

APPLICATION FILED JULY 28, 1909

Patented Jan. 3, 1911.

2 SHEETS--SHEET 1.

This technical drawing illustrates a mechanical assembly, possibly a hand-operated press or pump. The central component is a vertical shaft (6) that extends from a handle (5) at the top. This shaft passes through a central hub (G) which features internal gears (10, 14). The entire mechanism is housed within a robust frame (B, B') that includes diagonal bracing members (C, C'). At the base of the shaft, a chain (17) is attached and runs vertically down to a base plate (M). The base plate supports several rollers or guides (F, F', I, I', J, J', K, K', L, L', M, M', N, N', O, O', P, P', Q, Q', R, R', S, S', T, T', U, U', V, V', W, W', X, X', Y, Y', Z). The drawing uses solid lines for visible parts and dashed lines for hidden internal components, providing a detailed view of the machine's internal structure.

John M Goodwin Inventor:
by *Arthur J. [Signature]* Atty

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VALVE RELEASING MECHANISM FOR DUMPING CARS.
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980,629.

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2 SHEETS—SHEET 2.

Fig. 2,

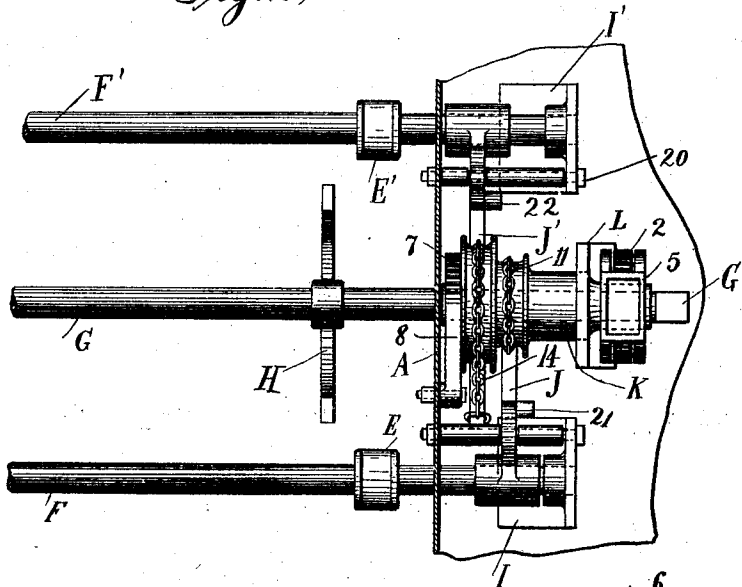
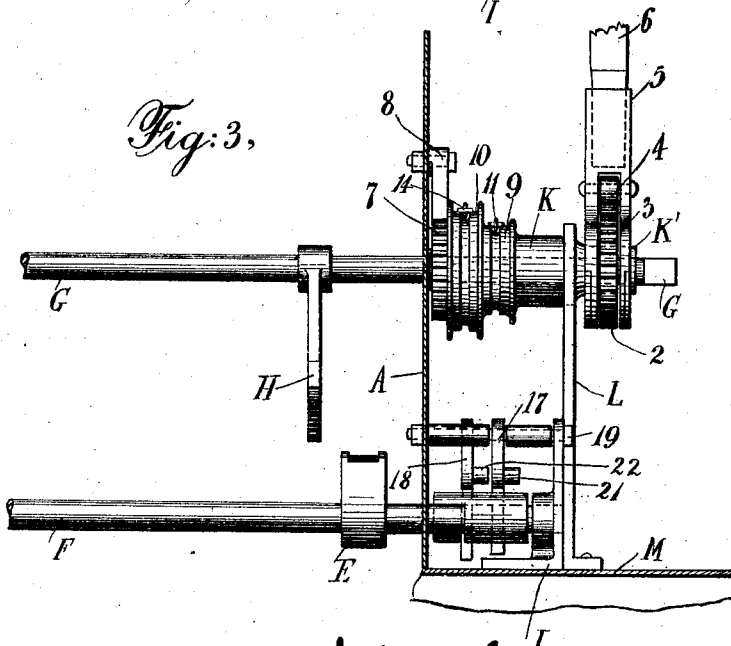


Fig. 3,



Attest:
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UNITED STATES PATENT OFFICE.

JOHN M. GOODWIN, OF SPOKANE, WASHINGTON.

VALVE-RELEASING MECHANISM FOR DUMPING-CARS.

980,629.

Specification of Letters Patent.

Patented Jan. 3, 1911.

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To all whom it may concern:

Be it known that I, JOHN M. GOODWIN, a citizen of the United States, residing at Spokane, in the county of Spokane and State of Washington, have invented certain new and useful Improvements in Valve-Releasing Mechanism for Dumping-Cars, of which the following is a full, true, and concise specification.

