

(No Model.)

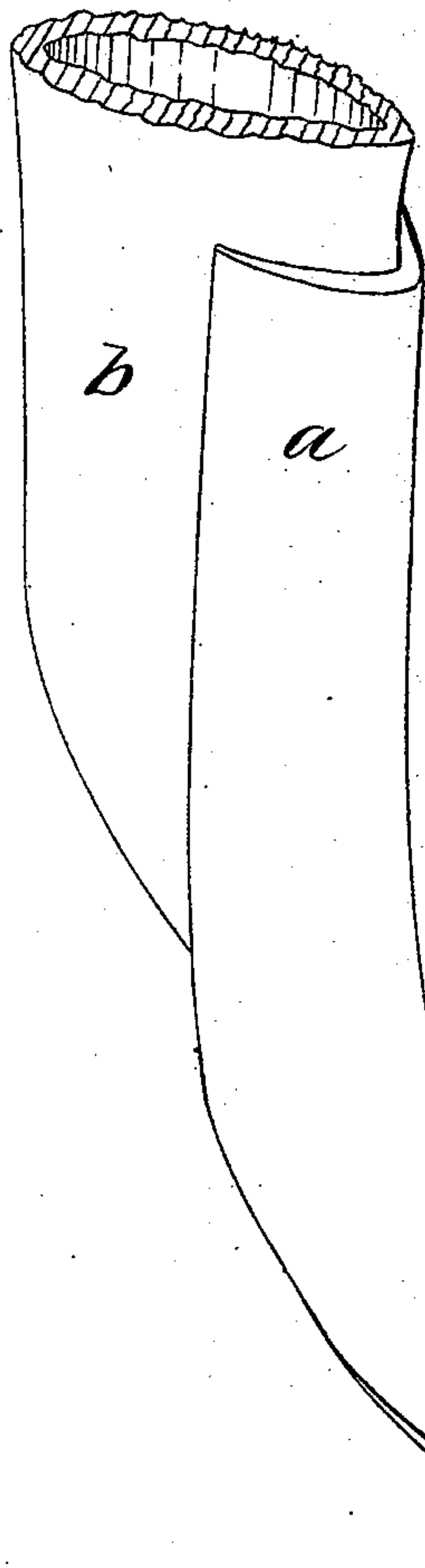
A. R. LUDLOW.

DRILL HOE POINT.

