

No. 711,714.

Patented Oct. 21, 1902.

V. R. BROWNING.
MECHANISM FOR UNLOADING VEHICLES.

(Application filed Aug. 9, 1900.)

(No Model.)

2 Sheets—Sheet 1.

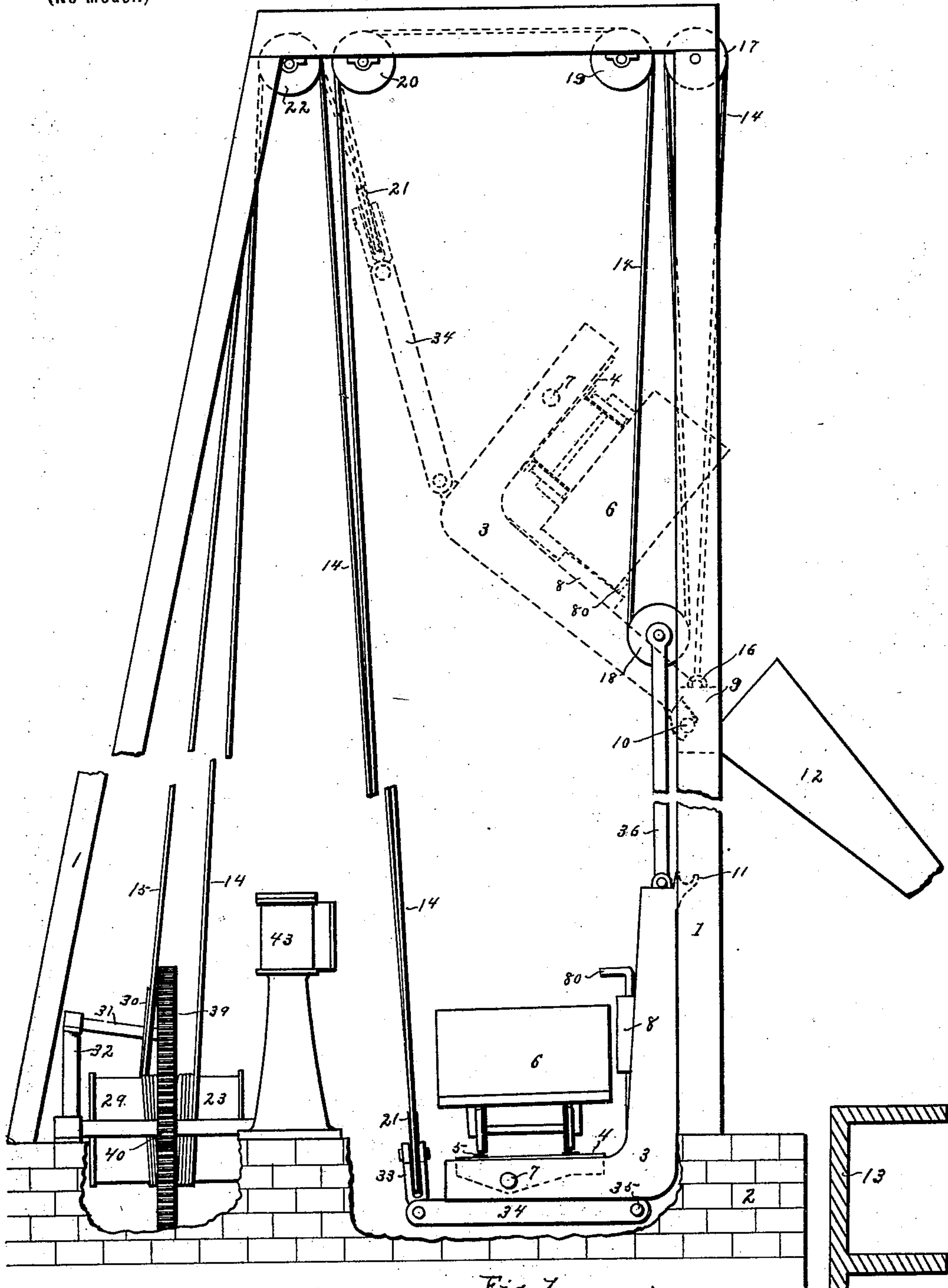


Fig. 1.

