

(No Model.)

A. & E. R. SIMPSON & M. SPEICHER.

LUBRICATOR FOR PISTONS AND CYLINDERS.

No. 316,492.

Patented Apr. 28, 1885.

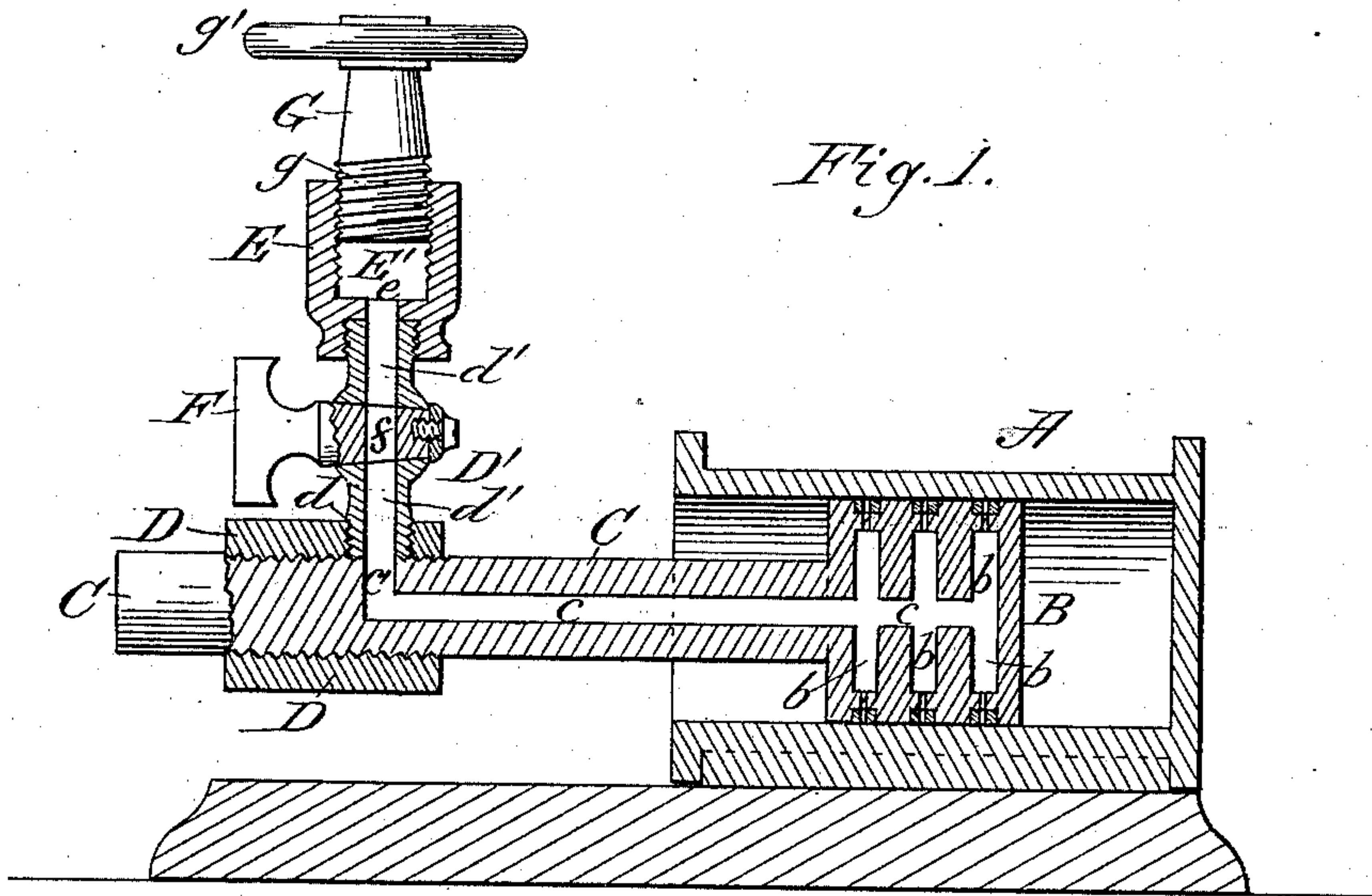


Fig. 1.

