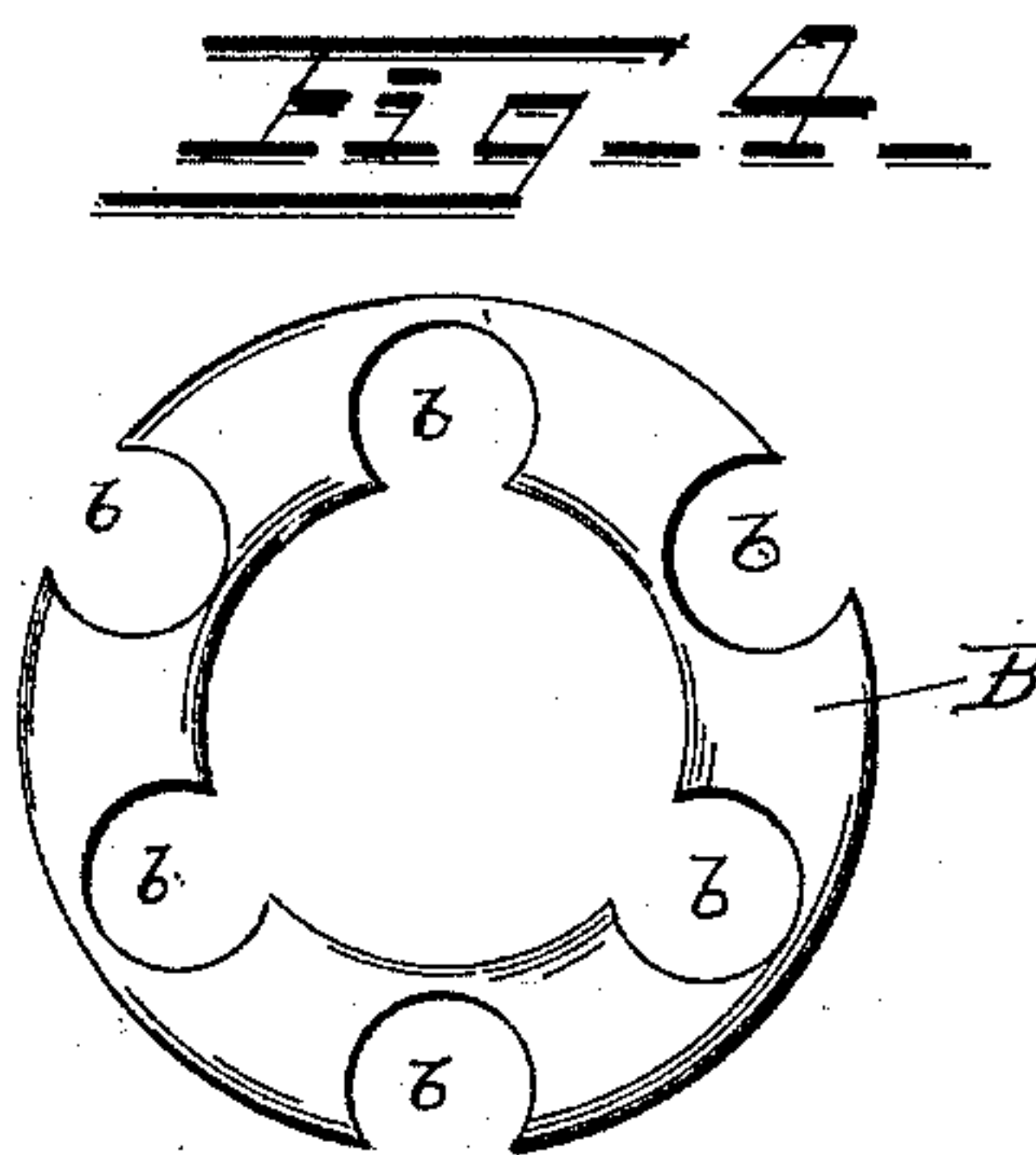
