

No. 713,067.

Patented Nov. 11, 1902.

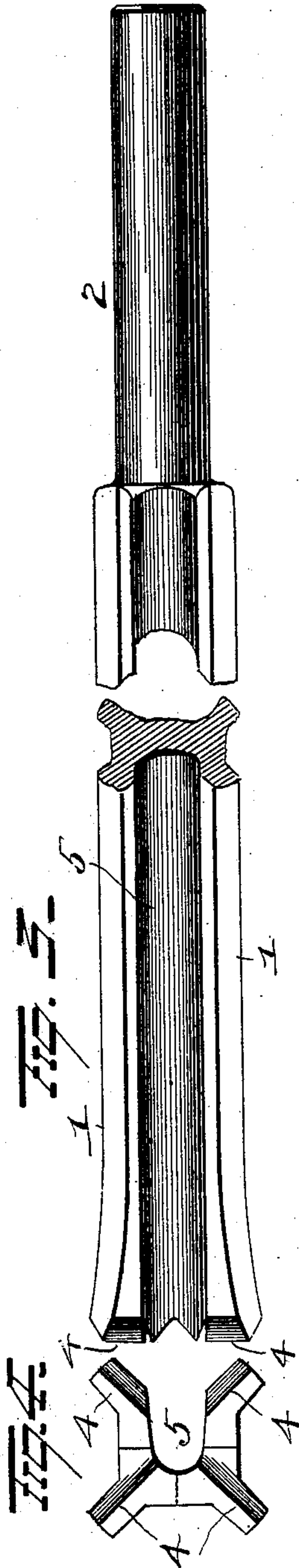
E. A. COWLES.

BIT.

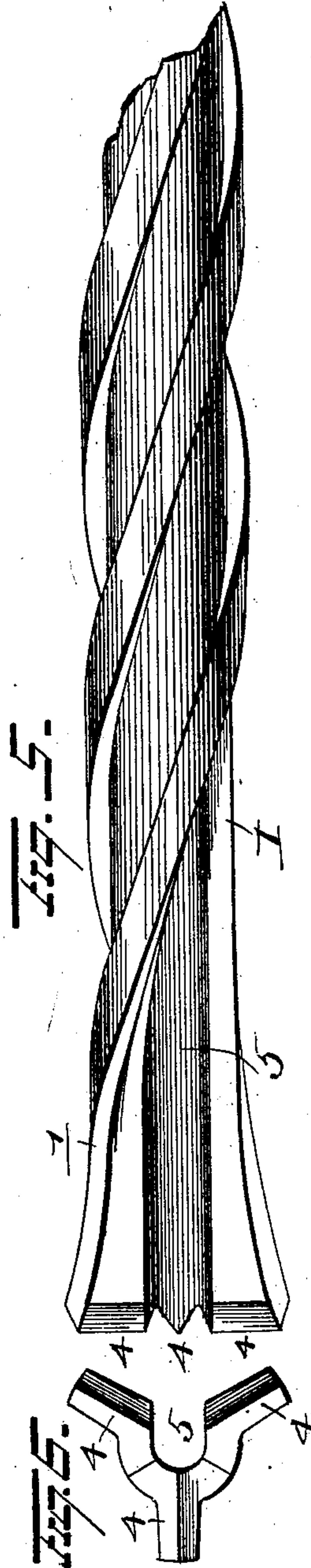
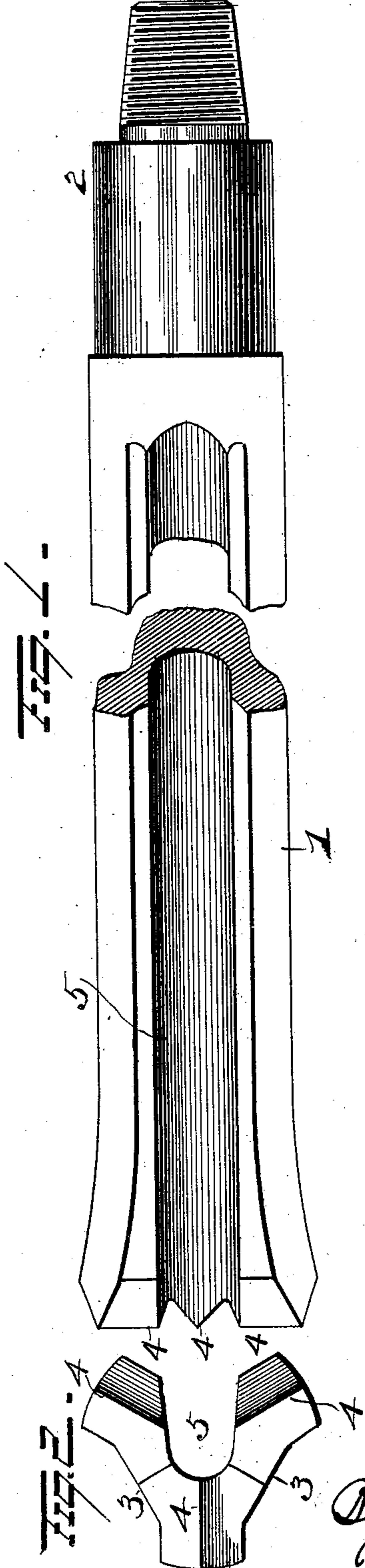
(Application filed Sept. 24, 1901.)

(No Model.)

