Feb. 16, 1932. L. A. HURLBURT 1,845,277

TOILET CONTROL APPARATUS FOR VEHICLES

Filed April 20, 1931

Fig. 1

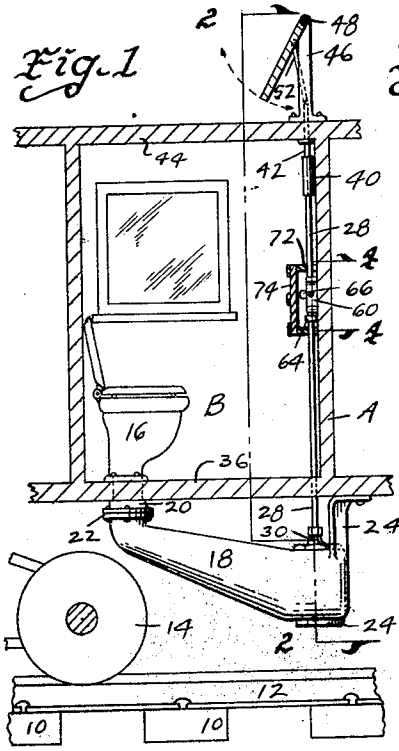


Fig. 2

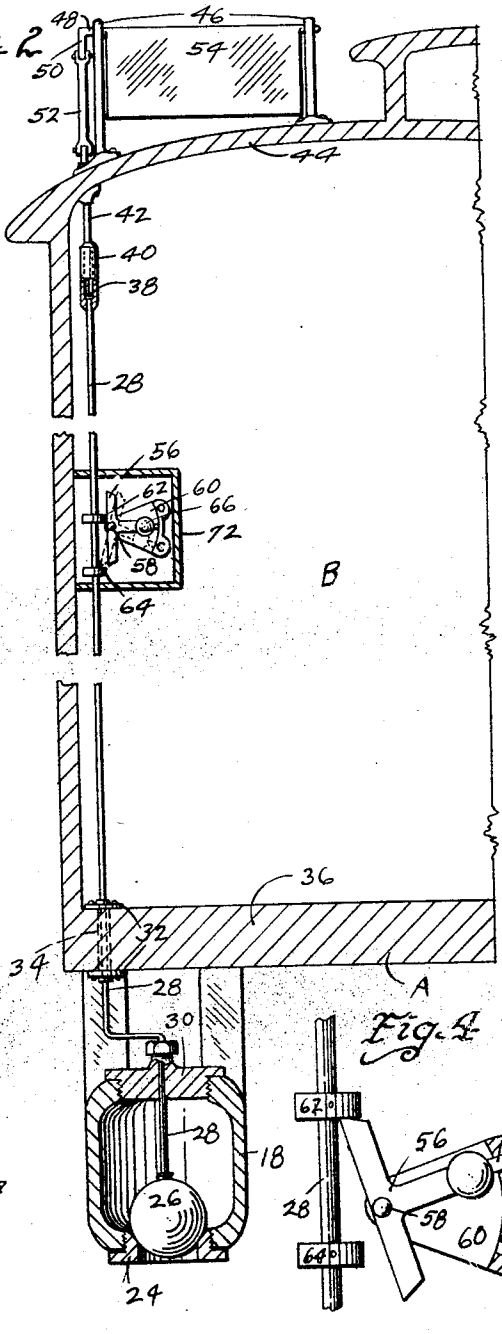


Fig. 3

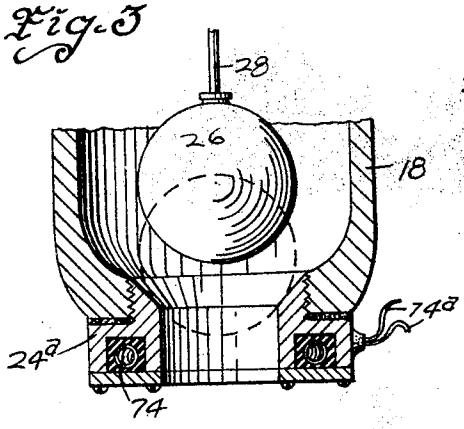


Fig. 4

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TOILET CONTROL APPARATUS FOR VEHICLES

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The object of my invention is to provide a toilet control apparatus for vehicles which is simple, durable and comparatively inexpensive to manufacture.

