

WILLIAM D. ANDREWS.
Driven Well Tubes.

No. 125,000.

Patented March 26, 1872.

Fig. 1.

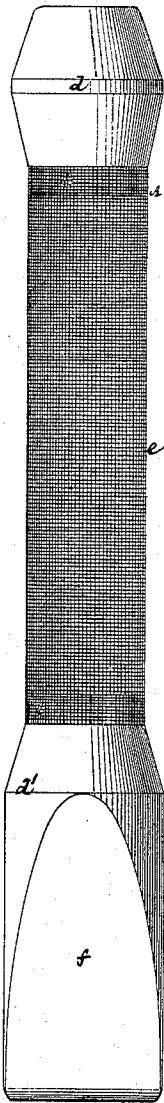


Fig. 2.

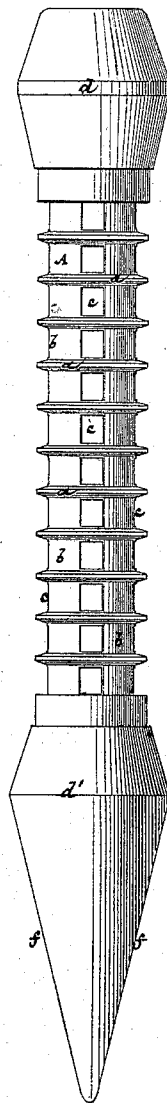
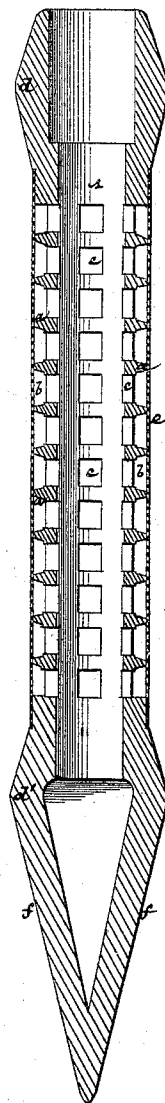


Fig. 3.



Witnesses:
Fred Haynes
R. R. Ralston

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UNITED STATES PATENT OFFICE.

WILLIAM D. ANDREWS, OF BROOKHAVEN, NEW YORK.

IMPROVEMENT IN DRIVEN-WELL TUBES.

Specification forming part of Letters Patent No. 125,000, dated March 26, 1872.

To all whom it may concern:

Be it known that I, WILLIAM D. ANDREWS, of Brookhaven, in the county of Suffolk and State of New York, have invented a new and useful Improvement in Driving Ends or Points for Driven-Well Tubes; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing forming part of this specification, in which—

Figure 1 represents an exterior longitudinal view of my improved driving end or "point;" Fig. 2, a similar view with the perforated covering that surrounds the body of the "point" removed; Fig. 3, a longitudinal section of the entire "point."

Similar letters of reference indicate corresponding parts throughout the several figures.

My invention relates to driving ends or "points," provided with guarded induction openings, used for forming and operating driven-wells. The invention consists in a circumferentially-corrugated construction of the body of the "point," having a perforated covering surrounding it, with passages between the corrugations and openings into the interior of the body.

A driving end or "point" thus constructed is capable of being easily entered into and withdrawn from the earth—likewise affords protection, against contact with the earth, of its body or perforated covering, excluding sand and other matter from pressing on the covering or passing through its interstices, and, in addition to presenting a free and large inlet area for the water within a small compass, possessing sundry other advantages, as hereinafter described.

Referring to the accompanying drawing, A represents a hollow cylinder, the interior diameter of which is equal to or approximates that of the tube or well-casing to which it is to be attached. Said cylinder is open at its upper end, and has a screw-thread upon its interior, by which to attach it to the well tube or casing, or to a rod, if the well is to be first formed before inserting the lining-tube. The lower end of said cylinder is closed, and the outer diameter of the cylinder made considerably greater at each end than at its body or intermediate portion. Around said body are projections, ledges, or corrugations, *a*, which may

either be arranged annularly or spirally, and which form spaces or passages, *b*, between them, in communication with the interior of the body of the "point" by openings *c*. The outer diameter of these corrugations is considerably less than that of the upper and lower ends *d* and *d'* of the cylinder. Covering the body of the cylinder, between said enlarged ends and lying upon and attached to the corrugations *a*, is a sheet of gauze, perforated metal, or other substance, constituting a perforated covering, *e*, the interstices or openings in which allow of water freely passing through it, but exclude, or for the most part, all sand, dirt, and other extraneous matter from entering therethrough. The corrugations *a*, being circumferential, as contradistinguished from longitudinal, to prevent the possibility of the gauze covering being ripped from end to end by a sharp edge of rock coming in contact with it, as would be the case were the ribs or corrugations arranged longitudinally, as the next rib would either turn such obstruction aside or break it off and prevent further damage. The upper enlarged end *d* of the "point" is tapered in reverse directions, its outer shape being that of a cylinder with frustums of cones attached at their base to the reverse ends of the cylinder, thereby presenting a reversely tapering or conical configuration. The lower enlarged end *d'* is in the form of a cylinder, with two opposite sides, *f f*, reduced so as to form a wedge having its edge at the lower end of the "point," and said lower end *d'* being cone-shaped above the wedge, or rather being in the form of a frustum of a cone, *t*, joined at its base to the swell or enlarged portion of said end. The smaller ends of the frustums of cones, adjacent to the two ends of the intermediate portion or body of the "point," are of the same or nearly the same diameter as the outer surface of the perforated covering *e*; but the larger ends of the several frustums and the cylinders they project from or join are of considerably greater diameter, said portions giving to the ends *d d'* their enlarged shape or swell, and the same varying in size according to the length of the body of the "point." The upper extreme end of the point is of the same diameter or thereabouts as the tube to be attached to the latter.

In the operation of this improved driving

end or "point," having guarded induction opening, as described, the lower enlarged end or portion *d'* thereof being of a wedge-shape, with a broad chisel-edge, enters the earth much more readily than when of a different construction, and the upper enlarged end or portion *d* of the "point" being of a greater diameter than the body of the latter, the earth is forced aside and compacted so as to form a hole or opening through which the body of the "point" or cylinder and its perforated covering passes freely, and protection is effected against contact of said body with the sides of the hole made by the "point," by reason of the reduced size of the body of the latter relatively to its ends, and by its being guided centrally within said hole by its enlarged upper portion *d*.

If it is required to draw the well-tube out from its place in the earth, then the shape of the enlarged portions *d d'* of the "point" enables such withdrawal to be made without the "point" offering any abrupt shoulders or projections to catch upon or against any loose

stones or other substances, which would greatly increase the resistance and power necessary to effect the withdrawal. Furthermore, the enlarged ends *d d'* of the "point" force the earth away to a considerable distance, and make a free opening for the passage of the attached pipe or tube, thereby relieving it of friction, which constitutes a large portion of the resistance, in driving and withdrawing, with the form of "point" in ordinary use.

What is here claimed, and desired to be secured by Letters Patent, is—

The body of the "point" formed with exterior circumferential corrugations or projections *a*, and passages *c* for the water between them, in combination with openings from said passages into the interior of the body, and with the perforated covering *e* surrounding said body, essentially as herein set forth.

WM. D. ANDREWS.

Witnesses:

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FRED. HAYNES.