No. 837,490. PATENTED DEC. 4, 1906.

A. L. NELSON.

BIT.

APPLICATION FILED MAR. 10, 1906.

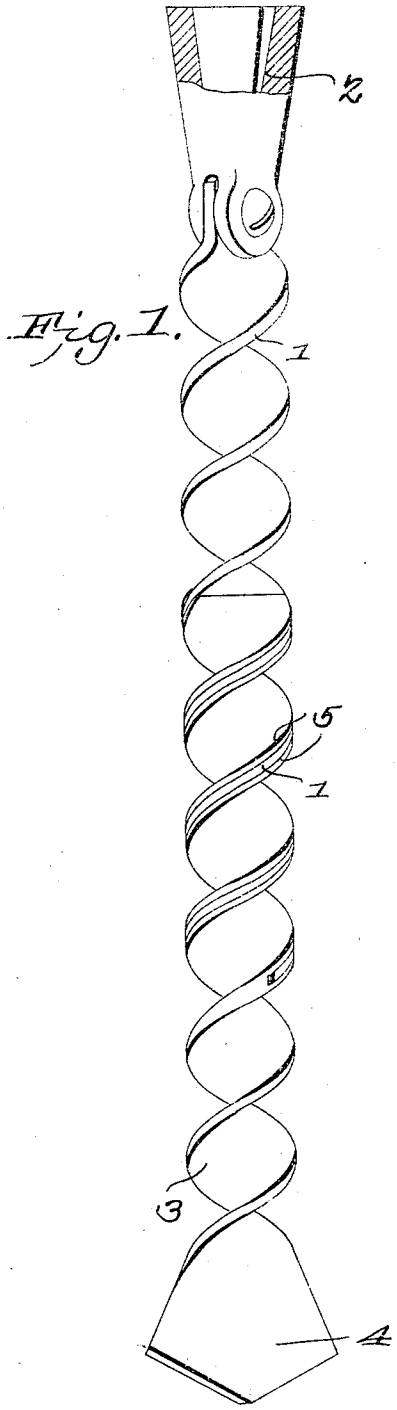
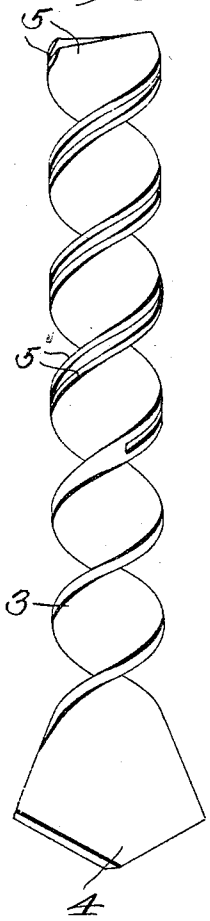


Fig. 1.

Fig. 2.



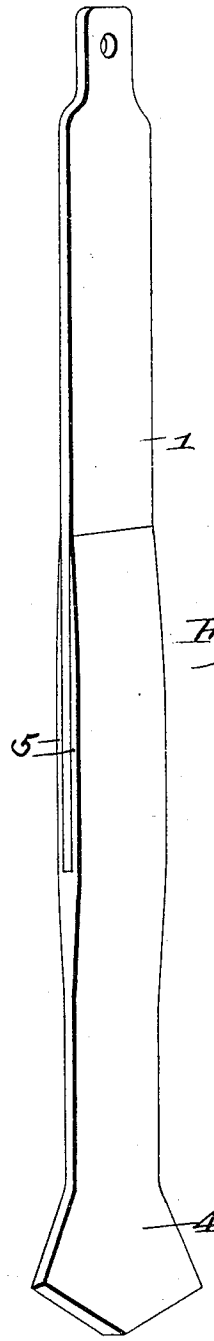


Fig. 3.

WITNESSES:

E. G. Stewart

Hubert D. Lawson.

Axel L. Nelson, INVENTOR.

By C. A. Snow & Co.

ATTORNEYS

UNITED STATES PATENT OFFICE.

AXEL L. NELSON, OF OTTUMWA, IOWA.

BIT.

No. 837,490. Specification of Letters Patent. Patented Dec. 4, 1906.

