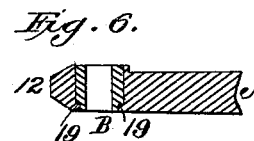
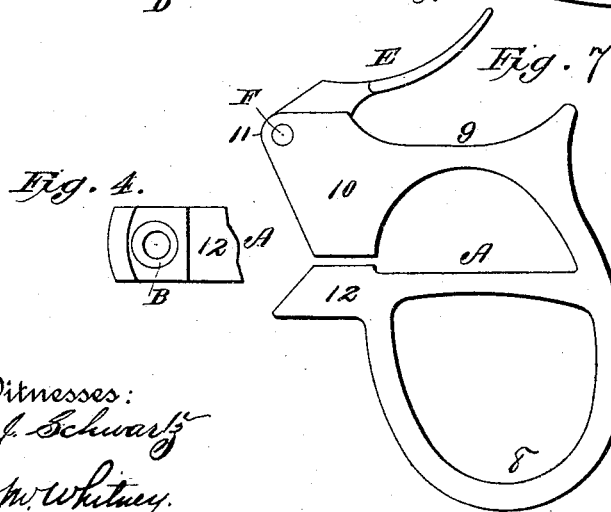
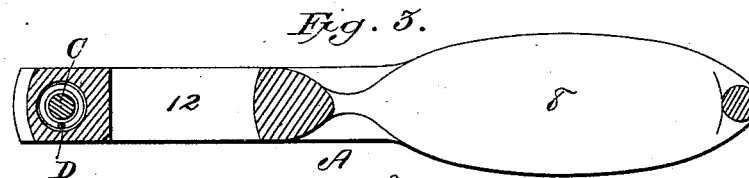
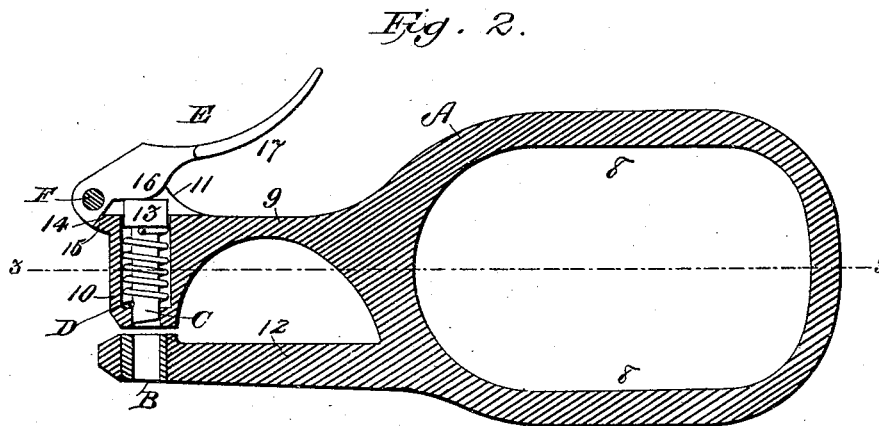
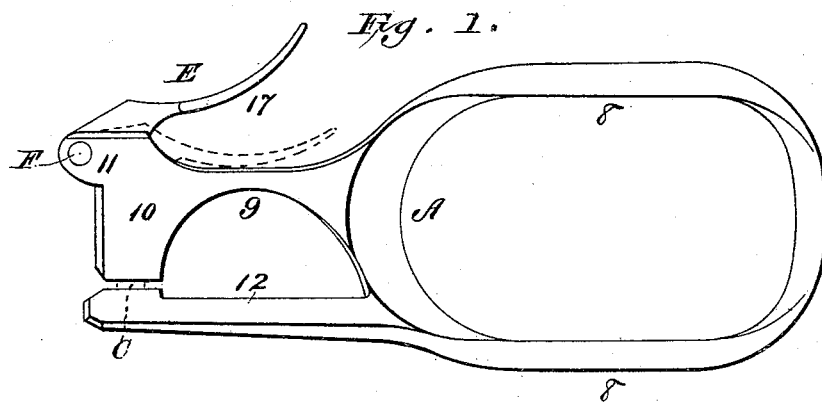


(No Model.)

E. J. BROOKS.
HAND PUNCH.

No. 489,430.

Patented Jan. 3, 1893.



Witnesses:
A. J. Schwarz
C. W. Whitney.

Inventor,
Edward J. Brooks.
by *R. L. Davis*,
Attorney.

UNITED STATES PATENT OFFICE.

EDWARD J. BROOKS, OF EAST ORANGE, NEW JERSEY, ASSIGNOR TO THE
E. J. BROOKS & COMPANY, OF NEW YORK, N. Y.

HAND-PUNCH.

SPECIFICATION forming part of Letters Patent No. 489,430, dated January 3, 1893.

Application filed October 8, 1892. Serial No. 448,174. (No model.)

To all whom it may concern:

Be it known that I, EDWARD J. BROOKS, a citizen of the United States, and a resident of East Orange, in the State of New Jersey, have invented a new and useful Improvement in Hand-Punches, of which the following is a specification.

This invention relates to portable or "hand" punches such as are most commonly used, by railway conductors, as ticket-punches, but are also used, by various government officers and others, for punching postal-notes coupons and the like.

The object of the present invention is to make a cheap and reliable hand-punch adapted to be readily made as strong as may be required, and one which shall be easily and conveniently operated. Heretofore such punches have almost invariably been constructed with two lever-handles, one of which carries or operates the "punch" proper, and the other carries the counterpart "die." In my improved hand-punch there is but one handle-piece; a rigid handle-loop forming part of this piece is adapted to be readily grasped between the fingers and the base of the thumb or to be hung on a finger when the hand punch is not in use; and a sliding punch is "shot" into the die bore by the pressure of the thumb or in a preferred reversible form, by the pressure of either the thumb or the forefinger on a short trigger-shaped lever.

