

(No Model.)

R. H. FRANKLIN.
MANUFACTURE OF WATCH KEYS.

No. 439,059.

Patented Oct. 21, 1890.

Fig. 1.

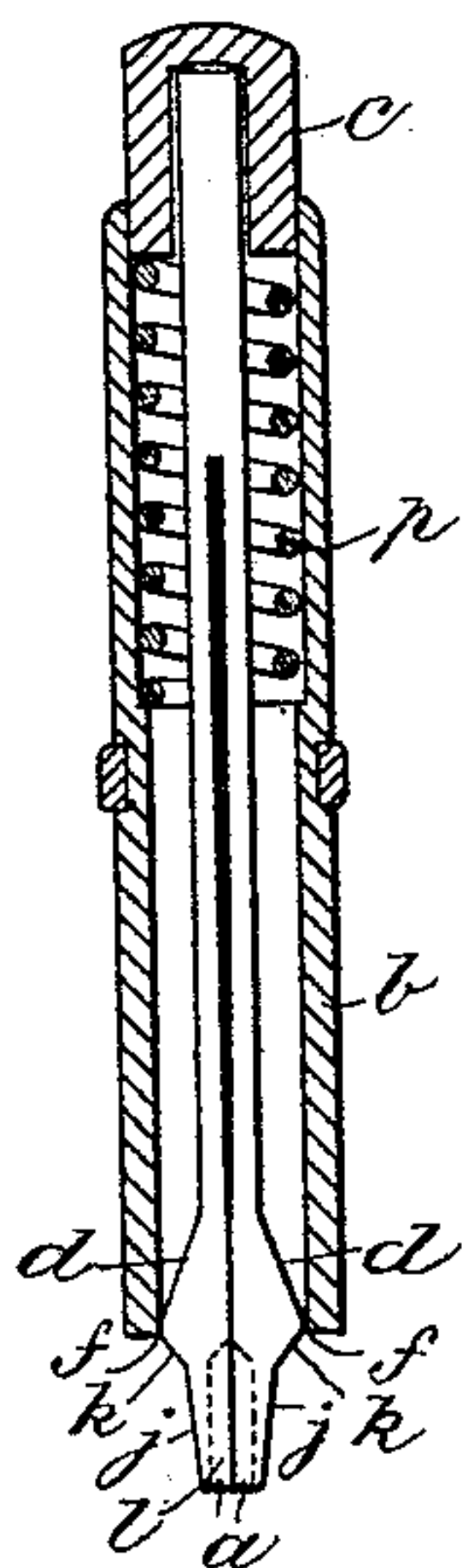


Fig. 2.

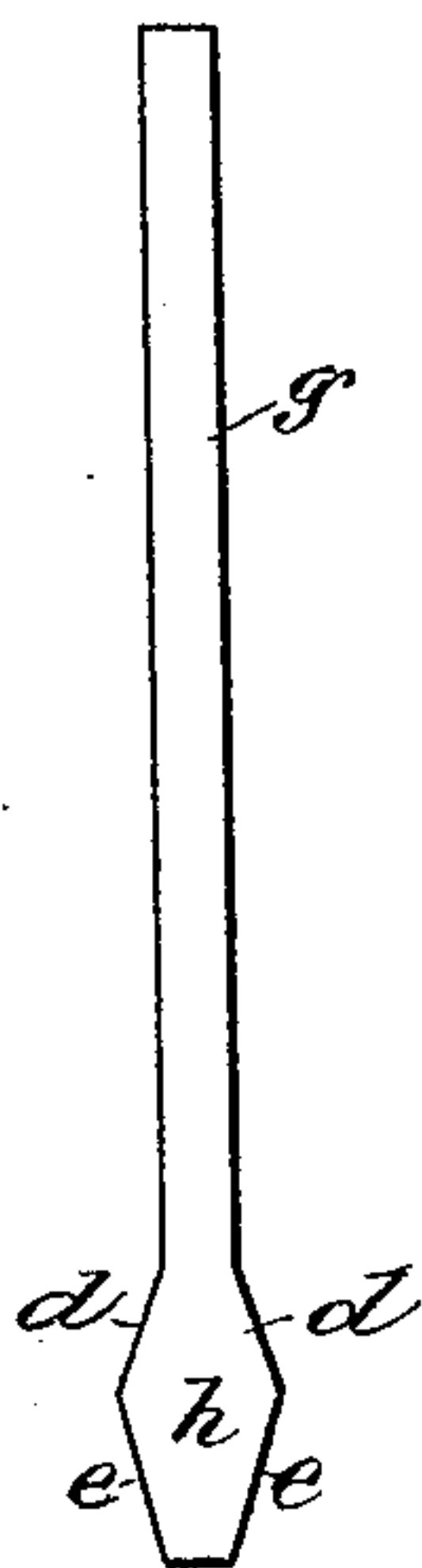


Fig. 3.

