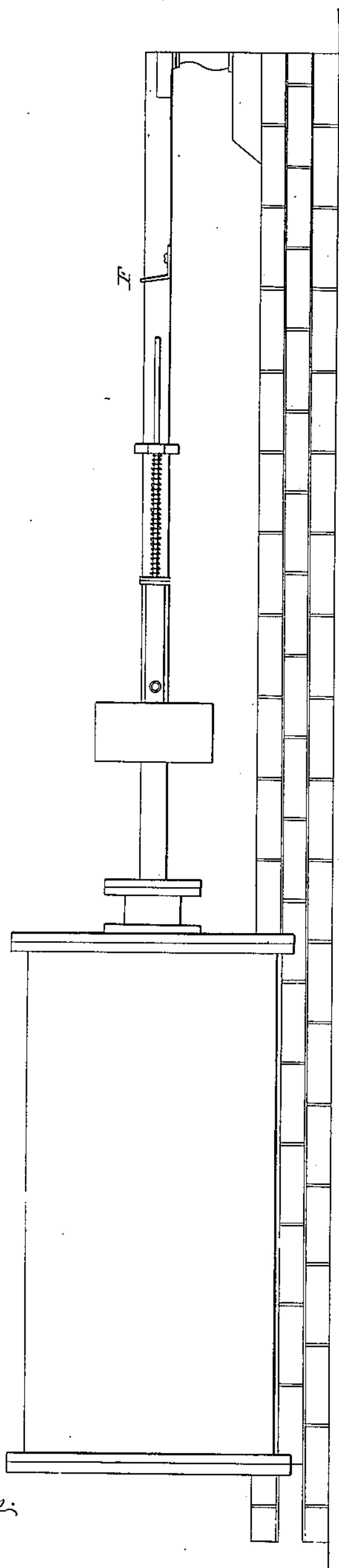


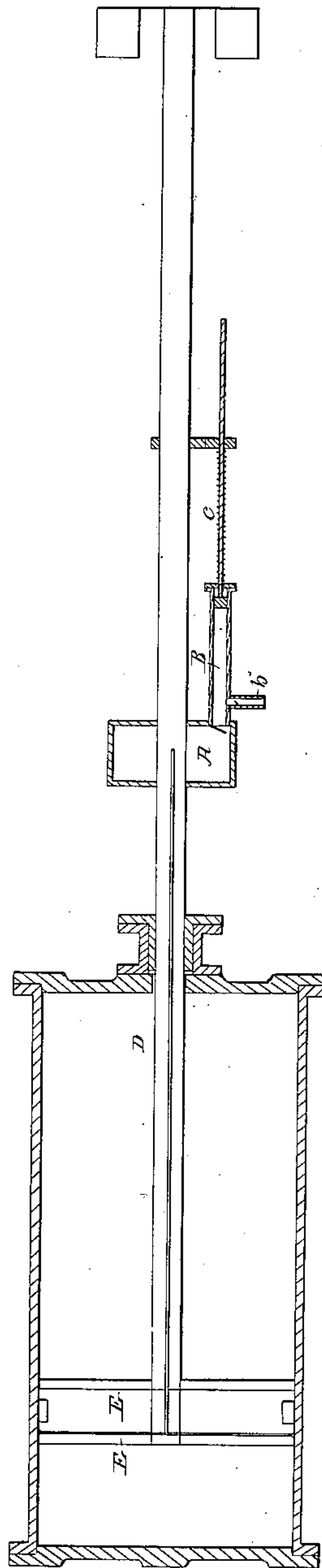
*B. Garvey,  
Lubricating Pistons.*

*N<sup>o</sup> 29,216.*

*Patented July 17, 1860.*



*Witnesses:  
Henry L. Van Voorhis.  
Geo. W. Santa Jr.*



*Inventor:  
Benjamin Garvey.*

# UNITED STATES PATENT OFFICE.

BENJAMIN GARVEY, OF NEW YORK, N. Y., ASSIGNOR TO HIMSELF AND JOSEPH B. DAVOL,  
OF BROOKLYN, NEW YORK.

## ARRANGEMENT FOR LUBRICATING PISTONS.

Specification of Letters Patent No. 29,216, dated July 17, 1860.

*To all whom it may concern:*

Be it known that I, BENJAMIN GARVEY, of the city, county, and State of New York, have invented a new and Improved Device  
5 for Lubricating Rubbing Surfaces; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification.

10 The nature of my invention consists in forcing a film of water between rubbing surfaces during the moment while they are in contact.

To enable others skilled in the arts to use  
15 my invention I will describe the application of it to the lubricating of the piston and cylinder of an engine worked by superheated steam or by the products of combustion, as any workman understanding how to  
20 apply it in that case can readily apply it to lubricating journals, valves, etc.

The accompanying drawings are an elevation and a section of the cylinder of such an engine with all the details omitted except  
25 such as are essential to the description of my invention.

B is a small force pump, of the fire-engine type, attached to and moving with the piston rod.

30 A is the air chamber belonging to the pump B for rendering the discharge from the pump uniform.

C is a recoil spring, which by its expansion draws the plunger forward and sucks  
35 up the water through the inlet tube *b*.

Through the piston rod there is a hole, D, which communicates with the chamber, A, and by radial ducts, E, E, with two small grooves in the rim of the piston and toward  
40 both edges.

The suction pipe, *b*, is connected with

some suitable reservoir of water either by a flexible tube or by having the reservoir move with it.

F is a fixed cam which meeting the  
45 plunger rod of the pump gives the direct stroke while the spring, *c*, gives the recoil or suction stroke.

The operation of this apparatus is as follows: When steam is admitted to one end of  
50 the cylinder no water can issue at that side of the piston, for the pressure of the water is regulated by the length of stroke of the pump, so as to be about equal to that of the steam. The water consequently oozes out  
55 at the exhaust side, and lubricates the cylinder immediately in advance of the piston. At every alternate stroke of the piston, the plunger rod of the pump comes in contact with the cam, F, and a portion of water is  
60 driven into chamber, A, from which it is forced along through the hole, D, ducts, E E, and grooves in the rim. At the alternate stroke of the piston, the spring, *c*, which was compressed by the cam, F, expands and  
65 gives the suction stroke by which the pump is filled. The film of water left on the cylinder when the piston has passed along is flashed into steam by the extra heat in the superheated steam, which extra heat would  
70 char or desiccate any lubricant but water.

What I claim as my invention is—

The combination and arrangement of a lubricator with a piston and cylinder, a valve, or other bearing, for forcing water  
75 between rubbing surfaces substantially as described.

BENJAMIN GARVEY.

Witnesses:

WM. H. VAN VOORHIS,  
GEO. W. BANTA, jr.