

(No Model.)

L. SMITH.

2 Sheets—Sheet 1.

Method of and Apparatus for Sinking Oil and other Wells.

No. 237,621.

Patented Feb. 8, 1881.

Fig. 1.

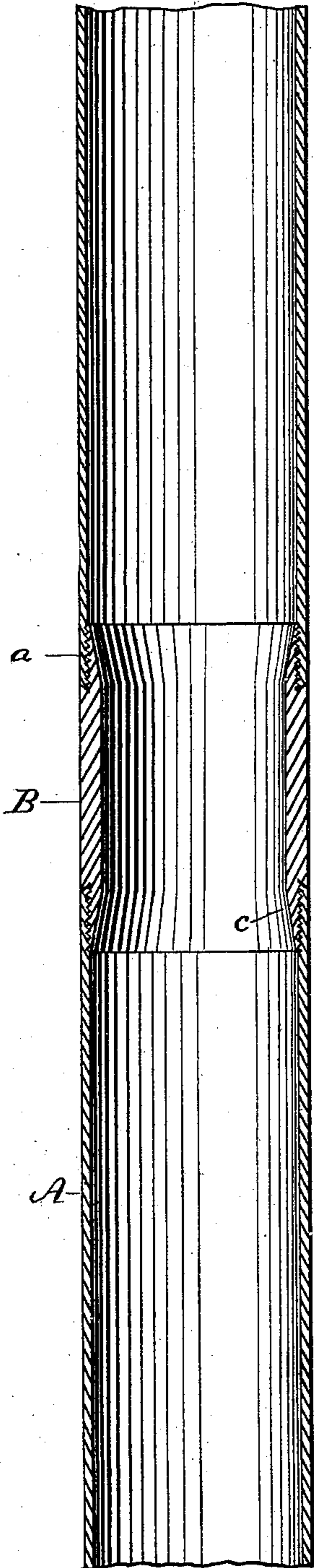
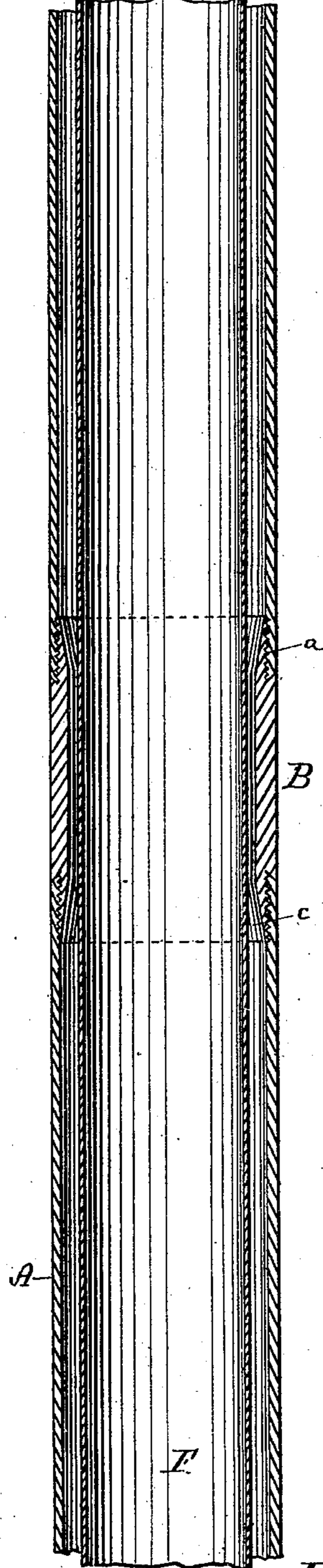


Fig. 2.



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Fig. 3.