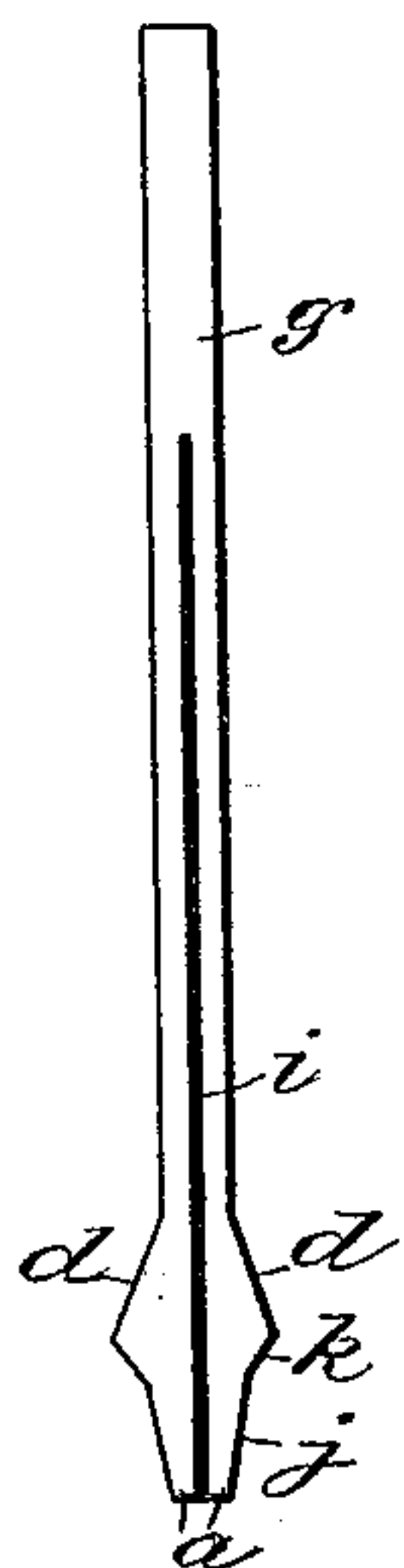


Fig. 6.



Fig. 4.

