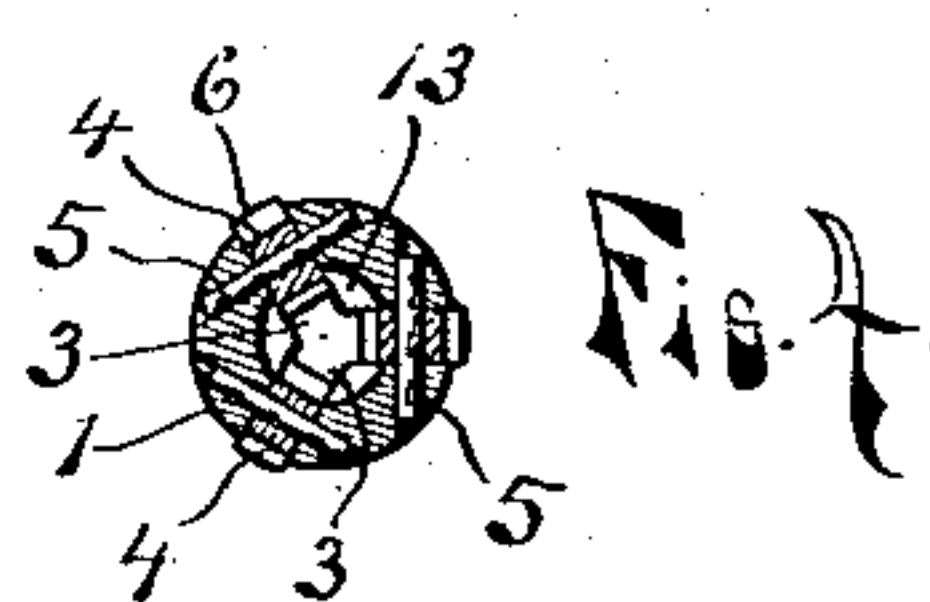
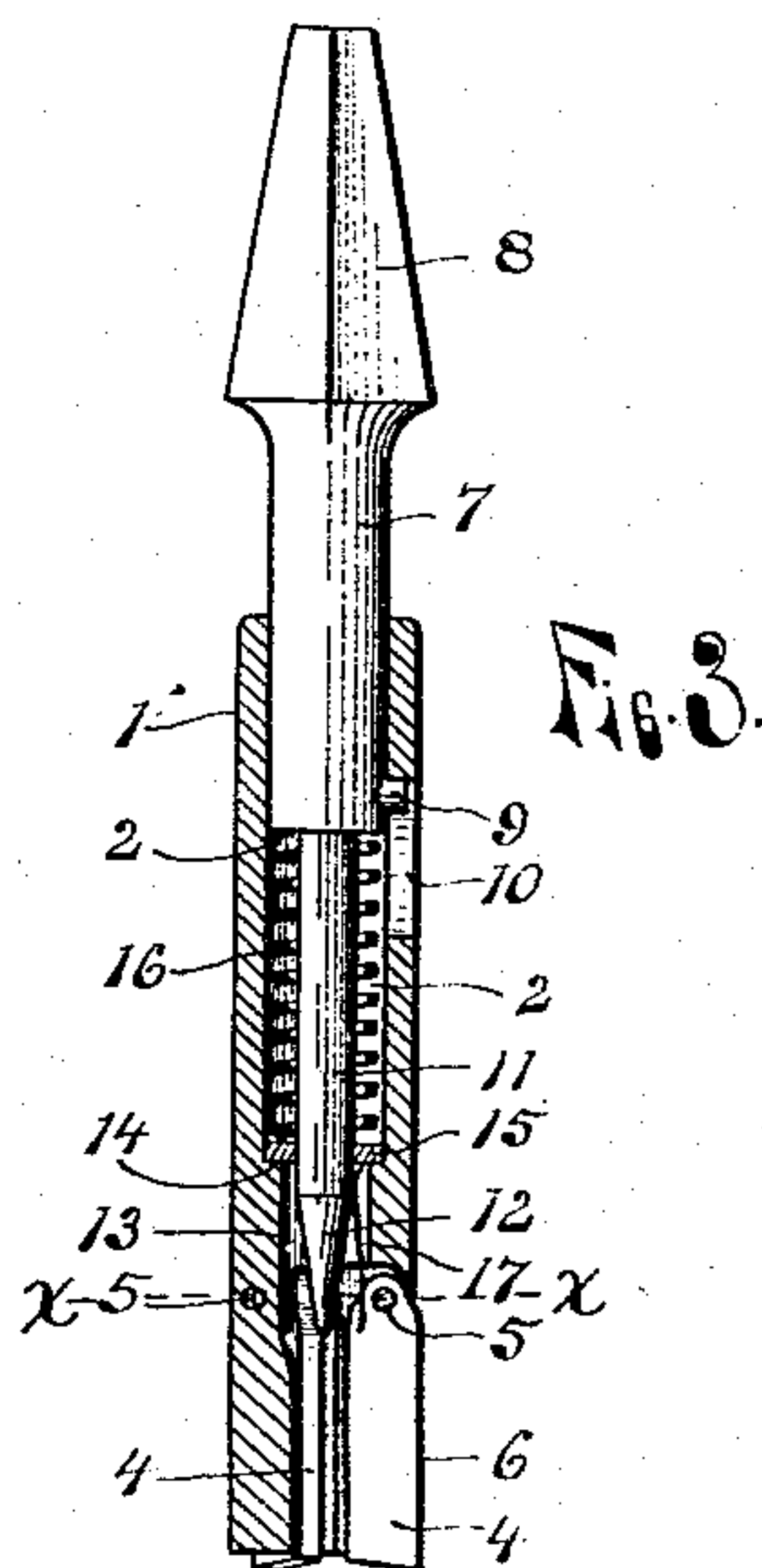
