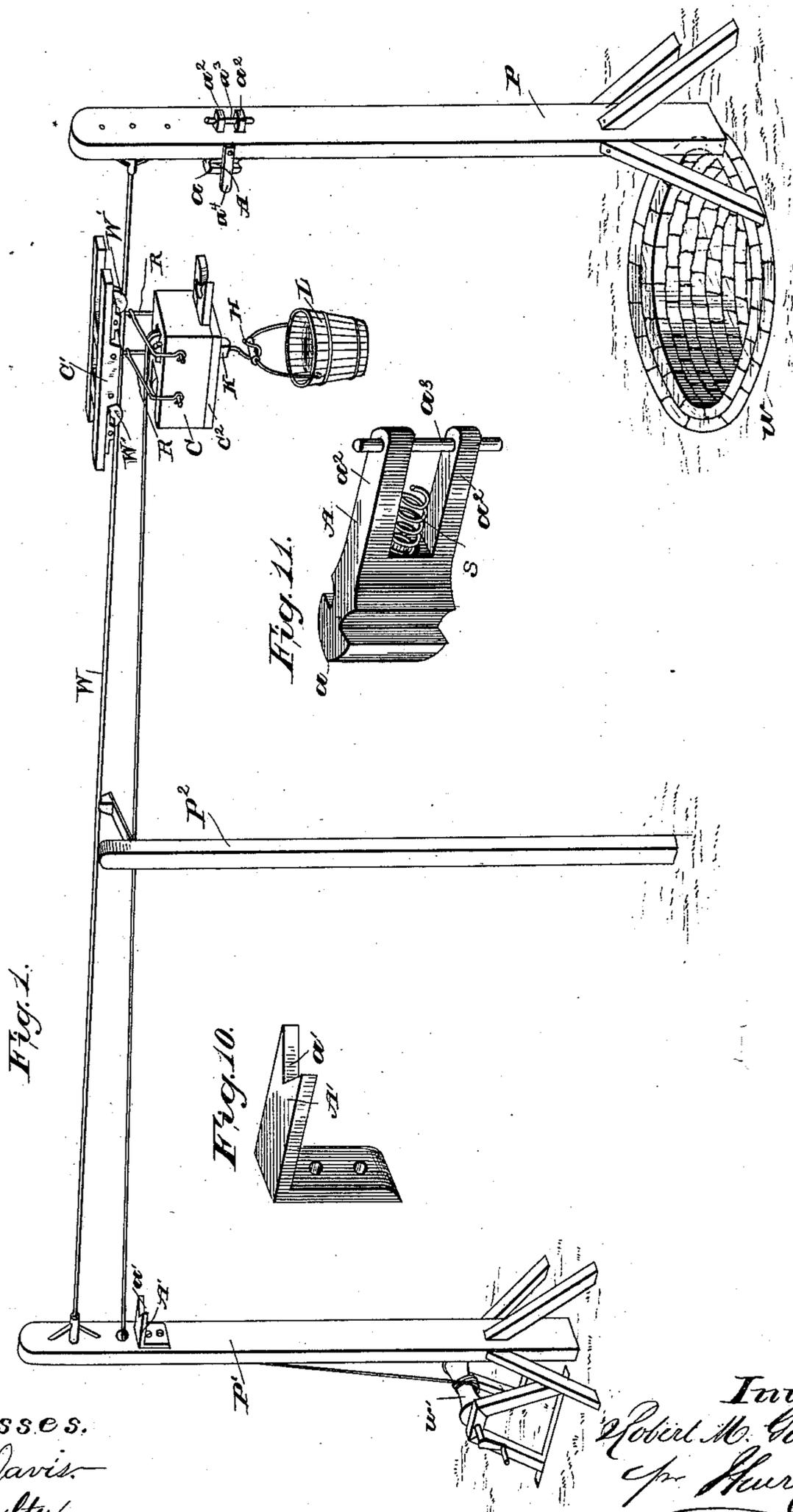


Fig. 1.