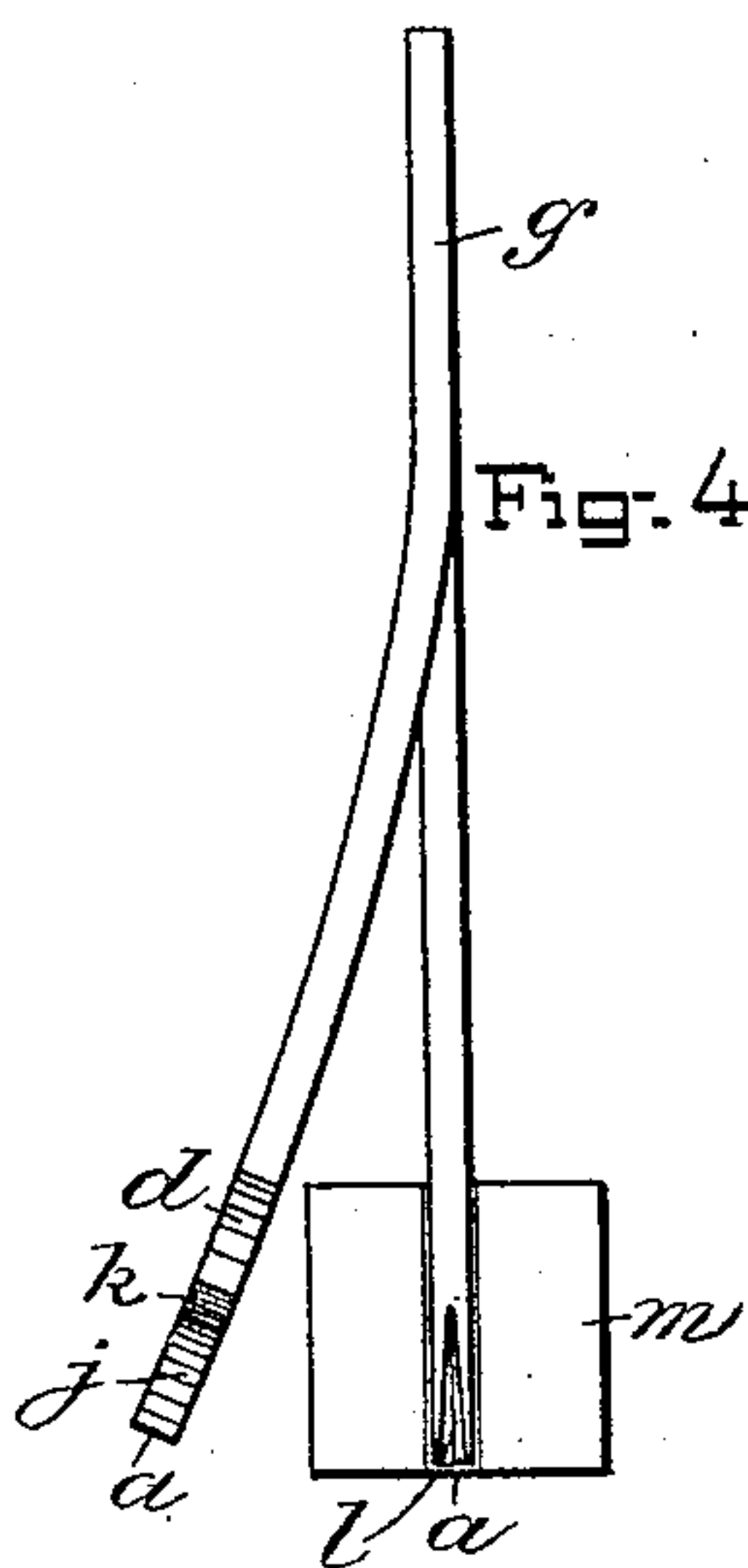
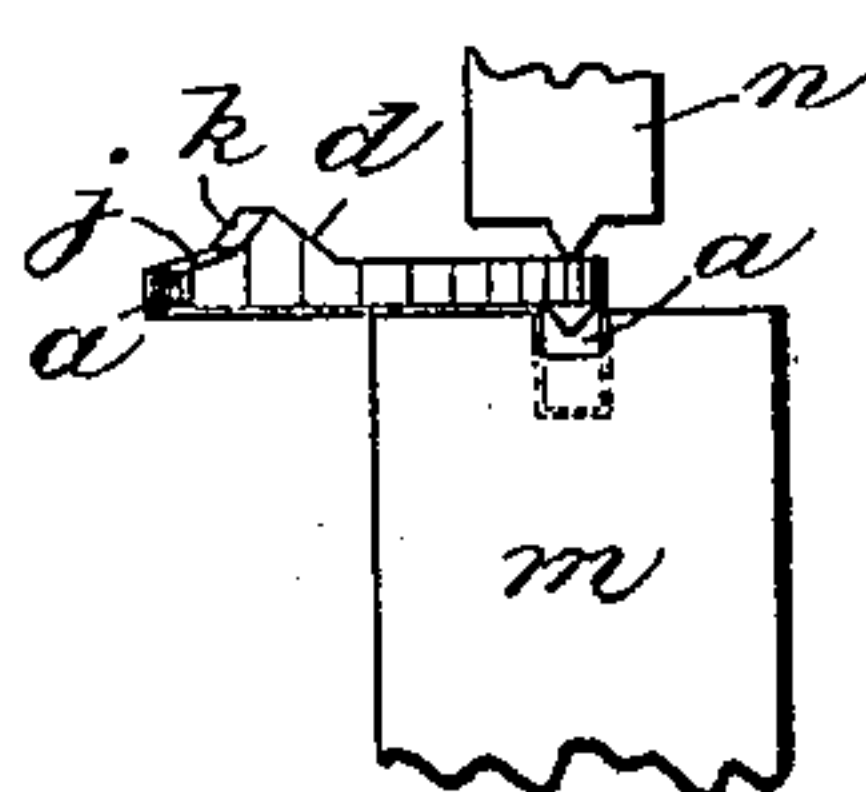


Fig. 5.



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WITNESSES.

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MANUFACTURE OF WATCH-KEYS.

SPECIFICATION forming part of Letters Patent No. 439,059, dated October 21, 1890.

Application filed January 30, 1890. Serial No. 338,692. (No model.)

To all whom it may concern:

Be it known that I, RHODOLPH H. FRANKLIN, a citizen of the United States, and a resident of Brooklyn, in the county of Kings and State of New York, have invented new and useful Improvements in the Manufacture of Spring-Jaw Watch-Keys and other Like Tools, of which the following is a specification.

My invention relates to watch-keys, tweezers, pin-vises, and other like tools or instruments having jaws that spring open to grasp an object when thrust forward from within the end of the tubular case, and are made to close on and grip said object when retracted within the case by a spring-screw or other means; and the invention consists of the improvements in the art of making said spring-jaws, as hereinafter described, reference being made to the accompanying drawings, in which—

Figure 1 is a sectional elevation of a watch-key which I have chosen as the example by which to illustrate my invention. Fig. 2 is a plan view of the blank which I provide in the first place as the preliminary step in the construction of the jaws. Fig. 3 is a plan of the same after being finished on the edges and slitted part of its length along the middle to produce the separate jaws. Fig. 4 is an edge view of the same, showing the manner of manipulating it to facilitate the finishing of the jaw-faces, and a face view of one of the face-finishing dies. Fig. 5 is an end view of the same and an elevation of a pair of dies as they are used in the finishing of the jaw-faces. Fig. 6 is an end view of the case in which the jaws are fitted, showing the slotted end through which the jaws work.

