

(No Model.)

C. G. LARSON.

MATRIX FOR GUIDING PIECES WHEN BEING PUNCHED.

No. 551,503.

Patented Dec. 17, 1895.

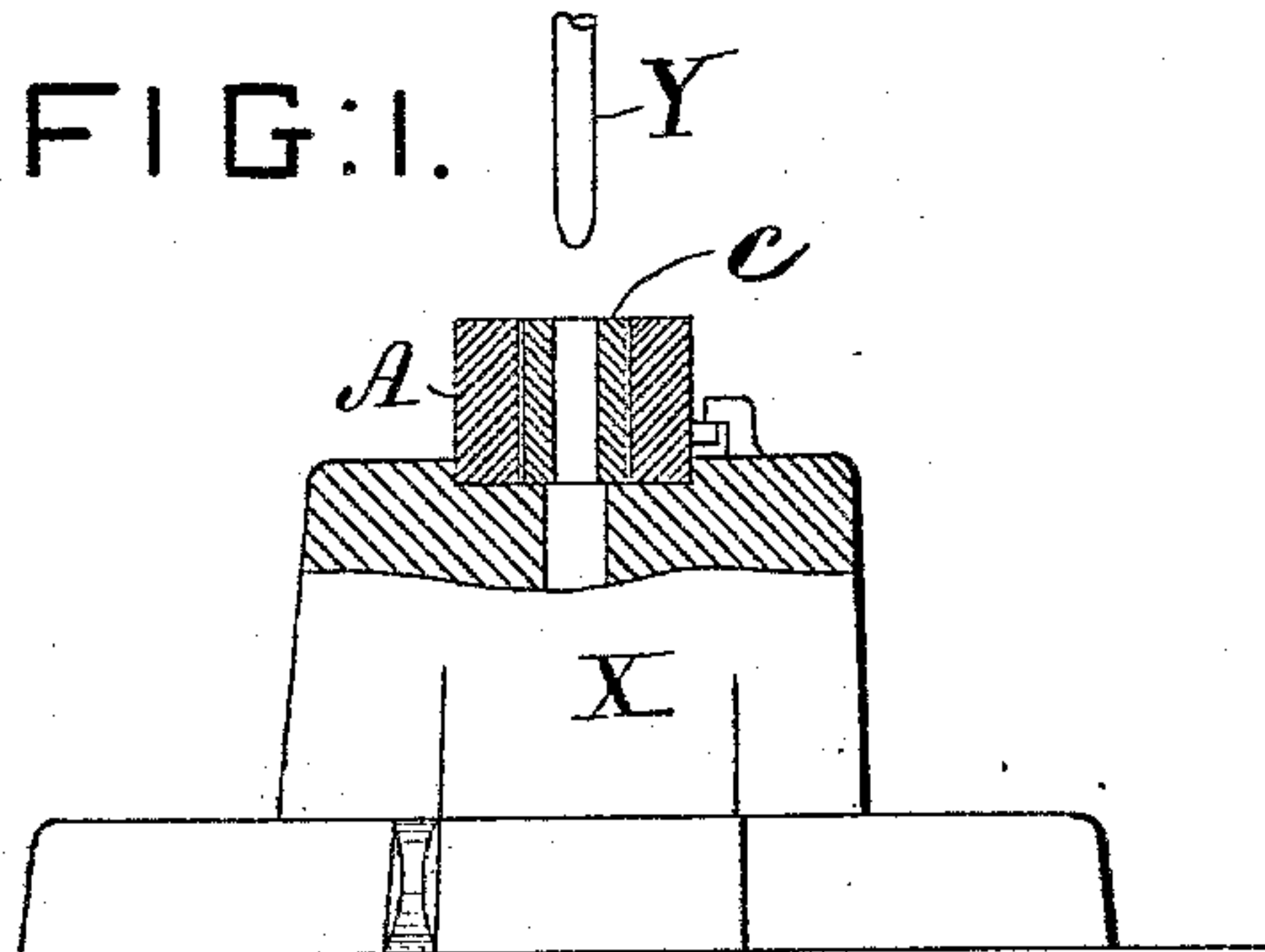


FIG:2.