A further object of my invention is to provide in connection with the toilet stool of a vehicle, such as a train, a vault connected with the discharge pipe thereof, said vault having a discharge valve associated therewith which is normally closed but which is adapted to be opened when the train, when in motion, reaches a predetermined speed.

More particularly it is my object to provide in connection with the vault a normally closed valve and to provide on the roof of the railway car a vane which is pivoted and adapted to be acted upon by air pressure caused by movement of the train, for opening the valve regardless of which direction the train is traveling. Thus a great convenience is overcome, inasmuch as railway cars as used today are provided with toilets which must be locked when the car is within the city limits to comply with the requirements of the board of health.

With these and other objects in view my invention consists in the construction, arrangement and combination of the various parts of my device, whereby the objects contemplated are attained, as hereinafter more fully set forth, pointed out in my claims and illustrated in the accompanying drawings, in which:

Figure 1 is a vertical sectional view through a portion of a railway car showing my toilet control apparatus associated therewith.

Figure 2 is an enlarged sectional view on the line 2—2 of Figure 1 showing an elevation of a portion of the apparatus and a section of the lower part thereof.

Figure 3 is an enlarged sectional view of the lower part of Figure 2 showing a modified construction in which a heating means is provided to prevent freezing of the valve in closed position; and

Figure 4 is an enlarged elevation of a locking means, parts being shown in section, the locking means being provided for the valve of the vault, to lock it in either open or closed position as desired.

On the accompanying drawings I have used the reference numeral 10 to indicate ties supporting a rail 12. A railway car is indicated generally at A and includes a supporting wheel 14 which travels on the rail 12. The toilet compartment of the railway car A is indicated at B and the toilet stool thereof at 16.

My toilet control apparatus involves the connection of a vault 18 with the discharge pipe 20 of the toilet stool 16. The vault 18 may be of any desired capacity and may be suitably supported, for instance, by flanges 22 and brackets 24.

It will be noted that the vault 18 extends at an angle and terminates in an enlarged portion at the right of Figure 1 which is the lowermost portion of the vault. In the bottom of the enlarged portion I provide a valve seat 24 which may be either formed of the material of the vault or may be made separate as shown in Figure 2 for renewal purposes.

For coaction with the valve seat 24 I provide a valve member 26 which may be ball shaped as disclosed, or any other desired shape, and may be formed of any suitable material. Extending upwardly from the valve member 26 is a stem 28 which extends slidably through a packing nut 30 at the top of the enlarged portion of the vault 18. The packing nut 30 is preferably detachable with respect to the vault 18 and of sufficient size to allow withdrawal of the valve member 26 through the opening in the top of the enlarged portion of the vault into which it extends.

The stem 28 extends upwardly through suitable flanges 32 and through an opening 34 in the floor 36 of the toilet compartment B. It terminates in a head 38 located within a closed tube 40 which is secured to an extension 42 of the stem 28. The extension 42 extends slidably through the roof 44 of the railway car A.

Pivotally supported in brackets 46 on the roof 44 is a rod 48 having a crank arm 50. The crank arm 50 is operatively connected by a link 52 with the sliding extension 42. A

vane 54 is arranged transversely of the railway car A and is secured to the rod 48 for rotating the same whenever the vane 54 is swung with respect to the brackets 46.

In the operation of the device the valve member 26 is normally closed because of the weight thereof and because of the weight of the stem 28. If found necessary, spring means can also be used for keeping the valve 26 in closed position, or seated against the valve seat 24. When a train is traveling within the city limits, it seldom travels faster than twenty-five or thirty miles per hour. The parts can be proportioned and the spring just referred to can be made adjustable, if used, whereby the vane 54 will swing the rod 48 as shown in Figure 1 only after the train has reached a speed of thirty or thirty-five miles per hour. This speed can be regulated as desired by the size of the vane 54 and the weight of the parts comprising the valve structure.

