

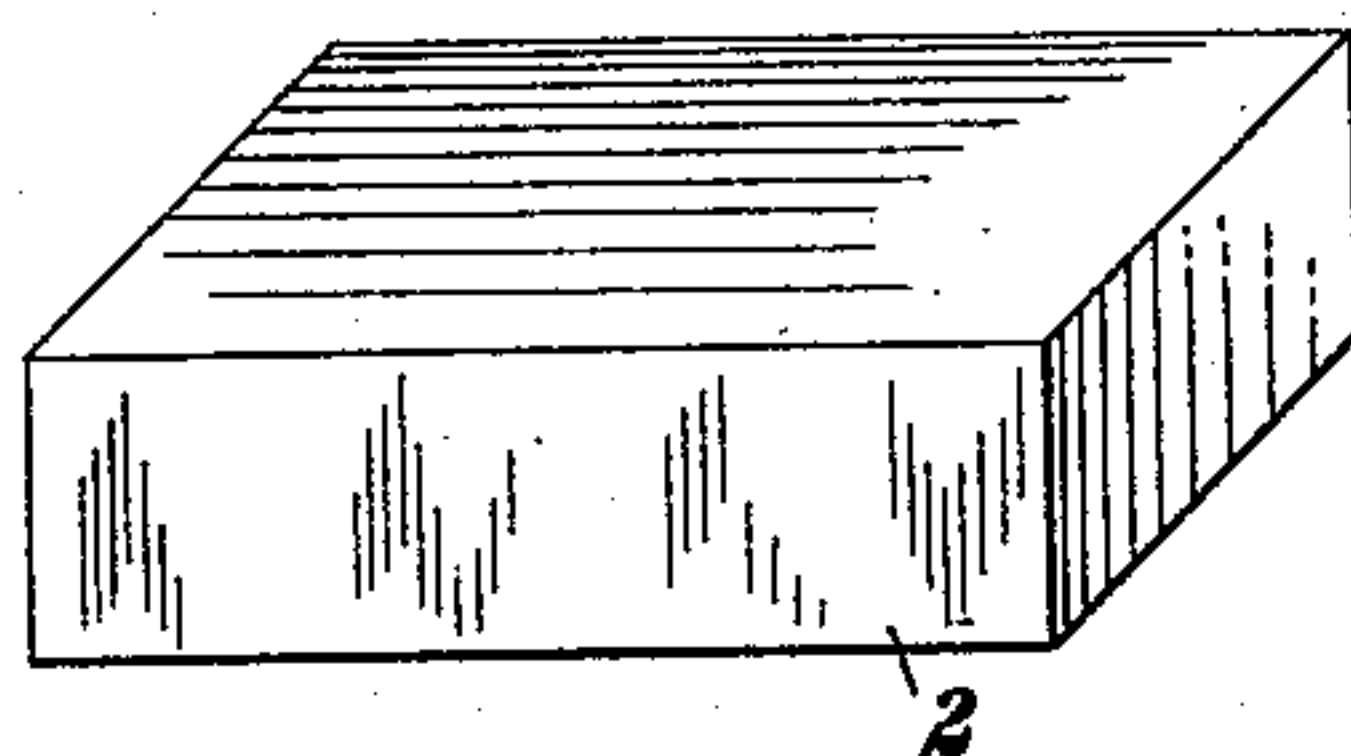
(No Model.)