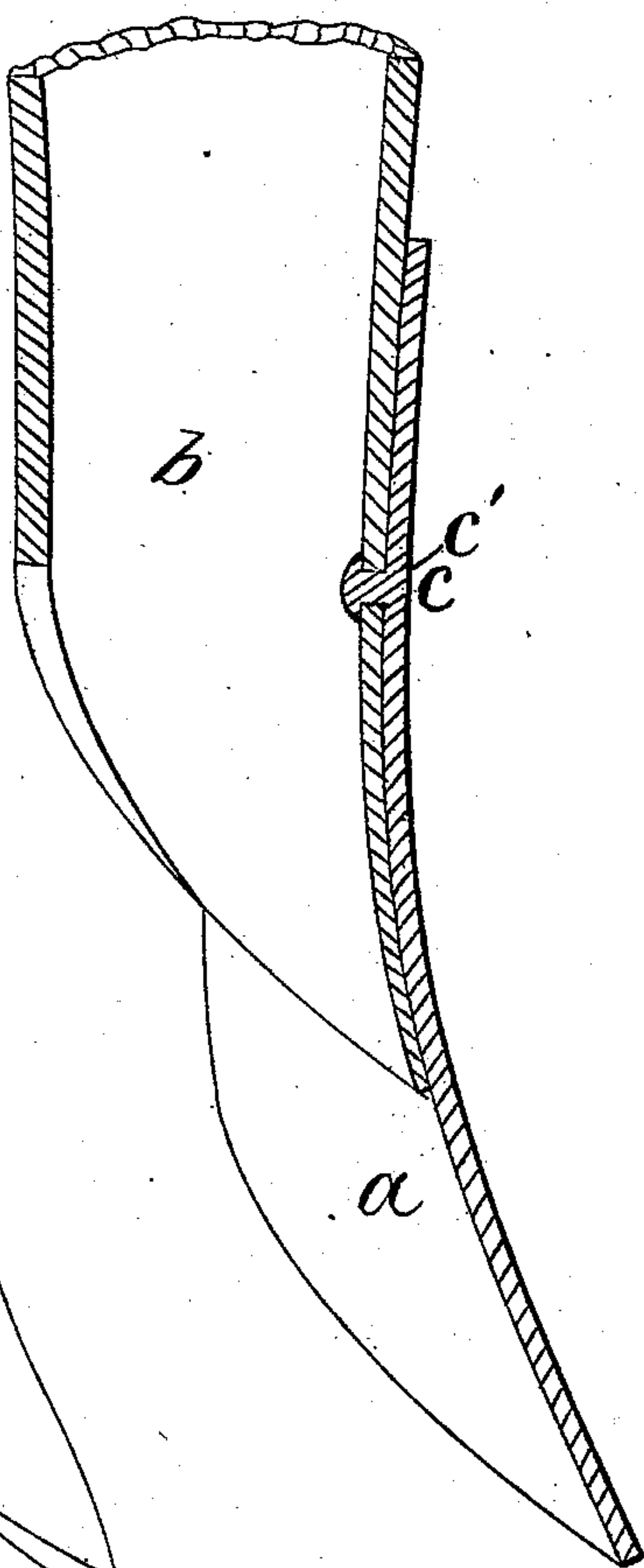
No. 273,375.

Patented Mar. 6, 1883.