Fig. 11.

Fig. 10.

Witnesses:  
 W. R. Davis.  
 W. C. Boulter.

Inventor:  
 Robert M. Goodwyne  
 by Henry O. H.  
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Fig. 2.

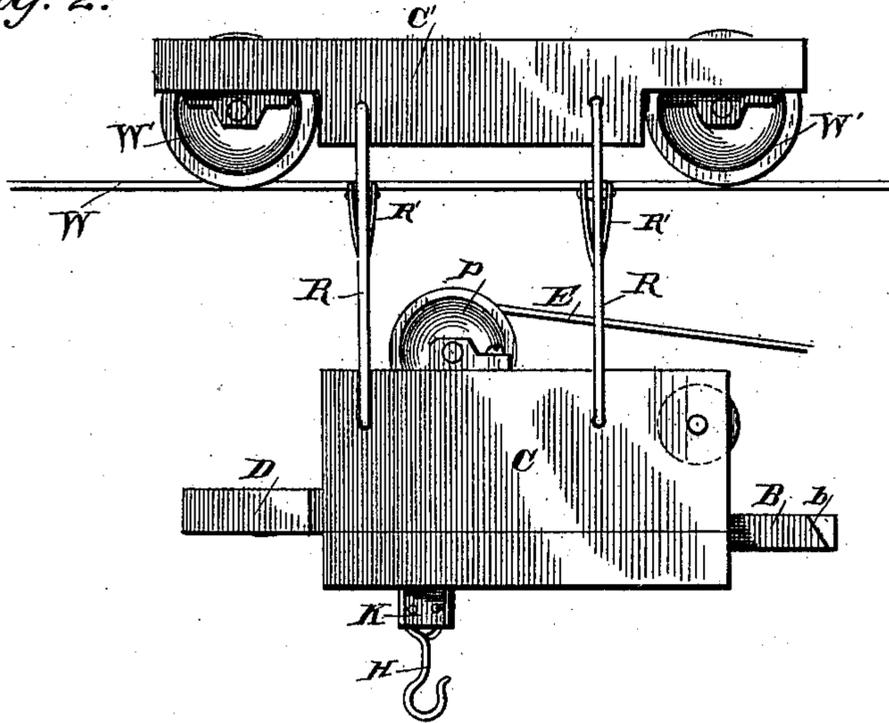


Fig. 3.

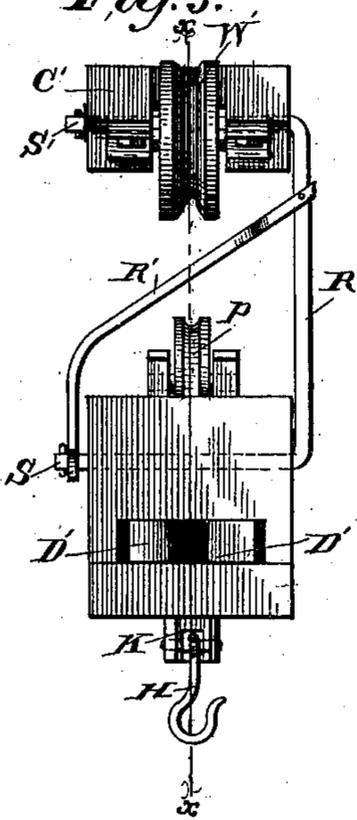
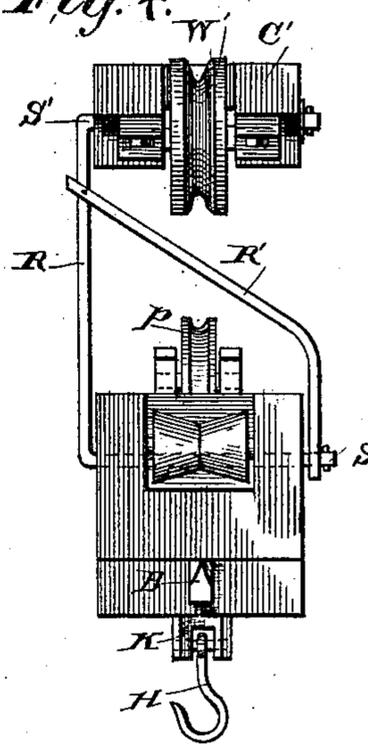


Fig. 4.



