

C. F. WEBBER,
 VALVE OPERATING MECHANISM.
 APPLICATION FILED JAN. 28, 1921.

1,437,576.

Patented Dec. 5, 1922.

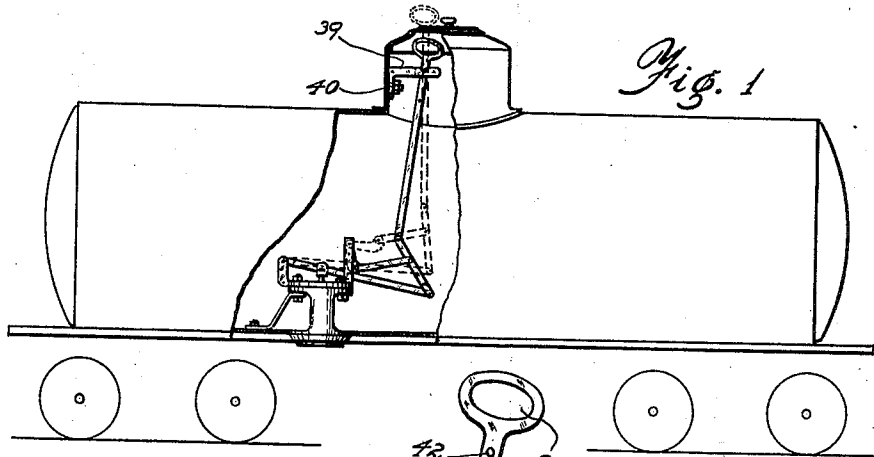


Fig. 1.

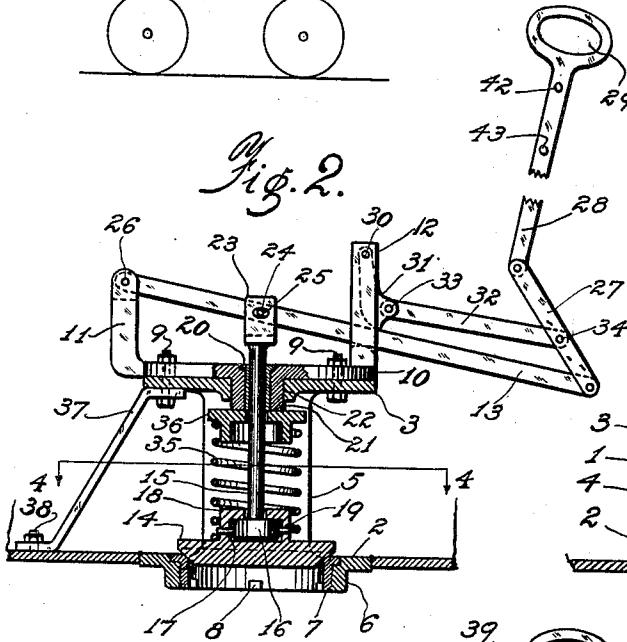


Fig. 2.

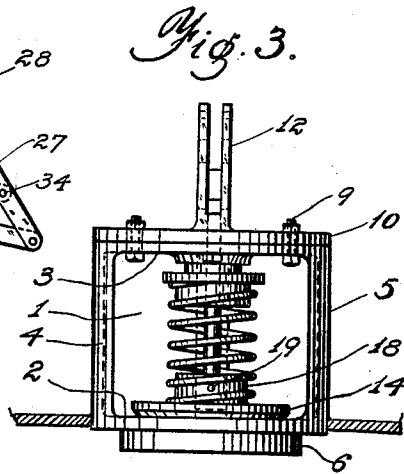


Fig. 3.

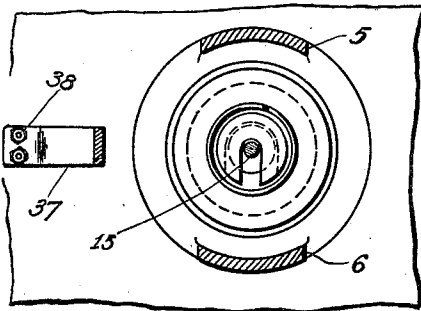


Fig. 4.

