B. J. C. Howe,

Well Tubing

No. 52,853. Patented Feb. 27, 1866.

Fig: 3

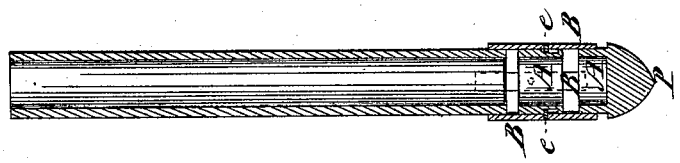


Fig: 5

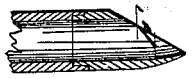


Fig: 2

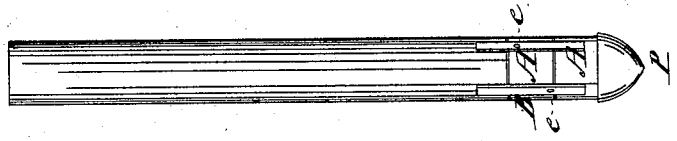
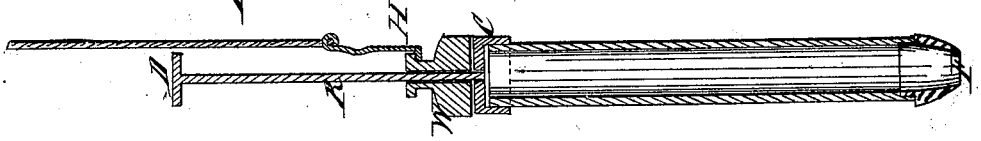


Fig: 4

Fig: 1.



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UNITED STATES PATENT OFFICE.

BENJN. J. C. HOWE, OF SYRACUSE, NEW YORK.

IMPROVED MODE OF SINKING WELLS.

Specification forming part of Letters Patent No. **52,853**, dated February 27, 1866.

To all whom it may concern:

Be it known that I, B. J. C. HOWE, of Syracuse, in the county of Onondaga and State of New York, have invented a new and Improved Mode of Sinking and Constructing Well-Tubing; and I do hereby declare that the following is a full and exact description thereof, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a vertical section of the excavating-tube and apparatus for sinking it into the earth. Fig. 2 is a side elevation of the pump and well-tube, showing the apertures for the admission of the water closed. Fig. 3 is a vertical section of the tube, showing the apertures open ready for use. Fig. 4 is a detached view of one of the adjustable sections of the tube. Fig. 5 is a detached view of another form of the foot F.

The nature of my invention consists in providing a strong tube of iron or other suitable material with a hollow foot or point, as shown at F, Fig. 1, in which the opening is smaller than the inside diameter of the tube. The tube is also provided with a cap, C, which covers the upper end and protects it from being battered by the blows that are necessary to force the tube into the earth.

Attached to the cap is a rod, R, which guides the weight W as it falls upon the cap of the tube.

The weight W is provided with a groove, into which the hook H catches and by means of which it is drawn upward until the hook is thrown out of the groove by the disk D, which is attached to the rod R, and the weight of course falls with force upon the cap of the tube and forces the foot F a short distance into the ground. This process is repeated until the tube is driven to the supposed depth of the water. The tube is then withdrawn, and by examining its contents it is very easy to determine whether the proper strata of the earth to yield water has been reached, as a sample of the different strata will pass in through the opening in the foot of the tube and be withdrawn with it.

At Fig. 5 is seen another form of the foot F, with its cutting-edge in the shape of a transverse inclined section of a cone, so that if, in its downward progress, it encounters a stone a little too large to enter within its orifice the latter may be forced aside and not bring the operation to a stand, or the tube may be turned sufficiently to avoid the obstruction.

The opening at the foot of the excavating-tube, Fig. 1, is made smaller than the passage through the body of the tube, so as to permit any hard substance that can enter the opening in the foot to pass readily through the tube, thus preventing stone or hard earth from wedging into and obstructing the passage through the tube.

When the distance to the strata containing the water has been ascertained and the excavation reaching down to it has been made, as shown above, the pump-tube, which also answers for the well-tubing, is inserted in the excavation and forced down until the adjustable sections A A are situated in the strata yielding water. The apertures between the adjustable sections are then opened, as shown in Fig. 3, either by withdrawing the tube a short distance or by inserting a rod in the tube and driving the point P a short distance while the main portion of the tube remains stationary.

To the point P are attached the bars B B, having the pins *e e* attached, so that they will move in slots cut in the sides of the adjustable sections.

The bars B′ B′ are attached to the lower end of the main tube, having pins *e′ e′* attached to move in other slots cut in the adjustable sections.

When the main tube is drawn upward the bars B′ B′, moving with it, draw the adjustable sections apart and the pins on the bars B B and B′ B′ are so arranged with reference to the slots in the sides of the adjustable sections as to keep them at equal and proper distances apart. The operator is now sure not only that the tube and openings into it are clear and free from obstructions, but that the openings are at the proper depth—a matter sometimes very difficult to ascertain—and nothing remains except to attach a pump and draw the water to the surface, as may be required.

It is obvious that the number of the adjustable sections will vary according to the requirements of different localities, and also that the slots in the sections might be made in the bars instead, and the pins to work in

them might be attached to the sections instead of the bars.

The advantages of this invention over other modes of constructing and sinking well-tubing are very great, as will appear at a glance by a person acquainted with the difficulties usually experienced in sinking wells of this class.

First, by driving a pipe with a small opening at the foot of it an accurate knowledge of the different strata can be obtained by examining the contents of the pipe, and thus determine the proper depth of the well without the sometimes long and tedious operation of applying the pump to test it.

Second, a tube is much lighter than a solid bar and more convenient to use and transport from place, as may be desired, and it is stronger than the same amount of metal would be in a bar.

Third, in passing through hard and solid earth a tube open at the lower end will receive a portion of the earth which would have to be forced aside in driving a solid bar, thus causing it to drive much easier than a bar.

Fourth, the pile or tube driver, as shown in Fig. 1, is more simple and easily transported than the heavy frame sometimes used.

Fifth, by having the well-tubing made in sections, so that the apertures can be closed while the tube is being inserted in the earth and easily opened, as already shown above, when the water is reached, prevents the trouble and delay occasioned by having the apertures and lower end of the tube wedged full of solid earth, as it very frequently is in the common mode of constructing the openings to the tubing.

I claim—

1. A tube to be used in sinking wells when a point or foot, F, is thereunto attached, constructed and operated substantially as herein set forth and described.

2. In a pump and well tube, the adjustable sections A A, in combination with the bars B B and pins *e e*, when constructed in the manner and for the purpose herein described.

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Witnesses:

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