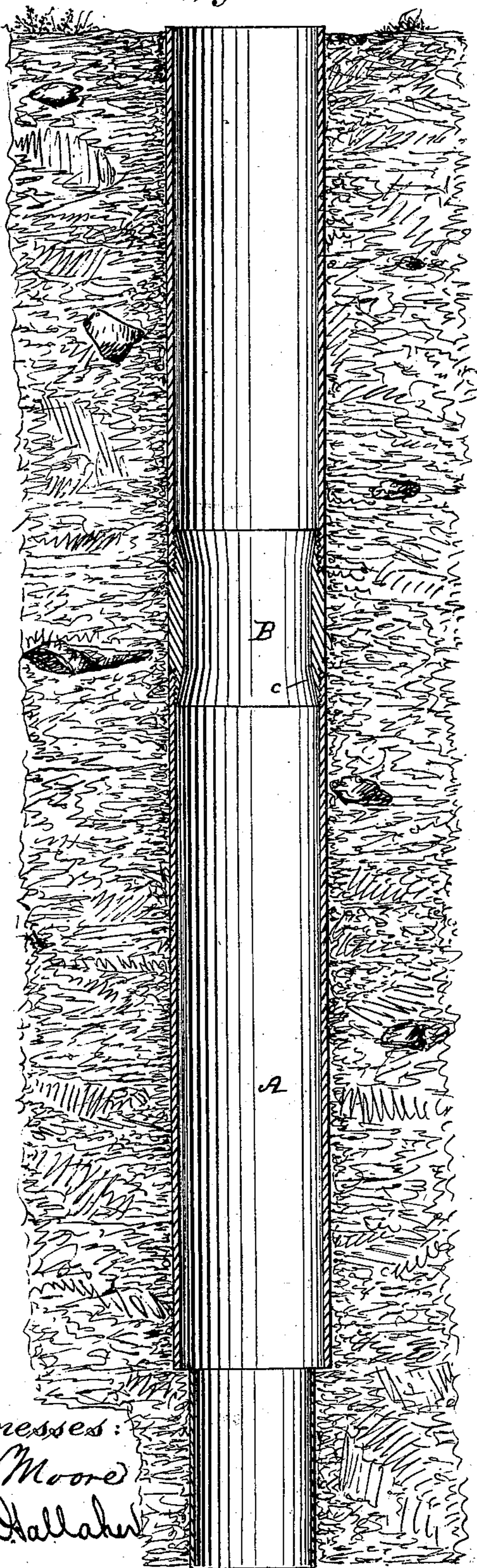


Fig. 4.

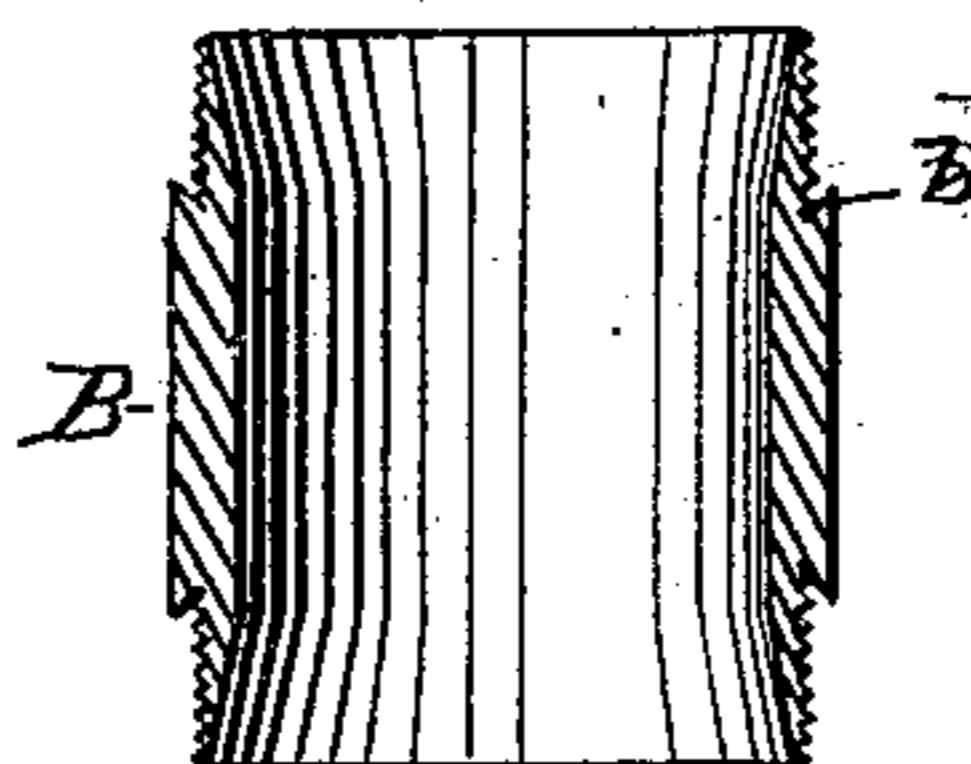


Fig. 5.