This invention relates to valved dumping receptacles and more particularly to those of the vehicle class.

An object of the invention is to improve the manner and means for releasing the valves in such a receptacle.

The invention is especially directed to dumping receptacles of the Goodwin type in which the valves are controlled by two longitudinally extending valve-releasing shafts and a longitudinally extending valve-replacing shaft located centrally to and above said valve-releasing shafts.

More particularly the object of the invention is to provide for the manipulation of these shafts from the end of the receptacle, which is usually a railway dump-car.

It is still a further object of the invention to provide for the manipulation of any one or all of these shafts by means of a manual rotary movement about a single horizontal axis and at the end of the receptacle or vehicle; and more especially to provide for such manipulation by rotary manual movements about the axis of the valve-replacing shaft.

The above and further objects of the invention will be apparent from the following description and claims, which should be read in connection with the accompanying drawings, which form part of this application, in which like characters designate corresponding parts, and in which—

Figure 1 is an end elevation, with parts broken away, of a receptacle of the Goodwin type embodying the invention; Fig. 2 is a plan view, drawn to reduced scale, showing the invention; while Fig. 3 is a side elevation of the parts shown in Fig. 2.

In the drawings the end bulkhead of a receptacle of the Goodwin type is indicated by A. This receptacle has the usual downwardly and outwardly swinging side valves or dumping doors B B' to be engaged and to be held closed by the detent valves C C', all

of usual construction. As is shown in this type of receptacle the detent valves C C' are provided respectively with rollers D D', which are engaged by the detents E and E', fixed to the valve releasing shafts F and F' respectively, which extend longitudinally through the vehicle. The outward rotation of the shafts F and F' operates to release the detents E and E' from the rollers D and D' allowing the detent valves C and C' to swing downwardly and inwardly for the purpose of dumping and in a manner well known in the art. As is usual in this type of construction, the detent valves C and C' are both hinged to swing on a longitudinally extending shaft central to the valve releasing shafts F and F' but located above the same. This shaft is indicated by G and is termed the valve replacing shaft. It is suitably journaled to have rotary movement independently of the detent valves C and C', which are hinged upon or around it, and has fixed to it one or more valve replacing members H. The forwardly projecting end G' of this shaft is squared or suitably shaped to receive and to interlock with an ordinary ratchet wrench (not shown) whereby a rotary manual movement effects the rotation of the shaft G to replace either the detent valves C or the detent valves C' according to the direction of rotation of the valve replacing shaft G.

According to the present invention provisions are made whereby rotary movements about the axis of shaft G alone are necessary not only to manipulate shaft G itself but also to manipulate either or both of the valve releasing shafts F or F'. The valve releasing shafts extend outwardly through the bulkhead A and their outer ends are seated in suitable journal brackets I and I'. Suitably fixed to the shaft F is a projecting arm J extending laterally toward the shaft F' to a point only a moderate distance beyond a point midway between the shafts F and F'. An operating lever J' suitably fixed to shaft F' extends laterally toward the shaft F to a point only a moderate distance from the shaft F and normally overlaps the operating lever J. A suitable upward movement imparted to either of the operating levers J and J' effects a corresponding outward rotation of the corresponding valve releasing shaft F or F' to

release the detents E and E' from the rollers D and D'. Provision for effecting this upward movement of the levers J and J' is made in accordance with the invention by hoisting mechanism K rotatably mounted about the valve replacing shaft G and in the present embodiment directly upon this shaft G. For steadying the end of the shaft G projecting through the bulkhead A a suitable upright L is provided which is shown secured to the sill construction M of the vehicle. The hoisting mechanism K extends forwardly through the upright L and is suitably journaled therein. Fixed to the forwardly projecting end K' of the hoisting mechanism K is a ratchet wheel 2 straddled by the yoke 3 which is loosely mounted on the projecting end K' and is fitted with a pawl 4 to engage the ratchet 2. The yoke 3 is formed with a suitably socketed end 5 for the reception of a removable operating bar 6. The inner end of the hoisting mechanism K is also provided with a ratchet wheel 7 in coöperation with the detent pawl 8 suitably pivoted and shown pivoted to the bulkhead A.