WITNESSES,
Earl H. Browning
Ralph A. Root

INVENTOR,
Victor R. Browning
By *S. E. Fowler*,
Attorney

No. 711,714.

Patented Oct. 21, 1902.

V. R. BROWNING.

MECHANISM FOR UNLOADING VEHICLES.

(Application filed Aug. 9, 1900.)

(No Model.)

2 Sheets—Sheet 2.

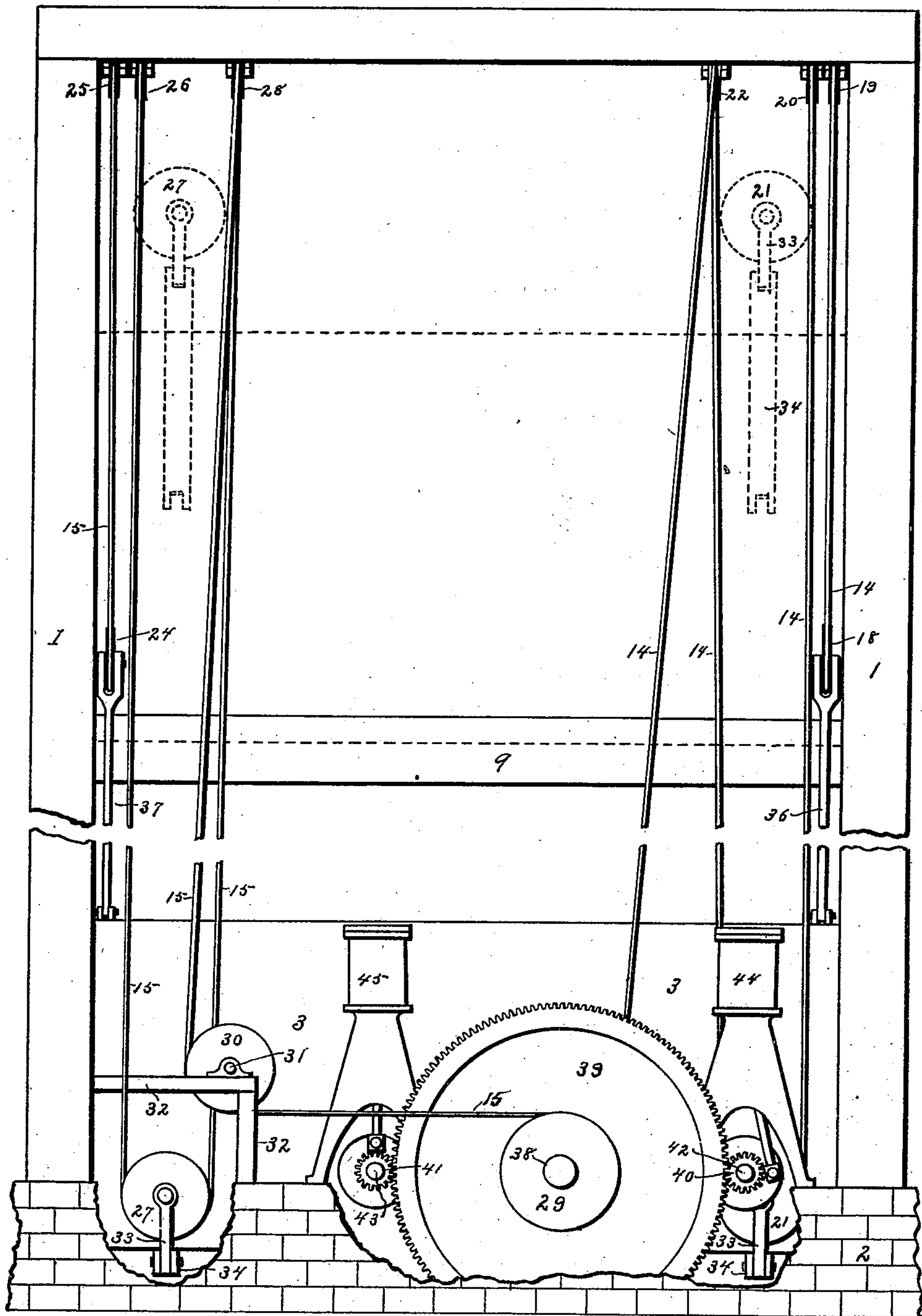


Fig. 2.

WITNESSES,
Earl H. Browning,
Ralph R. Root,

INVENTOR,
Victor R. Browning,
By S. C. Gould, Attorney

UNITED STATES PATENT OFFICE.

VICTOR R. BROWNING, OF CLEVELAND, OHIO.

MECHANISM FOR UNLOADING VEHICLES.

SPECIFICATION forming part of Letters Patent No. 711,714, dated October 21, 1902.

Application filed August 9, 1900. Serial No. 26,352. (No model.)

To all whom it may concern:

Be it known that I, VICTOR R. BROWNING, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented a new and useful Improvement in Mechanism for Unloading Vehicles, of which the following is a specification.

This invention relates in general to apparatus for unloading vehicles, and has particular reference to the hoisting mechanism for those machines which are employed for dumping railway-cars containing coal or ore. In these machines of the vertical-lift type the hoisting is effected by steam-engines which drive drums upon which are wound the ends of the hoisting-cables. These cables pass over a series of sheaves so arranged as to lift the cradle containing the car when the drums are driven.

My invention simplifies the usual arrangement of the engines, drums, sheaves, and cables and results in a great saving in initial cost of the machine and in the power necessary for running the same.

In the accompanying drawings, forming part of the application, Figure 1 is an end elevation of a car-dumper having my invention applied thereto, and Fig. 2 is a front elevation of the same.

Similar characters refer to corresponding parts throughout the specification and drawings.

The hoisting and dumping mechanism is arranged within a suitable frame or tower 1, standing upon a rigid foundation 2. The tower is properly braced to give it the necessary strength for supporting the heavy parts without undue vibration, the braces not being shown, as they form no part of my invention and would only complicate the drawings. Mounted within the tower in such a manner