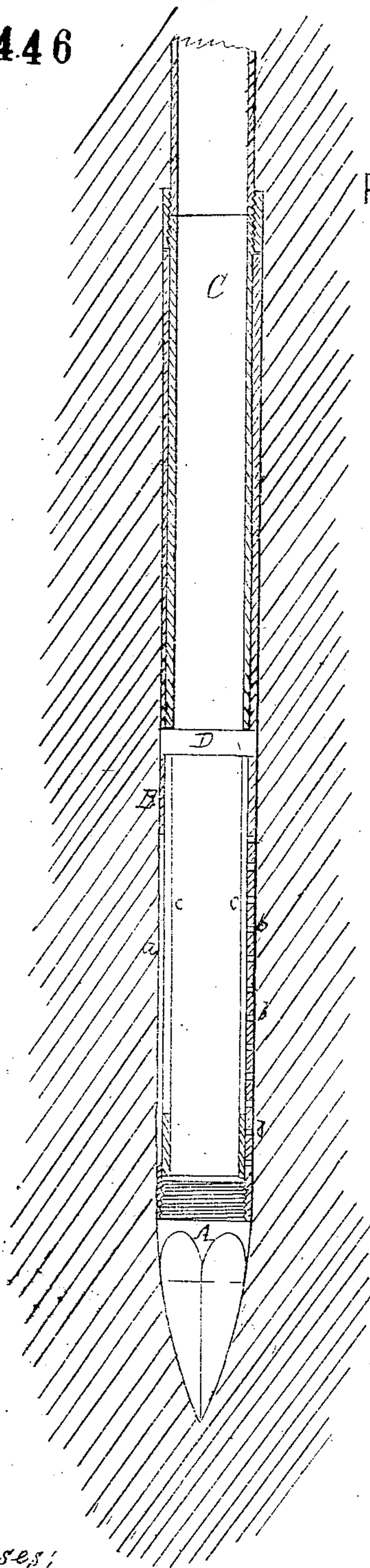


W. T. HORNER'S  
Imp<sup>ve</sup> in Tube Wells.

73446

Fig. 1.



PATENTED  
JAN 21 1868

Fig. 2.

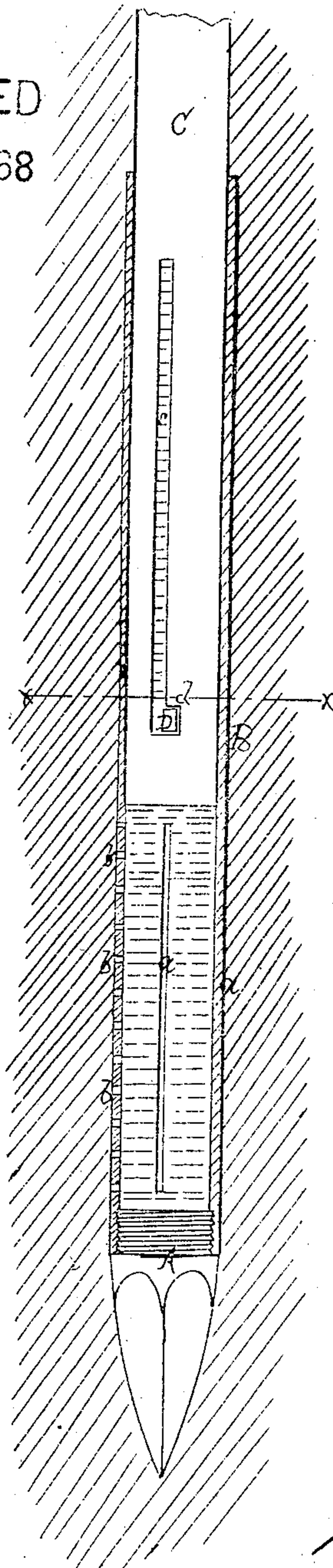


Fig. 4.

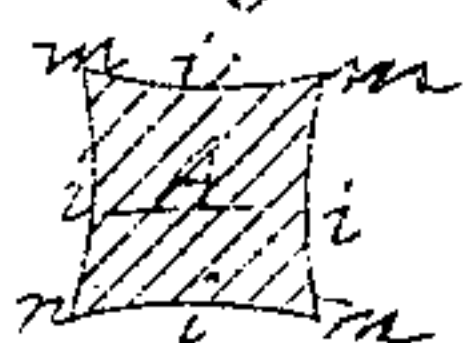
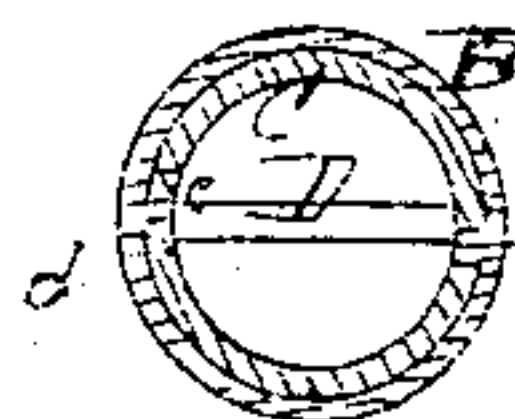


Fig. 3.



