(No Model.)

F. LEACH & V. L. FIGAROTTA.

WATCH MAKER'S TOOL.

No. 397,191. Patented Feb. 5, 1889.

Fig: 1.

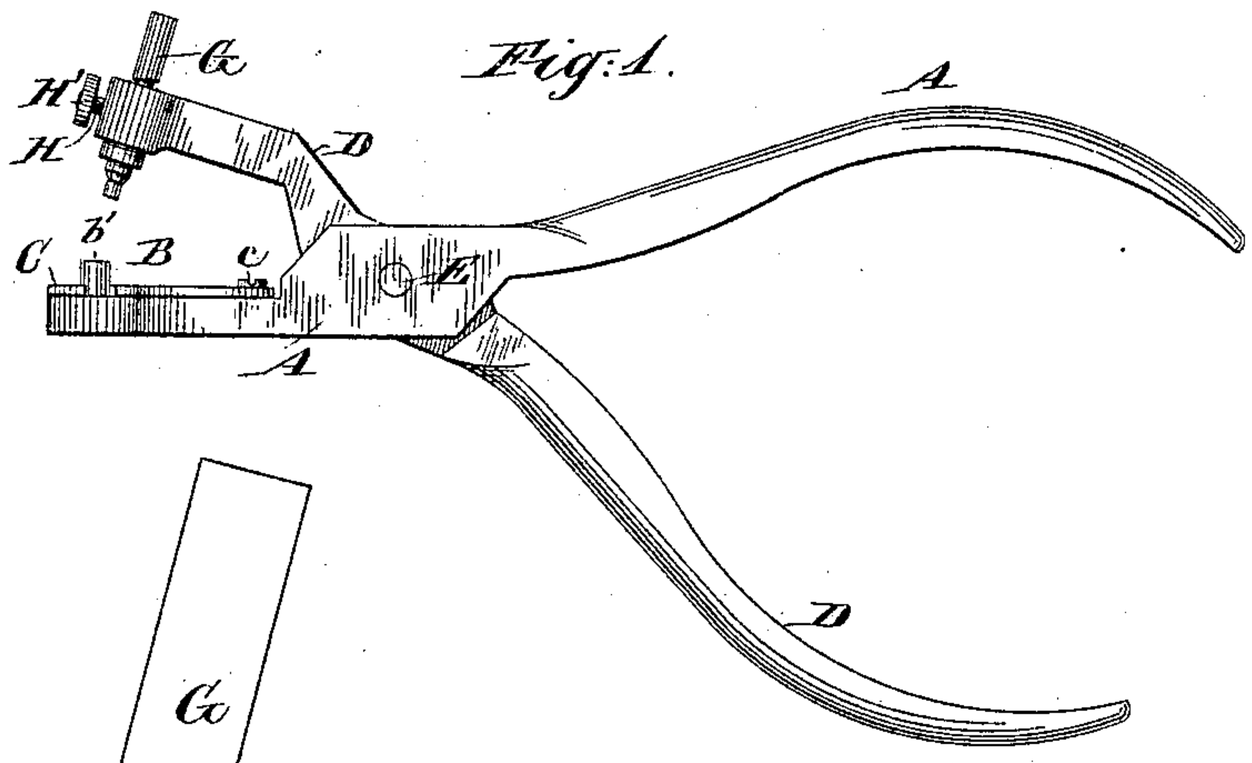


Fig: 2.

