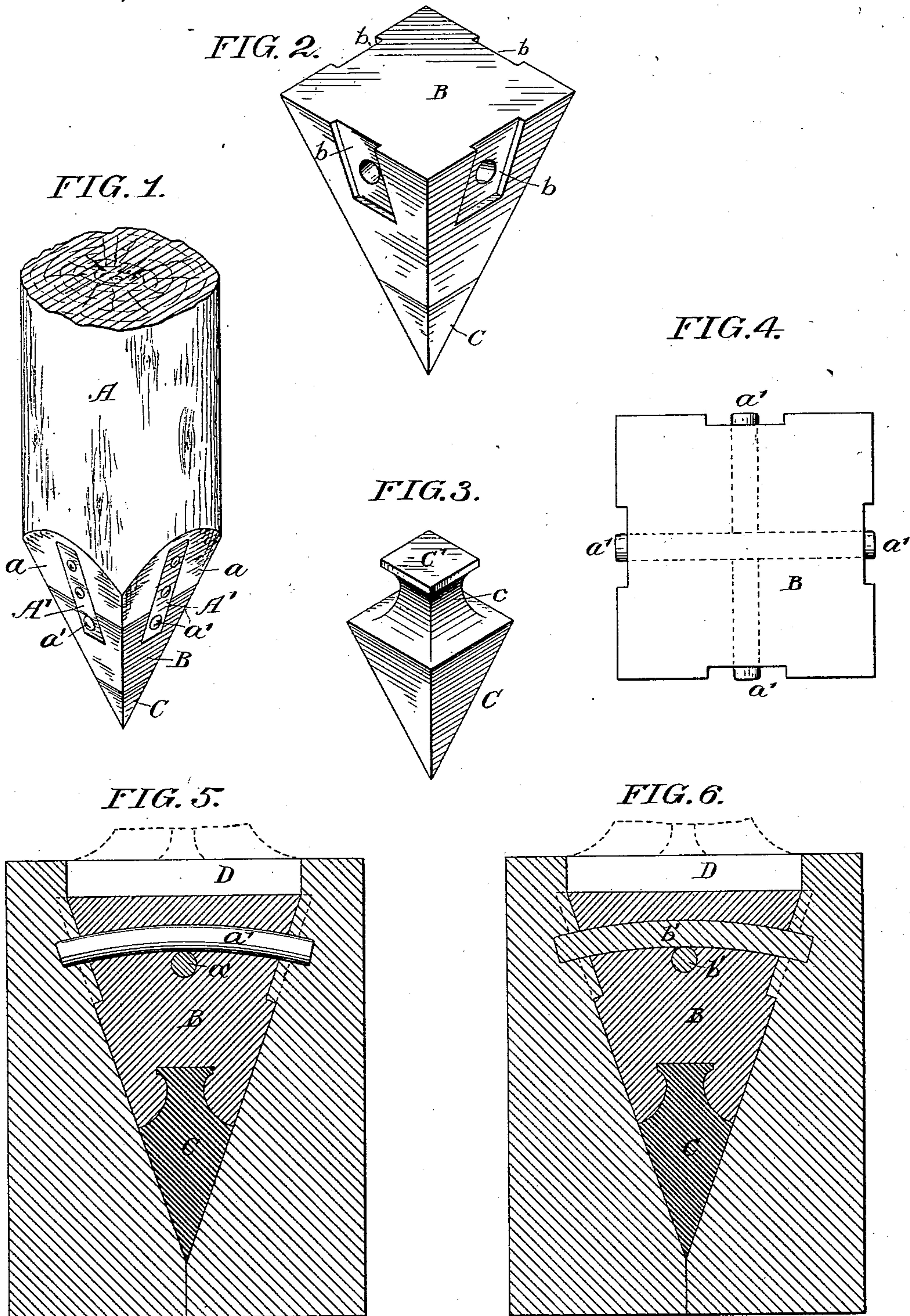


(No Model.)

J. S. GUSTINE.
POINT SHOE FOR PILES.

No. 563,228.

Patented June 30, 1896.



Witnesses:
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UNITED STATES PATENT OFFICE.

