

J. C. RICHARDSON.
GIMLET AND TWIST DRILL.

No. 189,265.

Patented April 3, 1877.

Fig. 1.

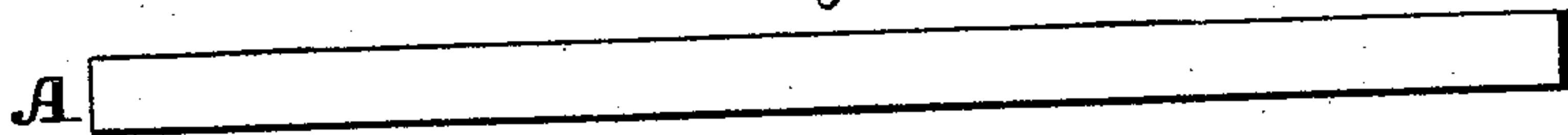


Fig. 2.

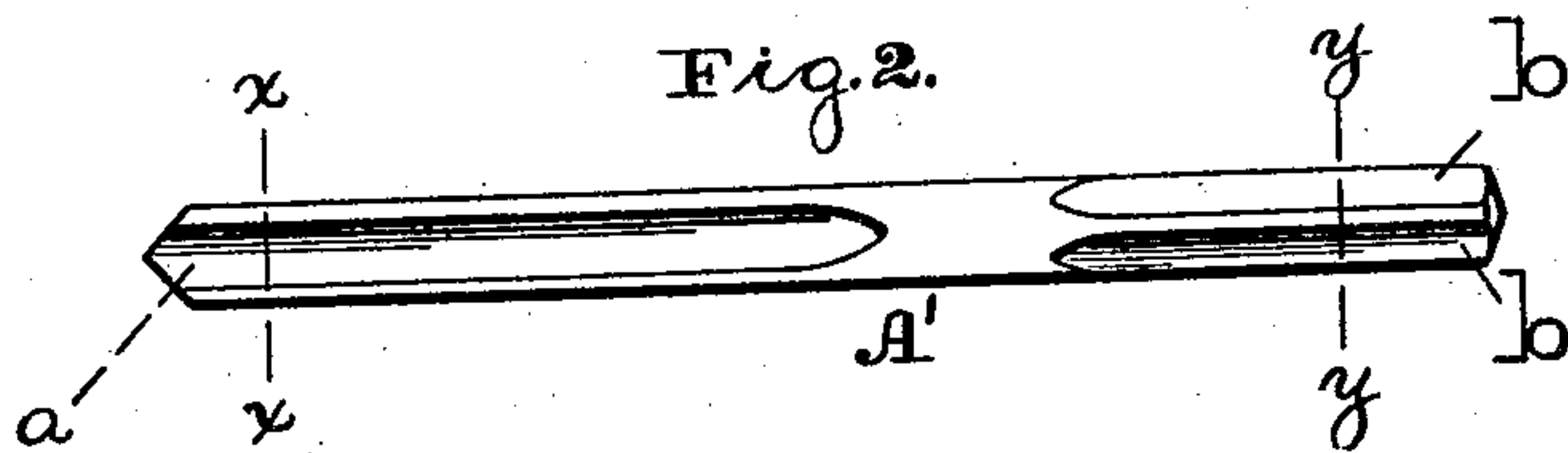


Fig. 5.

