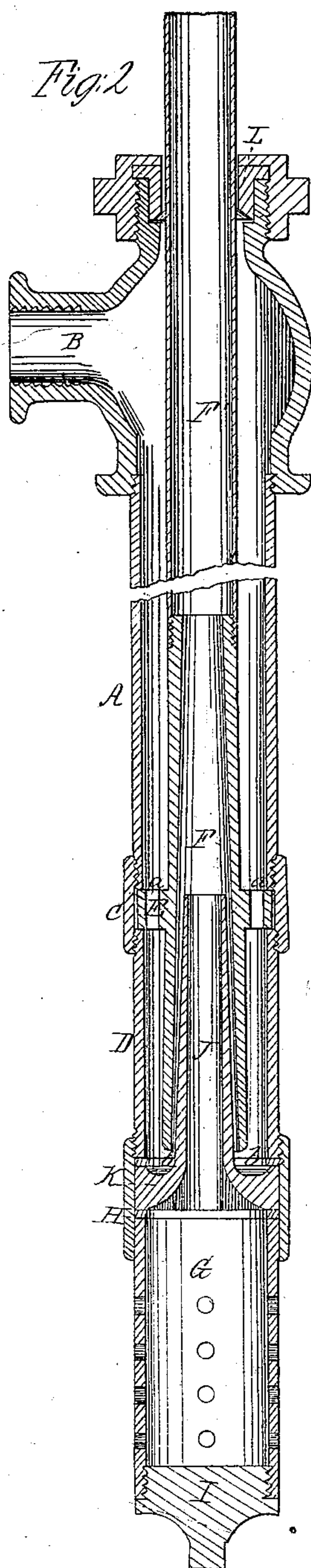
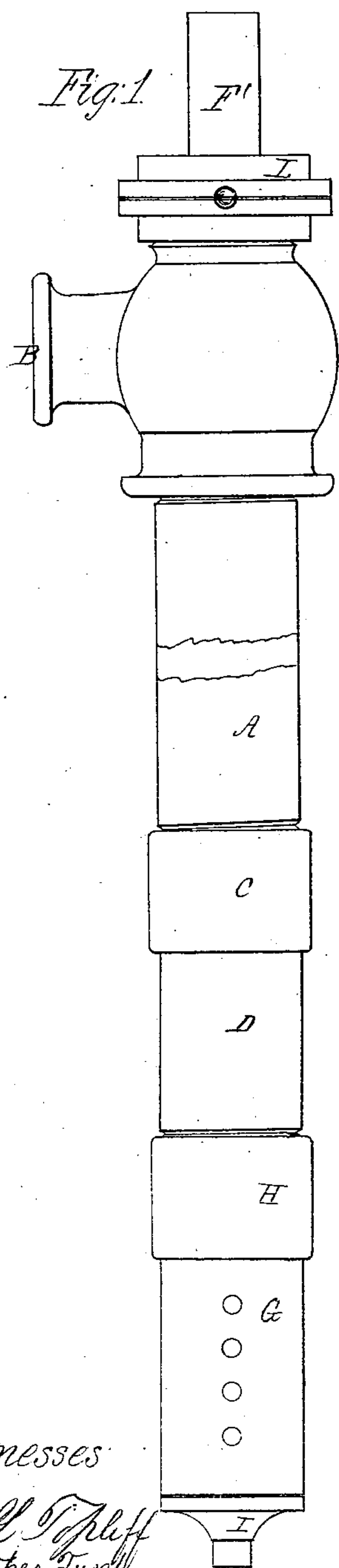


Turrell, Stanton & Ward,

Ejecting Pump.

N^o 47,174.

Patented Apr. 4, 1865.



Witnesses

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UNITED STATES PATENT OFFICE.

L. W. TURRELL, SAM'L. STANTON, AND L. C. WARD, OF NEWBURG, N. Y.

IMPROVEMENT IN OIL-EJECTORS.

Specification forming part of Letters Patent No. 47,174, dated April 4, 1865.

To all whom it may concern:

Be it known that we, L. W. TURRELL, SAMUEL STANTON, and L. C. WARD, of Newburg, in the county of Orange and State of New York, have invented a new and Improved Means for Raising Petroleum in Wells and Ejecting it therefrom; and we do hereby declare that the following is a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is an external view of our invention; Fig. 2, a vertical central section of the same.

Similar letters of reference indicate corresponding parts.

