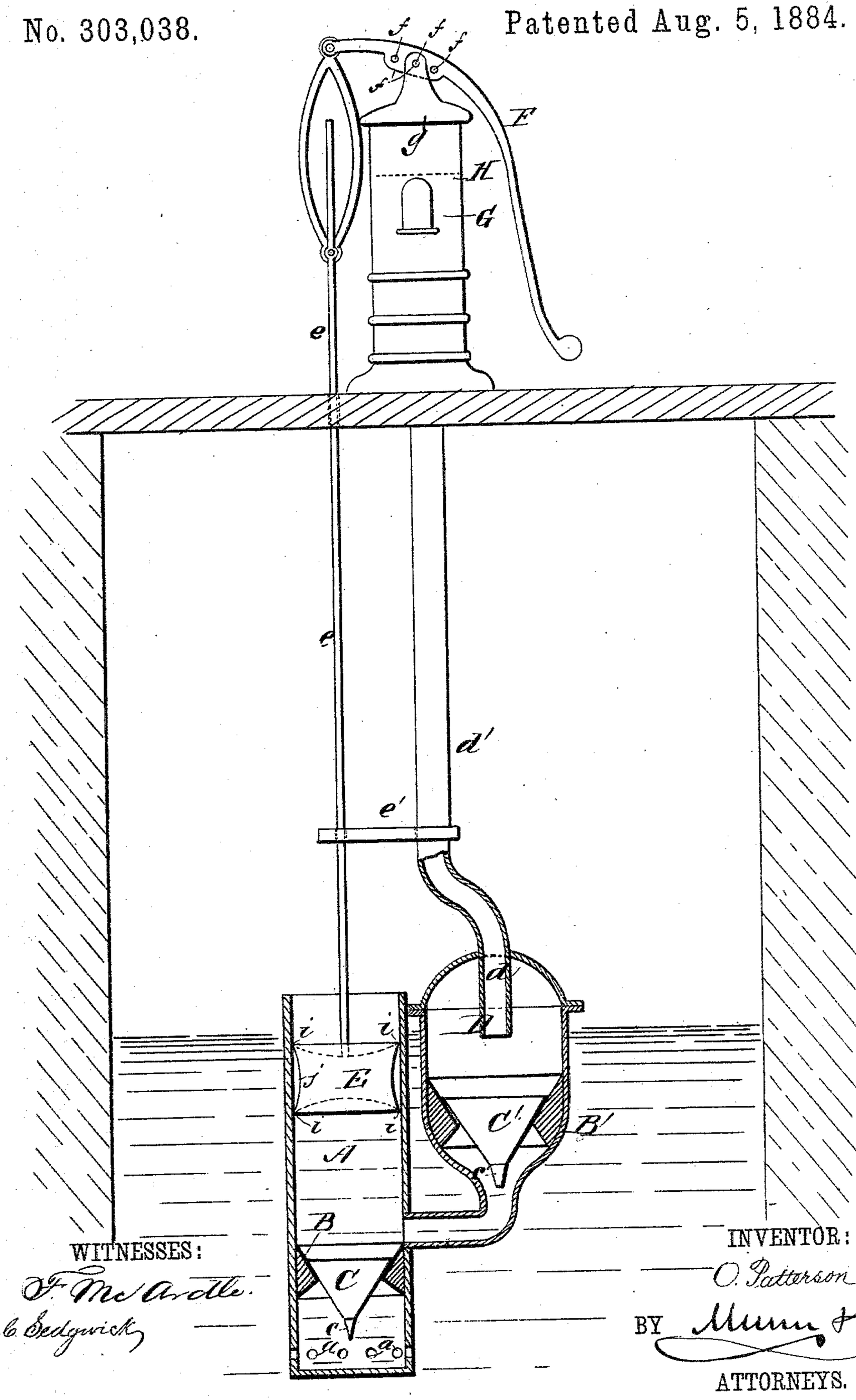
(No Model.)

O. PATTERSON.

HAND POWER LIFTING AND FORCE PUMP.

