

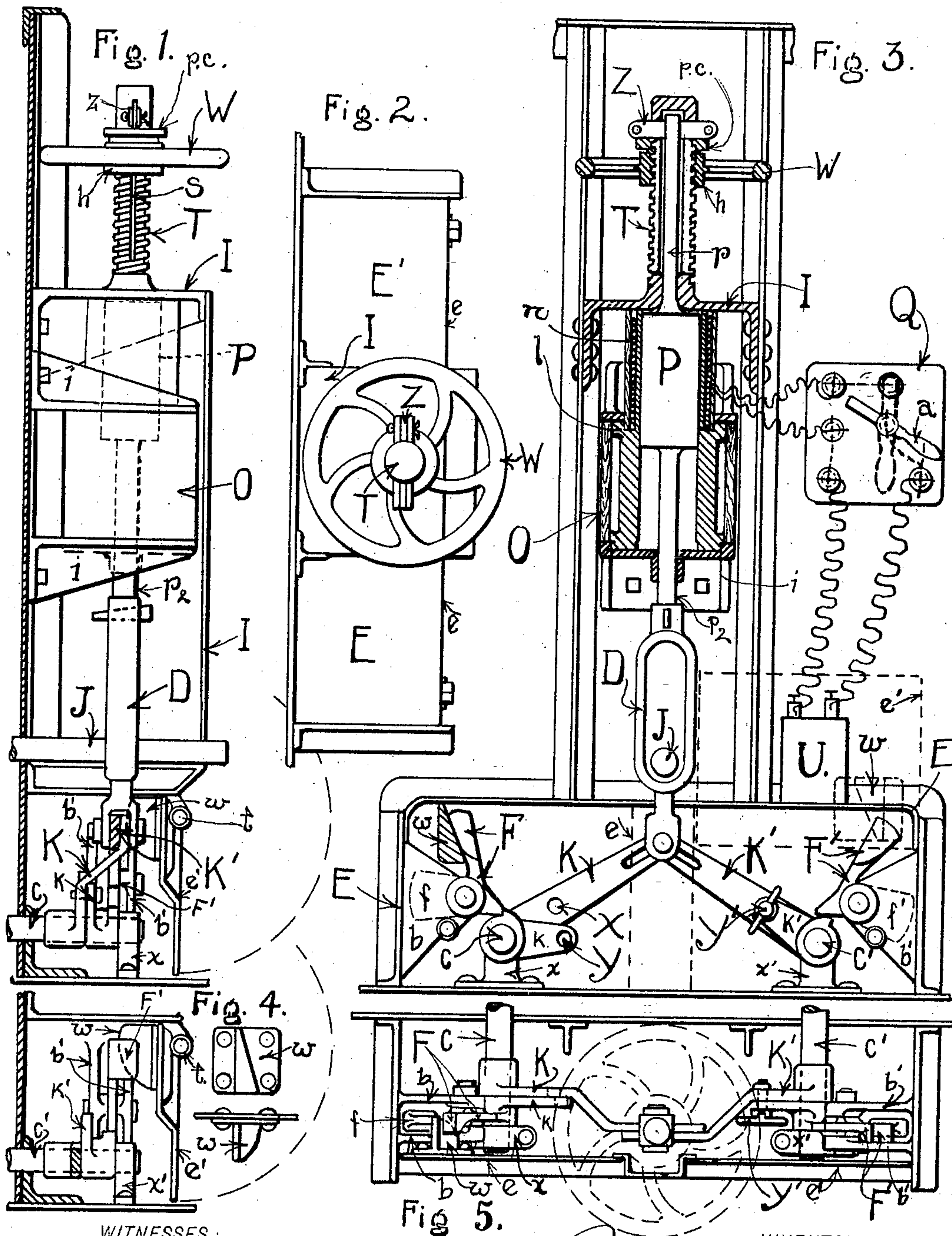
(No Model.)

2 Sheets—Sheet 1.

J. M. GOODWIN.
DUMPING VEHICLE.

No. 603,528.

Patented May 3, 1898.



WITNESSES:

Geo. T. Plowman
J. T. Sullivan

INVENTOR,

John M. Goodwin

(No Model.)

