H. U. PRINDLE.

ELEVATING AND DUMPING APPARATUS.

APPLICATION FILED NOV. 24, 1914.

1,165,284. Patented Dec. 21, 1915.

2 SHEETS—SHEET 1.

Fig. 4.

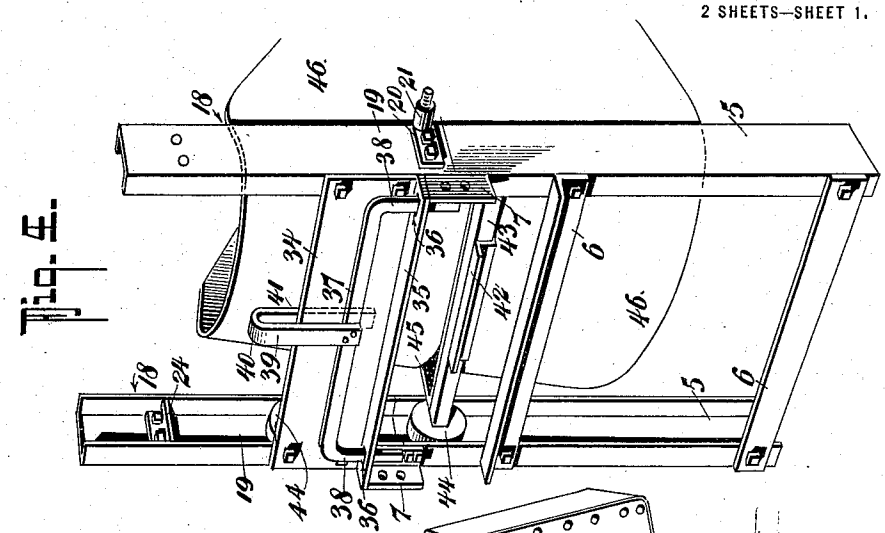
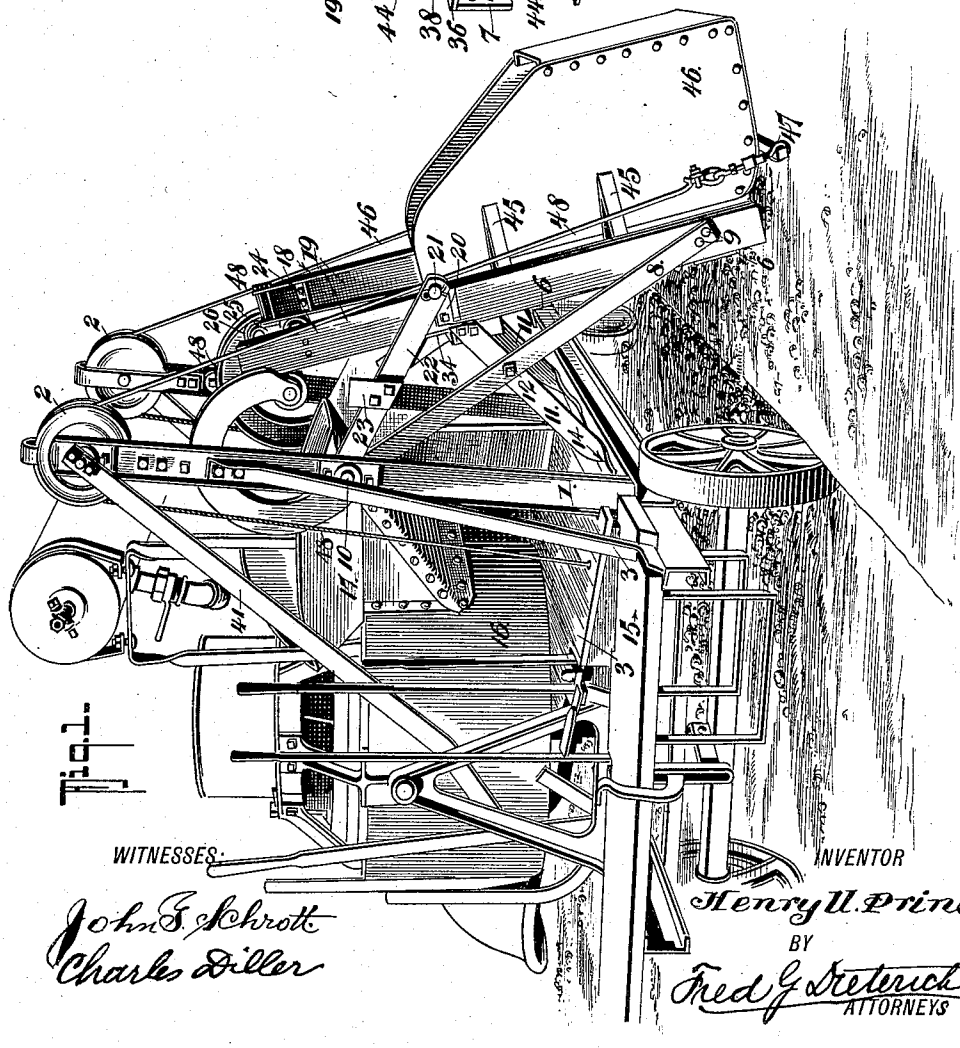