Witnesses

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(No Model.)

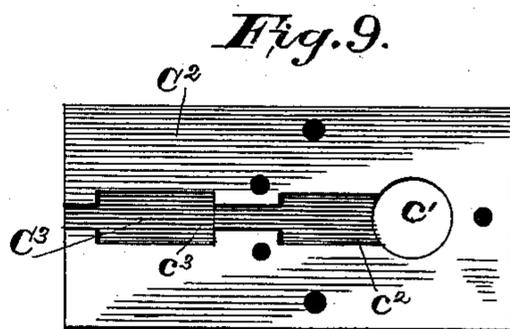
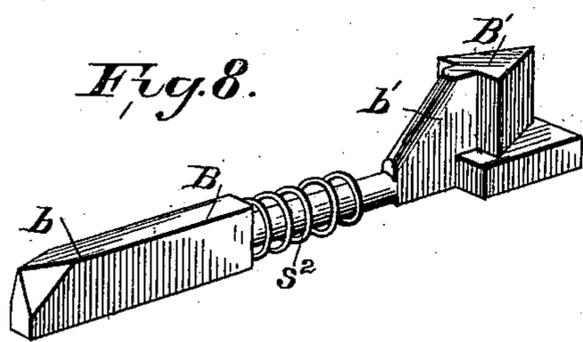
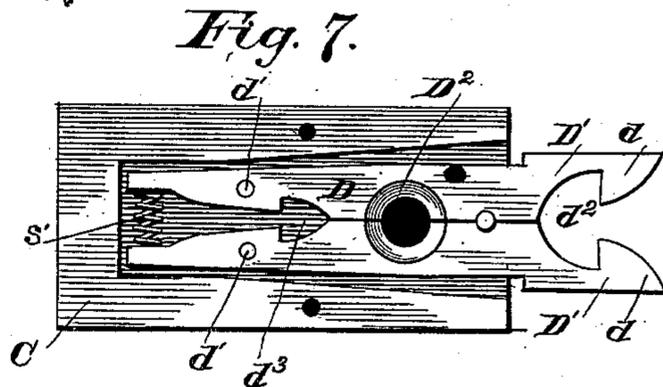
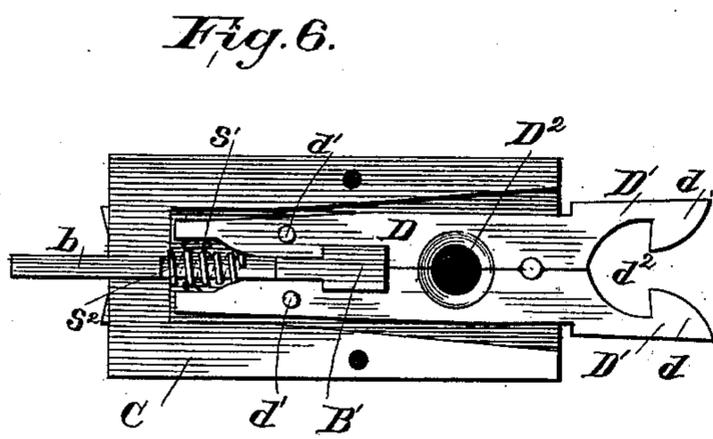
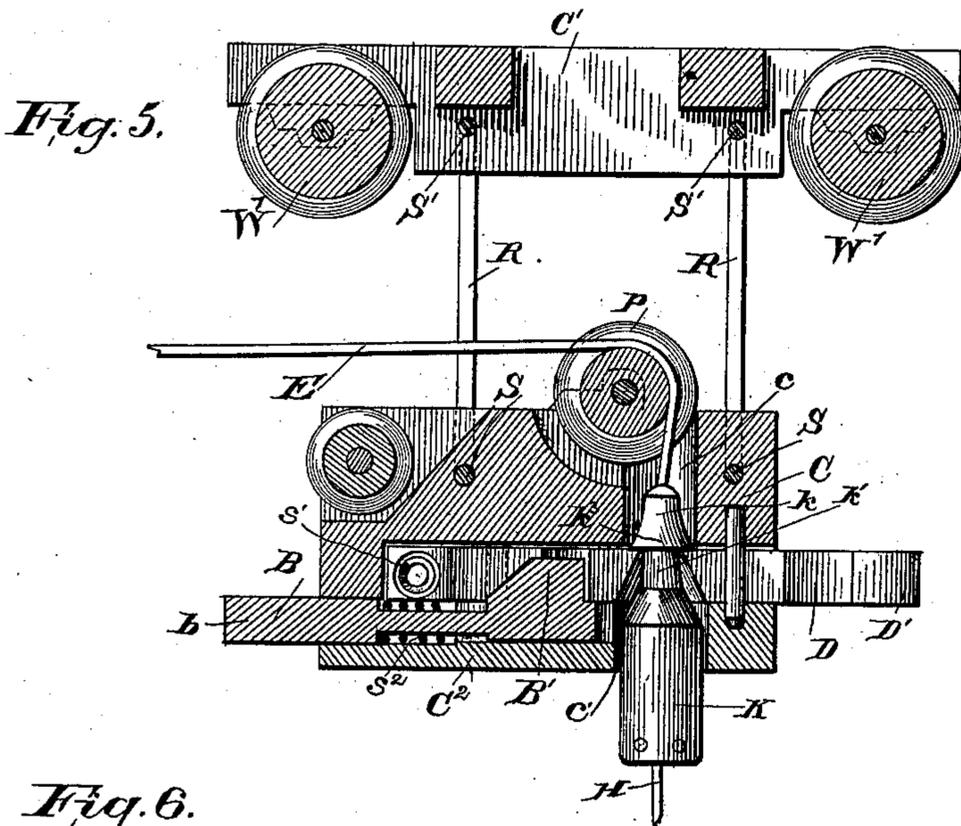
3 Sheets—Sheet 3.

