No. 750,678. PATENTED JAN. 26, 1904.

W. M. MORTON.

PUNCH, PLIERS, &c.

APPLICATION FILED MAY 15, 1902.

NO MODEL.

Fig. 1.

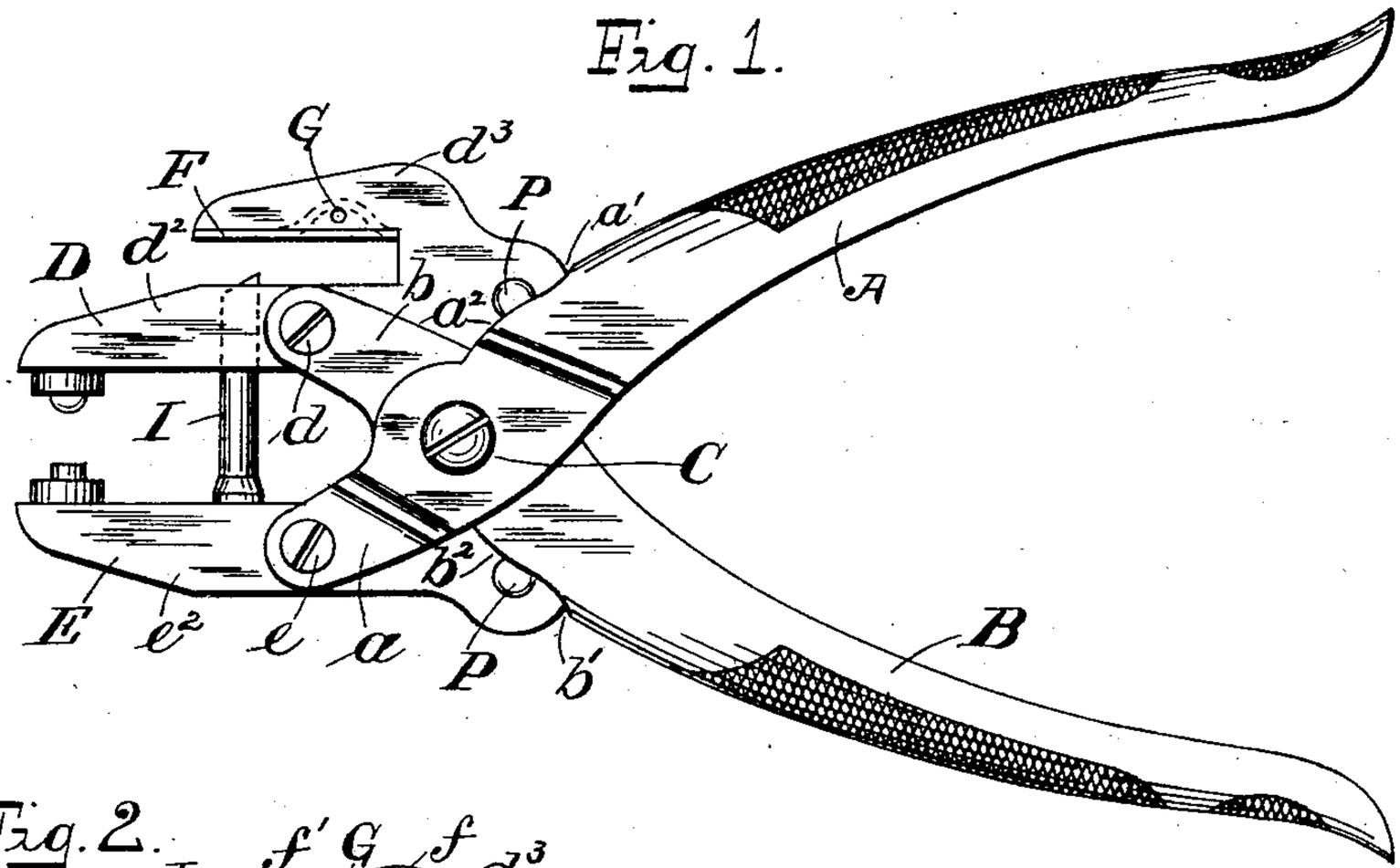


Fig. 2.

