

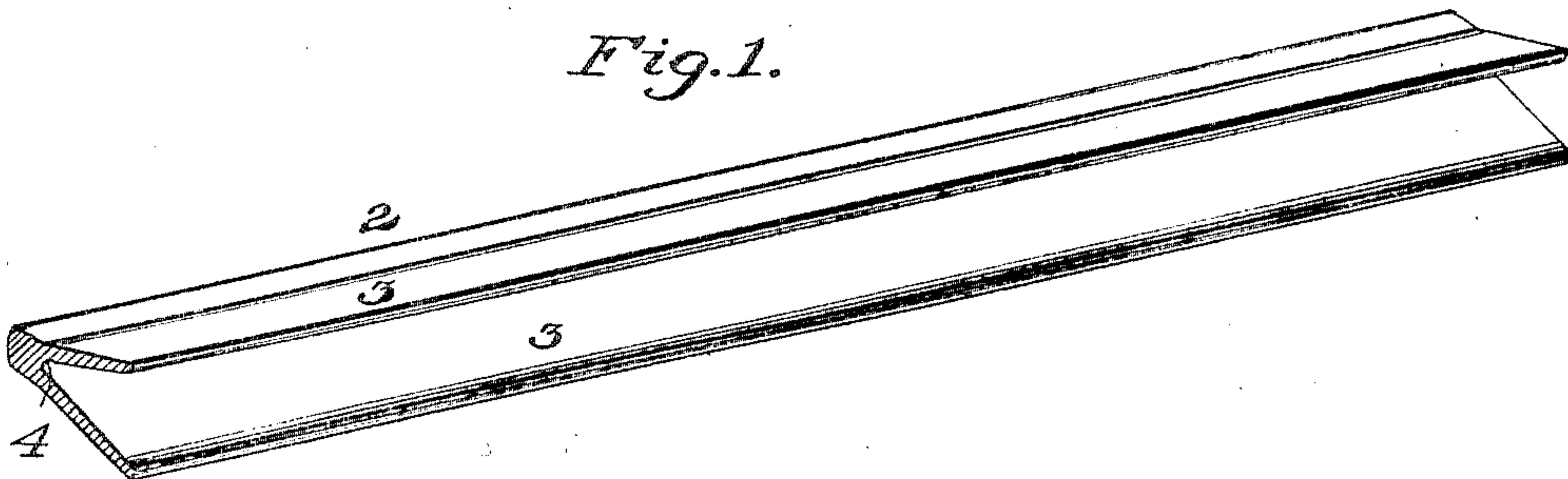
No. 797,708.

PATENTED AUG. 22, 1905.

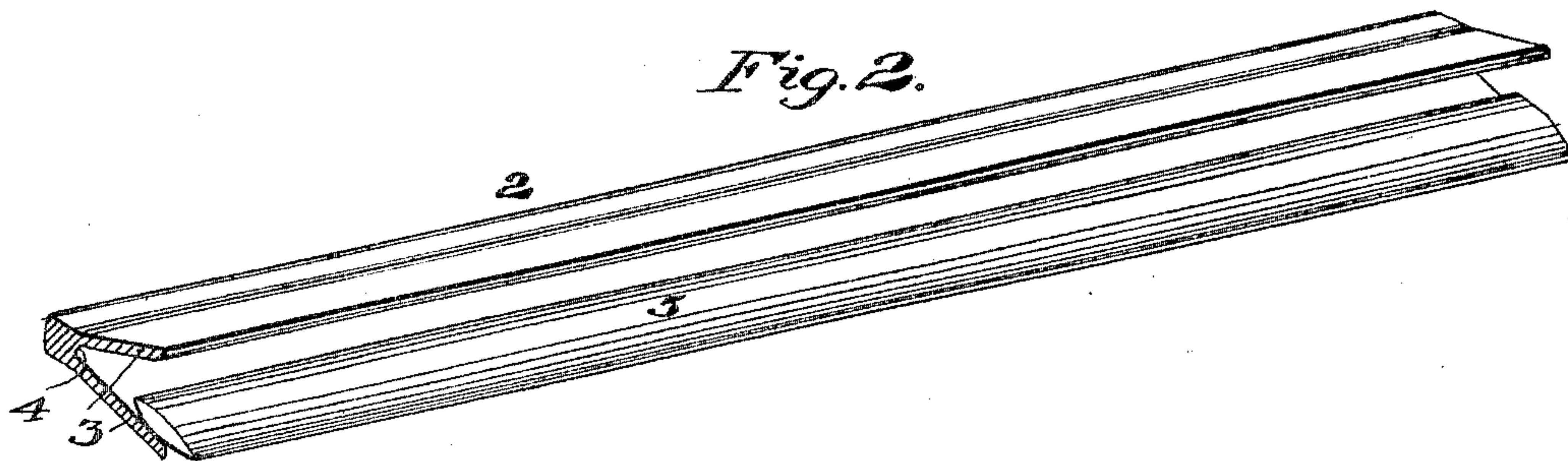
B. W. PETERSON.  
MANUFACTURE OF AXES.  
APPLICATION FILED FEB. 20, 1905.

