

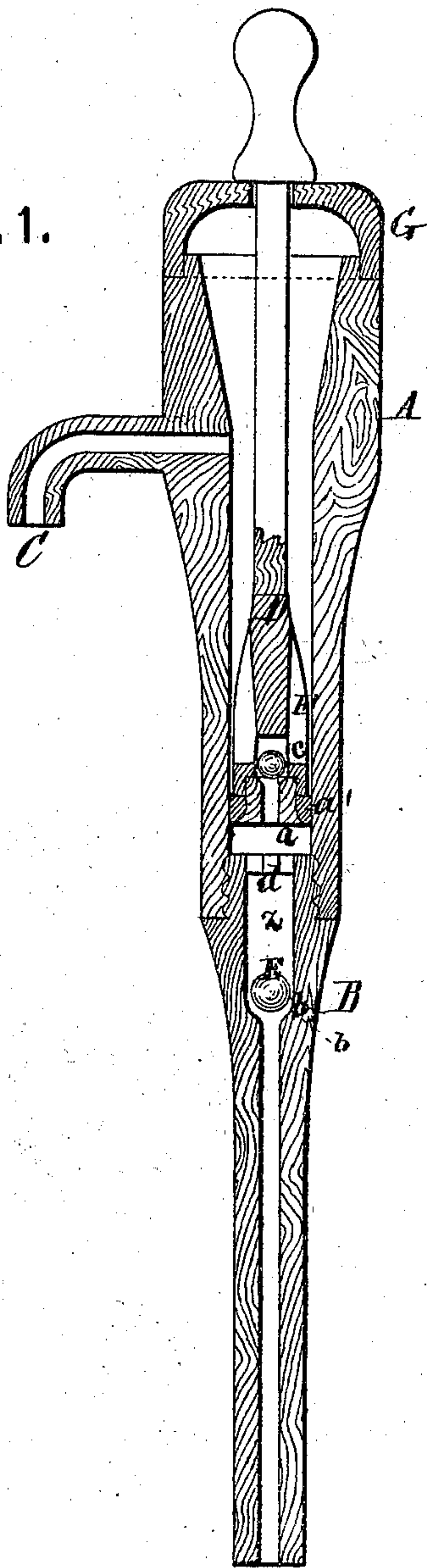
L. H. FISHER.

Acid-Pumps.

No. 133,639.

Patented Dec. 3, 1872.

Fig. 1.



WITNESSES.

E. H. Bates

P. C. Masi.

INVENTOR.

Lucius H. Fisher,
Chipman & Fromm
Attys.

UNITED STATES PATENT OFFICE.

LUCIUS H. FISHER, OF OIL CITY, PENNSYLVANIA.

IMPROVEMENT IN ACID-PUMPS.

Specification forming part of Letters Patent No. **133,639**, dated December 3, 1872.

To all whom it may concern:

Be it known that I, L. H. FISHER, of Oil City, in the county of Venango and State of Pennsylvania, have invented a new and valuable Improvement in Acid-Pumps; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawing making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawing is a representation of a vertical section of my invention.

My invention has relation to pumps designed for use in drawing sulphuric acid; and the novelty consists in the use of leaden-ball valves, and in the construction of the pump-barrel, tube, and piston, all as hereinafter more fully described.

Referring to the drawing, A represents the pump-barrel and B the tube, both made of glass, and screwed together. The barrel is conical or funnel-shaped at the upper part, so that it may contain sufficient fluid to prevent splashing or leakage from the top. C designates the tube from which the acid pours when drawn up. D represents the piston, having a conical or flanged screw-cup, *a*, fitted to its head and encircled by a rubber ring, *a'*, to produce suction. A hole is bored through said cap for the passage of acid. Above the cup is a recess containing a ball of lead, *c*, which acts as a valve for the piston. E designates another ball of lead placed in the upper part of the tube B, the bore of which is enlarged to

produce a socket, *z*, and made with a concave seat at *b*. The ball E is also a valve, and is raised by suction, but drops by its own weight. Lead is used for the valves because it possesses sufficient specific gravity to render its action certain in the heaviest acids, and because that metal is not affected by the acid. Two bars of glass, *d*, placed across the top of the tube B prevent the valve E from being drawn up too far. F represents slots in the side of the piston to let the acid pass through. In the up-stroke of the piston the valve E rises, and the valve *c* lowers or closes. Air is exhausted out of the barrel, and the acid rises to fill the vacuum. In the down-stroke the lower valve is closed and the upper one raised. The acid then runs through the piston, and is with the next up-stroke ejected from the pump. G represents a cap which fits on the top of the pump, but which may be made solid with the barrel.

I claim—

The acid-pump herein described, consisting of the glass barrel A, glass tube B, the piston D containing the lead-ball valve *c*, cup *a*, and packing *a'*, the socket *z*, lead-ball valve E, and guard *d*, all arranged substantially as specified.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

LUCIUS HARRISON FISHER.

Witnesses:

J. M. BROTHERS,
A. B. ARMUS.