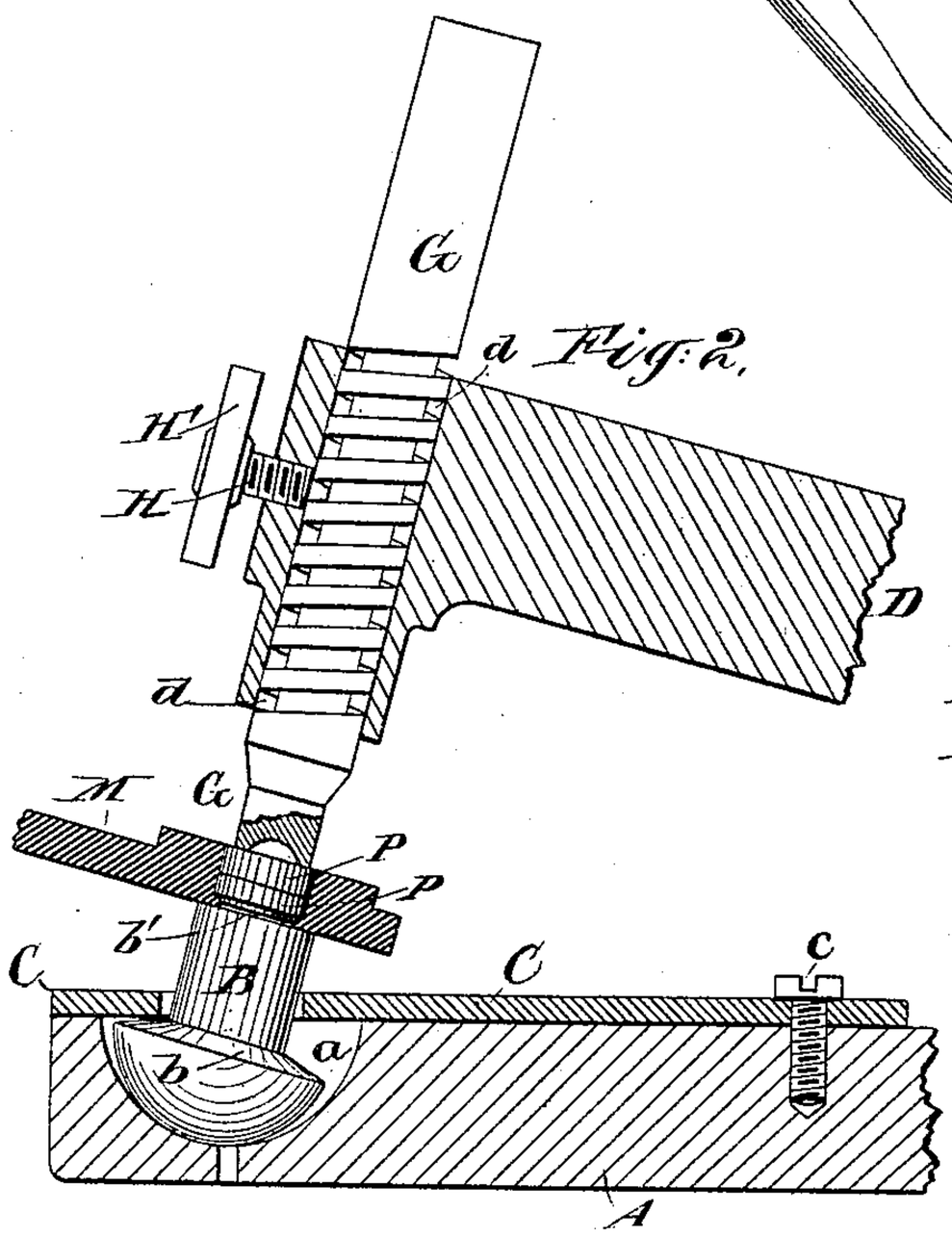


Fig: 3.

