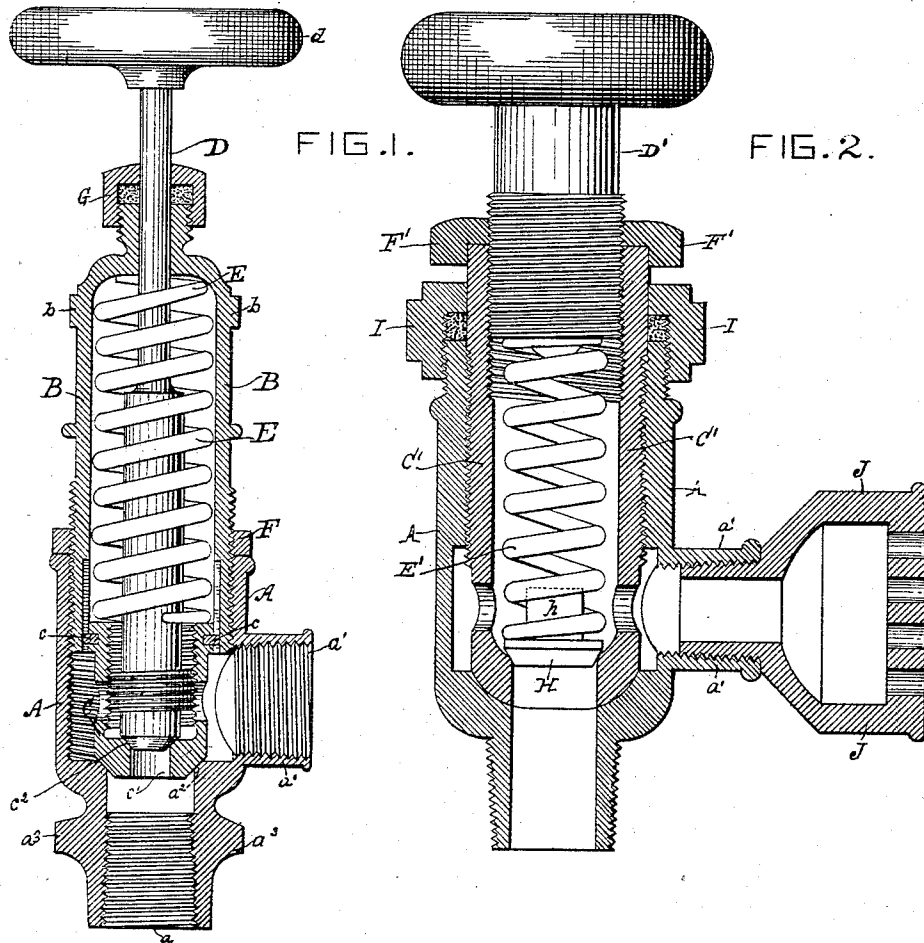


(No Model.)

F. SCHREIDT.
AUTOMATIC RELIEF VALVE.

No. 433,543.

Patented Aug. 5, 1890.



Witnesses
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UNITED STATES PATENT OFFICE.

FRANK. SCHREIDT, OF MANSFIELD, OHIO.

AUTOMATIC RELIEF-VALVE.

SPECIFICATION forming part of Letters Patent No. 433,543, dated August 5, 1890.

Application filed February 24, 1890. Serial No. 341,611. (No model.)

To all whom it may concern:

Be it known that I, FRANK. SCHREIDT, a citizen of the United States, and a resident of Mansfield, in the county of Richland and State of Ohio, have invented certain new and useful Improvements in Combined Cylinder-Cocks and Automatic Relief-Valves, of which the following is a specification.

The object of my invention is to provide a cylinder-cock with an automatic relief-valve, which may be readily set to open at any pressure desired.

The invention consists in the peculiar arrangement and combination of the parts illustrated in the accompanying drawings, in connection with which the invention will be first fully described, and then particularly referred to and pointed out in the claims.

Referring to the drawings, in which like parts are indicated by similar reference-letters wherever they occur throughout the various views, Figure 1 is a diametrical section of my preferred form of cylinder-cock. Fig. 2 is a similar view through a modified form of the same.

Referring first to Fig. 1, the valve-case A, which is cylindrical in form, has an interiorly-screw-threaded extension a for attachment to a steam-cylinder or other article to which a relief-cock is applicable or desirable. The extension a may be exteriorly screw-threaded to be applied directly to the cylinder instead of interiorly threaded to be secured upon the end of a nipple or pipe which communicates with the cylinder. The valve-case has also the customary exhaust-port a' , which is interiorly screw-threaded to receive a pipe to carry the exhaust to any place desired. The upper portion of the shell or case A is interiorly screw-threaded to engage the exterior threads upon the lower portion of the cylindrical shell B. The valve C is also an interiorly-screw-threaded shell. The lower portion is turned off to bear truly upon the valve-seat a^2 when closed down in the position shown, and the upper portion is provided with guide-pins c , which project into vertical grooves in the cylinder B to prevent the shell C from turning with the valve-rod D, the lower screw-threaded portion of which engages the interior screw-threads within the cylindrical portion of the valve C.