2 SHEETS—SHEET 1.

*Fig. 1.*



*Fig. 2.*



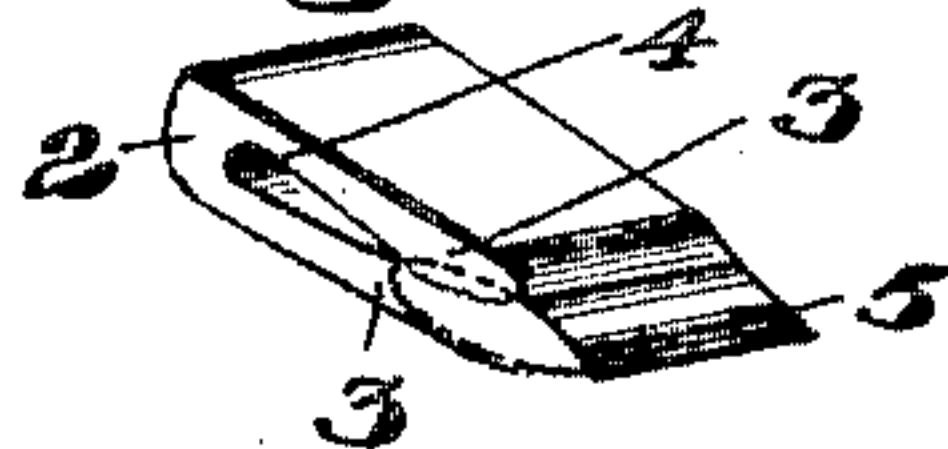
*Fig. 3.*



*Fig. 4.*



*Fig. 5.*



WITNESSES

