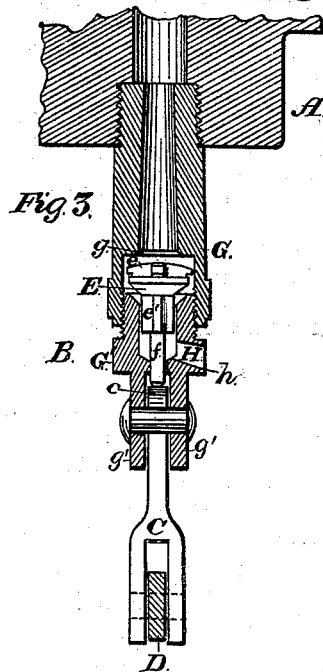
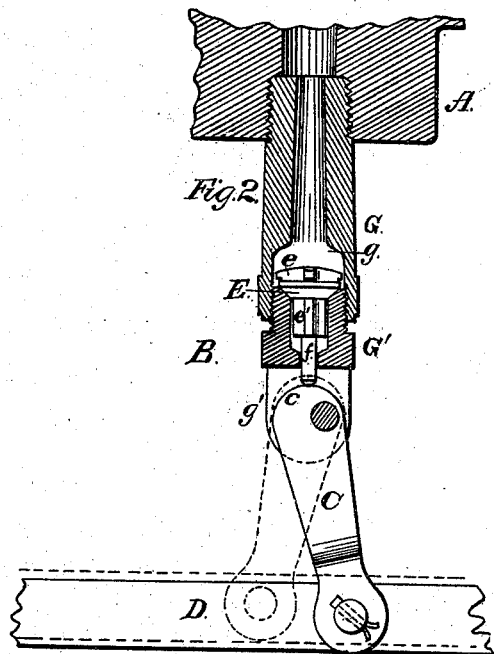
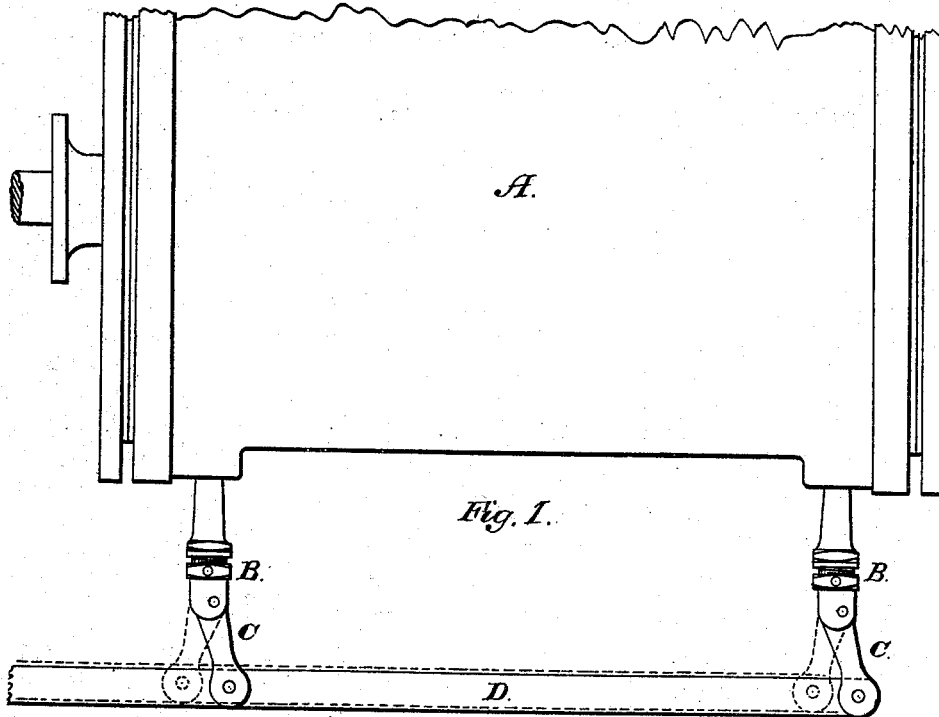


H. SCHLACKS & G. E. HAYES.
Cylinder-Cock.

No. 211,263.

Patented Jan. 7, 1879.



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UNITED STATES PATENT OFFICE.

HENRY SCHLACKS AND GEORGE E. HAYES, OF CHICAGO, ILLINOIS.

IMPROVEMENT IN CYLINDER-COCKS.

Specification forming part of Letters Patent No. **211,263**, dated January 7, 1879; application filed June 21, 1878.

To all whom it may concern:

Be it known that we, HENRY SCHLACKS and GEORGE E. HAYES, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Cylinder-Cocks; and we do hereby declare that the following is a full, clear, and exact description thereof, which 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 of reference marked thereon, which form a part of this specification.