Fig. 1.



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2 SHEETS—SHEET 2.

Fig. 1.

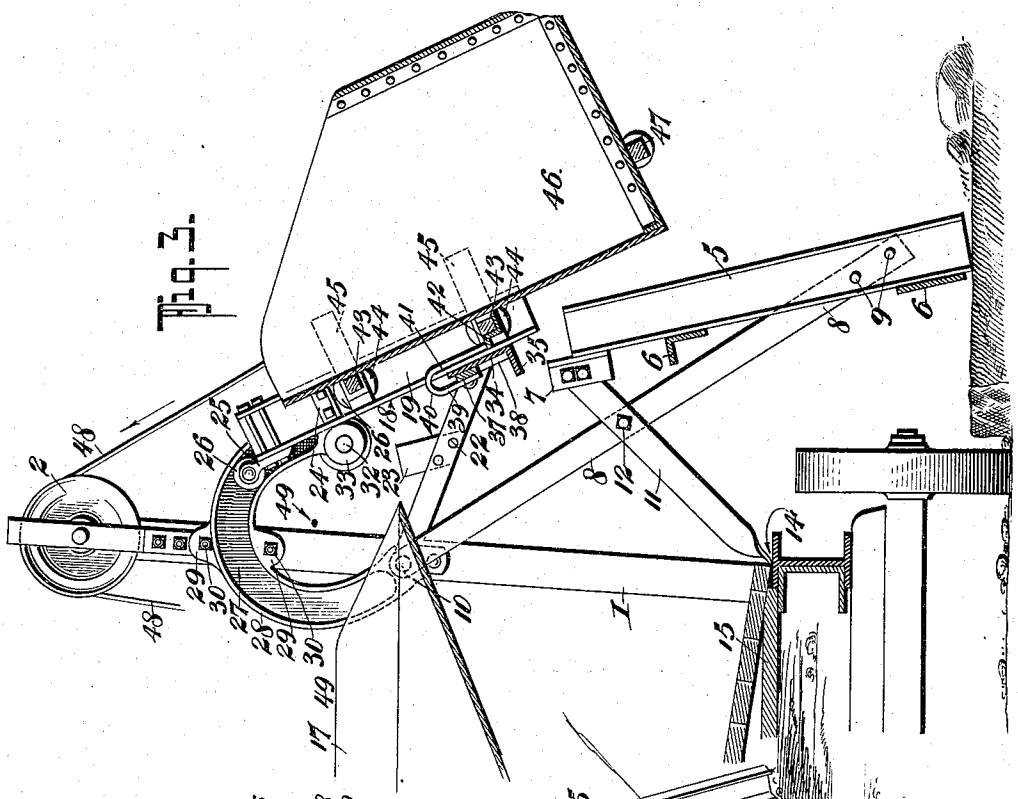
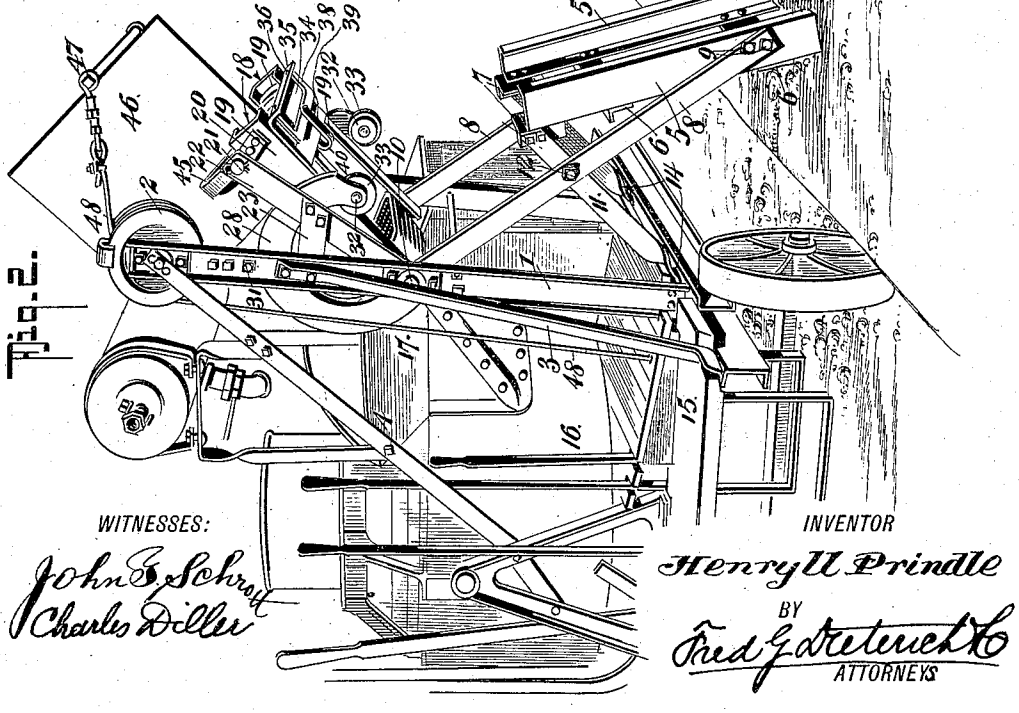


