(No Model.)

R. GAIGER.

METHOD OF MAKING PUNCHES FROM DIES.

No. 454,618. Patented June 23, 1891.

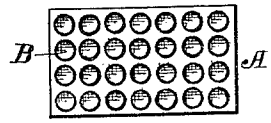


Fig. 1.

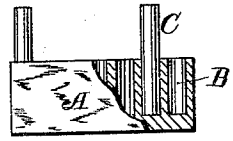


Fig. 2.

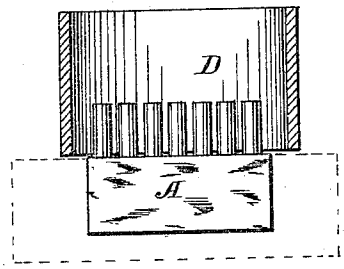


Fig. 3.

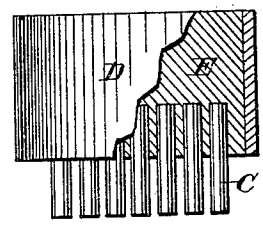


Fig. 4.

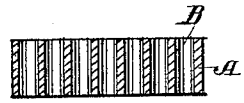


Fig. 5.

WITNESSES:

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METHOD OF MAKING PUNCHES FROM DIES.

SPECIFICATION forming part of Letters Patent No. 454,618, dated June 23, 1891.

Application filed August 15, 1890. Serial No. 362,124. (No model.)

To all whom it may concern:

Be it known that I, ROBERT GAIGER, a citizen of the United States, and a resident of Jersey City, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Methods of Making Punches from Dies, of which the following is a specification.

The object of my invention is to provide a simple, inexpensive, and efficient means for constructing punches; and it consists in providing a die of suitable metal which is provided with a series of holes at regular intervals, into which I place steel pins, so that they project a suitable distance. I then place a short tube or thimble over this die and run solder or other suitable metal around the pins, so that the entire tube or thimble is filled with the metal. This secures the pins to the thimble, which is then attached to one of the members of the punch, while the die or a similar one is attached to the other member of the punch.

The difficulty of constructing this class of punches is to secure perfect coincidence of the male and female portions of the dies. By this means it is readily and easily accomplished at a trifling cost, as will now be set forth in detail.

Figure 1 is a top view of the metal die. Fig. 2 is a side view of the same with two of the pins placed in the holes and a portion of the die cut away; Fig. 3, a side view of the die, having the pins therein, with the tube or thimble placed on the die preparatory to running metal therein; Fig. 4, a side view of the tube or thimble partly in section, showing the pins held in position by means of the metal which has been run in around the pins; and Fig. 5, a modified form of female die.

As shown in the drawings, A represents a rectangular block, preferably of steel, in which I drill a number of holes B, preferably in four rows of seven in each row. These holes are equidistant from each other and all of the same depth. This block or die I use as the female die for the punch, and preparatory to making the male die I place in these holes the pins C. These may be arranged to form any figure desired, a sufficient number of pins being used for the purpose, or the entire die may be filled with pins. This being done, I place over the die A a tube or thimble D, as shown in Fig. 3, and pour into the tube D soft solder E or any other suitable metal, so that the pins will be held therein, as shown more fully in Fig. 4. The block or die A is then attached to one member of the punch and the tube or thimble D to the other member. It is desirable, of course, that the die A when used in the punch should have the holes B entirely through the die, so that the cuttings punched from the paper would properly discharge. I therefore prefer to have a female die made especially for this purpose, and it is obvious that the pins, as shown in Figs. 2 and 3, can be placed in a block having the holes entirely through it, as shown in Fig. 5. When it is desired to change the figure or character of the punch, the only member which requires changing is the male die D.

I am aware that the state of the art shows punches wherein the figures or letters are embedded in the members of the die by means of molten metal to hold them therein, and I do not, therefore, lay any claim to such construction.

What I claim as new is—

The herein-described method of constructing punches, which consists in arranging the lower portions of the punching pins or projections in the female die with their normally-upper portions projecting above said die, disposing an open top and bottom casting or shell above said die and around said normally upper portions of the pins or projections, and finally pouring molten metal into said shell or casing, securing said pins or projections therein, as set forth.

Signed at New York, in the county of New York and State of New York, this 7th day of August, A. D. 1890.

ROBERT GAIGER.

Witnesses:
J. S. ZERBE,
I. S. ELKINS.