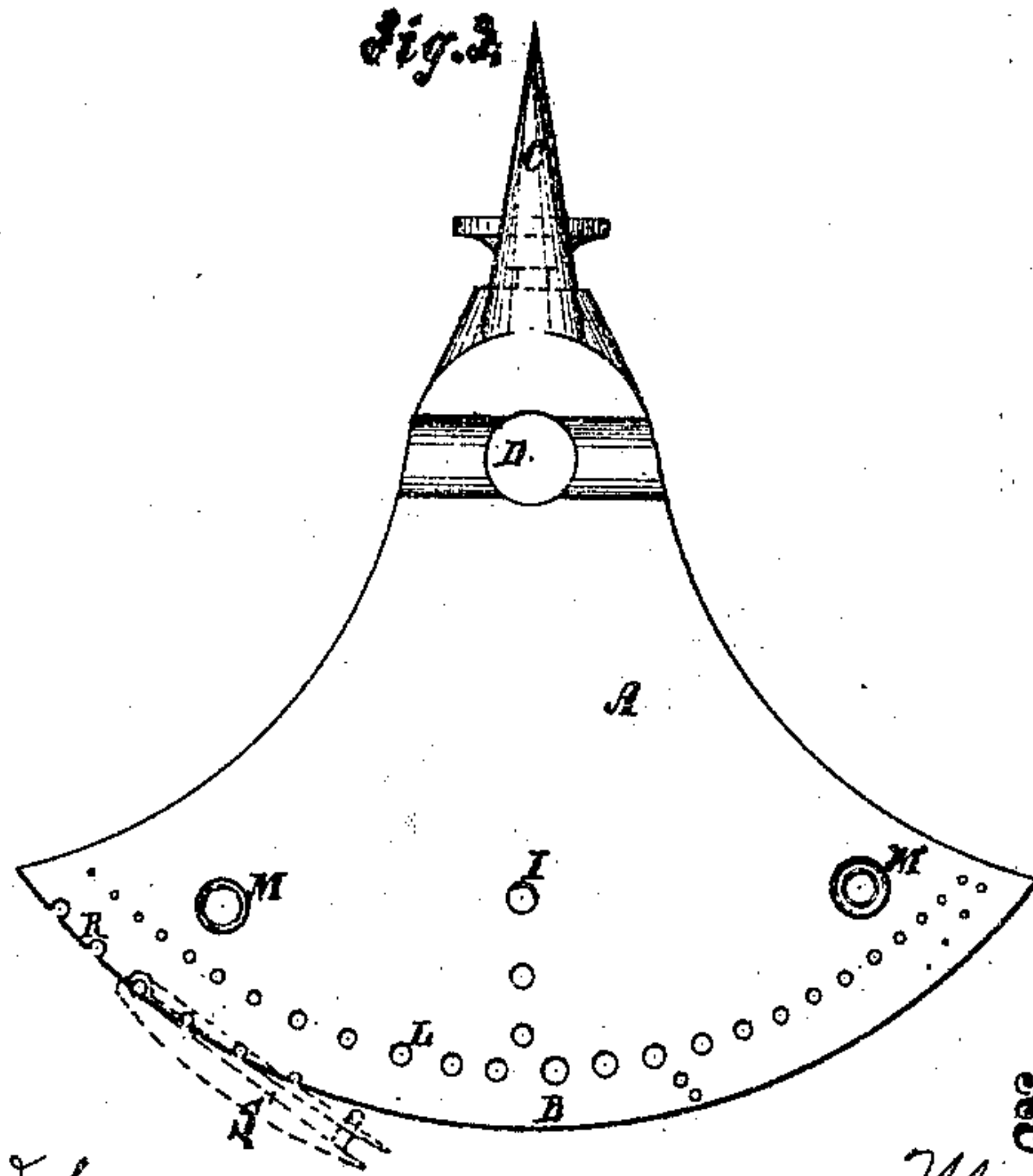
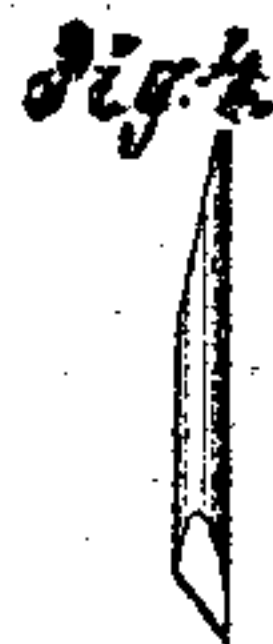