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Witnesses  
 W. R. Davis.  
 O. E. Boulter.

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# UNITED STATES PATENT OFFICE.

ROBERT M. GOODWYNE, OF FORSYTH, GEORGIA.

## WATER-ELEVATOR.

SPECIFICATION forming part of Letters Patent No. 358,152, dated February 22, 1887.

Application filed October 19, 1886. Serial No. 216,657. (No model.)

*To all whom it may concern:*

Be it known that I, ROBERT M. GOODWYNE, a citizen of the United States, residing at Forsyth, in the county of Monroe and State of Georgia, have invented certain new and useful Improvements in Elevated Ways; 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 letters and figures of reference marked thereon, which form a part of this specification.

Referring to the accompanying drawings, Figure 1 is an isometric view showing an elevated way provided with my improved carrier and its carriage and the means for automatically releasing the load from the said carrier. Fig. 2 is a detached side elevation, and Figs. 3 and 4 are like opposite end elevations, of the carrier and carriage. Fig. 5 is a vertical longitudinal section on line  $xx$  of Fig. 3. Fig. 6 is an under side plan view of the carrier, the bottom plate being removed. Fig. 7 is a like view, the bolt or detent for actuating the clamp being removed, showing the construction and arrangement of said clamp. Fig. 8 is an isometric detail view of the carrier detent or bolt for spreading the clamping-jaws to release the load. Fig. 9 is a top plan view of the lower plate of the carrier in which the detent is fitted and in which it operates; and Figs. 10 and 11 are isometric detail views of the stops for releasing the load from the carriage.

