(No Model.) 2 Sheets—Sheet 1.

G. W. PHILLIPE.

PUMP.

No. 344,133. Patented June 22, 1886.

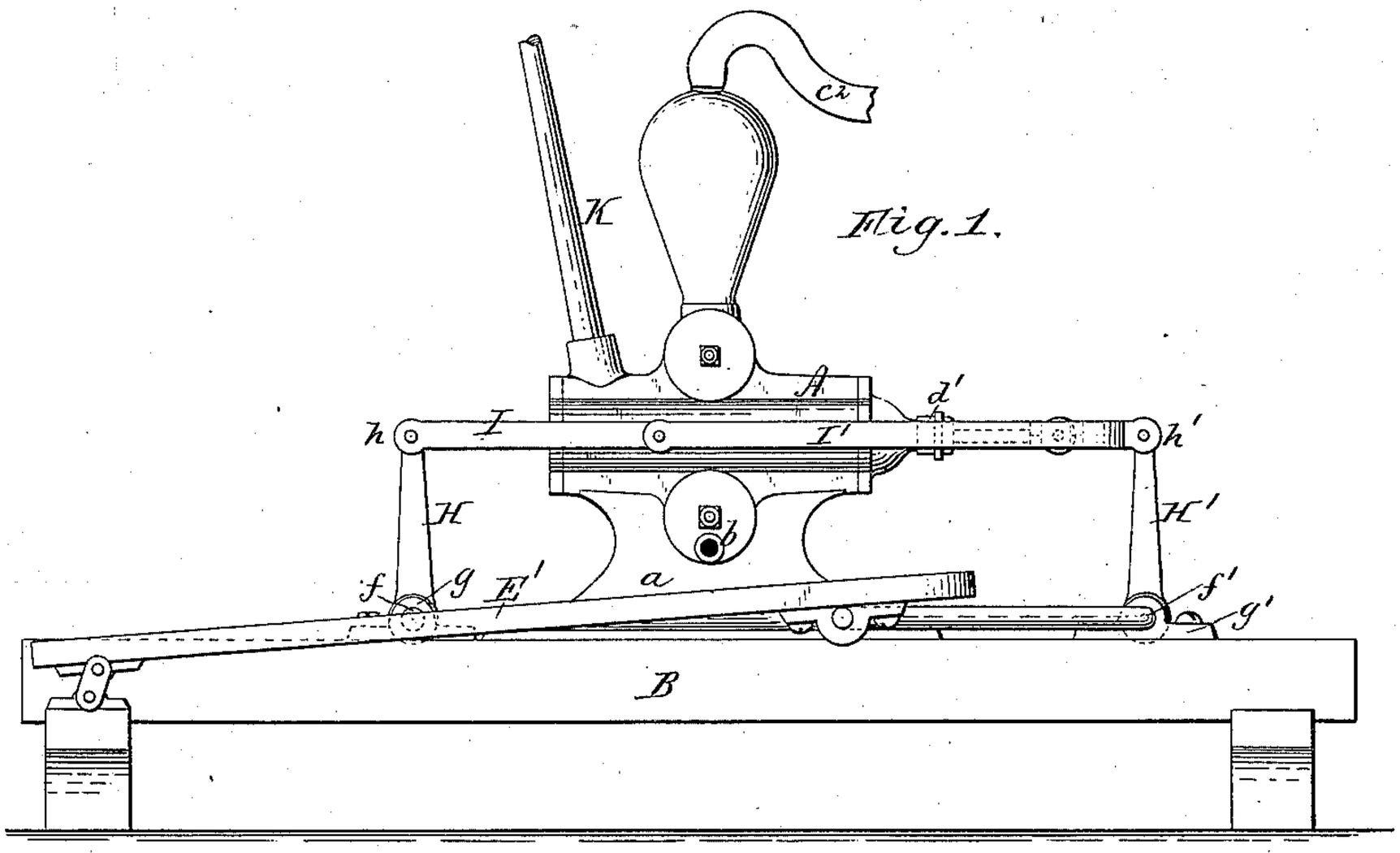


Fig. 1.

