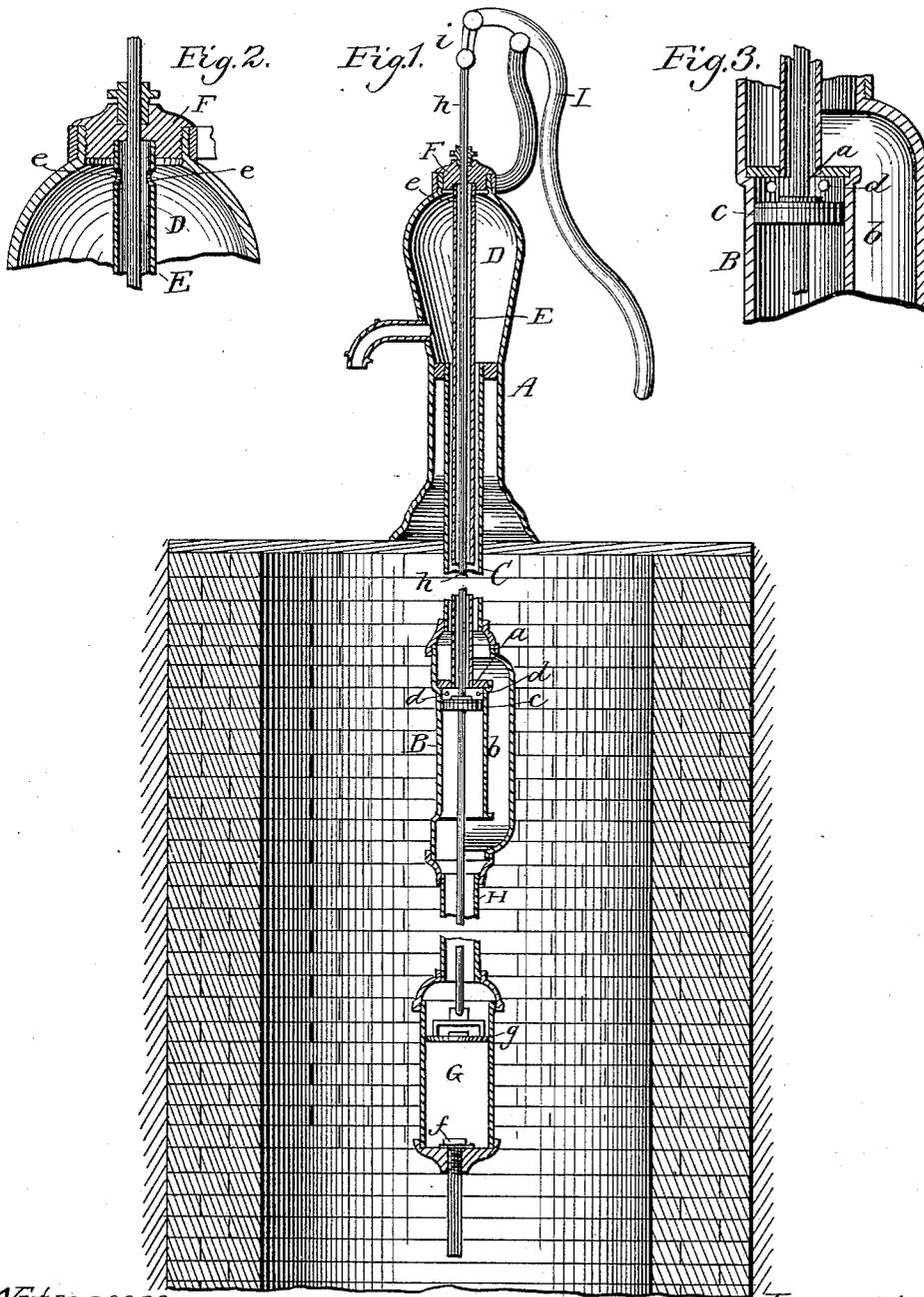


(No Model.)

J. G. AUGUSTINE.
PUMP.

No. 452,961.