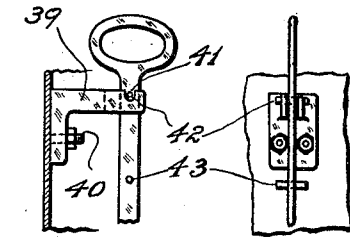


Fig. 5.

Fig. 6.

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UNITED STATES PATENT OFFICE.

CHARLES F. WEBBER, OF PITTSBURGH, PENNSYLVANIA.

VALVE-OPERATING MECHANISM.

Application filed January 28, 1921. Serial No. 440,612.

To all whom it may concern:

Be it known that I, CHARLES F. WEBBER, a citizen of the United States, residing at Pittsburgh, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Valve-Operating Mechanisms, of which the following is a specification.

This invention relates to valve operating mechanisms, especially as applied to discharge valves for railroad car-tanks, or other liquid containers of either the movable or stationary type.

One of the main objects of my invention is to provide a mechanism which will automatically lock a valve when the latter is closed. Another object is to provide a device which will automatically unlock said valve when it is desired to open the valve for discharging the contents of a tank.

A further object is to provide a valve mechanism which is of simple construction and operation and which can be manufactured at a low cost.

Further objects and advantages of my invention will appear from the specification and drawings which form a part of this application.

In the drawings:

Fig. 1 is a general view showing my invention as applied to a railroad car-tank of the usual type.

Fig. 2 is a side elevation, partly in section, showing a valve supplied with my valve operating mechanism.

Fig. 3 is a front elevation of the valve body, with the operating levers omitted.

Fig. 4 is a plan-view of the valve body taken along the line 4-4, Figure 2, and in the direction indicated by the arrows.

Fig. 5 is a fractional side view showing my preferred method of supporting the pull-rod of the operating mechanism.

Fig. 6 is a front elevation corresponding to Fig. 5.

Referring more in detail to the various drawings, my device consists of a valve-housing 1 composed of a circular base 2 and a top 3 supported by the legs 4 and 5 cast integral. The base 2 is provided with the central hub 6 and is suitably bored and threaded to receive a valve seat 7 made of any appropriate material. The sleeve part of the valve seat is provided interiorly with a suitable number of lugs 8 for the purpose of providing adequate gripping means for

tightly screwing the valve seat into the base.

Upon the top of the housing there is securely mounted, by means of the bolts 9, a circular base 10, preferably of the same diameter as the top of the housing, provided with a standard 11 and a guide-post 12 integrally cast thereon. Both of these members are slotted to receive the rockable valve lever 13; the post 12 being slotted down close to its base to provide guiding means for the valve lever over the whole extent of its rocking movement.

A valve 14, made of any suitable material, is connected to the valve-lever by means of the valve stem 15, the lower end of which is provided with a flange 16 which engages the suitably shaped recess 17 provided in the hub 18 of the valve. The valve is preferably secured to the stem in any desired manner, such as by the pin 19 driven through the flange and the valve hub. The valve stem is guided vertically by the bushing 20 introduced in the hub 21, of the upper base; said hub being in turn closely fitted in the opening 22 bored centrally of the top plate of the valve housing.

The upper end of the stem engages the valve lever by means of the bifurcated head 23 and the pin 24 secured in the lever and extending on both sides thereof and through the slotted apertures 25, cut in the head to provide for the longitudinal displacement of the pin, when the lever is rocked.

As stated before, the valve lever is rockably mounted on the post 11 by means of the pin-connection 26. At the outer end of this lever I provide the articulated link 27 the upper end of which connects with the operating, or pull-rod, 28 terminating with the oval-shaped handle 29.