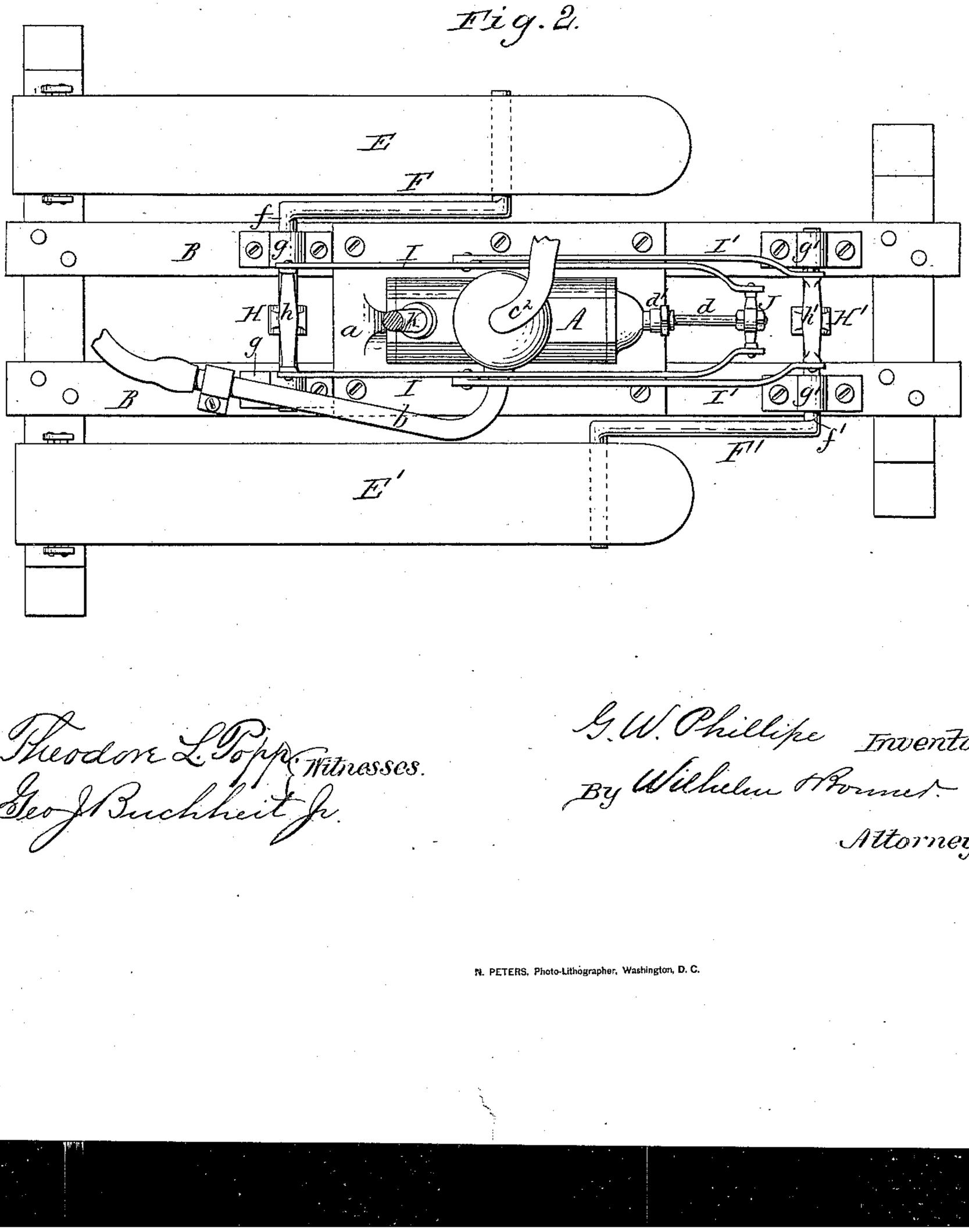


Fig. 2.

Witnesses.
Theodore L. Popp.
Geo. J. Buchheit Jr.

Inventor.
G. W. Phillipe
By Wilhelm & Bonner
Attorneys.

(No Model.) 2 Sheets—Sheet 2.

G. W. PHILLIPE.

PUMP.

No. 344,133. Patented June 22, 1886.

Fig. 4.