2 Sheets—Sheet 2.

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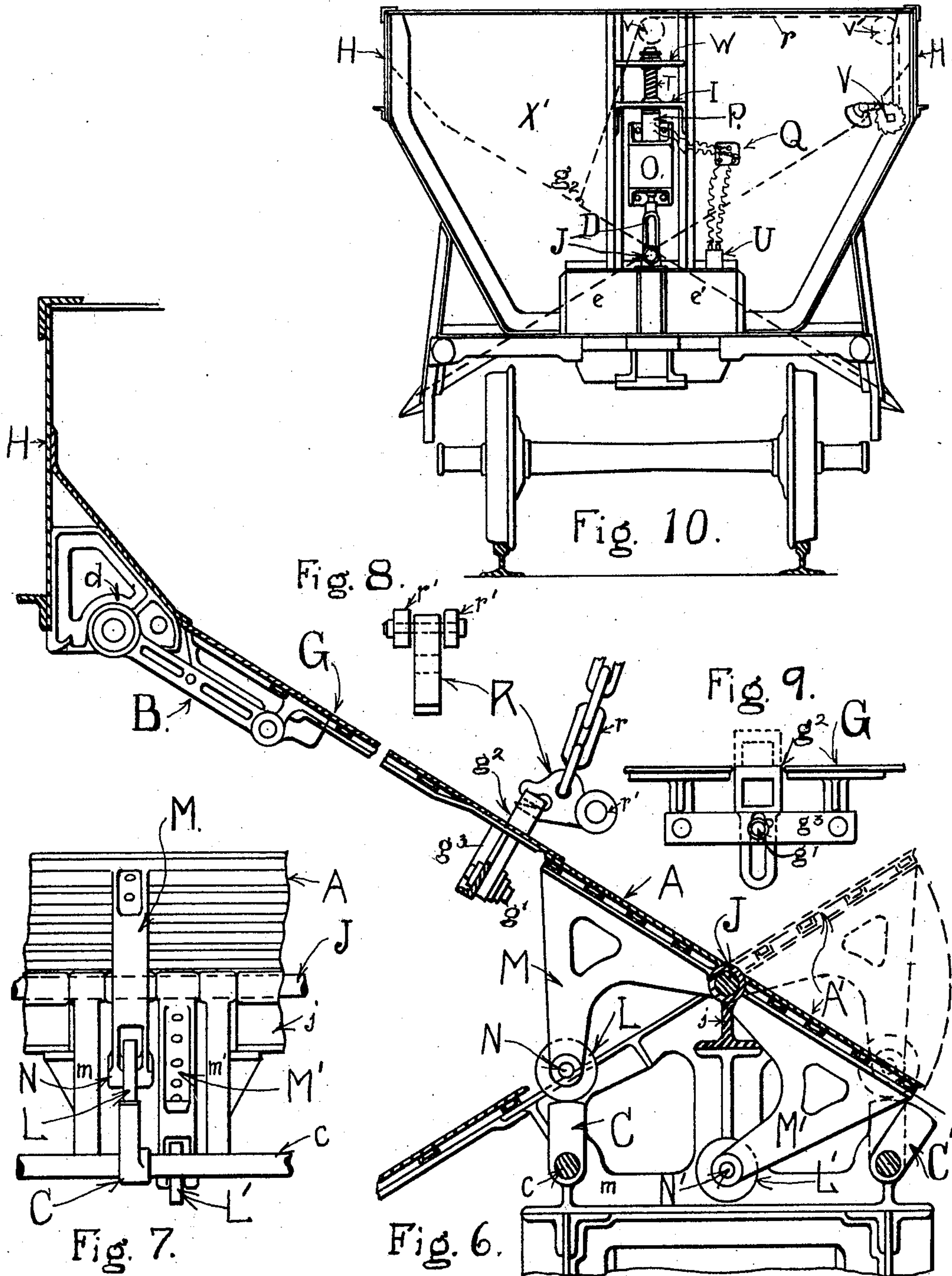


Fig. 7.

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UNITED STATES PATENT OFFICE.

JOHN M. GOODWIN, OF NEW YORK, N. Y.

DUMPING-VEHICLE.

SPECIFICATION forming part of Letters Patent No. 603,528, dated May 3, 1898.

Application filed March 6, 1897. Serial No. 626,291. (No model.)

To all whom it may concern:

Be it known that I, JOHN M. GOODWIN, of New York city, in the county and State of New York, have invented new and useful Improvements in Dumping-Vehicles, of which the following is a full, clear, and exact description.

This invention relates to dumping apparatus for the valves of dumping cars, carriages, vessels, or bins which are non-careening and which have cargo-boxes or carrying-compartments substantially V shape in cross-section.

I will describe a dumping-vehicle embodying my invention and then point out the novel features in the appended claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a partial elevation and partial section of a releasing mechanism employed. Fig. 2 is a top plan view thereof. Fig. 3 is a front elevation, partially in section. Fig. 4 is a cross-section of a dumping-lever box and operating mechanism therein. Fig. 5 is a plan view thereof. Fig. 6 is a cross-section of a portion of a cargo-box, showing the hinged center valves and supporting-struts. Fig. 7 is a side elevation of a portion of a center valve and its supports. Fig. 8 is a top view of a hoisting-hook. Fig. 9 is a front elevation of a hoisting-link and its supports, and Fig. 10 is an end view of a car embodying my invention.