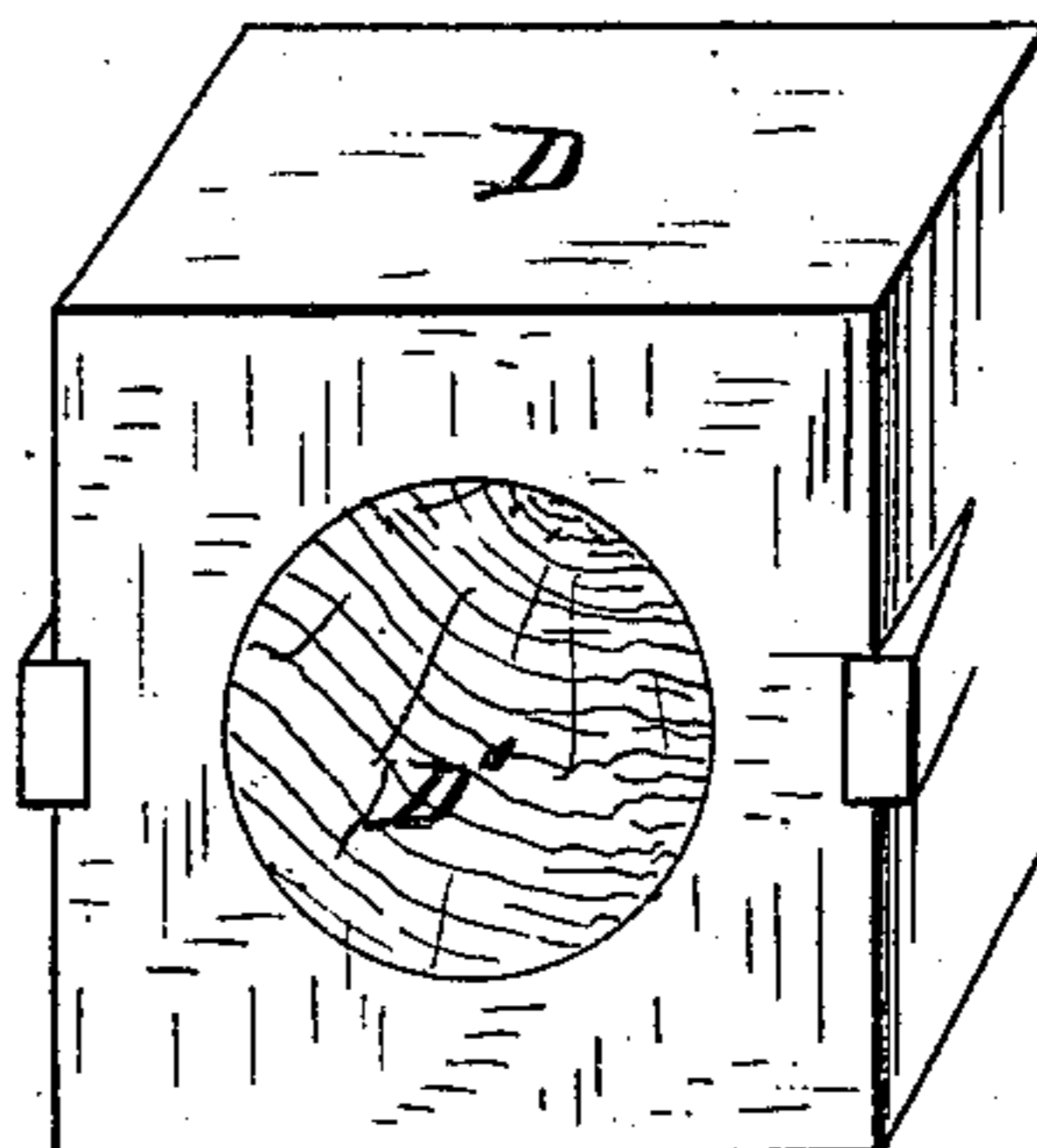


Fig. 6.