*A. M. Steen*

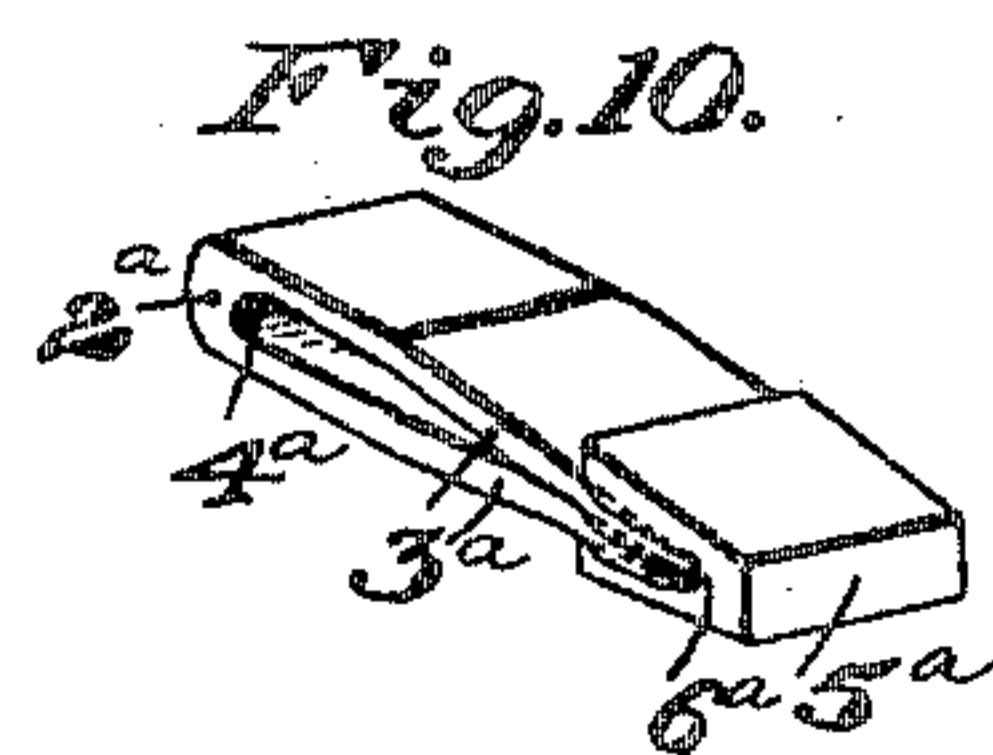
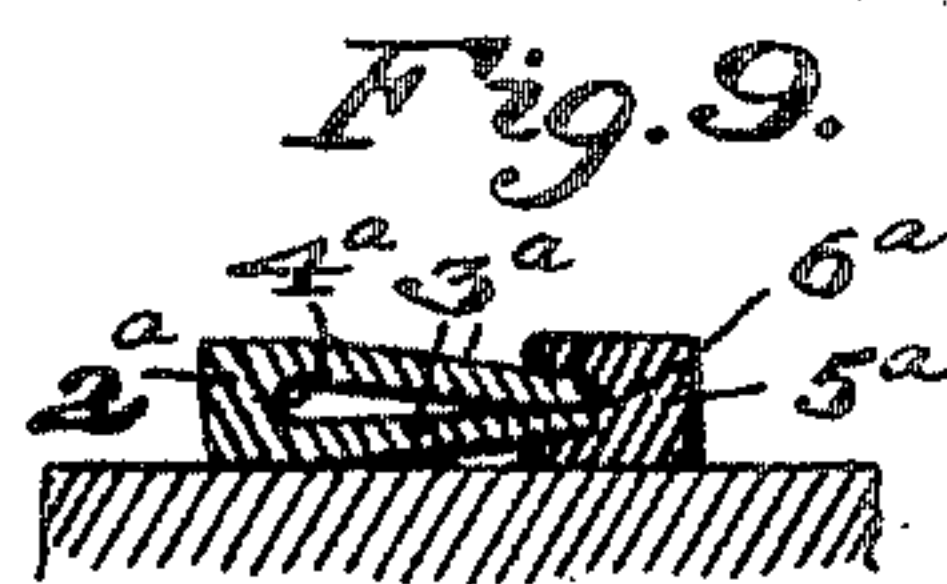
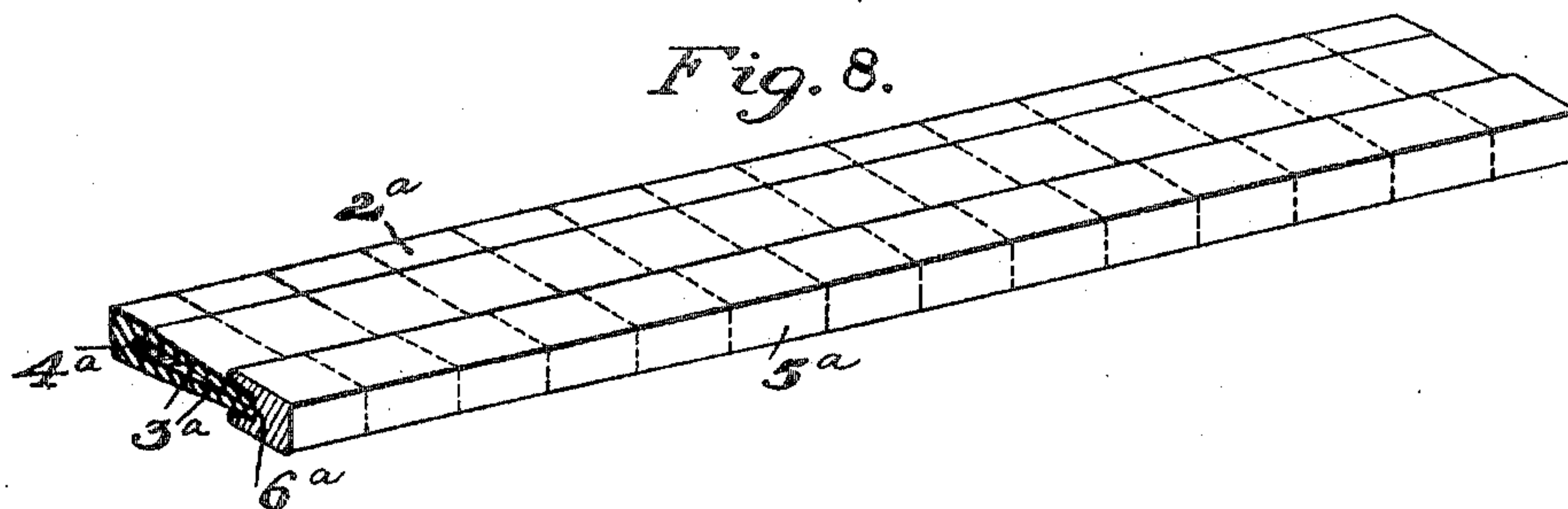