Referring to the drawings, A A' designate the center valves mounted to swing on a shaft J, extended longitudinally of the vehicle. On the under sides of the valves A A' are secured supporting-struts M and M', designed to be engaged, respectively, by detents C C', attached to rotary shafts c c', and to reduce friction between the struts and the detents I provide the struts with rollers L L', designed to engage upon the detents, said rollers being pivoted at N N' at the lower ends of the struts.

G designates a side valve having pivotal connection with a link B, which swings on brackets d, attached to the side H of the rail of the vehicle, and when the parts are in normal or carrying position the lower portion of the side valve will rest upon the center valve, as clearly indicated in Fig. 6. It is to be

understood that there will be a side valve at each side of the vehicle, but it is not deemed necessary to show the complete construction in Fig. 6.

The valves G are raised and held in position by means of hooks R, attached to chains r, which extend around rollers v v' and connect with a winding-shaft V, which may be revolved by a suitable crank. These hooks R at their inner ends are provided with rollers r', and the jaw portions of these hooks are designed to engage with links g², having slot-openings in their shank portions, through which pins g' pass. These pins g' extend from plates g³, secured to brackets depending from the lower side of the side valves. It will be seen that the side valves are provided with openings, so that the links g² may be drawn upward to be engaged by the hooks. When, however, the links are released from the hooks, the said links will drop downward by gravity, so that their upper ends will be substantially on a plane with the upper surface of the side valves G. Therefore the discharge of material will not be obstructed or retarded by the links.

I will now describe a means for easily lowering the center valves A A'. This means is located on one end of the vehicle X', as shown in Fig. 10, and is so constructed that it may be operated manually, by steam or air pressure, or by electricity. It comprises an exteriorly-threaded sleeve T, extended upward from the top wall of a metal casing I, and within this sleeve T is the stem p of the piston P. Mounted to the slide on the sleeve T is a collar p c, and to this collar is secured a key Z, which passes through an opening in the upper end of the stem p and is designed to move upward and downward through slot-openings S in the sleeve T, as shown in Fig. 3. The collar p c rests upon the upper side of the hub h of a hand-wheel W, the said hub being provided with a thread to engage with the thread of the sleeve T.

The piston P operates in the cylinder l, supported by brackets i, and from the lower end of the piston P a stem p² extends downward through an opening in the lower wall of the cylinder l and has connection with a link D, which has connection with the levers K K', extended, respectively, from the shafts c and

c'. The cylinder *l* may be provided with an opening for the inlet of steam, air, or similar medium for raising the piston *P*, or, as shown in the drawings, it may be provided at its upper end with a solenoid *n*, through which an electric current may be sent to operate the piston as a core. The electric current may be supplied from a battery *U*, controlled by a switch *a* on a switchboard *Q*. To protect the solenoid, it may have a suitable casing, and the cylinder *l* may have a casing *O*.

It will be understood that when the piston is operated by any other means than manually the hand-wheel *W* will be screwed down to the lower end of the sleeve *T*; but the piston may be raised, as is quite evident in the drawings, by rotating the hand-wheel *W* in one direction and allowed to fall by gravity when the said hand-wheel is rotated in the opposite direction.

In case the electric device is used to raise the piston or core the piston or core will fall by gravity to its normal position upon deenergizing the solenoid.

The levers *K* and *K'* are loosely mounted on the shafts *c* and *c'*, so that one or both may be operated without imparting rotary motion to the shafts, and thus operating but one of the valves *A* or *A'*, depending upon the direction in which it is desired to dump the material from the vehicle. I provide means, however, whereby the levers may be locked to the shafts. This means, as here shown, consists of lugs *k* and *k'*, rigidly attached to the shafts *c* and *c'* and having perforations through which keys *Y* *Y'* may pass out of tapped holes *X* in the levers.

The shafts *c* *c'* within the boxing at the end of the car have bearings in lugs *x* *x'*. The lugs *k* *k'* are arranged on the shafts at right angles to the detents *C* *C'*, so that when said lugs *k* *k'* are in a substantially horizontal position the detents *C* *C'* are in a substantially vertical position, as indicated at *C* in Fig. 6. The hubs of the lugs *k* *k'* are provided with notches, the walls of which are designed to be engaged by dogs *F* *F'*, pivoted on brackets *b* *b'* within the boxing *E* *E'*. These dogs *F* *F'* have counterbalancing-weights *f* *f'*, and their upwardly-extended portions are designed to be engaged with wedge-shaped lugs *w*, extended inward from the doors *e* *e'*, having hinge connection with the front of the boxing *E* *E'*. The lug *w* is omitted from the door *e'* to more clearly show other parts.

It will be understood that the doors *e* *e'* will be closed only when the car is in a carrying position—that is, with the valves *A* *A'* closed. When thus closed, the wedge-shaped lugs *w* will engage with the outer surface of the upwardly-extended portions of the dogs and hold the toothed portions of the dogs against the wall of the notches formed in the hub portions of the parts *k* *k'*.