Many times it is necessary to release the detent valves C and C' simultaneously, which necessitates completing the same outward angular rotation for the shafts F and F' at the same instant. Heretofore it has been deemed impossible to effect this angular rotation of the shafts F and F' by means of a rotary hoisting mechanism rotating about a longitudinal axis and operating to elevate operating levers. In order to effect the same angular rotation for both the shafts F and F', the hoisting mechanism K is provided with relatively fixed hoisting drums 9 and 10. A suitable flexible connection shown in the form of a chain 11 is secured at one end to the drum 9 and is provided at its lower end with a hook 12 for releasable engagement with the operating lever J through the medium of the eye 13. Likewise a suitable flexible connection 14 is secured at one end to the drum 10 and is fitted at its lower end with a hook 15 for engagement with the eye 16 of lever J'. The relative lengths of the levers J and J' and the diameters of the hoisting drums 9 and 10 are so proportioned that a predetermined angular rotation of the hoisting means K through the medium of rotary manual movements applied to the operating bar 6 will complete the same angular rotation of the valve releasing shafts F and F' in opposite directions simultaneously, notwithstanding the fact that the operating arms J and J' rotate about different axes and the hoisting mechanism is connected with the operating levers through its flexible connections in an unsymmetrical manner. Lengthening the operating lever J' and shortening the operating lever J are effective in furthering the

satisfactory operation of the said levers by the hoisting mechanism. It is, of course, to be understood that either one or the other or both of the operating levers J and J' may be elevated by the hoisting mechanism K by properly connecting and disconnecting the hooks 12 and 15.

When in normal position, the operating levers J and J' may rest against the sill construction M which prevents their downward rotation. To prevent the accidental rotation of the levers there are shown provided for each pivoted wedging detents 17 and 18. The detent 17 is shown pivoted to a stringer bolt 19 supported at opposite ends by the bracket I and the bulkhead A, while the wedging detent 18 is shown similarly supported by the stringer bolt 20 fixed to the bracket I' and the bulkhead A. Each detent is arranged to wedge directly against the top face of its corresponding arm J or J' and by lying in the path of the arm prevents upward rotation. Means for swinging each detent 17 and 18 out of the path of its corresponding arm J or J' is provided and is shown embodied in the projections 21 and 22.

It will be understood that merely an illustrative embodiment of the invention is illustrated and described and that various parts and arrangements of parts are intended to conform to any suitable construction of dumping receptacle provided the advantageous features of the invention are maintained.

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

1. In a valved dumping receptacle, the combination of a valve-releasing shaft and a valve-replacing shaft both extending longitudinally of said receptacle; an operating lever for said valve-releasing shaft; a hoisting drum journaled about said valve-replacing shaft; and a flexible connection for connecting said operating lever with said hoisting drum.

2. In a valved dumping receptacle, the combination of two valve-releasing shafts; operating levers for said valve-releasing shafts; a valve-replacing shaft; hoisting mechanism journaled about said valve replacing shaft; and flexible connections for connecting said operating levers with said hoisting mechanism.

3. In a valved dumping receptacle, the combination of two parallel valve-releasing shafts; operating levers, one for each shaft, and normally overlapping; rotary hoisting mechanism journaled on an axis central to, parallel to, and above said valve releasing shafts; and a connection for each operating lever to connect it with said hoisting mechanism, said hoisting mechanism comprising winding drums of unequal diameters for

said flexible connections and proportioned to effect equal and opposite angular rotations of said operating levers upon a certain angular rotation of said hoisting mechanism.

4. In a valved dumping receptacle, the combination of two parallel valve-releasing shafts; operating levers, one for each shaft, of unequal length, and normally overlapping; rotary hoisting mechanism journaled on an axis central to, parallel to, and above said valve releasing shafts; and a connection for each operating lever to connect it with said hoisting mechanism, said hoisting mechanism comprising winding drums of unequal diameters for said flexible connections and proportioned to effect equal and opposite angular rotations of said operating levers upon a certain angular rotation of said hoisting mechanism.

5. In a valved dumping receptacle, the combination of two longitudinally extending valve releasing shafts; an operating lever for each shaft; a centrally positioned valve replacing shaft extending longitudinally above said valve releasing shafts; flexible connections for the ends of said operating levers; a hoisting drum journaled upon said valve replacing shaft and provided with hoisting sections of different diameters one for each of said flexible connections and operable to effect the same angular rotation for each valve releasing

shaft upon a predetermined angular rotation of said hoisting drum.

6. In a valved dumping vehicle, a valve releasing shaft; an operating lever for said shaft; a bracket secured to the body of said vehicle, exteriorly thereto and providing a journal bearing for said shaft; a wedging detent pivoted to said bracket and normally wedged by gravity into, the path of said operating lever to prevent its movement toward releasing position; and means for moving said detent out of the path of said lever.

7. In a valved dumping receptacle, the combination of valve releasing and valve replacing shafts; and means for operating all of said shafts from the end of the vehicle by rotary manual movements about the same horizontal axis.

8. In a valved dumping receptacle, the combination of valve releasing and valve replacing shafts; and means for operating any of said shafts selectively from the end of the vehicle by rotary manual movements about the same horizontal axis.

In testimony whereof, I have signed my name to the specification in the presence of two subscribing witnesses.

JOHN M. GOODWIN.

Witnesses:

A. W. DEAVITT,
MAYME SHERER.