

No. 752,724.

PATENTED FEB. 23, 1904.

J. E. S. TAYLOR.

REAMER.

APPLICATION FILED JAN. 5, 1903.

NO MODEL.

Fig. 1.

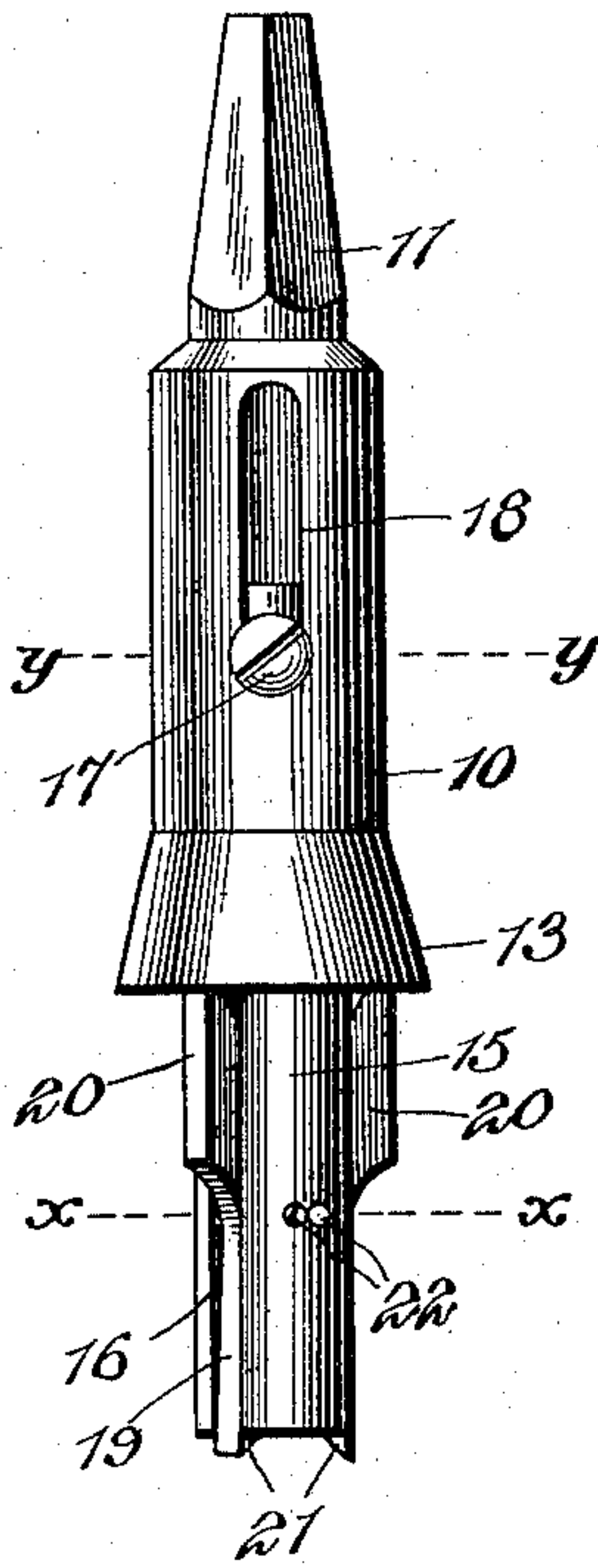


Fig. 2.

