

(No Model.)

H. H. TRENOR.  
AX HANDLE.

No. 303,767.

Patented Aug. 19, 1884.



Fig. 2.

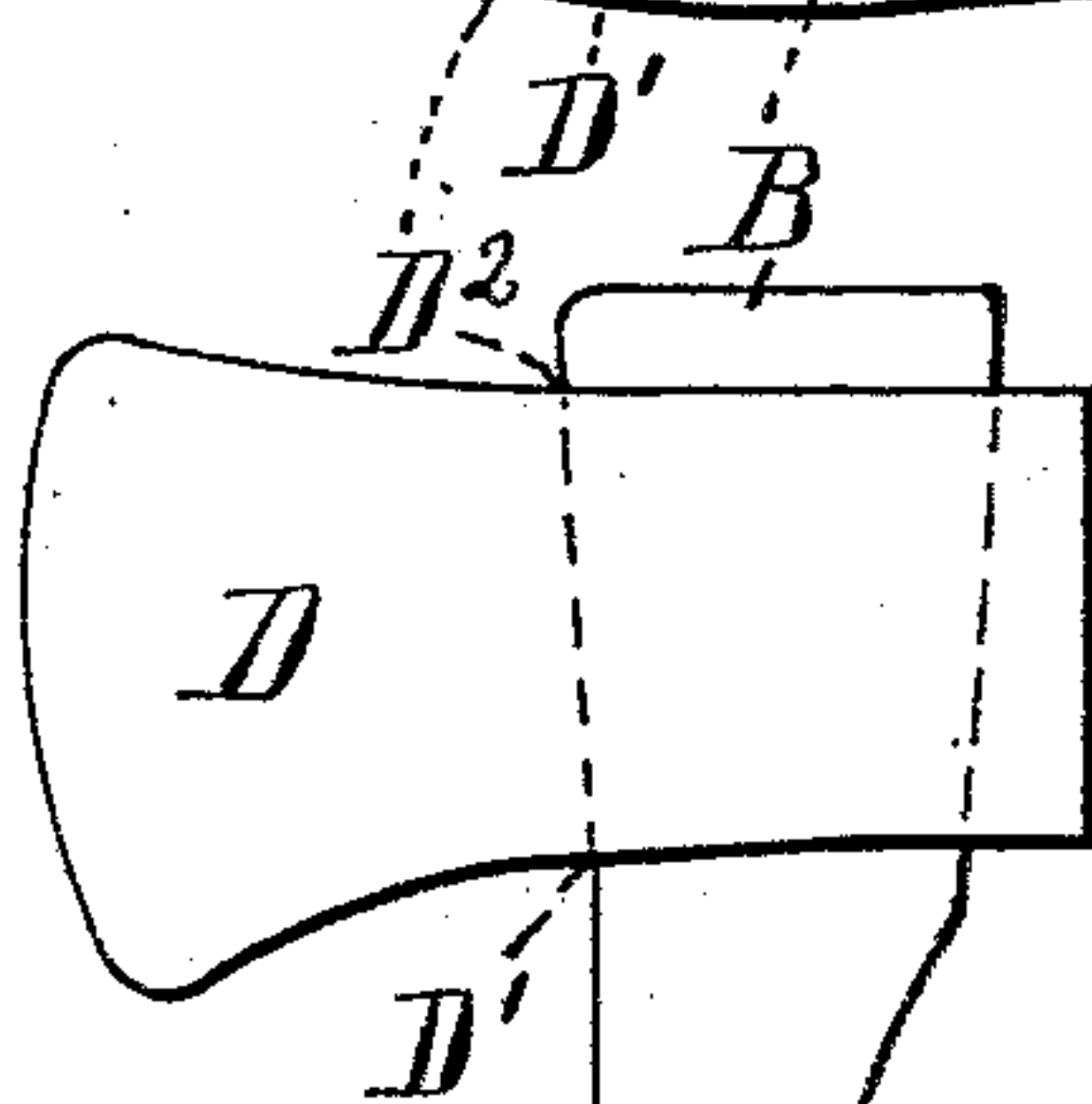


Fig. 1.

