April 21, 1931. F. P. LIVINGSTON 1,801,816

ANGLE COCK DEVICE

Filed July 7, 1928

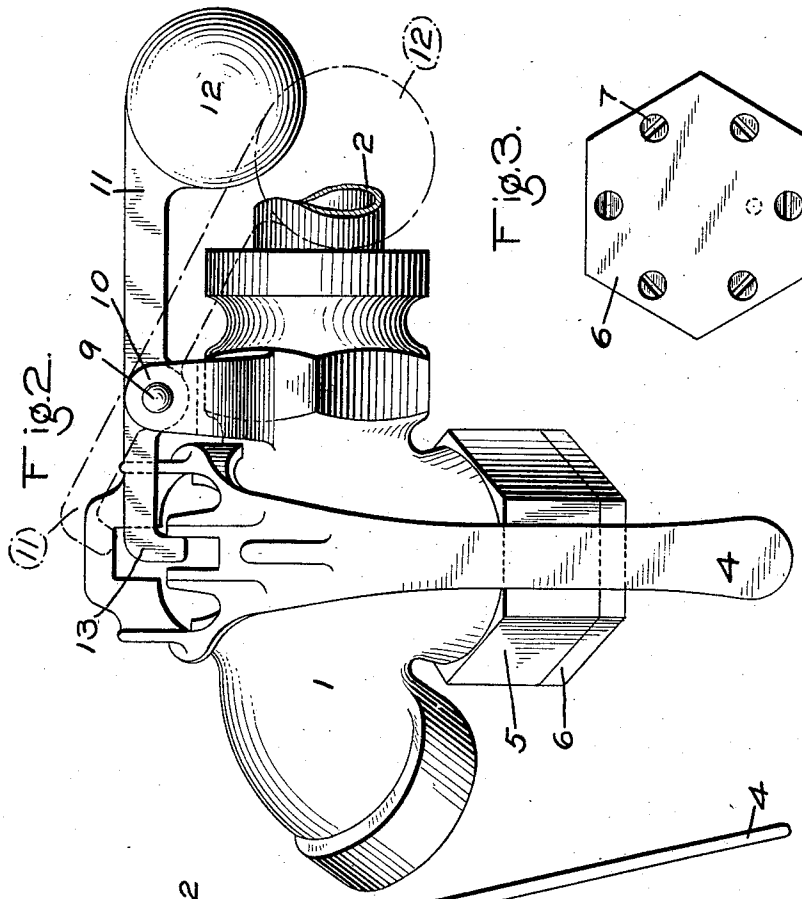


Fig. 2.

Fig. 3.

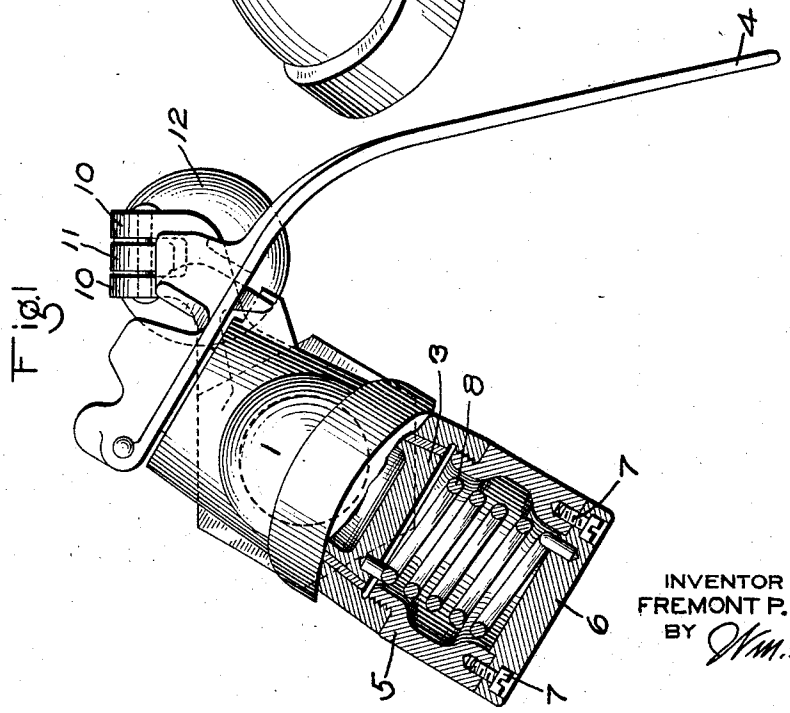


Fig. 1.

