

(No Model.)

A. J. SMART

COMBINED DRILL AND COUNTERSINK.

No. 298,248.

Patented May 6, 1884.

Fig. 1.

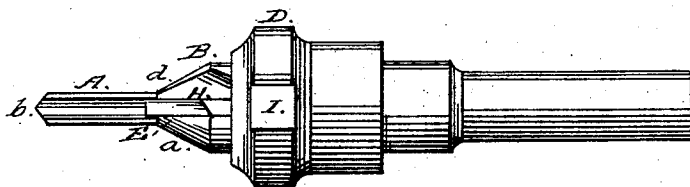


Fig. 2.

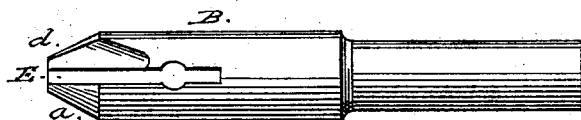


Fig. 3.

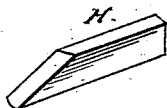
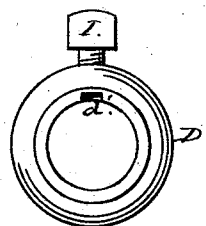


Fig. 4.



Attest;

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UNITED STATES PATENT OFFICE.

ALBERT J. SMART, OF GREENFIELD, MASSACHUSETTS, ASSIGNOR TO THE
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COMBINED DRILL AND COUNTERSINK.

SPECIFICATION forming part of Letters Patent No. 298,248, dated May 6, 1884.

Application filed December 31, 1883. (No model.)

To all whom it may concern:

Be it known that I, ALBERT J. SMART, a citizen of the United States, residing at Greenfield, in the county of Franklin and State of Massachusetts, have invented certain new and useful Improvements in Combined Drill and Countersink; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to that class of drills which are made use of in boring holes in metals or hard substances; and the nature thereof consists in combining with the drill a detachable and adjustable cutter for chamfering the edge of the holes cut by the drill.

It also consists in so arranging the removable cutter that one edge thereof rests in the groove or fluting of the drill, thereby strengthening the cutting-point of the cutter, and preventing the drill from turning.

It also consists in combining the cutter with a ring or collar provided with a set-screw, whereby the drill and the cutter are held firmly in position.

In the accompanying drawings, Figure 1 represents the countersink with the parts thereof combined and ready for use. Fig. 2 illustrates the hollow cylinder which forms a support for the drill-spindle. Fig. 3 is the countersink-cutter. Fig. 4 is the ring or collar.

The drill A, of any desired length, is provided with two longitudinal grooves, *b*, which are formed on its opposite sides, and the end thereof is ground to form the cutting-point, in the usual manner.

B is a hollow cylinder, having one of its ends beveled or chamfered to a proper angle. This chamfered or beveled edge is formed by turning a conical surface, *a*, and cutting away a portion thereof at *d*. The hollow cylinder B is provided with a hole or bore extending entirely through it from end to end, in order that a drill of any length can be passed through, and that the drill may be pushed back or drawn within the cylinder. A radial slot, E, is cut in the cylinder for the reception of the cutter H, which consists of a flat bar of steel, one end of which has the shape of an acute angle, and is ground in such a manner as to form a proper cutting-edge. When fitted in position, one edge of the cutter rests in a

groove of the drill, while the other end rests in a depression, *d'*, cut upon the interior of the ring D. The drill, the cutter, and the ring are held firmly together by means of the set-screw I, which, upon being turned down, presses on the edge of the cutter, which in turn presses upon the drill. As the edge of the cutter rests within the fluting of the drill, it is within the hole cut by the latter. This construction, therefore, not only holds the drill in position, but strengthens the point of the cutter and prevents it from breaking or crumbling.

The hollow cylinder or stock B carries the drill and also the cutter for countersinking, and its point has the same angle as the cutter, which allows the latter to be set for a large or thin chip. This stock may be held in position by the action of the set-screw I, or an additional screw may be made to work in a thread cut in the ring D, pass through a hole cut in the stock, and press upon the drill in such a manner as to hold it and the stock firmly in position. A sufficient portion of the point of the stock, as at *d*, should be cut away to allow the chips to free themselves with facility, and the longitudinal grooves *b b'* may be made to extend the entire length of the drill, so that it may be drawn fully out.

It is also to be noted that the countersinking-cutter H may be readily detached by loosening the screws I when it is desired to sharpen, remove, or replace it.

Having thus described my invention, I claim and desire to secure by Letters Patent of the United States—

1. The cutter, the ring or collar, having a depression for the reception of the edge of the cutter, the drill, the stock, and the set-screw, all combined, as and for the purposes described.

2. The combination of the drill, the detachable cutter, the edge of which rests within the groove or fluting of the drill, the ring or collar, the stock, and the set-screw, as and for the purposes described.

In testimony whereof I affix my signature in presence of witnesses.

ALBERT J. SMART.

Witnesses:

WILLIAM H. NIMS,
J. H. SANDERSON,
CHAUNCEY BRYANT.