All the parts of the improved hand-punch except the handle casting or forging are quite small; and for the most part they are made and fitted by machinery, so that very little skilled labor is necessary for the production of improved punches of standard quality.

A sheet of drawings accompanies this specification, as part thereof.

Figure 1 of these drawings is an elevation of an improved hand-punch; Fig. 2 is a longitudinal section in the plane of its punch and die; Fig. 3 is a section on the line 3—3 Fig. 2; Fig. 4 is a detail plan of its die and die-support; Figs. 5 and 6 are fragmentary sections representing modifications of the same; and Fig. 7 is an elevation of a hand-punch illustrating modifications of the handle piece or frame.

Like letters and numbers refer to corresponding parts in all the figures.

In both forms represented by the drawings, the handle-piece, represented at A, constitutes a one-part "frame" for the improved hand-punch, and is hereinafter so termed. It comprises a handle loop 8, adapted to be comfortably grasped between the fingers and the base of the thumb, an arch 9 forming a supplemental loop, a small recessed "head" 10, adjoining said arch, and terminating at top in a pair of ears 11, and a rigid die-support 12, below said head, in which the die B is fast. The sliding punch C is guided within said head 10, and has a cylindrical shaft of reduced diameter below a shoulder 13, between which and an abutment formed by the bottom of the recess or main bore of said head 10, a spiral retracting-spring D surrounds said shaft of the punch, as in Figs. 2 and 3. Between said ears 11 at the top of the head 10, the trigger-shaped lever E is pivoted by means of a transverse pin F, beneath which stop-surfaces 14 15, on the lever and head respectively, coact to limit the pivotal movement of the lever, and thus to prevent the escape of the punch C and spring D. Said lever E is a short second-class lever having a cam-surface 16 to coact with the upper end of the punch C, and in rear of this a broad bearing-surface 17. It is primarily designed to be actuated by the thumb of the hand grasping the loop 8 of the frame A, in which case the forefinger may project beneath the arch 9 to oppose the thumb. The hand-punch represented by Figs. 1 to 4 is so used in the position represented in the drawings, with the trigger E at top, but will work equally well inverted, so that the trigger may be conveniently operated by the forefinger. In the arrangement represented by Fig. 7 the trigger must be operated by the thumb.

The punch C and the die B are both conveniently made of steel wire of a suitable gage fitted to bores of one and the same diameter. After the main bore of the head 10 and a hole to receive the die B have been drilled, slightly out of line with each other, the wire for the die B is driven tightly into place, and a drill is then run through to form its bore

and that of the lower end of the frame head 10, fitted in common to the shaft of the punch C. The upper end of the punch C is sufficiently reduced by machining to slide freely in said main bore of the head 10. The die B is held fast in a bore of the same diameter because not so reduced. The drill-hole in the die B being eccentric, as in Figs. 2 and 4, there is no danger of loosening the die by the drilling operation.

To more securely fasten the die B in place, so that it cannot be forced out by the punch C, it may be pinned fast by means of a pin 18, as in Fig. 5, or preferably may be rabbeted at its lower end, as at 19 Fig. 6, and made fast by driving the metal of the die-support 12 into the rabbets of the die. Fastened in either of these ways, or in like manner, the die may have a concentric bore if preferred.

The shape of the frame A may be considerably modified, as illustrated by Fig. 7, (compared with Fig. 1,) without materially changing its functional form; and other like modifications will suggest themselves to those skilled in the art. The frame A shown in Fig. 7 differs from the one shown in Figs. 1 2 and 3 chiefly in the location of the main loop 8 beneath the arch 9 instead of at one end of said arch. The modified hand punch may be otherwise identical with the one more fully represented by Figs. 1 to 4.

Having thus described the said improvement, I claim as my invention, and desire to patent under this specification:

1. A one-handed hand-punch having a one-part frame which comprises a rigid handle-loop adapted to be grasped between the fingers and the base of the thumb, a supplemental finger-admitting loop, a die-support, and a recessed head, all of which are rigidly united with each other, a die fast in said die-support, a sliding punch guided by said head and co-

acting with said die, and a trigger-shaped lever pivoted to said head and coacting with said sliding punch, substantially as hereinbefore specified.

2. A reversible one-handed hand-punch having a one-part frame which comprises a rigid handle-loop adapted to be grasped between the fingers and the base of the thumb, a supplemental finger-admitting loop formed by an arch at one end of said handle-loop, a recessed head at the outer end of said arch, and a die-support beneath said head, all of which are rigidly united with each other, a die fast in said die-support, a sliding punch guided by said head and coacting with said die, and a trigger-shaped lever pivoted to said head, coacting with said sliding punch, located above said arch, and adapted to be actuated by the thumb and by the forefinger in the respective positions of the hand-punch in the hand, substantially as hereinbefore specified.

3. A one-handed hand-punch composed of a one-part frame having a die support and a recessed head, the bore of said die-support and the main bore of said head being drill-holes slightly out of line with each other, an eccentric die fast in said bore of said die-support and having a bore which is continued through the lower end of said head, a sliding punch having a cylindrical shaft of reduced diameter fitted to said bore of the die and such continuation thereof, a spiral retracting spring surrounding said shaft and having its abutment within said head, and a trigger-shaped lever pivoted to said head and coacting with said sliding punch, substantially as hereinbefore specified.

EDWARD J. BROOKS.

Witnesses:

H. L. C. WENK,
GEO. J. WENK.