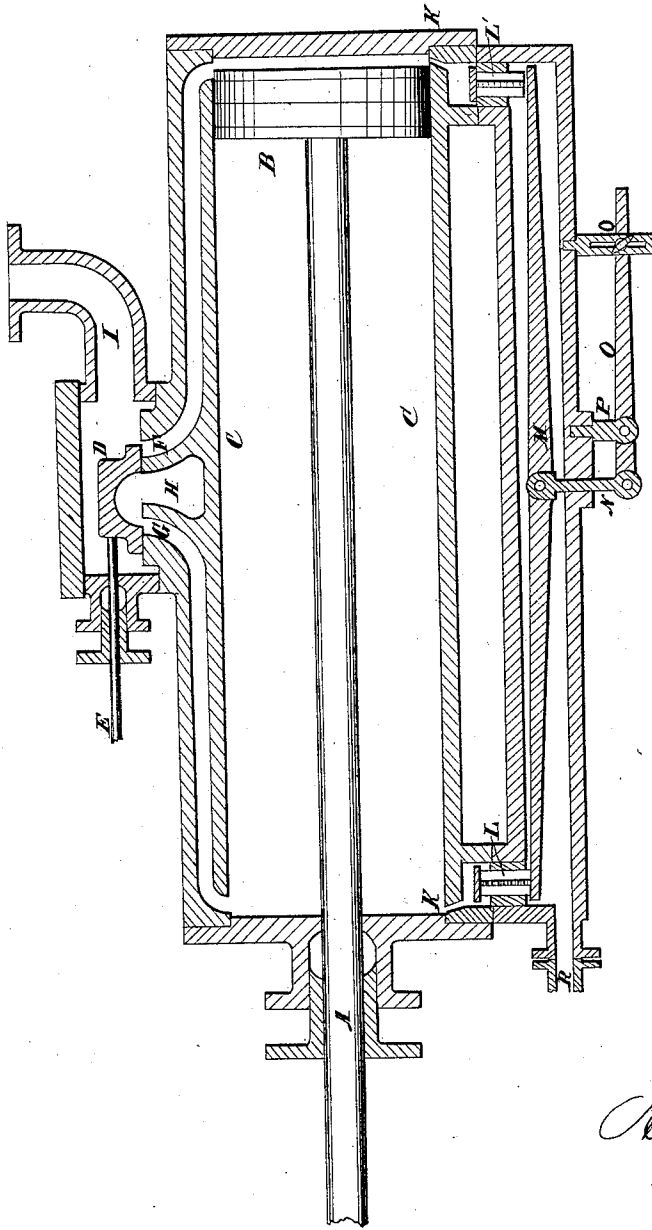


H. Walters,

Steam-Engine Attachment,

Nº 37,186,

Patented Dec. 16, 1862.



Witnesses:

*E. C. Smudg
Wm. H. Harrison*

Inventor:

*Harry Walters
By A. Pollok
His atty.*

UNITED STATES PATENT OFFICE.

HENRY WALTERS, OF TAMAQUA, PENNSYLVANIA.

IMPROVEMENT IN STEAM-ENGINES.

Specification forming part of Letters Patent No. **37,186**, dated December 16, 1862.

To all whom it may concern:

Be it known that I, HENRY WALTERS, of Tamaqua, in the county of Schuylkill and State of Pennsylvania, have invented a new and useful Improvement in Steam-Engines; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing, in which—

A is the piston-rod; B, the piston of a steam-engine; C, the cylinder to the slide-valve; E, rod to work the slide-valve; F and G, steam-openings into the cylinder; H, exhaust-opening; I, steam-pipe leading from the boiler; K, openings for escape of water from the condensed steam, &c.; L and L', valves to let off the water from condensed steam at each stroke of the piston; M, beam to work the valves; N, rod, upon which the beam is centered; O, lever to regulate the position of the beam and lift of the valves; P, fulcrum of the lever O; Q, thumb-screw to fix position of lever and beam; R, pipe for outlet of water.

My invention consists in a simple and effectual device for freeing the cylinder of the steam-engine from water collected therein by condensation, or otherwise, without the loss of any portion of the effective pressure of the steam as supplied from the boiler. I accomplish this in the following manner: I construct small openings K at each end of the cylinder, beneath which I place the valves L and L' and the beam M. When the piston has made the inward stroke and is about to return, as is shown in the drawing, the slide-valve D opens the steam-passage G with the exhaust H and relieves the pressure from the valve L. When the slide D has moved sufficient to open the steam-passage F and ad-

mits the effective pressure of the steam upon the piston B, the valve L' is instantly closed, forcing down the beam M at that end and raising the opposite end, and with it the valve L, through which the water, passing from the cylinder through the opening K, escapes by the outlet-pipe R. When the piston reaches the opposite end of the cylinder, the valves L and L' and the beam M operate in the same manner as above described.

In connection therewith, and for the purpose of regulating the lift of the valves L and L', I center the beam M on the rod N, attached to the end of the lever O, by raising or depressing, which at the end Q depresses or raises the beam M and regulates the lift of the valve as required. The same can also be accomplished by placing a screw underneath the beam M in place of the lever O.

Having thus described my invention and the manner in which the same is or may be carried into effect, I shall state my claim as follows:

In cylinders of steam-engines of otherwise ordinary or suitable construction, valves at either end of said cylinder, and balanced by a working beam, so as to automatically open and close water-passages by the alternate action of steam on the piston, as described, when the fulcrum of said beam is adjustable, whereby the lift of the valves may be regulated at pleasure, substantially as herein shown and set forth.

In testimony whereof I have signed my name to this specification before two subscribing witnesses.

Witnesses: HENRY WALTERS.
WM. MILNES,
MICHAEL BEARD.