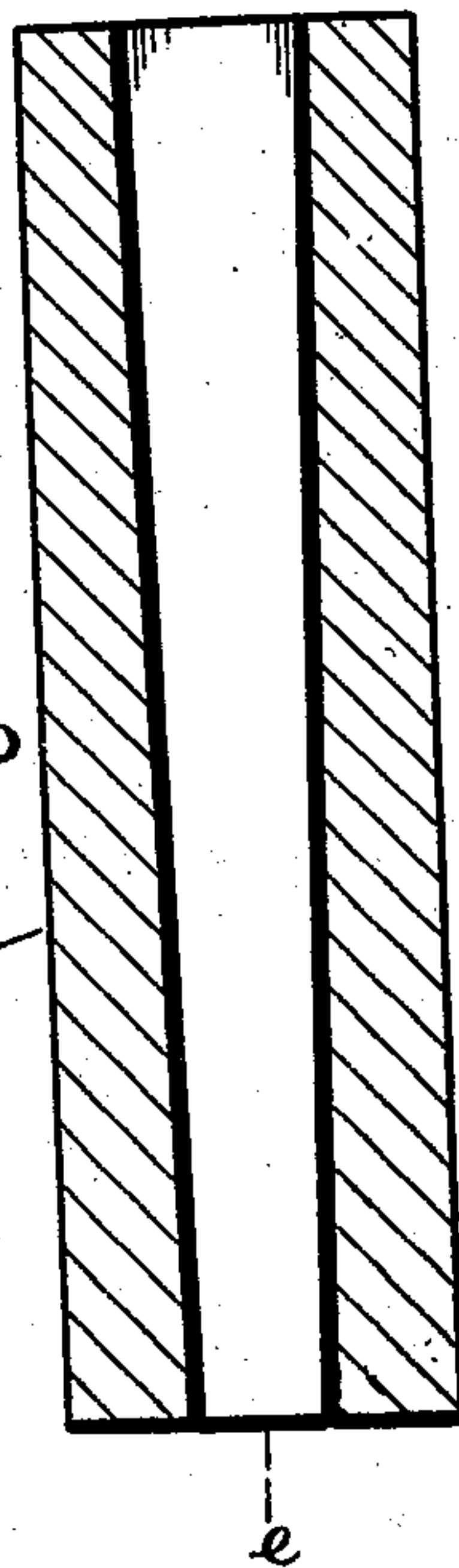


Fig. 3.



Fig. 4.

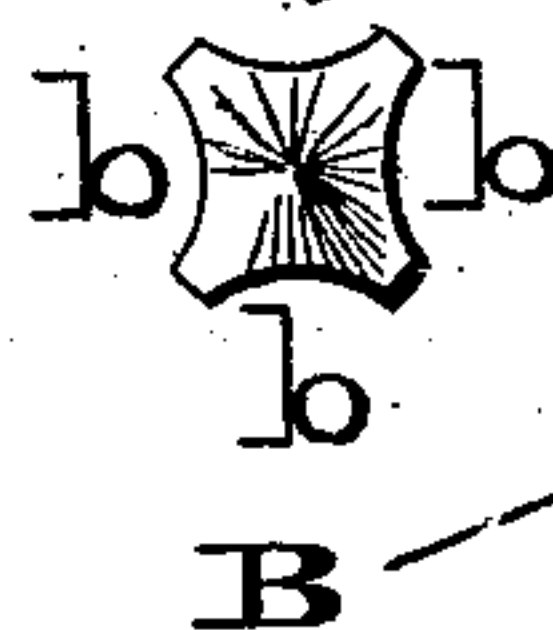


Fig. 6.