Patented May 26, 1891.



Witnesses

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UNITED STATES PATENT OFFICE.

JOHN G. AUGUSTINE, OF COLUMBIANA, OHIO.

PUMP.

SPECIFICATION forming part of Letters Patent No. 452,961, dated May 26, 1891.

Application filed February 23, 1889. Serial No. 300,870. (No model.)

To all whom it may concern:

Be it known that I, JOHN G. AUGUSTINE, a citizen of the United States, residing at Columbiana, in the county of Columbiana and State of Ohio, have invented certain new and useful Improvements in Pumps; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to lift-pumps, and has for its object certain improvements in construction to effect a continuous and steady flow of water from an ordinary lift-pump in both strokes of the piston, as will hereinafter be described, and particularly pointed out in the claims.

In the accompanying drawings, which form part of this specification, Figure 1 represents a vertical section of my improved pump; Fig. 2, an enlarged sectional view of the upper portion of the air-chamber, and Fig. 3 a similar view of the upper cylinder.

Reference being had to the drawings and the letters thereon, A indicates a pump-standard of ordinary construction, and to it is secured the discharging-cylinder B by means of a tube C.

The cylinder B is open at its lower end and closed at its upper end by a plate *a*, which prevents the water that has ascended above the cylinder through the side passage or passages *b* from entering the discharging-cylinder above the piston *c*. To provide for the escape of surplus air and water which have passed the piston *c* to the upper side thereof in the discharge-cylinder, a series of apertures *d* are drilled through the wall of the discharging-cylinder and communicate with the water passage or passages *b*, thus preventing any waste of water, and to provide for the escape of any excess of air which may accumulate in the upper part of the pump standard or chamber D and produce spurts of the water in its discharge from the pump a tube E, perforated at *e*, is secured to the cap F and extends down to and connects with the plate or head *a* of the discharging-cylinder B, and conducts the air in the chamber D to the discharging-cylinder above the piston thereof, from which it is dis-

charged through the apertures *d* into the water being raised by the piston *c*, mingling therewith, and thoroughly aerating the water before it is discharged from the spout of the pump.

The lower or pump cylinder G is of ordinary construction, having a check-valve *f* and a piston *g*, and is connected to the discharging-cylinder B by a tube H.

The pistons *c* and *g* are attached to the rod *h*, which extends up through the tube E and connects with the pump-handle I by means of a link *i*.

The discharging-cylinder B and tube E may be attached to any ordinary standard, and can be used in dug, drilled, or driven wells or cisterns of any depth, and in conjunction with the perforated tube E communicating with the chamber D and the perforated discharging-cylinder B, and will thus cause a steady and continuous flow of water from an ordinary lift-pump.

The operation of the pump is such that the water rising in the pump standard or chamber D compresses air in the upper part thereof. The excess or surplus of air flows down through the tube E into the upper end of the cylinder B, from which it is discharged through the apertures *d* into the moving column of water, the discharge of air being effected by the ejector-like action of the moving column of water, which induces an outward current of the air from the cylinder B through its apertures *d*.

In the practical operation of the pump the circulation of the air from the chamber D is unobstructed and the discharge of the water from the spout uninterrupted and without spurts or pulsations.

Having thus fully described my invention, what I claim is—

1. A lift-pump provided with a discharging-cylinder having an open and a closed end, a side passage, and one or more apertures in its wall which communicate with the side passage for mingling air with the rising column of water, in combination with a tube communicating with the upper end of the cylinder and the upper end of the chamber in the pump standard, whereby air is circulated

within the pump and a steady flow of water produced, substantially as described.

2. A lift-pump provided with a discharging-cylinder having one or more apertures in its
5 wall, a side passage with which said apertures communicate, and a plate covering one end of the cylinder, in combination with a perforated tube connecting with said plate and the cap on the standard and communicating
10 with the cylinder and the chamber in the

standard, whereby air is circulated within the pump and a steady flow of water produced, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN G. AUGUSTINE.

Witnesses:

JACOB FLICKINGER,
HENRY H. BEEK.