Dec. 28, 1926. 1,611,968

A. C. WEBSTER

METHOD OF MAKING PLIERS

Filed April 19, 1924 2 Sheets-Sheet 1

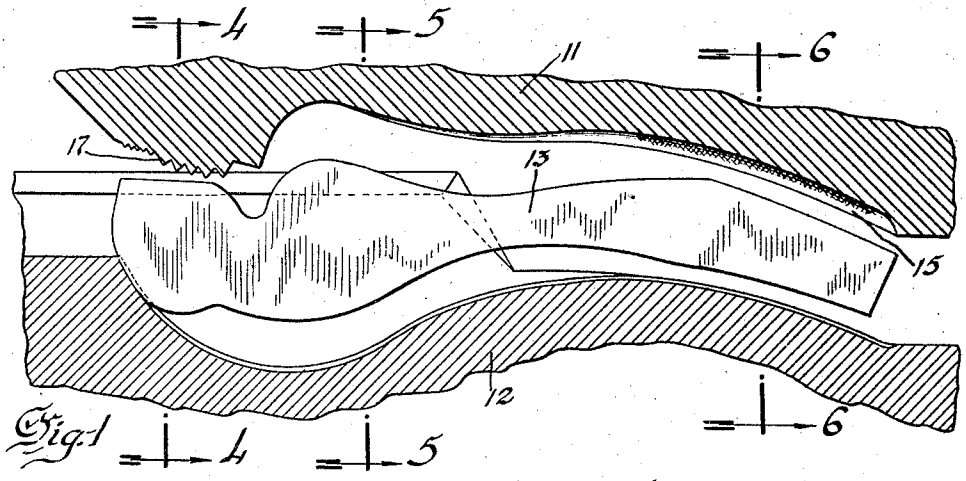


Fig. 1

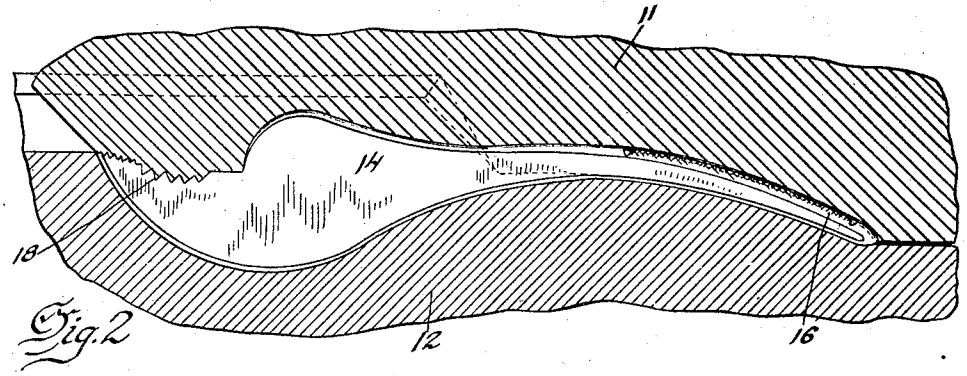


Fig. 2

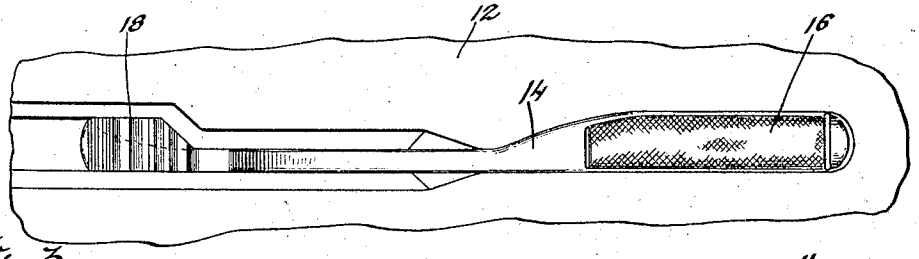


Fig. 3

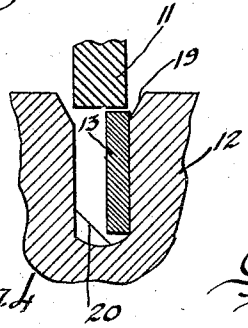


Fig. 4

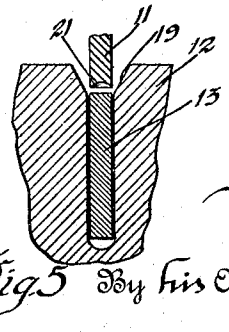


Fig. 5

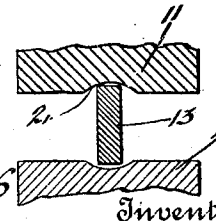


Fig. 6

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METHOD OF MAKING PLIERS

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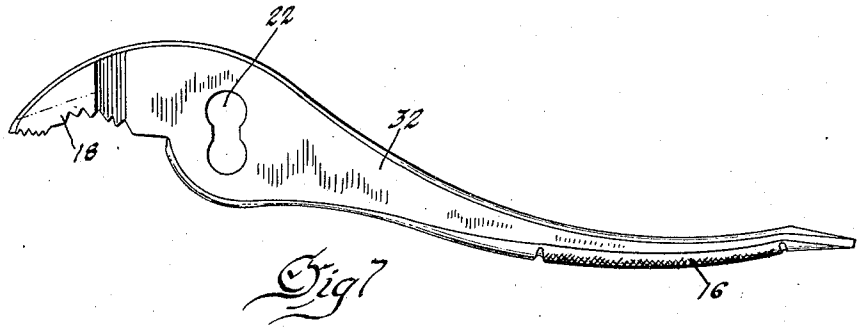


Fig. 7

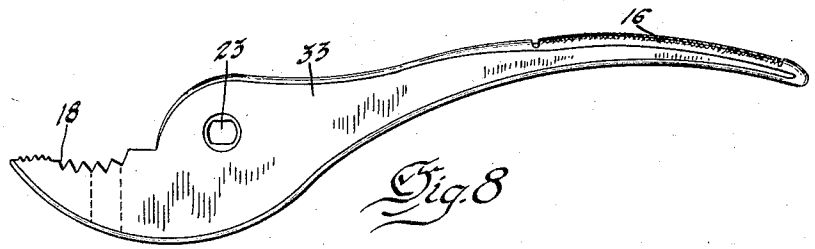


Fig. 8

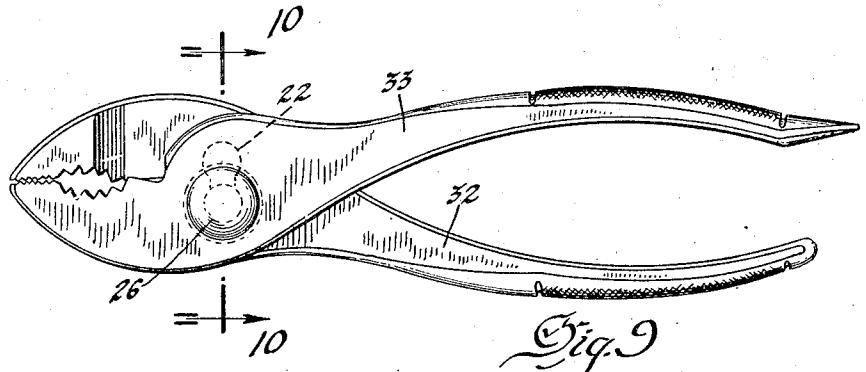


Fig. 9

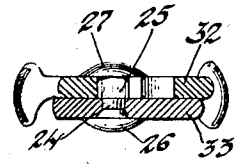


Fig. 10

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UNITED STATES PATENT OFFICE.

ARVIN C. WEBSTER, OF DETROIT, MICHIGAN.

METHOD OF MAKING PLIERS.

Application filed April 19, 1924. Serial No. 707,594.

Pliers as usually made are forged from metal stock usually in the form of a rod. The forging of the pliers in this manner results in a flash between the dies on the forged piece due to the fact that more metal is found in the piece from which the plier sections are forged than is necessary to fill the dies. This flash is usually trimmed off after the plier sections are formed.

The metal of the stock being forged which forms the flash necessarily flows in a direction at right angles to the forging motion of the dies which causes a decided weakness in the forged piece, especially when the flash is thin.

