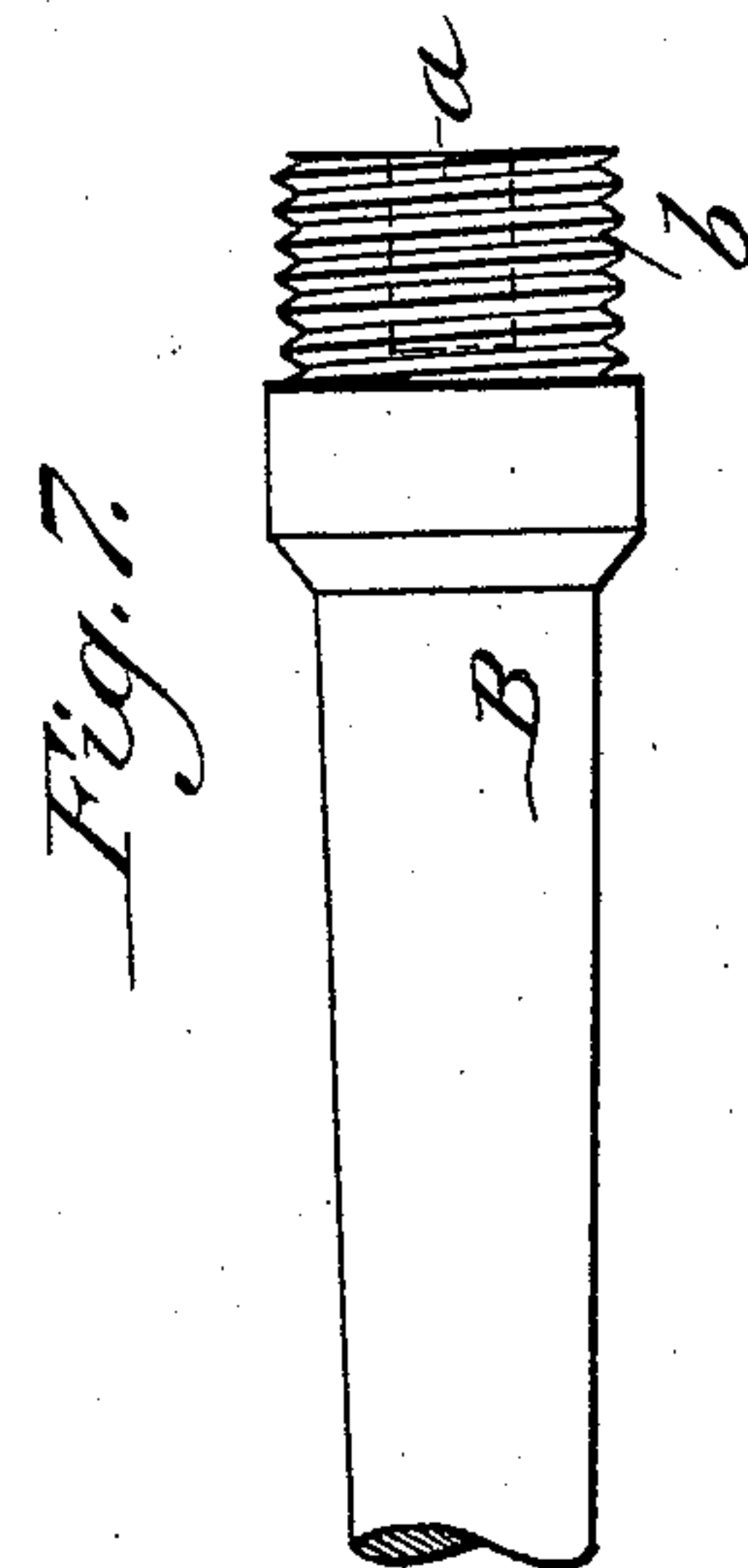
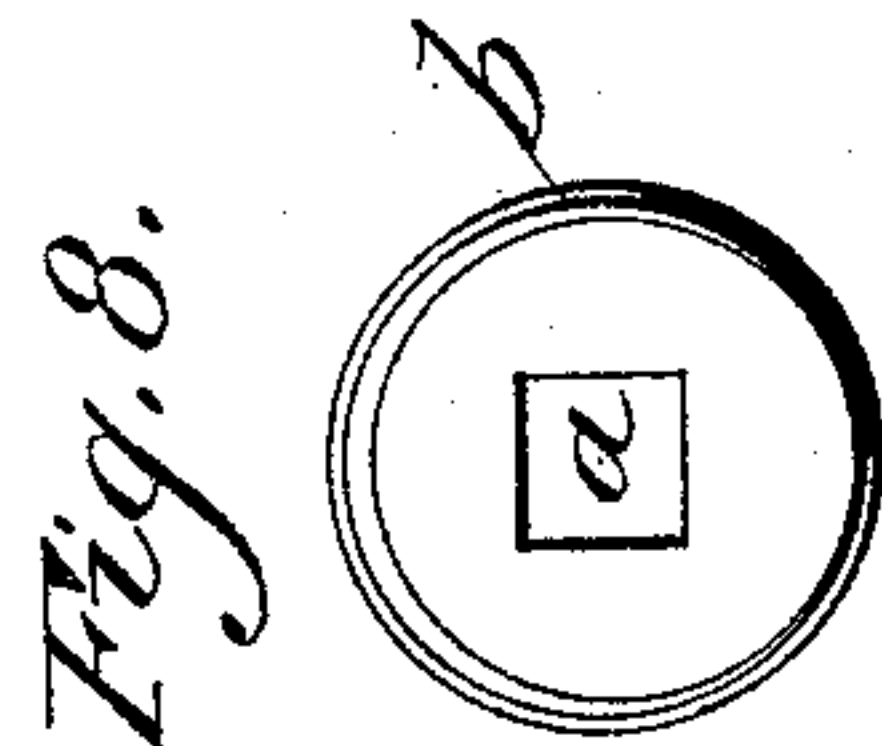