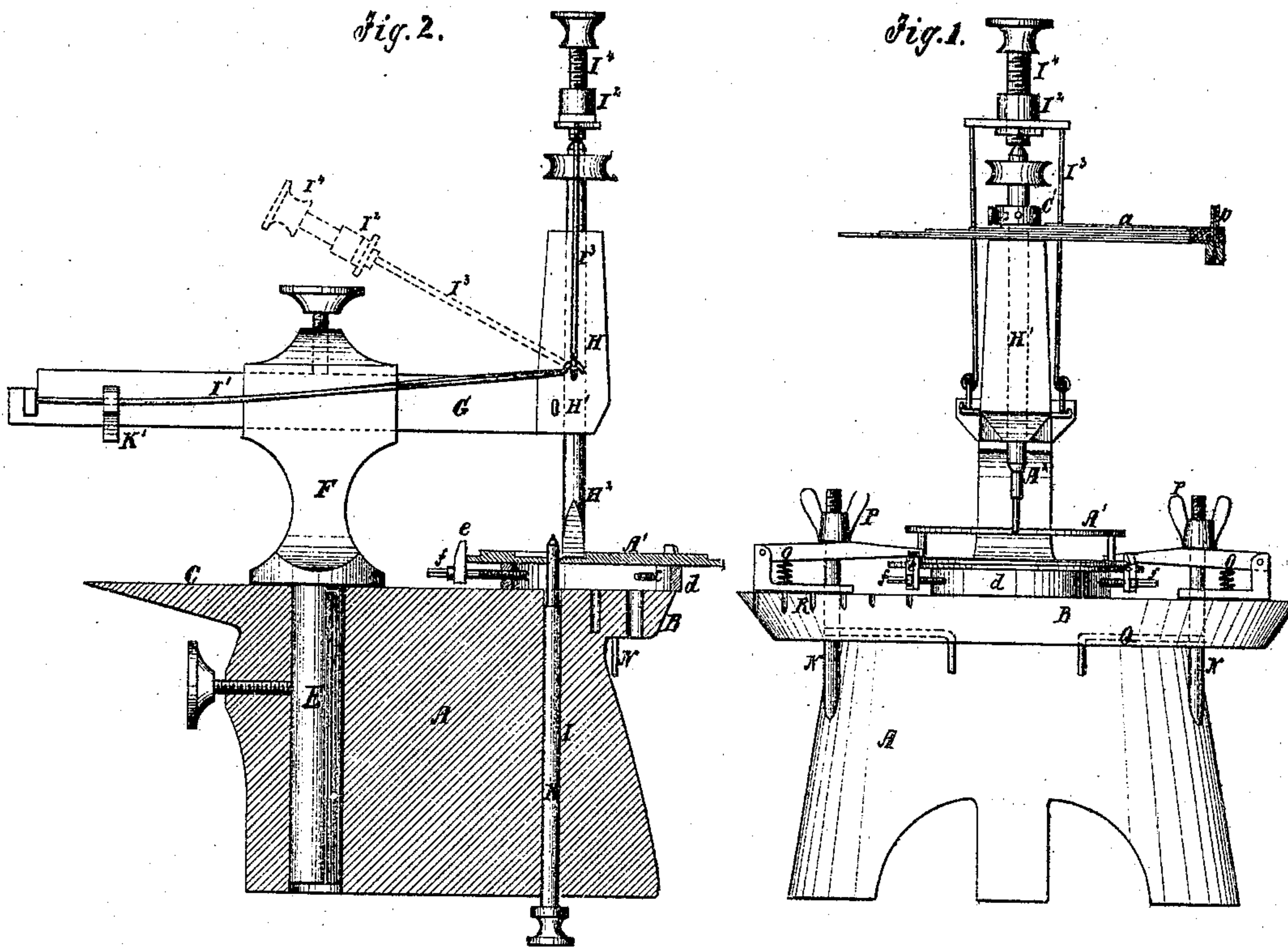