Fig. 2.



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ELEVATING AND DUMPING APPARATUS.

1,165,284. Specification of Letters Patent. Patented Dec. 21, 1915.

Application filed November 24, 1914. Serial No. 873,736.

To all whom it may concern:

Be it known that I, HENRY U. PRINDLE, residing at San Francisco, in the county of San Francisco and State of California, have invented certain new and useful Improvements in Elevating and Dumping Apparatus, of which the following is a specification.

My invention is a device for conveying material from one place to another at a greater elevation and there dumping the mass so conveyed, into a receptacle.

In the illustrative embodiment of the invention herein shown and described, the same is disclosed as especially applicable to concrete mixers, although with more or less modification in the designing and proportioning of parts, the device is of general application.

Generically the invention resides in the provision of a relatively fixed section of trackage along which the bucket or carriage is elevated, a movable trackage section above or beyond the fixed section, whereby when the bucket or carriage engages the movable section, it will move along with the carriage as a unit, and at the same time cause the carriage to be turned over into its dumping position to discharge the contents of the same, the two trackage sections being normally latched in alinement with one another by a latching device that is automatically released when the bucket or carriage is passed onto the movable trackage section.

It is one of the objects of my invention to provide an elevating and dumping device in which the necessity of providing counterweights for the movable trackage section is avoided and in which the parts are of a simple and effective construction, inexpensive to manufacture and easy to operate.