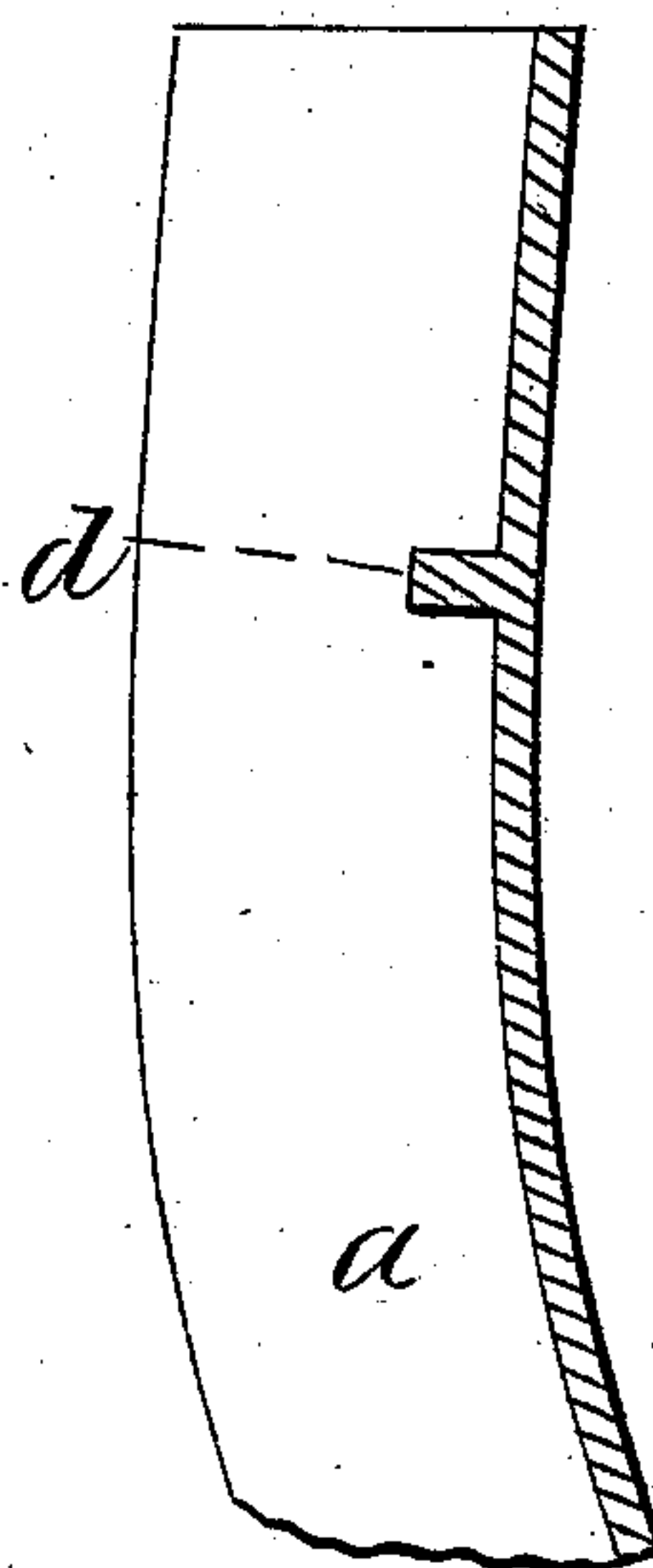
*Fig. 1.*



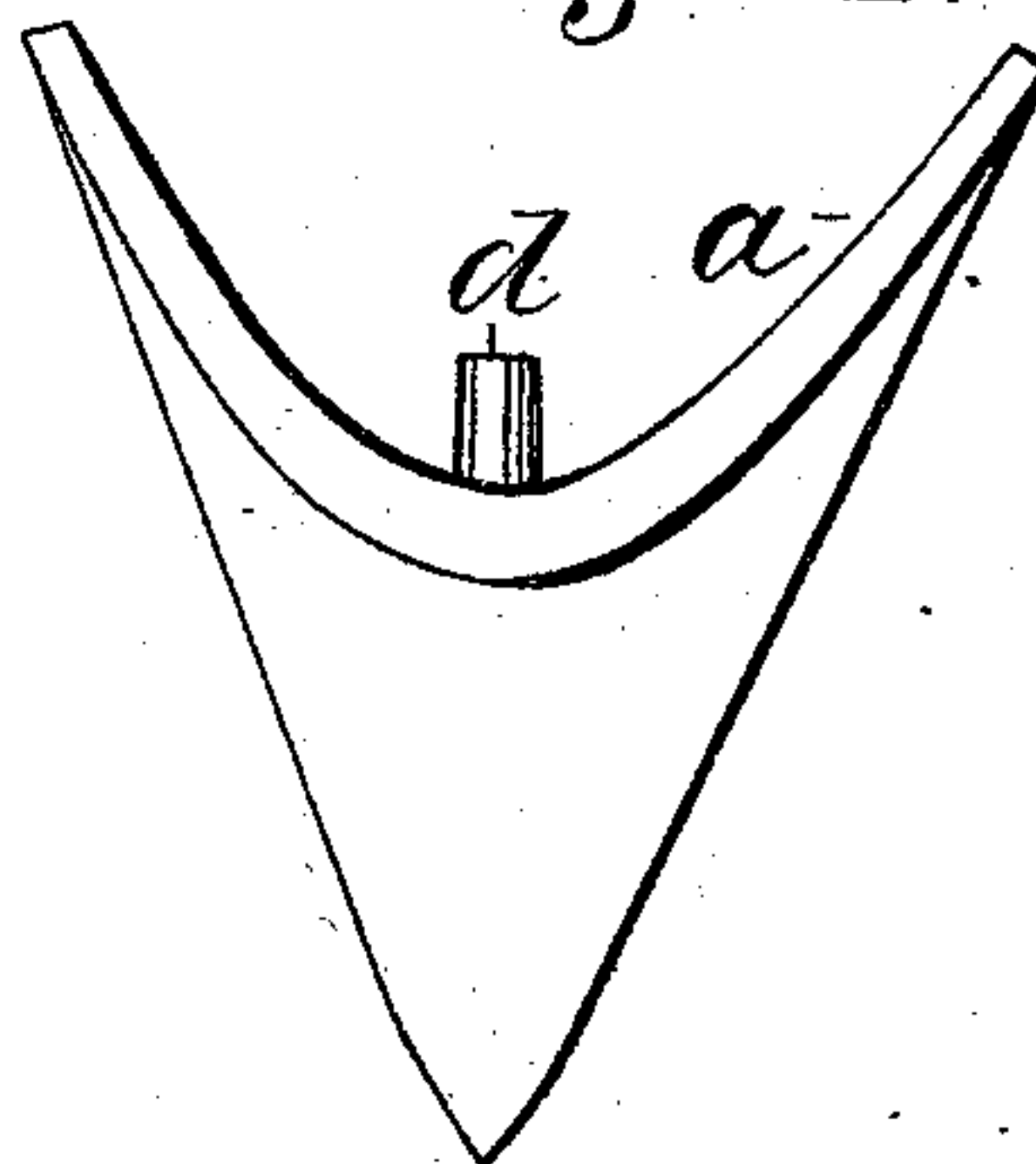
*Fig. 2.*



*Fig. 3.*



*Fig. 4.*



*Attest.*  
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# UNITED STATES PATENT OFFICE.

ABRAHAM R. LUDLOW, OF SPRINGFIELD, OHIO.

## DRILL-HOE POINT.

SPECIFICATION forming part of Letters Patent No. 273,375, dated March 6, 1883.

Application filed June 14, 1882. (No model.)

*To all whom it may concern:*

Be it known that I, ABRAHAM R. LUDLOW, a citizen of the United States, residing at Springfield, in the county of Clarke and State of Ohio, have invented certain new and useful Improvements in Drill-Hoe Points; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention relates to new and useful improvements in drill-hoe points, and in the manufacture of the same.

In drill-hoes as at present made the blanks are made of steel, and struck up in a forming-block, after which a hole is punched or drilled in it for the rivet with which it is attached to the tube. This mode of manufacture requires not only a large outlay for the material, which is expensive, but it also requires a succession of steps in cutting out the blank, forming it, punching or drilling the hole, countersinking it for the rivet, &c., all of which require much time and labor.

My invention consists of a malleable-iron drill-hoe point having its body case-hardened and the rivet cast integral with the body, for the purpose hereinafter to be set forth.

Figure 1 is a perspective view of my improved drill-hoe point. It is shown attached to the lower end of the tube of the grain-boot. Fig. 2 is a vertical section of the same through the central longitudinal line of the hoe and tube. Fig. 3 is a vertical section of the hoe-point cast in one piece with its own rivet, the lower end being broken off. Fig. 4 is a top