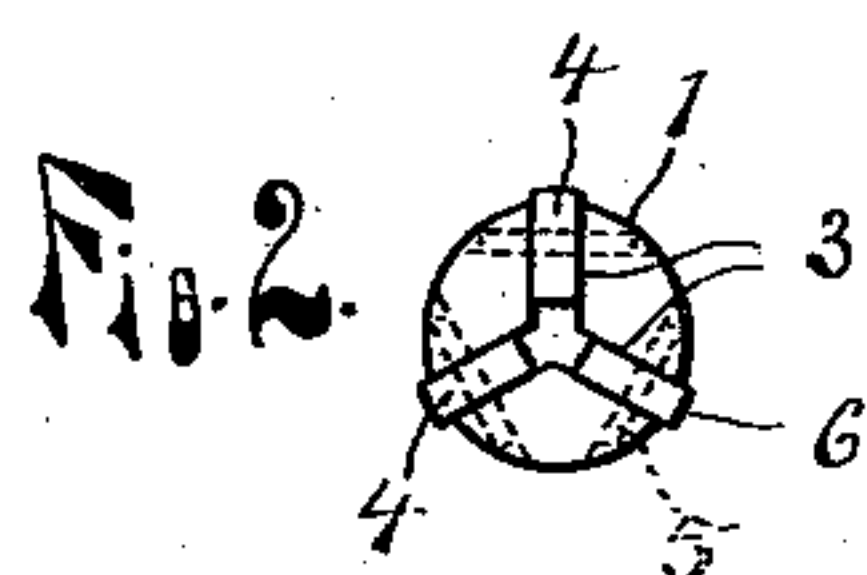
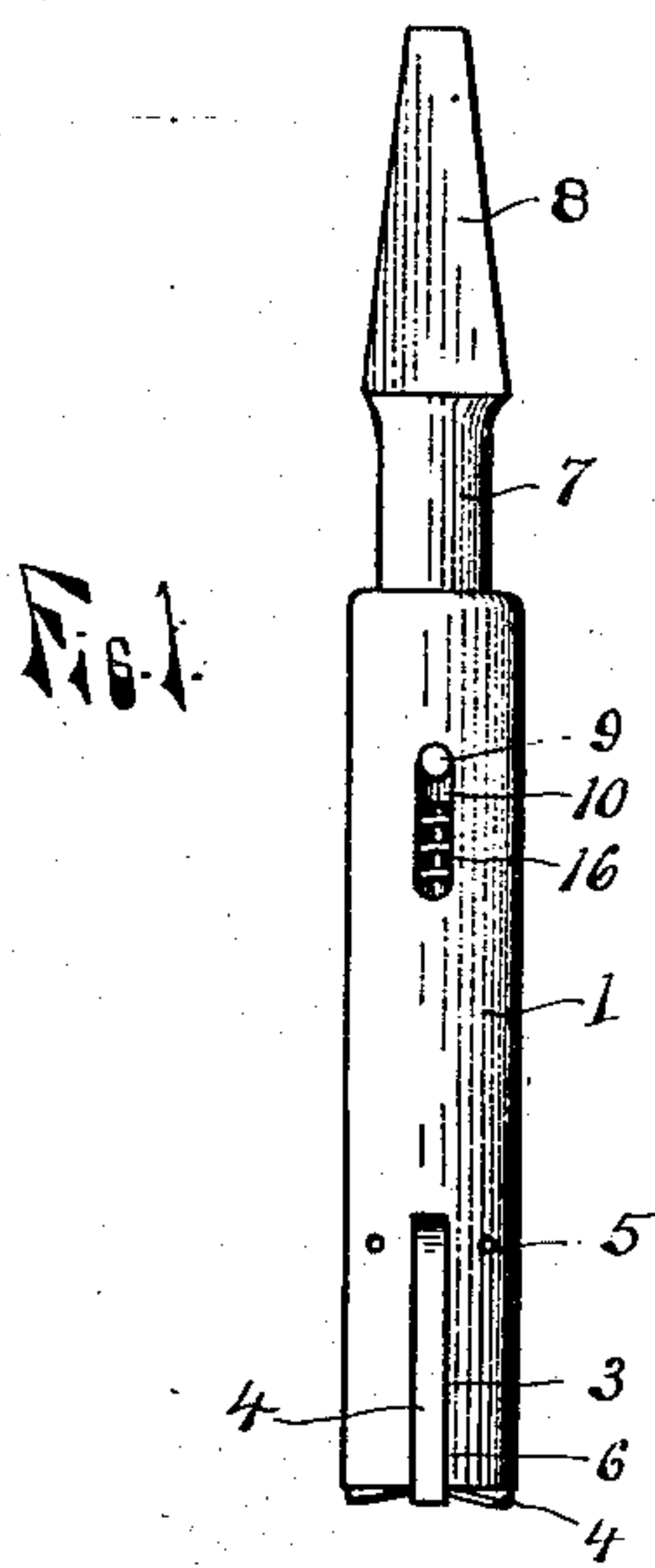


