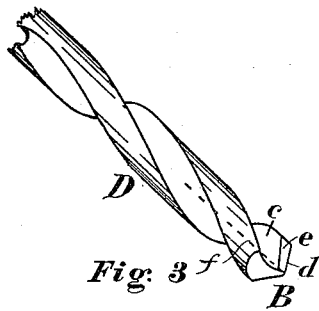
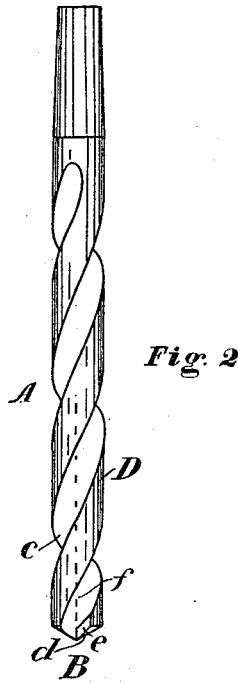
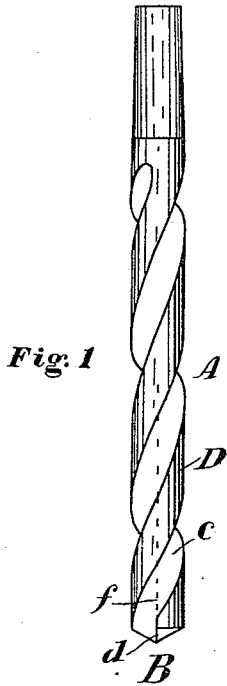


(No Model.)

J. E. MERRITT.
TWIST DRILL.

No. 451,896.

Patented May 5, 1891.



Witnesses:
Thomas J. Maher
James H. Kennedy

Inventor.
Joseph E. Merritt
by F. H. Lander
His. Atty.

UNITED STATES PATENT OFFICE.

JOSEPH E. MERRITT, OF BANGOR, MAINE, ASSIGNOR OF ONE-THIRD TO
ALBERT H. PARKER, OF SAME PLACE.

TWIST-DRILL.

SPECIFICATION forming part of Letters Patent No. 451,896, dated May 5, 1891.

Application filed September 5, 1890. Serial No. 364,084. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH E. MERRITT, a citizen of the United States, residing at Bangor, in the county of Penobscot and State of Maine, have invented a new and useful Improvement in Twist-Drills; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to an improvement in twist-drills; and it consists of a new and specially-constructed point or cutting end which increases their utility by enabling them to be used in all metals by preventing their jumping and breaking, as will hereinafter be fully set forth and explained.

Throughout the description reference is made to the accompanying drawings, in which—

Figure 1 represents an elevation of a twist-drill provided with my improvement and showing an end view of one of the cutting-edges. Fig. 2 is a similar view of a drill, showing the construction or form of one of the cutting-edges. Fig. 3 is a perspective view of part of a twist-drill, showing my improvement thereon.

Similar letters of reference refer to correspondingly-like parts throughout the different figures.

It is extensively known that twist-drills cannot be used for all purposes—such as enlarging previously-drilled holes, boring in brass, copper, Babbitt, and other soft metals—as they will jump ahead, cut uneven, and bury themselves sufficiently to cause destruction either to themselves or the work upon which they are used. It is therefore the object of my invention to obviate this difficulty by producing a new and improved cutting end or point upon the said drills, whereby they will be adapted for all metals. This is accomplished by taking an ordinary twist-drill A, having the usual beveled end B, and radially grinding the cutting-edges in a direction at or parallel with the center line *f* of the drill, so as to produce a flat surface *e* at an angle less than a right angle with the end. This construction keeps the cutting angle of

the point of the drill less than a right angle, prevents the drill from feeding as fast as the usual point, and prevents the cutting-edges from burying themselves and gouging into the work faster than the drill is fed.

In the ordinary point previously used on all twist-drills the spiral grooves *c*, caused by the twisting of the web *D*, meet the beveled end *B* at a very sharp acute angle, the consequence being that when the drills are used in soft metals the sharp knife-edges cut faster than they are fed, the reason being that the shaving as it leaves the work, endeavoring to follow the spiral grooves of the drill, tends to draw the point *B* ahead and screw the latter into the work, causing the jump which either stops the lathe, breaks the drill, spoils the work, or both, the principle being the same as that on which a wood-screw enters a piece of wood before a hole is bored.

By using my improved cutting-point, as hereinbefore described, all the previous difficulties of a twist-drill are entirely overcome, the utility of the drill is increased, and still a drill is retained that will free the chips from the cutting-edges without the necessity of withdrawing from the hole.

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

1. In a twist-drill, a cutting end having its cutting-edges ground in a direction at or parallel with the center line extending longitudinally through the drill, for the purpose described, and substantially as shown and set forth.

2. In combination with a drill having spiral grooves along its surface extending through the point or cutting end, an improved cutting end for the same having a flat surface *e* extending from the cutting edge or edges in a direction at or parallel with the longitudinal center line of the drill, forming an angle less than a right angle with the end of the drill, in the manner set forth, and substantially as shown and described.

JOSEPH E. MERRITT.

Witnesses:

THOMAS F. MAHER,
JAMES H. KENNEDY.