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UNITED STATES PATENT OFFICE

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ANGLE-COCK DEVICE

Application filed July 7, 1928. Serial No. 291,107.

This invention relates to angle cocks for railway cars and more particularly to those of the self opening type.

In railway train service, and more particularly in railway passenger train service, when the adjacent ends of two coupled cars are to be uncoupled, the trainman closes the angle cock on each car to close off the flow of fluid under pressure through the usual air hose between the cars, then uncouples the usual hose couplings and attaches each hose coupling to a dummy hose coupling carried by the respective car.

Should two cars, whose hose couplings have been thus attached to dummy hose couplings, be coupled together, and the trainman forget to open the angle cocks after he has connected the hose couplings, the cars at one side of the coupling would be supplied with fluid under pressure, while those at the other side would not, consequently the fluid pressure brakes on the cars not supplied could not be operated, and the operation of the train would be rendered very dangerous.

The principal object of my invention is to provide an angle cock which, if closed, will automatically open when the train is subjected to the usual service shocks, thus eliminating the aforementioned objectionable features.

Other objects and advantages will appear in the following more detailed description of my invention.

In the accompanying drawing; Fig. 1 is an end elevational view of an angle cock, a portion of which is shown in section; Fig. 2 is a side elevational view of the angle cock; and Fig. 3 is a bottom view of a portion of the angle cock.

As shown in the drawing, the angle cock may comprise a casing 1 which has screw-threaded connection with the usual train pipe 2, and has the usual fluid pressure conducting passage therethrough, the opening and closing of which is controlled by a rotatable plug valve 3.

For rotating the plug valve to its closed position, a handle 4 is provided which is secured to the usual squared upper end portion of the valve.

Extending below the plug valve and having screw-threaded connection with the casing 1, is a tubular member 5, the lower end of which is closed by a plate or cap 6 which is secured to the member by suitable removable means, such as screws 7.

Contained in the member 5 is a torsion spring 8 having its upper end anchored to the lower end of the valve 3 and its lower end anchored to the cap 6, and is adapted to resist the closing movement of the valve.

Fulcrumed on a pin 9 which is mounted in spaced lugs 10, preferably formed integral with the casing 1, is a lever 11, having at one end an enlargement 12 and at the other end a downwardly extending lug 13, which lug is adapted to be moved manually into temporary locking engagement with the handle 4 when the plug valve is in closed position.

The enlargement 12 is of such a weight that, when the lug 13 is not in locking engagement with the handle 4, it will, due to gravity, maintain the lever in its unlocked position, as shown in dot and dash lines in Fig. 2. The weight of the enlargement 12 alone, is not sufficient to overcome the functional resistance between the lug 13 and handle 4, caused principally by the tendency of the spring 8 to rotate the valve 3 and handle 4 toward their open positions, but is almost great enough to overcome this resistance, so that any of the usual service shocks to which a railway car is subjected, will cause the weighted end of the lever to move downwardly, thus releasing the handle 4 and permitting the torsional force of the spring to return the valve 3 and handle 4 to their open positions.

It will thus be noted that with an angle cock constructed in accordance with my invention, no serious results will attend the accidental or malicious closing of an angle cock or cocks, or the trainman's failure to open the angle cocks after coupling together the air hose of adjacent cars, for the first shocks to which the train is subjected will be sufficient to cause the lever 11 to be moved out of engagement with the handle 4, at which time the force of the spring 8

returns the handle and valve to their closed positions.

The spring 8 is under initial torsion, but should it be desired to adjust the torsion, the screws 7 may be removed and the cap 6 rotated either toward the left hand to increase the torsion or toward the right hand to decrease it.