The invention further resides in those novel features of construction, combination and arrangement of parts, all of which will be first fully described and then be specifically pointed out in the appended claims, reference being had to the accompanying drawings in which:—

Figure 1 is a perspective view showing the apparatus in use in connection with a concrete mixer, the parts being in the initial position with the bucket or carriage at its lowermost place. Fig. 2 is a perspective view showing the bucket and movable trackage section in the dumping position. Fig. 3 is a detail vertical section showing the position of the parts when the two trackage sections have just been separated or are just about to close together. Fig. 4 is a detail perspective view of the abutting ends of the two trackage sections latched together.

In the drawings in which like numerals and letters of reference designate like parts in all the figures, 1 represents the main upwardly projecting supports which are suitably braced by braces 3 and 4 that are connected to the platform or truck 15 or other part on which the apparatus is mounted. Each support 1, at its upper end is provided with a grooved roller 2, around which the cables 48 pass.

The fixed trackage section is composed of two channel irons 5 that face one another and are spaced a suitable distance apart, in which positions they are held by cross bars 6 that are secured to the channel irons 5, and the fixed trackage section is held in proper position by bracing bars 8 and 11. The bars 8 are secured at 9 to the channel irons, and the bars 11 are secured at 13 to the L-pieces 7 which are fastened to the upper ends of the channel irons 5 and projecting slightly above the same for a purpose hereinafter made clear. The supporting bars 8 and 11 are secured together at 12 and the bars 11 are fastened at 14 to the platform 15, while the bars 8 are secured at 10 to the side frame members 1.

16 represents a concrete mixer into whose entry spout 17 the contents of the bucket or carriage 46 are adapted to be deposited.

18 represents the movable trackage section which is composed of the channel irons 19 that are spaced apart, to form continuations of the channel irons 5, by a back plate 34 which is secured to the channel irons 19 as best indicated in Figs. 2 and 4 of the drawings.

Secured at the lowermost ends of the channel irons 19 are extensions 20 which carry outwardly projecting lugs 21 on which the arms 22 are pivoted at their outer ends, the inner ends of the arms 22 being pivoted at 10 to the supports 1, and the arms 22 are provided with stops 23 to engage the supports 1 when the arms are elevated to the dumping position indicated in Fig. 2 of the drawings.

The channel irons 19, at a suitable position are provided with stops 24 and at their upper ends the channel irons 19 carry brackets 25 on which rollers 26 are mounted, the rollers 26 operating in the grooves 27 of the

segmental arc guides 28, the guides 28 being secured through the medium of lugs 29 and bolts 30 and 31 to the side frame members 1. The outer ends of the arc guides 28 carry rollers 33 on stub shafts 32, the rollers serving as rests for the channel irons 19 as best shown in Fig. 3 of the drawings.

The back plate 34, which joins the channel irons 19 has an extension 35 which is provided with holes 36 through which the fingers 38 of the latch bar 37 project. The bar 37 carries a member 39 which is bent over at 40 and projects down at 41 between the pair of channel irons 19 so as to be susceptible of engagement by the angled iron 42 that is fastened beneath the rear axle 43 of the carriage or bucket 46. The axles 43 are mounted on the carriage or bucket 46 by saddle members 45 and each axle 43 carries a pair of rollers or wheels 44 to ride in the channel irons 5 and 19. The cables 48 are connected at 47 with the carriage or bucket 46 and may be operated by any suitable mechanism (not shown).

In operation, the bucket or carriage 46 may be initially positioned as shown in Fig. 1, at which time both trackage sections will have their respective channel irons 5 and 19 held in alinement with each other and latched by virtue of the fingers 38, projecting through the holes 36 and behind the angled irons 7, which angled irons 7 also serve as stops to be engaged by the channel irons 19 when the parts are in the position shown in Fig. 1. Now as tension is applied to the cables 48 to pull the carriage or bucket 46 upwardly, the wheels 44 pass from the channel irons 5 into the channel irons 19, and as the angled iron 42 on the rear axle 43 engages the latch lifter 41, it will cause the latch 37 to be raised to withdraw the fingers 38 from in back of the angled iron 7 to unlatch the two trackage sections. At this time also, the front wheels 44 of the carriage will have engaged the stops 24, thus further movement of the cables 48 in the direction of the arrow in Fig. 3 will cause the carriage or bucket 46, and the trackage section 18, to move together as a unit, the rollers 26 following the groove 27 and turning through an arc, having as its radius the central point 49 of the arc section 28, while the lower or rear end of the movable track section 18 will move on an arc having as its center the pivot 10 and as its radius the length of the arms 22. Thus a continuous pull on the cables 48 serves to elevate the carriage 46 and at the same time cause it to turn over to its dumping position shown in Fig. 2 of the drawings.