The lower end of rod D is a valve to open or close the port c' in the lower end of shell C. The shell C is perforated above its interior valve-seat c^2 to form education-ports, which lead to the exhaust branch a' .

The automatic relief-valve C is forced and held upon its seat a^2 by a spring E, which is coiled around the rod D and compressed between the top of cylinder B and the top edge of the shell C.

It will be seen that when the ports are in the position shown in Fig. 1 the port through extension a is controlled by the pressure of spring E and the pressure of this spring is regulated by screwing the cylinder B farther into or out of the case A. When the spring is regulated to the pressure desired, the parts are locked in position by the jam-nut F, which is fitted to the exterior screw-threaded portion of shell B. The exterior of nut F is angular to receive the jaws of a wrench or key, by which it is forced against the top edge of the case A or released therefrom. The bosses b on cylinder B and the boss a^3 on extension a are also angular, so that the parts may be adjusted to position by a wrench. G is a packing-nut to prevent the escape of steam from the top of cylinder B.

To adjust my automatic relief-valve to the pressure desired, (assuming the device to be secured to a steam-cylinder and the interior valve closed,) the jam-nut F is loosened and steam raised to the required pressure, as indicated by a gage. The cylinder B is now adjusted inwardly until the pressure of the spring E closes the valve C down upon its seat a^2 . The jam-nut F is forced against the top edge of case A, firmly locking the case A and cylinder together. Now should the pressure be increased the relief-valve or cylinder C would be lifted and held from its seat a^2 until the excess of pressure is reduced, when the valve will be automatically closed by its spring E.

It will be seen that the opening through port c' is controlled by the hand-valve D through hand-wheel d , and that this valve is entirely independent of the automatic relief-valve C, so that no matter at what pressure the automatic relief-valve is "set" the hand-valve is operated precisely the same as the common cylinder-cock.

The form shown in Fig. 2 differs from that shown in Fig. 1, in that the automatic relief-valve is the inner instead of the outer valve, the outer valve being the one which is operated by the hand-wheel. The cylinder C', the lower end of which forms the hand-valve, extends up through and above the outer case A', and is interiorly screw-threaded at its upper end to engage the exteriorly-screw-threaded portion of the hand-wheel rod D'. The automatic relief-valve H is held to its seat within the cylinder C' by the spiral spring E', which presses upon the back of the valve H, and is compressed between the valve and lower edge of the hand-rod D'. The valve H has an upwardly-projecting stem h, which enters the coils of the spring and holds the valve true.

The tension of the spring is regulated by screwing the rod D' farther into or retracting it from the cylinder C'. When the valve is adjusted to the proper tension, the rod D' and cylinder C' are firmly locked together by the jam-nut F'.

I is a packing-nut screwed onto the top of the case A, and J is a perforated rose-head, the shank of which is screwed into the branch a'. Its object is to break the volume of the steam when discharged into the room instead of being carried to the outside.

My device is designed mainly as a cylinder-cock; but owing to its compactness, simplicity of construction, and durability it is well adapted for a relief-valve for steam-registers and other steam appliances.

What I claim is—

1. The combination of the valve-case, a main valve and spring-pressed relief-valve, one within the other within said case, said

relief-valve being arranged to operate independently of the main valve, and means, such as shown, to regulate the pressure with which the relief-valve is held to its seat, a hand-wheel or similar means to operate the main valve, each valve being movable in relation to its seat independently of the other, substantially as shown and described.

2. The combination, substantially as hereinafore set forth, of the outer case interiorly screw-threaded and having a valve-seat, as a², an exteriorly-screw-threaded cylinder longitudinally adjustable within said case, a jam-nut for locking the outer case and inner cylinder when adjusted, a hand-valve and spring-pressed relief-valve, one within the other, the coiled spring bearing upon the relief-valve, the hand-valve rod extending through the inner cylinder, and a hand-wheel to operate said valve independently of the relief-valve.

3. The combination of the two cylinders A B, movable one within the other, the relief-valve C, movable longitudinally within the inner cylinder and having pins to prevent it from rotating, a spring to hold the valve C to its seat, the tension of said spring being regulated by moving the cylinders A B one within the other, the jam-nut to lock said cylinders, and the hand-valve within the relief-valve having its rod D extending through the spring, and cylinders to actuate said valve independent of the relief-valve C, substantially as shown and described.

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