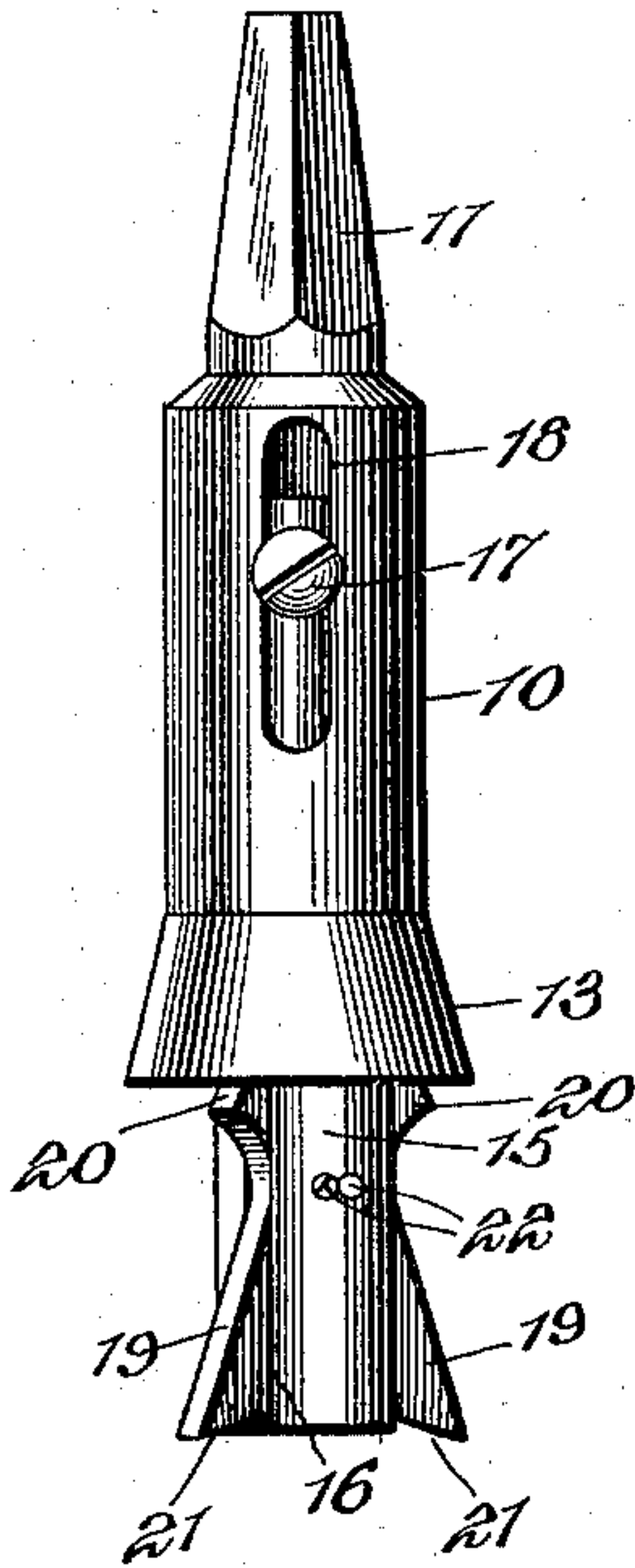


Fig. 3.

