C. E. Evard.

Jewelers' Tool.

No. 89,568. Patented May 4, 1869.

Fig: 1.

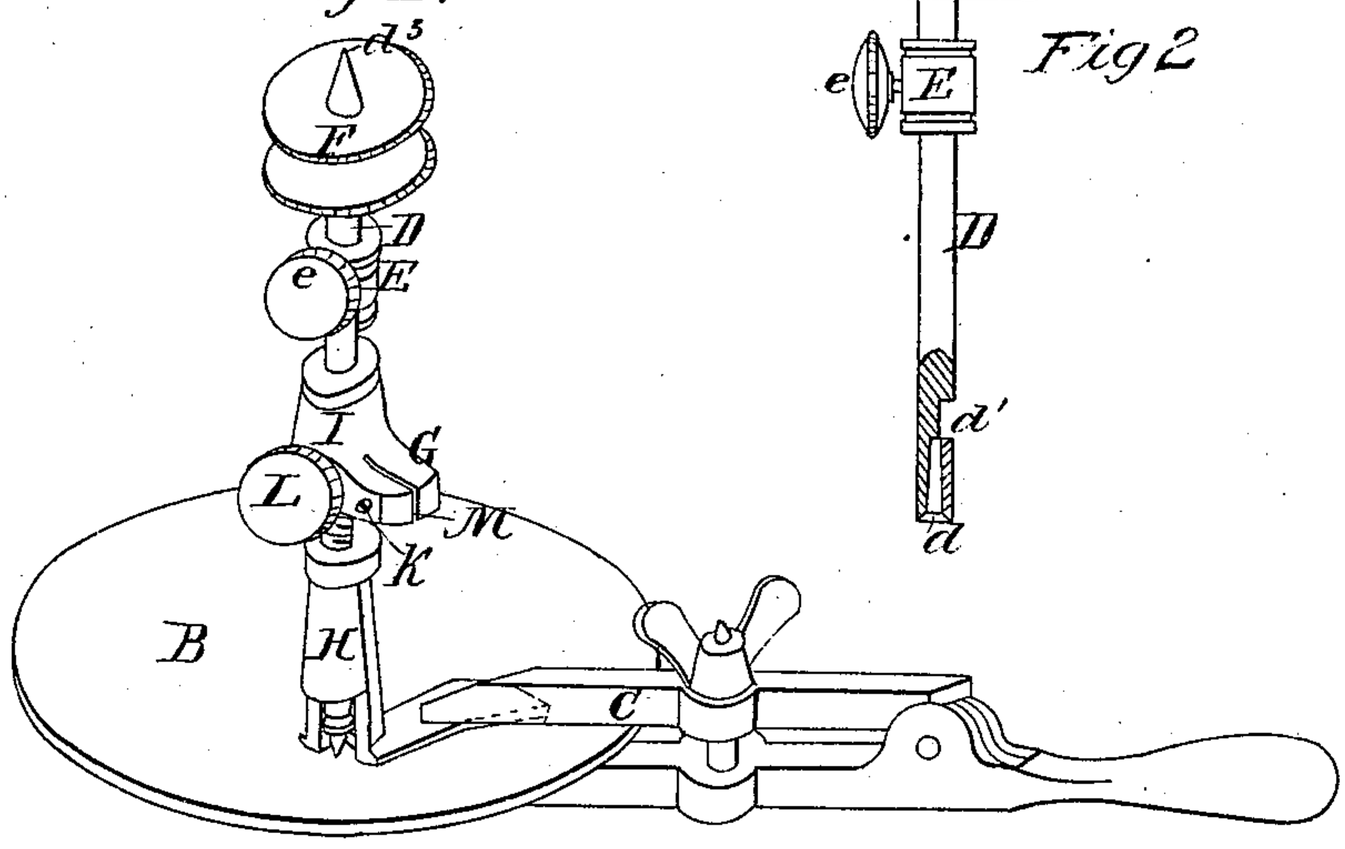
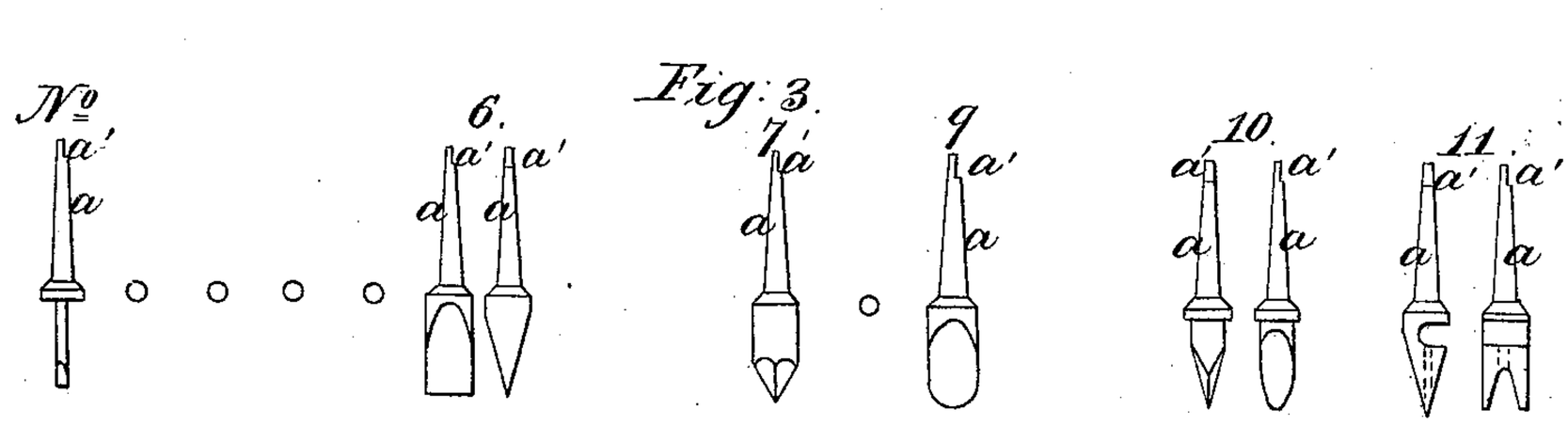
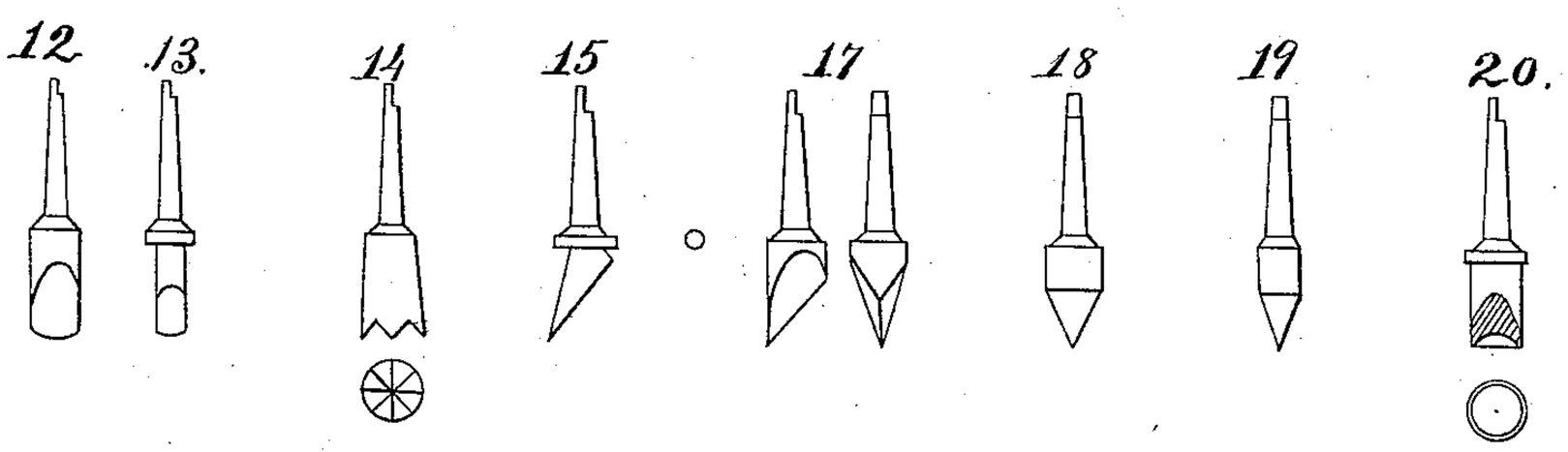