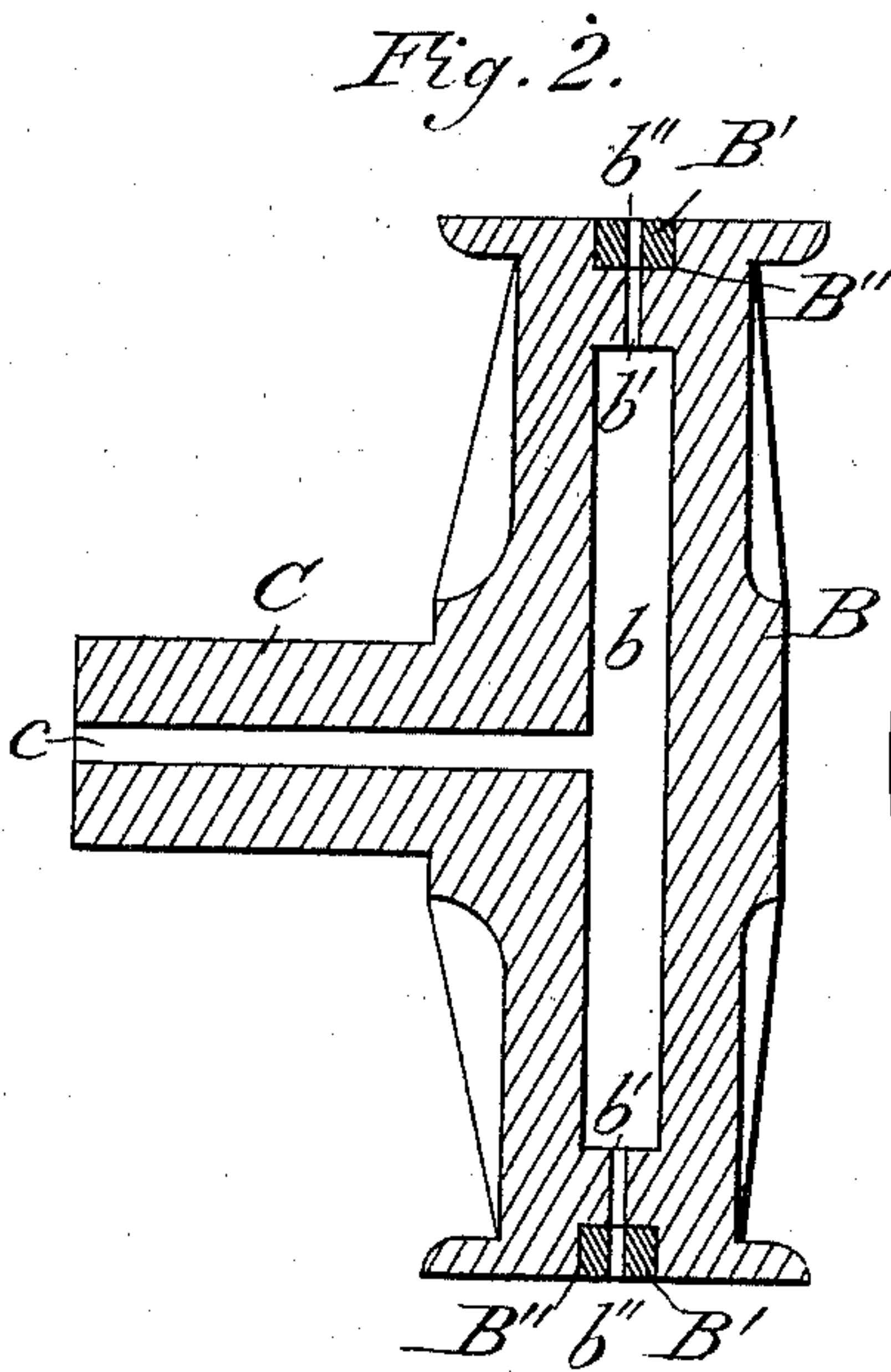


Fig. 2.