Referring to Fig. 1 for a description of the kind of tool or instrument to which my invention applies, *a* represents a pair of gripping-jaws arranged within the tubular case *b* so as to slide out and in, with a spring *p* to slide them in, and in this instance a push-piece *c* by which to slide them out, said push-piece projecting from the upper end of the case, so as to be pressed by a finger of the hand in which the tool is held; but in some cases a screw-threaded nut has been substituted for the spring and push-piece. The jaws have the inclines *d* on the back or outer edge above

the tapers *e* of the parts which normally project from the end of the tube; which inclines, acting on the wall of the mouth of the tube at *f*, effect the closing of the jaws to grip the object when the spring or other device tends to slide the jaws in the case. The jaws spring open when thrust out of the tube by their resilience or by the effect of other springs, according as they are made to spring themselves or are provided with said other springs. As generally made they have been coupled to other springs for this purpose.

It is to the making of this particular form of jaws that my invention applies, and in carrying it out I first produce the flat blank, Fig. 2, by punching or stamping it out of sheet metal, preferably steel, said blank having the wide end *h*, with taper edges *e*, and the reverse inclines *d*, merging in the plain narrow shank *g*. Then I saw or otherwise produce the slit *i* along the middle from the taper end nearly to the other end, but leaving a sufficient remaining uncut portion for substantial connection of the so-far separated parts.

The shape of the wide and tapered end will be varied as to the length of the tapers *e* and inclines *d*, according to the special shape required for different instruments. For instance, in watch-keys said end will be shorter and the tapers more abrupt than for tweezers, which require longer jaws, and in the case of watch-keys the tapers *e* will be formed on the irregular lines *j k* to make the jaws a little more slender than they would be in the desired short length of the jaws and the required width for the inclines *d*. After thus slitting the blank I finish it on the exterior in any approved way, and to make the crease *l* on the inside, as in the case of a watch-key for gripping the post of a watch or for serrating the faces of the tweezer-jaws I spring or bend the jaws apart laterally, as indicated in Figs. 4 and 5, and place one of said jaws in the bed-die *m* under a stamping-die *n*, and stamp the desired impression therein, after which I readjust the jaws in their proper position for use and temper them for their required springy condition of the shanks and for the hardness of the jaw-faces, and arrange them in the tool according to the nature of the

case. In the key represented in the drawings they are fitted in a case *b*, having the slotted end *o*, through which the jaws project and slide forward and backward, and which rotates the jaws as the key is turned by the fingers in winding the watch, and the push-piece *c* is attached to the upper end with the spring *p* interposed between it and the shoulder *s* to retract the jaws. Such jaws have been made by producing them separately in shorter length and riveting or otherwise connecting the upper ends to separate spring members of a shank extending upward in the spring and having the push-piece or screw-nut attached to them; but such construction involves more pieces, the separate construction of which, it will be readily seen, is much more expensive than this improved method.

While I have represented and described the blank as having taper edges *e*, it is to be understood that the invention may be carried out just about as well if the blank is first made with the edges of the head parallel, or substantially so, from the reverse inclines *h*, although there will be a little more labor and waste of material in reducing the head to the desired taper for the jaws, and I consider such modification as included in my claims.

I claim as my invention—

1. The improvement in the art of making spring-jaws of watch-keys and other instruments having the tapered ends and the reverse inclines above the taper ends, which consists in, first, stamping out of sheet metal the flat blank having the wide flat head *h*,

with taper edges *e*, reverse inclines *d* above the taper edges, and the shank *g*; second, slitting said blank along the middle from the taper end the required length for the jaws, and, third, finishing said blank, substantially as described.

2. The improvement in the art of making spring-jaws of watch-keys and other instruments having the tapered ends and the reverse inclines above the taper ends, which consists in, first, stamping out of sheet metal the flat blank having the wide flat head *h*, with taper edges *e*, reverse inclines *d* above the taper edges, and the shank *g*; second, slitting said blank along the middle from the taper end the required length for the jaws; third, springing or bending the jaws apart laterally and stamping the faces of the jaws, and, fourth, finishing said blank, substantially as described.

3. The improved blank for spring-jaws of watch-keys and other instruments, consisting of the stamped-out piece having the wide flat head *h*, with tapered edges *e*, reverse inclines *d* above the taper edges, and the shank *g*, substantially as described.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 23d day of January, 1890.

RHODOLPH H. FRANKLIN.

Witnesses:

CHARLES A. LAW,
GEO. F. SAGEMAN.