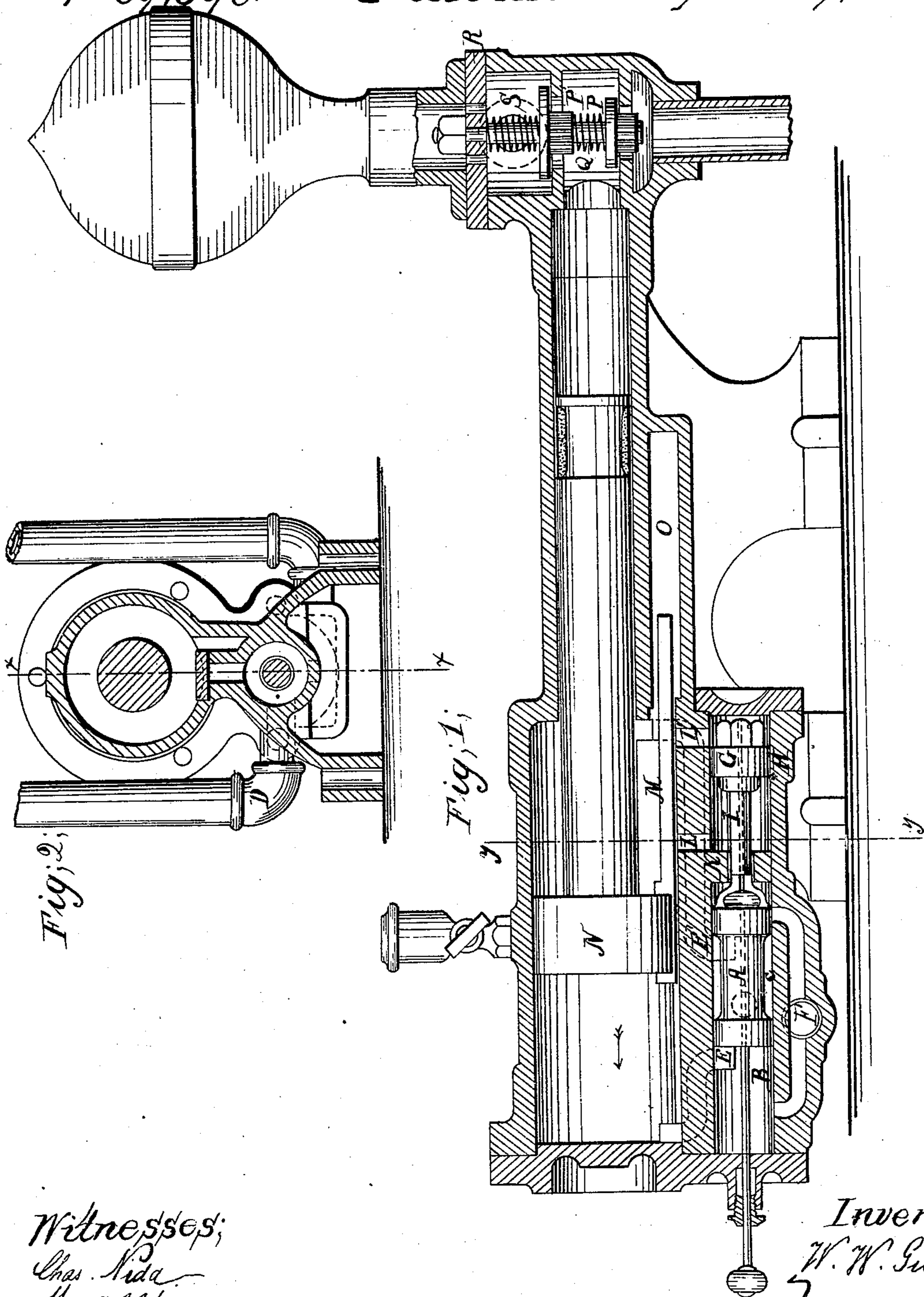


W. W. Gilbert
Steam Pump.

N^o 89,398. Patented Apr. 27, 1869.



Witnesses;
Chas. Nida
Anna Morgan

Inventor,
W. W. Gilbert.
M. W. A.
attys

UNITED STATES PATENT OFFICE.

WALTER W. GILBERT, OF NEW YORK, N. Y.

IMPROVED STEAM-PUMP.

Specification forming part of Letters Patent No. **89,398**, dated April 27, 1869.

To all whom it may concern:

Be it known that I, WALTER W. GILBERT, of New York, in the county of New York and State of New York, have invented a new and useful Improvement in Steam-Pumps; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

This invention relates to improvements in steam-pumps, having for its object to provide an improved arrangement of the steam-valve mechanism, designed to insure a better and more reliable action of the same; also, an arrangement of the pump-valves to facilitate the removal of the same for inspection or repairs, as may be required.

In the accompanying drawings, Figure 1 represents a sectional elevation taken on the line *x x* of Fig. 2, and Fig. 2 represents a transverse section taken on the line *y y* of Fig. 1.

Similar letters of reference indicate corresponding parts.

A represents the steam-valve, which is cylindrical in form, and arranged in the hollow cylinder B, and grooved between the ends to form a live-steam space, C, into which the steam D communicates. E and E' are the main steam-ports, and F represents the exhaust.

The steam-valve A is provided with a piston, G, working in the hollow cylinder H, and connected to it by a rod, I, projecting from one end, and passing through the head K.

L and L' represent the steam-ports for the cylinder of the piston G. They are covered and uncovered by the long valve M, connected to the main piston N, and working to and fro in a groove in the inner wall of the main cylinder, and into the space O, formed by a jacket upon the exterior of the pump-cylinder; or, if preferred, the said valve may be made round, and work through a stuffing-box in the end of the cylinder.

Instead of arranging the valve M in a recess or groove, it may be fitted to the face of the bore of the cylinder, and it may be either rigidly or adjustably connected to the pistons.

When the piston N, moving in the direction of the arrow, arrives at the end of its stroke, the port L' will be uncovered by the valve M,

and steam will be admitted through it to the end of the piston G, moving it to the other end of its cylinder, whereby the port E will be opened to the live steam, and the port E' to the exhaust; and the steam which has moved the said piston G will then exhaust through the port L' into the main cylinder, and thence through the port E', together with the steam exhausting from the main cylinder at that end; and when the piston N arrives at the other end of its stroke the valve M will uncover the port L to the live steam, whereby the piston G will be thrown back to the position represented in the drawings, reversing the action of the steam and the said piston N, as will be clearly understood.

In order to insure a perfect exhaustion from each end of the valve-piston G, I provide a leak-hole through the axis of the same, whereby any steam not escaping before the movement of the same may find a passage into the main exhaust.

In order to provide for the ready removal of the valves P and P' of the pump, I connect them by a rod, Q, to the cap R of the same, as clearly represented in Fig. 1, whereby they may be removed with the said cap, the valve P being made small enough to pass through the opening in the seat of the valve P'.

The coiled springs S are applied to insure the closing of the valves.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The long valve M, attached to the steam-piston, arranged to alternately open and close ports at each end of the stroke, substantially as described.

2. The chamber O, for the admission of the said long valve, arranged substantially as described.

3. The pump-valves P and P' and the stem Q, arranged and connected to the cap as described, whereby the pair may be removed with the cap, substantially as specified.

4. The arrangement of the valve A, piston G, the ports E E' and L L', and the valve M, all substantially as specified.

The above specification of my invention signed by me this 21st day of November, 1868.

WALTER W. GILBERT.

Witnesses:

FRANK BLOCKLEY,
ALEX. F. ROBERTS.