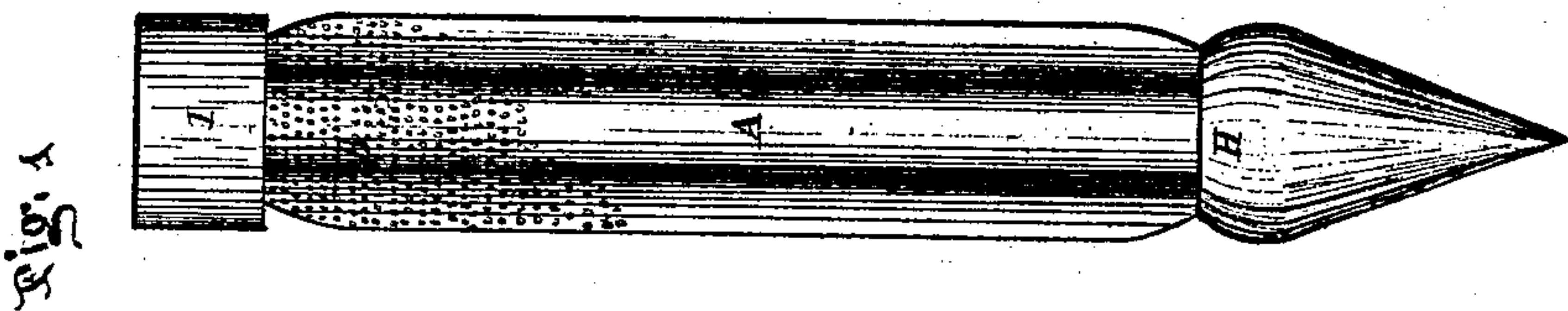
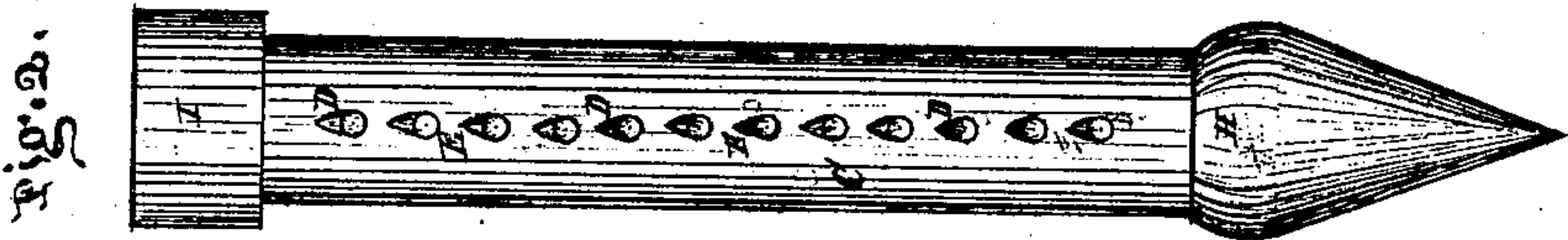
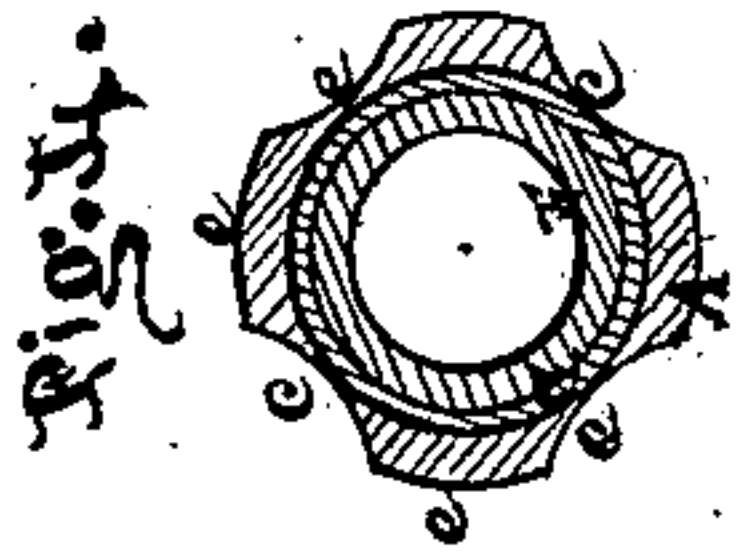


D. R. Knight,

Drive Well Tube.

No. 98073.