No. 303,038. Patented Aug. 5, 1884.



WITNESSES:

F. McArdle.

C. Sedgwick

INVENTOR:

O. Patterson

BY Munn & Co

ATTORNEYS.

UNITED STATES PATENT OFFICE.

OLOF PATTERSON, OF NEW BOSTON, ILLINOIS.

HAND-POWER LIFTING AND FORCE PUMP.

SPECIFICATION forming part of Letters Patent No. 303,038, dated August 5, 1884.

Application filed October 19, 1883. (No model.)

To all whom it may concern:

Be it known that I, OLOF PATTERSON, of New Boston, in the county of Mercer and State of Illinois, have invented an Improved Hand-Power Lifting and Force Pump, of which the following is a full, clear, and exact description.

The purpose of my improvements is to facilitate the raising of water from any depth by reducing the force required; and, further, to reduce the wear consequent upon working and the amount of attention necessary to maintain a working efficiency. I effect a successful realization of these objects in the following manner, reference being had to the accompanying drawing, forming part of this specification, in which the figure represents a pump in vertical cross-section.

H is the standard or upper visible portion of the pump, which forms a support for the lower portion or working pump-barrel, air-chamber, &c., attached to the standard H by the water-pipe *d'*, which conveys the pumped water to the discharge-spout G, formed on the standard H.

g is a cap fastened upon standard H, and supporting the pump-handle F at either of the points *f f f* upon the pin *f'*, passing through a slotted upper extension of cap *g*, whereby the handle F may be shifted in order that its weight on one side of the pin *f'*, primarily balancing that of the plunger-rod *e* and piston E, on the other side of the said pivot *f'*, shall also add weight to or subtract it from rod *e* and piston E, to enable them to exactly balance the column of water in the pipe *d'*, sufficient weight being added to handle F and plunger-rod *e*, proportionate to the weight of the water-tube *d'*, as said tube may be varied in length for different positions to accomplish this object.

e' represents a guide for the plunger-rod *e*, extended to it from the water-pipe *d'*.

The pump-piston E is constructed with dished or concave sides and concave top and bottom, leaving a lip, *i*, at each end closely fitting the interior of the pump-barrel A, and expanding against it in working by the resistance of the water to the strokes of the piston E, thereby producing a tight working fit between the elastic piston-lip *i* and the pump-barrel A. A space, *j*, is formed between the lip *i*, the concave sides of piston E, and the interior of pump-barrel A, which, when filled by water percolating past the piston-lip *i*, acts as a fluid-packing chamber, whose contents further perfect the working fit of piston E in pump-barrel A.

a a represent holes in the closed foot of working-barrel A, for the admission of water to the valve C and its seat B, the valve being weighted at the point, as shown at *c*.

At D is shown the air or discharge chamber, having a cap, *d*, which is pierced for the lower end of pipe *d'*, which descends into the discharge-chamber D, nearly to the valve-seat B' of the outlet-valve C'. The space between the cap *d* and the lower end of water-pipe *d'* forms an air-space or spring to maintain an equal and steady flow of water between the strokes of piston E. The valve C is also weighted at *c'*.

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

1. In a pump, the combination, with the standard H, of the piston-chamber A, provided with the weighted valve C, and the air-chamber D, communicating with the piston-chamber, and provided with the weighted valve C', substantially as herein shown and described.

2. In a pump, the combination, with the standard H, the pipe *d'*, and the handle F, of the piston-cylinder A, provided with the valve C, the air-chamber D, communicating with the piston-chamber, and provided with the valve C', and the piston E, connected by rod *e* with the said handle, substantially as herein shown and described.

3. In a pump, the combination, with the standard H and piston-cylinder A, of the air-chamber D, provided with the valve C', and the pipe *d'*, extending from the standard to and within the air-chamber nearly to its valve-seat, substantially as herein shown and described, and for the purpose set forth.

OLOF PATTERSON.

Witnesses:
FRED WILLITTS,
LLOYD MYERS.