(No Model.)

M. ROESGEN.

DRAW PLATE PUNCH.

No. 314,543. Patented Mar. 24, 1885.

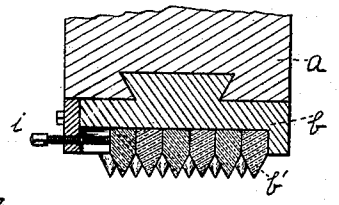


Fig. 1.

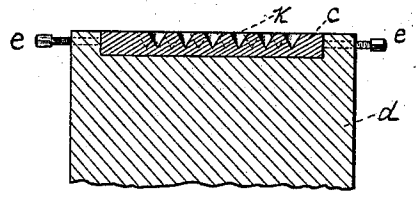


Fig. 2.

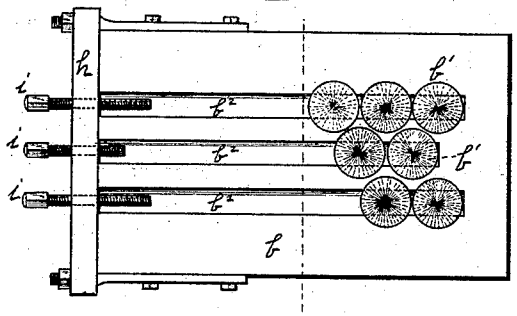
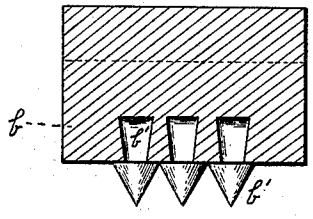


Fig. 3.



Witnesses.
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UNITED STATES PATENT OFFICE.

MATHIAS ROESGEN, OF PITTSBURG, ASSIGNOR OF ONE-HALF TO OTTO BERGMANN, OF ALLEGHENY CITY, PENNSYLVANIA.

DRAW-PLATE PUNCH.

SPECIFICATION forming part of Letters Patent No. 314,543, dated March 24, 1885.

Application filed August 7, 1884. (No model.)

To all whom it may concern:

Be it known that I, MATHIAS ROESGEN, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Draw-Plate Punches; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, in which—

Figure 1 is a vertical cross-section of part of a punching-machine illustrating my improvement. Fig. 2 is a plan view of the punch of the same. Fig. 3 is a vertical cross-section on the line *x x* of Fig. 2.

Like letters of reference indicate like parts wherever they occur.

In the operation of manufacturing wire it is usual to draw rods of the desired metal through draw-plates provided with a number of conical or tapering holes, and by passing the rods through a succession of such holes of constantly-diminishing diameter to reduce the wire to the required thickness. These draw-plates must be made of very hard steel, and it has been customary to form each hole therein separately by repeatedly punching it with successively smaller punches to secure the desired taper. Reheating of the plates, which must be done at least once after punching of each hole, causes a weakening of the metal, which very materially diminishes the efficiency of the finished article. It is the purpose of my invention to overcome this disadvantage by providing means whereby the holes of the draw-plate may be punched at one operation and with but one heating. The advantages resulting from such apparatus are obvious.

Referring now to the drawings, *a* represents a drop or punch holder of the usual construction, arranged on the face of which are a series of conical projections or punches, *b'*, preferably secured and adjusted there in a peculiar manner, which I will describe hereinafter. The steel plate *c*, which is desired to be made into a draw-plate, is suitably adjusted within a cavity in the bed-plate *d* of the punch, and is secured there by means of set-screws *e*. A plate or frame, *b*, is secured to the face of the drop *a* by means of a dovetail on the back thereof, and is provided with a series of grooves, b^2, beveled so as to hold and retain a number of the conical punches *b'*, the shanks of which are chamfered correspondingly. (See Fig. 3.) The punches *b'* are made separate from each other, and are adjusted by successively sliding their chamfered bases into the grooves b^2 from the ends thereof. They are secured therein by means of a rod or bar, *h*, bolted or otherwise fastened over the outer ends of the grooves. Set-screws *i* pass through the bar *h*, opposite to each of the grooves b^2, and, engaging with the shanks of the end punches of each series, press the punches closely and firmly together.

Thus constructed, the operation of my improvement is as follows: The plate *c*, having been heated, is adjusted within the bed-plate *d*, and the drop *a* is caused to descend and strike the punches or teeth *b'* upon its surface. By these means tapering holes *k* are punched upon the plate and correspond in position with the situation of the small punches or teeth *b'*. These punches should be made of such length that the holes *k* may not extend entirely through the plate *c*. The plate is then removed from the bed-plate *d*, and the draw-holes *k* completed by hand-punching entirely through the plate, in the usual manner. The punch-teeth *b'* may be of any desired size and number. The advantage of setting them in slots in the frame *b* is, that if any one tooth or punch should become damaged it may easily be replaced by removing the bar *h* and the set-screws *i*. It is clear, also, that by use of suitable blocks or spaces, such as are used in type-setting, adjacent punch-teeth may be separated from each other as far as desired, and the situation of the holes in the draw-plate thereby varied.

If preferred, any other well-known method of removably setting the punch-teeth in the frame *b* may be adopted.

Having thus described my improvement so that others skilled in the art may manufacture and use it, what I claim as my invention, and desire to secure by Letters Patent, is—

1. In apparatus for making draw-plates for wire-drawing machines, the combination of a matrix having a cavity for the reception of the plate, a punch or die frame, and a series of conical punches or dies, the operating faces of which are shorter in length than the depth of

the cavity in the matrix, substantially as and for the purpose specified.

2. In apparatus for making draw-plates for wire-drawing machines, the combination of the punch frame or holder *b*, having longitudinal dovetailed grooves formed therein separate from each other, said grooves being of unequal length, a series of punches having a dovetailed base adapted to fit within the grooves, and a securing device, substantially as and for the purpose specified.

In testimony whereof I have hereunto set my hand this 4th day of August, A. D. 1884.

MATHIAS ROESGEN.

Witnesses:
THOMAS W. BAKEWELL,
OTTO BERGMANN.