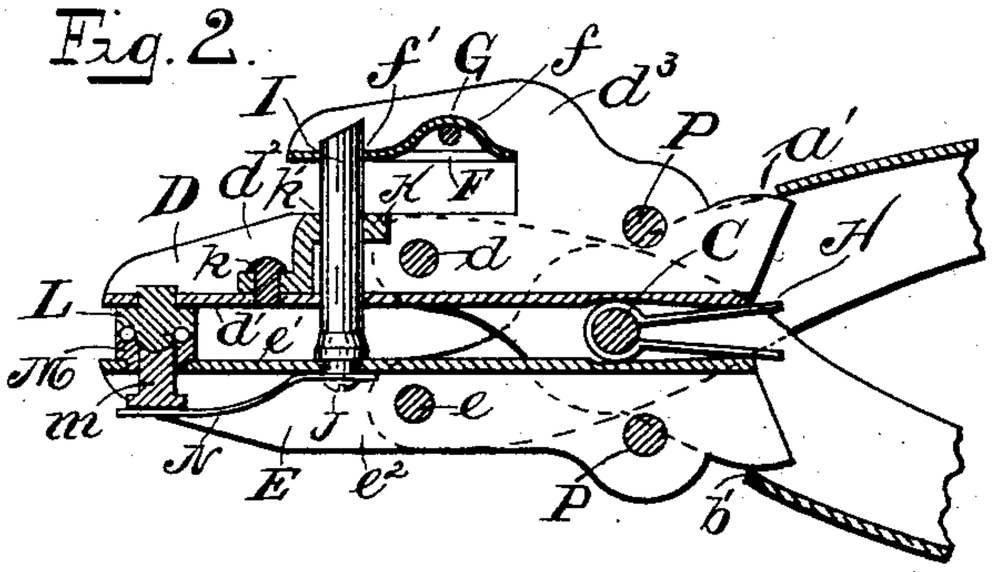


Fig. 7.

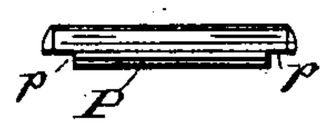


Fig. 3.

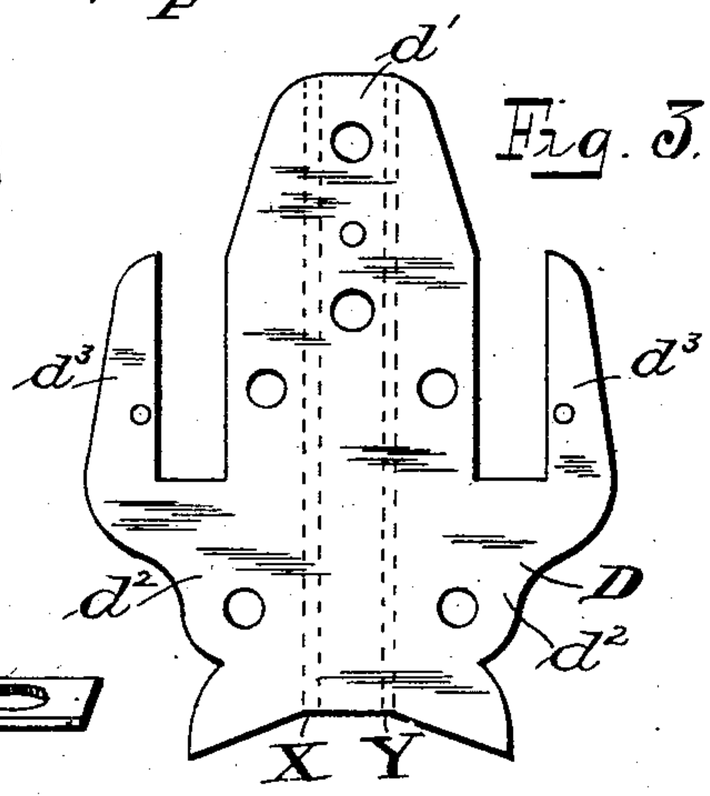


Fig. 4.

Fig. 5.