M. D. Kelly,

Watchmakers Tool.

No. 106,371.

Patented Aug. 16, 1870.



Witnesses:
A. Benneimendorf.
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United States Patent Office.

MICHAEL D. KELLY, OF CADIZ, KENTUCKY.

Letters Patent No. 106,371, dated August 16, 1870.

IMPROVEMENT IN WATCH-MAKING TOOLS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, MICHAEL D. KELLY, of Cadiz, in the county of Trigg and State of Kentucky, have invented a new and improved Watchmakers' Tool; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawing forming part of this specification.

This invention relates to improvements in tools for watchmakers' and repairers' use, for holding the watch-plates and other articles, also for holding the tools with which the work is done in all operations now commonly done in a lathe, such as drilling, milling, jewel-setting, freeing, gauging pinions, centering, uprighting, and the like.

The said improved tool is also applicable for the uses of an anvil.

Figure 1 is a front elevation of my improved tool;

Figure 2 is a sectional elevation of the same;

Figure 3 is a top view of the base; and

Figure 4 is a view of one of the tools used for setting jewels.

Similar letters of reference indicate corresponding parts.

A is a strong block of steel or other metal, suited to rest on a lathe or bench, or to be held in a vise. It has a plane face at the top, the front edge of which is preferably in the form of a segment of a circle, B projecting from a vertical wall. The rear part may have a horn, C, like the horn of a common anvil, and near the rear part is a vertical hole, D, for the spindle E of a support, F, for the shank G of a horizontally-revolving and sliding tool-support, H. These supports are provided with set-screws for holding them in place. Near the front is a small hole, I, for a centering pin, K, to pass up through the bottom to center or mark the work on the top. Near the front edge is a row of holes, L, of different sizes, for holding the lower ends of the pivots and pinions, while the upper ends are held in a centering tool for centering and drilling, when broken, for repair; the said holes are also used for gauging the pinions, the same being made in standard sizes, and they serve for various other useful purposes, such as riveting, wheel-stretching, &c.

M represents holes for the spindle N of clamps O, for clamping the work to the face of the block A. These holes are so adjusted that the spindles, being flattened in the parts projecting through the rim B, bear against the side of the base of the block, and are thereby prevented from turning by screwing the nuts P. The clamps are held against rising up by the sliding rods Q, in grooves in the under side of the rim B, sliding into holes in the rods N.

R represents a row of notches in the edge of the rim B, for use in resting the ends of hinge-joints and the like, for driving the rivets or pintles in or out.

The dotted lines S represent a breast-pin, with the end of the hinge-joint placed in position for driving out the rivet.

The tool-carrier H is provided with a vertical hole, H', for the spindles or shank of the drills, milling, freeing, and other tools to be used, which are placed therein from the top, with the ends projecting above, to receive the operating cord of the bow on the pulleys on the said upper ends.

H² represents a "freeing"-tool, arranged in the working position.

I' represents pressure feeding-springs, attached to the rear end of the bar G, and connecting at their front ends with a cap, I², by rods I³, with a socketed feed-screw, I⁴, screwing through the cap and fitting on the upper pointed ends of the tools to force them down. This cap may be swung out of the way for the application or removal of the tools, and fits upon all tools which require to be forced down.