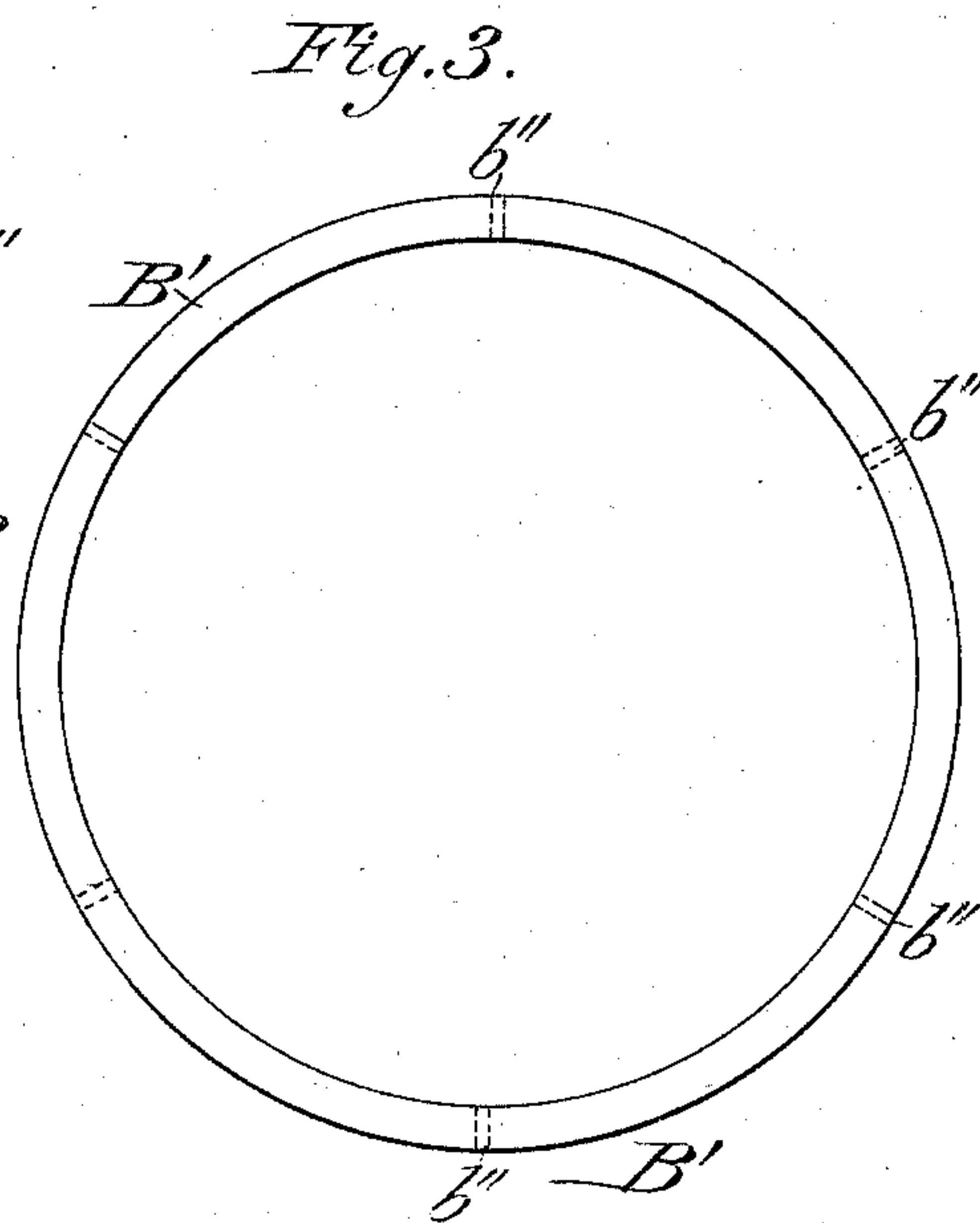


Fig. 3.

Attest:

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UNITED STATES PATENT OFFICE.

ALEXANDER SIMPSON AND ELLIS R. SIMPSON, OF SCRANTON, AND
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LUBRICATOR FOR PISTONS AND CYLINDERS.

SPECIFICATION forming part of Letters Patent No. 316,492, dated April 28, 1885.

Application filed March 14, 1885. (No model.)

To all whom it may concern:

Be it known that we, ALEXANDER SIMPSON, ELLIS R. SIMPSON, and MATHIAS SPEICHER, all citizens of the United States, ALEXANDER SIMPSON and ELLIS R. SIMPSON residing at Scranton and MATHIAS SPEICHER residing at Archbald, in the county of Lackawanna and State of Pennsylvania, have invented certain new and useful Improvements in Lubricating Pistons and Cylinders in which a Piston Reciprocates, of which the following is a specification, reference being had to the accompanying drawings.

The object of our invention is to prevent the destruction of metal piston-heads or plungers in metal cylinders of pumps where the water to be pumped is impregnated with or holds in solution sulphurous acids or other acids that would in a very short time destroy the surfaces of contact in both piston and cylinder, and by our invention the rapid destruction of such wearing-surfaces is prevented by the application of a semi-fluid oleaginous in its nature—such as soft tallow or analogous substance—forced between the wearing-surfaces in such way as to form a thin film and prevent the acidulated water from coming in contact with the wearing-surfaces of the cylinder and piston; and it consists in the construction of the parts and their combination so that the result aimed at is accomplished, as will be fully hereinafter described.

