(No Model.)

A. BRÜSTLE & A. SIEGEL.

DIE FOR MAKING JOINTS OF FORCEPS, PINCHERS, &c.

No. 346,578. Patented Aug. 3, 1886.

Fig. 1.

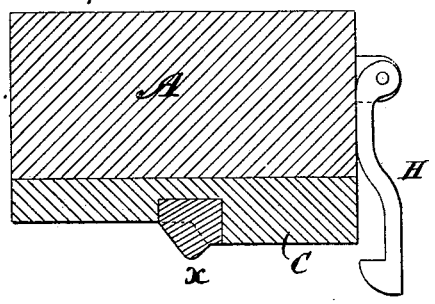

Fig. 5.

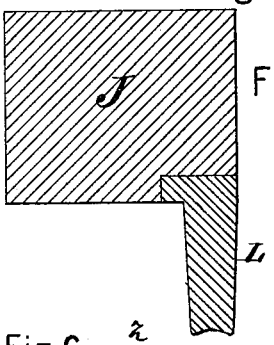

Fig. 2.

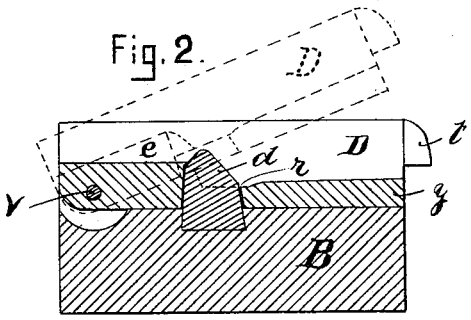

Fig. 6.

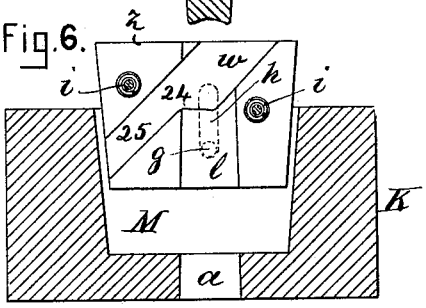

Fig. 3.

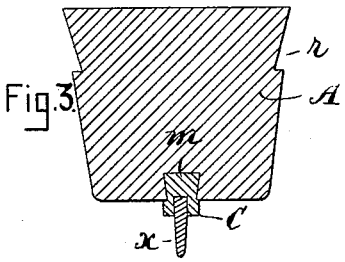

Fig. 7.

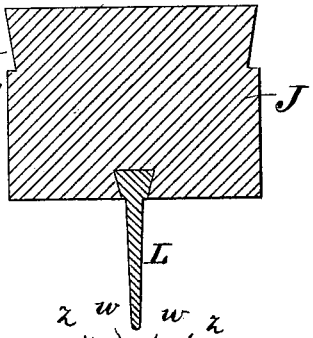

Fig. 4.

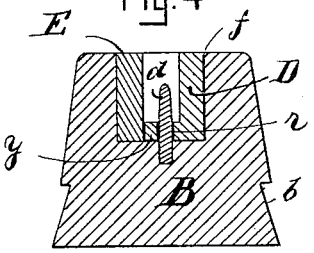

Fig. 8.

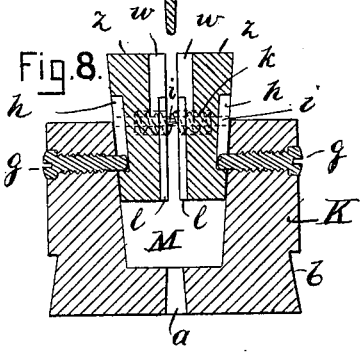

Fig. 9.

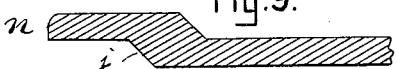

Fig. 10.

Fig. 11.

Witnesses.
C. Blanton.
L. J. White

Inventor.
Andrew Brüstle.
Andrew Siegel,
Per C. C. Shaw.
Attorney.

UNITED STATES PATENT OFFICE.

ARDREW BRÜSTLE AND ANDREW SIEGEL, OF HYDE PARK, MASSACHUSETTS.

