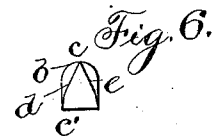
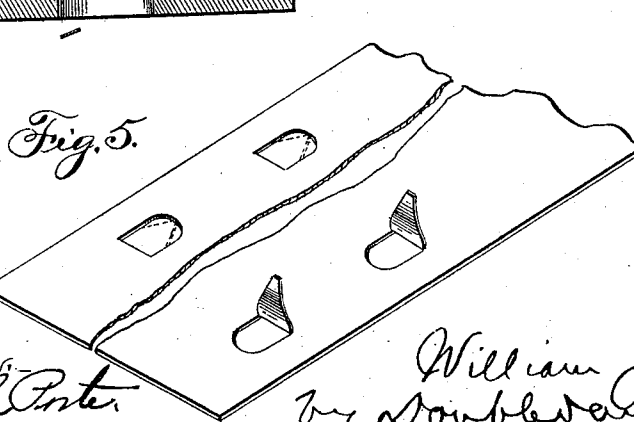
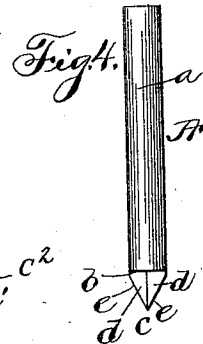
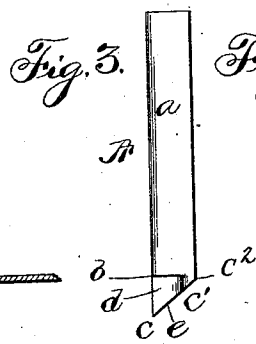
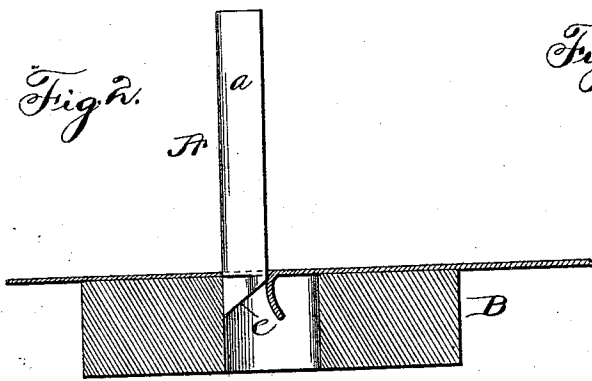
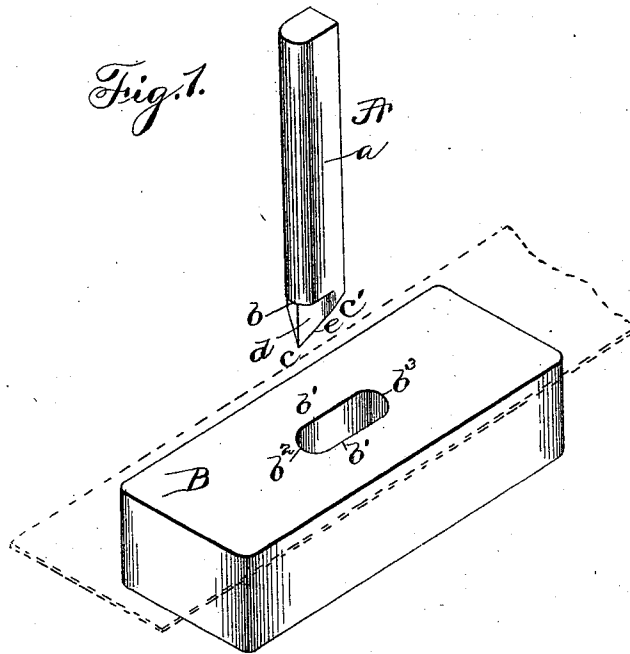


(No Model.)

W. J. PLECKER.
PUNCH.

No. 518,766.

Patented Apr. 24, 1894.



Witnesses:
Chas. H. LaPorte.
W. B. May

Inventor:
William J. Plecker
by Doubleday & Bliss attys.

UNITED STATES PATENT OFFICE.

WILLIAM J. PLECKER, OF PEORIA, ILLINOIS.

PUNCH.

SPECIFICATION forming part of Letters Patent No. 518,766, dated April 24, 1894.

Application filed December 18, 1893. Serial No. 493,935. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM J. PLECKER, a citizen of the United States, residing at Peoria, in the county of Peoria and State of Illinois, have invented certain new and useful Improvements in Punches; and I do hereby 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.

This invention relates to new and useful improvements in that class of punches which are used to form tongues or lips from the body of a sheet metal blank, such as a bale tie, a pipe blank, &c.

My invention therefore consists in providing a punch which shall in one operation cut a lip or tongue, bend it out of the plane of the sheet metal blank and cut an aperture in the blank greater or of different shape than would be that left by the cutting of the tongue itself. The punch is especially adapted for providing a tongue and aperture of the kind used to join the edges of the conductor pipes as described and claimed in my application, Serial No. 493,936, filed December 18, 1893.