The operation of dumping a car may be described as follows: Assuming that the load is to be dumped from the side occupied by the

valve *A'*, the door *e'* will be opened, and when opened the wedge-shaped lug *w* will be disengaged from the dog *F'*, and the counterweight *f'* will rock the dog out of engagement with the lug *k'*. Then the lug *k'* may be locked to the lever *K'* by means of the key *Y'*. Then by raising the piston *P* the shaft *c'* will be rotated to carry the detent *C'* out of engagement with the roller *L'*, so that the valve *A'* may fall by gravity. At this time, as the lever *K* is not locked to the shaft *c*, it is obvious that said shaft *c* will not be rotated. If, however, it should be desired to dump the load from both sides of the vehicle, the said lever *K* will be locked to the lug *k* by means of a pin passing through the openings *X* *Y*. Before lowering the center valve its side valve will be released from the hook *R*. This hook *R* will be lowered by rotating the shaft or wheel to which the chain *r* is attached. As the hook lowers the roller *r'* will bear upon the central valve and allow the hook to move downward out of engagement with the link *g²*, and then the link *g²* will fall by gravity. When the center valve is opened, the weight of the discharging load will swing the side valve outward; but, if desired, the said side valve may be retained in its elevated position, so that the discharge-opening will be restricted to the width of the center valve, or it may be lowered sufficiently to reduce the discharge-opening, as required.

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

1. A dumping-vehicle, comprising valves in its bottom portion, a shaft upon which said valves are mounted to swing, struts on the lower sides of said valves, rotary shafts below the valves, detents on said shafts to engage with the struts and support the valves, levers loosely mounted on said shafts, means for locking the levers to the shafts, a vertically-movable piston, a cylinder in which the piston operates, and a connection between said piston and the levers, substantially as specified.

2. A dumping-vehicle, comprising valves in its bottom portion, the said valves being mounted to swing one independently of the other, shafts arranged below the valves, detents on said shafts, struts on the valves having rollers to engage with said detents, levers loosely mounted on the shafts, means for locking the levers to the shafts, means for locking the shafts from rotation, a cylinder, a piston operating in said cylinder, and a connection between the piston and levers, substantially as specified.

3. A mechanism for operating the valves of a dumping-vehicle, comprising a cylinder, a piston operating in said cylinder, a connection between said piston and devices for supporting the valves, a stem extended upward from the piston, an exteriorly-screw-threaded sleeve provided with opposite longitudinal slots, a collar movable on the sleeve and hav-

ing connection with the stem, and a hand-wheel having an interiorly-threaded hub engaging with the thread of the sleeve, substantially as specified.

5 4. A dumping-vehicle having valves in its bottom, shafts extended longitudinally of the vehicle below the valves, struts on the valves, detents on the shafts for engaging with said struts, levers loosely mounted on the shafts, means for locking the levers to the shafts, pivoted dogs for locking the shafts from rotation, swinging doors on the casing in which said levers and dogs are located, lugs on the doors for holding the dogs in their locking position, and means for moving the levers vertically, substantially as specified.

5 5. A dumping-vehicle having swinging valves in its bottom, shafts arranged longitudinally of the vehicle below the valves, detents carried by the shafts, struts on the lower sides of the valves having rollers for engaging with said detents, levers mounted to swing on the shafts, lugs on the shafts, means for locking the lugs to the levers, and means for raising and lowering the levers, substantially as specified.

30 6. A dumping-vehicle having swinging valves in its bottom, struts on said valves, shafts extended longitudinally of the vehicle below the valves, detents on the shafts for engaging with the struts and supporting the valves, levers loosely mounted on the shafts, lugs rigidly secured to the shafts, means for locking the lugs to the levers, pivoted dogs

for engaging with the lugs, and locking the shafts from rotation, and means for raising and lowering the levers, substantially as specified.

7. A dumping-vehicle having swinging valves in its bottom, struts on said valves, shafts extended longitudinally of the vehicle, detents on the shafts for engaging with the struts to support the valves, a cylinder, a piston operating in the cylinder, electrical connections whereby the piston may be operated in the cylinder, and connections between said piston and the shafts, whereby the valves may be lowered, substantially as specified.

8. In a dumping-vehicle, the combination with center valves, of swinging side valves, links movable in said side valves, hooks for engaging with said links, rollers on the hooks, and means for raising and lowering the hooks with the said side valves, substantially as specified.

9. In a dumping-vehicle, a valve mounted to swing in its lower portion, struts on the lower side of the said valve, a rotary shaft below the valve, detents on said shaft to engage with the struts and support the valve, a lever loosely mounted on the shaft, means for locking the lever to the shaft, and means for raising said lever to rock the shaft, substantially as specified.

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Witnesses:

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