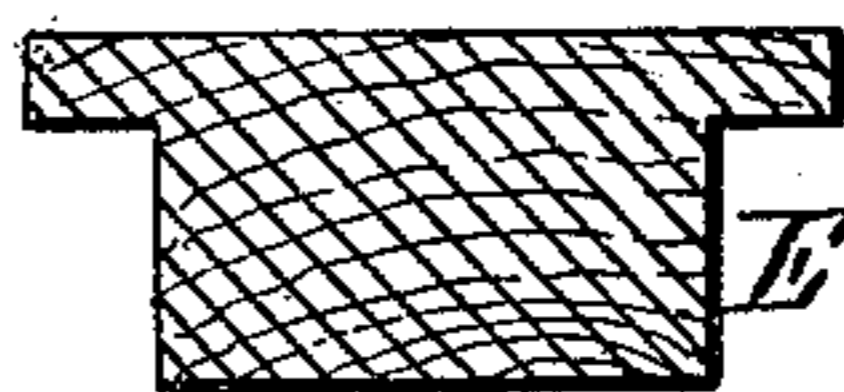
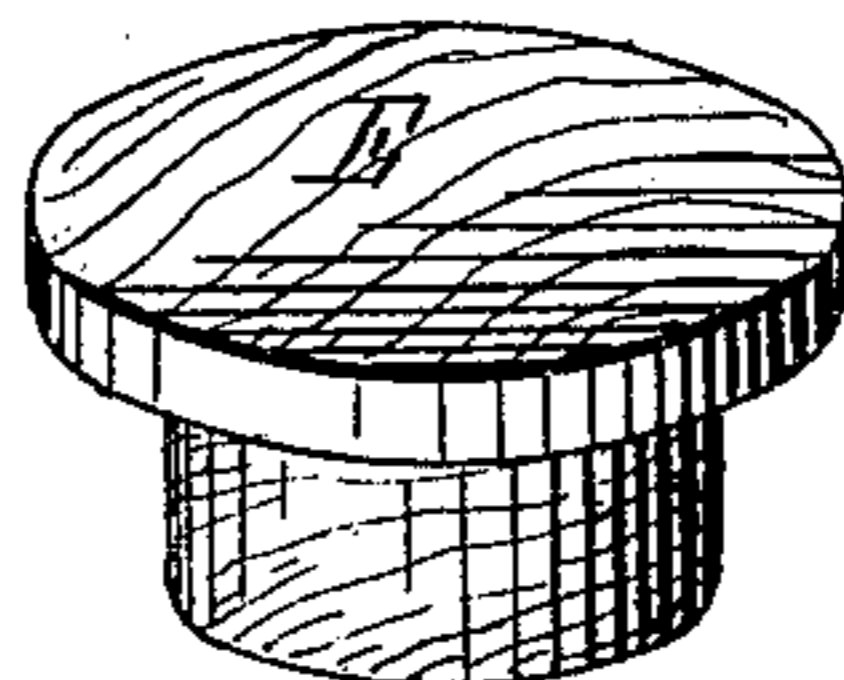


Fig. 7.



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UNITED STATES PATENT OFFICE.

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METHOD OF AND APPARATUS FOR SINKING OIL AND OTHER WELLS.

SPECIFICATION forming part of Letters Patent No. 237,621, dated February 8, 1881.

Application filed January 19, 1881. (No model.)

To all whom it may concern:

Be it known that I, LEVI SMITH, a citizen of the United States, residing at Tidioute, in the county of Warren and State of Pennsylvania, have invented a new and useful Improvement in the Method of and Apparatus for Sinking Oil and other Wells, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of the same.

My invention consists in the construction of the outer or driving pipe of oil and other wells, which is designed to extend down to the solid rock, and is so constructed as to be driven down to its proper place, or to the rock, and its external surface left free from projections or obstructions, so that it can be more easily driven down and more readily withdrawn to be used again in sinking another well.

It further consists in beveling or tapering the inside of the coupling-sections so as to admit of the insertion, withdrawal, and free use of the tools, pump, &c.

It consists, further, of a metallic maul or hammer having inserted therein a wooden anvil which comes in contact with the driving tube or cap in the tube to be driven.

It consists, further, in the method and means, hereinafter more fully described, of securing within the driving tube or pipe a permanent pipe or tube and the withdrawal of the driving pipe or casing, whereby the outer and upper portion of the well is at all times guarded against the caving in of the earth.

Referring to the drawings, Figure 1 is a sectional view of the driving pipe or tube. Fig. 2 is a sectional view of the driving-pipe with the permanent casing inserted therein. Fig. 3 is a sectional view of the driving-pipe in position in the well. Fig. 4 is a detached sectional view of the pipe-coupling. Fig. 5 is a view in perspective of maul or hammer. Figs. 6 and 7 are sectional and perspective views of the driving-cap.