JOHN S. GUSTINE, OF PHILADELPHIA, PENNSYLVANIA.

POINT-SHOE FOR PILES.

SPECIFICATION forming part of Letters Patent No. 563,228, dated June 30, 1896.

Application filed March 6, 1896. Serial No. 582,115. (No model.)

To all whom it may concern:

Be it known that I, JOHN S. GUSTINE, a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented certain
5 Improvements in Point-Shoes for Piles, of which the following is a specification.

My invention consists of an improved point-shoe adapted to be secured to the end of a wooden pile, the main object of my invention
10 being to provide a point-shoe that can be readily attached to the pile, and a further object being to provide a hardened point end for the shoe that will not be damaged when it is necessary to drive the pile through gravel or soft
15 rock.

My invention is fully illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view showing my improved point-shoe attached to the end of a
20 wooden pile. Fig. 2 is a perspective view of my improved point-shoe detached from the wooden pile. Fig. 3 is a perspective view of the improved point end of the shoe. Fig. 4 is a plan view of the point-shoe, showing the
25 connecting-rivets cast in the same; and Figs. 5 and 6 are sectional views of the point-shoe and the mold or chill in which it is cast.

In the drawings, A is the wooden pile, and B is the point-shoe connected to the beveled
30 end *a* of the pile by means of straps *A'*, secured to the shoe by the rivets *a'*. C is the hardened point, which is secured to the shoe by casting said shoe around the contracted neck *c* of the same.

35 In order that the end of the pile and the point-shoe connected thereto shall present a perfectly plane surface when secured together, I so cast the said point-shoe as to form the recesses *b* to receive the straps *A'*.
40 To secure these straps to the point-shoe, I may cast the rivets *a'* with the shoe when forming the same, as shown in Fig. 5, or I may, during the casting of the shoe, form the curved holes for the subsequent reception of the rivets by
45 means of suitable curved cores *b'*, as shown in Fig. 6. When cast with the point, the rivets are preferably so arranged that the ends of the same are on the same level, and this necessitates the curving of the rivets before
50 they are placed in the mold preparatory to

casting the shoe. When curved holes are provided for the insertion of the rivets, it is necessary to heat the rivets to a temperature high enough to enable them to follow the curvature of the holes into which they are driven. 55

The point end C of my improved point-shoe is made of the shape shown in Fig. 3, and is preferably composed of wrought-steel. It is provided with a flat head *c'*, connected with the tapering portion of the point by a square
60 contracted neck *c*, having inwardly-curved sides or faces. This shape of head enables it to be firmly secured to the pile-shoe when the latter is cast around it. I do not wish to confine myself to this particular form of end for
65 the shoe, however, as other forms could be used, the main idea being to so form it that when the shoe is cast around the point end it will be held from falling out should the cast metal shrink while cooling. To reduce this
70 shrinkage during cooling to a minimum, I preferably provide the plunger-block D, which may be placed on top of the metal forming the point-shoe, after it has been poured into the mold, the said block being either forced onto
75 the molten metal or else of sufficient weight in itself to press the metal down and prevent, as much as possible, the formation of imperfections due to the natural shrinkage of the
80 metal.

While I have described my point-shoe as adapted for use in connection with wooden piles, it should be understood that it may be used with metal piles, and in either case the point-shoe could be of conical shape, instead
85 of being square. In the former instance, the only modification necessary would be to slightly curve the straps that connect the shoe to the pile.

Having thus described my invention, I 90 claim and desire to secure by Letters Patent—

1. A metal point-shoe for piles having straps whereby it may be connected to the pile, and rivets crossing the shoe in opposite
95 directions and curved so as to avoid each other, the projecting ends of said rivets being adapted to openings in the straps, substantially as specified.

2. A metal point-shoe for piles having a 100

point end composed of metal harder than that
of which the shoe is composed, and provided
with a contracted neck, adapted for the recep-
tion of the metal of the shoe when the same
5 is cast, so that the point end will be securely
held against removal, substantially as de-
scribed.

In testimony whereof I have signed my
name to this specification in the presence of
two subscribing witnesses.

JOHN S. GUSTINE.

Witnesses:

MURRAY C. BOYER,
JOS. H. KLEIN.