view of a drill-hoe point entire of the same kind as that seen in Fig. 3.

*a* is the hoe-point, (shown in Figs. 1 and 2,) attached by rivet *c* to the tube *b*. In these figures it is shown as the finished product, ground and case-hardened or tempered.

In Fig. 3 the hoe-point *a'* is shown detached from the tube, and shows more particularly the rivet-shank *d* cast upon it. In the process of annealing and case-hardening or tempering this is left in its soft or annealed condition to allow it to be easily riveted down upon the inside of the tube *b* when attached thereto. This construction of the drill-hoe point, having the rivet made integral with the same, possesses the still further advantage of having the front or wearing surface unbroken, and the liability to wearing off of the rivet-head and loosening of the point obviated.

The drill-hoe point seen in Fig. 4 is in its unfinished state as it is taken from the molds, being neither case-hardened nor ground.

I am aware that malleable-iron shovels, spoons, &c., have been made with lugs and projections formed of the same material, but am not aware that malleable-iron drill-points have ever been case-hardened and provided with an annealed or soft rivet for attaching it to the tube. Therefore,

What I claim is—

A malleable-iron drill-point having its body case-hardened and the rivet of soft or annealed iron cast integral with the body, for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

ABRAHAM R. LUDLOW.

Witnesses:

G. M. GRIDLEY,  
B. C. CONVERSE.