(No Model.)

W. S. SHARPNECK.

STEAM ENGINE.

No. 367,119. Patented July 26, 1887.

Fig. 1.

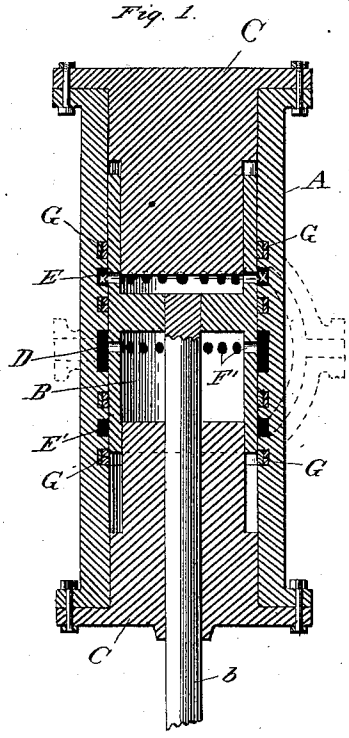


Fig. 2.

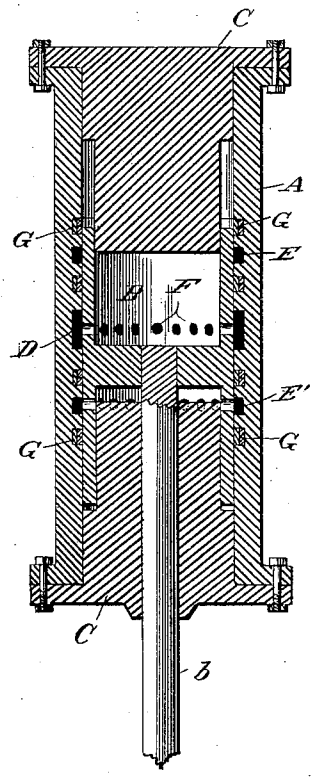
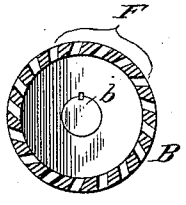


Fig. 3.



Witnesses
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UNITED STATES PATENT OFFICE.

WILLIAM S. SHARPNECK, OF DENVER, COLORADO.

STEAM-ENGINE.

SPECIFICATION forming part of Letters Patent No. 367,119, dated July 26, 1887.

Application filed January 20, 1887. Serial No. 224,871. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM S. SHARPNECK, a citizen of the United States, residing at Denver, in the county of Arapahoe and State of Colorado, have invented certain new and useful Improvements in Steam-Engines, of which the following is a specification, reference being had therein to the accompanying drawings, in which—

Figure 1 represents a vertical section of a cylinder and piston constructed according to my improvement with the piston raised; Fig. 2, a similar view with the piston down, and Fig. 3 a section of the piston through the line *x x* in Fig. 1.

This invention relates to an improvement in that class of steam-engines designed more particularly for use in rock-drills, steam-stamps, &c., in which the piston itself forms the valve that governs the admission and emission of the steam; and the invention consists in the peculiar combinations and the construction and arrangement of parts, hereinafter more particularly described and claimed.

Referring now to the details of the drawings, A represents a cylinder in which works the piston B, having an annular shell or extension on each side and carrying a piston rod, *b*, which may be used to give motion to a stamp, rock-drill, or other tool. At each end of the cylinder is a head, C, which extends into the cylinder, and thus leaves an annular space between it and the cylinder in which works the annular extension of the piston.

At D is shown an annular exhaust-port, and at E E′ two annular inlet-ports, which are connected with suitable inlet and exhaust pipes.

At F are shown a number of openings drilled or otherwise formed in the shell or extension, which openings are bored at an angle to the radial line, as shown in Fig. 3.

On each side of the annular ports are packing-rings G to confine the steam to its proper place.

The operation is as follows: Supposing the piston to be in the position shown in Fig. 1, the apertures F in the upper half of the piston-shell are in communication with the upper steam-port, E, and thus steam is admitted to the upper half of the cylinder, which starts the piston downward with the whole force of the pressure in the boiler until the apertures F are out of line with the ports E, when the motion is continued by the expansion of the steam contained in the cylinder. As the apertures F pass down over the exhaust-port D the steam is exhausted from the upper part, and as the apertures F′ (in the lower part of the shell) come in communication with the inlet-port E′ the motion of the piston is reversed. As the steam passes through the apertures F and F′ it acts on the inclined sides thereof and gives the piston a partial rotation at each stroke.

By this construction a very efficient and durable engine can be made at a very low cost, and one that will not be likely to get out of order.

What I claim as new is—

1. The combination, with the piston B, having annular extensions at its top and bottom and provided with apertures F and F′, of a cylinder, A, having the central exhaust port, D, the inlet-ports E E′, and the heads C, extending within the annular extension of the piston, substantially as described.

2. The combination of the cylinder A, having the central exhaust-port, D, inlet-ports E E′, and packing-rings G, with the piston B, having annular extensions at top and bottom provided with steam-apertures F F′ therein, and the heads C, extending into the extension of the piston, substantially as described.

In testimony whereof I affix my signature, in presence of two witnesses, this 8th day of January, 1887.

WILLIAM S. SHARPNECK.

Witnesses:

CHARLES H. BURTON,

ALEX. Q. MACGREGOR.