A. SCHWERTER.

DEPTHING-TOOL.

No. 172,183. Patented Jan. 11, 1876.

Fig.1.

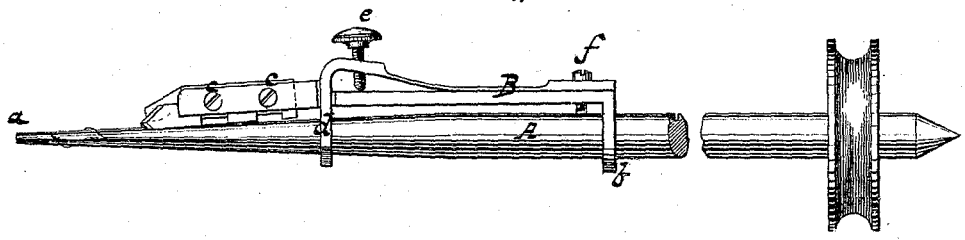


Fig.2.

Fig.3.

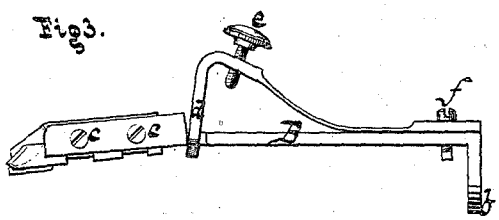


Fig.4.

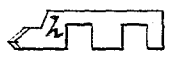


Fig.5.

Fig.6.

Fig.7.

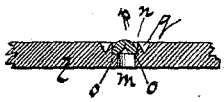


Fig.8.

Fig.9.

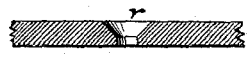


Fig.10.

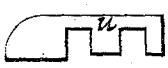


Fig.11.

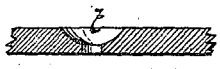


Fig.12.

Fig.13.

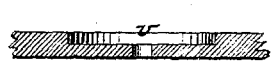
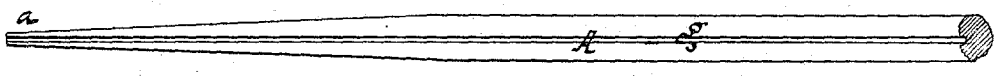


Fig.14.



Witnesses.
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UNITED STATES PATENT OFFICE.

AUGUSTUS SCHWERTER, OF NEW YORK, N. Y.

IMPROVEMENT IN DEPTHING-TOOLS.

Specification forming part of Letters Patent No. **172,183**, dated January 11, 1876; application filed November 4, 1875.

To all whom it may concern:

Be it known that I, AUGUSTUS SCHWERTER, of the city, county, and State of New York, have invented a new and Improved Depthing-Tool, which invention is fully set forth in the following specification, reference being had to the accompanying drawing, in which—

Figure 1 represents a side view. Fig. 2 is a transverse section. Fig. 3 is a side view of the cutter-head and spring detached.

The remaining figures are details, which will be referred to as the description progresses.

Similar letters indicate corresponding parts.

This invention consists in the combination of a cutter-head with a spindle, which is provided with a long tapering point, said cutter-head being furnished with a spring-clamp, so that it can be readily secured to any part of the spindle, and that when the tapering end of said spindle has been inserted into a hole of any desired size in a plate of metal or other material, the cutter or cutters contained in the cutter-head can be readily adjusted to produce the desired cavity round the edge of said hole, or to enlarge said hole, such cavity or enlargement being perfectly concentric with the original hole. The spindle is provided with a guide-groove, which receives the inner edge of the depthing-cutter, and also the point of a screw secured in the cutter-head, so that both the cutter and the cutter-head are steadied in their position. With the tapering spindle, the cutter-head, and the depthing-cutter, are combined an adjustable rim-cutter and an adjustable gage, the rim-cutter being used in setting jewels, and the gage serving to control the depth of the cavity or cavities to be produced by my tool.