In the drawings, Figure 1 is a perspective view of the punch and the die. Fig. 2 shows the punch just after the operation of punching is completed. Fig. 3 is a side view of the punch. Fig. 4 is a face view. Fig. 5 shows a blank in which the tongue and aperture have been formed by the punch. Fig. 6 is an end view of the punch.

The punch is indicated by A and has the shank portion *a*. The two side faces and the rear face of the shank are flat, while the front face is rounded or convex as clearly shown in Fig. 4. At the lower end the front face and the side faces terminate in a curved shear or cutting edge *b*, there being no shear edge at the rear. The lower end *c'* of the punch is beveled or inclined from the rear downward and forward to a point *c*. That is to say the end is beveled in a plane oblique to the plane of the rear flat face. The edge *c'* at the intersection of the planes of the beveled end and the rear flat face is, as said, not a shear edge, so that all the cutting is done by the edge *b*. Below the cutting edge *b* the metal is cut away to provide two converging sides or faces *d d'* meeting in a line which is an extension of the

central longitudinal line of the convex or rounded face of the shank. At the lower end of the punch there is provided a point triangular in cross section, the shear or cutting edge *eee* extending upwardly and back. Thus it will be seen that the punch is provided with two shear or cutting edges, one edge adapted to make a triangular incision in the metal to be cut, while the other will make a curved incision. And that it is also provided with a smooth edge in rear of the two said shear edges to insure that the tongue is not completely cut from the metal blank, but is bent back therefrom.

B is a die with a vertical aperture each half of which corresponds in dimension and shape to the shear edge *b* of the punch. It has the parallel straight shear edges *b' b'*, the curved shear edge *b²*, and the rounded or beveled edge *b³* opposite the curved edge *b²*. When, therefore, a punch thus constructed is forced into the metal, the point *c* will penetrate the metal, and the shear edge *eee* will cut a wedge-shaped tongue, the bevel portion *c'* bending the tongue at an angle to the face of the blank or metal being cut. Upon forcing the punch still farther, the shear edge *b* will cut an aperture which will be rounded at the end with straight sides as seen in Fig. 5.

It will be understood that although I have shown but one form of punch embodying my invention, I do not wish to be understood as limiting myself to the exact form shown, for it will be obvious to those skilled in the art, that many various changes may be made without departing from the spirit of my invention. I have described the tongue cut from the blank as being V-shaped, but of course the first cutting point of the punch may be of any other shape in cross section provided the shear edge does not extend entirely around the punch so as to cut the tongue completely from the blank instead of leaving it attached thereto, as herein-described, and the second shear edge may cut an aperture of any shape other than elliptical or semi-circular, as herein set forth, so that it enlarges or changes the shape of the aperture cut by the first cutting edge.

What I claim is—

1. As a means for forming a tongue and cutting an enlarged aperture in a sheet of metal,

the herein-described punch provided with a shear or cutting edge oblique to the longitudinal lines of the punch whereby a tongue is cut in the sheet metal and bent back from the planes thereof, and a supplemental shear or cutting edge arranged above the first said edge and in a position to enlarge the aperture cut thereby, substantially as set forth.

2. As a means for forming a tongue, and cutting an enlarged aperture in a sheet of metal, the herein described punch having a shear or cutting edge and a smooth edge c^3 whereby a tongue can be cut in a sheet of metal, and also having a supplemental shear or cutting edge in transverse planes above the first said cutting edge and in a position to enlarge the aperture cut by the first said cutting edge, substantially as set forth.

3. As a means for forming a tongue, and cutting an enlarged aperture in a sheet of metal, the herein-described punch, having a shank with a flat face at the rear, and terminating in an end c' beveled in planes oblique to the said flat face, said end having a shear edge at all points except at the intersection of the planes of the flat face and the bevel whereby a tongue can be cut in a sheet of metal and bent back from the plane thereof, said punch also having a supplemental cutting edge arranged above the first said cutting edge, and in a position to enlarge the aperture cut by the first said edge, said supplemental shear

edge extending around said shank except at points in the plane of the flat face, substantially as and for the purposes set forth. 35

4. As a means for forming a tongue and cutting an enlarged aperture in a sheet metal blank, the herein-described punch having two shear edges, one edge being V-shaped, and the other cutting edge being curved and arranged above and in position to round the angle of the V-cut made by the first said edge, substantially as and for the purposes set forth. 40

5. The herein-described punch, having the shank portion a , the cutting edge b , said shank being reduced at d and beveled at c' whereby is produced an inclined V-shaped cutting or shear edge e , below the first said cutting edge, substantially as set forth. 45

6. The combination with a punch having at one end an oblique shear edge e adapted to cut a tongue in a sheet of metal, and also having a supplemental shear edge b arranged above and in a position to enlarge the cut made by the said shear edge e , of a die having an aperture, one wall of which forms a shear edge b^2 conforming to the shear edge b of the punch, substantially as set forth. 50

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

WILLIAM J. PLECKER.

Witnesses:

W. M. LINDSAY,
J. K. TIMBERMAN.