The tension of these springs is varied by the slides K', through which they pass, and which move to or from the end of the bar G. The screw may be adjusted from time to time, as the drill works into the plate, to maintain a uniform pressure of the springs on the tool.

It will be seen that, by turning the support F on its axis and sliding the bar G, the tool in the hole H' may be brought to any required part of the work held on the block A.

A¹ represents the plate or plates of a watch, as clamped upon the table, for the several operations to be performed on it. If a hole is to be drilled, a centering tool, A², is first put in the stock H, and the point brought to the place where the hole is to be bored by adjusting the stocks F and H; then the center is taken out and the drilling-tool is put in, and the hole bored by it.

For "uprighting," or boring the holes in the two plates of a watch for the bearings of the arbors of the wheels exactly opposite each other, so that the arbors will be perpendicular, the stock H is adjusted so that the tool will coincide with the center of the hole I, the same being accomplished by dropping a centering tool through the hole H' of the stock, and moving the latter till the point of the tool drops into the hole; one plate is then drilled at the place previously marked, then the two plates are turned over, and the hole previously bored engaged by a center, K, in the hole I. This will bring the place for the required hole in the other plate nearly opposite the hole previously bored.

For "freeing" out a recess or wheel-chamber, the

plate is centered on the center-pin *K* from below, and the stock *H*, with the tool *H*², is so adjusted that the edge of the tool will coincide with the wall of the recess, as shown in fig. 2. The tool is then rapidly rotated by the bow, and the plates are slowly turned around the center *K* by hand.

For gauging the depth of drilling in the plates, I use, in connection with an adjustable collar, *C*', on the shank of the drill, above the top of the stock *H*, a gauge, *a*, consisting of a number of thin plates of steel or other metal, connected together, and each made shorter than the one below, to make a number of different thicknesses, which may be placed on the top of the stock *H* and under the collar *C*', to arrest the drill at the depth required.

For attaching these plates together and utilizing them for the handle of another tool, I attach the centering device *b* to one end, as shown, and make thereby a combined tool, which is frequently used in this work. The centering-tool does not in any way interfere with the gauge-plates *a*, and the latter serve for the handle of the other.

The watch-plates commonly have projections, which prevent them from lying level on the table or face-plate, and it is a common practice to employ a ring, *d*, so arranged that it will hold the plates level, and the common practice is to clamp the plates and the ring against the face-plate of the common uprighting tool by the clamps *O*; but for performing the freeing operation, which I have described above, it is necessary that the ring be attached to the plates in some way, so that they may be turned slowly by the hand.

I have, therefore, provided the screw-clamps *e f* for the purpose, the screws passing through the ring and the screwing-dogs *e* up against the edge of the plate.

The tool *g*, fig. 4, shows the form of the milling-tools used for securing the jewels in the plates, the said tools being provided with shanks and operated in the stocks *H*, in the same manner as the other tools.

Having thus described my invention,

I claim as new and desire to secure by Letters Patent—

1. A watchmakers' tool, consisting of the block *A*, oscillating support *E F*, and tool-support *G H*, combined and arranged substantially as specified.

2. The combination, with the tool-support *G H* of the springs *I*¹, cup *I*², screw *I*³, connecting-rods *I*³, and the adjusting block *K*', all substantially as specified.

3. The combination and arrangement, in relation to one another, and to clamp *O* and block *A*, of the flattened and perforated spindle *N* and the rod *Q*, as shown and described.

4. The combination with the stock *H* and the tools provided with adjustable collars *C*', of the gauge-plates *a*, substantially as specified.

5. The combination with the leveling-ring *d* of the screw-clamps *e f*, substantially as specified.

The above specification of my invention signed by me this 7th day of April, 1870.

MICHAEL D. KELLY.

Witnesses:

GEO. W. MABEE,
ALEX. F. ROBERTS.