Fig 2

Fig: 3.





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CHARLES E. EVARD, OF LEESBURG, VIRGINIA.

Letters Patent No. 89,568, *dated May* 4, 1869.

IMPROVED FREEING-TOOL, SCREW, AND JEWEL-SETTER COMBINED.

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, CHARLES E. EVARD, of Leesburg, in the county of Loudoun, and State of Virginia, have invented a new and useful Improvement in Watch-Makers' Tools; and I do hereby declare the following to be a sufficiently complete and clear description of the same, to enable one skilled in the art to which it appertains, to carry it into effect, reference being had to the accompanying drawings, making part of this specification.

My improved tool is analogous, in many respects, to the "freeing-tool" in common use among watch-makers; but by constructing it as hereinafter described, and adapting to it a complete set of instruments, I am enabled to provide the watch-maker with a combined apparatus, with which he can set screws or jewels of any size and shape, in any necessary manner, form brass pivots or studs, oil-cups, countersinks, &c., set and round pillars, and do all analogous kinds of work, with ease and precision, without the use of a lathe.

In the drawings—

Figure 1 is a perspective view of the complete tool, secured in position upon a watch-plate, by means of a hand-vise.

Figure 2 represents, in elevation, the cutter-holder or stock, with its lower end in section, to exhibit the construction of the socket therein.