DIE FOR MAKING JOINTS OF FORCEPS, PINCHERS, &c.

SPECIFICATION forming part of Letters Patent No. 346,578, dated August 3, 1886.

Application filed December 24, 1885. Serial No. 186,638. (No model.)

To all whom it may concern:

Be it known that we, ANDREW BRÜSTLE and ANDREW SIEGEL, of Hyde Park, in the county of Norfolk and State of Massachusetts, have invented a certain new and useful Improvement in Punching-Dies, of which the following is a description sufficiently full, clear, and exact to enable any person skilled in the art or science to which said invention appertains, to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a vertical longitudinal section of the movable setting-die; Fig. 2, a like view of the stationary or bed setting-die; Figs. 3 and 4, respectively, vertical transverse sections of the dies shown in Figs. 1 and 2; Fig. 5, a vertical longitudinal section of the movable finishing-die; Fig. 6, a like view of the stationary or bed finishing-die; Fig. 7 and 8, respectively, vertical transverse sections of the dies shown in Figs. 5 and 6; Fig. 9, a vertical longitudinal section showing a blank before it is punched; Fig. 10, a like view showing the blank as it leaves the setting-dies; and Fig. 11, a longitudinal section of the blank as it leaves the finishing-dies.

Like letters of reference indicate corresponding parts in the different figures of the drawings.

Our invention relates to that class of punching-dies which are employed in punching and forming the joint-hole in the handles of forceps, pinchers, &c.; and it consists in a novel construction and arrangement of the parts, as hereinafter more fully set forth and claimed, by which more effective devices for this purpose are produced than are now in ordinary use.

For convenience of reference we denominate the dies, by which the handles are partially punched the "setting-dies," these being shown in Figs. 1, 2, 3 and 4, and those by which the process is completed the "finishing-dies," the latter being shown in Figs. 5, 6, 7, and 8.

The nature and operation of the improvement will be readily understood by all conversant with such matters from the following explanation.

In the drawings, A represents the body of the movable or upper setting-die, and B the body of the stationary or bed setting-die.

The upper die, A, has a stock, C, detachably fitted into its lower face by an ordinary tongue and groove, *m*, and is provided with a downwardly-projecting punch, *x*, which is detachably fitted into said stock.

The bed setting-die B is grooved longitudinally on its upper face, as shown at *f*, and provided with an upwardly-projecting punch, *d*, which is arranged centrally in said groove, but not precisely under the punch *x*, the relative positions of said punches being shown in Figs. 1 and 2.

A stripper, D, is hinged at *v*, in the groove *f*, said stripper being provided with a latterally-projecting flange, *y*, at is lower edge, having a hole, *r*, through which the punch *d* projects. A removable plate, E, is secured in the groove *f* opposite the stripper D, which may be readily replaced when worn by use. A pendent hook, H, is jointed to one end of the body of the movable setting-die, said hook being adapted to engage a projection, *t*, on the end of the stripper D, when said die descends to its fullest extent.

The body of the movable setting-die A is dovetailed, as shown at *r*, to fit a corresponding groove in the carrier of a press, and the body of the bed setting-die B dovetailed, as shown at *b*, to fit a corresponding groove in a supporting-bed.

Referring again to the drawings, J represents the movable finishing-die, and K the bed finishing-die. The movable die J is provided with a downwardly-projecting elongated detachable punch, L, and the bed-die K with a flaring socket or mortise, M, from which a hole, *a*, adapted to receive the punch L, opens downwardly through the bottom of the die. Fitted into the socket M there are two clamps, *z*, adapted to work vertically in said socket on the guide-screws *g*, the inner ends of which enter grooves *h*, in the outer faces of said clamps. Arranged horizontally in suitable sockets formed in the inner faces of said clamps there are two short rods, *i*, provided with coiled springs *k*, which act expansively to force said clamps apart. Corresponding shallow vertical grooves, *l*, are formed in the inner faces of the clamps *z*, for receiving the punch L,

and there are also deeper corresponding transverse grooves *w*, formed in the inner faces of said clamps for receiving the blank shown in Fig. 10. The flange *y* of the stripper D is thickened or raised near its hinged end, as shown at *e*, to properly support the blank.