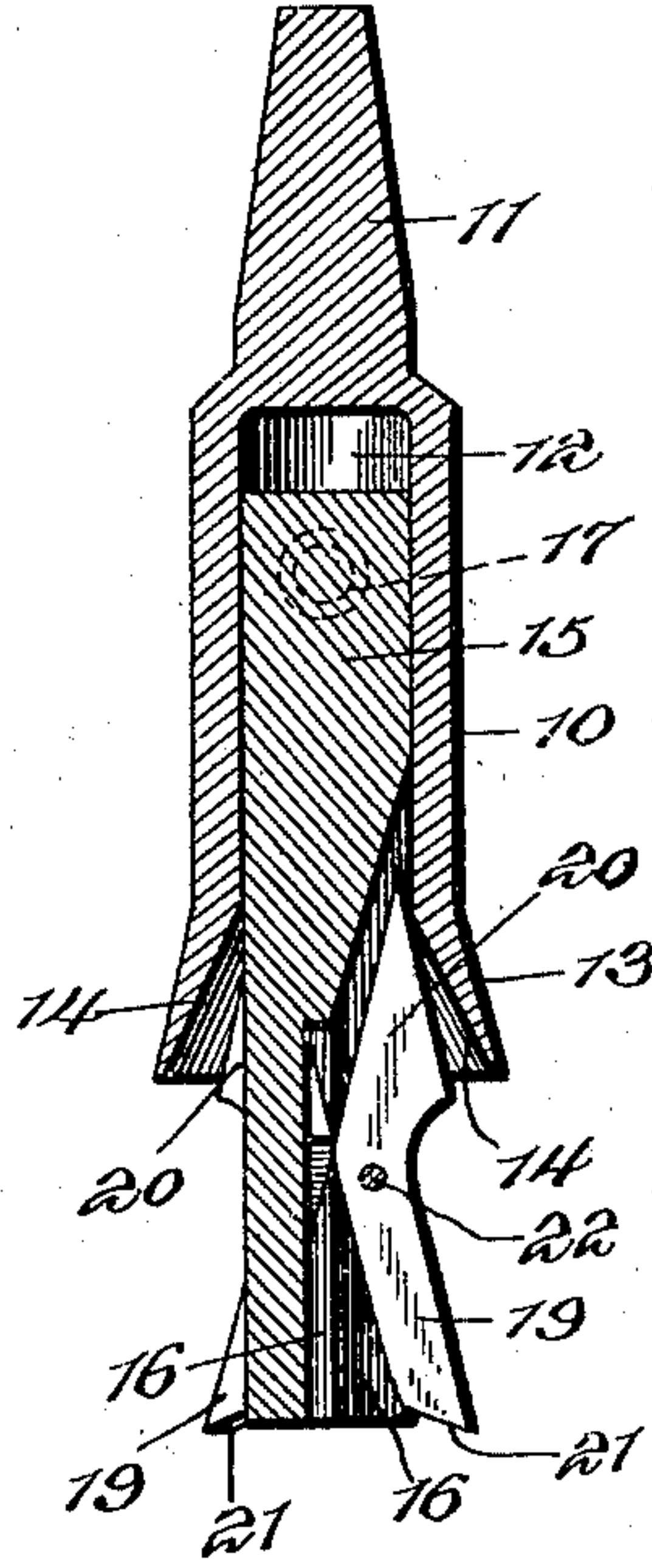


Fig. 4.

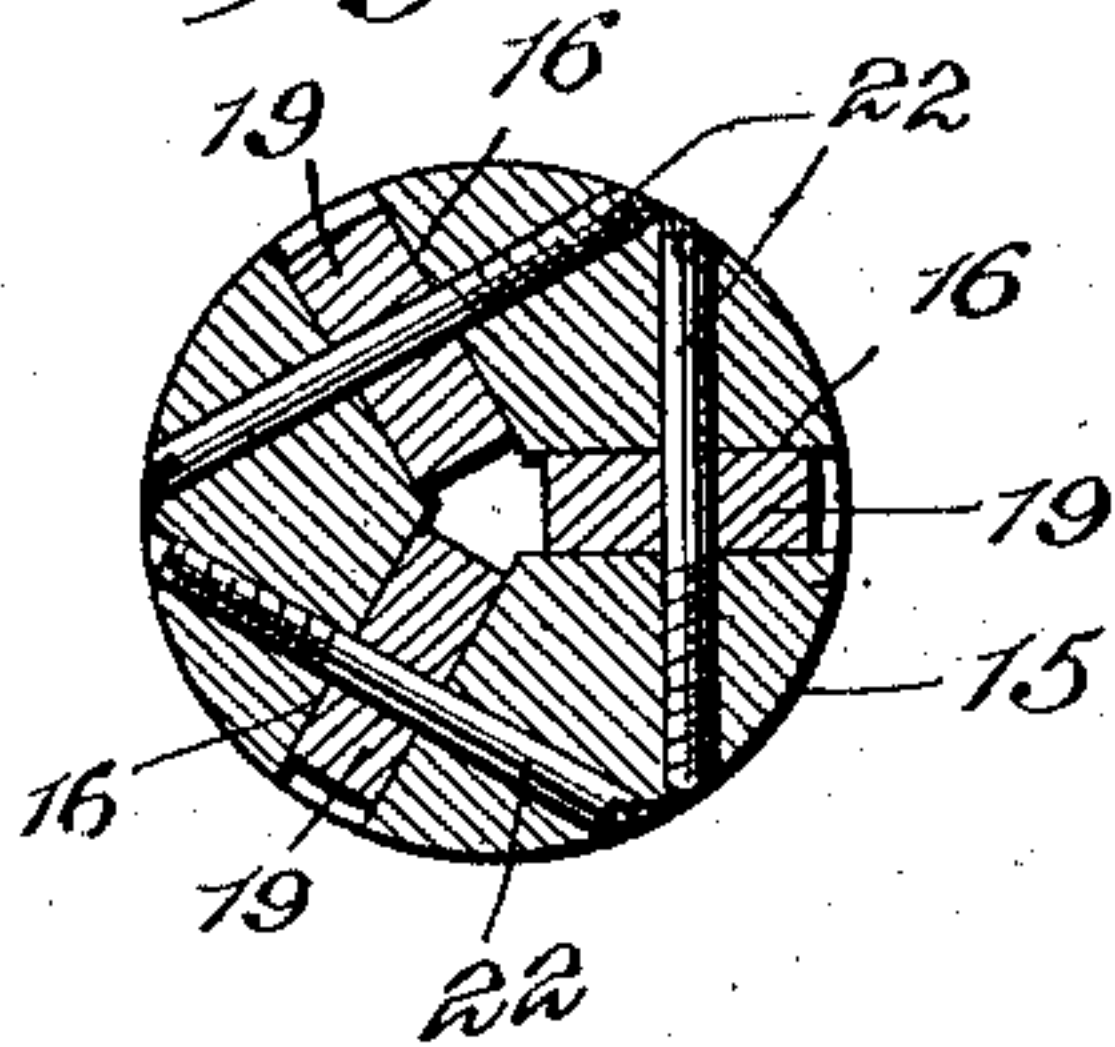
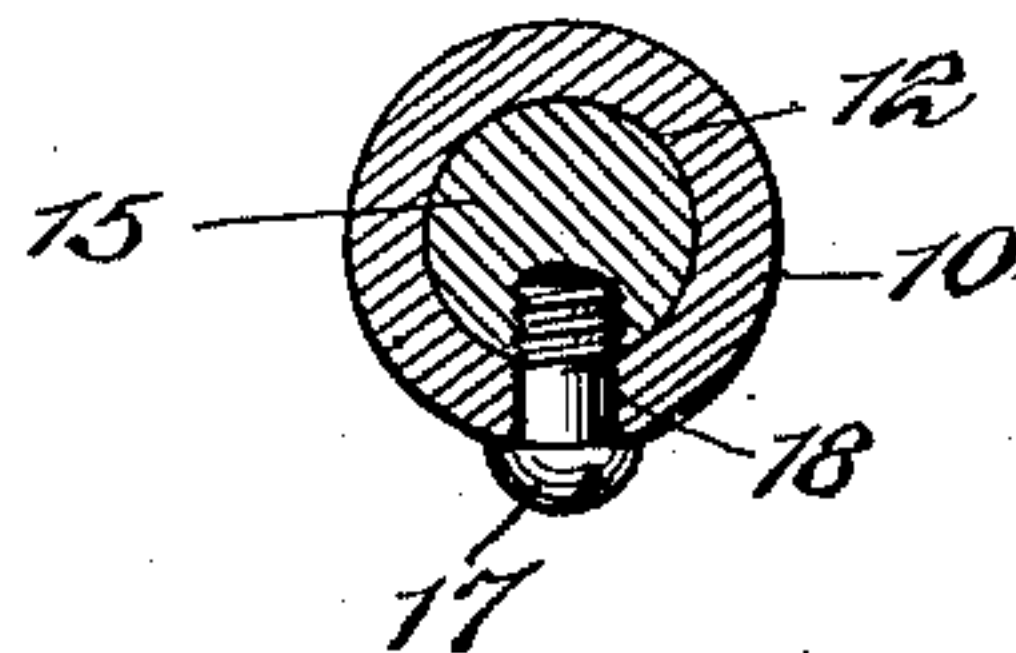