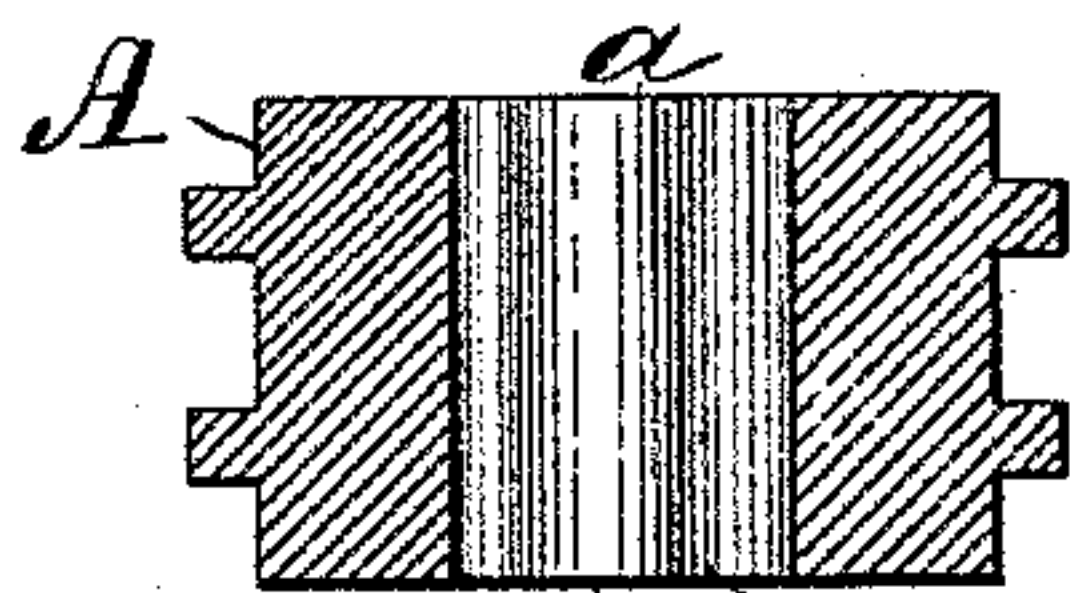


FIG:2 a

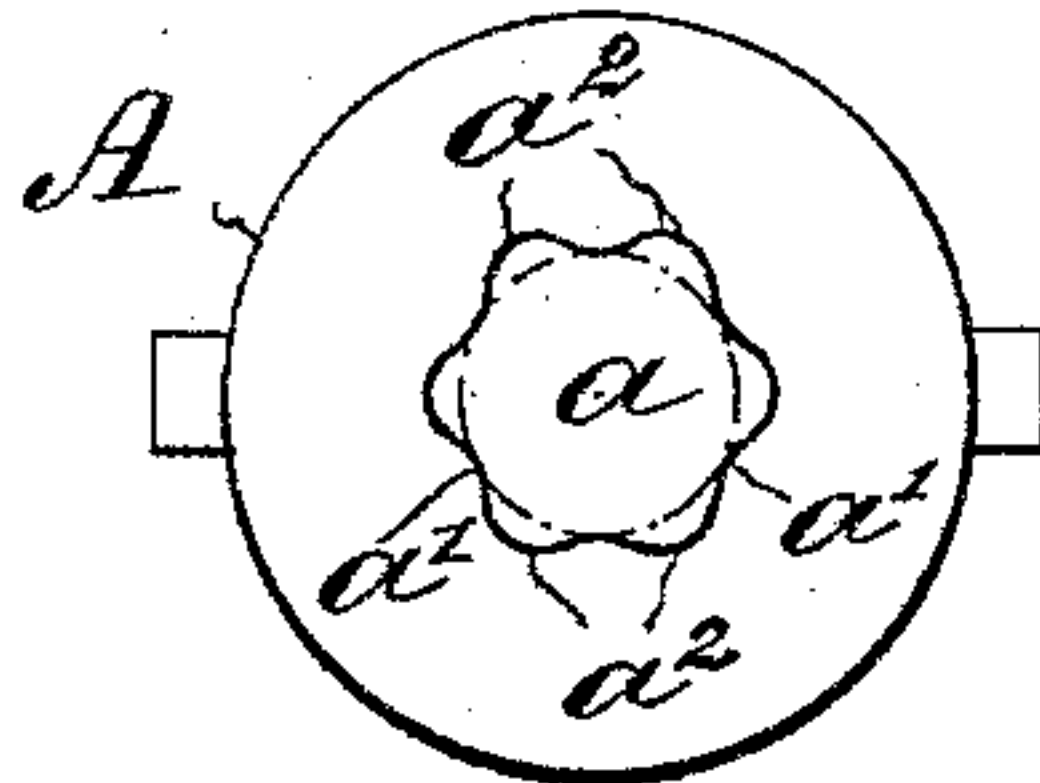


FIG:6.