A designates any number of sections of the outer tube or driving pipe, which may be made of steel or any suitable metal that will withstand the blows of the maul or hammer used in driving the same without breaking or bending. The ends of these tubes or pipes are screw-threaded internally for a short distance,

as at *a*, so as to be screwed over the ends of the coupling joints or sections B. The coupling joints or sections B are at their greatest diameter of the same size as the external diameter of the main-pipe sections A, and have their ends cut away, the cut-away portions being provided with screw-threads on their exterior to match or take into the screw-threads in the interior of the sections A.

The shoulders *b* on the coupling-joints, against which the ends of the sections A abut, may be cut away, as shown, and the ends of the sections A may be beveled, in order to prevent the ends of the sections A from riding over or telescoping over the coupling-joints. These parts, however, may be made square without departing from the spirit of my invention.

The interior of the couplings are also beveled, as shown at *c*, so as to allow the insertion, withdrawal, and free use of the drilling or other tools used in the drilling or boring of the well.

It will be seen that by this construction I have a driving pipe or tube with plain external surface, with nothing to project and impede the passage of the tube or pipe into or from the ground, except the natural resistance of the earth. The pipe-sections or tubes A are driven into the earth, and as each section or series of sections have been driven down another coupling B and section A are added, and so on until the rock has been reached. In the meantime, as the sections have been driven down, the earth, sand, gravel, &c., which has found its way into the interior of the driving-pipe is puddled or made into mortar by the introduction of water and agitated or mixed by any suitable means, and can then be readily removed by an ordinary sand-pump.

Any suitable driving device may be used for driving down the pipe-sections; but I have shown in Fig. 5 the kind of hammer or maul I prefer to use; and it consists of a heavy iron driver or maul, D, adapted and fitted to work in suitable ways, so as to insure accuracy of stroke on the pipe or tube. The under or lower portion of this hammer or maul is recessed or hollowed out, and in this recess I insert a block of hard wood, D', which can be readily replaced by a new one when worn out.

To prevent injury to the pipes or tubes A and

couplings B, I also insert in and on the top of the same a plug or cap, E, to receive the blows of the hammer, and by making the striking portion of the hammer or maul of wood I largely decrease the destructive effect of the heavy blows on the driving-pipe sections and coupling.

I have now described the means and apparatus of sinking the pipe with its coupling-sections down to the rock. I will now proceed to describe the manner of inserting a permanent casing (if such be desired) and the removal of the driving pipe or tube from the well.

The interior of the driving-pipes A having been cleaned out and all dirt and solid matter removed therefrom, the permanent casing F is lowered therein until it rests on the bottom of the excavation. The pipe A, with its couplings, is then removed.

The permanent casings F may be made of lighter and cheaper metallic tubes of sheet metal, galvanized metal, or any other suitable material.

The permanent casing F may be let down in sections, and as each section is secured to the preceding section in any desired manner the external or driving pipe, A, is raised for a short distance, and then another section of the permanent casing lowered and secured in position.

The outer or driving pipe, A, with its couplings, is made very strong and of the best material, so that when the well has been sunk to the rock and the permanent casing inserted therein it can be withdrawn and used for sinking other wells.

When the permanent casing has been inserted and the driving-pipe removed, the boring and drilling of the well to the desired depth, or until the oil-bearing rock is reached, is proceeded with in the usual manner.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. A driving pipe or tube for oil and other wells, composed of sections or tubes screw-threaded at their ends, on the inside thereof, and the coupling-sections, recessed and screw-threaded as described, whereby a driving pipe or tube of uniform diameter in its external portions of any desired length is secured, as set forth.

2. In a driving pipe or tube for oil and other wells, the combination of the sections A, screw-threaded as described, with the couplings B, of the same external diameter, recessed and screw-threaded as set forth, with the inner portion thereof beveled to allow the free passage of the tools to and from the well.

3. A driving pipe or tube for oil and other wells, composed of sections A and B, when constructed and joined substantially as described, whereby the pipe or tube is made of uniform external diameter throughout its entire length and a smooth external surface secured to facilitate the insertion and withdrawal of said pipe or tube into and from the earth, as set forth.

4. The maul or hammer D for driving the pipes or tubes of oil and other wells, provided with suitable guides, and with a recess formed in the bottom thereof for the reception of a piece of wood to receive and distribute the force of the blow.

5. The method herein described of sinking oil and other wells, the same consisting of driving a pipe or tube down to the rock-bed, cleaning the interior of said tube or pipe of the earth and solid matter, then inserting a permanent casing or tube therein, and finally removing the outer or driving pipe or tube from the well, as set forth.

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Witnesses:

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