Within the guide-post, there is rockably mounted, on the pin 30, a locking-dog 31, which is operated from the pull-rod 28 by means of the connecting link 32 one end of which is rockably secured to the dog itself, at the pin connection 33 and the other end of which is similarly connected to the link 27 at a point 34, intermediate its ends.

The valve is normally closed by means of the coil-spring 35 placed centrally thereon and guided by the valve-hub 18 and the spring cap 36, resting against the face of the hub 21.

The complete valve apparatus is rigidly mounted, in any suitable manner, flush with the bottom of the tank, in order to enable

the complete drainage of the contents. In the drawings, I have assumed the valve-housing to be secured in the bottom of the car-tank by welding, as this method permits the omission of bolts and insures a leak proof and secure construction.

If desired, the valve is additionally supported such as by the brace 37 secured to the bottom of the tank by the bolt 38, the body of which is also assumed to be welded to the tank.

In Figure 1 I have shown the pull-rod extended sufficiently to reach well within the dome of the tank. The pull-rod is supported and guided therein by means of a bracket 39, securely fastened to the dome-wall by means of the bolts 40. The end of the horizontal arm of said bracket is bifurcated to guide the pull-rod, and is provided at the top with notches 41 for the purpose of receiving two suitably spaced pins 42 and 43 secured in the pull-rod and extending on either side thereof.

My device operates as follows:

To close the valve, the pull-rod is set in the bracket so that the upper pin 42 will engage the notches 41. The compression spring will then force the valve upon its seat and at the same time pull the valve lever down into the position shown in Figure 2 and Figure 1 (full lines). The downward pressure exerted on the pull-rod by the operator will force the link 27 to occupy an inwardly inclined position with the result that the dog 31 will wedge itself tightly against the valve-lever 13 and thereby lock the valve against any attempt to open it from the outside by exerting an upward pressure against the latter.

To open the valve, the operator pulls the pull-rod upwardly and suspends it on the horizontal bracket-arm by placing the lower pin 43 into the notches 41. This movement will first straighten the position of the link 27, thus disengaging the dog 31 from the valve lever 13; the outer end of said lever will then be raised and the valve lifted the required amount off its seat. The relative positions of the various members of my device, corresponding to the open position of the valve, are indicated in Figure 1 in dotted lines.

It will also be noted therein that the pull-

rod is made long enough so as to protrude considerably beyond the top of the dome, thus preventing the closing and sealing of the car-dome while the valve remains open.

It may be found desirable in practice to resort to slight changes in construction and arrangement of the details of my invention without departing from the field and scope of the same, and I intend to include all such variations, as fall within the scope of the appended claims, in this application in which a preferred form only of my invention is disclosed.

What I claim is:

1. In a device of the character described, a housing; a valve mounted therein and acted upon by a spring; a lever rockably mounted above said housing and connected to said valve; a pull-rod; an articulated link connecting said pull-rod to the free end of said lever and a dog swingingly mounted above said housing for selective locking engagement with said lever and rockably connected to, and at a point intermediate the ends of, said link.

2. In a device of the character described, a housing; a valve mounted therein and acted upon by a spring; a lever rockably mounted above said housing and connected to said valve; a pull-rod; an articulated link connecting said pull-rod to the free end of said lever; a dog swingingly mounted above said housing for selective locking engagement with said lever and rockably connected to, and at a point intermediate the ends of, said link and means for holding said pull-rod in any selected operative position.

3. In a device of the character described, a housing; a valve mounted therein and acted upon by a spring; a lever rockably mounted above said housing and connected to said valve; a pull-rod; an articulated link connecting said pull-rod to the free end of said lever; a stationary bifurcated support positioned above said housing and guiding said lever; a dog swingingly mounted within the slot of said support for selective locking engagement with said lever and rockably connected to, and at a point intermediate the ends of said link, and means for holding said pull-rod in any selected operative position.

In testimony whereof I affix my signature.
CHARLES F. WEBBER.