In the drawing, the letter A designates a spindle, which is provided with a long tapering point, *a*, so that it can be inserted in holes of various sizes. On this spindle is fitted a cutter-head, B, which is provided at one end with an eye, *b*, large enough to admit the cylindrical part of the spindle A while its opposite end is bifurcated and provided with clamping-screws *c* for the purpose of securing the cutters, as will be presently more fully explained. With this cutter-head is combined a spring-clamp, *d*, which adjusts itself automatically to the variable thickness of the tapering portion of the spindle, and which is provided with a set-screw, *e*, by means of which the cutter-head can be fastened on any portion of the spindle. Through the cutter-head, near its rear end, extends a screw, *f*, the point of which engages with a groove, *g*, (see Fig. 14,) in the spindle, so as to prevent said cutter-head from turning on the spindle after it has been adjusted on the same. The groove *g* may be made of any desired depth, and it extends clear out to the point of the spindle.

The cutters which I use in my cutter-head are of various forms or shape, according to the work to be accomplished.

For sinking jewels in watch-plates, for instance, I use a rim-cutter, *h*, a depthing-cutter, *i*, and a gage, *k*, detached views of which are shown in Figs. 4, 5, and 6. The depthing-cutter is provided with round holes, which fit the clamping-screws *c* in the cutter-head, while the rim-cutter and the gage are provided with slots, so that they can be adjusted in the cutter-head. The inner edge of the depthing-cutter projects into the groove *g*, so that when the cutter-head is secured in position said groove sustains the depthing-cutter firmly in position, and the danger of breaking said cutter is materially reduced. The effect produced by the combined action of the depthing-cutter, the rim-cutter, and the gage, is illustrated in Fig. 7, which shows a section of a metal plate, *l*, in which is bored a hole, *m*, of the size required. After this hole has been bored I insert therein the tapering end of the spindle A, and then I slide the cutter-head B down until the points of the cutters *i* and *h* touch the surface of the plate. I then secure the cutter-head by means of its set-screw, and by imparting to the spindle a rotary motion, either by means of a hand-drilling bow or by inserting the same in a turning bench or lathe, cavities *p q* are produced round the edge of the hole *m*, leaving a thin raised rim, *n*, and a shoulder, *o*. The jewel is placed on this shoulder, and, by pressing the rim *n* inward, said jewel is firmly retained in position. By adjusting the gage *k* the depth of the cavities *p q* can be regulated, and jewels of various thickness and diameter can thus be set with the greatest facility. My tool can also

be used for sinking excavations for screw-heads of various shapes, or for sinking gear-wheels or other parts, as shown in Figs. 9, 11, and 13. For producing the cavity *r*, Fig. 9, I use the cutter *s*, Fig. 8, which is secured in the cutter-head, either alone or together with the gage *k*. For producing the cavity *t*, Fig. 11, I use the cutter *u*, Fig. 10, and for producing the cavity *v*, Fig. 13, I use the cutter *w*, Fig. 12. The inner edges of all these cutters are guided in the groove *g* of the spindle. If desired, this groove may be cut clear through the spindle, (the ends of the spindle being left solid,) so that cutters can be used which project from both sides of the spindle. This arrangement will be of advantage, particularly in producing cavities, such as shown in Fig. 13, for the reception of gear-wheels.

From this description it will be seen that my tool can be used for sinking watch, clock, or other jewel-settings, and also for making circular excavations of any diameter and depth into any plate or piece of metal, ivory, amber, horn, bone, or other similar material having already a hole for the reception of the spindle. My tool can also be used for enlarging holes previously bored, and in all cases the excavations or enlargements will be concentric with the original hole.

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

1. The combination, with the tapering spindle A, of the spring-clamp *d*, cutter-head B, and a cutter (one or more) connected with said cutter-head, and constructed to be detached therefrom, as and for the purpose specified.

2. The combination of the guide-groove *g* in the spindle A with the cutter-head B, screw *f*, and with the cutter secured in said cutter-head, substantially as and for the purpose set forth.

3. The combination, with the spindle A and cutter-head B, of a depthing-cutter, *i*, and a rim-cutter, *h*, with or without a gage, *k*, substantially as shown and described.

In testimony that I claim the foregoing I have hereunto set my hand and seal this 3d day of November, 1875.

AUG. SCHWERTER. [L. S.]

Witnesses:

JNO. D. PATTEN,

E. F. KASTENHUBER.