Witnesses:  
Edgar B. Hoffman  
Lorent. Kuhns

W. T. Horner,  
by J. Fraser & Co  
Attys



# United States Patent Office.

W. T. HORNER, OF BUFFALO, NEW YORK.

*Letters Patent No. 73,446, dated January 21, 1868.*

## IMPROVEMENT IN WELL-TUBES.

The Schedule referred to in these Letters Patent and making part of the same.

### TO ALL WHOM IT MAY CONCERN:

Be it known that I, W. T. HORNER, of the city of Buffalo, in the county of Erie, and State of New York, have invented a certain new and useful Improvement in Tube-Well; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a vertical section of the lower portion of the tube in the act of being driven into the earth.

Figure 2 is a section made in a plane at right angles to that of fig. 1, showing the tube drawn up, so as to uncover the slits and perforations through which the water enters.

Figure 3 is a cross-section in line *x x*, fig. 2.

Figure 4, a similar section of the point in plane of red line *y y*.

Like letters refer to like parts.

My invention consists in the construction of a well-tube with an external section or shielding-tube connected with the driving-point, and provided with a fixed cross-bar, which passes through vertical slots of the inner tube, said slots being so constructed as to allow the inner tube to be drawn upward a limited distance, to uncover openings for the admission of the water, and provided with lateral recesses, by means of which the inner tube may be partially turned within the external one, whereby the said bar is caused to lock the two tubes together, securing them in the same relative position, the said bar acting at the same time as a transverse brace and strengthener of the outer tube, and affording a means by which the point may be further driven into the earth after the water-openings have been uncovered, or the point wholly withdrawn, if required.

In the drawings, A represents the point, B the short outer tube or shield attached thereto, provided with fine slits *a a* or perforations *b b*, or both, as preferred, for the ingress of the water. C, the main tube of the well, the lower end of which fits so as to slide within the tube B. The lower end of the tube C is provided with slots *c c*, through which passes a key, D, that is fastened transversely in the outer tube. These slots are so formed as to allow the tube C to slide down within the outer one, B, and close the apertures *a b* in the latter during the process of driving, (as shown in fig. 1,) so as to exclude the dirt and sand from entering the tube, and to permit it to be afterwards elevated, uncovering the apertures, as represented in fig. 2. The lower ends of the slots *c c* are provided with a jog or recess, *d*, that in the one being on the side opposite that on the other, so that by giving the tube C a slight turn after it has been raised, as above described, the key D will be brought in these recesses, and the tube sustained in that position.

The point A, for penetrating the earth, is formed with four concave sides, *i i*, as shown in cross-section in fig. 4, which gives the corners *m m* at their junction a sharp edge, that enables the point to more readily penetrate the earth than when made with the ordinary conical point, or with the sides *i i* straight in cross-section instead of concave, as shown.

This form of the point also operates to prevent the shield or outer tube B, to which it is attached, from turning with the tube C in adjusting the key in the recesses *d*, as before described. The formation of the slot in the inner tube C, connecting with the key D, enables the former to be slid down so as to close the openings *a b* while the tube is being driven, and thereby prevent the sand and dust from being forced through into the tube and to be afterwards raised, so as to uncover them, and to be sustained in that elevated position by the key D, fitting in the recesses *d*. Were the slots *c* formed in the outer tube or shield B, instead of the inner one, the clay or dirt would be so pressed and packed therein, during the driving of the tube, as to render it at times impossible to raise the tube without at the same time raising the point or shield with it. My arrangement of the slot, as is readily perceived, overcomes this difficulty.

I do not claim broadly closing the apertures *a b* by means of the tube C sliding within, but

What I claim, is—

The combination of the outer tube B, provided with the cross-bar D, with the inner tube C, provided with the slots *c c* and recesses *d d* at the bottom thereof, constructed and arranged in the manner and for the purposes set forth.

In witness whereof, I have hereunto signed my name in the presence of two subscribing witnesses.

W. T. HORNER.

Witnesses:

JAY HYATT,

JAMES C. BROWN.