It is the primary object of my invention to forge plier sections either hot or cold or both from sheet metal blanks which have been cut out in pre-determined sizes so as to accurately fill the forming dies and obviate flash.

It is obvious that a plier so constructed, in addition to being much stronger because the metal is not flown incorrectly so as to form a flash, is materially cheaper of manufacture than the forged plier.

With the above and other objects in view my invention consists in the arrangement, combination and construction of the various parts of my improved device and the various steps of my improved method as described in the specification, claimed in my claims and shown in the accompanying drawings in which:

Fig. 1 is a sectional view of the dies used in my method showing the sheet metal blank therebetween.

Fig. 2 is a like view showing the dies brought together so as to form the blank into a plier section.

Fig. 3 is a top or plan view of a portion of the bottom die showing the formed plier section therein.

Fig. 4 is a sectional view taken on line 4—4 of Fig. 1 with the top die brought almost against the blank.

Fig. 5 is a sectional view taken on the line 5—5 of Fig. 1 with the top die brought almost in contact with the blank.

Fig. 6 is a sectional view taken on line 6—6 of Fig 1 with the top die brought down against the top of the blank.

Fig. 7 is an elevation of one plier section or handle.

Fig. 8 is an elevation of the other plier section or handle.

Fig. 9 is an elevation of the assembled plier.

Fig. 10 is a sectional view taken on line 10—10 of Fig 9.

I have shown a top die section 11 and a bottom die section 12 with a formed sheet metal blank 13 between them. The dies 11 and 12 are brought together in a single squeezing power stroke so as to form completely in a single stroke a plier section 14.

The top die 11 is provided with corrugations 15 so as to form the corrugated gripping portion 16 on the handle of the plier section, and is likewise provided with corrugations 17 so as to form the corrugations 18 on the jaw of the plier section.

The lower die 12 is chamfered at its top edges 19 permitting entrance of the top die 11 therein. Likewise, the bottom of the forming portion of the die 12 is provided with a tapered fill 20 adapted to bear against the lower free corner of the blank 13 so as to prevent the blank moving in the die to crosswise position which would interfere with proper heading of the jaw.

The upper die 11 is of curved formation as shown at 21 in Figs. 5 and 6 so as to give a rounded effect to the finished plier section.

Two sets of dies may be used, each slightly varied as to details from the other so as to make two plier sections 32 and 33, the former being provided with an aperture 22 and the latter with an aperture 23.

For assembling the two plier sections together I utilize a rivet having two body diameters 24 and 25 and a head 27. The rivet is permanently fixed to the plier section 33 by placing the shoulder of the body section 25 against it and then forming the head 26 on the rivet. The body section 25 of the rivet is slightly larger than the thickness of the plier section 32, thus permitting free movement of the latter. The method of securing the plier sections together, being foreign to the method claims herein set forth is not claimed in this application.

It will thus be seen that in forming a plier section as heretofore described, the portion of the blank shown in Fig. 5 remains practically in its original state, very little upsetting thereof taking place. On the other hand, the two ends of the plier sections are upset to a considerable extent in order to form the jaw and handle portions.

It is obvious that pliers formed in the foregoing manner will be very cheap of

manufacture, and it is also obvious that by forming the blank of sheet metal, a fixed pre-determined amount of metal may be used so as to prevent over filling of the dies and the formation of a flash, by avoiding which the plier is made materially stronger.

It is obvious that various changes may be made in the arrangement, combination and construction of the various parts of my improved device as well as of the methods used without departing from the spirit of my invention, and it is my intention to cover by my claims such changes as may be reasonably included within the scope thereof.

What I claim is:

1. The method of forming a plier section which consists in disposing a sheet metal blank between dies, securing at least a portion of said blank in at least one of said dies so as to prevent displacement thereof, and then bringing said dies together to upset said section into its desired shape.

2. The method of forming a plier section which consists in placing a sheet metal blank having a general outline of the section in a die having a curved bottom and then bringing another die, having a curved portion on its forming face, against said blank so as to upset the blank and form it into the desired shape at least a portion of the formed piece having curved edges.

ARVIN C. WEBSTER.