J. BAILIE & C. W. BODEY.

# Well-Tubing.

No. 134,453. Patented Dec. 31, 1872.

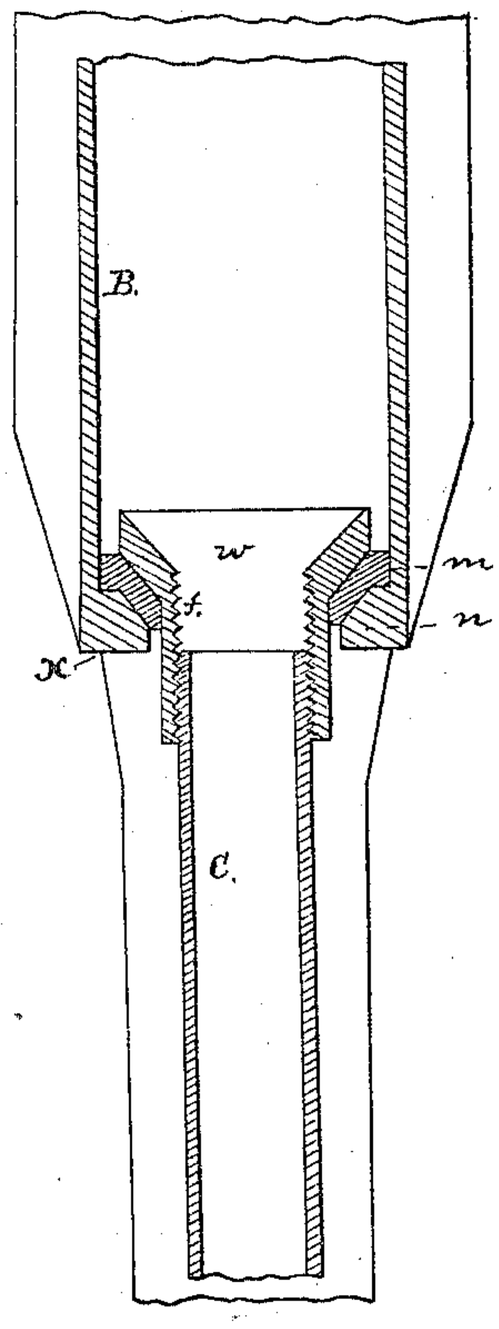


Fig: 2.

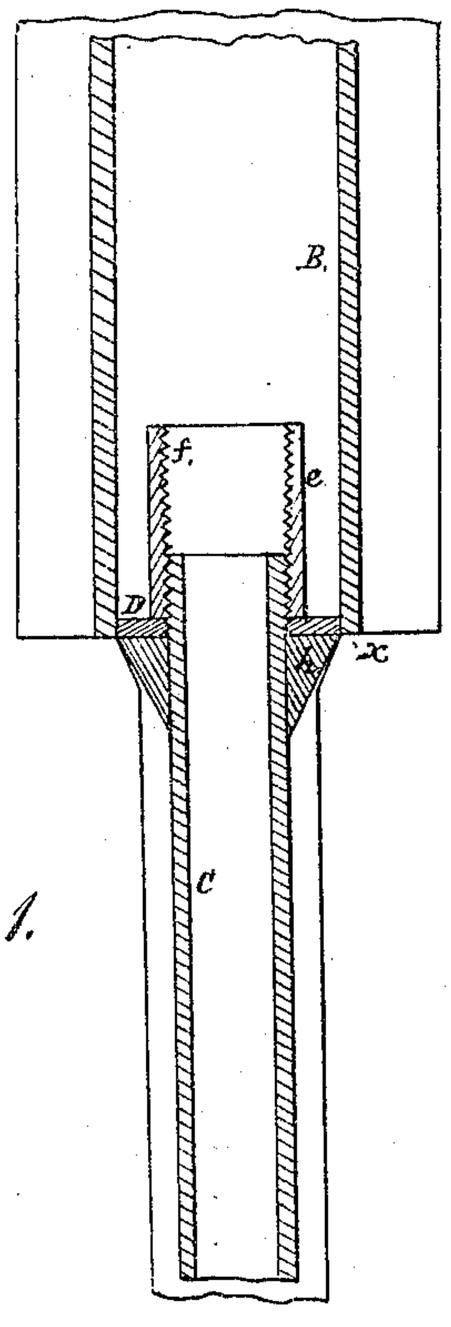


Fig: 1.

