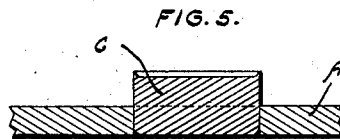
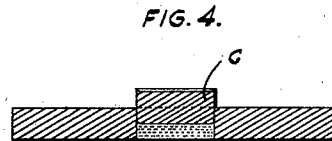
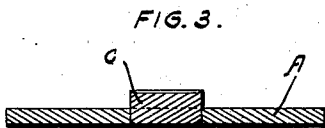
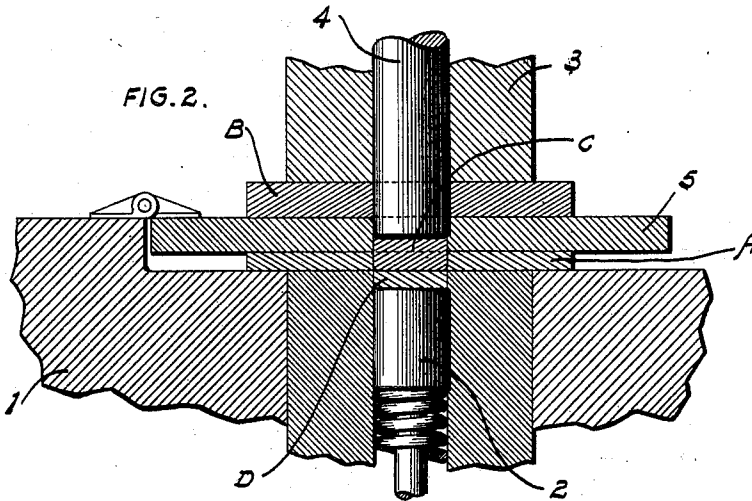
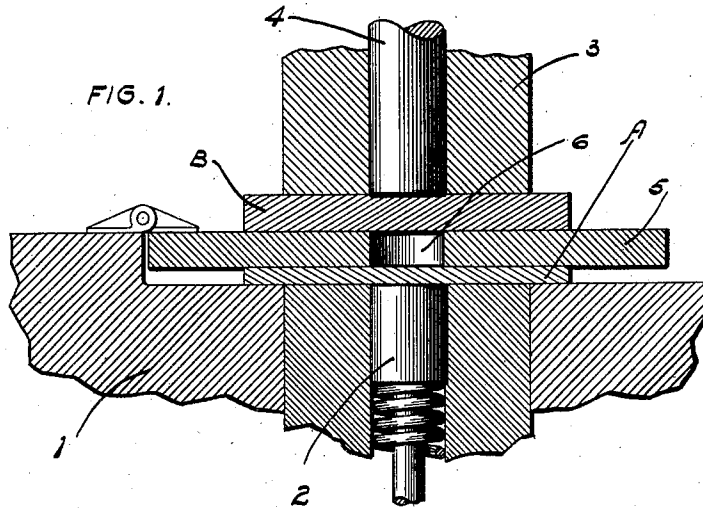


C. A. GARVEY.
METHOD OF MAKING STENCIL MACHINE CHARACTER PUNCHES.
APPLICATION FILED AUG. 5, 1910.

991,498.

Patented May 9, 1911.



WITNESSES

Wm. J. Jannus.
M. Smith

INVENTOR

CHRISTOPHER A. GARVEY

BY *F. R. Garmes* ATT'Y.

UNITED STATES PATENT OFFICE.

CHRISTOPHER A. GARVEY, OF ST. LOUIS, MISSOURI.

METHOD OF MAKING STENCIL-MACHINE CHARACTER-PUNCHES.

991,498.

Specification of Letters Patent.

Patented May 9, 1911.

Application filed August 5, 1910. Serial No. 575,837.

To all whom it may concern:

Be it known that I, CHRISTOPHER A. GARVEY, a citizen of the United States, residing at St. Louis, Missouri, have invented a certain new and useful Improvement in Methods of Making Stencil-Machine Character-Punches, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a vertical sectional view of a portion of a press particularly adapted for practicing my improved method, and illustrating the plates from which the character punch is formed. Fig. 2 is a sectional view similar to Fig. 1 and illustrating the positions of the parts when a portion of one of the plates has been forced into the plate forming the body of the punch. Fig. 3 is a sectional view of a completed character punch formed by my improved method. Fig. 4 is a sectional view of a modified form of a punch formed by my improved method. Fig. 5 is an enlarged sectional view of a portion of a character punch formed by my improved method.

My invention relates to a new and improved method of making character punches, particularly adapted for use in stencil machines, the object of my invention being to simplify and cheapen the manufacture of stencil machine character punches, and to provide punches which are true, clean cut and have the requisite strength combined with minimum weight.

My improved method contemplates the formation of a punch by pressing or punching out one or more portions from a plate and forcing said punched out portions through a die or separating plate, and into a plate which forms the base or body of the character punch.

In practicing my improved method the punched out portions of one plate are seated in the base plate in such a manner as that parts of the punched out portions project beyond the base plate, and the edges of the projecting parts of the punched out portions retain the minute bur which is formed at the time the portions are punched from the plate, and which burs form sharp, well defined cutting edges for the parts of the character punch, which enter the corre-

sponding openings in the punch plate, when said character punch is in use. By thus locating the punched out portions in the base plate with the burs on the edges of the projecting parts of said punched out portions, a well defined cutting edge is formed in the process of manufacture of the character punch, and it will not be necessary to resort to the grinding off operation required to sharpen the cutting edges of the punch formed without the bur, and which grinding off operation involves considerable time and labor.

Referring by numerals to the accompanying drawings which illustrate a simple form of mechanism particularly adapted in practicing my improved method, 1 designates a portion of a die press in which is located a yielding plunger 2.

