H. A. JAMIESON.
Lubricating Pistons.

No. 198,391. Patented Dec. 18, 1877.

Fig. 1

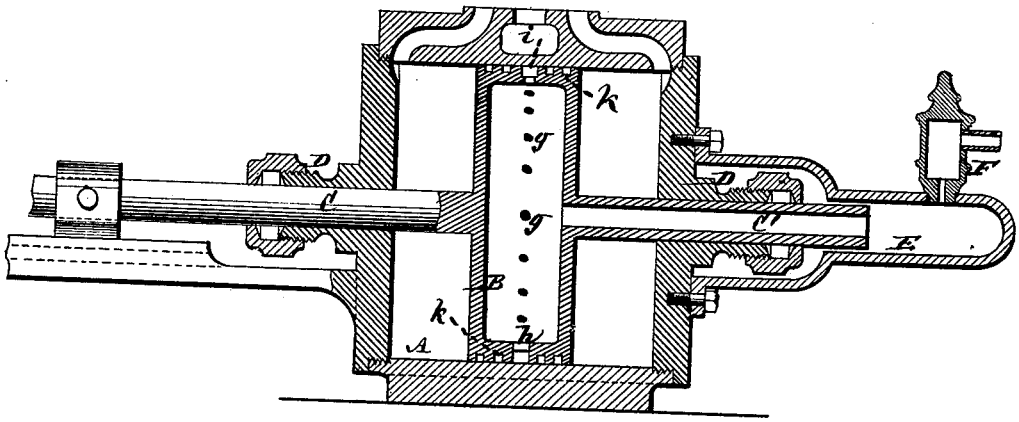
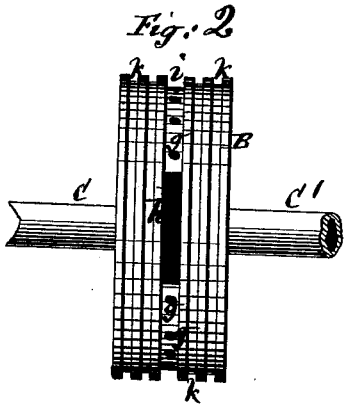


Fig. 2



Witnesses.
Fred. Haynes
L. Allen

Inventor
Henry A. Jamieson
by his Attorneys
Brown + Allen

UNITED STATES PATENT OFFICE.

HENRY A. JAMIESON, OF BROOKLYN, NEW YORK.

IMPROVEMENT IN LUBRICATING-PISTONS.

Specification forming part of Letters Patent No. **198,391**, dated December 18, 1877; application filed May 26, 1877.

To all whom it may concern:

Be it known that I, HENRY A. JAMIESON, of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Pistons of Engines and Pumps, of which the following is a description, reference being had to the accompanying drawings, forming part of this specification.

This invention, which is applicable to the pistons of engines and pumps of various kinds, including air-pumps, consists in a novel combination of devices for lubricating, under pressure, the piston of the engine or pump, the same comprising a stationary lubricating-fluid reservoir attached to the cylinder of the engine or pump, and connected, by pipe, with a steam-boiler, a hollow peripherically-perforated piston, and a hollow tube or rod from the latter, arranged to work within the stationary lubricating-reservoir, substantially as hereinafter described.

The invention also consists in certain constructions of a self-lubricating hollow and peripherically-perforated piston, whereby extended provision is made for retaining or spreading and economizing on the rim or outer surface of the piston the lubricating material admitted through it, and also provision is obtained, when the piston is arranged to work horizontally, for relieving the piston of weight and its cylinder of wear by the same fluid which is used to lubricate the piston.

Figure 1 represents a vertical longitudinal section of a horizontal cylinder and piston working therein with my invention applied, and Fig. 2 an under view of said piston.

A is the cylinder of a horizontal pump or engine, and B its reciprocating piston, which may have duplicate rods C C′, one of which passes through one head or end of the cylinder, and the other through the other head or end of the latter, and both of which are guided by the cylinder-heads and stuffing-boxes D D, applied thereto so as to secure a free motion of the piston within the cylinder, the water or other fluid lubricating material introduced through the piston making the joint between the piston and its cylinder. One, C, of said piston-rods is or may be the driver of the piston, or the means by which motion is transferred from the piston to outside mechanism, while the other one, C′, of said rods is hollow or tubular, and open at its ends, and serves as a supply pipe or tube of the lubricating-fluid to and through the piston. This latter or hollow rod C′ is constructed to enter, at its outer end, within a bonnet, E, which forms a reservoir for the lubricating-fluid, and which may have connected with it a close cup, F, for replenishing and keeping up a continuous supply under pressure. Said reservoir E, which is stationary and attached to one end of the cylinder, or the supply-cup F carried by said reservoir, is connected, by pipe, with the steam-space of the boiler used to drive the engine or pump, whereby either a continuous or intermittent pressure as derived from the steam in the boiler is brought to bear upon the lubricating-fluid in the reservoir E, to keep up a thorough and forced, yet easily-regulated, lubrication of the piston.

Instead of a hollow piston-rod, C′, being used to supply lubricating-fluid to and through the piston, a separate tube attached to the piston and passing through the cylinder-head may be used, and when the cylinder of the engine or pump occupies an upright position the piston B may have but a single piston-rod arranged to pass out through its top, and an independent laterally-arranged lubricating supply-tube, bent at its outer end, so as to work up and down within a supply-reservoir, be attached to the piston.

The piston B, which is hollow, and in free communication by the tube or hollow rod C′, to admit the water or other lubricating-fluid, is constructed with any number of perforations, *g h*, in or through its periphery, and in communication with a central or intermediate annular groove, *i*, which serves to distribute the lubricating-fluid to and around the outside of the piston, for the purpose of lubricating the piston and its cylinder, and of forming a close joint between said piston and cylinder. Outside of this groove *i*, or between it and the faces of the piston, are any number of additional grooves or spaces, *k*, for catching and retaining the escaping lubricating-fluid, and for spreading or further utilizing the latter. These additional lubricating grooves or spaces

may either be formed by cutting channels in the piston itself or by constructing the latter of a series of rings.

The perforation or perforations *h* in the lower portion of the piston B, when the latter is arranged to move horizontally, is or are of a greater area than the perforations in the upper portion of the piston, to serve the purpose of relieving the piston of weight, or of balancing it by the pressure of the lubricating-fluid, so that it will work perfectly free and easy.

I claim—

1. The combination of the stationary lubricating-fluid reservoir E, attached to the cylinder of the engine or pump, and connected, by pipe, with the steam-space of a steam-boiler, the hollow peripherically-perforated piston B and its attached hollow rod or tube C′, substantially as and for the purpose specified.

2. The hollow and peripherically-perforated lubricating-piston, constructed with a series of grooves or spaces arranged outside of the primary distributing-groove, for the purpose of catching or spreading and economizing the escaping lubricating-fluid, essentially as described.

3. The combination, with a horizontally-arranged cylinder, A, of the hollow and peripherically-perforated piston B, constructed with one or more perforations, *h*, in its bottom of a greater area than the perforations in the upper portion of the piston, and a supply-tube or hollow rod for conveying fluid, under pressure, to the piston, whereby the piston is relieved of weight, essentially as described.

HENRY A. JAMIESON.

Witnesses:
FRED. HAYNES,
BENJAMIN W. HOFFMAN.