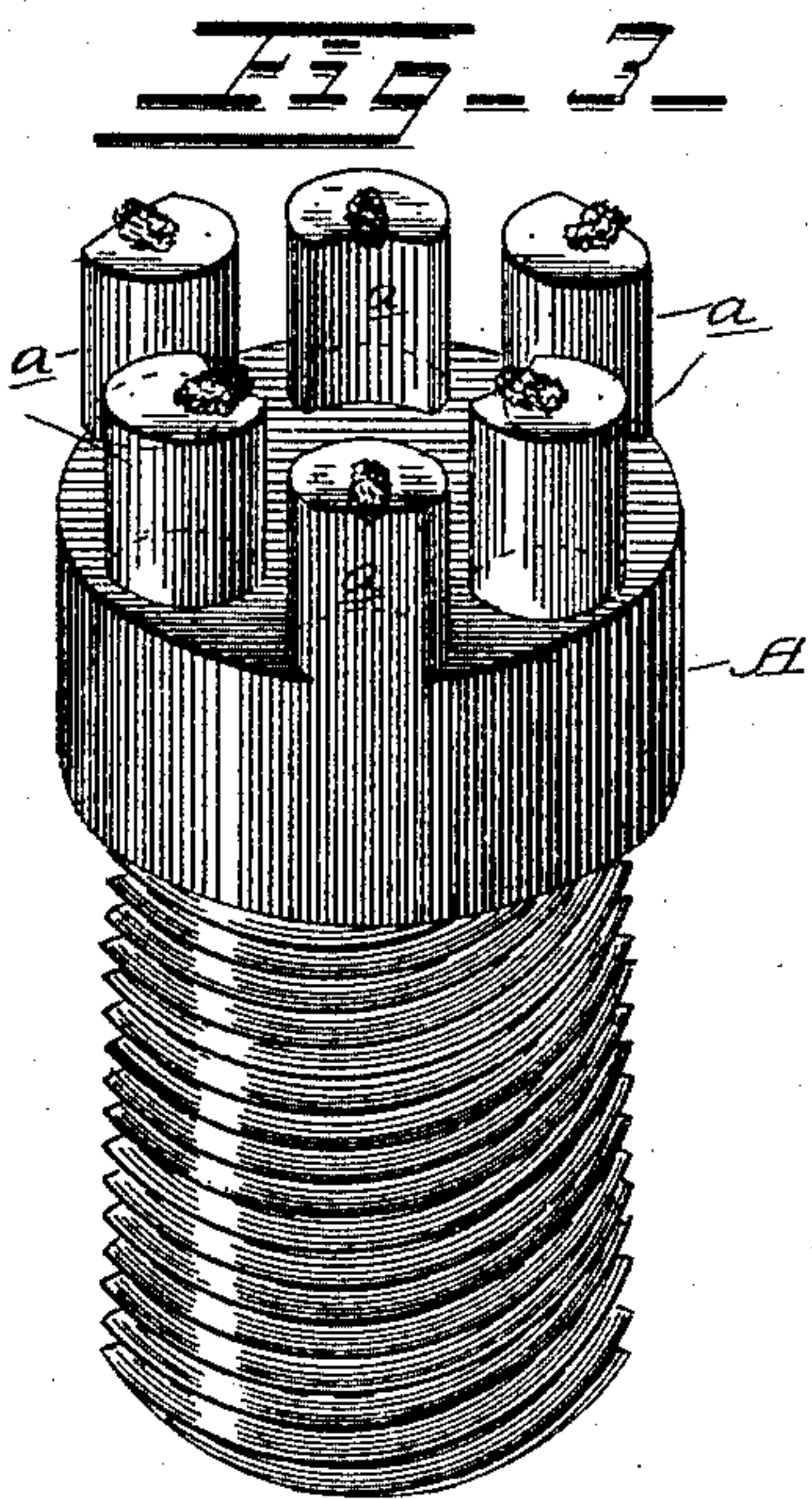
