(No Model.)

F. HAPPERSBERGER.

COUNTERSINKING TOOL.

No. 336,566. Patented Feb. 23, 1886.

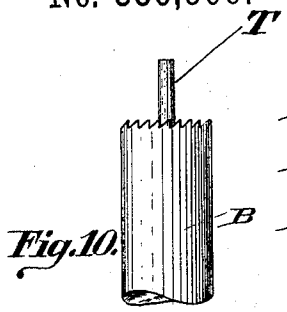


Fig. 10.

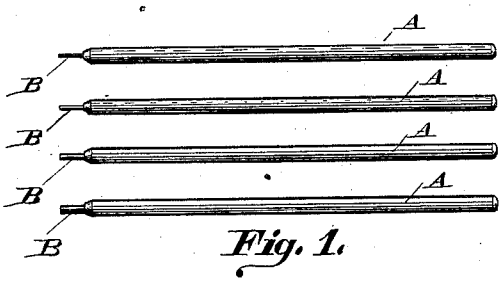


Fig. 1.

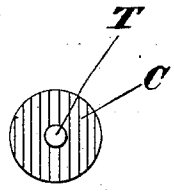


Fig. 11.

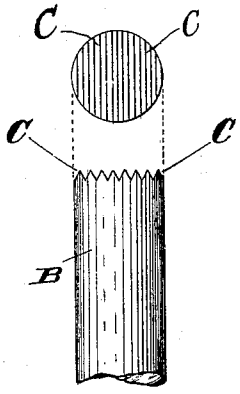


Fig. 4.

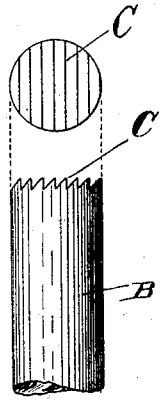


Fig. 3.

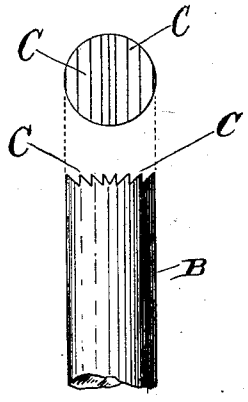


Fig. 5.

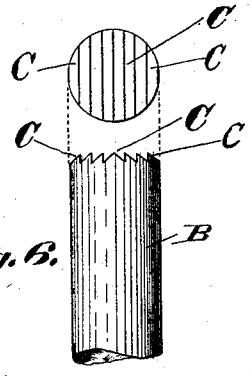


Fig. 6.

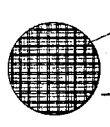


Fig. 8.

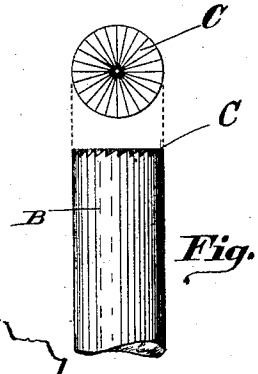


Fig. 7.

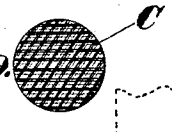


Fig. 9.

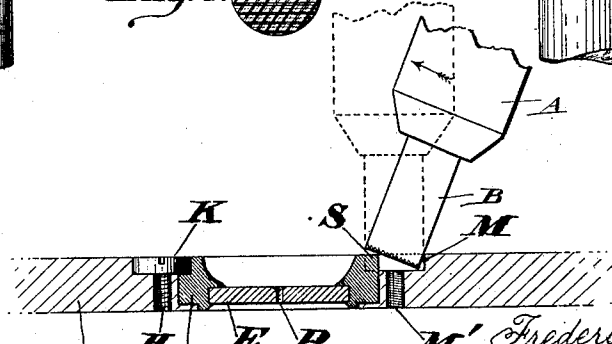


Fig. 2.

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UNITED STATES PATENT OFFICE.

FREDERIK HAPPERSBERGER, OF MADISON, INDIANA.

COUNTERSINKING-TOOL.

SPECIFICATION forming part of Letters Patent No. 336,566, dated February 23, 1886.

Application filed August 14, 1885. Serial No. 174,381. (No model.)

To all whom it may concern:

Be it known that I, FREDERIK HAPPERSBERGER, a citizen of the United States, and a resident of the town of Madison, in the county of Jefferson and State of Indiana, have invented certain new and useful Jeweling Tools, of which the following is a specification.

The primary object of my tool is to form what are known as countersinks in watches. Such countersunk recesses are for holding the jewel-settings, forming the pivot-bearings, and for receiving the screws, &c.

The several features of my invention and the advantages arising from their use, conjointly or otherwise, will be fully hereinafter set forth.