In the use of our improvement, the blank shown in Fig. 9 is placed in the bed setting-die B, with the lower face of the part *n* resting on the raised part *e* of the flange *y*, and the shoulder *j* of said blank on the punch *d*. The movable die A is then caused to descend, forcing the punches *d x* into the blank and partially punching the same, the punch *d* forming the indentation 14, and the punch *x* the indentation 15, as shown in Fig. 10, after which the die A is raised, the hook H drawing up the stripper D and disengaging the blank from the punch *d*. The blank indented or partially punched, as shown in Fig. 10, is then placed in the grooves *w* in the clamps *z*, with its shoulder *j* resting on the shoulders 24 in said grooves, and its part *n* in that portion of said grooves marked 25. (See Fig. 6.) The die J is then caused to descend, the punch entering the indentation 15 in the blank, and forcing the blank and clamps *z* downwardly into the socket M. The inner faces of the clamps *z* are vertically arranged in parallelism with each other, but their outer faces are inclined or wedge-shaped, and as they descend into the flaring socket M the clamps are forced inwardly, compressing the springs *k*, and grasping the blank firmly between them in the groove *w*. When clamps forced downwardly in the socket M by the punch L reach the bottom of said socket, said punch continuing to descend will punch out or remove the piece 20, between the indentations 14 and 15, thus completing the formation of the joint-hole 22, as shown in Fig. 11. The blank, being grasped firmly by the clamps *z*, will be prevented from unduly bulging at the sides opposite the joint-hole 22 by the action of the punch L in removing the piece 20, said piece falling through the hole *a* when set free. The blank having been punched by the punch L, as described, the die J is raised, thereby drawing upward with it the blank and clamps *z;* but as the clamps ascend into the wider portion of the socket M they release their grasp on the blank, which is stripped from said punch, when the clamps are caused to cease their upward movement by the screws *g* striking the lower ends of the grooves *h*.

The dies J K are respectively provided with dovetails, in like manner and for the same purpose as already described in respect to the dies A B.

Both sets of the dies are designed to be disposed in the same press; but, if desired, the setting-dies A B may be arranged in one press and the finishing-dies J K in another, it not being deemed essential to show the press or presses, which may be of any suitable form and construction.

We do not confine ourselves to the use of the grooves *h* and screws *g* to guide the clamps and prevent them from being withdrawn from the socket M, as any other suitable means may be employed for the same purposes; neither do we confine ourselves to the use of the plate E, rods *i*, or springs *k*, as the plate and rods may be omitted, and a spring or springs of another form employed, if desired.

Having thus explained our invention, what we claim is—

1. In a device for forming the joint-hole in pincher-handles, forcep-handles, &c., the die A, provided with the punch *x*, and hook H, in combination with the die B, provided with the punch *d*, and stripper D, substantially as described.

2. The plate E, in combination with the die B and stripper D, substantially as and for the purpose set forth.

3. In a device for forming the joint-hole in pincher-handles, forcep-handles, &c., the die J, provided with the punch L, the die K, having the flaring socket M, and hole *a*, the clamps *z*, provided with the grooves *l w h* and springs *k*, and the screws *g*, combined and arranged to operate substantially as described.

4. In a device for forming the joint-hole in pincher-handles, forcep-handles, &c., a movable die provided with a downwardly-projecting punch and hook or catch, in combination with a bed-die provided with an upwardly-projecting punch and stripper, said hook or catch being adapted to engage the stripper and disengage the blank from the lower punch as said movable die is raised, substantially as set forth.

5. In a device for forming the joint-hole in pincher-handles, forcep-handles, &c., a movable die provided with a downwardly-projecting punch, in combination with a bed-die provided with a flaring socket, clamps adapted to wedge in said socket and grasp the blank to be punched, a spring or springs for expanding or opening the clamps, and means for stopping the upward movement of the clamps to enable the punch to be withdrawn from the blank or stripped, substantially as described.

ANDREW BRÜSTLE.
ANDREW SIEGEL.

Witnesses:
C. A. SHAW,
L. J. WHITE.