Our invention relates to that class of valve devices commonly known as "cylinder-cocks," devices which are employed for the purpose of discharging the water produced by the condensation of the steam in the cylinders of locomotives and other steam-engines.

Our invention consists in providing such devices with a puppet-valve of peculiar construction, whereby two important results are accomplished: first, through suitable connecting mechanism, the engineer may, when occasion requires, raise the valve or valves from their seats, and thereby permit the water of condensation to run out of the cylinders by gravitation; second, preventing the formation of a vacuum in the cylinders after the steam is cut off, by admitting air into the cylinders through the automatic operation of the valves, all as hereinafter more fully set forth.

In the accompanying drawings, Figure 1 is a side elevation of a locomotive-cylinder provided with our improved cylinder cocks or valves. Fig. 2 is a vertical sectional view, showing the interior of the valve and its connections. Fig. 3 is a transverse vertical section of the same.

Referring to the parts by letters, A represents the cylinder; B B, the valves or cocks; C C, the operating-levers; and D, the rod which connects them, so that, by means of suitable connecting-rods and levers, they may be operated from the cab of the locomotive, or from any suitable point convenient for operation by the engineer in charge of the engine.

The parts of the device as above described in their general arrangement are old and well-

known—devices we do not claim to have invented.

The improvements in the devices which we claim to be new are as follows:

Referring to Fig. 2, E represents the valve, provided with wings *e* on its upper side, and wings *e'* on its lower side, said wings acting as guides to keep the valve in proper position, and prevent undue lateral motion of the same. The valve is also provided with a central stem, *f*, which projects downward and beyond its lower end, for the purpose hereinafter described.

G G' represent the casing and seat of the valve, the upper portion of the part G being provided with a screw-thread, by means of which it is securely attached to the cylinder. At its lower end the portion G is enlarged to form the valve-chamber, and is also formed with a screw-thread, into which the lower portion, G', which constitutes the valve-seat, is screwed. The valve-seat is formed on the inner periphery of the upper portion of the part G', and the valve-stem *f* is made to fit a hole formed centrally through the lower part of said portion G'.

H is an opening, which is formed laterally through the lower portion, G', and communicates with the vertical opening through its center. Said opening H constitutes the ejection-passage for the escape of the water of condensation, and also may form the induction-opening for the passage of the air into the cylinder to destroy any vacuum or partial vacuum which may be formed therein.

At the point of the inner periphery of the upper portion, G, where the enlargement begins, a beveled shoulder, *g*, is formed, which, while it acts as a stop to limit the upward motion of the valve, does not prevent the passage of the air into the cylinder, sufficient space being left between the wings *e* and the annular shoulder *g* to allow for the passage of air sufficient for the destruction of any vacuum which may be formed in the cylinder.

The lever C at its upper end is formed into a cam, *c*, by being eccentrically pivoted to and between lugs *g'*, which project downwardly from and form part of the portion G'.

The lower end of the lever C is bifurcated, so as to embrace both sides of the connecting-rod D, to which it is pivoted; but this particular connection is not material, and may be effected in any suitable manner.

The operation of the device is as follows: When the levers C are in their normal position, as indicated by full lines in Fig. 2 of the drawings, the stems *f* of the valves E rest upon the cams *e*, and in such position the valves E remain upon their seat, preventing the passage of steam or water from the interior of the cylinder.

When it is desired to relieve the cylinders from any accumulation of condensed water which may have formed in them, all that is necessary is for the engineer to move the lever which actuates the connecting mechanism, thereby, through the operation of the cams *e*, raising the valves from off their seats and permitting the water to flow out through the openings H; and said openings, for the purpose of more conveniently carrying off the water, may have a downward inclination, as shown at *h*, in Fig. 3 of the drawings, and, as is obvious, there may be more than one opening, if found desirable.

When the steam is shut off from the cylinders, and the pistons continuing their motion as on a downward grade, a vacuum is liable to be formed within the cylinders, which might seriously affect the free motion of the pistons.

In such case any vacuum which may be formed in the cylinders will, through the natural pressure of the atmosphere on the under side of the valves, cause them to rise from their seats, and admit air through the openings H, to destroy such vacuum.

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

1. The valve A, having stem *f*, operating in combination with the cam-lever C, constructed and arranged substantially as and for the purpose specified.

2. In combination with the valve E, having wings *e*, the valve-casing G, having the enlarged lower end and shoulder *g*, and with the portion G', having one or more openings, H, operating substantially as and for the purpose specified.

3. The combination of the valve-chambers G G', having openings H formed therein, the valve E, having wings *e* and stem *f*, and cam-lever C, operating substantially as and for the purposes specified.

In testimony that we claim the foregoing as our own we affix our signatures in presence of two witnesses.

HENRY SCHLACKS.
GEORGE E. HAYES.

Witnesses:

HARRY A. WARD,
G. FILLMORE STARKWEATHER.