It will be noted that the channel irons 19 continuously ride on the wheels or rollers 33 and as the carriage 46 projects beyond the trackage section 18, the center of gravity will always be thrown outside of the pivotal centers of the rollers 33 so that as the cables 48 are slacked, the weight of the trackage sections 18 and the carriage 46 will be sufficient to return the parts from the position shown in Fig. 2 through the position shown in Fig. 3, back to the position shown in Fig. 1.

From the foregoing description, taken in connection with the accompanying drawings, it is thought the complete construction, operation and advantages of the invention will be clear to those skilled in the art.

Numerous changes in the details of construction and designing of parts may be made to adapt the invention to the particular use to which it is put and I wish it understood that I do not desire to limit myself to the specific construction herein shown and described, which specific construction is merely an illustrative embodiment of the invention.

What I claim is:—

1. A support, a traveling bucket or carriage a relatively fixed trackage section mounted on said support, said carriage having rollers to engage said trackage section, a relatively movable trackage section coöperating with said fixed trackage section and forming an extension thereof, a link connection between one end of said movable trackage section and said support, segmental arc guide members mounted on said support, sliding connections between said segmental arc guide members and the other end of said movable trackage section, relatively fixed fulcrum members on which said movable trackage section bears, stops on said movable trackage section for engagement by the forward carriage rollers whereby said movable trackage section and said carriage are moved together as a unit to effect the dumping of the carriage substantially as shown and described.

2. A support including a pair of upright members, segmental arc guides mounted on said upright members and having grooves, rollers mounted on said segmental arc guides, a relatively fixed trackage section mounted on said support, a relatively movable trackage section coöperating with said fixed trackage section, rollers mounted on one end of said movable trackage section to ride in the grooves of said segmental arc members, said movable trackage section adapted to ride on said segmental arc member rollers, and a carriage adapted to ride on said trackage sections, and means for connecting said carriage and said movable trackage section together to cause them to move as a unit when said carriage is on said movable trackage section, and means for imparting movement to said carriage to elevate and dump the same.

3. A support including a pair of upright members, segmental arc guides mounted on

said upright members and having grooves, rollers mounted on said segmental arc guides, a relatively fixed trackage section mounted on said support, a relatively movable trackage section coöperating with said fixed trackage section, rollers mounted on one end of said movable trackage section to ride in the grooves of said segmental arc members, said movable trackage section adapted to ride on said segmental arc member rollers, and a carriage adapted to ride on said trackage sections, and means for connecting said carriage and said movable trackage section together to cause them to move as a unit when said carriage is on said movable trackage section, and means for imparting movement to said carriage to elevate and dump the same, link connections between said support and said movable trackage section, and stops carried by said link connections for limiting the movement of said movable trackage section.

4. A support including a pair of upright members, segmental arc guides mounted on said upright members and having grooves, rollers mounted on said segmental arc guides, a relatively fixed trackage section mounted on said support, a relatively movable trackage section coöperating with said fixed trackage section, rollers mounted on one end of said movable trackage section to ride in the grooves of said segmental arc members, said movable trackage section adapted to ride on said segmental arc member rollers, and a carriage adapted to ride on said trackage sections, and means for connecting said carriage and said movable trackage section together to move as a unit when said carriage is on said movable trackage section, and means for imparting movement to said carriage to elevate and dump the same, and means for holding said fixed and movable trackage sections in alinement when said fixed and movable trackage sections are in contact and while the carriage is on the fixed trackage section.

HENRY URSON PRINDLE.

Witnesses:
TOM COURTRIGHT,
BLANCHE HADLEY STRONG.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."