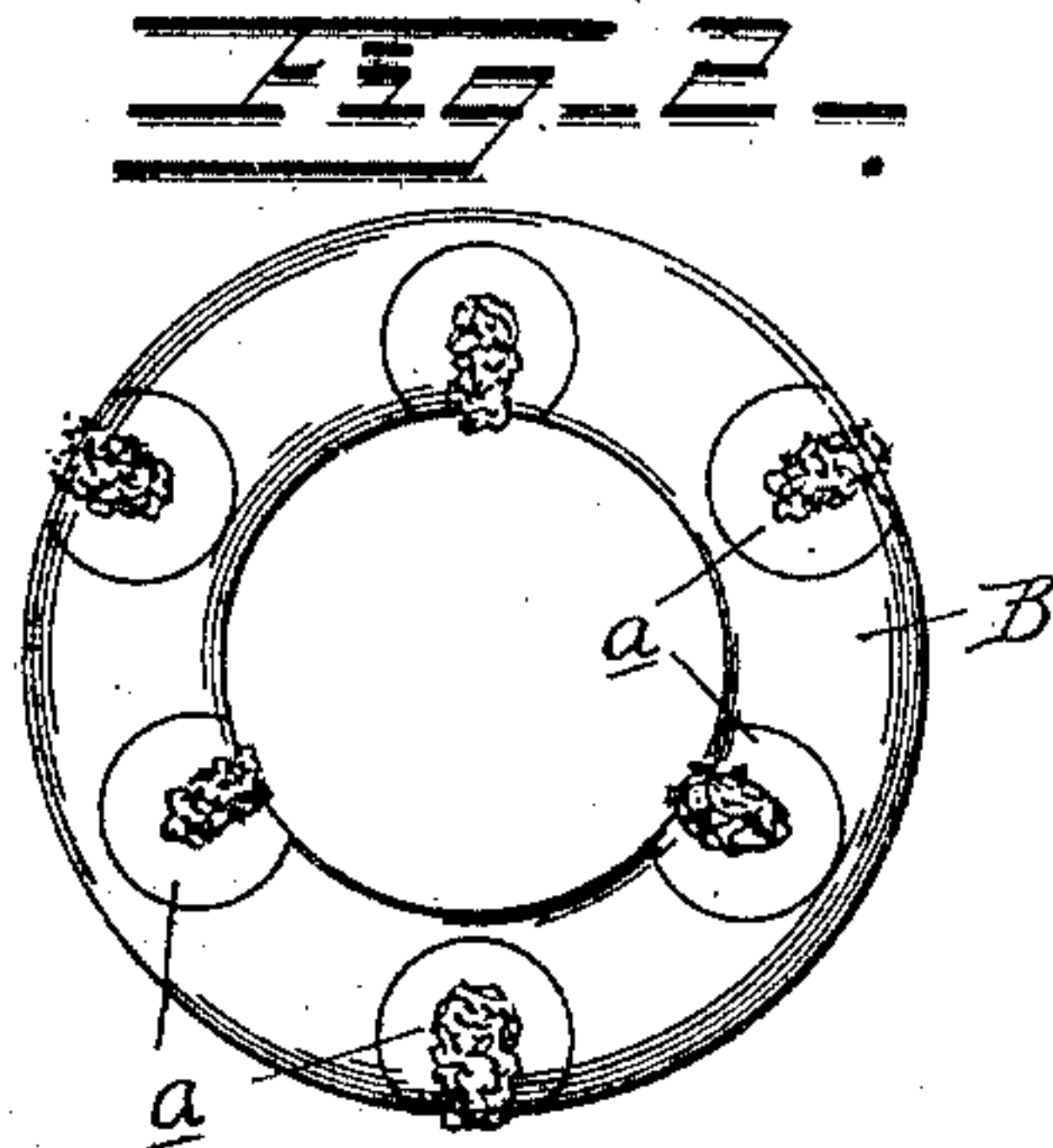