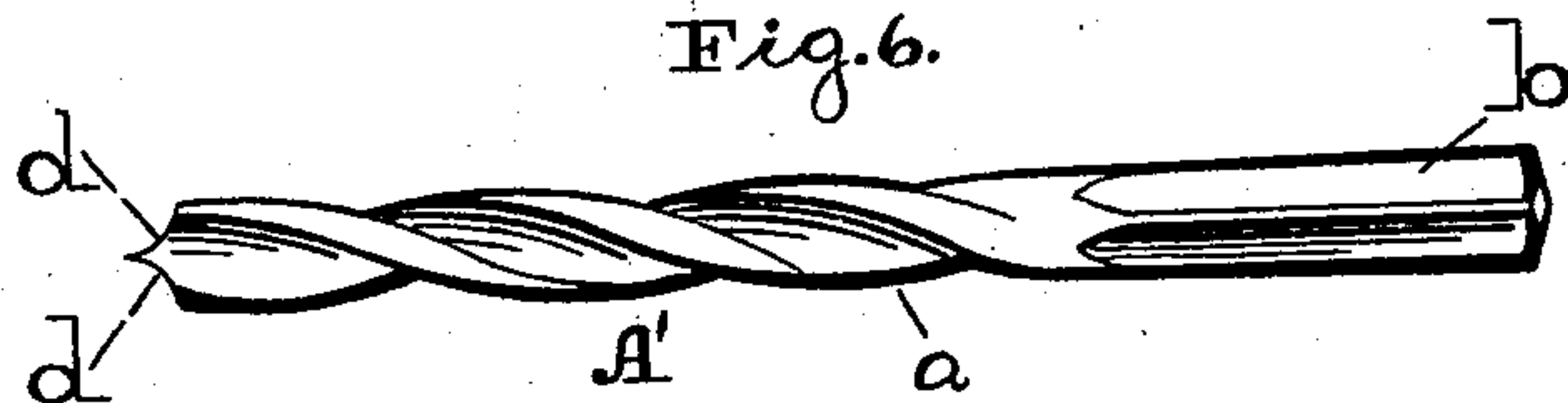


Fig. 7.

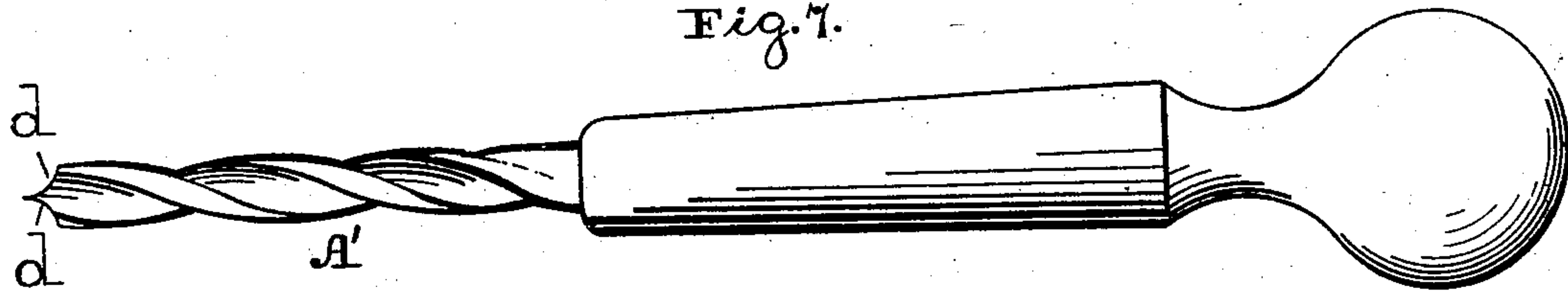
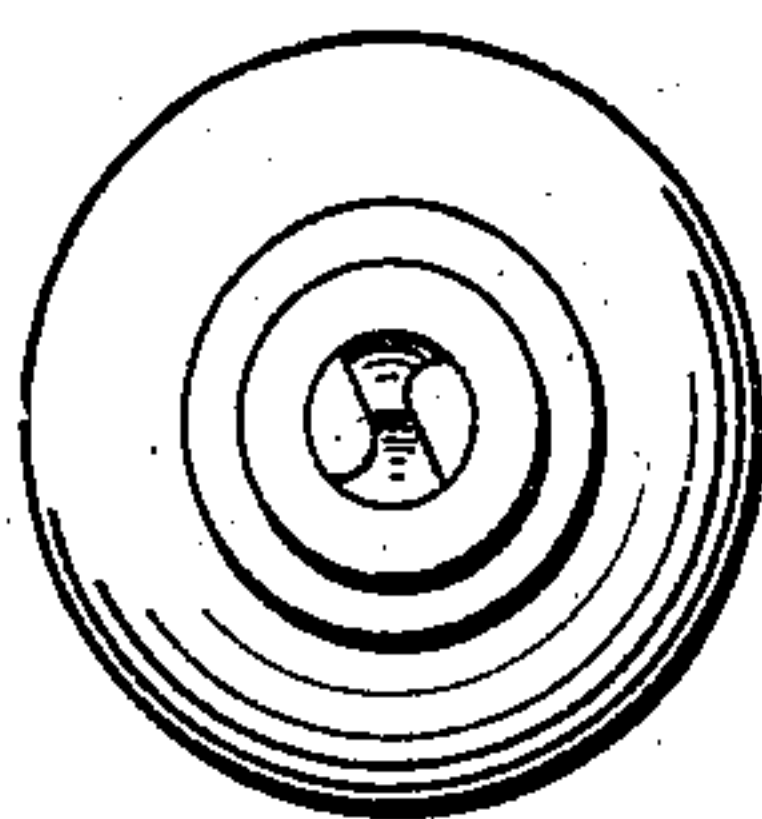


Fig. 8.