My invention relates more particularly to the construction of the carrier for elevated ways, from which the load is suspended, and to the means for automatically attaching the load to and releasing the same from the carrier when the latter has reached its destination.

The object of my invention is to provide a simple means whereby a load may be elevated and automatically secured to its carrier, and to provide means for automatically releasing the load from the carrier on its reaching its destination; and to these ends the invention consists in structural features and combinations of parts, substantially as hereinafter fully described, and as set forth in the claims.

In the drawings I have illustrated my in-

vention in its application to the transportation of water from a well on a single-wire elevated way.

$w$  indicates the well from which the water is to be elevated;  $P$ , a post arranged at the well, to which the terminal of wire  $W$ , that constitutes the elevated way, is secured; and  $P'$  indicates a post, to which the initial of said wire  $W$  is secured.

To the post  $P$ , at a suitable point below the wire  $W$ , is secured a stop,  $A$ , the head  $a$  of which has the form of what is commonly termed an "arrow-head," the legs  $a^1 a^2$  of said stop passing through slots in the post and being held in a horizontal position by a pin. The stop is free to move endwise in the post-slots, a coiled spring,  $s$ , being interposed between the post and the stop, said spring being secured to the latter between its legs, as more plainly shown in Fig. 10, with a view to deaden and counteract the shocks due to the impact of the carrier on the stop, the way being sufficiently inclined from its initial at the post  $P'$  to its terminal at the post  $P$  to adapt the carriage to move by gravity down said incline. On opposite sides of the stop  $A$ , I preferably arrange guide and guard fingers  $a^3$ , for the purpose of limiting the spread of the clamp and for guiding the carrier. The post  $P'$  is also provided with a stop,  $A'$ , in the outer end of which is formed a V-shaped notch,  $a'$ . Near the foot of the post  $P'$  is arranged a windlass,  $w'$ , upon which the bucket-rope is wound.

$C'$  indicates the carriage, composed of a frame in which are journaled two grooved wheels,  $W'$ , that travel upon the wire  $W$ , and from said carriage is suspended the carrier  $C$ , by means of two suspension-rods,  $R R$ , preferably secured to the outer end of two shafts,  $S' S'$ , that pass through and have their bearings in the carriage  $C'$ , and to two shafts,  $S S$ , that pass through and have their bearings in the carrier  $C$ . The carrier is maintained in a proper horizontal position by means of brace-rods  $R' R'$ , secured at one end to the shafts  $S S$  and at the other to the rods  $R$ , said rods  $R'$  being bent so as to clear the wire  $W$ , this arrangement being necessary with a single-wire way.

When the distance between the terminals of the line is sufficiently great to necessitate in-

intermediate supports for the wire W, I secure thereto intermediate posts, P<sup>2</sup>, and give them such a form that the carriage-wheels can readily move over them without derailing, as shown in Fig. 1.

Of course, when a double way or track is employed, the rods R' may then be connected with the shafts S and S', the same as the rods R, the carriage being provided with two pairs of wheels, as will be readily understood. It will also be understood that when the carrier is employed for carrying light loads—as, for instance, in stores, where such carrier may be used as a cash-carrier or as a carrier for carrying small parcels—a single wheel for a single track may be employed, or a pair of wheels on the same shaft for a double track.

The carrier C is chambered for the reception of a spring-clamp, D, constructed of two sections or jaws, D' D', each having an independent fulcrum, d'. A coiled spring, s', interposed between the sections on one side of their fulcrum, holds the other end of said section on the other side of their fulcrum normally closed.