This invention relates to a new and improved means for raising petroleum in wells through the medium of air injected into it.

The invention has for its object, first, the keeping of the air-passage free from mud, sand, &c., which are liable in the old plans to choke up said passage; second, in having the air-passage so arranged that it will not interfere in the least with the ascent of the oil in the oil-tube, nor the oil interfere with the current of air, due provision being also made for the difference in the expansion of the oil-tube and well-pipe, as well as for the ready connecting and disconnecting of the several parts.

A represents the main portion of the pipe, which is inserted in the bore of the well, and is provided at its upper end above the well with a nozzle or opening, B. To the lower end of A there is attached, by an ordinary screw-coupling, C, a pipe, D, and between these pipes A D a disk, E, is firmly clamped by the coupling, said disk being at the exterior of a conical tube, F, which forms the lower part of the oil-tube F', through which the oil is raised and discharged from the well. The tube F' is screwed on the upper end of F, as shown clearly in Fig. 2. The disk E is perforated with holes *a*, and it serves to retain the tubes F F' in proper position in pipe A.

G is a pipe which is connected to the lower end of the pipe D by an ordinary screw-coupling, H. The pipe G is perforated all around to admit the oil into it, and into the

lower end of G there is screwed a rod, I, which supports all the pipes and the tubes within them, the rod I resting on the bottom of the well.

J is a tube of slightly conical form, the lower end of which spreads out, or is made sufficiently flaring to form a disk, K, which is fitted in the upper end of pipe G, and is secured or firmly clamped between the pipes D G by the coupling H, and secures the tube J in proper position. The upper surface of the disk K is grooved or hollowed out in annular form, as shown at *b*, and is a short distance below the lower end of tube F, forming a gradual curve between the spaces formed by the pipe A and tube F and the tube J and tube F', as shown in Fig. 2. The tube J extends upward within the tube F to a plane on a level with the upper surface of the disk E.

L is a stuffing-box, which is at the upper end of the pipe A, and forms a tight joint around the tube F', and at the same time admits of the free expansion or contraction of the tube F' and pipe A independently of each other.

The operation is as follows: Air is forced through the nozzle or opening B into pipe A, and down through the space between the tubes F' F and pipe A, and around underneath the lower end of F, upward between F and J, as indicated by the arrows, and thus draws the oil up, which enters the pipe G, and forces said oil up through tube F' to suitable tanks provided for its reception. Thus by this simple arrangement the air-passage is kept perfectly free from all mud, dirt, and other impurities at the bottom of the well, and the air, by the arrangement of the internal tubes, as shown and described, is made to operate in the most efficient manner in elevating or forcing up the oil, the oil not serving in the least to counteract the force of the current of air, and the air not interfering in the least with the free upward passage of the oil.

The effect we seek to produce can be partially attained by the use of two tubes not placed the one within the other, provided the compressed air be injected into the oil-tube through an annular passage around on the outside of the tube, through which the oil is admitted from below; but we prefer the ar-

rangement of one tube within the other, as above described.

We are aware that feed-water has been injected into steam-boilers by the force of steam acting upon the same principle as that employed by us. We are also aware that contrivances have been proposed and patented by which oil may be raised from deep wells by the application of steam or compressed air acting upon this same principle. We do not therefore claim, broadly, to be the first inventors of an apparatus for raising oil by the use of compressed air acting upon the principle now proposed to be employed by us. Finally, we are aware that a contrivance has been devised by which the tube through which the air is injected surrounds one oil-passage and is surrounded by another oil-passage. Believing that the utility of such a contrivance would not be sufficient to justify a contest for priority of invention, we disclaim the contrivance for the present, and limit ourselves to our special devices.

What, therefore, we claim as new, and desire to secure by Letters Patent, is—

1. A contrivance for raising oil like that hereinbefore described—that is to say, one wherein the oil is drawn up through a central passage or tube around which is an annular passage or tube through which the compressed air is made to act upon the oil—substantially in the manner and for the purpose described.

2. The manner of securing the internal tube, F, within the external tube, A, by means of the perforated disk E and the coupling-clamp C, substantially as described.

3. The manner of securing the tube J in its position by means of the disk K and coupling-clamp H, constructed and arranged substantially as described.

4. The stuffing-box L, in combination with an internal and an external tube, arranged in the manner and for the purpose above described.

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Witnesses:

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