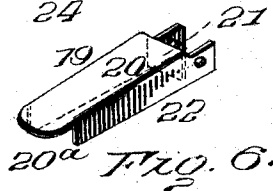
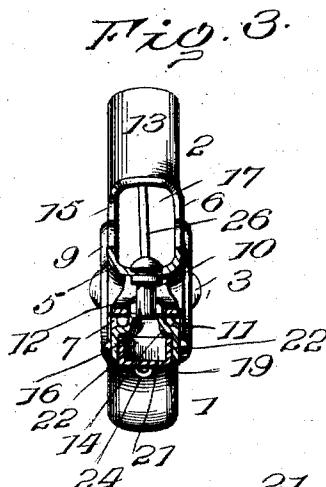
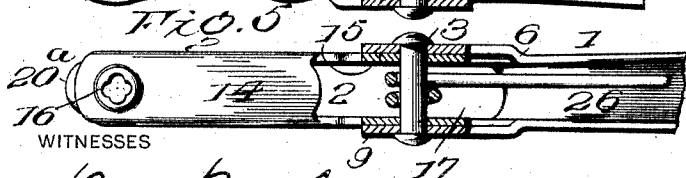
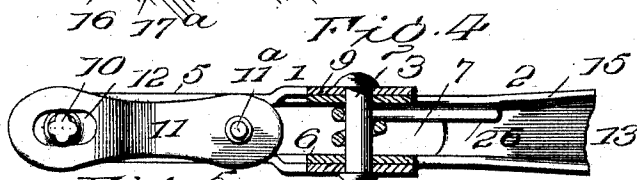
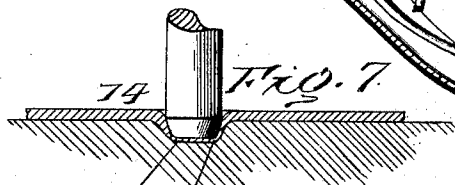
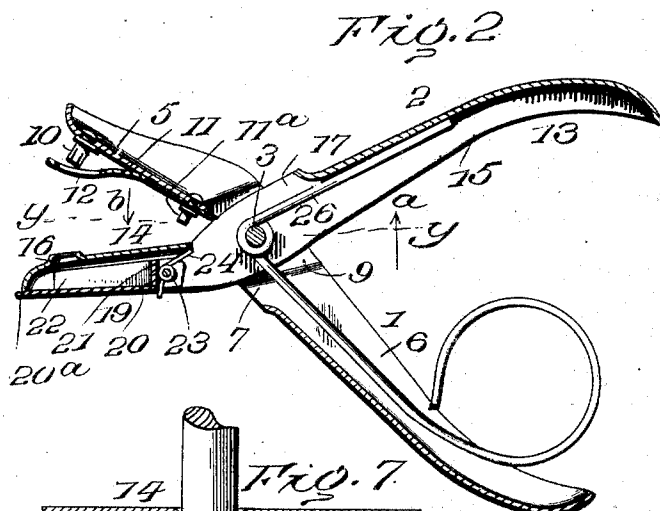
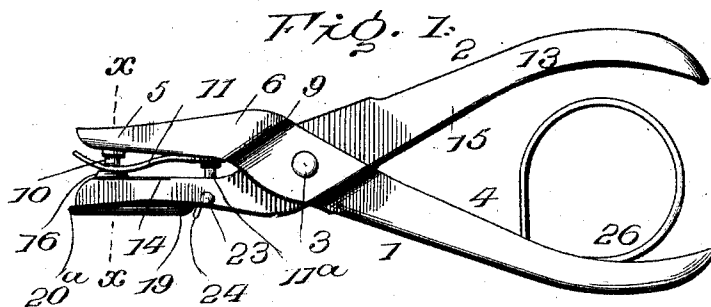


No. 759,708.

PATENTED MAY 10, 1904.

H. C. HART.
ART OF MAKING PUNCHES.
APPLICATION FILED JUNE 9, 1903.

NO MODEL.



WITNESSES

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ART OF MAKING PUNCHES.

SPECIFICATION forming part of Letters Patent No. 759,708, dated May 10, 1904.

Application filed June 9, 1903. Serial No. 160,768. (No model.)

To all whom it may concern:

Be it known that I, HUBERT C. HART, a citizen of the United States, residing at Unionville, in the county of Hartford and State of Connecticut, have invented new and useful Improvements in the Art of Making Punches, of which the following is a specification.

This invention relates to improvements in the art of making hand-punches designed, primarily, for domestic use.

The object of the invention is to provide a punch which can be stamped from sheet metal and bent into the desired configuration to produce a cheap and convenient article.

Heretofore in the manufacture of punches it has been the custom to first set the punch and then set a die to coöperate therewith. This operation required great exactness and precision, which adds considerable to the cost of the article, as well as requiring skilled labor to assemble the parts; but I have found a more practical and economical means of accomplishing the same result, and it is this feature in my present application that I desire to emphasize. In stamping the blank a die makes a slight countersink, which thins the metal at its bottom and at the same time forms a basis for a die. When the blanks forming the article are bent into shape, the punch proper is riveted in, and when the parts are assembled the punch is opposite the countersink, and with a slight compression of the handles the punch cuts out the thin bottom of the countersink, and thus forms its own die. Such an operation insures the punch and its die being absolutely in proper relative position with each other as to effectually insure an accurate fit. Furthermore, time is saved in assembling, and a separate operation of fitting the die is dispensed with.

