JAMES SMITH.

Sand-Pumps.

No. 127,655. Patented June 4, 1872.

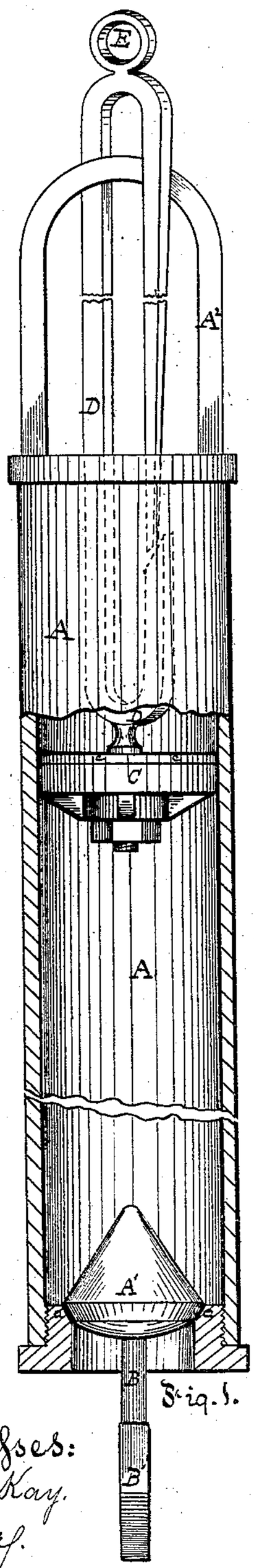

Fig. 1.

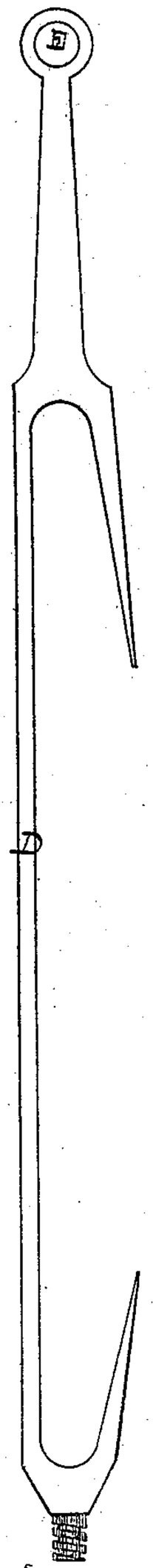

Fig. 3.

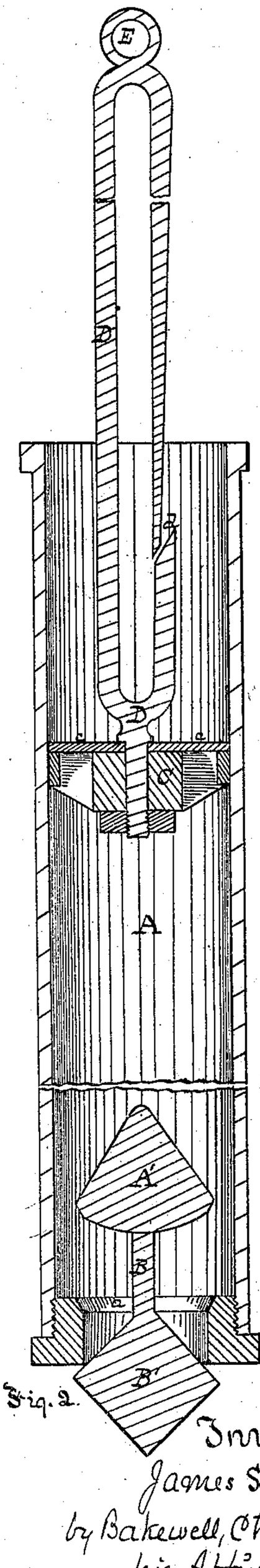

Fig. 2.

Witnesses:
James I. Kay.
E. C. Fitler.

Inventor:
James Smith,
by Bakewell, Christy & Kerr,
his Atty's.

127,655

UNITED STATES PATENT OFFICE.