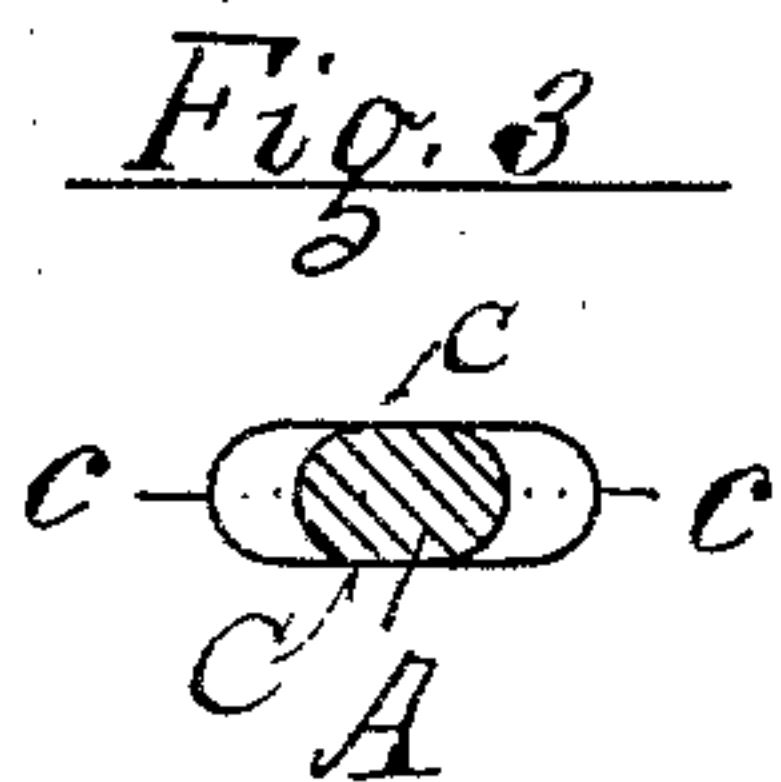
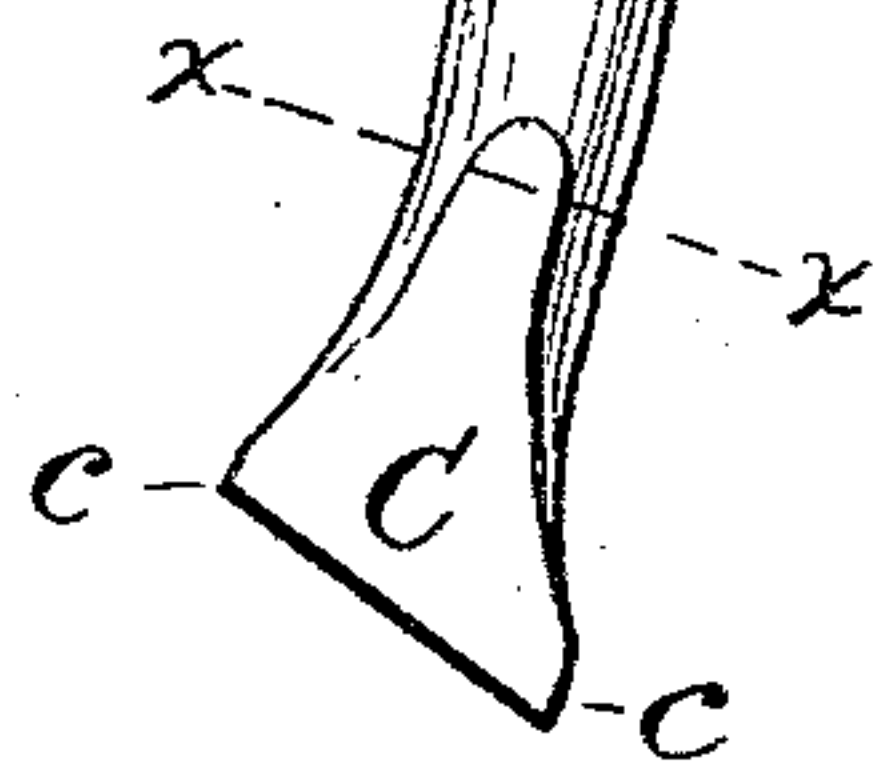


Fig. 3.



Attest.

H. J. Thibault.  
L. Lee.

Inventor:

Henry H. Trenor  
per H. S. Crane  
att.

# UNITED STATES PATENT OFFICE.

HENRY H. TRENOR, OF NEW YORK, N. Y.

## AX-HANDLE.

SPECIFICATION forming part of Letters Patent No. 303,767, dated August 19, 1884.

