

A. MEYER.

MULTIPLE PUNCHING OR PERFORATING APPARATUS.

No. 509,134.

Patented Nov. 21, 1893.

Fig. 3.

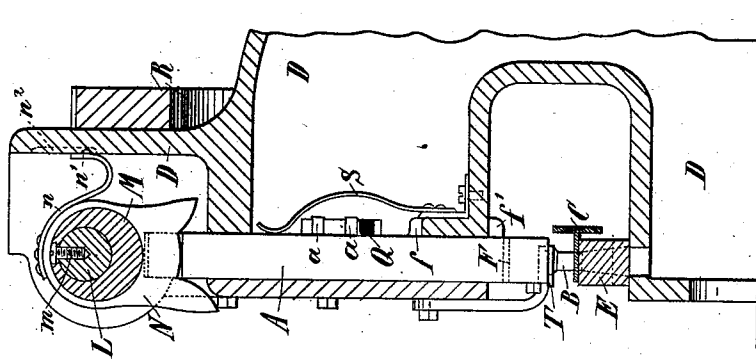
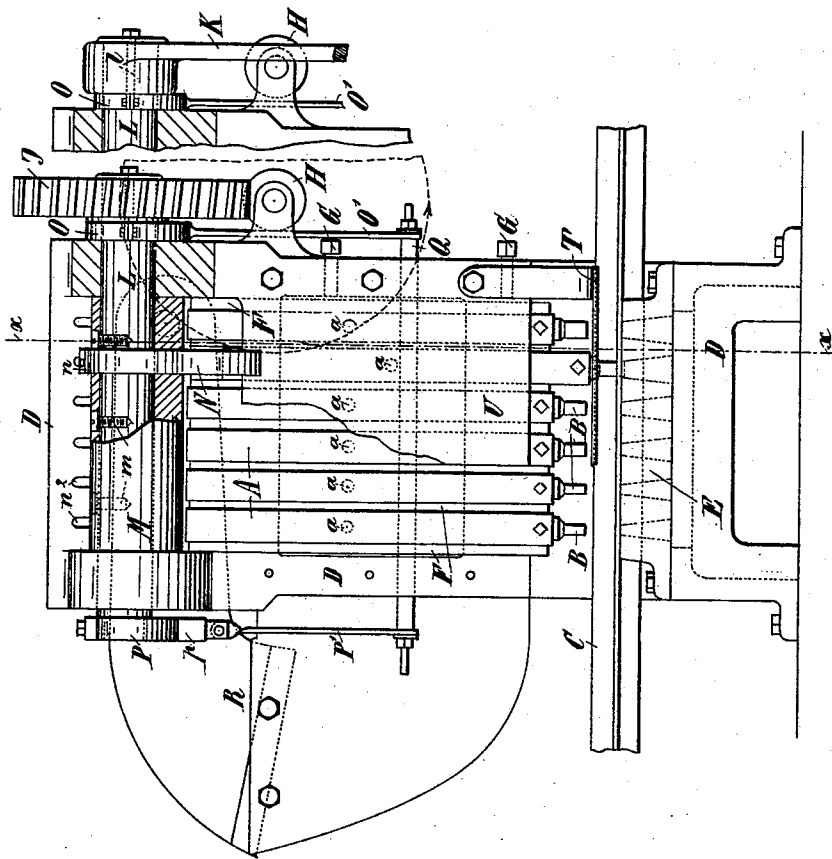


Fig. 1^a.

Fig. 1.



Witnesses:

A. B. Degeer

E. E. Masson

Inventor: Albert Meyer
per G. Littmar
Attorney

(No Model.)