Fig. 5.



John E. S. Taylor, Inventor,

By

E. J. Siggers.

Attorney

Witnesses
Howard W. Orr.
B. J. Foster.

UNITED STATES PATENT OFFICE.

JOHN E. SUMMERS TAYLOR, OF DETROIT, MICHIGAN, ASSIGNOR TO
TAYLOR MANUFACTURING COMPANY, LIMITED, OF DETROIT,
MICHIGAN.

REAMER.

SPECIFICATION forming part of Letters Patent No. 752,724, dated February 23, 1904.

Application filed January 5, 1903. Serial No. 137,783. (No model.)

To all whom it may concern:

Be it known that I, JOHN E. SUMMERS TAYLOR, a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented a new and useful Reamer, of which the following is a specification.

The invention herein set forth is for the purpose of undercutting to provide sockets or openings that taper outwardly, and is particularly intended for forming sockets in the under sides of marble slabs and similar stones to permit the application of basin-clamps and other devices, though, of course, useful for various analogous purposes.

The object is to provide a reamer of this character which may be placed in an ordinary drilled opening and when rotated and having pressure applied thereto will automatically expand and undercut to provide a tapering socket. The device is, furthermore, constructed so that it may be withdrawn without interference.

The tool may be employed in connection with an ordinary bit-stock, and, furthermore, is very simple, the parts being so constructed and related that there is small chance of derangement.

The preferred form of construction is illustrated in the accompanying drawings, wherein—

Figure 1 is a side elevation of the reamer with the stem in projected position. Fig. 2 is also a side elevation showing the stem moved inwardly. Fig. 3 is a longitudinal sectional view through Fig. 2. Fig. 4 is a cross-sectional view, on an enlarged scale, taken on the line *x x* of Fig. 1. Fig. 5 is a cross-sectional view taken on the line *y y* of Fig. 1.