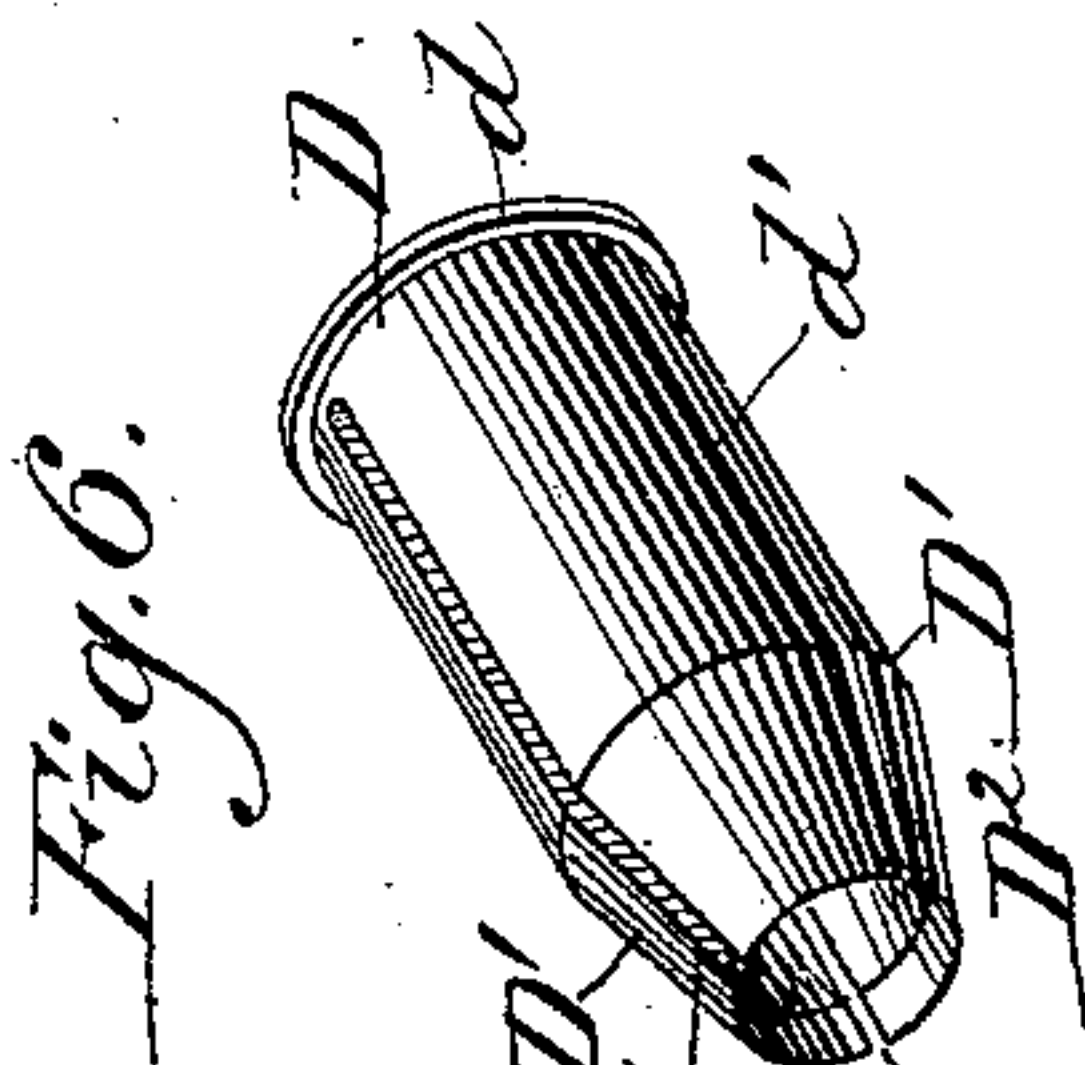
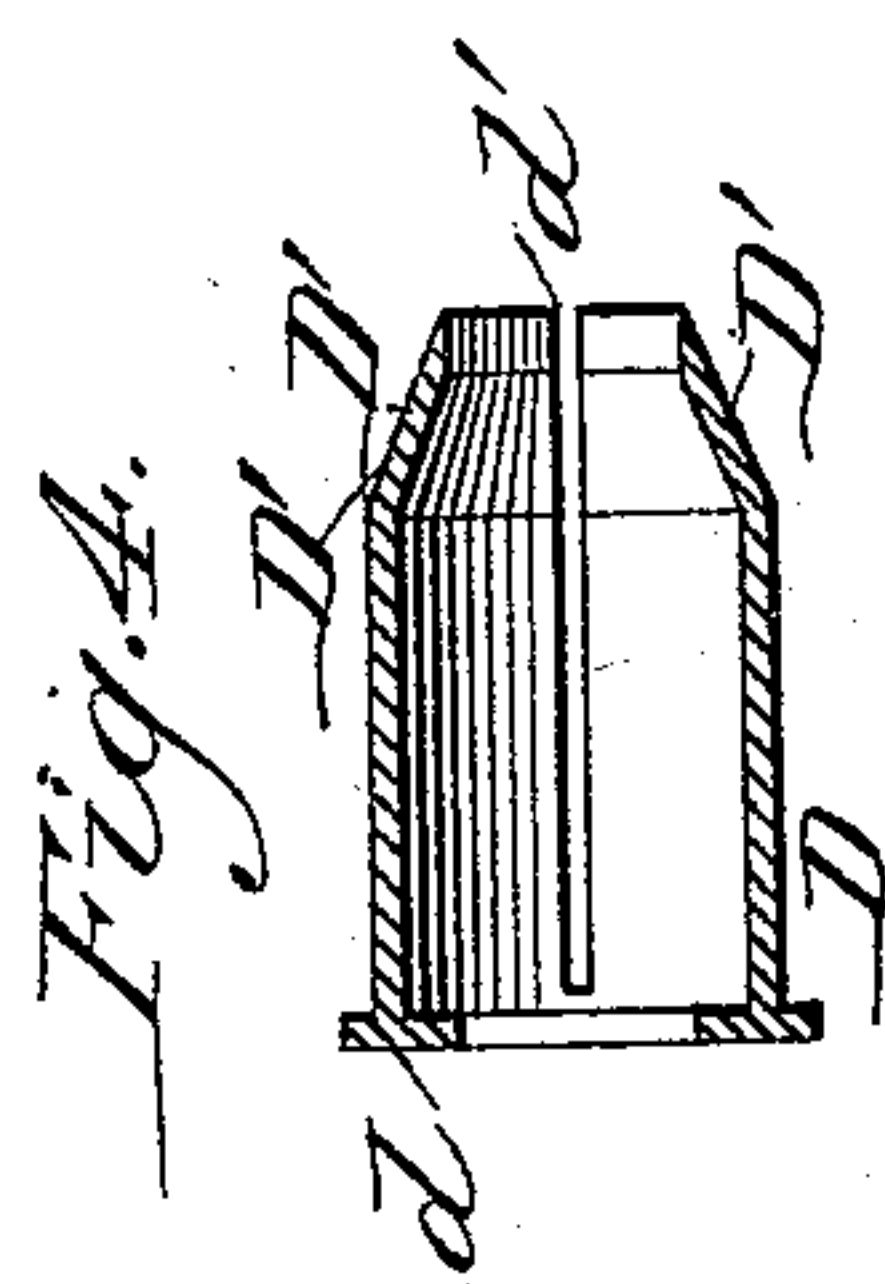