A telescoping connection comprising the head 38 and the tube 40 is provided so that the valve 26 can be opened independent of the action of the vane 54. It may then be locked in an open position by means of a T-shaped lock member 56 which is pivoted at 58 to a bracket 60. The lock member 56 as shown in Figure 4 engages under a collar 62 on the stem 28 when the stem is placed in a raised position. The valve 26 can be locked in a closed position by swinging the lock 56 in an opposite direction while the valve is closed whereupon the lock will engage above the collar 64 on the stem 28.

A latch knob 66 is provided on the lock 56 for actuating a slidable lug 68 which is adapted to coact with any one of three recesses 70 in the bracket 60, for thus holding the lock 56 in the desired position. As clearly illustrated on the drawings, the lock 56 can assume a central, neutral position or a position for locking the valve closed as shown by dotted lines in Figure 2, or may assume a position for locking the valve 26 open as shown in Figure 4.

The lock 56 is preferably positioned in a casing 72 which is provided with a door 74. The door 74 can be provided with a suitable lock so that unauthorized access to the lock member 56 cannot be had except by an employee of the railway company who has a key to open the door 74.

The purpose of the lock 56 is so that the valve 26 can be locked open for the purpose of flushing out the vault 18 when the railway attendant cleans up the car or for locking the valve closed when desired.

In Figure 3 I have shown a means for heating the valve structure so that it will not freeze in cold weather, whereby it may always be operated in the automatic manner intended. A valve seat 24*a* is illustrated which has a heating element 74 therein which can be supplied with electric current from any suitable source of supply. Steam pipes can be substituted for the heating element 74 or any other heating means may be provided. Instead of being arranged in the plug 24*a*, the heating element 74 could be arranged within the valve 26 itself.

Some changes may be made in the construction and arrangement of the parts of my device without departing from the real spirit and purpose of my invention, and it is my intention to cover by my claims, any modified forms of structure or use of mechanical equivalents which may be reasonably included within their scope.

I claim as my invention:

1. In a toilet control apparatus for vehicles, a vault connected with the discharge pipe of a toilet stool, said vault having a valve controlled discharge opening and vane means depending on air pressure created by the speed of the vehicle and operatively connected with said valve controlled discharge opening for opening and closing it, the operative connection including a telescoping joint to permit operation of the valve controlled opening independent of said vane.

2. In a toilet control apparatus for vehicles, a vault connected with the discharge pipe of a toilet stool, said vault having a valve controlled discharge opening, means depending on the speed of the vehicle for opening and closing said valve controlled discharge opening, said means including a movable stem having a collar thereon and means for locking said valve in closed position comprising a movable member to form an obstruction for said collar and thereby prevent movement of said stem to open position.

3. In a toilet control apparatus for vehicles, a vault connected with the discharge pipe of a toilet stool, said vault having a valve controlled discharge opening, means depending on the speed of the vehicle for opening and closing said valve controlled discharge opening, said means including a movable stem having a collar thereon and means for locking said valve in open position comprising a movable member to form an obstruction for said collar and thereby prevent movement of said stem to closed position.

4. In a toilet control apparatus for vehicles, a vault connected with the discharge pipe of a toilet stool, said vault having a valve controlled discharge opening, means depending on the speed of the vehicle for opening and closing said valve controlled discharge opening, said means including a movable stem having a pair of collars thereon and means for locking said valve in closed and open positions comprising a movable member to form an obstruction for said col-

lars and thereby prevent movement of said stem to open and closed positions.

5. In a toilet control apparatus for vehicles, a vault connected with the discharge pipe of a toilet stool, said vault having a valve controlled discharge opening including a movable valve member, a stem extending upwardly therefrom and a vane on the roof of said vehicle operatively connected with said stem to open said valve when air pressure on said vane exceeds a predetermined degree, said stem having a telescoping joint to permit operation of said stem independent of said vane.

Des Moines, Iowa, April 9, 1931.

LEW A. HURLBURT.