Application filed February 28, 1884. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY H. TRENOR, a citizen of the United States, residing in the city, county, and State of New York, have invented certain new and useful Improvements in Ax-Handles, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

This invention consists in an improved ax-handle, adapted for use with ax-heads having a taper eye, and is intended to afford a better grip for the hand of the operator than the handles heretofore inserted in such eyes from the upper side. The construction I adopt consists in forming projections upon the butt of the handle at the heel and toe only, and not upon the sides, as is generally the case with ax-handles, thus enabling me to insert such butt through a taper eye in the ax head without enlarging the same in thickness; which would injuriously affect the angle of the cutting-edge.

The drawings annexed show the handle inserted in an ax-head; but the combination therewith is not claimed herein, but in another application filed herewith.

Figure 1 is a side view of the ax head and handle. Fig. 2 is a plan of the ax head and head of the handle; and Fig. 3 is a section of the handle on line  $x x$  in Fig. 1, showing the relation of the projections  $c$  to the butt of the handle.

A is the shank of the handle; B, the head of the same. The butt is formed with a flat surface, C, on each side, and one or more projections  $c$  on the edges, whereby a flat-sided hand-holder is formed, which conforms to the natural grip of the fingers and palm more perfectly than the round conical wedge of the common ax-handle hand-hold, and affords correspondingly a more perfect hold for the hand in the motions and actions peculiar to the use of the ax. D is the ax-head, and D' and D<sup>2</sup> the inner and outer ends of a taper eye formed in the same. Such taper eye is shown largest upon the outer side, as at D<sup>2</sup>, and the head of the handle at B is correspondingly shaped, so as to wedge within the eye and remain therein when in use without fastenings of any kind. A taper eye and a head adapted to fit it have

long been used in other tools not requiring any projections at the butt of the handle; but owing to the character of such projections as have been heretofore made, a taper eye has never been used in connection therewith in the head of a chopping-ax, on account of the obtuse angle that would be caused at the cutting-edge by the great enlargement of the eye required to pass such projections. Various devices have therefore been made for using a taper eye with a head inserted from the inner side, so as to avoid passing the butt through the eye at all, but special means are then required to secure such head in the eye, as in United States Patents Nos. 119,807, of 1871, and 274,414, of 1883.

My invention furnishes a means of dispensing with all fastening devices whatever; and it consists in constructing the butt with projections at the heel and toe only, and in so proportioning such projections to the head of the handle that the butt will correspond in size with the smaller part of such head. By this means I avoid increasing the thickness of the ax-head at all, and secure a handle provided with the necessary projections at the butt, and yet adapted to pass through the eye from the upper or outer side, and thereby retain its hold in the head without any fastenings. The proportions given to the butt are clearly shown in Fig. 3, where it will be seen that the same is no thicker than the handle requires to be at other parts, and that the width of the butt, including the projections  $c$ , correspond closely with the dotted lines D' in Fig. 2, which indicate both the width of the head B at its smaller end and the width of the eye at D' in Fig. 1.

It is obviously immaterial whether the butt shall correspond closely with the dimensions of the eye or handle-head at its smaller part, but such correspondence is certain to arise if the projections  $c$  be extended as far as possible to secure the desired grip upon the workman's hand.

Having thus shown the nature of my improvement, it is plain that its advantages may be secured by forming the projection  $c$  at one or both of the points marked  $c$  in Fig. 1, as different styles of tools and handles may render it preferable to apply such projections at



one or both of such points. The essential part of the construction is therefore the formation of the projections only in the direction of the handle's width, so that the eye in the ax-head may be extended to admit the passage of such handle and projections through it without altering the angle of the cutting-edge.

Having thus shown the difference between my construction and others, I disclaim the use of a taper eye and handle-head of corresponding form, except when combined with a handle having the butt constituted as herein described.

What I therefore claim herein is—

15 The ax-handle A, provided at one end with an outwardly-expanding head, B, and at the

other end with the curved hand-hold having on its edges the projections *c c*, and on its sides the flattened surfaces *C*, said surfaces being separated by a distance not greater than the least thickness of the head B, whereby the hand-hold is better adapted to the conformation of the human hand, and adapted to pass through a taper eye in an ax-head.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

HENRY H. TRENOR.

Witnesses:

THOS. S. CRANE,  
HENRY F. GÖKEN.