While one illustrative embodiment of the invention has been described in detail, it is not my intention to limit its scope to that embodiment or otherwise than by the terms of the appended claims.

Having now described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. The combination with a train brake pipe, of an angle cock operative to control communication through said pipe at the end of a car and comprising a casing having a fluid conducting passage therethrough, a valve operative to control communication through said passage, manually operable means for moving said valve to its closed position, means for automatically moving said valve to its open position, and means for temporarily locking said valve in its closed position, said means being operable by the force of gravity to unlock said valve.

2. The combination with a train brake pipe, of an angle cock operative to control communication through said pipe at the end of a car and comprising a casing having a fluid conducting passage therethrough, a valve operative to control communication through said passage, manually operable means for moving said valve to its closed position, means for locking said valve in its closed position and operative to its unlocking position by the force of gravity, and means for automatically moving said valve to its open position when said valve is unlocked.

3. The combination with a train brake pipe, of an angle cock operative to control communication through said pipe at the end of a car and comprising a casing having a fluid conducting passage therethrough, a valve operative manually for closing communication through said passage and automatically for opening communication through said passage, and means for temporarily locking said valve in its closed position, said means being subject to the force of gravity to unlock said valve.

4. In an angle cock, the combination with a casing therefor having a fluid conducting passage therethrough, of a valve operative manually for closing communication through said passage and automatically for opening communication through said passage, and means for temporarily locking said valve in its closed position, said means being subject to the force of gravity superinduced by a service shock to unlock said valve.

5. In an angle cock, the combination with a casing therefor having a fluid conducting passage therethrough, of a valve operative to control communication through said passage, a handle operative manually for moving said valve to its closed position, a torsion spring for moving said valve and handle to their open positions, a member movable into locking engagement with said handle when said valve is in its closed position, said member being movable out of locking engagement with said handle by the force of gravity superinduced by a service shock.

6. In an angle cock, the combination with a casing therefor having a fluid conducting passage therethrough, of a valve operative to control communication through said passage, a handle operative manually for moving said valve to its closed position, a torsion spring for moving said valve and handle to their open positions, a member movable into locking engagement with said handle when said valve is in its closed position, and means carried by said member subject to the force of gravity superinduced by a service shock for operating said member out of locking engagement with said handle.

7. In an angle cock, the combination with a casing therefor having a fluid conducting passage therethrough, of a valve operative to control communication through said passage, a handle operative manually for moving said valve to its closed position, a torsion spring for moving said valve and handle to their open positions, a member movable into locking engagement with said handle when said valve is in its closed position, and a weight carried by said member and subject to service shocks for moving said member out of locking engagement with said handle.

8. In an angle cock, the combination with a casing having a fluid conducting passage therethrough, of a valve operative manually to close communication through said passage, a torsion spring for operating said valve to its open position, and means for adjusting the force of said spring.

9. In an angle cock, the combination with a casing having a fluid conducting passage therethrough, of a valve for controlling communication therethrough, a handle manually operative to move said valve to its closed position, a spring anchored to said valve and casing adapted to move said valve to its open position, a lever fulcrumed on said casing movable into locking engagement with said handle to hold said valve in closed position against the force of said spring, and means carried by said lever subject to the force of gravity superinduced by a service shock for moving said lever out of locking engagement with said handle to permit said valve to be moved by the force of said spring to its open position.

10. An angle cock device comprising a normally open valve, a handle for operating said valve to its closed position, a locking device for locking said handle and valve in their closed positions, and means operative upon the release of said locking device for automatically moving said valve to its normal open position.

11. An angle cock comprising a normally open valve, a handle for operating said valve to its closed position, a locking device for locking said handle and valve in their closed positions and operative to its normal unlocked position by the effect of gravity supplemented by the effect of a shock, and means operated upon the release of said locking device for automatically moving said valve to its normal open position.

In testimony whereof I have hereunto set my hand, this 28th day of June, 1928.

FREMONT P. LIVINGSTON.