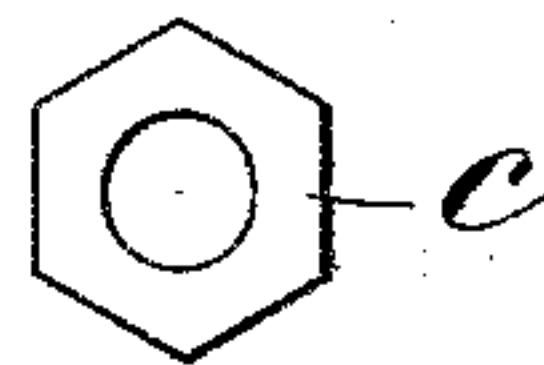


FIG:5.

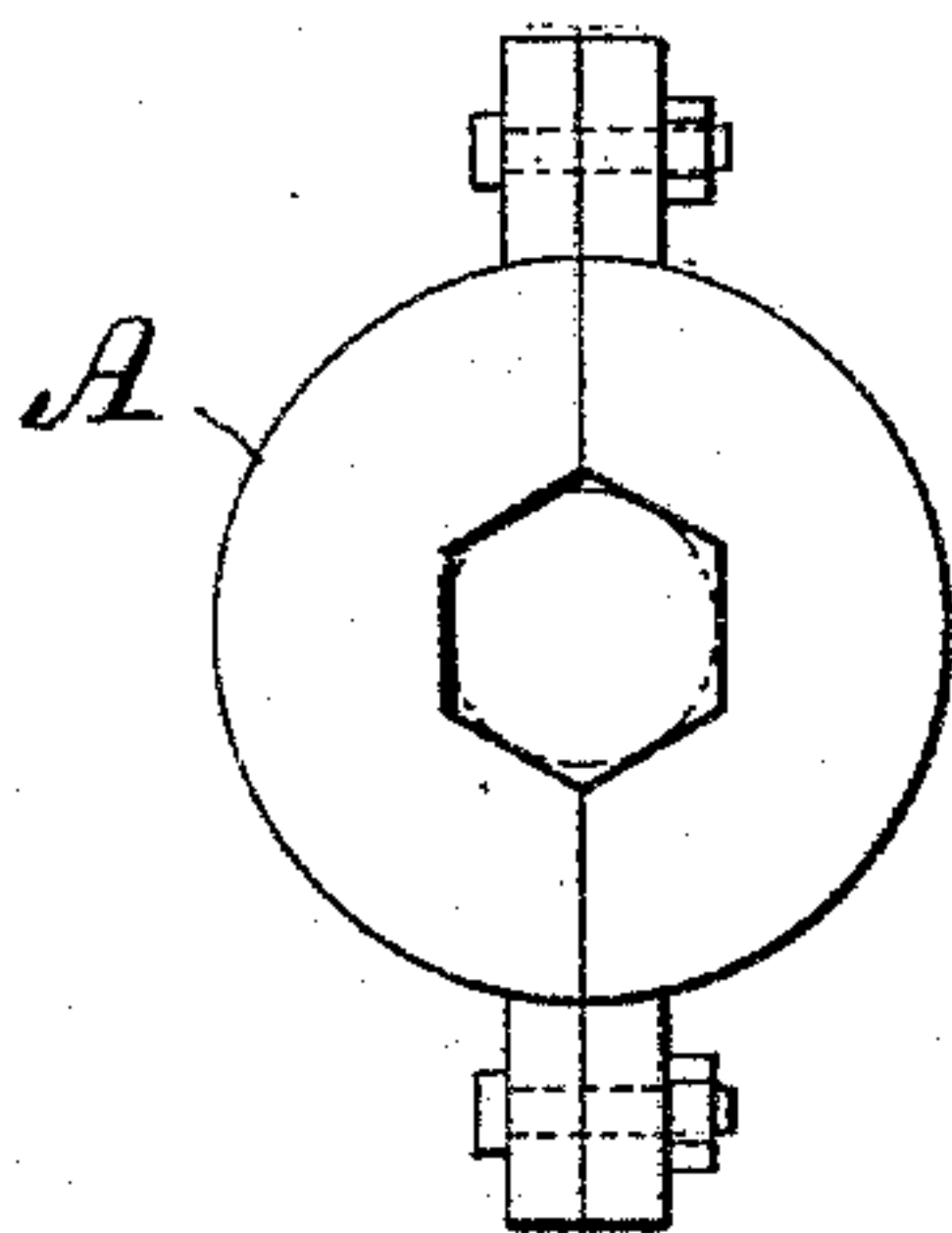


FIG:4.