2 Sheets—Sheet 2.

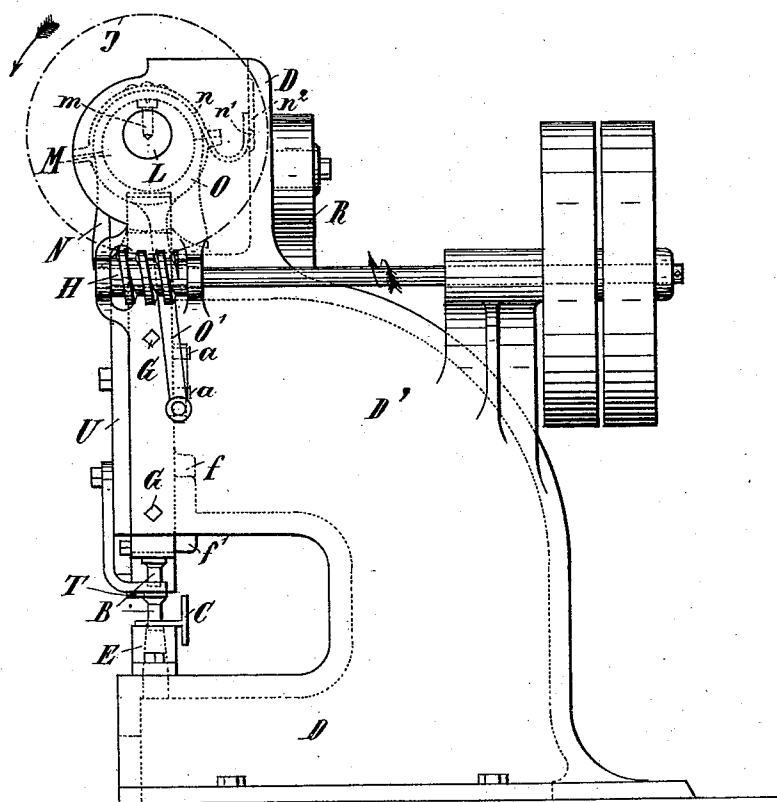
A. MEYER.

MULTIPLE PUNCHING OR PERFORATING APPARATUS.

No. 509,134.

Patented Nov. 21, 1893.

Fig. 2.



Witnesses:
A. B. Degees:
E. E. Masson

Inventor:
Albert Meyer
per J. Litzner
Attorney.

UNITED STATES PATENT OFFICE.

ALBERT MEYER, OF AUSSERSIHL, SWITZERLAND.

MULTIPLE PUNCHING OR PERFORATING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 509,134, dated November 21, 1893.

Application filed January 7, 1893. Serial No. 457,627. (No model.) Patented in Switzerland July 27, 1892, No. 5,317; in France August 5, 1892, No. 223,512; in Germany August 5, 1892, No. 68,072; in England December 8, 1892, No. 22,579; in Belgium December 17, 1892, No. 102,592, and in Italy December 31, 1892, XXVII, 33,214, LXV, 197.

To all whom it may concern:

Be it known that I, ALBERT MEYER, a citizen of Switzerland, residing at Aussersihl-Zurich, in the canton of Zurich, Switzerland, have invented certain new and useful Improvements in Multiple Punching or Perforating Apparatus, (for which patents have been granted in Switzerland, No. 5,317, dated July 27, 1892; in Germany, No. 68,072, dated August 5, 1892; in France, No. 223,512, dated August 5, 1892; in Belgium, No. 102,592, dated December 17, 1892; in Italy, Vol. XXVII, No. 33,214, and Vol. LXV, No. 197, dated December 31, 1892, and in England, No. 22,579, dated December 8, 1892;) and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The multiple punching device forming the subject of this invention offers the advantage over similar apparatus hitherto employed, that it enables perforations of any size or shape to be stamped out without the necessity of removing and replacing either the die or matrix or the punch, the operation of exchanging these being a well known and much complained of cause of loss of time and frequently of deterioration of mechanism through repeated handling.

The invention will be best understood by reference to the accompanying drawings, in which—

Figure 1 is a front view of the novel device; Fig. 2 a side view thereof, and Fig. 3 a section on line xx Fig. 1. Fig. 1^a is a detail view of the operation device and hand-lever.