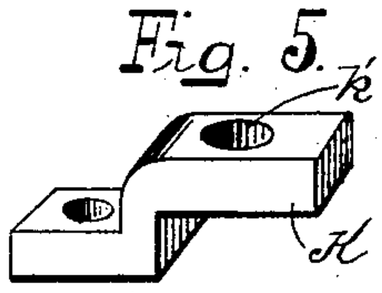
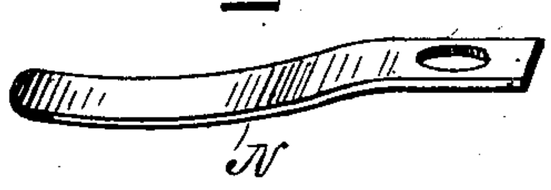


Fig. 6.



WITNESSES:
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No. 750,678. Patented January 26, 1904.

UNITED STATES PATENT OFFICE.

WILLIAM M. MORTON, OF ESSEX, CONNECTICUT, ASSIGNOR TO THE WILLIAM SCHOLLHORN COMPANY, OF NEW HAVEN, CONNECTICUT, A CORPORATION OF CONNECTICUT.

PUNCH, PLIERS, &c.

SPECIFICATION forming part of Letters Patent No. 750,678, dated January 26, 1904.

Application filed May 15, 1902. Serial No. 107,486. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM M. MORTON, of the town of Essex, county of Middlesex, State of Connecticut, have invented a new and useful Improvement in Pliers, Punches, and Similar Tools, of which the following is a full, clear, and exact description when taken in connection with the accompanying drawings, which form a part thereof, and in which—

Figure 1 represents a side elevation of a tool embodying my invention; Fig. 2, a vertical longitudinal section through the tool; Fig. 3, a view of the blank from which one of the jaws is formed; Figs. 4, 5, and 6, perspective detail views of the receiving-die, punch-guide, and spring for the riveting-die; and Fig. 7, a detail view in side elevation of one of the pins for guiding the jaws.

In all figures similar letters of reference represent like parts.

This invention relates to pliers, punches, and similar tools; and it consists in the production of a novel tool of that class having the various combinations of parts and improvements described and claimed hereinafter.

Among other improvements the tool herein shown and described is provided with a novel means for imparting a parallel movement to the jaws by means of a spring-plate which at the same time tends to hold the jaws apart. Furthermore, the jaws are shown formed of sheet metal and to this end are provided with a novel form of receiving-die, together with other features more particularly described hereinafter.

Referring to the drawings for a more particular description, the parts designated by the letters A and B represent the hollow handles or levers, which are bifurcated at their forward ends and fulcrumed together by a pin, rivet, or other suitable device C. Within the forward forked ends a and b of the levers A and B are pivotally secured jaws D and E by pins, rivets, or other means d and e. The jaws D and E are formed of sheet metal in substantially the same manner which is illustrated in Fig. 3 in regard to the jaw D. As is therein shown, the jaw is bent up on the dotted lines X and Y to form a flat surface d' and sides d^2. The jaws when assembled present to each other their flat surfaces d' and e', while the rivets d and e extend transversely through the sides d^2 and e^2 of the jaws. The jaw D is provided with two arms d^3, which project from the sides d^2 and extend parallel to each other in a forward direction. The receiving-die F may be formed, as shown in Fig. 4, of a flat plate having a bridge f stamped up, so that when it is placed on the under side of the arms d^3 a pin G may be inserted through the arms d^3 between the flat portion of the plate F and the stamped-up bridge f. The pin G will then hold the plate F against the under side of the arms d^3. A bent spring-plate H is fitted around the fulcrum C of the lever-handles A and B, so that its extremities will bear against the under sides of the jaws D and E, tending constantly to force the rear ends of the jaws apart. The rear ends of the jaws extend into the hollow portion of the handle-levers A and B, and the spring H tends to force the outer edges of the sides d^2 and e^2 of the jaws against the backs a' and b' of the levers. Upon the closing movement of the levers the rearward ends of the jaws are forced together by the backs a' and b' of the levers bearing against the rear ends of the jaws and overcoming the tension of the spring H. As the backs a' and b' are moved to and from each other at substantially the same rate as the pins d and e, connecting the forward ends of the jaws with the forward ends a and b of the levers, a parallel movement will be imparted to the jaws in closing, while upon the reverse movement of the levers the spring H constantly tends to force the rear ends of the jaws against the backs a' and b', thereby preserving the parallel action in both movements of the levers.

