

A. Le GRAND & R. SUTCLIFF.
Driving Hollow Metal Piles for Tube-Wells, &c.

No. 216,042.

Patented June 3, 1879.

Fig. 1.

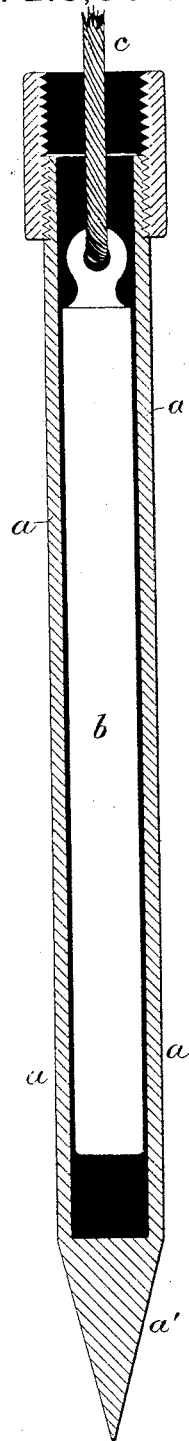


Fig. 2.

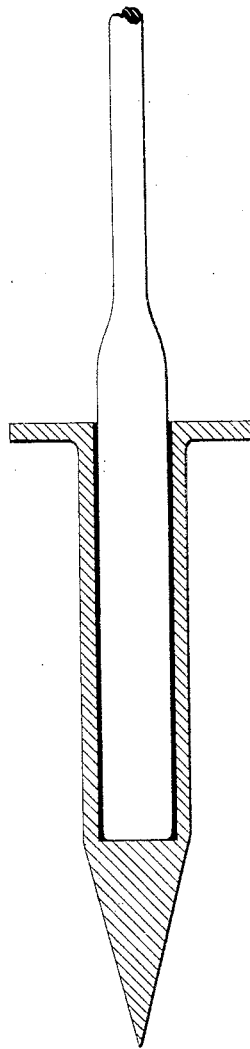
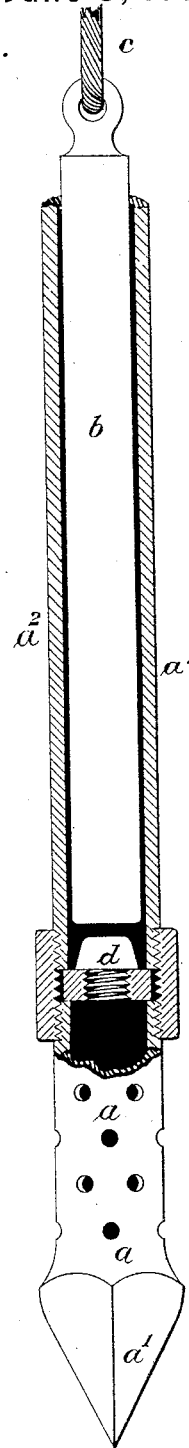


Fig. 3.



WITNESSES

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ALFRED LE GRAND AND ROBERT SUTCLIFF, OF LONDON, ENGLAND.

IMPROVEMENT IN DRIVING HOLLOW METAL PILES FOR TUBE-WELLS, &c.

Specification forming part of Letters Patent No. **216,042**, dated June 3, 1879; application filed April 8, 1879; patented in England, August 25, 1877.

To all whom it may concern:

Be it known that we, ALFRED LE GRAND and ROBERT SUTCLIFF, both of Magdala Works, 100 Bunhill Row, in the city of London, England, have invented new and useful Improvements in Driving Hollow Metal Piles, suitable to serve for tube-wells, for foundations to structures, for sockets for telegraph-poles, and for such like uses, which improvements are fully set forth in the following specification, reference being had to the accompanying drawings.

This invention has for its object improvements in driving hollow metal piles, suitable to serve for tube-wells, for foundations to structures, for sockets for telegraph-poles, and for such like uses.

Hollow metal piles have for years past been in common use, especially for tube-wells. Such piles consist, usually, of wrought-iron tubes of from an inch to several inches in diameter, armed at the lower end with a hardened point, and immediately above the point perforated to admit the water. The ordinary way of driving such piles into the ground has been by means of a weight or "monkey" raised and allowed to fall upon a clip secured around the exterior of the pipe. With this arrangement, as the sinking progresses, the blows are necessarily struck at a greater and greater distance from the point of the pile, and they thence become, as practice proves, less and less efficient.

According to our invention we strike the blows for sinking hollow piles by means of a weight entering within the pile and striking upon it near the point, however far this point may be beneath the surface of the ground.

In order that our said invention may be most fully understood and readily carried into effect, we will proceed to describe the drawings hereunto annexed.

Referring to the drawings, Figure 1 is a vertical section of a hollow pile, consisting of a wrought or cast iron pipe, *a*, having a steeled point, *a'*, welded onto it.

b is the rammer or monkey, consisting of an iron weight which is of a size to enter within the hollow pile. It is raised by the rope *c* or by rods or chains, and then allowed to drop, and by the repetition of this operation the pile is driven.

As the pile sinks, length after length of wrought-iron pipe is screwed on at the top by the ordinary screw-couplings, until the re-

quired depth is attained, or until the pile is firmly set. In suitable soils piles may in this way be sunk to very considerable depths, and with the aid of very little apparatus, and this of the simplest description. It will be found, especially after some depth has been reached, that the blows struck in this manner in comparatively close proximity to the point are much more effective than equivalent blows struck at a long distance from the point above the surface of the ground.

Fig. 2 shows a dwarf pile adapted to serve as a socket for a telegraph-post. In this case the driving-weight or monkey may be provided with a handle, so that it becomes a hand-rammer.

In the case of tube-wells, the soil is liable to enter through the perforations provided for the water, and unless suitable provision is made it may much lessen the effect of the blows of the internal weight or monkey. To avoid this we adopt the arrangement represented in section at Fig. 3.

a is the lower length of piping, with its solid point *a'*, and perforated above. *a''* is the length of piping immediately above, connected with the length beneath by an ordinary screw collar or coupling. Within the coupling, and between the ends of the tubes *a* and *a''*, a wrought-iron ring is held; and a hard anvil-block, *d*, to receive the blows of the weight or monkey *b*, is screwed into the ring.

When the driving is done, the plug or anvil-block is unscrewed and withdrawn by means of a suitable key put down from the surface.

For some purposes the piles may advantageously be made of cast-iron.

Having thus described the nature of and the manner of performing our said invention of improvements in driving hollow metal piles suitable to serve for tube-wells, for foundations to structures, for sockets for telegraph-posts, and for like uses, we would have it understood that we claim—

The means for driving a hollow metal pile by a weight or monkey entering within the pile, substantially as described.

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