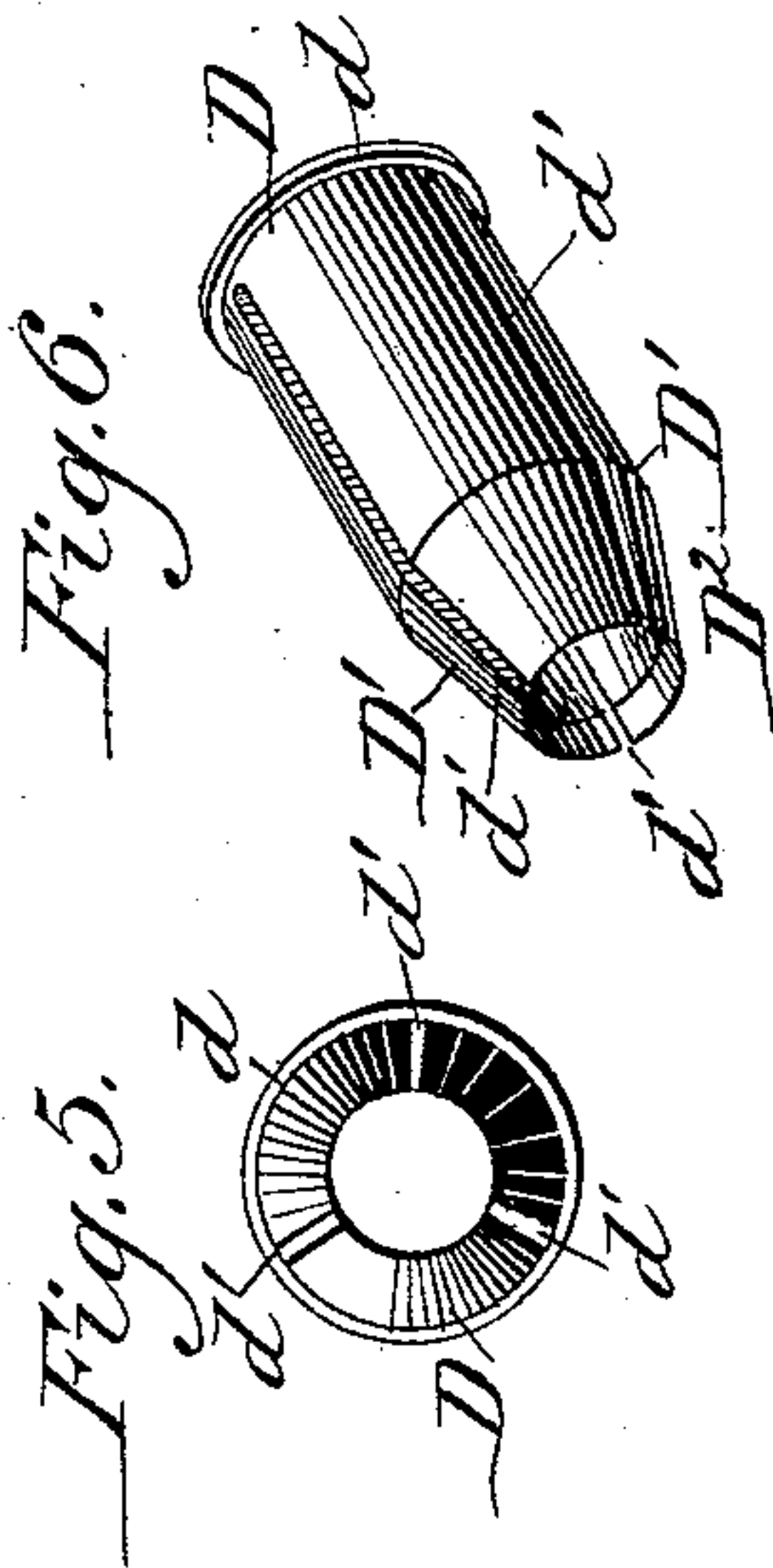
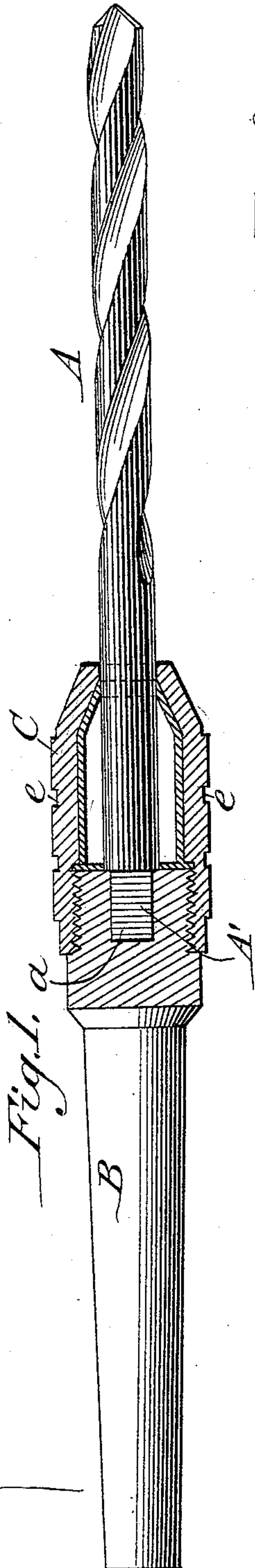
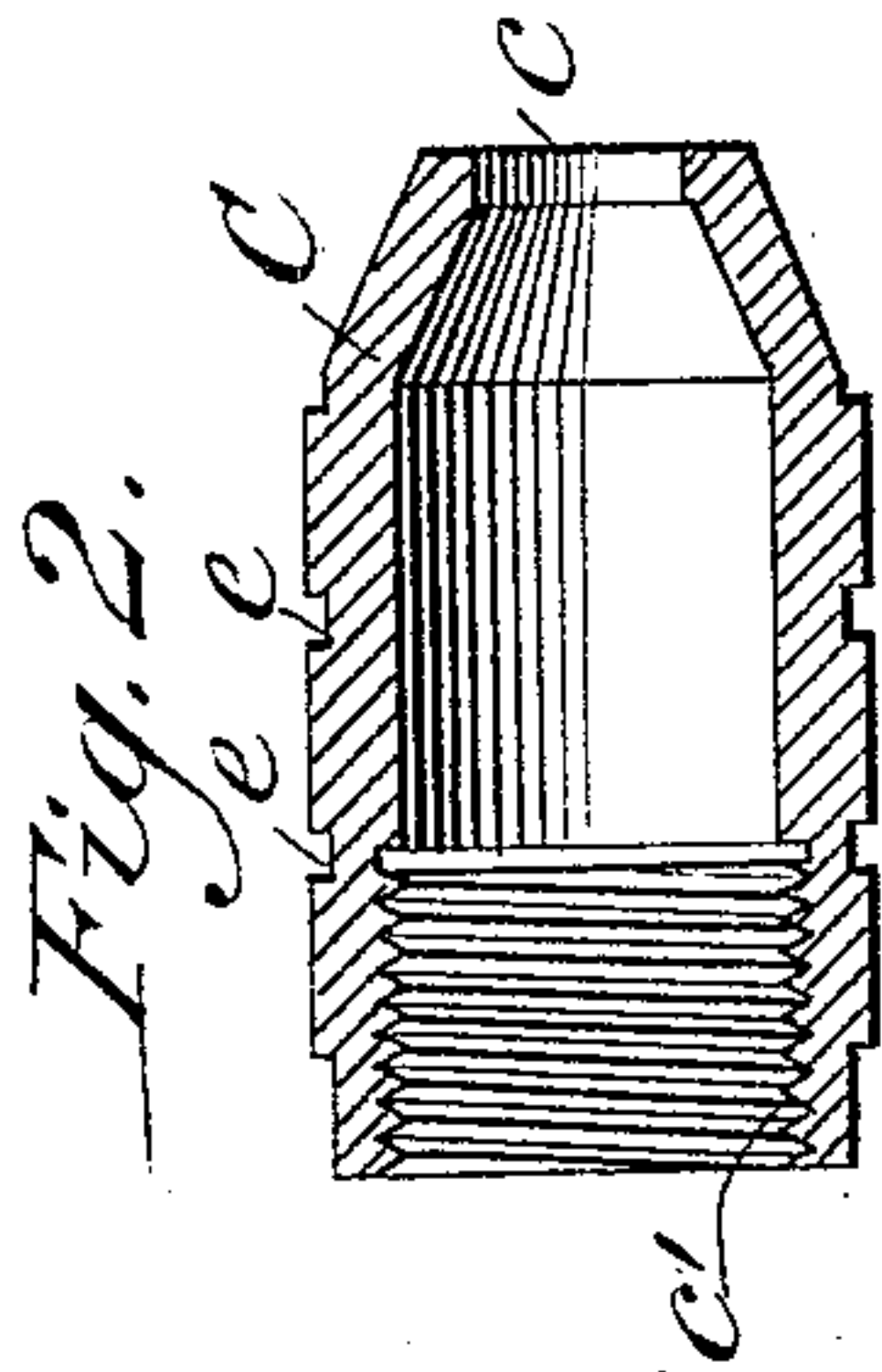