that it may be raised and lowered therein is the lifting-cradle 3, upon which is mounted the tilting platform 4. Upon this platform are laid the rails 5 for the car 6. The platform is pivoted at 7 nearer one rail than the other, so that as the cradle is lifted the car will settle by gravity against the buffers 8 of the cradle, where it is held when lifted by the clamps 80. Arranged in one side of the tower is the usual girder 9, which is placed at a

proper height for causing the contents of the car to be dumped as desired. This girder carries the trunnion-pins, as shown in dotted lines at 10 in Fig. 1, with which hooks 11 on the cradle engage to cause the latter to turn over to dump the car as the cradle is lifted.

12 is the pan into which the material in the car is dumped and through which it is discharged at the proper place, as in the hold of the vessel 13.

The cradle is lifted by means of the cables 14 and 15, one end of each being secured to the girder 9 near its ends, as at 16. The cable 14 passes up from the girder to and over a sheave 17, down to and around a sheave 18, up to and over a sheave 19, across to and over another sheave 20, down to and around a sheave 21, up to and over a sheave 22, and thence down and direct to the hoisting-drum 23, to which the other end of the cable is secured and upon which it is wound. The cable 15 passes up from the girder 9 to and over a sheave not shown, but corresponding to sheave 17, down and around sheave 24, up to and over sheave 25, across to and over sheave 26, down to and around sheave 27, up to and over sheave 28, and thence indirectly to the drum 29, to which its other end is secured. Instead of passing straight to the drum from the upper pulley, as is the case with cable 14, it first passes over a transversely-slidable sheave 30, which is mounted upon a long axis 31, having bearings in suitable frame-pieces 32. As the cable winds on and off the drum the sheave moves transversely along its axis, so as to always be in proper position to guide the cable. Inasmuch as the sheave 28 is not directly above the sheave 30, the axis of the latter is placed at an incline, as shown, thereby making the inclination of the sheave correspond with that of the cable as it passes over it.