Witnesses:

Lewis F. Brown,
A. P. Grant.

Inventor:

Julius C. Richardson.

by

John A. Gieseler,
Attorney.

UNITED STATES PATENT OFFICE

JULIUS C. RICHARDSON, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR OF
ONE-HALF HIS RIGHT TO THOMAS HOOKER, OF SYRACUSE, N. Y.

IMPROVEMENT IN GIMLETS AND TWIST-DRILLS.

Specification forming part of Letters Patent No. 189,265, dated April 3, 1877; application filed
September 7, 1876.

To all whom it may concern:

Be it known that I, JULIUS C. RICHARDSON, of the city and county of Philadelphia and State of Pennsylvania, have invented a new and useful Improvement in the Manufacture of Gimlets and Twist-Drills; and I do hereby declare the following to be a clear and exact description of the nature thereof, sufficient to enable others skilled in the art to which my invention appertains to fully understand, make, and use the same, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a side view of the bar from which the tool is produced. Fig. 2 is a side view, showing the first operation to which the bar is subjected. Fig. 3 is a section in line *xx*; and Fig. 4, a section in line *yy*, Fig. 2. Fig. 5 is a section of the die employed in the twisting operation. Fig. 6 is a view of the finished shank. Fig. 7 is a similar view, the handle being applied. Fig. 8 is an end view.

Similar letters of reference indicate corresponding parts in the several figures.

My invention consists in an improvement in the manufacture of gimlets and twist-drills from grooved blanks by twisting the blank while inclosed, except at its two ends, within a tubular die, the walls of which limit and graduate the diameter of the twist, whereby a superior tool will be produced at small cost.

Referring to the drawings, A represents a bar of metal, constituting the blank. This bar is placed in a die and subjected to the action thereof, the die having a rounded face, with longitudinal depressions at opposite sides or ends, so that there will be formed in the bar grooves *a* at one portion of the length of the bar or the stock, and grooves *b* at the opposite portion or tang, and the end of the stock will be pointed, the bar being cut off at the same operation the necessary length for the tool.

The bar A', as thus forged, is removed from the die, and the fins are trimmed therefrom. The bar is then ground concentric, and the grooves *a* are polished, thus sharpening the presented edges of the grooves, so that, in these respects, no subsequent manipulation is necessary.

The bar, as now produced, is then inserted

in a die, B, Fig. 5, the same consisting of a die having a tapering opening, *e*, the walls of which have an unbroken or smooth surface. The pointed end of the pointed and grooved bar is then clamped, so as to be held immovably, and the other end is grasped by a proper implement and turned, so that the bar will be twisted in the opening *e* of the die B, the result being the twisted stock shown in Figs. 6 and 7, after which the tool will be tempered.

The point of the tool is then ground, so as to form concave faces *d* at the point, thus finishing the operations.

It will be seen that the tool may be quickly, cheaply, and uniformly constructed, and the product will be of superior quality.

During the operation of twisting the stock the walls of the opening *e* of the die B confine the stock, so that the surface of the twisted stock will be uniform throughout, without irregularities, bulges, or swells, the tapering form of the opening being imparted to the stock.

The concave faces *d* of the point of the tool leave a well-defined point, which may be readily made to penetrate wood, and said faces follow the point so gradually that they will not split the wood, and the same is true of the tapering form of the stock.

I prefer to employ a handle, (shown in Fig. 7,) the same consisting of a long and tapering body, into which the tang is inserted, and a bulb, against which the palm of the hand will come in contact.

In the formation of twist-drills the grooves *b* in the tang or butt portion of the bar are not forged, they not being requisite.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

The improvement in the manufacture of gimlets and twist-drills from grooved blanks, such as described—namely, twisting the blank while inclosed, except at the two ends, within a tubular die, the walls of which limit and graduate the diameter of the twist, as set forth.

J. C. RICHARDSON.

Witnesses:

JOHN A. WIEDERSHEIM,

H. E. HINDMARSH.