2 Sheets—Sheet 1.



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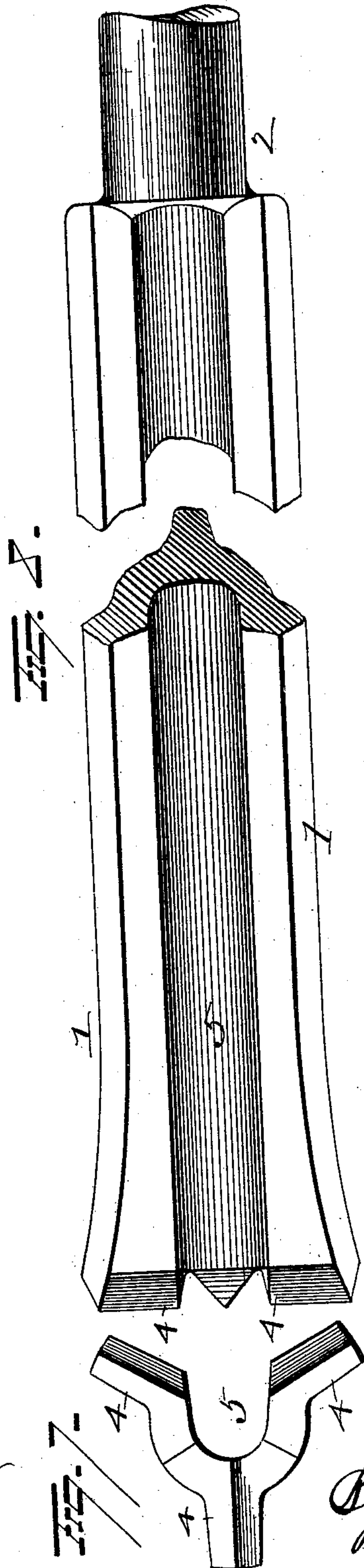
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(Application filed Sept. 24, 1901.)

2 Sheets—Sheet 2.

(No Model.)



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UNITED STATES PATENT OFFICE.

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BIT.

SPECIFICATION forming part of Letters Patent No. 713,067, dated November 11, 1902.

Application filed September 24, 1901. Serial No. 76,397. (No model.)

To all whom it may concern:

Be it known that I, EDWARD A. COWLES, a resident of Franklin, in the county of Venango and State of Pennsylvania, have invented certain new and useful Improvements in Bits; 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 improvements in bits, and more particularly to bits for drilling through rock and earth, the object of the invention being to provide an improved bit of this character which will effectually cut the rock and remove the core or broken particles.

With this object in view the invention consists in certain novel features of construction and combinations and arrangements of parts, as will be more fully hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a view in elevation illustrating one form of my invention. Fig. 2 is a view of its cutting end, and Figs. 3, 4, 5, 6, 7, and 8 are views illustrating modified forms of my invention.

1 represents the main portion of the bit, provided at one end with a suitable shank 2 for its attachment to the drilling apparatus. The bit is of a general triangular shape in cross-section and made with longitudinal flat depressions 3 on two sides and with three sharp radially-disposed cutting edges 4 at its end. In the third side of the triangular bit a deep longitudinal groove 5 is provided. This groove 5 is widest at the outside of the bit and tapers to its inner portion, where it is made semi-circular or concave and projects inward beyond the center of the bit, so as to form a central receptacle for the core or broken particles of stone and earth cut by the bit, and the outer face of the extremes of the bit are curved concentric with the center thereof. This bit may be made four-sided instead of three, as shown in Figs. 3 and 4, the longitudinal groove 5 being provided in one of its sides, while in Figs. 7 and 8 I have shown a three-sided bit in which the longitudinally-depressed sides are made convex instead of

flat. The sizes of these bits can be varied to suit the uses to which they are put—as, for instance, in cutting into solid stone I employ a much smaller bit, such as shown in Figs. 3, 4, 6, and 7, while in constructing a well I employ a much larger bit, preferably of the style shown in Figs. 1 and 2.

In Figs. 5, 6 I have shown a twist drill or bit. While a twist to the drill or bit is not essential, it is in some cases desirable, as the spiral form of the longitudinal groove due to the rotary motion of the drill aids materially in the elevation and removal of the drillings.

Various other slight changes might be resorted to in the general form and arrangement of the several parts described without departing from the spirit and scope of my invention, and hence I would have it understood that I do not wish to limit myself to the precise details set forth, but consider myself at liberty to make such slight changes and alterations as fairly fall within the spirit and scope of my invention.

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

1. A bit provided with a series of radial ribs having cutters at their lower ends, said bit having a groove between two of said ribs extending upwardly from the lower ends thereof, said groove having approximately parallel walls from end to end and having a depth to extend beyond the longitudinal axis of the bit and form a core-receptacle having a continuous lateral opening.

2. A bit having several radially-disposed cutting edges and depressed sides with interposed ribs, and a central longitudinal groove projecting inward beyond the axis of the bit and extending from its cutting end along one side thereof.

3. A bit having depressions in its side forming intermediate ribs, a radial cutter at the lower end of each rib, and said bit having a longitudinal groove in one side between two of said ribs, said groove having sufficient depth to extend beyond the axis of the bit.

4. A bit provided at its lower end with a series of cutting edges, and having its longitudinal central portion removed, forming a lon-

gitudinal groove open at one side of the bit
and having a portion coincident with the axis
of the bit to form a core-receptacle, the other
sides of the bit having depressions terminat-
5 ing at their lower ends between the said cut-
ting edges.

In testimony whereof I have signed this

specification in the presence of two subscrib-
ing witnesses.

EDWARD A. COWLES.

Witnesses:

BRYAN H. OSBORNE,
WM. B. GRIFFEN.