Patented Dec. 21. 1869.



Witnesses.
J. H. Burridge
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Inventor.
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United States Patent Office.

D. R. KNIGHT, OF AKRON, OHIO.

Letters Patent No. 98,073, dated December 21, 1869.

IMPROVEMENT IN DRIVE-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, D. R. KNIGHT, of Akron, in the county of Summit, and State of Ohio, have invented certain new and useful Improvements in Driving-Pump Tubing; and I do hereby declare that the following is a full and complete description of the same, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is an outside view of the pump and sheath.

Figure 2, a view of the pump, with the sheath removed.

Figure 3, a detached section.

Figure 4, a transverse section.

Like letters of reference refer to like parts in the different views.

This invention relates to a combination of tubing arranged one within the other, and enclosed in a perforated sheath, said tubing being armed with a sharp point for penetrating the ground into which it is driven, thereby saving the labor and expense of boring or digging for water, the same being an improvement of a former invention for which a patent was granted to me.

A, fig. 1, represents a sheath, which is constructed of metal, and perforated with fine holes, as indicated at B.

Said sheath encloses the well-tubing, consisting of the shell C, fig. 2, the four opposite sides of which are pierced with a series of holes, D.

From the upper side of each hole proceeds an inclined tapering groove, E, the purpose of which will presently be shown.

F, fig. 3, is a section of tubing, closely but loosely fitted in the shell C.

On each four sides of said tube is sunk a recess or chamber, G, pierced with a series of holes, *a*, and which are connected to each other by oblique shallow grooves or channels, *b*, the purpose of which will hereinafter be shown.

The lower end of said tube is armed with a sharp rounded point, H, the diameter of which being a little larger than that of the sheath, and also that of the collar I, whereby the several sections of tubing are joined to each other, thereby allowing the joints to follow with freedom the point as it descends into the ground.

J is a slot, cut, as will be seen, in a spiral direction in the side of the tube. Into said slot is projected the end of a pin, penetrating the shell C, thereby connecting the tube and shell to each other.

The practical operation of this combination of tubes is as follows:

The holes D in the shell are closed by that part of the inner tube F left between the recesses referred to, when the two sections are in such relation to each other as shown in fig. 1. In this condition it is driven into the earth, a succession of lengths of pipes being

added by means of the collars I, into which it is screwed as fast as the descent of the lower sections may require, until the desired depth is obtained.

The closed holes D are then brought in open relation to those in the recesses of the tube F, by lifting upward the shell, or by driving downward the tube by inserting a rod therein of sufficient length to reach down to the point, the result of which will be either to turn the shell, or the tube to which the point is attached, by virtue of the pin alluded to moving in the spiral slot J, the length of said slot being just the length to bring the series of holes in each section in immediate and open relation to each other, thereby allowing the water to flow into the tube from the outside, thence upward.

The inclined tapering grooves E prevent the dirt, sand, &c., from lodging in the holes while the tubing is being driven down. Their slanting nature allows the dirt to slide upward away therefrom, and thus prevent obstruction to the inflowing of the water.

The oblique grooves in the sides of the recesses connecting the holes *a* admit the inflowing of the water more freely, in the event of the holes and recesses becoming charged or clogged with dirt, which, in some kinds of soil, is a matter of frequent occurrence and no little trouble.

Not only are the holes liable to become obstructed, but also the holes D in the shell, to prevent which is the purpose of enclosing the two sections C and F in the sheath A, above described.

This sheath, as will be seen, is so constructed that while it fits closely to the shell, between the range of holes, as at the points *c*, fig. 4, it swells outwardly immediately over them, as seen at *e*, thereby leaving a space between the shell and sheath for the accumulation of water.

This sheath, being made of a strong plate of metal, is of sufficient strength to resist all the external pressure that may be brought to bear upon it, and, being perforated with fine holes, will keep back the dirt from the holes in the shell, and at the same time allowing free access of the water.

By this device the pump is kept free of dirt, sand, or other obstructions, thereby rendering it more efficient and durable.

What I claim as my improvement, and desire to secure by Letters Patent, is—

The perforated shield or sheath A, so constructed as to fit closely between the ranges of holes D, as shown in fig. 4, and to swell outward immediately over said holes, as shown at *e*, for the protection of the holes from dirt, sand, &c., in the manner substantially as described, and for the purpose specified.

D. R. KNIGHT.

Witnesses:

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D. L. HUMPHREY.