The outer ends of the sections D' are beveled or inclined laterally and inwardly, and recessed to form locking or clamping jaws or hooks d d, the recesses forming between the jaws an opening, d<sup>2</sup>, of the form and for the reception of the arrow-head a of stop A, connected with the terminal post P of the elevated way, said stop lying in the plane of the clamp D. In rear of the hooks or clamping-jaws d d the sections D' are recessed, to form between them an opening, D<sup>2</sup>, tapering from its lower to its upper end, and registering with openings c c', formed in the carrier C and its bottom plate, C<sup>2</sup>, respectively, which latter is detachably secured to said carrier, the diameter of said openings c c' being equal to the greatest diameter of the opening D<sup>2</sup> between the clamp-sections, for purposes which will be presently explained, and as shown in Fig. 6.

In rear of the opening D<sup>2</sup> the clamp-sections are recessed, to form an opening, d<sup>3</sup>, of the shape of an arrow-head, in which fits a correspondingly-shaped barb or boss, B', formed on the head of a spring-actuated bolt or detent, B, that is fitted and slides in a recess formed in the bottom plate, C<sup>2</sup>, of the carrier C. The shank b of the bolt at its outer end is wedge-shaped, or approximately so, and engages the V-shaped notch a', formed in the outer end of the stop A', secured to the post P' at the terminal of the elevated way.

The bolt B (shown detached in Fig. 8) has a portion of its shank in rear of its head formed cylindrical in cross-section and carries a coiled spring, s<sup>2</sup>, one end of which bears against the enlarged rear portion of the shank b and the other end against the front wall of the enlarged part c<sup>3</sup> of the recess C<sup>3</sup>, formed in the bottom plate, C', of the carrier. The head of the bolt or detent is flat and slides in the enlarged portion c<sup>2</sup> of recess C<sup>2</sup>, and from said head projects the arrow-head-shaped barb or boss B', above referred to.

From the rear face of the boss B' projects a guide-rib, b', that fits and is guided between the legs of the clamp D in rear of the opening d<sup>3</sup>. Above the opening c in the carrier C is pivoted a grooved pulley, p, over which travels the rope E, from which the load is suspended. One end of the rope is or may be secured to the windlass w', the other end being passed over pulley p and through the openings c D<sup>2</sup> c' in the carrier, the clamp D, and the carrier-plate C', respectively, and said end of the rope is attached to a support, K, of any desired construction. As shown, the support K consists of a cylindrical block provided with a hook, H, to which the bucket L is hooked. The block has a conical head, k, of the same size as the opening D<sup>2</sup>, formed between the sections D' of the clamp D, and below said head k the diameter of the block is reduced, to form a neck, k', of less diameter than the base of the cone-head k, an annular shoulder, k<sup>2</sup>, being thus formed, which, when the head of the block is forced through the conical opening of the clamp-sections, will seat on the latter.

The operation of the devices described is as follows: The bucket being hooked to the hook H of block K, is drawn up to the carrier by turning the windlass w'. The cone-head thereof will enter the opening c' in the bottom of the carrier, then into the opening D<sup>2</sup>, between the clamp-sections, forcing said sections apart against the stress of the spring s'; and as soon as the head has passed through the narrower end of the opening D<sup>2</sup> the sections of the clamp will close around the neck k' of the block and hold the latter, with the bucket, securely locked to the carrier. The windlass is now rotated in a reverse direction to unwind the rope, allowing the carriage and carrier to travel along the elevated way to the post P, on reaching which the arrow-head a on the stop A, passing between the jaws of clamp D, automatically spreads the same apart, allowing the block K, with the bucket, to drop down into the well w. When the bucket is full, it is drawn up again by means of the windlass w', and as the head of the block is drawn between the clamp-sections, as before described, the latter are spread apart, thereby releasing the stop A, and said sections closing upon the neck of the block again lock the latter and its load to the carrier C. When the carriage and carrier reach the post P', the tail of the bolt B strikes against the stop A', thereby forcing the arrow-head B' of said bolt forward between the clamp-sections again spreading the same to release the block, as before described, when the bucket may be lowered.

I have shown the carrier C provided with a second cord-pulley, over which the rope travels, so that in drawing the carrier and its carriage to its destination the rope may not be cut. It is obvious, however, that this pulley may be dispensed with and a pulley mounted on the terminal post P' for the purpose.