3 designates a head adapted to move vertically or swing laterally away from the plunger 2 and operating through said head is a punch 4.

5 designates a plate which is preferably hinged to the press 1, and formed in said plate is an opening 6 corresponding in shape to the shape of the character to be formed. The punch 4 is of the same shape, and is adapted to pass through the opening 6 in the die plate 5.

In carrying out my improved method with the apparatus as shown, a plate A is positioned on the press 1 immediately over the plunger 2, after which the die plate 5 is positioned on top of said plate A. A comparatively thick plate B is now positioned on top of the die plate 5, after which the head 3 carrying the punch 4 is positioned on the plate B, with said punch 4 in direct alinement with the opening 6, and the plunger 2. The punch 4 is now forced downward by pressure in any suitable manner, and a plug or portion C corresponding in shape to the shape of the punch 4, and opening 6, will be punched out of the plate B, and will move downward through the opening 6. As this punching out operation takes place a minute bur will be formed around the upper edge of the plug or punched out portion C, and as said plug or punched out portion moves downward through the opening 6 in the die plate, the bur will be naturally elongated or drawn out by reason of the frictional contact of the side faces of the plug or punched out portion against the faces of the opening 6. As

the downward pressure upon the punch 4 is continued the punched out plug or portion C will engage the plate A and punch therefrom a section D, corresponding in shape to the shape of the plug or punched out portion C, and the plunger 2. This punched out portion D of the plate A is forced downward into the opening in which the plunger 2 operates and thus the lower portion of the plug or punched out portion C is seated in the plate A. The punch 4 is now withdrawn after which the head 3 and plate 4 are removed from the plate 5, and the completed character punch, comprising the plate A carrying the plug or punched out portion C is now removed from said plate 5. The plate A with the plug C is now hardened in any suitable manner, and as a result of my improved method a strong, substantial character punch is formed with the edge of the projecting portion formed with a continuous minute bur, thereby forming a sharp, well defined cutting edge, which co-operates with the corresponding edge of the opening in the punch plate, to bring about the much desired clear, shear cut through the material, in which the stencil is formed.

I prefer to form stencil character punches combining a comparatively thick plug or punched out portion with a thin base plate, as shown in Fig. 3, although, in some instances, it may be found desirable to form the plug or punched out portion of material approximately equal in thickness to the base plate, as shown in Fig. 4. Where the latter method is practiced the plug or punched out portion is partially seated in the base plate, and the space within the opening in said base plate, behind the plug, is filled with solder or analogous material.

In practice I have demonstrated that it is necessary to provide the die plate 5 between the plates A and B, during the punching out operation, for if the plug is punched from a thick plate directly into a comparatively thin plate, it is almost impossible to separate the two plates, for the reason that a portion of the plug remains in the thick plate and in some instances said plug will withdraw from the thinner plate when the two plates are separated.

The die plate 5 besides acting as a separating plate provides means whereby the bur on the upper edge of the plug or punched out portion is drawn out during the passage of the plug through the opening in said die plate.

Various other forms of apparatus than that shown can be utilized for practicing my improved method. Stencil machine character punches manufactured by my improved method are light, strong and durable, and the edges of the projecting portions of said punches are provided with minute burs, which form well defined cutting edges for

the parts of the punch which enter the corresponding openings in the punch plates of the stencil machine.

I claim:

1. The herein described method of making stencil machine character punches in one operation which consists in punching out a portion of a plate, forcing the punched out portion through an opening in a die-plate, and forcing the punched out portion into a character-punch base-plate which first mentioned plate and the base plate occupy positions on opposite sides of the die plate.

2. The herein described method of making stencil machine character punches in one operation which consists in punching out a portion of a comparatively thick plate, forcing the punched out portion through an opening in a die-plate, and forcing the punched out portion into a comparatively thin character-punch base-plate which thick plate and base plate occupy positions on opposite sides of the die plate.

3. The herein described method of making stencil machine character punches in one operation which consists in punching out a portion of a plate, forcing the punched out portion from the plate directly into a character-punch base-plate spaced apart from the first-mentioned plate, and confining the punched out portion during its movement from one plate to the other.

4. The herein described method of making stencil machine character punches in one operation which consists in punching out a portion of a plate, forcing the punched out portion through an opening in a die-plate located immediately adjacent the first mentioned plate, which opening corresponds in outline with the outline of said punched out portion, and into a character-punch base-plate located immediately adjacent said die plate.

5. The herein described method of making stencil machine character punches which consists in arranging a die-plate between a pair of imperforated plates, punching out a portion of one of the plates and forcing the same through the die-plate partly into the remaining plate.

6. The herein described method of making stencil machine character punches which consists in forming a plug of predetermined shape and forcing the same through an opening in a die-plate into a character-punch base-plate.

7. The herein described method of making stencil machine character punches at a single operation which consists in forming a plug of predetermined shape, directly forcing the same through an opening in a die-plate, which opening corresponds in shape with the shape of the plug, and directly into a character-punch base-plate.

8. The herein described method of making stencil machine character punches at a single operation which consists in punching out a portion of a plate, directly forcing the punched out portion through an opening in a die-plate, and partially through a character-punch base-plate.

9. The herein described method of making stencil machine character punches at a single operation which consists in punching out a portion of a plate, directly forcing the punched out portion into and partially

through a character-punch base-plate spaced apart from the first-mentioned plate, and confining the punched out portion during its transfer from one plate to the other.

In testimony whereof I hereunto affix my signature in the presence of two witnesses, this 3d day of August, 1910.

CHRISTOPHER A. GARVEY.

Witnesses:

M. P. SMITH,
B. L. CROWLEY.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."
