De W. C. BRAWLEY.
Bailer for Oil-Wells.

No. 196,625. Patented Oct. 30, 1877.

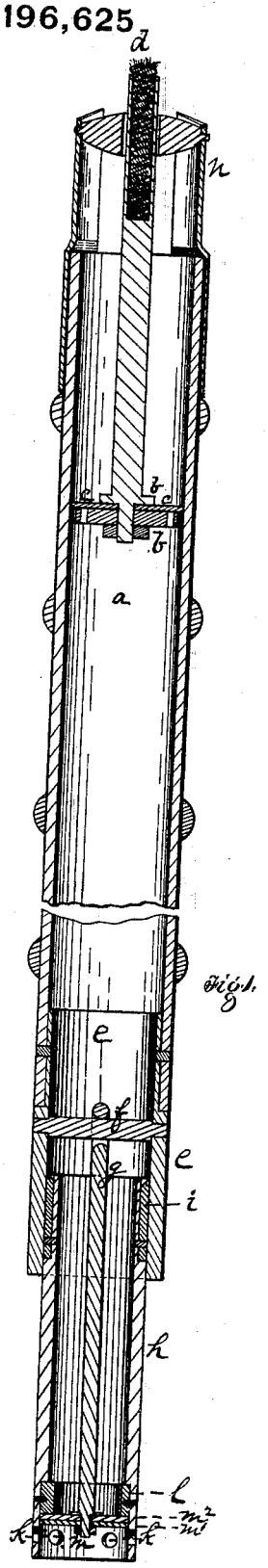

Fig. 1.

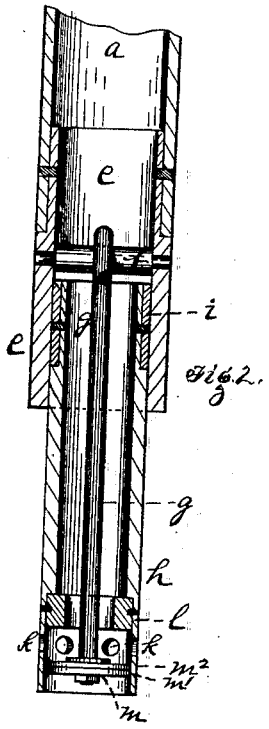

Fig. 2.

Witnesses.
L. C. Fitler
J. K. Smith

Inventor.
Dewitt C. Brawley
by Bakewell & Kerr
Attorneys.

UNITED STATES PATENT OFFICE.

DEWITT C. BRAWLEY, OF PETROLIA, PENNSYLVANIA.

IMPROVEMENT IN BAILERS FOR OIL-WELLS.

Specification forming part of Letters Patent No. **196,625**, dated October 30, 1877; application filed August 9, 1877.

To all whom it may concern:

Be it known that I, DEWITT C. BRAWLEY, of Petrolia, in the county of Butler and State of Pennsylvania, have invented a new and useful Improvement in Bailing-Pumps for Artesian Wells; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawing, forming part of this specification, in which—

Figure 1 is a vertical section of my improved bailing-pump, showing the position of the parts when the pump is being raised out of the well. Fig. 2 is a like view of the same when resting on the bottom of the well, or when discharging.

Like letters of reference indicate like parts in each.

My present invention has special reference to the improvement of the base and lower valve of bailing-pumps. It is especially useful with the elastic suction-bailer forming the subject-matter of my Patent No. 194,215, August 14, 1877, for bailers for oil-wells, but is designed also for bailing-pumps having rigid bodies. The elastic bailer is liable to be bent and distorted at the bottom by contact with the well, or in raising the valve to discharge the load, and thus in time becomes useless.

My invention consists in providing the lower end of the bailer with a valve chamber or tube, containing the receiving and discharge ports, and a valve-seat and valve, and having a limited movement in or upon the lower end of the bailer, for the purpose of automatically opening and closing the valve.

The drawing shows a flexible bailer, the part *a* being the flexible body, and *b* the piston, containing a valve, *c*, and operated by the rope or connection *d*.

