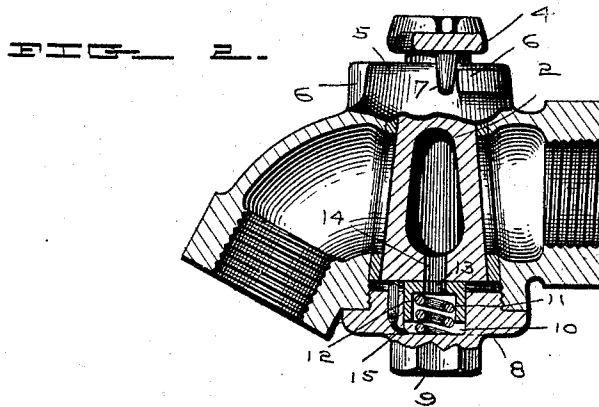
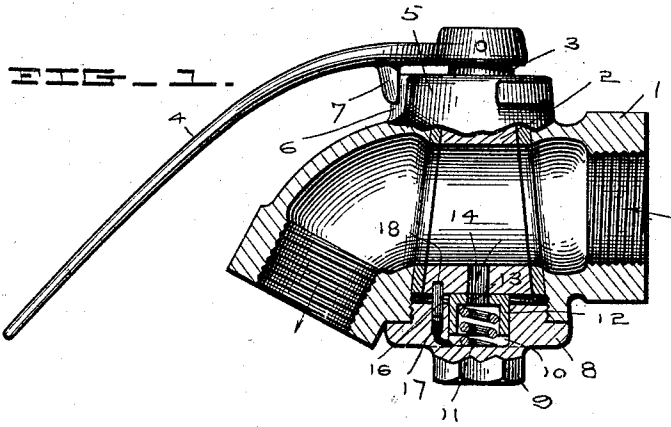


(No Model.)

A. R. HOY & H. D. HARRIS.
VALVE LOCK.

No. 537,773.

Patented Apr. 16, 1895.



Witnesses

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UNITED STATES PATENT OFFICE.

ASA R. HOY AND HIRAM D. HARRIS, OF INDIANAPOLIS, INDIANA; SAID
HOY ASSIGNOR TO VIRGIL H. LOCKWOOD, OF SAME PLACE.

VALVE-LOCK.

SPECIFICATION forming part of Letters Patent No. 537,773, dated April 16, 1895.

Application filed July 1, 1893. Serial No. 479,410. (No model.)

To all whom it may concern:

Be it known that we, ASA R. HOY and HIRAM D. HARRIS, of Indianapolis, county of Marion, and State of Indiana, have invented
5 certain new and useful Improvements in Valve-Locks; and we do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, in which like numerals refer
10 to like parts.

Our invention relates to the means of automatically locking a valve in a compressed air, steam or similar pipe and particularly the angle cock in air brakes.

15 Heretofore while a train was on the road, any person wilfully or otherwise, could close the angle cock and cut out or render inoperative the brake of any particular car or cars. If such person should close the angle cock on
20 the front car, the engineer would lose control of the entire train, as has often been the case, and which has often caused wrecks destructive of many lives. It is therefore our object to provide a means whereby the pressure of
25 the air in the train pipe will automatically lock the valve or angle-cock, and when such air pressure is removed, whether for attaching a car or otherwise, such angle-cock is automatically unlocked. It is thus seen that
30 since there is strong air pressure in the train pipe while the train is being operated or run, the angle-cock will always be locked during such running or operation, so that no tramp or other person, either wilfully or innocently,
35 can close the valve and cut out or render inoperative the brake of any car or cars, or otherwise by this means affect the engineer's control over the air brake system of his train.

The essential feature of the means we have
40 invented to accomplish this object consists in seating a movable locking pin in the cap or valve seat which pin when uplifted will engage and lock the valve, and in providing a small air passage way leading from the main
45 air passage way in the pipe to the lower end of the locking pin seat, so that the pressure of the air entering this small passage way will thrust the pin up, and when there is no pressure the pin will drop down to its seat. Any
50 mode of providing this small passage way to

the pin so the air on entering it will push the pin upward will suffice.

The form we have adopted and the other features of our invention will appear fully from the following description and the accom-
55 panying drawings.

Figure 1 is a longitudinal section of a portion of the train pipe, showing the angle-cock locked by the means we have invented. Fig. 2 is a longitudinal section of the same showing the angle-cock closed for the purpose of
60 cutting out the brake and therefore is unlocked, the handle or turn-key being cut away.

