

M. Wilcox,

Steam Pump,

N^o 100,576-

Patented Mar. 8, 1870.

Fig. 1.

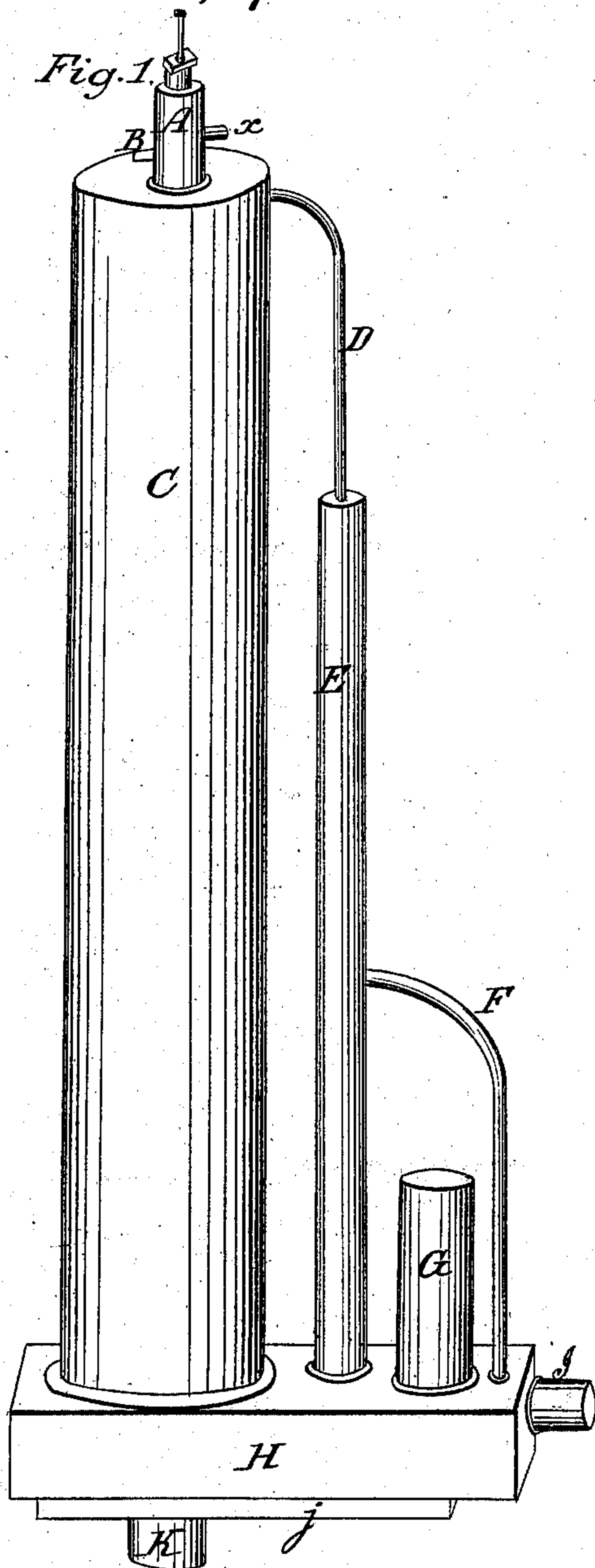
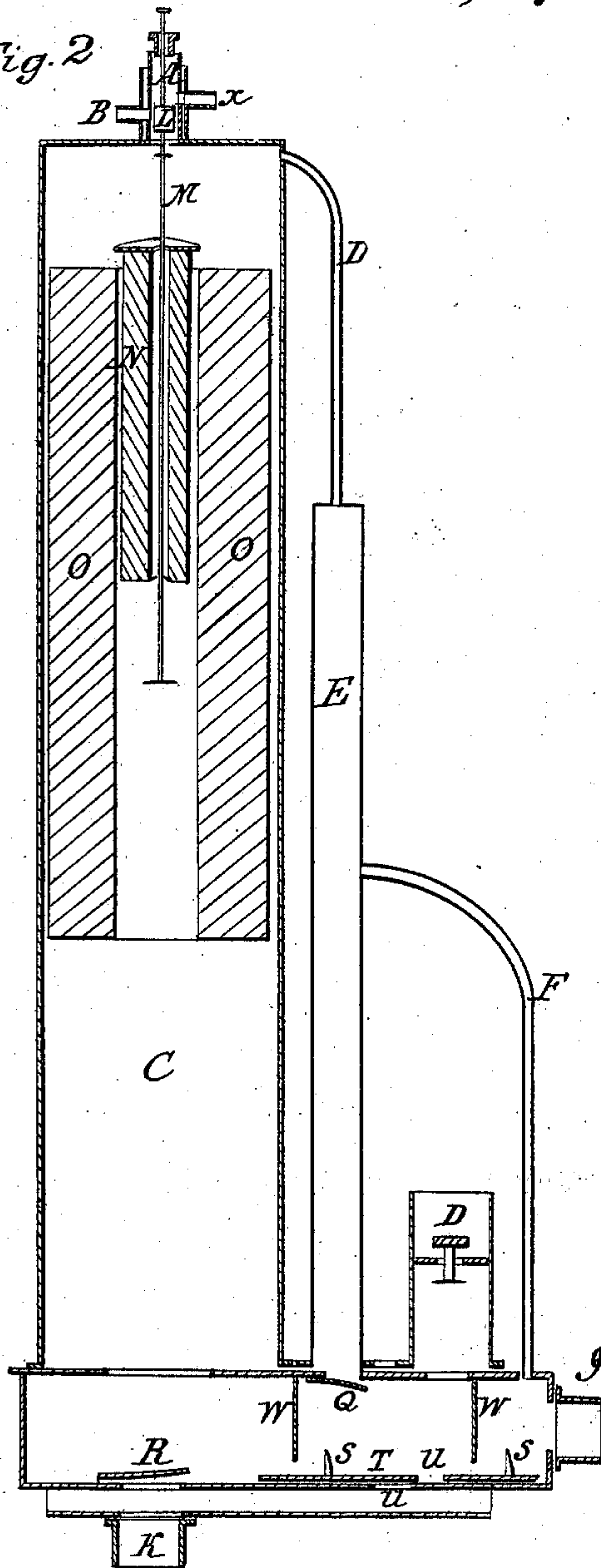