The sheaves 21 and 27 are carried in yoke-arms 33, which are pivoted at one end of a horizontal bar 34. The other end of this bar is pivoted at 35 to the bottom of the lifting-cradle 3, and the bar normally lies below and in contact with the cradle. The sheaves 18 and 24 are journaled in the upper ends of the yoke-arms 36 and 37, the lower ends of which are pivoted to the top of the lifting-cradle. When the hoisting-drums are rotated, the

lifting-cables 14 and 15 are hauled in, which results in shortening the loops between the upper sheaves and those on the lifting-cradle. This causes the cradle to be drawn upwardly

5 within the frame or tower.

The cradle and car are so balanced that they remain horizontal, as shown in full lines in Fig. 1, as long as they are permitted to rise without obstruction. When, however, the
10 hooks 11 on the top of the lifting-cradle engage with the trunnion-pins 10, that part of the cradle next to the hooks is prevented from further ascent, with the result that the cradle is tilted into the position shown in
15 dotted lines on the drawings. This pours the contents of the car into pan 12. As the cradle is tilted the bars 34 stretch out from the bottom of the cradle in the direction of the sheaves 20 and 22 and 26 and 28, respectively.
20 By having the bars 34 connected with the cradle in this manner I am able to dispense with the sheaves heretofore used on the bottom of the cradle and the structure is greatly simplified. As the cradle turns again into
25 the horizontal position the bars close up against the cradle, as shown in full lines.

The hoisting-drums 23 and 29 are mounted upon the same shaft 38 and turn together as a single drum. They are driven by means of
30 a large gear-wheel 39, which is also mounted on the shaft 38 and which is rigidly connected with the drums. As is shown, this gear-wheel is between the drums; but although this makes a desirable and convenient arrangement it is obvious that it may be placed
35 at any other point on the shaft.

Meshing with the gear 39 are two driving-pinions 40 and 41, which are secured to shafts 42 and 43, respectively. These shafts
40 are driven by being directly connected with the vertical engines 44 and 45. This forms a very compact arrangement of the hoisting

parts of the apparatus, and by placing the crank-pins at an angle of ninety degrees apart I am able to avoid all dead-points and always
45 insure the full power of one engine when hoisting.

As shown, the pinions 40 and 41 are placed at diametrically opposite points on the large gear-wheel 39. While this forms a symmet-
50 rical and very satisfactory arrangement of these parts, they may at times be brought nearer together.

Having thus described my invention, what I claim as new, and desire to secure by Letters
55 Patent, is—

1. In an unloading mechanism for vehicles, a frame, a cradle for the vehicle mounted for movement within the frame, cables for lifting said cradle, a hoisting-drum for each cable, a
60 single gear-wheel for driving said drums, a pinion on each side of the gear-wheel and meshing therewith, and an engine for driving each pinion.

2. In a hoisting mechanism for vehicles, a
65 frame, an L-shaped cradle for the vehicle mounted for movement within the frame, sheaves secured to the upper portion of the cradle, bars secured to the bottom of the cradle near the angle thereof, sheaves on said
70 bars, sheaves in the upper part of the frame, cables having one end secured to the frame and passing over the sheaves, hoisting-drums for the other end of the cables, a single gear-wheel for the drums, pinions meshing with
75 the gear-wheel, and engines, one for each pinion and directly connected therewith, for hauling in on the cables to move the cradle.

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

VICTOR R. BROWNING.

Witnesses:

EARL H. BROWNING,
WALTER H. WHEELER.