H. ROSENBERG.

PUNCH.

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1,418,474. Patented June 6, 1922.

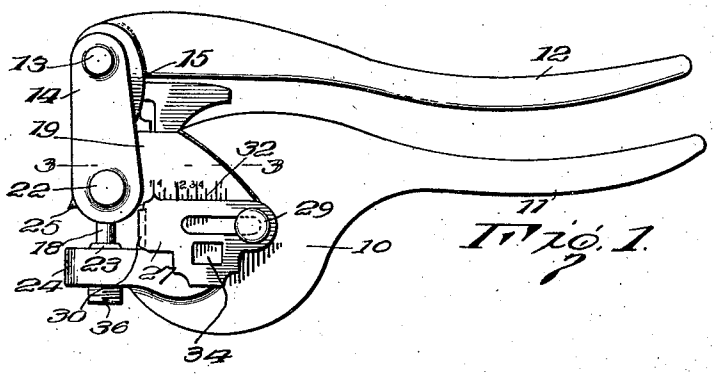


Fig. 1.

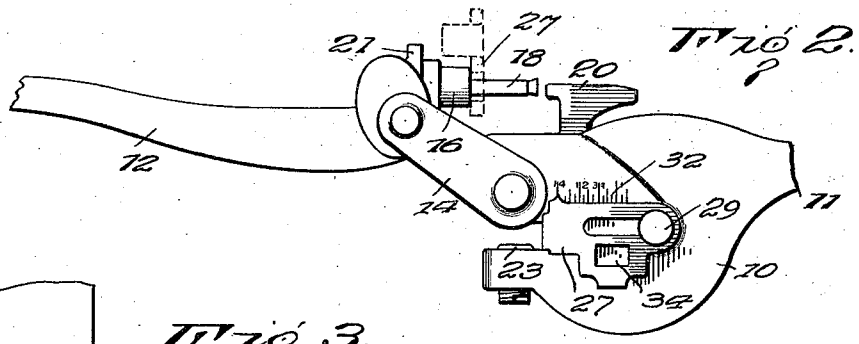


Fig. 2.

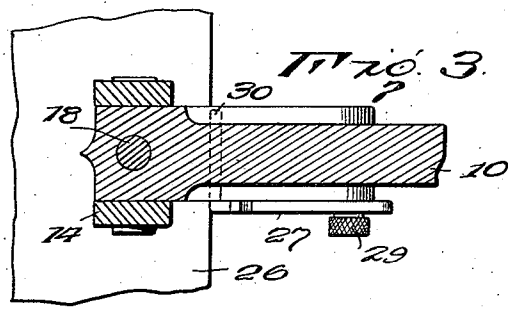


Fig. 3.

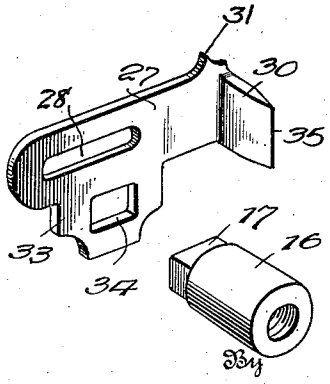


Fig. 4.

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UNITED STATES PATENT OFFICE.

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PUNCH.

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To all whom it may concern:

Be it known that I, HEYMAN ROSENBERG, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Punches; 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.

This invention relates to improvements in punches, and the primary object in view is the provision of means for facilitating accurate placing of the punch in a predetermined location with respect to the article to be perforated.

With this and further objects in view as will in part hereinafter become apparent and in part be stated, the invention comprises certain novel constructions, combinations and arrangements of parts as subsequently specified and claimed.

In the accompanying drawing,—

Figure 1 is a view in side elevation of a punch embodying the features of the present invention.

Figure 2 is a similar view of the same with the parts in the withdrawn position for enabling detachment of the punch point, parts being broken away.

Figure 3 is an enlarged, detail fragmentary horizontal section taken on the plane indicated by line 3—3 of Figure 1, and looking downward.

Figure 4 is an enlarged, perspective view of the combined gauge and operating tool in position for application to the squared portion of the punch point.

Referring to the drawing by numerals, 10 designates the body or frame of a punch provided with the rear extension 11 forming a handle and adapted to co-operate with a handle 12 in the form of a lever pivoted at its forward end at 13 between the upper ends of a pair of links 14. The lever 12 has a depending short arm 15 to which is pivoted a punch holder 16. The punch holder 16 is adapted to be secured to the arm 15 by screw-threads or the like, and for the purpose of facilitating removal and positioning of the punch holder the same is provided at its lower end with an angular face portion 17 forming a nut with which a wrench or the like may be engaged for turning the punch holder. The punch 18 is carried by the holder and is adapted to move into and through the upper jaw 19 of the frame. The lever 12 is normally limited in its upward or opening movement by a latch 20 suitably mounted upon the upper part of the frame 10 for interlocking engagement with a lug 21 carried by the handle or lever 12.

