(No Model.)

R. REED & C. E. LOETZER.

AUTOMATIC CYLINDER COCK.

No. 294,334. Patented Feb. 26, 1884.

Fig. 1.

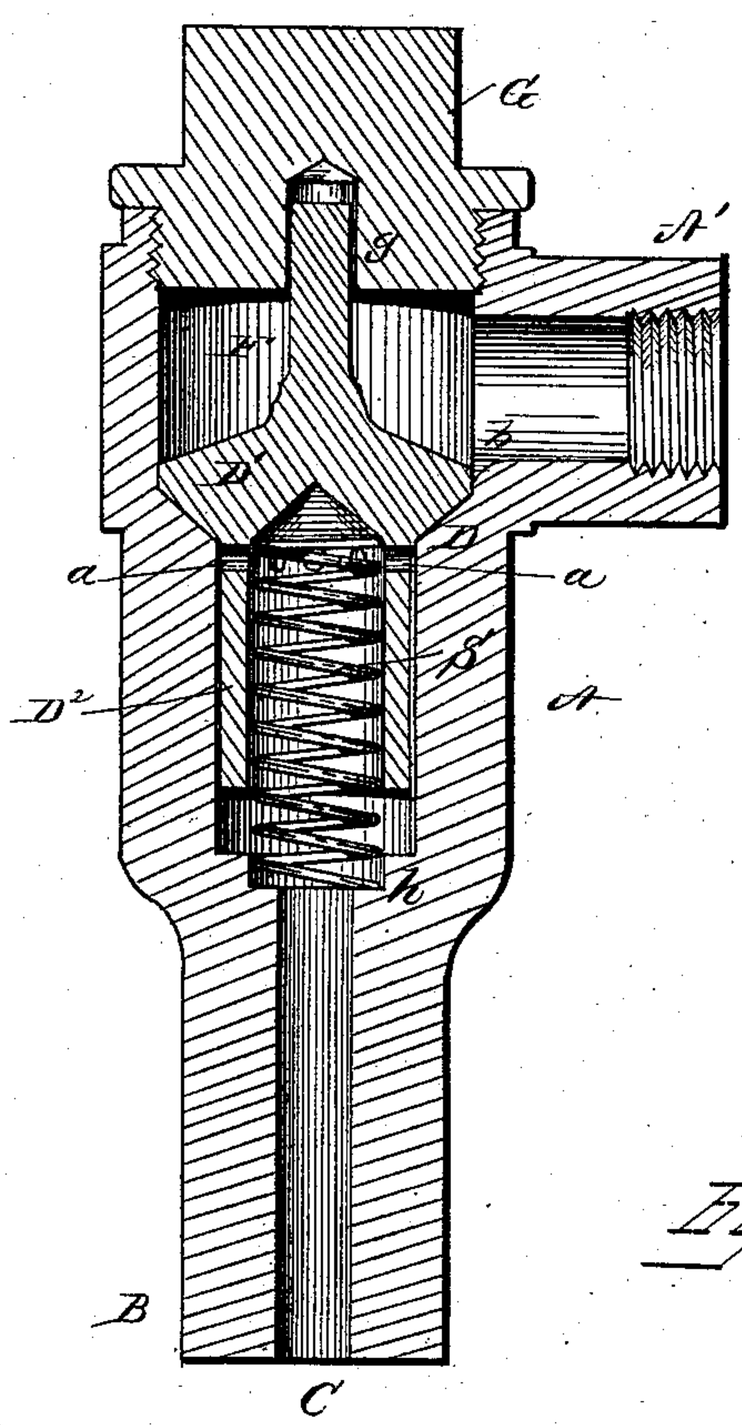


Fig. 2.