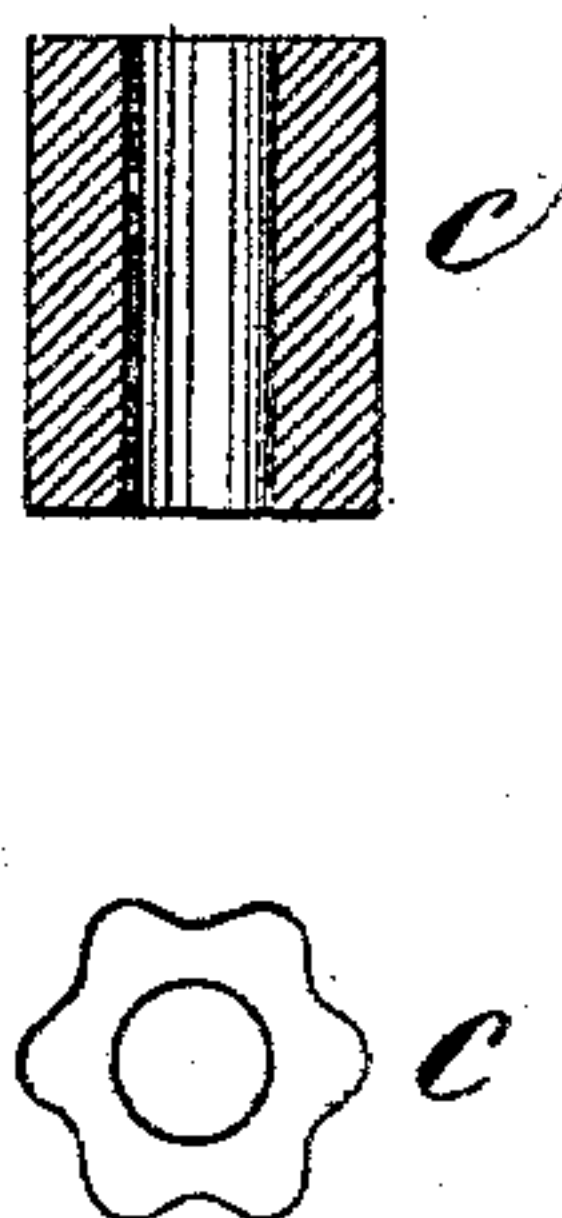
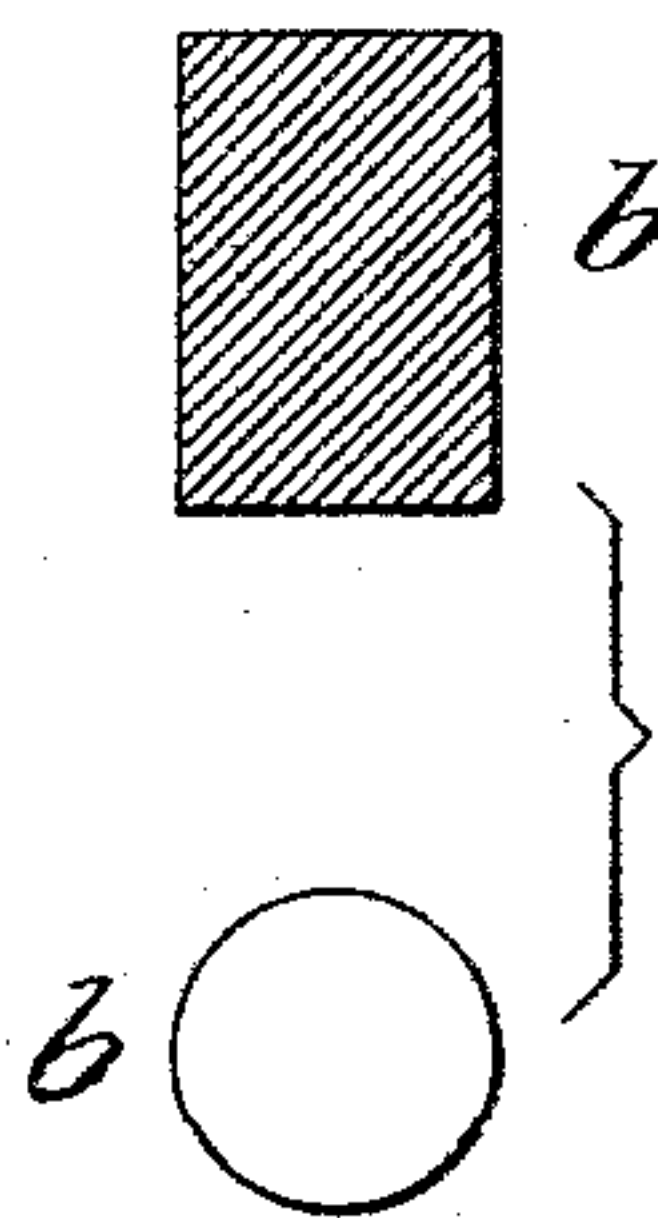


FIG:3.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

CARL GUSTAF LARSON, OF SANDVIKEN, SWEDEN.