Similar reference-numerals indicate corresponding parts in all the figures of the drawings.

In the embodiment shown a cylindrical head 10 is employed, having an angular shank 11 at its upper end and provided with a longitudinally-disposed socket 12, the lower end of the head and the socket being flared, as shown at 13, whereby the inner face 14 of said flared portion is inclined. Slidably mounted in the

socket 12 and longitudinally movable therein is a stem 15, the lower end of which projects beneath the head and is provided with a plurality of equidistant longitudinally-disposed seats 16. The stem is secured in place by a screw 17, fastened thereto and slidably engaging in a slot 18 formed in the head and extending to the socket 12. This screw thus permits the stem to slide in the socket, but prevents its disengagement therefrom. A plurality of cutters 19 are pivoted between their ends in the seats 16, the upper ends of these cutters being provided with enlargements 20, which project beyond the seats and have their upper ends in engagement with the inclined annular face 14 of the flared portion of the head. The lower ends 21 of the cutters are beveled and are suitably sharpened. The pivots 22, which hold the cutters in place, are preferably screw-threaded, so that they may be readily removed to release said cutters.

In constructing a tapering socket of the character described an opening is first made with an ordinary drill. The reamer is then secured to a bit-stock by means of the shank 11, the head is elevated, or, in other words, the stem is projected from the socket, and the lower ends of the cutters are housed in the seats, as shown in Fig. 1. The projected end of the stem is then placed in the opening made and pressure is brought to bear upon the bit-stock, which is then rotated. This pressure causes the head to be pressed downwardly, and the inner ends of the cutters riding upon the inclined face 14 will be forced inwardly. This will cause the outer ends of the cutters to swing outwardly and into engagement with the walls of the opening. As these walls are cut away the cutters will be projected more and more until the desired taper has been obtained, as will be readily understood. The tool may be readily withdrawn by simply drawing outwardly, whereupon the head will be moved rearwardly. The cutters will consequently be released and may again assume the position shown in Fig. 1, so that the end of the tool can pass through the contracted outer end of the socket.

It will be apparent that this device is of

great utility and is thoroughly practicable, being automatic in its feed or expansion while at work. The parts are simple and may be readily manufactured, while at the same time they are simple, so that there is little chance of their becoming deranged. Sockets of different sizes may be made by providing different sizes of cutters, the cutters being interchangeable, as the pivots are readily removable. Furthermore, by having the cutters pivoted directly upon the stem and movable into and out of seats formed therein the reamer may be inserted in openings of substantially the same diameter as the stem, and said stem will thus be properly guided and held during its rotation to avoid wobbling or other lateral movement.

From the foregoing it is thought that the construction, operation, and many advantages of the herein-described invention will be apparent to those skilled in the art without further description, and it will be understood that various changes in the size, shape, proportion, and minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

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

1. In a reamer, the combination with a head having a socket, of a stem carried by the head and longitudinally slidable in the socket, and a cutter pivoted to the stem and slidable therewith, said cutter having a portion that engages the head when the stem is moved into the socket to throw the operative portion of said cutter outwardly.

2. In a reamer, the combination with a head having a socket, of a stem carried by and longitudinally movable in the socket, and a cutter pivoted between its ends to the stem and be-

ing slidable therewith, the inner end of the cutter engaging in the socket and against the head and swinging the outer operative end of said cutter outwardly upon the movement of the stem into the socket.

3. In a reamer, the combination with a head having a tool-holder-engaging shank at one end and a socket in its other end, the outer end of said socket having an outwardly-inclined wall, of a stem carried by the head and longitudinally slidable in the socket, said stem having one end exposed, and a cutter pivoted to the exposed end of the stem and slidable therewith, the inner end of the cutter having a slidable engagement with the inclined wall of the head and swinging the outer end of said cutter outwardly upon the movement of the stem into the socket.

4. In a reamer, the combination with a head having an angular tool-holder-engaging shank at one end and a longitudinally-disposed socket extending in from the other end, the outer end of said socket being flared, of a stem carried by the head and freely slidable in the socket, said stem having one end exposed and provided with a plurality of longitudinally-disposed seats, means connecting the stem and head to prevent their disassociation and permit their relative movement, and cutters pivoted between their ends in the seats of the stem, the inner ends of said cutters projecting from the seats and bearing against the inner face of the flared wall, the outer ends constituting cutting portions.

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

JOHN E. SUMMERS TAYLOR.

Witnesses:

D. CARMICHAEL, Jr.,
DAISY L. TAYLOR.