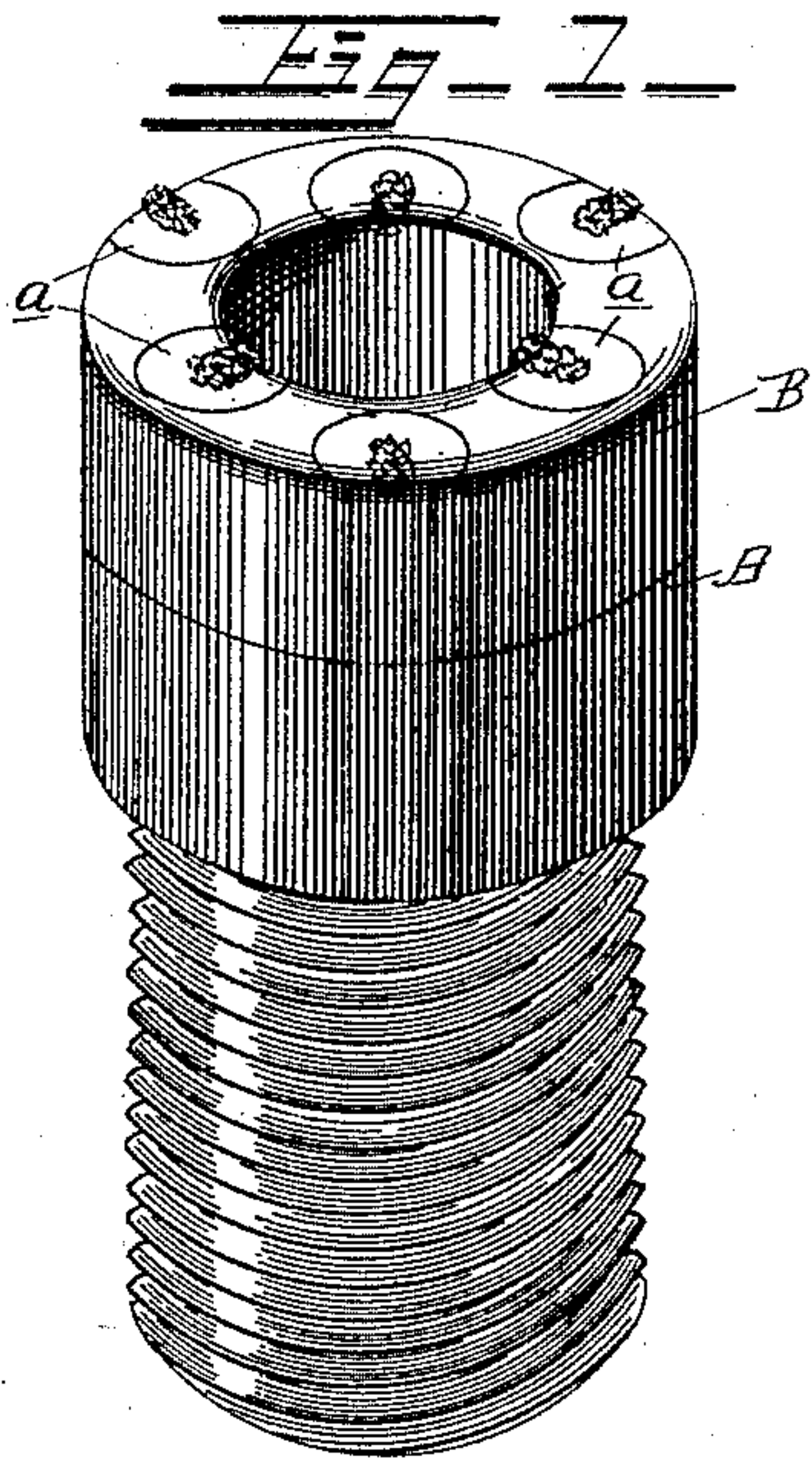