A punch I is shown secured to the jaw E by a screw J or other suitable means, and the block K is secured by a screw k to the jaw D. The block K is provided with a perforation k', through which the punch I projects and in which it is guided in its movement. The plate F is provided with a similar perforation f', which forms a receiving-die for the punch I, so

that when a sheet of paper or other article is inserted between the outer edges of the sides d^2 of the jaw D and the plate F the punch will upon the closing movement of the levers A and B be forced through the same into the receiving-die f'.

To the forward end of the punch D is riveted a riveting-punch L and to the forward end of the jaw D is riveted a receiving-die M. The latter is provided with a sliding post or arbor m, which is held in place by means of a spring N, shown secured to the jaw E by means of the screw J, holding the punch I in place.

As a further means for producing parallel action of the jaws, pins or abutments P are shown extending through the jaws D and E and bearing on the outer edges a^2 and b^2 of the forked portion of the handle-levers A and B. These pins P may have their ends flattened, as shown more particularly at p, Fig. 7, whereby a flat surface is presented to the edges a^2 and b^2 and the pins held in place by the forward ends of the lever-handles A and B riding over the remaining portion of the pins, as shown in Figs. 1 and 2. The edges a^2 and b^2 positively force the rear ends of the jaws apart upon the opening movement of the lever-handles A and B by bearing directly against the projecting ends of the pins P, while in the closing movement of the handle-levers the backs a' and b' act, as hereinbefore described, to force the rear ends of the jaws together. While the mechanism for imparting parallel action to the jaws is shown in connection with hollow jaws, I do not limit the application to such a construction of the jaws, nor do I necessarily utilize both the spring and the pins to open the rear ends of the jaws.

Having now described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In pliers, punches, and similar tools, the combination with cross operating-levers; of jaws having pivotal connections with said levers; means for closing said jaws parallel to each other; and a spring tending to force said jaws in the reverse direction parallel to each other, substantially as described.

2. In pliers, punches, and similar tools, the combination with hollow cross operating-levers; of jaws provided with pivotal connections with the forward ends of said levers and extending rearward into the hollow interior of said levers, the backs of said levers bearing on said jaws; and a spring tending to force said jaws apart and against the backs of said levers, substantially as described.

3. In pliers, punches, and similar tools, the combination with cross operating-levers forked at their forward ends; of jaws having pivotal connections with said levers; means for closing said jaws parallel to each other; and abutments on said jaws bearing on said forked portions of said levers, substantially as described.

4. In pliers, punches, and similar tools, the combination with hollow cross operating-levers forked at their forward ends; of jaws provided with pivotal connections with the forward ends of said levers and extending rearward into the hollow interior of said levers, the backs of said levers bearing on said jaws; and abutments on said jaws bearing on the edges of the forked portions of said levers, substantially as described.

5. In pliers, punches, and similar tools, the combination with cross operating-levers forked at their forward ends; of jaws having pivotal connections with said levers; means for closing said jaws parallel to each other; abutments on said jaws bearing on said forked portions of said levers; and a spring tending to force said jaws apart, substantially as described.

6. In punches, or similar tools, the combination with the jaws, one of which is formed of sheet metal stamped up to form parallel side portions; of extensions on said side portions; a plate held by said side portions forming a receiving-die; and a punch carried by the other jaw and passing through said jaw and into said die, substantially as described.

7. In pliers, punches, or similar tools, the combination with a jaw having parallel side portions; a plate adapted to bear against the edges of said side portions and having a bridge formed integral therewith; and a pin or rivet passing through said side portions and between said plate and bridge, substantially as described.

In witness whereof I have hereunto set my hand on the 25th day of April, 1902.

WILLIAM M. MORTON.

Witnesses:
WILLIAM R. PITKIN,
SAMUEL H. FISHER.