It will be understood that in its details of

construction the carrier and its carriage may be variously modified, as well as the devices for automatically locking the load to the carrier and for automatically releasing the same therefrom; that, instead of a wire, a rod or rail may be employed, and that, instead of the rope for drawing the load up to the carriage and drawing the same along the elevated way, said rope may be employed simply for locking the load to the carriage, and any well-known arrangement of devices employed for giving the track the necessary inclination in either direction to cause the carriage to travel automatically thereon. In fact, the cord may be dispensed with in such cases where the carrier travels within reach of the operator, and in which case the load may be placed in a basket or other receptacle attached to a rod terminating in the conical head and neck above described, so that the load may be locked to the carrier by pushing the rod through the clamp-sections.

Other modifications will readily suggest themselves to the skilled mechanic, and I do not desire to limit myself to the exact details of construction as shown and described.

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

1. The combination, with an elevated way, a stop at each end thereof, and a carrier arranged to travel on the way, of a spring-clamp for securing the load to the carrier, the arms of which clamp project beyond one end of the carrier, said arms being constructed to interlock with the stop at one end of the way, and to be spread in the act of interlocking, and a bolt projecting from the opposite end of the carrier and operating between the arms of the clamp to spread the same when brought in contact with the stop at the other end of the way, substantially as described, for the purpose specified.

2. The combination, with an elevated way, a stop at one terminal thereof, and a carrier for the load, of a spring-clamp, D, for securing the load to the carrier, composed of sections D' D', constructed to form between them an opening,  $d^3$ , and the bolt B, the head of which is fitted in the opening  $d^3$ , and operates upon the clamp-sections to spread the same when brought in contact with the stop, substantially as and for the purpose specified.

3. The combination, with an elevated way, an arrow-head-shaped stop at one terminal

thereof and an abutment or stop at the other end, a carrier having openings  $c c'$ , and a spring-clamp composed of two sections, D' D', pivoted independently of each other to the carrier and having at their outer end a hook for engagement with the arrow-headed stop, whereby the clamp-sections are first spread and then locked to the stop, the said clamp-sections being constructed to form between them a tapering opening,  $D^2$ , that registers with the openings  $c c'$  in the carrier, and an opening,  $d^3$ , of the block K, provided with a conical head,  $k$ , engaged by the clamp-sections when the head of said block is forced through the opening  $D^2$ , and the bolt B, the head whereof is fitted in the opening  $d^3$  and operates to spread the clamp-sections when brought in contact with the said stop or abutment, substantially as and for the purpose specified.

4. The combination, with the carrier C and the spring-clamp D, composed of two sections pivoted to the carrier on independent pivots and having recesses forming a slot,  $d^3$ , of the form of an arrow-head, of the spring-bolt B, having a head, B', fitting into said slot  $d^3$ , and a shank projecting beyond the carrier, substantially as and for the purpose specified.

5. The combination, with the carrier C and the block K, having a conical head,  $k$ , of the spring-clamp D, composed of two sections, D' D', pivoted to the carrier on independent pivots and provided with a hook,  $d$ , and recesses forming a slot,  $D^2$ , substantially as and for the purpose specified.

6. The combination, with the carrier C, the pulley  $p$  thereof, the block K, having a conical head,  $k$ , of the clamp D, composed of sections D' D', pivoted to the carrier on independent pivots, said sections having one end hooked and being constructed to form between them the tapering opening  $D^2$ , and the arrow-head-shaped opening  $d^3$ , and the block K, having a conical head,  $k$ , the rope E, and the arrow-headed bolt B, the head whereof is fitted and operates in the opening  $d^3$ , the shank of said bolt projecting from one end of the carrier, substantially as described, for the purpose specified.

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

ROBERT M. GOODWYNE.

Witnesses:

W. H. THURMOND,  
S. B. HEAD.