1 is a train pipe, being the portion found near the end of the car in which the angle-cock or plug valve 2 is fitted. The angle-cock is shaped like the frustum of a cone, and has at its top a squared end or head 3, on which the handle or turn-key 4 is fitted and keyed. This handle 4 is for the purpose of rotating
70 the angle-cock or valve. On top of the train pipe where the angle-cock is located is an extension or shoulder 5 on which the handle rests. This extension or shoulder 5 is provided with lugs 6, so located as to engage with
75 the lug 7 on the under side of the handle and permit the handle to be moved but one fourth of the way around. When the valve is open the handle extends parallel with the train pipe, and when the valve is closed it extends at a
80 right angle to the train pipe. 8 is a cap to hold the valve or angle-cock in place and is screwed into an opening in the train pipe into which the angle-cock is fitted. It is provided with a
85 nut head 9 to enable it to be screwed in tightly or removed. The cap 8 of the angle-cock or valve is centrally bored out, at 10 to form a chamber. Within this there has heretofore
90 been located a spiral spring 11, whose function has been to bear against the under side of the valve in order to keep it up in its place and render the joint air tight. The mechanism so far described is the ordinary form of the angle-cock mechanism found in air brakes
95 now in use, and therefore to it we make no claim of invention. We place over this spiral spring 11, a plunger or hood 12 so made as to have sufficient vertical play. The upper part of the plunger or hood 12 is provided with a port at 13 which registers with a port at 14
100

extending through the lower part of the valve. We then provide a passage way at 15 extending from the lower part of the chamber at 10 in the cap 8 which aperture or passage way at 15 turns and passes upward through the wall of the cap 8 and in the vertical portion of which rests a locking pin 16. The passage way or opening at 15 is narrower below the pin 16 in order to form a seat 17 for the pin. Registering with this opening at 15, when the valve is open, is a key hole at 18 in the under side of the valve, large enough to admit the upper end of the pin 16.

From the description it will be at once apparent that while there is a strong air pressure in the train pipe, the air will pass down through the port at 14 in the lower part of the valve and through the port at 13 in the upper side of the plunger or hood 12 into the space below such hood in the chamber at 10 and into the passage way at 15, where the pressure of the air, which here is as great as any place in the train pipe, will thrust the pin 16 upward and into the hole at 18 in the valve, as shown in Fig. 1, and, since the cap 8 is rigid, will lock the valve in an open position, so no person can operate the handle 4 until the air pressure is removed. When, however, the air pressure is removed, the weight of the pin 16 will cause it to drop back to its seat, as shown in Fig. 2, and the valve will then be unlocked. The joint between the under side of the valve and the upper side of the hood or plunger 12, is a ground joint, and since the spiral spring 11 thrusts the hood 12 against the valve, the air cannot escape in to the space between the valve and the cap 8, to interfere with the upward movement of the pin 16.

This valve lock will operate equally well in any pipe used to transmit gases or fluids under pressure to automatically lock the valve

while the pressure is on and automatically unlock it when the pressure is removed.

What we claim as our invention, and desire to secure by Letters Patent, is—

1. In combination with a pipe, a valve therein, a removable cap, a locking pin seated loosely in such cap and adapted when actuated to engage and lock the valve, and a passage way from the chamber in the valve to such locking pin, substantially as shown and described.

2. In combination with a pipe, a valve therein provided with an auxiliary port, a removable cap provided with a chamber registering with such port, a locking pin resting in a suitable seat in such cap and adapted to lock the valve seat to its surrounding wall, and a passage way from the chamber in such cap to the locking pin, substantially as shown and described.

3. In combination with a pipe, a valve therein provided with an auxiliary port and also a hole in the lower side thereof, a cap provided with a chamber, a spiral spring in such chamber, a hood mounted on such spring and adapted to bear against such valve and provided with a port registering with a port in the valve, a locking pin resting in a suitable seat in the cap and adapted when moved upward to engage the hole in the lower side of the valve, and a passage way from the chamber in the cap to the locking pin, substantially as shown and described.

In witness whereof we have hereunto set our hands this 9th day of June, 1893.

ASA R. HOY.
HIRAM D. HARRIS.

Witnesses:
V. H. LOCKWOOD,
N. D. TILFORD.