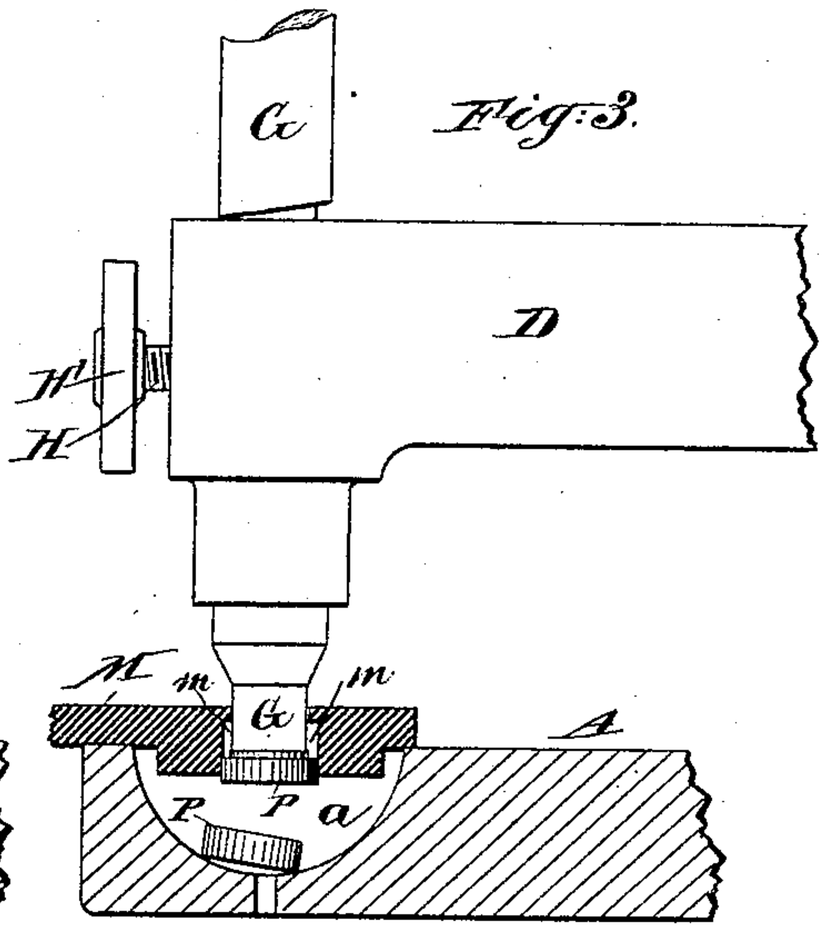


Fig: 4.

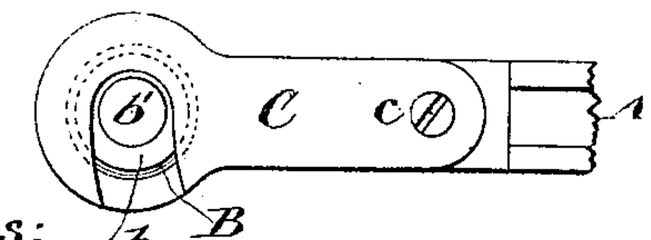
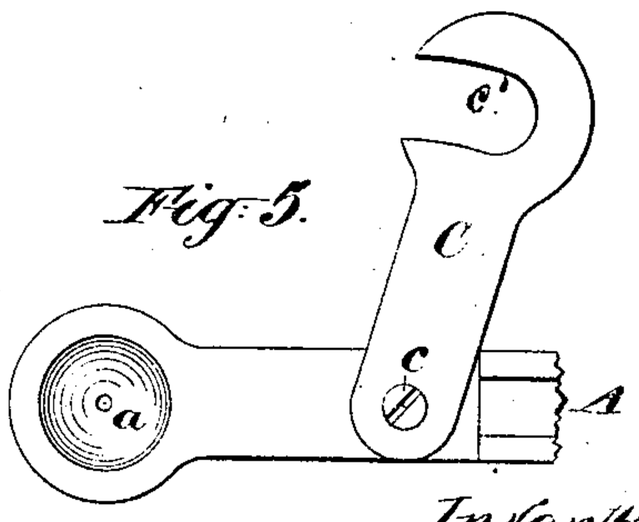


Fig: 5.



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by their attorneys
Thomas Drew Stetson

UNITED STATES PATENT OFFICE.

FREDERICK LEACH, OF NEW YORK, N. Y., AND VINCENT LOUIS FIGAROTTA, OF JERSEY CITY, NEW JERSEY.

WATCH-MAKER'S TOOL.

SPECIFICATION forming part of Letters Patent No. 397,191, dated February 5, 1889.

Application filed June 2, 1888. Serial No. 275,818. (No model.)

To all whom it may concern:

Be it known that we, FREDERICK LEACH, of the city and county of New York, in the State of New York, and VINCENT LOUIS FIGAROTTA, of Jersey City, in the county of Hudson and State of New Jersey, have invented a certain new and Improved Jewelers' Tool, of which the following is a specification.

The invention applies to that class of tools in which a punch of suitable form is operated by a lever force to insert or remove a jewel and its setting. The advantages of this general class of tools have been long recognized. It is important that the force be applied exactly at right angles to the plane of the cock or other part of a watch or other machine in which the jewel is in one case to be set, or is in another case to be removed. The difference in the thicknesses of the plate, cock, or other part to which the jewel is applied introduces a difficulty; if the plate is thicker or thinner than the ordinary, the punch operated by the tool presses on the jewel-setting obliquely in one direction or the other.