Fig. 2.



Witnesses.

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MARTIN WILCOX, OF SACRAMENTO, CALIFORNIA.

Letters Patent No. 100,576, dated March 8, 1870; antedated December 30, 1869.

IMPROVEMENT IN STEAM-PUMP DEVICES.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, MARTIN WILCOX, of the city and county of Sacramento, and State of California, have invented a new and useful Steam-Pump, of which the following is a true and full description, reference being had to the accompanying drawings and to the letters of reference marked thereon.

This invention pertains to exhausting and condensing steam from the cylinder of a steam-pump; to disposing of uncondensed steam or air after condensation; to working steam expansively after the cut-off; and to working steam by condensation alone, or without pressure, as in case of taking the escape steam from an engine.

The following is a description of the different parts of the pump—

Figure 1 being a perspective view, and
Figure 2, a vertical section.

Figure 1.

A is a valve-chamber admitting steam to C.
B, an ingress-steam pipe.
C, a cylinder or receiver for steam and water.
D, exhaust-pipe opening into E from C or A.
E, condensing-chamber or tube opening into H.
F, cold-water pipe discharging into E.
G, valve-chamber, with valve opening upward.
H, chamber or box opening into C, E, F, G, I, J, and K.
I, discharge-pipe for water.
J, passage opening into K and space above U, fig. 2.
K, supply-pipe for water.

Figure 2.

L, a steam-gate admitting steam to C.
M, a rod to work steam-gate L.
N, weight sliding on M.
O O, float, with openings in center for M.
P Q R S T U V, valves.
W W, partitions across H, with openings at the bottom.
X, the point at which to attach D, instead of to C, if desired.
T, a sliding plate, to which S S are firmly attached.
U, an opening through T, and the plate beneath which closes, or is cut off by right movement of T.

The operation of the pump is as follows:

First, suppose all parts but A are filled with water, the float will raise the gate L, and let steam into C. R being closed, the pressure of water opens S S, and, closing U by slide T, water escapes through I until the float O O settles, and with it the weight N until N strikes the button or stop on lower end of gate-rod M, and cuts off steam.

The back draught of water, assisted by a spring, if needed, closes S S, and opening U allows the weight of water in supply-pipe to make a draught through U upon the parts above U. This draws water out of and steam into E, and also brings a jet of water through F to condense steam in E.

When condensation has produced sufficient vacuum to raise water through supply-pipe K, the valve Q prevents water rising in E.

When receiver is again filled, the float, raising the weight against the upper button on the rod lifts L, and lets on steam again, and the discharge repeats. At the end of the next stroke, the draught through U brings the uncondensed steam before lodged in E down through Q, whence it escapes into chamber under P, and out at next stroke.

To work steam without pressure, the discharge should not be above the point at which the top of the float stands at the end of the stroke, as the discharge is effected only by the weight of water in receiver above the level of the discharge. The whole elevation in this case is effected by condensation.

To work steam expansively, set the button on the lower end of M so high that the weight N will strike it while the float is yet some distance above the passage leading into H, as the float acts as a valve to that opening when it reaches it. Let the discharge-pipe be of great length compared with its elevation and the momentum of current in discharge-pipe will continue the flow after steam is cut off. The expansion of steam and momentum of current then finish the stroke.

This arrangement provides against a waste of power in case of running a pump for a low lift, in connection with other machinery which requires high pressure of steam—much higher than would be required for the pump.

Claims.

I claim as follows:

1. The arrangement of the supply-pipe of a steam-pump whereby to produce a draught on its exhaust steam by means of an opening or draught-passage between the two, substantially as set forth.
2. The pipe D and condenser E, in combination with the receiver C and discharge I, constructed in the manner and operating substantially as represented.
3. The weight N, in combination with rod M, gate L, and float O O, constructed and operating in the manner and for the purposes as explained.

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Witnesses:

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