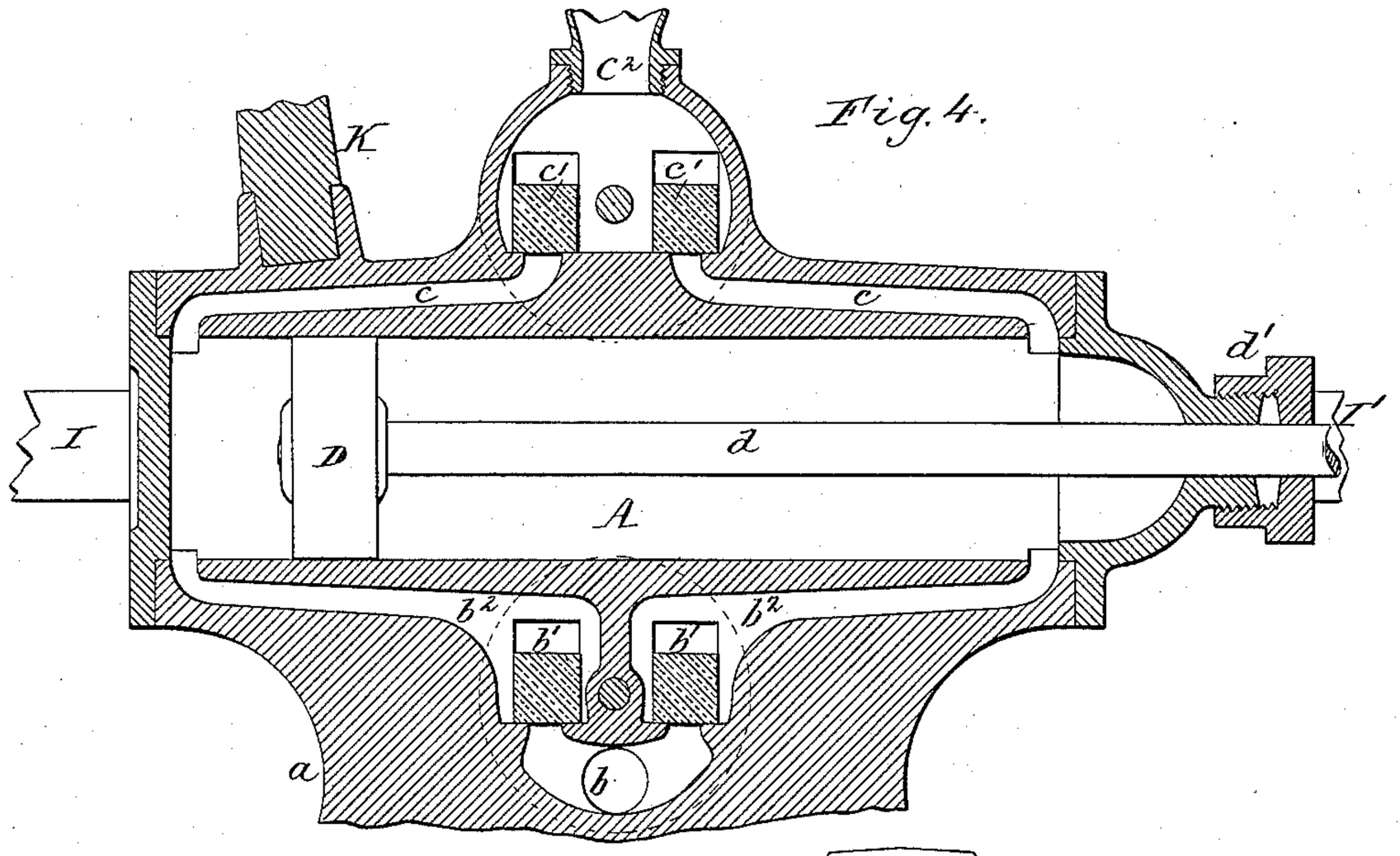


Fig. 5.