Figure 3 consists of diagrams, on a larger scale, of various forms of cutters, burnishers, &c., hereinafter described.

D, figs. 1 and 2, represents a stock, provided, at its lower end, with a tapering socket, *d*, opening into a transverse notch or recess d^1, the said socket and recess being formed to receive, and firmly hold, the shanks of the various cutters hereinafter described, or to permit their ready removal when required.

At its upper end, the stock D terminates in a point, d^3, to which the requisite pressure is applied, by any suitable surface, when the tool is used with a bow.

The bow works, in the usual manner, in the groove of a head, F, which is rigidly attached to the stock D. The edges of the head are knurled or milled, to adapt it for use by hand without the bow.

E is a sliding collar, secured by a set-screw, *e*, at any height on the stock D, for the purpose of gauging the depth to which the cutters may work.

The stock D works in an upright guide, consisting of two members, H and I, H constituting a foot, by which the tool may be held in position, on the plate B, by means of pliers, hand-vise C, or other means, and I, an upper part, screwed upon the foot H, and so split or divided at M as to be firmly clamped thereto by a screw, K.

L is a set-screw, to hold the guide or socket G in any position in which it may be set.

The cutting, burnishing, and setting-instruments used in connection with the above tool, are made of steel, suitably hardened, in the different forms represented in the drawings, in which Nos. 1 and 6 represent the two extreme sizes of a graduated set of flat cutters; 7 and 9 represent round or straight countersinkers and bevellers; 10, oil-cup cutters; 11, brass-pivot cutter, for clicks; 12 and 13, round-cutters, for convex jewels; 14, pillar-rounder, to round large or small pillars; 15, thread-cutter; 17, burnisher; 19 and 20 pointed and hollow centring tools; and 18, dial-beveller.

All of these tools are furnished with shanks, *a*, corresponding, in shape and size, to the socket *d*, in the stock D, and have a notch or shoulder, a^1, formed upon the upper end, as shown in the drawings, fig. 3, which, when the tool is inserted in the stock, extends upwards, through the socket *d*, into the recess d^1, and, by the contact of the two flat surfaces thus brought together by a lap-joint, the tool is held securely, and prevented from turning around in the stock while in use.

By inserting the tools or cutters in the manner described, they may be easily and securely inserted, and removed, also, without trouble; and, in addition to this, in case the cutter should get jammed in, it may be easily removed by means of a suitable instrument inserted in the recess d^1, without breaking, and with little expense of time or trouble.

That the value of my invention may be made more clearly manifest, let us suppose that it is desired to set a flat jewel in a watch-plate, or other substance.

To do this fasten the foot H to the plate, as represented in fig. 1; drill a hole, at the designated place, with a small cutter; then, without removing the foot H from the plate, take a flat cutter, the size of the jewel, place it in position in the cutter-holder D, and adjust it to the depth required to be cut, by the aid of the screw-gauge or body composed of the parts I, K, L, M, and the regulating slide-gauge E *e*.

After the hole has thus been cut, take out the flat cutter and put in its place the thread-cutter, No. 15, to cut the thread or bearing.

This done, apply the tool to the other side of the plate B, centring it by No. 19; then cut the bevel with No. 7 or 9 cutter; reverse the tool again; replace it in position by means of the centring-tool; then apply burnisher No. 17; place the jewel in position, and burnish the bearing down, and the work is complete.

If the object in which the jewel or screw to be set, or hole to be drilled is small, fasten it to a larger plate or flat surface, by means of wax or shellac, and proceed as under other circumstances.

The adjustment afforded by the screw-connection between the parts H and I of the guide, affords means for the most delicate adjustment of the depth of penetration. This is especially useful in sinking concentric holes of different diameter and depth.

By using my invention, no lathe is required, and the operator can hold his work while operating with the tool, in the most advantageous positions, and be enabled to change it, without delay or trouble, in a moment. It is easily adjusted to all the kinds of work it is calculated to perform, and so simple in its operation that any one may use it with ease and success.

The cutting, burnishing, and setting-instruments being constructed as set forth, give increased facili-

ties for working, the construction of the tool being such as to permit the tools being fixed in the cutter-holder D, or removed without displacing the foot H from the plate B.

The cutting of the hole, the bevelling, and the setting of the screw or jewel being performed with but one change of the tool from the work.

My improved tool is substantially the same as those now in use, except that the edge of its grooved head is milled, and in that its holder, at the upper end of the socket, is notched, for the purpose of forming a scarf-joint with cutting, setting, or burnishing-instruments, whose extremities are likewise notched, to correspond thereto. But I do not claim the application of said scarf-joint singly, nor do I claim any of the instruments described; but

What I do claim, and desire to secure by Letters Patent, is—

The combination of the improved tool, with the series of cutting, setting, and burnishing-instruments, all constructed as and for the purposes described.

To the above specification of my improvement, I have signed my hand, this 17th day of November, 1868.

CS. ED. EVARD.

Witnesses:

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