In the accompanying drawings, Figure 1 represents, in side elevation, four of the various sizes of a tool embodying my invention. Fig. 2 illustrates the use of my tool. Figs. 3, 4, 5, 6, 7, 8, 9, 10, and 11 illustrate, on an enlarged scale, various modes of forming the operating end of my tool.

A indicates the handle, of any suitable form or shape.

B indicates the metallic shank portion, whose free end is formed to operate on the metal or material of the watch in forming the recess or countersink. The free end of this shank B is formed in or provided with teeth or points C. These teeth may be points or be continued across the face of the tool. All of the teeth may be inclined in one direction, or some of the teeth in one direction and others in an opposite direction, or may be inclined in several directions. Some of the teeth may be inclined in one direction, and others be inclined in an opposite direction, and others project outwardly, having both sides of each tooth equally inclined. The lines of teeth may cross each other in any suitable direction, two of which styles of crossing are illustrated in Figs. 8 and 9. The teeth may radiate from a center, as illustrated in Fig. 7.

Some of the various inclinations which the teeth may take are illustrated in Figs. 3, 4, 5, 6, 7, and 10. These teeth are hard, and of any suitable material—as diamonds, iridium, &c. I prefer to make them of tempered steel, and formed out of and in one piece with the shank B.

The mode in which my tool operates is as follows: For example, D indicates in section a watch-plate. E indicates a jewel, which may be provided with the usual pivot hole or bearing, P, or be without the pivot-hole, and be a bearing known as "end stone." The jewel is provided with the usual setting, F, of an annular shape, let or set into the watch-plate, and the setting is held in by a screw whose screw-shank H engages a female screw, M′, while the head K of the screw rests in the recess M. When the setting F is placed in position, the edge portion, S, interferes with the symmetry of the recess M, and must be cut away to allow the head K of the set-screw to enter the recess, and at the same time overlap or bear down on and hold the setting F in place, as shown in Fig. 2. This cutting away of the setting is accomplished by placing the tool B A in an inclined or slanting position, as shown in Fig. 2, so that one edge of the tool is in the recess M and the face of the tool bears against the edge of the setting. The tool is now rotated, and the teeth of it cut away the said edge. As the cutting proceeds, the tool may be held more nearly vertical, and finally, as the recess formed by the tool in the setting is deepened, the tool may be held vertical, and the recess is cut away to the required depth to allow the screw-head to sink into the recess the required depth.

The tool may be used to form a flat-bottomed recess for the head of any other screw in the watch-plate, or to form any flat-bottomed countersink. The tool when employed to form such recess or countersink is used as follows: When a small hole is already formed, a common sink or chamfering tool is first employed, and this cuts a recess having a pointed bottom or a bottom centrally inclined. An edge of the face of my tool is now inserted into the said recess in a vertical position, and the tool is rotated and cuts the recess or countersink, and cuts out the bottom of the recess so that it is flat. When there is no small hole to begin with, the first recess, having a flaring or inclined bottom, is made with the common sinking or chamfering tool, and then my tool is employed, as last-afore described, to make the flat-bottomed recess.

Where a small hole is present, with or with-

out a screw-thread, the use of a common sinking-tool may be dispensed with by employing a tool (such as shown in Fig. 10, which shows a side elevation, and in Fig. 11, which shows a view of the operating end of same) where a centering-rod, as T, projects from the center of the face of the tool B.

In using this tool the centering-rod T is inserted in the small hole, and the tool held vertical, so that all portions of its face rest on the surface to be cut. The tool is now rotated and the recess cut, the centering-rod preventing the tool from slipping out of position, and holding the face of said tool accurately to the portion to be cut away.

It may be mentioned that this tool may be employed to cut the recess M, the centering-rod T being first placed in the screw-hole M', the tool being held vertical and rotated. The centering-rod T is shown in connection with a tool having teeth of a particular inclination, but is applicable to and may be used with my tool when the latter is provided with any other description of teeth, as illustrated.

My tool enables those flat-bottomed recesses and countersinks to be accurately made and perfectly by hand, which have heretofore been capable of being accurately made only by machinery.

My tool is cheap of cost, simple in construction, easily operated, and perfectly efficient.

While the several features of my invention are preferably employed together, one or more of said features may be used without the remainder, and in so far as applicable, one or more of said features may be employed in connection with tools other than the one herein particularly described.

What I claim as new and of my invention, and desire to secure by Letters Patent, is—

1. The tool having its end or face provided with teeth C, inclined and continuous across said face, as shown in Fig. 3, substantially as and for the purposes specified.

2. The tool having a flat face and provided with teeth C, continuous across said face, substantially as and for the purposes specified.

3. The tool having handle A and shank B, provided with teeth C continuous across the face of said shank, substantially as and for the purposes specified.

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