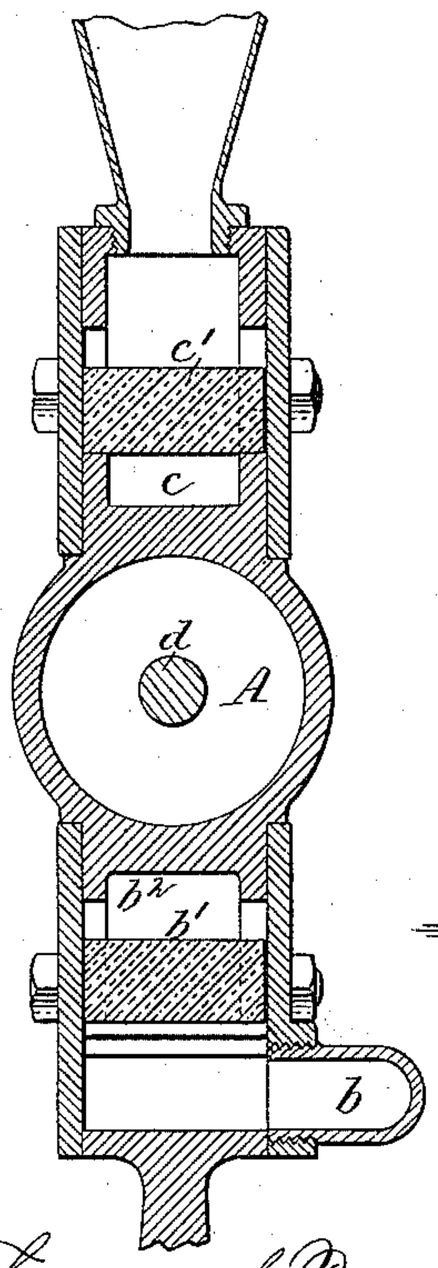
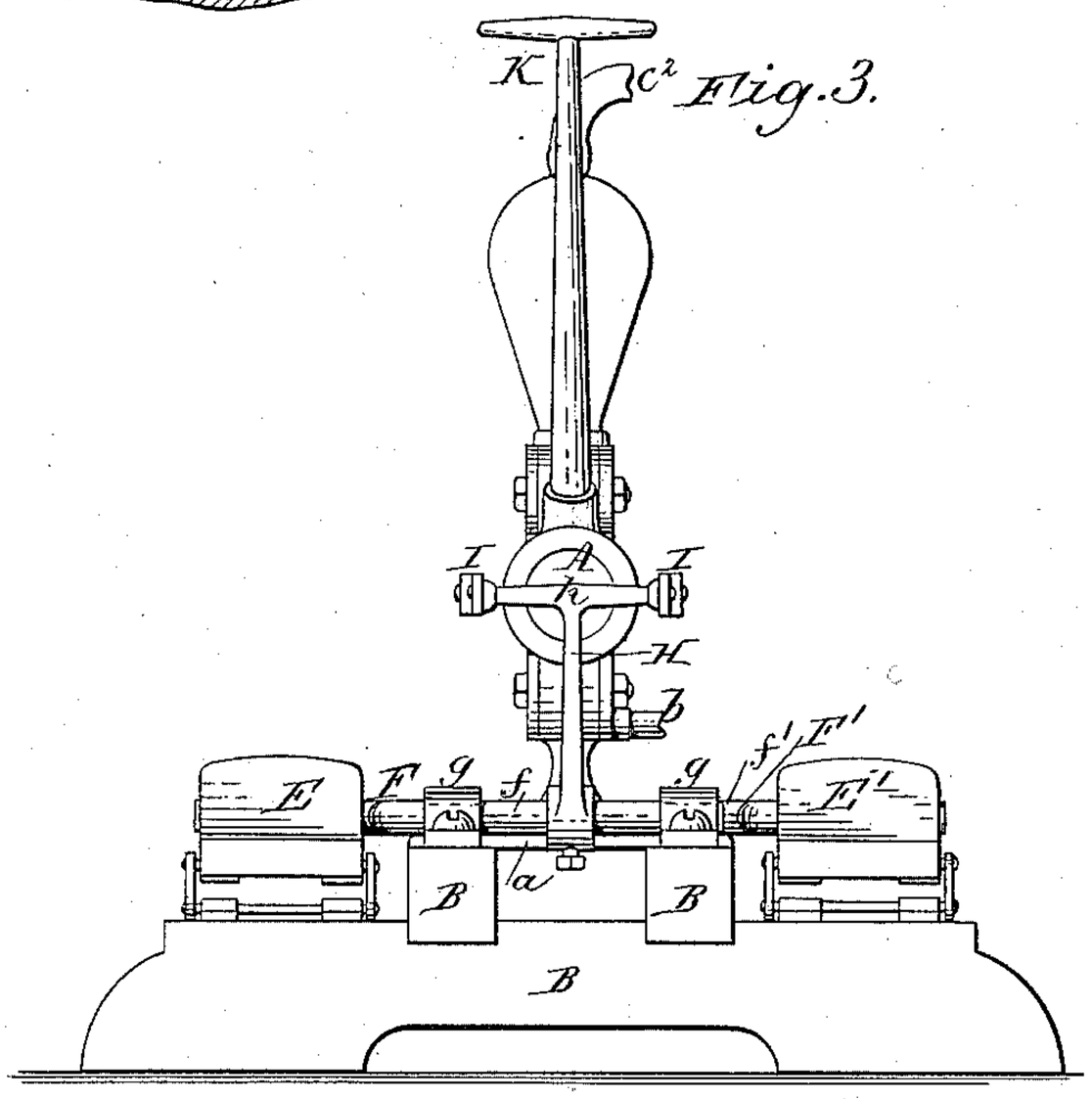


Fig. 3.



Witnesses.
Theodore L. Popp.
Geo. J. Buchheit Jr.

Inventor.
G. W. Phillipe
By Wilhelm & Bonner
Attorneys.

UNITED STATES PATENT OFFICE.