C. W. HUBBARD, Jr.  
MANUFACTURE OF AXES.

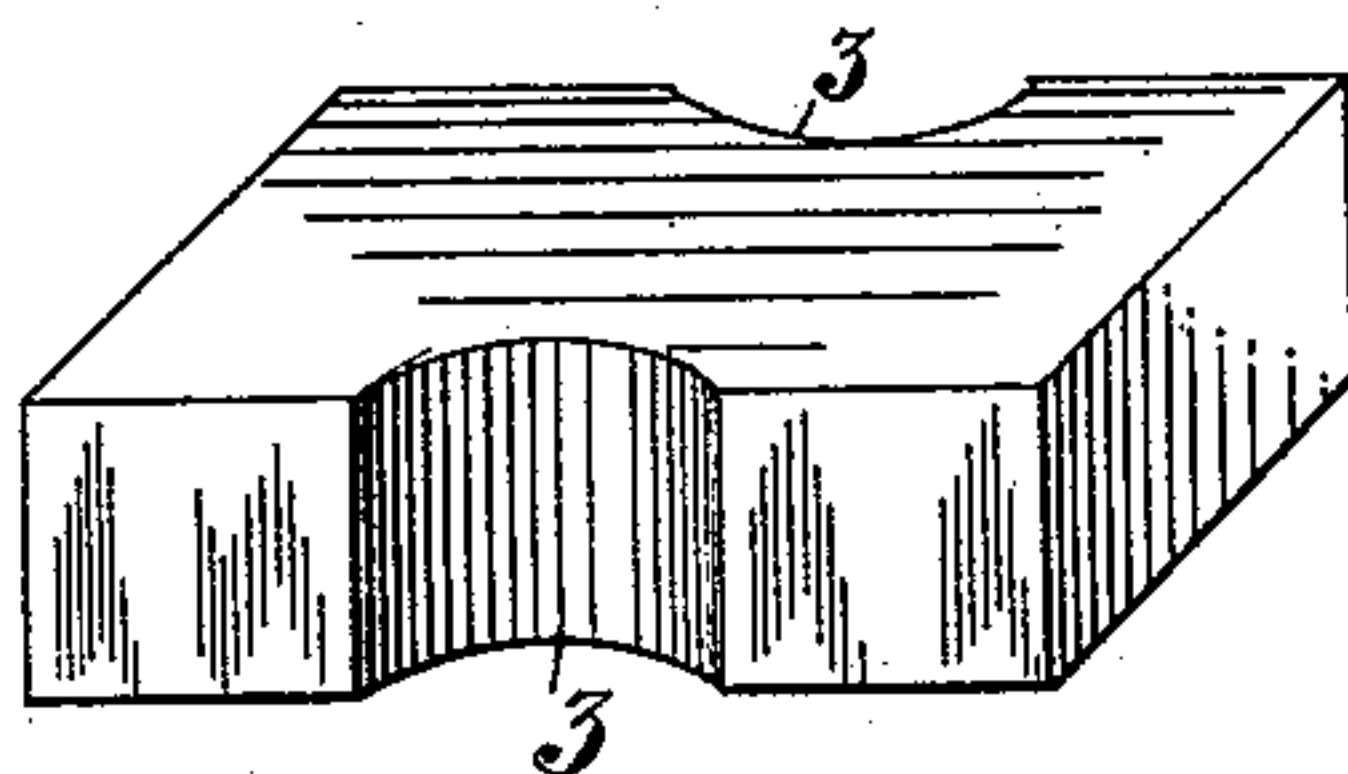
No. 487,948.

Patented Dec. 13, 1892.