No. 858,752.

PATENTED JULY 2, 1907.

C. W. H. POTTER.  
REAMER.

APPLICATION FILED APR. 25, 1904. RENEWED NOV. 30, 1906.



WITNESSES.

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# UNITED STATES PATENT OFFICE.

CHARLES W. H. POTTER, OF DETROIT, MICHIGAN, ASSIGNOR TO MINNIE L. POTTER AND WILLIAM AIKMAN, JR., OF DETROIT, MICHIGAN.

## REAMER.

No. 858,752.

Specification of Letters Patent.

Patented July 2, 1907.

Application filed April 25, 1904. Renewed November 30, 1906. Serial No. 345,767.

To all whom it may concern:

Be it known that I, CHARLES W. H. POTTER, a citizen of the United States of America, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Reamers, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to improvements in reamers for forming undercut openings or sockets, and is especially adapted for forming sockets in marble and other stone to secure bolts, basin clamps, or other securing devices thereto, and its object is to provide a device for the purpose which is cheap to manufacture, efficient in its operation, and so constructed that the opening may be reamed at any depth, the device being of uniform diameter throughout its length with no projecting parts to interfere with its being inserted to any desired depth in an opening.

It is also an object of the invention to provide springs for holding the cutters retracted when not in use so that they will not interfere with its ready insertion in an opening and to provide certain other new and useful features, all as hereinafter more fully described and shown in the accompanying drawings, in which—

Figure 1, is a side elevation of a device embodying the invention; Fig. 2, an end elevation of the lower end of the same; Fig. 3, a longitudinal section; and Fig. 4, a section on the line  $x-x$  of Fig. 3.