GEORGE W. PHILLIPE, OF BUFFALO, NEW YORK.

PUMP.

SPECIFICATION forming part of Letters Patent No. 344,133, dated June 22, 1886.

Application filed November 16, 1885. Serial No. 182,910. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. PHILLIPE, of the city of Buffalo, in the county of Erie and State of New York, have invented new and useful Improvements in Pumps, of which the following is a specification.

This invention relates to an improvement in double-acting hand-pumps, and has for its object to improve the means whereby the pump-piston is actuated by providing a simple treadle mechanism for that purpose, thereby rendering the working of the pump less fatiguing and more convenient than heretofore.

My invention consists, to that end, of the improvements which will be hereinafter fully set forth, and pointed out in the claims.

In the accompanying drawings, consisting of two sheets, Figure 1 is a side elevation of my improved pump. Fig. 2 is a top plan view, and Fig. 3 an end elevation, of the same. Fig. 4 is a longitudinal section of the pump-cylinder on an enlarged scale. Fig. 5 is a cross-section of the same.

Like letters of reference refer to like parts in the several figures.

A represents the horizontal pump cylinder, provided with a suitable bed-plate, *a*, which is secured to a base-frame, B.

b represents the suction-pipe; *b'*, the suction-valves, and b^2 the suction-ports leading to both ends of the pump-cylinder.

c represents the discharge-ports; *c'*, the discharge-valves, and c^2 the discharge-pipe.

D represents the piston, and *d* the piston-rod moving in a stuffing-box, *d'*, in one of the heads of the pump-cylinder.

E E' represent two treadles arranged on opposite sides of the pump-cylinder, and pivoted at their front or outer ends to the base-frame B.

f f' represent the horizontal treadle-shafts, arranged at opposite ends of the pump-cylinder, and connected with the treadle by cranks F F'. The shafts *f f'* are journaled in bearings *g g'*, secured to the base-frame B, and rock in their bearings as the treadles are raised and lowered.

H H' represent two upright arms, secured, respectively, to the shafts *f f'*, and provided at their upper ends with cross-heads *h h'*, to which the connecting-rods I I' are attached. The connecting-rods I extend from the cross-head *h* to a cross-head, J, which is secured to the piston-rod at the opposite end of the cylinder. The connecting-rods I' extend from the cross-head *h'* on both sides of the pump-cylinder toward the opposite end of the latter, and are pivoted with their ends to the connecting-rods I.

K represents a handle, which is secured to the cylinder A, or some other stationary part of the structure, and which is seized by the operator for the purpose of steadying himself.

The operator steps upon the treadles E E', and depresses first one and then the other treadle by shifting his weight from one treadle to the other. While one treadle descends the other rises. This motion of the treadles is transmitted by the cranks F F', rock-shafts *f f'*, arms H H', and connecting-rods I I' to the piston in such manner that the downward movement of one treadle will move the piston in one direction, and the downward movement of the other treadle will move the piston in the opposite direction. By moving the treadles in this manner the operator produces a rapid reciprocating motion of the piston with comparatively small exertion and in a very convenient position, which permits the operator to work the pump for a long time without becoming fatigued.

The peculiar connection of the rods I I' with the cross-heads *h h'* on opposite ends of the pump-cylinder and with each other renders the device very compact, and at the same time admits of the use of comparatively long connecting-rods, thereby insuring an easy motion of the pump-piston.

My improved pump is applicable to all the various uses for which hand-pumps are usually employed, and is simple and compact in construction, and produced at comparatively small expense.

I claim as my invention—

1. The combination, with the pump-cylinder and reciprocating piston and rod, of two treadles, E E', moving in opposite directions, crank-shafts *f* F *f'* F', arms H H', secured to said shafts, and connecting-rods I I', substantially as set forth.

2. The combination, with the pump-cylinder and reciprocating piston and rod, of two

treadles, E E′, moving in opposite directions, crank-shafts *f* F *f′* F′, arranged at opposite ends of the pump-cylinder, arms H H′, secured to said shafts, rods I, connecting the arm H with the piston-rod, and rods I′, connecting the arm H′ with the rods I, substantially as set forth.

3. The combination, with the pump-cylinder and reciprocating piston and rod, of two treadles, E E′, moving in opposite directions, crank-shafts *f* F *f′* F′, arms H H′, secured to said shafts, connecting-rods I I′, and a stationary handle, K, substantially as set forth.

Witness my hand this 26th day of September, 1885.

G. W. PHILLIPE.

Witnesses:
JNO. J. BONNER,
OSCAR SCHAUB.