Application filed March 10, 1906. Serial No. 305,392.

To all whom it may concern:

Be it known that I, AXEL L. NELSON, a citizen of the United States, residing at Ottumwa, in the county of Wapello and State of Iowa, have invented a new and useful Bit, of which the following is a specification.

This invention relates to bits for use in mining coal and the like; and its object is to provide a twist-drill having a detachable bit which can be readily connected thereto without utilizing any fastening means and which can be as readily removed for the purpose of replacing or sharpening it.

The invention consists of a bit having spiral arms extending from one end and spaced apart the same distance throughout their lengths, said arms being adapted to screw upon a twist-drill.

The invention also consists of certain other novel features of construction and combinations of parts, which will be hereinafter more fully described, and pointed out in the claims.

In the accompanying drawings is shown the preferred form of the invention.

In said drawings, Figure 1 is an elevation of a drill with a point thereon. Fig. 2 is a detail view of the point detached, and Fig. 3 is a view of the blank of the drill and point as they appear before twisting and showing the relation of the parts.

Referring to the figures by numerals of reference, 1 is a twist-drill such as ordinarily used in coal-mining, the same having a socket 2 at one end whereby the drill can be readily connected to the shank of its actuating mechanism. In connection with this drill is used a bit 3, which is twisted for a portion of its length and terminates in a point 4. The other end of the bit has arms 5 extending therefrom, which are twisted throughout their lengths to form spirals, which are spaced apart the same distance from one end to the other. These arms 5 are adapted to be placed at opposite sides of the end of drill 1, and by turning said drill the same will screw between the arms 5, so that the bit 3 will form a continuation of the drill and with the same contour. The free ends of the arms 5 are preferably made very thin, so that no abrupt shoulder will be produced upon the faces of the drill 1.

In operating the drill its tendency is to screw into the bit 3, and therefore there is no danger of the two parts becoming detached through ordinary usage. The only way to detach the parts is to unscrew the drill from the bit. In view of the fact that the two parts are screwed together it is unnecessary to employ any means for fastening them after they have once been placed in engagement. The arms 5 can either be formed with or welded to the bit, or, if preferred, they can be securely riveted or otherwise fastened to the bit.

By providing a twist-drill with a detachable twist, such as herein described, the life of the drill is considerably prolonged, because the bit can be easily replaced should it be broken or worn.

Instead of arranging the arms 5 upon the bit 3, as shown in the drawings, they can be formed with the drill 1, so as to embrace the bit. This construction is so obvious that it is not deemed necessary to illustrate it.

What is claimed is—

1. A twist-bit for twist-drills, said bit having a point at one end and spiral arms at the other end spaced apart a uniform distance throughout their lengths to form a spiral slot from edge to edge of the bit.

2. A twist-bit having a point at one end and spiral arms extending from its other end, said arms being spaced apart a uniform distance throughout their lengths and conforming in contour to the surface of a twist-drill to form a spiral slot from edge to edge of the bit.

3. The combination with a twist-drill of uniform diameter throughout its twisted portion; of a detachable bit embracing and screwed upon the twisted portion of the drill.

4. The combination with a twist-drill of uniform diameter throughout its twisted portion; of a bit, and spiral arms extending from the bit and adapted to embrace and screw upon the twisted portion of the drill.

5. The combination with a twist-drill uniform throughout its twisted portion; of a twist-bit having a point at one end thereof and twisted arms extending from the bit and spaced apart a uniform distance throughout their lengths to form a spiral slot from edge to edge of the bit, said arms adapted to receive the twisted portion of the drill therebetween and to conform to the contour thereof.

6. The combination with a twist-drill member and a twist-bit member, said members being of uniform diameter throughout their twisted portion; of twisted arms extending from one of the members and forming a spiral slot from edge to edge adapted to embrace the other member.

7. The combination with a twist-drill

member and a twist-bit member, said members being of uniform diameter; of spiral arms extending from one of the members and forming a spiral slot therebetween from edge to edge adapted to receive the twisted portion of the other member, and said arms having beveled ends.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

AXEL L. NELSON.

Witnesses:

MERRILL C. GILMORE,

G. F. TULLIS.