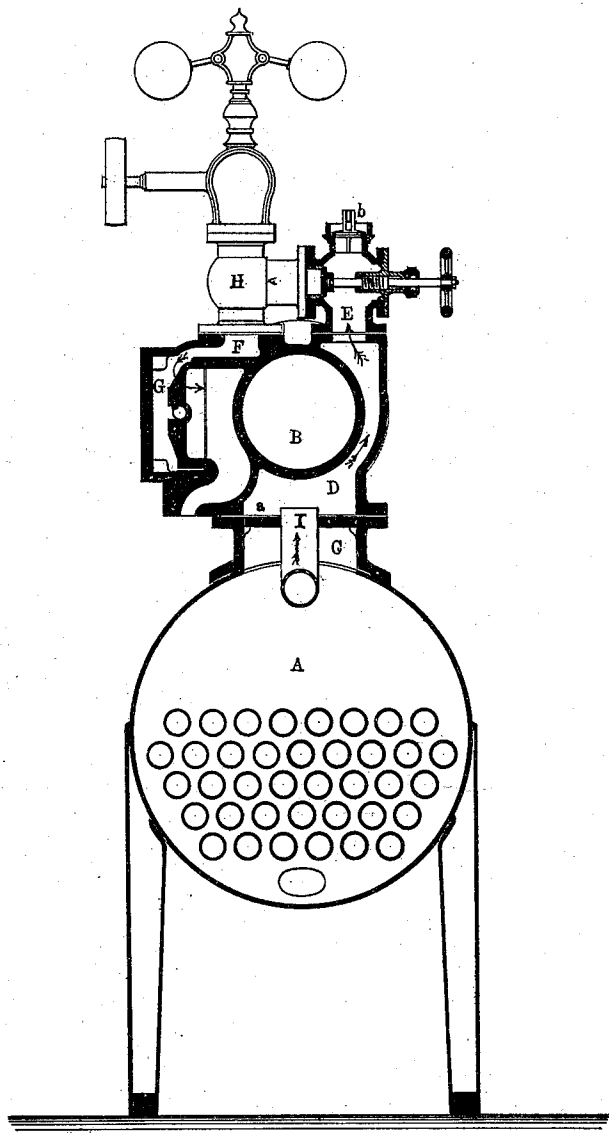


G. L. McCAHAN.
PORTABLE STEAM-ENGINE.

No. 173,320.

Patented Feb. 8, 1876.



— WITNESSES —

J. B. Greene

W. W. Wharton

— INVENTOR —

George L. McCahan

by C. H. H. Howard
his Atty.

UNITED STATES PATENT OFFICE.

GEORGE L. McCAHAN, OF BALTIMORE, MARYLAND.

IMPROVEMENT IN PORTABLE STEAM-ENGINES.

Specification forming part of Letters Patent No. **173,320**, dated February 8, 1876; application filed December 17, 1875.

To all whom it may concern:

Be it known that I, GEORGE L. McCAHAN, of the city of Baltimore and State of Maryland, have invented certain new and useful Improvements in Portable Engines, of which the following is a specification; and I do hereby declare that in the same is contained a full, clear, and exact description of my said invention, reference being had to the accompanying drawing, and to the letters of reference marked thereon.

My invention relates to a system of steam passages and valves, in combination with a dry pipe, or one extending from the passages aforesaid to the boiler, and constructed in such manner as to prevent water being carried with the current of steam to the passages, and thence to the cylinder of the engine, as hereinafter described.

In the description of my invention which follows, due reference must be had to the accompanying drawing forming a part of this specification, and which represents a cross-section of parts of an engine and boiler embodying my invention.

A is the boiler, and B the steam-cylinder, of the engine, connected to the boiler by means of the hollow stand C, the lower flange of which is curved to suit the upper surface of the said boiler. D is a steam chamber, box, or duct, of suitable shape and dimensions, on the side of the cylinder, the lower part of the said chamber forming the base of the cylinder B, and the upper part adapted to connect with the throttle-valve case E, which is bolted to it. F is a channel, extending from an elevated portion of the cylinder, corresponding in height with the portion of steam-chamber D, upon which the throttle-valve case rests, to the interior of the valve-chest G. H is the governor-valve case, communicating with the channel F, and connected directly or indirectly to the throttle-valve case E. I is a perforated dry pipe, placed horizontally, or nearly

horizontally, within the boiler, with a branch extending therefrom to the interior of the steam-chamber D, where it is secured by means of a plate, *a*, resting therein, or to a plate or other holding device located in the stand C. The safety-valve *b* is in such position within the throttle-valve case E as to allow the steam to operate on the lower side thereof at all times independently of the throttle-valve.

The direction taken by the steam from the boiler to the steam-cylinder is clearly indicated by the arrows.

The combination of the steam passages, valves, and pipes, &c., as described, is peculiarly applicable to portable engines and boilers where rigidity of connections, freedom from disarrangement, and simplicity of parts are necessary, and serves to prevent undue liquefaction of steam from its exposure to large cooling-surfaces.

It will be observed that the effect of the dry pipe is to allow of the placing of the steam-cylinder in close proximity to the boiler without the liability of introducing wet steam to the cylinder, thus reducing the height of the engine.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

In a portable engine, the steam-cylinder B, provided with the steam chamber, box, or duct D and channel F, communicating, respectively, with the throttle-valve and governor-valve, combined with the dry pipe I, the plate or attachment *a*, and stand C, substantially as and for the purposes specified.

In testimony whereof I have hereunto subscribed my name this 28th day of October, in the year of our Lord 1875.

GEORGE L. McCAHAN.

Witnesses:

WM. M. YOUNG,
J. D. CORNS.