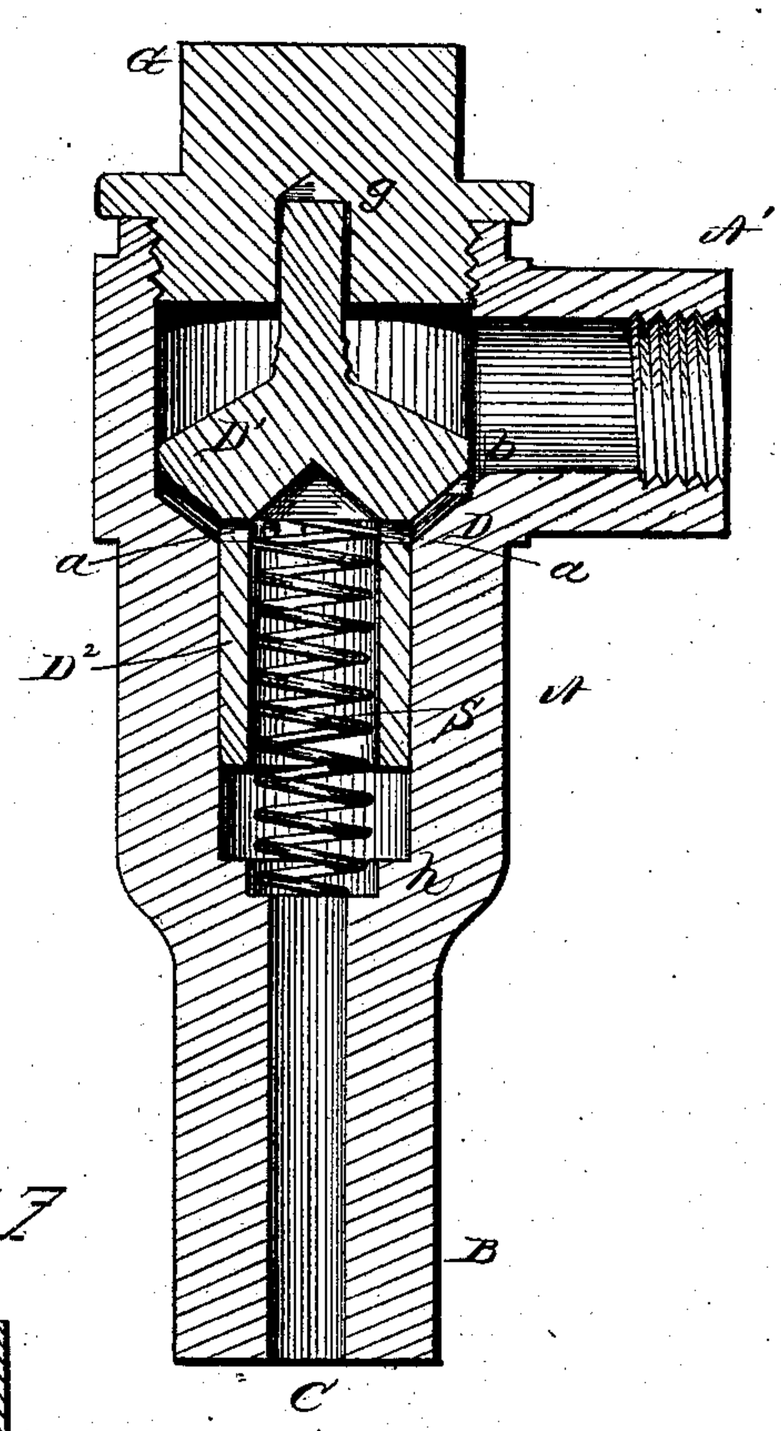
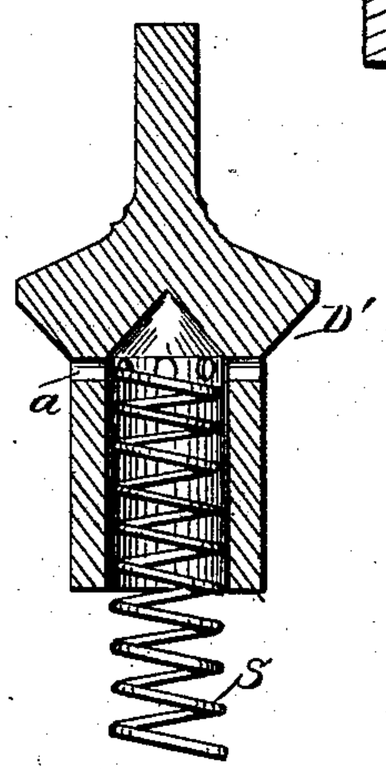


Fig. 3.