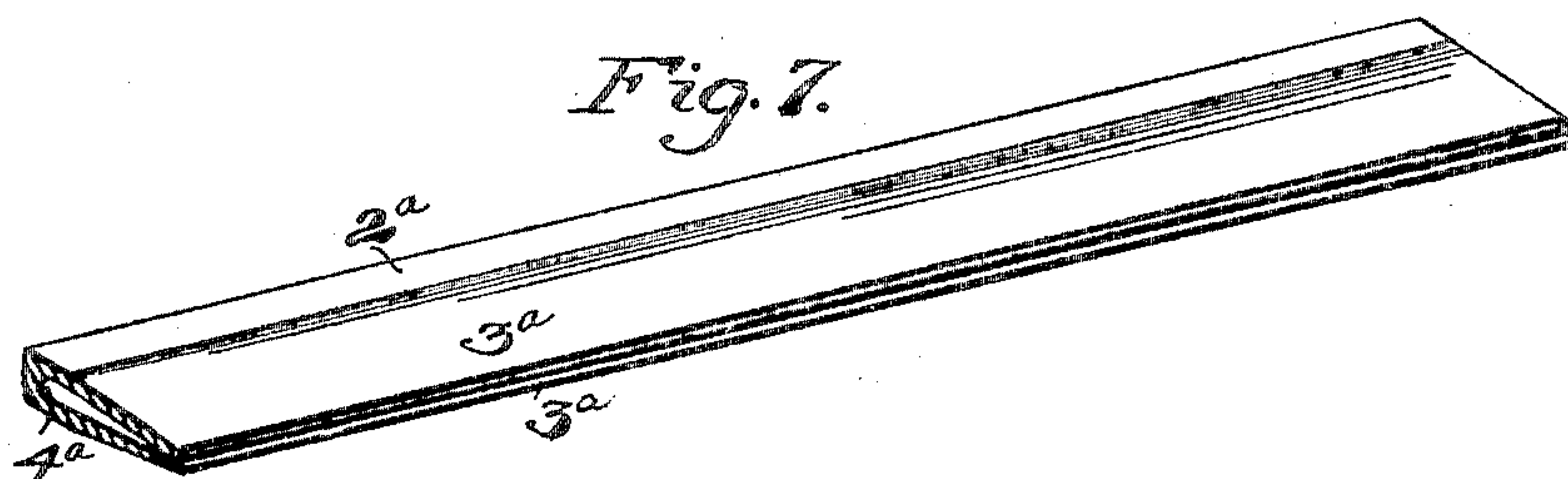
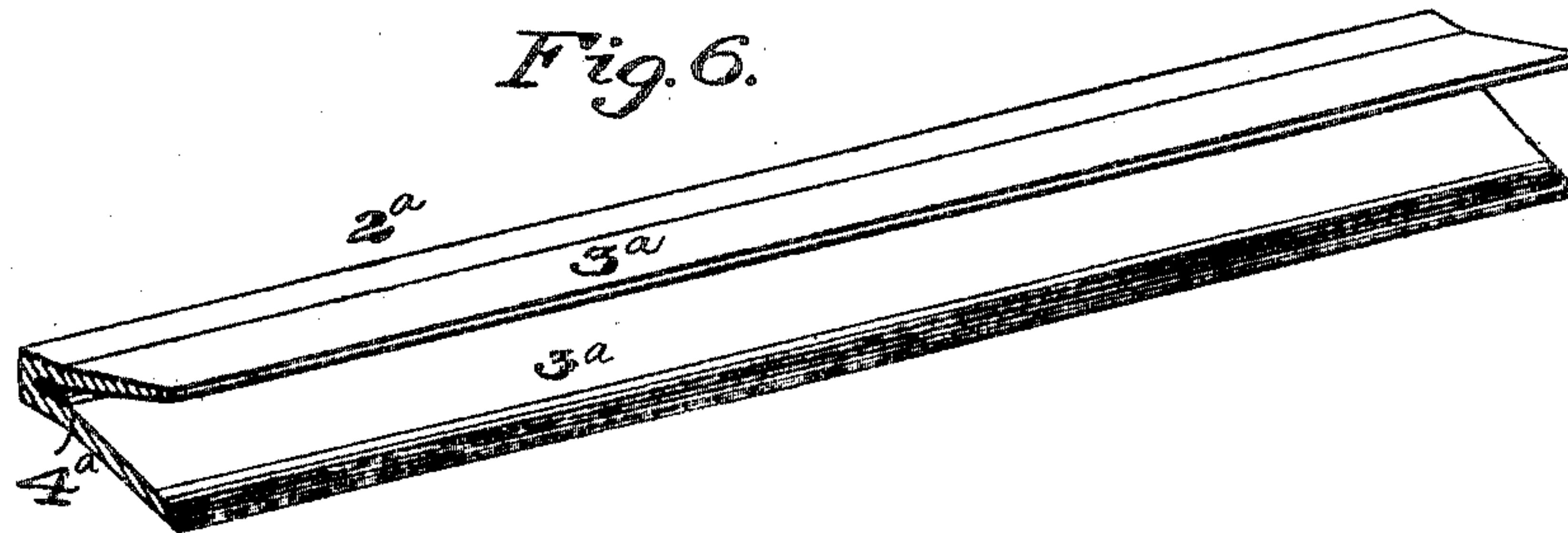
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INVENTOR

