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CONTROLLING DEVICE FOR VALVE CLOSURES.

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1,011,814. Patented Dec. 12, 1911.

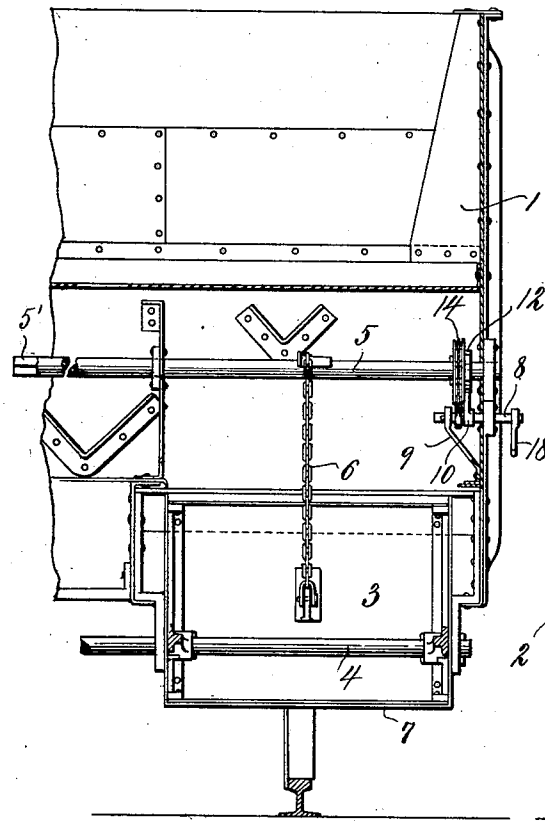


Fig. 1

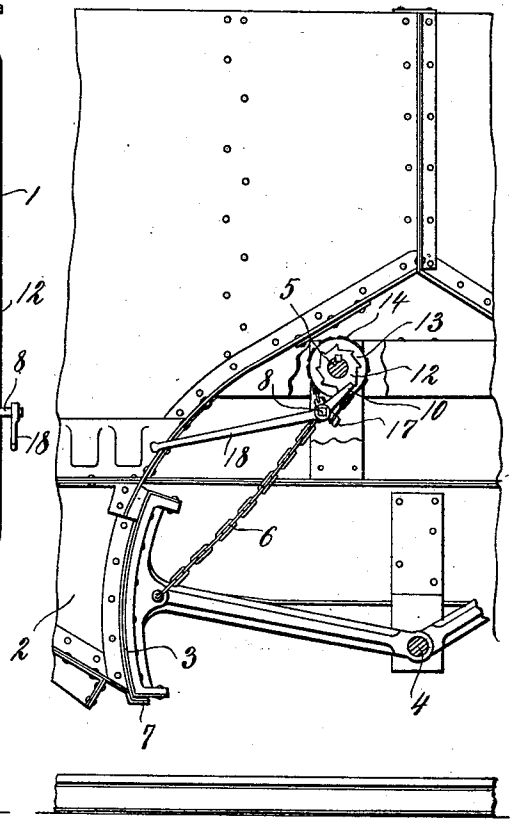


Fig. 2

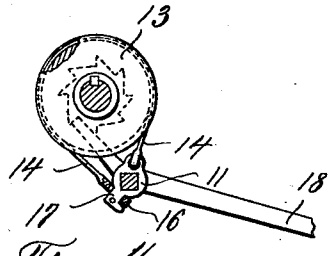


Fig. 4

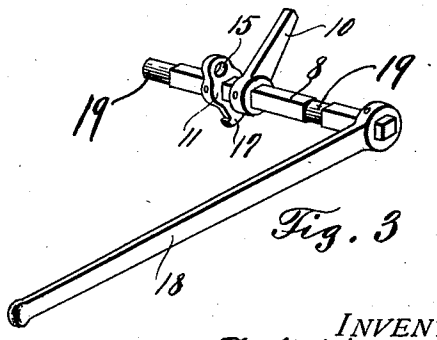


Fig. 3

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CONTROLLING DEVICE FOR VALVE-CLOSURES.

1,011,814. Specification of Letters Patent. Patented Dec. 12, 1911.

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To all whom it may concern:

Be it known that we, DAVID L. KNOWLES, ZEAN A. BAIRD, and CHARLES HESELDEN, citizens of the United States, residing at Danville, in the county of Vermilion and State of Illinois, have invented certain new and useful Improvements in Controlling Devices for Valve-Closures, of which the following is a specification.

The present invention comprises improved means for controlling the operation of discharge gates or valves, such as shown in the United States Patent, No. 947,682, issued Jan. 25, 1910, as used in connection with cars for transporting coal or similar substances.