The flexible body *a*, I now provide with a metallic tubular part, *e*, in which I hang loosely, by means of a rod or bail, *f*, a valve-stem, *g*. Sliding into the lower end of the tubular end *e*, so as to form a telescopic joint therewith, is a smaller metallic tube, *h*, which forms a valve-chamber for the lower valve. The upper end of the tubular valve-chamber *h* has a leather cup or other suitable packing, *i*, around it, so that a tight joint shall be formed between it and the tubular part *e*. At or near its lower end are the receiving and discharging openings *k*, and above them, inside of the chamber, the valve-seat *l* for the lower valve *m*. The upper end of the valve-chamber *h* being inserted into the tubular part *e* of the bailer, the valve-stem *g* projects below the valve-seat *l*. The valve *m* is then attached to the stem, and the machine is in working order. The valve *m*, I prefer to make, as shown, of a disk of metal, m^1, having a disk, m^2, of leather or other suitable packing, on the inside, the whole being secured on the threaded stem by nuts; but any other suitable form of valve may be used. The whole machine is usually from ten to forty feet in length.

The operation of the machine is as follows: It is lowered into the well by the cord *d*. When the lower end encounters the bottom of the well, the tube *e* slides down on the valve-chamber *h* until the bail *f* rests upon the upper end of the latter. This causes the valve *m* to pass below the ports *k*, and admit the water and sand to enter the body of the bailer. The piston *b* continues its descent after the body of the bailer comes to rest until it encounters the bail *f*. The valve *c* of the piston *b* is necessarily open during its descent. The operator then begins to lift. As soon as the piston *b* begins its ascent the valve *c* closes, and the tube *a* is filled by the water and sand drawn in from the well through the holes *k*. When the piston has traversed the entire length of the tube *a* it encounters the bail *n*, and thereby raises the tube *a*, which, in turn, raises the valve *m* until the latter is seated on the seat *l*, closing the lower end of the bailer, and retaining the water and sediment therein until it is raised to the top of the well and discharged. The ports *k* are opened to discharge the contents of the bailer by standing the latter on its lower end, when the weight of the tube *a* will cause it to slip down on the tubular valve-chamber *h*, unseating the valve *m* and opening the ports *k*, thereby permitting the contents to flow out. If, for any reason, they do not, the valve may be removed by taking off the nut *o*, when, the entire end of the tube being open, the obstruction may be removed or needed repairs made. The position of the ports and the form of the valve permits the ports to be entirely uncovered, so as to give a discharge unobstructed by the valve, and the weight of the

sand in the valve aids in unseating it to effect the discharge, while in prior machines the valve obstructs the discharge-opening, and is held in its seat by the weight of the sand and water.

These devices are used during the drilling of the well, for the purpose of bailing it out. A well is first bored to a smaller caliber than is desired, and then is reamed out to the proper size.

In order to use my improved bailer in wells thus in progress, I either use one corresponding to the smaller bore, or I make the bottom section or valve-chamber *h* of smaller diameter than the body of the bailer, so that, the body being in the wider portion of the well, the bottom section *h* will project down into the smaller hole. The lower section *h* may be of the same diameter as the body *a*, but with a suitable sleeve or socket for the sliding joint; and this construction can be used in drilling wells if it correspond with the size of the smaller diameter of the same, so as to reach the bottom.

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

1. In a bailing-pump for Artesian wells, a telescopic section whose bore is continuous with the pump-body, in combination with a valve arranged and seated upon or within the telescoping section, and adapted to be operated by the sliding section, substantially as specified.

2. A bailing-pump having a projecting valve-section of less diameter than the body of the pump, said section having a limited longitudinal movement on the body of the pump, so as to seat and unseat a valve arranged in or upon the same, substantially as specified.

3. A bailing-pump provided with a valve capable of opening downward, so that the weight of the load shall aid in unseating it, substantially as described.

4. A bailing-pump provided with a valve-stem suspended from the body, a lower sliding valve-section, and a valve attached to the valve-stem in the valve-section below a seat placed therein, and adapted to be opened and closed by the movements of the sliding valve-section, substantially as described.

In testimony whereof I, the said DEWITT C. BRAWLEY, have hereunto set my hand.

DEWITT C. BRAWLEY.

Witnesses:

R. C. WRENSHALL,

T. B. KERR.