In the drawings, Figure 1 represents a side view, partly in section, of the device. Fig. 2 represents a side sectional view of a single chamber piston-head enlarged from Fig. 1, and Fig. 3 represents a packing-ring in side view.

A represents a cylinder of a pump or engine.

B represents a reciprocating piston-head, to which is attached the piston-rod C, having the longitudinal bore *c* centrally therein to connect with chamber or chambers *b* in the piston-head, and at a proper distance from the piston-head the bore *c* turns and is bored out to the side of the rod C, as seen at *c'*. The chamber or chambers *b* in piston B at their peripheries connect with radial holes *b'* in the head, and these holes *b'* are coincident with holes *b'' b''* in a metal packing-

ring, B', that is inserted in a groove or grooves, B'', in the outer surface of the piston-head B, as seen in Fig. 2.

D is a block permanently secured at a proper point on the piston-rod C, and upon its upper side is a screw-cut bore, *d*, to receive a screw-plug, D', screw-cut at both ends to fit into either bore *d* in block D or to secure a reservoir-cup, E, on its upper end. Screw-plug D' has a center bore, *d'*, longitudinally through it, so that as it is screwed into the block D bore *d'* will be coincident with bore *c'* in the piston-rod C.

F is a check-cock or valve in the screw-plug D', having a transverse bore, *f*, through it to coincide with the bore *d'* in plug D', and is secured in the plug in any known manner, so as to allow the same to be turned to check or cut off the flow of the semi-fluid through it at will. The cup E has the reservoir E' centrally in its upper part, and a screw-thread cut internally therein, a hole, *e*, in its bottom, and a screw-cut cavity on its bottom end to screw upon the top of plug D', so that the hole *e* will coincide with the bore *d'* of plug D' when in proper position.

G is a forcing screw-plug having a screw cut on part *g*, to fit and screw into the cup E, and also has a wheel or crank, *g'*, to operate the forcing-plug by rotating it as desired.

To operate the device and make it effective, soft tallow or an analogous substance is placed in cup E. The screw-plug G is then screwed into the cup, and the soft tallow is by the turning down of the screw upon it forced into the bore *d'* of plug D' through the check-cock F and into bore *c* of the piston-rod, and thence into the chamber or chambers *b* of the piston, and thence outward through the radial holes *b'* and holes *b''* in ring B', where by the reciprocations of the piston B the soft tallow is forced between the surfaces of the piston and cylinder, causing the metal surfaces in contact to be completely covered by a thin film of the tallow, which not only lubricates such surfaces, but prevents the water and its destructive solvents from coming in contact therewith. Thus by using the soft tallow the surfaces are equally and as well lubricated as they would be if fluid oil were used, and at the same time water is kept from such surfaces

by the consistency of the tallow, and if fluid oil were used it would not prevent the acidulated water from coming in contact with the metal surfaces of the piston and cylinder. The tallow in the cup E can be renewed whenever necessary to keep up a proper supply to be fed through the piston to the inside of the cylinder A. The piston-head may be constructed with but one chamber *b*; or it may have two or more, as is seen in Fig. 1.

No claim is broadly made upon the construction of any of the individual parts, as they are admitted to be in use. Nor do we claim for any particular kind of metal from which the device may be made, nor of any alloy of metals, as it is believed that none of the ordinary metals or their alloys will effectually resist the action of the destructive acids contained in much of the water found in mining; but by the use of the semi-fluid as a lubricator the metal is longer preserved.

Having thus fully described our invention, what we claim, and desire to secure by Letters Patent, is—

1. In a lubricating device, the combination of the soft-tallow cup E, having the hole *e* and plug G, the plug D', having bore *d'*, and check-cock F, having opening *f*, piston-rod C, having bore *c* and *c'*, and piston-head B, having chamber or chambers *b* connected with bore *c*, radial holes *b'*, and ring B', having holes *b''*, with the cylinder A, all constructed to operate substantially as described.

2. In a device for lubricating with a semi-fluid or soft tallow, the combination of the cup E, containing the soft tallow, with a forcing-plug, G, check cock or valve F, and means for conveying the semi-fluid to and between the piston-head and cylinder, substantially as described.

In testimony whereof we affix our signatures in presence of two witnesses.

ALEXANDER SIMPSON.

ELLIS R. SIMPSON.

MATHIAS SPEICHER.

Witnesses:

HENRY C. PUTNEY,
JOHN SHERWIN.