WITNESSES

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ROBERT REED AND CHRISTIAN E. LOETZER, OF WILLIAMSPORT, PA.

AUTOMATIC CYLINDER-COCK.

SPECIFICATION forming part of Letters Patent No. 294,334, dated February 26, 1884.

Application filed August 22, 1883. (No model.)

To all whom it may concern:

Be it known that we, ROBERT REED and CHRISTIAN E. LOETZER, said REED a citizen of the United States, and said LOETZER a native of Germany, and both residing at Williamsport, in the county of Lycoming and State of Pennsylvania, have invented certain new and useful Improvements in Automatic Cylinder-Cocks; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

Figure 1 is a vertical diametrical section of the improved cylinder-cock, showing the valve down on its seat. Fig. 2 is a similar view of the same parts, showing the valve raised to allow the water of condensation to escape through the waste-pipe. Fig. 3 is a diametrical section of the valve detached from its base.

This invention relates to steam valves or cocks for cylinders which are strictly automatic in their movements, and which may be controlled by a spring or by a weight; and it consists in a puppet-valve or cock of peculiar construction, which will automatically open and close as the pressure in the cylinder increases or diminishes according to a given set of the valve, as will be fully understood from the description following, when taken in connection with the annexed drawings.

Before describing our invention we will state that our main object is to prevent water from collecting in the cylinder, which will take place with stop-cocks now in use.

One of the devices which we are about to describe will be attached to each end of the cylinder.

A designates the shell or body of the valve-box, which we cast entire with a branch, A′, at right angles to it, properly screw-threaded for pipe-connection, and an outlet-stem, B, for the escape of surplus water and water of condensation, from which a waste-pipe conducts off the water by way of a pipe connected to the lower end of B at C.

The inlet-pipe to the body of the instrument is preferably made of a uniform diameter to the mouth of its discharge, where, at *b*, we direct it downward, as shown in Fig. 1, for the purpose of preventing a check in the downflow of the water. The top of the main portion of the body of this valve-box A which we have described is internally screw-threaded, and into this is steam-fitted a male screw-cap, G, having a guide-hole, *g*, centrally in it. Concentrically located below the said guide-hole, and formed inside of the neck B, is a stricture, which presents a shoulder, *h*. Above this stricture or shoulder, and at the lower terminus of the interior of the enlarged portion of the body A, is an annular valve-seat, D.

D′ designates a tapered valve, which is adapted to fit snugly the valve-seat D, and which has formed on it a cylindrical skirting or guide-tube, D^2, perforated at *a*, and provided with a central stem, F. The perforated valve-tube is fitted to move up and down in the bored-out guide-tube or skirting B, and the upper end of the valve-stem F is fitted into the central guide-hole, *g*, in the screw-cap G. The guide-tube D^2 is perforated at numerous points, *a*, near the beveled portion of the valve D′, for the purpose of allowing a quick escape of steam and water of condensation as the valve rises.

S designates a spring of the helical kind, which is adjusted between the shoulder *h* of the discharge-stem of the waste-pipe and the tops of the bore of the guide-tube D^2. This spring is designed to lift the valve when the steam is below a given predetermined pressure, and to allow a free escape of water produced from condensation. When steam is pressing on top of the valve, the latter will be forced down upon its seat and prevent the escape of the steam. When the pressure of steam is less than the upward pressure against the valve, this valve will again open and permit the water to escape. We thus have a positive automatic stop-valve, which will stand open when the engine is still and permit a free escape of water.

Having described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In combination with a valve-box cast entire, and having a vertical branch bored out, and constructed with a valve-seat, D, and a horizontal branch, the screw-cap G, and a

valve having a perforated hollow skirting on one end and a valve-stem on the other end, substantially as described.

2. In an automatic cylinder-cock, a puppet-valve having a skirting which is perforated at *a*, in combination with a helical spring, the seat *h* therefor, and the valve-seat D, substantially as described.

In testimony whereof we affix our signatures in presence of two witnesses.

ROBERT REED.
CHRISTIAN E. LOETZER.

Witnesses:
CLINTON SLAGEL,
J. C. HILL.