Witnesses.
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# UNITED STATES PATENT OFFICE.

JOHN BAILIE AND CHARLES W. BODEY, OF TARENTUM, PENNSYLVANIA.

## IMPROVEMENT IN WELL-TUBINGS.

Specification forming part of Letters Patent No. **134,453**, dated December 31, 1872.

*To all whom it may concern:*

Be it known that we, JOHN BAILIE and CHARLES W. BODEY, both of Tarentum, in the county of Allegheny and State of Pennsylvania, have invented a certain new and useful Improvement in Tubing Oil or Salt Wells; and we do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing and to the letters of reference marked thereon.

The nature of our invention consists in providing the lower end of the casing of oil or salt wells with pump-tubing and chamber, said casing, tubing, and chamber being connected and arranged with relation to each other so as to serve the double purpose of casing and pump-tubing.

To enable others skilled in the art to make and use our invention, we will proceed to describe its construction and operation.

In the accompanying drawing which forms part of our specification, Figure 1 is a vertical section of an oil or salt well, in which is placed the casing and tubing as combined by us; and Fig. 2 is a vertical section of an oil or salt well provided with the casing and tubing, representing a different method from that shown in Fig. 1 for connecting the casing and tubing and for packing the joint at the point of union.

In the ordinary mode of operating oil and salt wells a casing is placed in the well for shutting off the flow of "surface-water" into it. This casing usually extends from the surface of the ground down in the well to the rock, which is impervious to the water, at which point an offset is formed by making the bore of the well less in diameter. In this casing is placed a tube much less in diameter than the diameter of the casing. The tubing placed in the casing is called the "pump-tubing," and is often eight hundred (800) feet in length.

The object of our invention is to dispense with the use of the "pump-tubing" from the curb of the well down to the dry rock, where the casing usually ends, and rests on the offset in the rock.

To accomplish this very desirable object we fit upon the upper end of a length of the "pump-tubing" C a flat ring, D, of such outer diameter that it will freely pass inside of the casing B. Above the ring D is screwed upon the tubing C a sleeve, *e*, the bore of which is provided with screw-threads *f*. On the tubing C, below the ring, is fitted a gum cylinder, *h*, the largest diameter of which is about equal to the outer diameter of the ring D. A "seed-bag" or a wrapping of twine or muslin saturated with tallow may be used as a substitute for the gum cylinder *h*. The gum cylinder or wrapping must be of such size and form as to fit the bore of the well below the offset *x*, upon which the lower end of the casing B rests. We propose tapering the bore of the well, commencing at the offset *x*, the taper extending down about two feet below the offset. By this taper of the bore, combined with the wrapping, we are enabled to pack the joint at *x* so as to prevent leakage. The "pump-tubing" extends down in the well from the offset *x* to the salt or oil bearing rock.

The casing B is lowered into the well in the ordinary manner and by the usual means, and the upper end of the pump-tubing C, being furnished with the ring, sleeve, and wrapping, is then lowered in the casing, and its weight will cause the joint at the taper portion of the well to be thoroughly packed. The pump-tubing is then provided with the usual pumping device, and is operated in the usual manner for pumping oil or salt-water.

The casing B answers the double purpose of of casing and pump-tubing, whereby a large amount of tubing is saved, four or five hundred feet being often required to reach from the offset *x* in the well to the surface of the ground.

Fig. 2 represents a modified form of our improvement, which form we would prefer using in new wells, particularly salt-wells. *m* represents the gum packing placed between the inward projection *n* of the casing B and the beveled portion of the sleeve *w* on the upper end of the pump-tubing. This mode of packing will be clearly understood by the skillful mechanic without further explanation.

The pump-tubing C is removed from the well by screwing the lower end of the pump-rod into the sleeve *f* or *w* and then withdrawing the rod and tubing by the means common to oil-wells; and the tubing is replaced in the well through the medium of the pump-rod attached to it in like manner.

Having thus described our improvement, what we claim as of our invention is—

1. The casing of an oil or salt well the lower end of which is provided with a pump-tubing and chamber, substantially as herein described, and for the purpose set forth.

2. In combination with the subject-matter of first clause of claim, a suitable packing at the point of junction between the casing and pump-tubing, substantially as described, and for the purpose set forth.

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