A are stamp or punch heads of which there may be any suitable number in juxtaposition, each containing or holding a punch B of suitable size and shape in section. In Fig. 1 for example, a series of punches gradually increasing in size are shown, the smallest being at one end and the largest at the other. The article C to be perforated is placed upon the die or matrix E arranged on a suitable supporting table D. Between the various punch-heads A, as also between the side walls of the standard D' and the adjacent heads A stationary bars or plates F provided with pro-

jections ff' are arranged, the one situated at the extreme end on the right sustaining the pressure of the screw G. In the standard D', above the punch-holders A, is arranged a shaft L adapted to receive rotary motion either through the medium of worm-gearing H J (Figs. 1 and 2) or from the hand-lever K (Fig 1^a). On this shaft is mounted an eccentric hollow shaft M secured thereto by screws or other suitable means. To the end of the shaft L, which carries the wedge or key 1 is fitted either the worm-wheel J (if motive power be used) or a hand-lever K (if the apparatus is to be operated by hand). Upon the eccentric hollow shaft M, the presser N is loosely and adjustably arranged so that it may be set over each or any of the punch-holders or heads A. When therefore it is desired to make a perforation, the presser is brought over the punch-head holding the punch of the size corresponding to the diameter of the desired perforation, after which it is only necessary either to set in motion the worm-gearing H J or to lower the hand-lever K, as the case may be. The eccentric hollow shaft M exerts its pressure upon the presser N, and through it upon the punch-head and punch, which being thus driven downward punches out a hole of the required size. To raise the punch-heads and punches again after they have thus been forced down the following arrangement is employed: Upon the solid shaft L are mounted two eccentrics O and P, the relative position of which to the shaft L, and the strokes of which are exactly similar to the position and extent of motion of the hollow eccentric shaft M. The rod O' of the eccentric O is at one end connected with the bar Q passing under the pins a of all punch-holders A, while to its other end there is pivoted another bar P' connected with a cross-arm p integral with the shear-like blades R one of which is pivoted at R' to the back of the standard as seen in Fig. 2, and is actuated by the eccentric P. As the shaft L continues to revolve, or the hand-lever to be raised, the bar Q and also consequently the lowered punch-head are raised to their upper positions by the said eccentrics O and P. Thus it will be seen that the eccentric P bears

against the rod *p* on the upper pivoted shear blade *R* and actuates the same and to said rod *p* is pivoted the connecting rod or bar *P'*. Should the machine be unprovided with shear blades *R*, the rod *P'* is operated from the eccentric *P* direct.

In Fig. 3 *S* designate the springs intended to retain the punch-holders in the raised position. Besides, to facilitate a ready adjustment of the driver or presser *N* upon the hollow shaft *M*, a spring *n* is provided upon *N* the stud *n'* which this spring carries being exactly co-axial with the vertical punch-holder over which it is placed, in which position it will engage in a guide-groove *n*² formed in the standard *D'* thereby retaining the presser in position and protecting it from displacement. *T* is a stripper and *V* a guard-plate secured to the standard *D'* and retaining the punch-heads in the machine so that they cannot drop out of it. *R* designates the shears already mentioned before, and operated by the eccentric *P*, which bears on the rod *p* connected to one of said shear blades *R* as above described, but forming no part of this invention, as it may if preferred be omitted.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is—

1. The combination with a frame, of a shaft

journaled therein, an eccentric shaft mounted on said shaft, a series of punch holders longitudinally movable in said frame, a driver loosely mounted on said eccentric shaft and adapted to be adjusted into position over either of the punch holders, whereby the movement of said eccentric is communicated to said punch holders, eccentrics mounted on said shaft on opposite sides of said eccentric shaft, a rod *Q*, arranged across said frame and connected at its ends to said eccentrics, and stops on said punch holders adapted to engage said rod *Q*, whereby said punch holders are retracted after each operation, substantially as set forth.

2. The combination with a frame, of a shaft, journaled therein, an eccentric shaft mounted on said shaft, a series of punch holders longitudinally movable in said frame, and a driver loosely mounted on said eccentric shaft and adapted to be adjusted into position over either of the punch holders whereby the movement of said eccentric shaft is communicated to said punch holder, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

ALBERT MEYER.

Witnesses:

H. LABHART,

E. WYSS.