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*by James K. Baskin*  
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2 SHEETS—SHEET 2.



WITNESSES

A. M. Steen,  
Math. Jan. 1905

INVENTOR

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# UNITED STATES PATENT OFFICE.

BENJAMIN WALKER PETERSON, OF WHEELING, WEST VIRGINIA.

## MANUFACTURE OF AXES.

No. 797,708.

Specification of Letters Patent.

Patented Aug. 22, 1905.

Application filed February 20, 1905. Serial No. 246,366.

*To all whom it may concern:*

Be it known that I, BENJAMIN WALKER PETERSON, of the city of Wheeling, county of Ohio, and State of West Virginia, have invented a certain 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 is a perspective view of the soft-steel blank out of which the poll of the ax is formed. Fig. 2 is a perspective view of the soft-steel blank having a bar of hard steel laid on the lip of the soft steel ready for shearing. Fig. 3 is a cross-sectional view of the soft-steel blank. Fig. 4 is a cross-sectional view of the soft-steel blank and the hard-steel bar in position for shearing. Fig. 5 is a perspective view of the ax-blank after the same has been sheared. Fig. 6 is a perspective view of the soft-steel bar used in the manufacture of the modified form of ax. Fig. 7 is a like view of the soft-steel bar after the lips have been closed to receive the inclosing lips of the bar of hard steel. Fig. 8 is a like view showing the two bars of steel fitted together and ready to be sheared into blanks. Fig. 9 is a cross-sectional view showing the two bars on the shears, and Fig. 10 is a perspective view of the blank after it has been sheared from the bar.