JAMES SMITH, OF FRANKLIN, PENNSYLVANIA, ASSIGNOR TO HIMSELF AND WINSOR BROTHERS & COMPANY, OF SAME PLACE.

IMPROVEMENT IN SAND-PUMPS.

Specification forming part of Letters Patent No. 127,655, dated June 4, 1872.

SPECIFICATION.

To all whom it may concern:

Be it known that I, JAMES SMITH, of Franklin, in the county of Venango and State of Pennsylvania, have invented a new and useful Improvement in Sand-Pumps; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawing making a part of this specification, in which—

Figure 1 is a side elevation, partly in section, of my improved sand-pump. Fig. 2 is a longitudinal sectional view of the same; and Fig. 3 shows a modified form of jar-link, somewhat enlarged.

Like letters of reference indicate like parts in each.

My invention relates to an improvement in what are known in well-boring as sand-pumps; and consists in the combination of devices substantially as hereinafter described and claimed. Such pumps are used for removing the pulverized sand or rock from the bottom of the bore of the well from time to time, as it accumulates there in the operation of drilling. Such pumps are now made with a pump-tube from five to seven feet in length; and among other points to be secured in their construction not the least important are, ease and certainty of filling, and facility for emptying. The sand-pump hereinafter described combines these and other desirable features, it is believed, more perfectly than any other pump in use.

To enable others skilled in the art to make and use my improved pump, I will proceed to describe its construction and mode of operation.

The pump-tube or barrel A is made open at both ends, of any suitable length, and with an external diameter a little less than the diameter of the bore of the well. The lower end has a valve-seat, *a*, on which is seated a valve, A^1. This valve is attached to a stem, B, which carries at its lower end a weight, B′, of such gravity and shape as will, when free, bring the valve to its seat, and will not, in any case, close the lower end of the barrel A against the entrance of the sand. Inside the barrel A is an ordinary bucket or suction piston, C, fitted with valves, *c*, that open upward. This piston C is attached to a link-jar, D, through the eye of which passes the bail A^2 of the barrel A. One bar of this link D has a joint or division, as at *d*, through which the bail A^2 may be passed in putting the devices together for use or taking them apart in emptying the pump, the bar ends being sprung apart for that purpose at the joint or division. The same object may be effected by cutting away a part of one of the link-bars, as shown in Fig. 3, it only being necessary in the construction of these jars that one of the links-bars be continuous, and that an opening or division of greater or less extent be made in the other for putting in and removing the bail A^2.

The operation is as follows: The bail is inserted in the link; the eye E is attached to the lowering and hoisting rope, and the pump is then lowered down the well, the bail resting on the lower end of the link-eye, and the bucket C being at or near the upper end of the barrel A. When the bottom of the well is reached the weight B′ causes the valve A^1 to rise from its seat, and the barrel A next stopping the bucket C descends to or nearly to its lower end. A reverse or upward motion then imparted to the bucket will draw the sand at the bottom of the well into the tube through the lower valve till the barrel is full, when the whole apparatus is hoisted out of the well. The pump is lowered to the derrick-floor or ground, whereby the valve A^1 is unseated and the contents of the pump allowed to run out; but if, as sometimes happens, the contents of the barrel should interfere with the unseating of the valve, the barrel can be emptied at its upper end by removing the bail from the link-jar, as already described, and then inverting the barrel. In this way the work of removing the sand from the bottom of the well can be carried on with certainty and speed.

A ball-valve may take the place of the valve A^1, and, in emptying, be unseated by a separate stem, which shall enter the lower open end of the barrel.

I am aware that the devices hereinbefore described, separately considered, are old; hence,

What I claim as my invention, and desire to secure by Letters Patent, is—

The combination, in a sand-pump, of a lower valve, opening by a stem from below, an ordinary suction bucket or piston, a link-jar, jointed or open at one side, and a bail passing through the same, substantially as and for the purposes set forth.

In testimony whereof I, the said JAMES SMITH, have hereunto set my hand.

JAMES SMITH.

Witnesses:

HENRY J. DURANT,

SAML. M. REID.