As shown in the drawing, 1, is the body which is bored longitudinally inward from one end to form a socket 2 therein and the opposite or lower end of the same is formed with radial slots 3 extending longitudinally and meeting the socket. Within these slots are pivotally secured the cutters 4 by pins 5 passing through openings in the upper ends of the cutters and holes bored in the body at the upper or inner ends of said slots, said cutters being provided with cutting edges 6 along their outer edges to engage the side wall of an opening or bored hole and ream out or undercut the same as the cutters are swung outward on their pivots.

To drive or rotate the body and at the same time force the cutters outward, a stem 7, provided with a squared shank or head 8 to engage the socket of any ordinary bit stock or similar device and fitting within the upper end of the socket 2, is provided to move longitudinally therein, the same being prevented from turning in the socket by a pin 9 on the stem engaging a longitudinally extending slot 10 in the body; and a longitudinally extending rod or reduced portion 11 of the stem projecting from the inner end of the same, is provided with a tapering end or point forming a wedge

12 to engage the inner edges of the cutters when the stem is forced inward and turn the cutters on their pivots. The inner end 13 of the bore or socket 2 extends a short distance past the pivots of the cutters to allow the wedge to engage the cutters at a short distance below their pivots and therefore less force will be required, and the forming of the wedge with a long taper also aids in moving the cutters easily.

The end 13 of the socket is of lesser diameter than the outer end thus forming a shoulder 14, and a ring or washer 15 may be seated upon said shoulder having an axial opening of a diameter to fit the rod 11 and guide the same. A coiled spring 16 is interposed between said washer and the shoulder formed by the junction of the stem and rod to hold the stem projected from the socket and the wedge lifted out of contact with the cutters. If the washer is found unnecessary and is not used, the spring may directly engage the shoulder.

Flat springs 17 are secured at one end to the cutters, and extending upward within the bore 13, engage the rod 11 and exert a force to hold the cutters retracted or within the slots so that they will not swing outward when inserting the tool in an opening and prevent its entering.

Having thus fully described my invention, what I claim is:—

1. In a reamer, the combination of a body of uniform diameter throughout its length and having a longitudinal bore extending inward from its upper end forming a socket, a cutter carried by said body near its lower end and normally lying within the same, a stem longitudinally movable in said socket to move the cutter and extending out through its open end, a squared head on the outer end of said stem, a spring sleeved on the stem to normally hold the same projected from the body, and means connecting the stem and body to cause the same to be turned together.

2. In a reamer, the combination of a body having longitudinal slits at one end and a longitudinal bore extending inward from the opposite end to said slits, cutters pivotally secured in said slits, a stem fitting within the outer open end of the body and provided with a squared head, a reduced end on the stem to engage the cutters, a spring sleeved on the reduced portion of the stem within the bore to hold the stem projected from the body and means connecting the stem and body and limiting the movement of the stem.

3. In a reamer, the combination of a body formed with longitudinal slits at one end and a bore extending inward from its opposite end and reduced near the slots to form an internal shoulder, cutters pivotally secured in said slots, a stem fitting within the outer end of said bore and provided with a squared head outside the body, a reduced portion extending inward from the inner end of the stem to engage and operate the cutters, a washer engaging the internal shoulder in the bore and provided with an opening within which the reduced portion fits, a spring sleeved on the reduced portion and engaging the end of the stem at one end and the washer at the oppo-

site end, and means connecting the stem and body to limit the longitudinal movement of the stem and cause the body to turn therewith.

4. In a reamer, the combination of a body having longitudinal slits at one end and a longitudinal bore extending inward from the opposite end to said slits, cutters pivotally secured in said slits, a stem fitting within the outer open end of the body and provided with a squared head, a reduced end on the stem to engage the cutters, springs for normally holding the cutters re-

tracted and means connecting the stem and body whereby they are free to have a limited sliding movement in relation to each other.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES W. H. POTTER.

Witnesses:

THOMAS G. LONGSTAFF,

LEWIS E. FLANDERS.