Like symbols of reference indicate like parts wherever they occur.

My invention relates to the manufacture of blanks for axes in which the poll of the ax is composed of soft or low-grade steel and the cutting edge of the ax is formed from a separate piece of hard or tool steel, the two pieces of steel being united with each other. Such blanks have been made in two forms, known in the art as, first, "center-bitted," in which the hard steel is inserted between the lips of a soft iron or steel blank, and, second, "overcoated," in which the tool-steel overlaps the outside edges of the soft iron or steel blank. My improved method is adapted to both forms of blank; and it consists in, first, forming a bar of soft steel either by rolling the same from a billet or by any other suitable means until a V-shaped bar of soft steel is produced; second, in forming a bar of hard or tool steel by any suitable known process, which bar may be either oval in cross-section or of other

suitable shape to fit within the V-shaped lips of the soft-steel blank, or it may be provided with a V-shaped recess for the reception of the closed lips of the soft-steel bar, the first producing the center-bitted blank and the second form producing the overcoated blank, and, third, in so placing the hard and soft steel bars that the lips of one shall overlap the other and then shearing the bars into such lengths as are suitable for ax-blanks, whereby ragged edges are produced, which serve to hold the pieces of different grades of steel together, as is hereinafter more fully set forth.

In Figs. 1 to 5 of the drawings I have illustrated bars and blanks adapted to produce center-bitted ax-blanks, and in Figs. 6 to 10 I have shown the same adapted to produce overcoated ax-blanks.

I will now describe my invention, so that others skilled in the art may employ the same.

In the drawings, 2 represents the bar of iron or low-grade steel after it has been formed to a V shape by rolling or other suitable means. This bar is preferably provided with notches 4 on the inner face of the lips 3. After the bar has been rolled, and preferably while it is hot, the bar 5, of hard steel, which has been formed by any suitable means and is preferably of oval form in cross-section, is placed within the lips of the V-shaped recess of the bar 2, as shown in Figs. 2 and 4, the bars being placed upon the table of suitable shears. The bars are then fed forward and sheared into blanks in the usual manner of shearing. This shearing produces fins (indicated in Fig. 5) and also so presses the lips of the bar 2 down upon the bar 5 that the fins of the soft steel will bind and hold the piece of hard steel within the soft steel, producing a blank such as is shown in Fig. 5. In this blank the eye is roughly formed by the apex of the V, as is shown in the drawings.

In Figs. 6, 7, and 8 I show bars adapted to form overcoated blanks. Fig. 6 shows substantially the same blank as is shown in Fig. 1, composed of soft steel or iron. The lips 3<sup>a</sup> of this blank are first pressed together by any suitable means, a suitable mandrel being preferably placed in the apex of the recess, forming a bar such as is shown in Fig. 7, the eye of the ax being roughly formed by the mandrel. The hard-steel bar 5<sup>a</sup> (shown in Fig. 8) is provided with a recess 6<sup>a</sup>, into which

the closed lips 3<sup>a</sup> of the bar 2<sup>a</sup> are inserted on the table of the shears. The two bars are then cut into blanks, as indicated by the dotted lines on Fig. 8, the effect of the shearing being to form fins which hold the pieces of hard and soft steel together. The blanks such as are shown in Figs. 5 and 10 are then ready to be forged or worked into axes.

The advantages of my invention as disclosed in the foregoing description will be appreciated by those skilled in the art. It is evident that the details may be varied, and I do not, therefore, desire to limit myself to the same, nor do I desire to limit myself to the exact form of blank or bar shown in the drawings, as this may be varied by those skilled in the art.

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

The method of producing ax-blanks, consisting in forming a bar of iron or soft steel and a bar of hard or tool steel, forming a recess in one of said bars, placing the edge of the other bar within the lips of the said recess, and so shearing the bars into blanks as to bind the pieces of metal together; substantially as specified.

In testimony whereof I have hereunto set my hand.

BENJAMIN WALKER PETERSON.

Witnesses:

W. H. SHAFER,  
CLINTON CAMPBELL.