The upper jaw of the punch frame projects forwardly between the lower ends of the links 14 and pivotally supports the links at 22. The punch 18 is adapted to move axially down through and beyond the jaw 19 and to come in contact with a die or anvil 23 carried by the lower jaw 24 in axial alinement with the punch 18.

For the purpose of facilitating the positioning of the punch over the edge portions of sheets to be operated upon and for determining the relative position at which it is desired to punch, the upper jaw 19 is provided with an outstanding projection or pointer 25 which has an outer point or edge portion in the plane of the central axis of the punch 18 so as to indicate accurately on the outer side of the jaw 19 the exact location of the center of the punch. Therefore, lateral adjustment of the punch frame 10 over the edge portion of the piece of work, such as the sheet 26 shown in Figure 3, insures the adjustment of the punch point 18 at the desired spot where the point is to be operated.

For the purpose of determining the depth to which the sheet 26 is to be inserted between the jaws of the punch and thus determine the position that the punch is operated from the edge of the sheet 26, the frame 10 is provided with a gauge plate 27 slidably positioned against the side of the frame 10 opposite the space between the jaws and with its upper and lower edge portions overlapping the faces of the jaws. The plate 27 is provided with an elongated slot 28 through which projects a thumb screw 29 threaded into the frame 10 at the inner ends of the jaws. The plate 27 is clamped against the side of the frame 10 after adjustment. The gauge plate 27 is provided with a flange or finger 30 bent inwardly at right angles to the outer end of the gauge plate and adapted to extend across the lower jaw 24 to form a stop or abutment against which the edge of the sheet 26 is adapted to strike. The gauge plate 27 is provided at its upper edge and near its outer end with an index

projection 31 in position to traverse a scale of graduations 32 placed upon the side of the frame 10 at the marginal edge of the upper jaw 19. The graduations 32 may be of any desired character and are adapted to indicate by means of the pointer 31 the relative position of the stop 30 to locate the punch point 18 above the sheet 26 at a predetermined distance from the edge thereof.

By the use of these indicators or gauges the position of the punch may be quickly determined as to depth of the sheet in the punch and the lateral shifting of the punch frame to accurately locate the punch 18 over the exact point of the work where the punching operation is to be carried on.

For the purpose of convenience the gauge plate 27 is provided at its lower edge with a projection 33 having an aperture 34 therein of angular configuration and of a size which is adapted to receive the nut portion 17 of the punch holder therein. The gauge plate 27 may thus be removed from the side of the frame 10 and applied over the punch point 18 and upon the punch holder to quickly release the latter by turning. The stop or flange 30 which extends across the lower jaw 24 is preferably tapered in width toward its free end to form a screw-driver 35 adapted to engage in the kerfs of screws or in the kerf 36 of the die 23 of the punch. It is thus seen that the gauge plate is adapted not only for quick adjustment to regulate the positioning of the work between the jaws of the punch, but is also peculiarly constructed to serve as a means for adjusting and regulating the various movable parts of the punch.

In Figure 4 is illustrated how the wrench projection 33 of the gauge plate may be fit over the nut 17 of the punch holder, the opening 34 in the projection 33 being of suitable size to freely fit over the nut 17 after the projection 33 has been passed over the punch point 18.

What I claim is:—

1. The combination, with a punch having the usual spaced-apart jaws, punch point operating between the jaws, and operating lever therefor extending rearwardly during operation, of an index point projecting forwardly from one of the jaws in position for being observed by the operator during a punching operation for determining the location of the axis of the punch point when the punch is applied to the work.

2. The combination, with a punch having the usual spaced-apart jaws and punch point operating between the jaws, of indicating means in the plane of the axis of the punch point and at the outer end of the punch for determining the position of the punch point in one direction, and gauge means adapted to engage the work and limit the insertion of the same between the jaws for determining the position of the punch point in the other direction.

3. The combination with a punch having the usual spaced-apart jaws and punch point operating between the jaws, an indicating projection carried by the upper jaw adapted to overhang the work and indicate the laterally shifted position of the punch relatively to the work, and adjustable means carried by the punch for limiting the insertion of the work between the jaws and indicating the transversely shifted position of the punch relative to the work.

4. The combination with a punch having the usual spaced-apart jaws, punch point operating between the jaws, and an operating arm therefor extending rearwardly during operation, of a projection extending over the upper jaw in line with the axis of the punch to indicate the position of the latter relatively to the lateral edges of the work, and a stop adjustable longitudinally between the jaws to engage the edge of the work and determine the position of the punch point relatively to the longitudinal edges of the work.

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

HEYMAN ROSENBERG.

Witnesses:
T. T. MAWHINNY,
CHRISTIE H. FESLER.