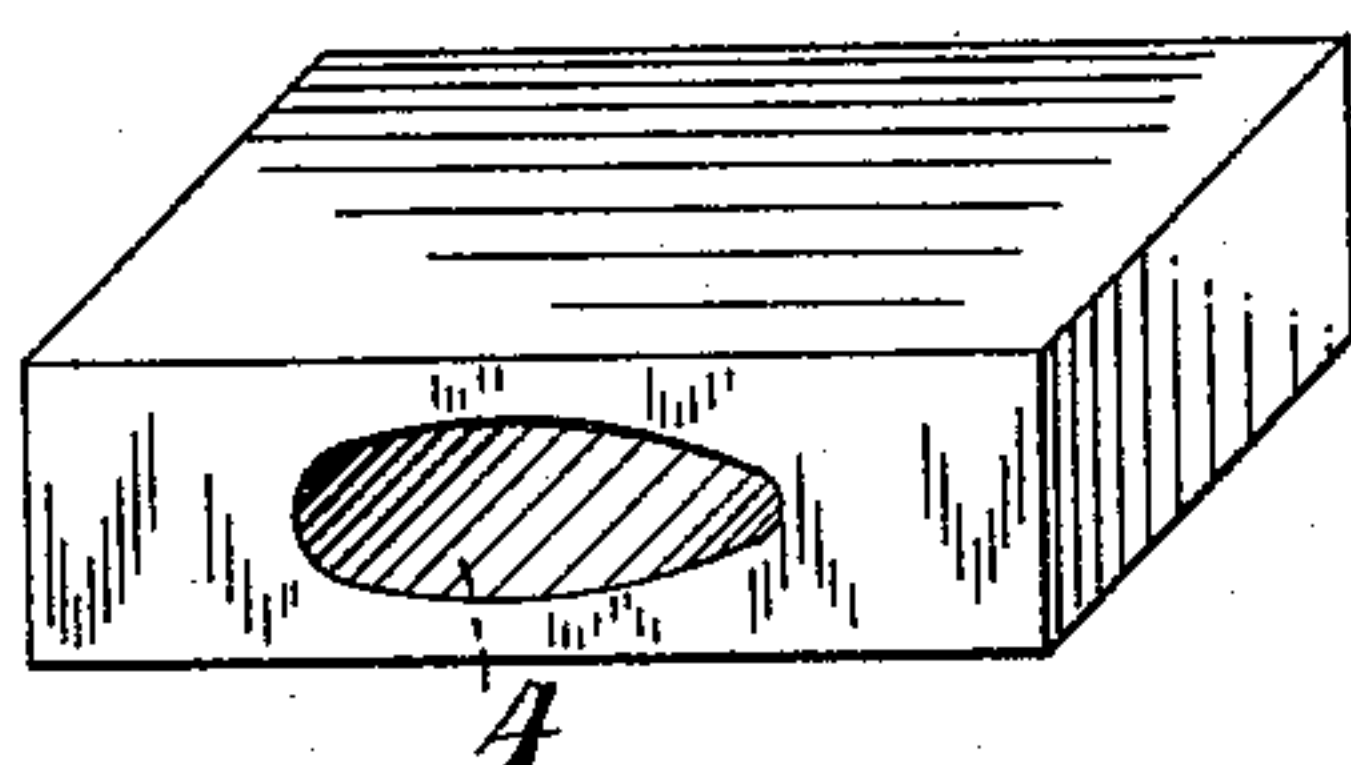
*Fig. 1.*



*Fig. 2.*



*Fig. 3.*



WITNESSES

*H. M. Corwin*  
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INVENTOR

*Charles W. Hubbard Jr.*  
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# UNITED STATES PATENT OFFICE.

CHARLES W. HUBBARD, JR., OF PITTSBURG, PENNSYLVANIA.

## MANUFACTURE OF AXES.

SPECIFICATION forming part of Letters Patent No. 487,948, dated December 13, 1892.

Application filed April 23, 1892. Serial No. 430,294. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES W. HUBBARD, Jr., of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in the Manufacture of Axes, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 shows in perspective a blank for the manufacture of an ax-poll. Fig. 2 is a similar view of the same when grooved or recessed in accordance with my invention, and Fig. 3 illustrates the poll with the hole for the eye punched therethrough.

My invention relates to the manufacture of ax-polls; and it consists in an improved method of manufacturing the same, whereby the difficulties heretofore experienced on account of the spreading of the metal when held between the dies and punched are done away with, as hereinafter more fully described, and set forth in the claims.

In the drawings, 2 represents an ax-poll blank consisting of a metal block in the form of a rectangular parallelepiped, as shown in Fig. 1. Before placing this blank in the dies for punching I cut from or both of its opposite edges grooves or curved recesses 3 3, as shown in Fig. 2. I preferably employ two recesses and then clamp the blank between suitable dies and punch a hole passing through one recess to the center of the blank. The blank is then removed, turned over, and a similar hole punched through the other recess, the two holes registering and forming the aperture for the eye, as shown in Fig. 3. I may, however, recess only one edge and force the punch entirely through the blank, thus forming the eye at one operation, though I prefer the former method, as a more perfect hole is thereby formed. The recesses in the edges of the blank form spaces into which the metal displaced by the punching operation is forced or flows, and hence the crumpling and

distortion of the metal of the ax-poll heretofore resulting from the punching operation are avoided and a straighter and truer hole is thus formed. The poll after punching is finished and the pit secured thereto by electric welding or in some other suitable manner, thus completing the ax-head.

The advantages of my process are apparent to those skilled in the art. The forming of the grooves is easily accomplished, and by this step the difficulties encountered in the step of punching are done away with, the wear and tear upon the dies and punch being thus greatly lessened, while the poll is much more perfect than those made under prior methods.

One or more grooves may be used, as desired, and many other changes may be made in the form of the blank and grooves without departure from my invention.

What I claim is—

1. The method of making ax-polls, consisting in forming a groove in one or both of the edges of the poll-blank through which the punch passes and then punching the same, substantially as and for the purposes described.

2. The method of making ax-polls, consisting in forming grooves or recesses in the two opposite edges of the poll-blank through which the punch passes and then punching the same, substantially as and for the purposes described.

3. The method of making ax-polls, consisting in forming semicircular grooves in the opposite edges of the blank in line with each other and then forcing a punch through the blank in line with the grooves, substantially as and for the purposes described.

In testimony whereof I have hereunto set my hand this 16th day of April, A. D. 1892.

CHARLES W. HUBBARD, JR.

Witnesses:

H. M. CORWIN,  
W. B. CORWIN.