(No Model.)

E. L. SHARPNECK & W. G. SHEDD.  
SECURING CARBONS.

No. 473,479.

Patented Apr. 26, 1892.



WITNESSES  
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# UNITED STATES PATENT OFFICE.

ELIEL L. SHARPNECK, OF DENVER, AND WILLIAM G. SHEDD, OF LEADVILLE,  
COLORADO.

## SECURING CARBONS.

SPECIFICATION forming part of Letters Patent No. 473,479, dated April 26, 1892.

Application filed January 15, 1889. Renewed November 2, 1891. Serial No. 410,659. (No model.)

*To all whom it may concern:*

Be it known that we, ELIEL L. SHARPNECK, residing at Denver, in the county of Arapahoe, and WILLIAM G. SHEDD, residing at Leadville, in the county of Lake, State of Colorado, citizens of the United States, have invented certain new and useful Improvements in Means for Securing Carbons, of which the following is a specification, reference being had therein to the accompanying drawings.

This improvement relates to that class of tools in which carbons, black diamonds, or similar articles are set in soft metal inclosed or partially inclosed in a harder metal; and the invention consists, mainly, in a tool having carbons or their equivalents set in projections formed integral with the body of the holder and protected by a shield of harder metal.

In carrying out our invention for drilling purposes we prefer to use the device herein-after more fully described, and illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of a carbon-holder constructed according to our improvement ready for use; Fig. 2, an end view of the same; Fig. 3, a perspective view of the main portion of the bit without the shield, and Fig. 4 a plan of the shield detached.

Referring now to the details of construction, A indicates the bit, (of tubular form in this instance,) provided with a series of partially-cylindrical projections *a*, generally set in two concentric circles. The projections are preferably formed on the bit by means of a hollow tool in a manner well understood by machinists and preferably after the diamonds or carbons have first been embedded in the bit; but they may be formed on or attached to the bit in any convenient way. In these projections the carbons or diamonds are set in the usual manner, preferably before the intervening soft metal of the bit is cut away, as above set forth, and over these projections a hard-metal shield B is placed, having recesses *b* to receive the projections *a*. This shield is preferably made of the best drill-steel, very highly tempered, and thus makes a perfect protection to the softer metal in which the diamonds are embedded, so that the carbons are more securely held in place and their loss prevented and the trouble of frequently resetting and the loss of time

spent in resetting them under the old way of setting is avoided. The shield may be fastened on in any convenient way; but we prefer to make it tightly fit the projections and then drive or force it on. Should it be too loose to hold on in this way, one or more of the soft-metal projections may be slightly "upset" by a light blow on a punch or hard chisel on the side near the joint between the hard and soft metals.

While we have referred to carbons or diamonds, it is evident that other hard stones or substances—such as Brazilian borts, points, &c.—may be used in the same manner and for the same purpose.

We do not of course limit ourselves to the use of bits for drilling, but our invention may be applied to saws or other devices for cutting, boring, or dressing purposes, or to any purpose to which such carbons or other hard substances may be applied.

What we claim as new is—

1. A tool having a series of carbons securely fastened in and held in immediate contact with soft-metal projections formed integral with said tool and a shield of harder metal partially inclosing said soft-metal projections and protecting them from wear, substantially as described.

2. A tool having a series of projections arranged at different distances from its center, carbons set in the inner and upper faces of the inner projections and in the outer and upper faces of the outer projections, and a hardened shield arranged on the sides of the projections opposite the carbons and partially surrounding the same, substantially as described.

3. A bit A, having the carbons set in projections *a* of soft metal, arranged in multiplex circles, and a ring shield or protector B, having recesses *b* formed in opposite sides of the body of said ring and fitting said projections, all constructed and arranged substantially as described.

In testimony whereof we affix our signatures, in presence of two witnesses, this 10th day of January, 1889.

ELIEL L. SHARPNECK.  
WILLIAM G. SHEDD.

Witnesses:

CHARLES B. SHEDD,  
JOHN S. FIELD.