With these general objects in view I will proceed to describe in detail the construction and will particularly point out the novel features in the claim.

In the drawings, Figure 1 is a side elevation of a punch with the jaws closed to form the die. Fig. 2 is a vertical section of a punch, the jaws being opened, the die having been formed. Fig. 3 is a transverse section on the line *x x*, Fig. 1. Fig. 4 is a horizontal sec-

tion on the line *y y*, Fig. 2, looking in the direction of the arrow *a*. Fig. 5 is a horizontal section on the line *y y*, Fig. 2, looking in the direction of the arrow *b*. Fig. 6 is a detailed perspective view of a punch-receptacle used in connection with my improved punch. Fig. 7 is a conventional illustration of the manner of forming the countersink from which the die is to be formed.

The numeral 1 represents a member of a punch, while the numeral 2 is a companion member, pivotally connected together by a pivot-fastening 3.

The member 1 is stamped from sheet metal and comprises a handle 4 and a punch-carrier 5. In order to brace and strengthen this member, the metal is bent at an angle from the flat portions of the handle 4 and the punch-carrier 5, as shown at 6, and an opening 7 is formed in the flat portion, and adjacent thereto the sides 6 are slightly bent outwardly, as at 9, to form a side bearing for the companion member 2. A punch 10 is riveted in the flat face of the punch-carrier, and adjacent and riveted behind the same is the usual spring-ejector 11, the free end of which is dropped slightly below the outer end of the punch and is provided with an elongated opening 12. The rivet 11^a, which secures the ejector, impinges the face of the die-carrier and limits the movement of the punch.

The member 2 is stamped from sheet metal and is of approximately the same shape as member 1. It comprises a handle 13, die-carrier 14, and the bent sides 15.

At this point I desire to emphasize the construction and method of forming the die in the die-carrier, a feature which I regard as highly important. When the blank from which the member 2 is formed is stamped out or, if desired, when it is being shaped up, a countersink 16 is provided near its outer end, as shown in Fig. 7. It is well known in this art that when such a depression is formed in the metal the latter becomes quite thin, as at 17^a, and it is this weakness that I utilize to advantage in the manufacture of my punch. Inasmuch, however, as at this point I have only outlined the member 2 to the point where it will with the other elements be assembled,

I will take up the completion of the die in the countersink hereinafter.

Obviously to facilitate the manufacture of the members 1 and 2, as well as to lighten it, the member 2 will, like member 1, have an opening 17. Thus the blanks of both members may be made with the same die.

Between the sides 15 of the member 2 and adjacent the die-carrier is pivoted a piercing-receptacle 19, stamped from sheet metal and comprising a bottom 20, one end of which is bent up to form a rear wall 21, while its edges are bent to form side walls 22. The sides extend slightly beyond the walls 21 and are perforated to receive a pin 23, which also passes through openings in the sides 15. A spring 24 is coiled around the pin and serves to normally throw the receptacle up within the hollow portion of the member 2. In order to provide a convenient finger-piece to empty the piercings from the receptacle, the front 20^a of the bottom is extended slightly beyond the front of the side walls 22 and fits under the front portion of the flange 15, which forms the sides. Thus a projection is conveniently located to enable a person's finger-nail to be slipped between the front 20^a and the end of member 2, when the tension of the spring can be readily overcome and the piercings will slide out. The member 2 is passed through the opening 7 of member 1, and the two are pivoted together by the pin 3, and around said pin is coiled a spring 26, one terminal of which bears in the hollow portion of the handle 13, while the other terminal is formed into a finger-loop and bears in the hollow portion of handle 4. The tension of the spring is such as to normally throw the punch and die carriers apart, as will be understood by reference to the drawings. The parts thus assembled, the handles are given a tight squeeze, and the punch 10 is forced against the thin portion 17^a of the countersink 16 and cuts a die corresponding to the exact shape and location of the punch. I have then not only a precise register of the punch and die, but have produced the desired result without the necessity of accurately locating the die and punch prior to the assembling of the parts, as in the

manufacture of this class of goods to-day. The slightest variation in the size of a punch or misplacing of the die as now made produces a defective article; but by my means of bringing about the desired end accuracy and relationship of the two important elements—*i. e.*, punch and die—are sure to follow. Moreover, the surrounding raised portion of the countersink after the die has been formed adds greatly to the operation of the punch, as it tends to form a raised cutting edge, and as the ejector is brought down in contact with the material being operated upon obviously such material is tightly clamped and is rendered more susceptible to being acted upon when the punch engages the die.

A punch constructed in accordance with my invention is formed from sheet metal and shaped in such manner as to strengthen the parts to resist strain in the direction which it applies. Furthermore, the construction enables me to produce a cheap, neat, and light punch and one not liable to become out of order. However, in addition to the desirable features enumerated I desire to emphasize the fact that I regard the means of forming the die and the specific construction of the piercing-receptacle as the most important. It has been my aim to produce these elements with as little expense and handling as possible, for which reason I especially mention them.

What I claim as new is—

The art of making a die for a punch, consisting in taking an incomplete tool formed of sheet metal comprising two members pivoted together, one of such members being provided with a punch, forming a countersink in the other member opposite the punch to thin the metal and then applying pressure to the punch to remove the thinned portion of the countersink, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

HUBERT C. HART.

Witnesses:

JNO. IMIRIE,

DENIZA MATTHEWS.