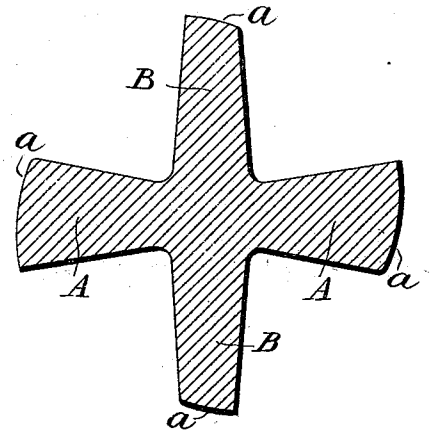
(No Model.)

W. F. BEARDSHAW.

TWIST DRILL.

No. 554,642. Patented Feb. 18, 1896.



WITNESSES.
L. G. Fairgrieve
Paul Orsteens

INVENTOR.
William F. Beardshaw
by Foster & Freeman
Attorneys

UNITED STATES PATENT OFFICE.

WILLIAM FREDERICK BEARDSHAW, OF SHEFFIELD, ENGLAND.

TWIST-DRILL.

SPECIFICATION forming part of Letters Patent No. 554,642, dated February 18, 1896.

Application filed September 21, 1895. Serial No. 563,237. (No model.) Patented in France November 14, 1892, No. 225,544; in Belgium November 18, 1893, No. 107,202, and in England March 19, 1894, No. 5,698.

To all whom it may concern:

Be it known that I, WILLIAM FREDERICK BEARDSHAW, a subject of Her Majesty the Queen of Great Britain, residing at Sheffield, in the county of York, England, have invented a certain new and useful Improvement in Twist-Drills, (for which I have obtained Letters Patent in Great Britain under date of March 19, 1894, No. 5,698; in France under date of November 14, 1892, No. 225,544, and in Belgium under date of November 18, 1893, No. 107,202,) of which the following is a specification.

It has heretofore been proposed to manufacture twist or straight drills of bars of steel of various cross-sections.

The present invention relates to that class of drill in which four radial arms project from a common center, and according to the present invention it is proposed to roll or forge said bars with two opposite arms increasing in diameter outwardly and two opposite arms decreasing in diameter outwardly. The bar so rolled or forged is then twisted, sharpened and tempered in the well-known manner.

The accompanying drawing is a cross-section of the bar prior to twisting and shows the two opposite arms A A increasing in diameter or thickness outwardly and the two opposite arms B B decreasing in diameter or thickness outwardly. In both sets of arms it is preferable to remove or "back" a small portion at *a*, as is customary in twist-drills.

A drill constructed from a bar as above described is more readily sharpened than drills of the ordinary form, while in using same the arms, having a diameter increasing outwardly, do the cutting, as in an ordinary drill, while the arms having a diameter decreasing outwardly give stiffness, as in a reamer.

What I claim is—

1. A drill formed from a bar having two opposite arms of increasing thickness outwardly, and two opposite arms of decreasing diameter outwardly, all of said arms radiating from a common center or core, substantially as described.

2. A blank for the manufacture of drills having two opposite arms of increasing thickness outwardly and two opposite arms of decreasing diameter outwardly substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

WILLIAM FREDERICK BEARDSHAW.

Witnesses:

FRANK M. CLARK,

CHR. I. BEARDSHAW.