We have discovered that the difficulty can, with ordinary care and delicacy of feeling, be overcome by allowing the support or annular abutting surface in the lower jaw to rock freely in its relation to the jaw. The punch being made with a square end or with aconcave end and firmly fixed in the upper jaw tends on exerting pressure on the jewel-setting to bring the jewel-setting and the cock or other part in which it is to be set into a plane at right angles to the axis of the punch. By providing means for allowing the abutting surface below to rock freely it automatically assumes under the pressure thus imparted the fair position desired, and the jewel-setting, in being pressed home under those conditions, is set exactly square in its hole, whether the part in which it is set be thick or thin, and whether the hole be deep or shallow. We provide for removing the abutting piece and substituting another with great facility. We provide improved means for shifting the punch.

The accompanying drawings form a part of this specification and represent what we consider the best means of carrying out the invention.

Figure 1 is a side view of the entire device. The remaining figures show portions on a larger scale. Fig. 2 is a vertical section showing the device applied to set a jewel. Fig. 3 is a side elevation, partly in section, showing the device in the operation of removing jewels. Fig. 4 is a top view of the lower jaw adjusted for setting jewels. Fig. 5 is a corresponding view of the same part adjusted for removing jewels.

Similar letters of reference indicate corresponding parts in all the figures where they occur.

A is a lever provided with a cavity, *a*, having a smoothly-concaved bottom.

B is an abutting piece having a convex lower face of a radius corresponding to or slightly less than the cavity *a*, a contraction or shoulder, *b*, above and a flat upper surface, *b'*.

C is a swinging plate pivoted to the lever A at *c*, and provided with a deep curved notch, *c'*, adapted to engage over the offset *b* and lock the abutting piece into the jaw, but with liberty for it to rock.

D is the other lever. It is connected to A by the pivot E, and receives in a hole, *d*, a punch, G, which is formed with any required style of ends to serve in setting jewels or in removing them. The mid-length is screw-threaded.

H is a screw tapped laterally into the hole *d*. It has a milled head, H'.

M is a portion of a cock of a watch, and P is a jewel mounted by a previous operation in the ordinary metallic setting. To insert jewels, the jewels with their settings are introduced loosely into the proper hole, *m*, in the cock, and our tool is applied with the plane face of the abutting piece pressed against the plane back face of the cock and the punch G presented over the hole *m*. Now, the cock being held delicately to give it freedom for yielding, as the lever-handles are closed the punch G is pressed forcibly toward the abutting piece B, which latter turns in its spherical bearing to present its upper face exactly at right angles to the pressure of the punch, and consequently to hold the cock in the exactly right position. The metal of the setting is distended by pressure thus applied,

making the usual tight and reliable junction by friction with the interior of the hole *m*, and a jewel is certain to be set in the exactly right position.

When for any reason the punch is to be removed and either reversed in position or another substituted, the screw H is turned to withdraw it entirely from the hole *d*, when the punch can be instantly removed by an axial motion.

The punch may be set up or down to large extents by correspondingly withdrawing the screw H. The punch may be set up or down by small increments by simply slacking the screw H and turning the punch a portion of a revolution, and then tightening H again.

To remove jewels a punch is introduced with a sufficiently small end to enter the back hole in the work, and the abutting piece B is removed, which is easily done when the swinging plate C is withdrawn. Now, the cock being applied in the properly-reversed position, the closing of the levers forces the jewels out of the cock and drops them into the cavity *a*.

Modifications may be made without departing from the principle or sacrificing the advantages of the invention. We can reverse the relation of the parts by making the abutting piece with a sufficiently small face, and either making the face concave or boring it so as to give it an annular bearing and allowing it to serve as a punch. Then, removing the punch, we can remove the jewels by the action of such abutting piece entering the hole.

We have used the term "cock" to imply either the part of a watch so named, or the plate, or any other plate into which a jewel and its setting is to be compressed or from which it is to be removed.

We claim as our invention—

1. In a jeweler's tool, the levers A D and pivot E, in combination with the freely-rocking abutting piece B and punch G, arranged for joint operation as herein specified.

2. In a jeweler's tool, the levers A D, pivoted at E, abutting piece B, having a convex base, a contraction, *b*, and bearing-face *b'*, in combination with the swinging plate C, having the slot *c'*, as herein specified.

3. In a jeweler's tool, the punch G, screw-threaded as shown, and the screw H H', standing at an angle thereto, adapted to engage and release the threads of the punch at will, in combination with each other and with the levers A D, pivoted at E, as herein specified.

In testimony whereof we have hereunto set our hands, at New York city, this 28th day of May, 1888, in the presence of two subscribing witnesses.

FREDK. LEACH.
VINCENT LOUIS FIGAROTTA.

Witnesses:
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