## MATRIX FOR GUIDING PIECES WHEN BEING PUNCHED.

SPECIFICATION forming part of Letters Patent No. 551,503, dated December 17, 1895.

Application filed July 18, 1893. Serial No. 480,831. (No model.) Patented in France September 6, 1892, No. 224,179.

*To all whom it may concern:*

Be it known that I, CARL GUSTAF LARSON, a subject of the King of Sweden and Norway, residing in Sandviken, Sweden, have invented certain new and useful Improvements in Matrices or Stamping-Shells for Guiding Pieces while Being Punched, (for which I have obtained a patent in France, No. 224,179, bearing date of September 6, 1892,) of which the following is a specification.

My invention relates to the class of matrices used to hold blooms and blanks of metal for being punched, the object being to provide a matrix which will center and hold the piece about its sides during the punching operation and yet allow room for expansion of the piece, due to displacement of material by the punch. The invention is especially applicable to the forming of tubular blooms or blanks for use in rolling tubes of uniform thickness.

In the accompanying drawings, which serve to illustrate my invention, Figure 1 is a general view on a small scale, partly in vertical mid-section, illustrating the use and application of my invention. Fig. 2 is a vertical section, and Fig. 2<sup>a</sup> a plan, of the matrix. Fig. 3 represents, in longitudinal section and plan, a cylindrical piece or bloom to be pierced or punched; and Fig. 4 is a similar view representing the bloom after it has been punched. Fig. 5 shows a matrix made in sections and having in it a prismatic aperture, and Fig. 6 is a plan or end view of a bloom or blank which has been punched in said matrix.

In Fig. 1 X represents the anvil of, for example, a steam-hammer, and in this anvil is a recess to receive the matrix A and hold it in position under a conical or taper-pointed punch Y. Any means may be employed for securing the matrix to the anvil or holder.

In the matrix is a bore or aperture  $a$  to receive the heated piece or block of steel  $b$  or other metal to be punched. This bore  $a$  will be axially aligned with the punch Y, and it will have ribs or projecting parts  $a'$  and grooves or spaces  $a^2$  between said parts. The block or piece  $b$ , when placed in the matrix, will be in contact, externally, with the projecting ribs  $a'$  of the matrix, as indicated by the dotted circle in Fig. 2<sup>a</sup>, whereby the piece is held in axial alignment with the punch during the punching or piercing of the piece,

and the recesses or grooves  $a^2$  allow room for displacement of the metal by the punch. After the punching the blank  $c$  will have the form clearly shown in Fig. 4.

In Figs. 2 and 2<sup>a</sup> I have represented the projections or ribs  $a'$  and the interspaces  $a^2$  as formed by a wavy outline of the bore  $a$ , and in these views the matrix is represented as made from a single block or piece; but the bore  $a$  may be of other regular forms in cross-section, as prismatic or polygonal, and the matrix may be sectional. These features are illustrated in Fig. 5, and Fig. 6 shows a blank punched in such a matrix. The projecting or guiding ribs in Fig. 5 are the faces of a hexagon, the re-entering angles of the latter forming the interspaces to receive the metal displaced by the punch.

Having thus described my invention, I claim—

1. The combination with a matrix or stamping shell having the wall of the bore therein which receives the heated piece of metal to be punched, made up of longitudinally-extending, guiding ribs and longitudinally-extending interspaces between said ribs in the nature of flutes in the wall of the bore, said ribs forming centering guides and said interspaces receiving the metal which is displaced laterally by the punch from the piece of metal acted upon, of a conical or taper-pointed expanding punch, adapted to form a bore through the said piece of metal, substantially as set forth.

2. The combination with a matrix or stamping shell for holding a cylindrical piece of metal to be punched, having a bore  $a$ , of regular cross-section and having longitudinally-extending, equally spaced grooves or flutes to receive the laterally expanded metal displaced by the punch, of a taper-pointed expanding punch adapted to expand the hot metal and form a bore therein, substantially as set forth.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

CARL GUSTAF LARSON.

Witnesses:

ERNST SVANQVIST,  
CARL TH. SUNDHOLM.