The invention aims to afford a simple means for releasing the discharge gate or valve to permit it to gravitate into closed position, the releasing means being associated with brake means whereby the movement of the discharge gate or valve may be retarded or accelerated after it has been released.

With the above and other objects in view and for a clear understanding of the present invention, reference is to be had to the accompanying drawings, in which—

Figure 1 is a transverse section of a car showing most clearly the mechanism comprising the invention; Fig. 2 is a fragmentary view in side elevation partly broken away, and showing the parts illustrated in Fig. 1; Fig. 3 is a detail perspective view of the controlling lever and associated shaft and parts; Fig. 4 is a side elevation bringing out more clearly the arrangement of the brake band, ratchet arm and operating means connected therewith.

Throughout the following detail description and on the several figures of the drawings, similar parts are referred to by like reference characters.

Specifically describing the invention and referring particularly to the drawings, 1 denotes a car body which may be of any conventional type, being provided, however, at its bottom portion with a discharge chute 2, normally closed by the gate 3, the latter being pivoted to a suitable part of the car, as shown at 4. Mounted in suitable bearings on the car, and arranged above the gate 3, is a winding shaft 5 and a chain or other connection 6 is attached to the outer portion of the gate 3 and is adapted to be wound about the shaft 5 in order to raise the gate to open the chute 2 for discharging or other purposes. At the lower extremity of the chute 2 is formed a flange 7, constituting a rest to support the gate 3 in its normal position, as shown in Fig. 2. One or both ends of the shaft 5 may be squared or otherwise formed, as shown at 5′, so as to receive a crank handle or similar operating device whereby the shaft may be turned to wind the connection thereon and open the chute 2 at its lower discharge end, by raising the gate 3.

A small counter-shaft 8 is arranged beneath the shaft 5, and is mounted in a bearing provided on the side of the car 1 and a second bearing in a bracket 9 attached to the car below the shaft 5. Said shaft 8 has round portions 19 to work in the bearings in which it is mounted and an intermediate square portion on which is adjustably carried the ratchet arm 10 and the hook member 11. It will be apparent that by removing the hook member 11 from the shaft 8 and replacing said member after it has been slightly turned to bring its square opening into a different position with respect to the square portion of the shaft, replacing of the member 11 will permit of taking up slack in the band 14 in an advantageous manner. The ratchet arm 10 is adapted to engage a ratchet wheel 12 keyed or otherwise rigidly secured on the shaft 5, whereby to prevent rotation of the shaft 5 in one direction.

At one side of the ratchet wheel 12 is a brake wheel 13, also rigidly secured to the shaft 5, and having a brake band 14 passing around the same. One end of the brake band 14 is permanently connected to an eye 15 on the hook member 11, while the opposite end of the brake band is formed with a loop 16 adapted to engage over the hook 17 of the member 11. The parts 10 and 14 are so arranged that when the controlling lever 18, carried by the outer square end portion of the shaft 8, is raised or moved so as to tilt the ratchet arm 10 out of engagement with the ratchet wheel 12, the brake band 14 connected with the hook member 11 will be simultaneously placed under tension to cause the same to act on the brake wheel 13. In the above manner the lever 18 permits of lowering the gate 3 by unwinding of the connection 6 from the shaft 5, at a greater or less speed according

to the desire of the operator, and the parts described are advantageously employed to prevent wear and tear incidental to any uncontrolled gravitative movement of the gate 3 when released, and also to control the size of the discharge opening of the chute 2 so that the flow of material discharging through said chute may be regulated.

The brake band 14 may be either a chain or a friction strap and is illustrated as of both types in the several figures of the drawings.

Having thus fully described our invention, what is claimed as new is:—

In combination, a supporting body, a main shaft journaled therein, a ratchet wheel keyed to said shaft, a brake wheel also keyed to the shaft adjacent to the ratchet wheel, a supporting bracket mounted on the body and provided with bearings, a counter shaft having round portions forming journals mounted in the bearings of the bracket, said shaft having square portions intermediate said journals and at one end, a hook member having a square opening to receive the square intermediate portion of the counter shaft and provided with a hook at one end and an eye at the opposite end, a pawl mounted on the intermediate square portion of the counter shaft and having a square opening receiving the same, a lever mounted on the square end portion of the counter shaft for rotating the same to effect simultaneous movement of the hook member and pawl, and a brake band having one end secured to the eye of the hook member and having its other end detachably connected with the hook, said brake band passing around the brake wheel, and the pawl being in engagement with the ratchet wheel.

In testimony whereof we affix our signatures in presence of two witnesses.

DAVID L. KNOWLES.
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Witnesses:
MABEL H. BAIRD,
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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."