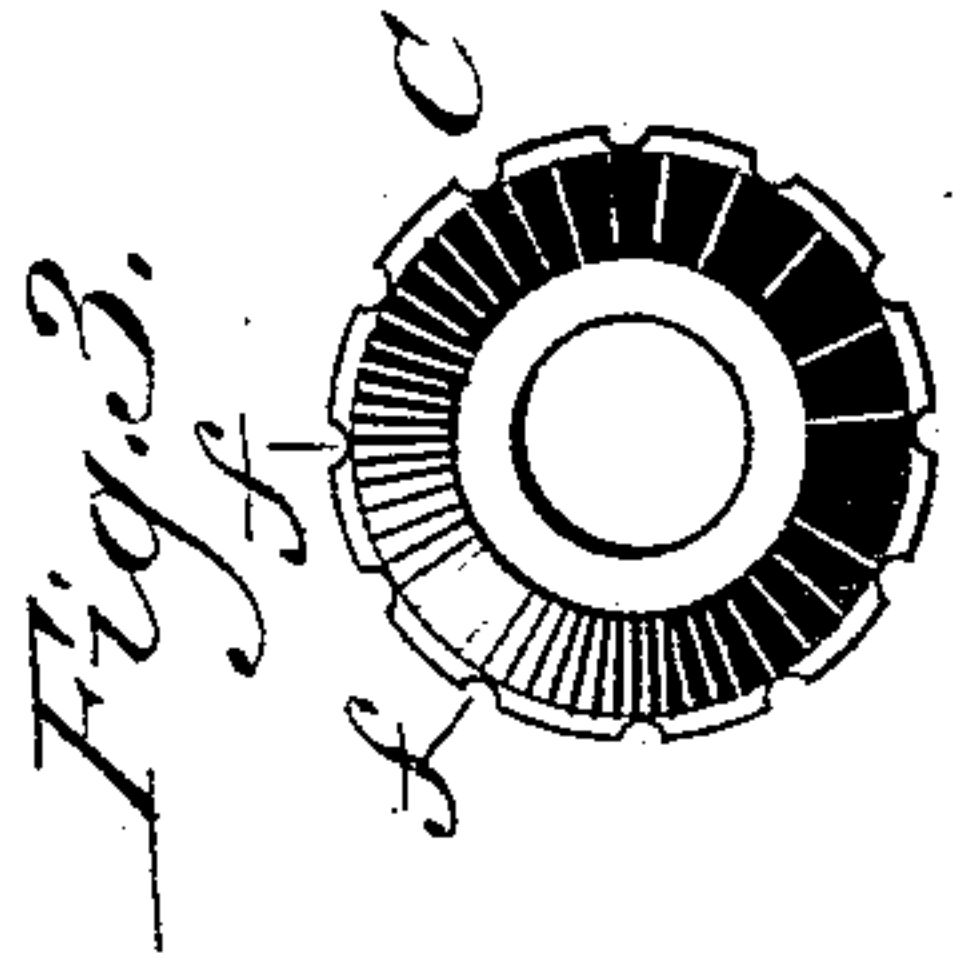


(No Model.)

W. R. CRAIG.
DRILL CHUCK.

No. 459,358.

Patented Sept. 8, 1891.



Attest:

J. H. Schott
Wm L. Fayden.

Inventor
William R. Craig
per John C. Caster, Atty.

UNITED STATES PATENT OFFICE.

WILLIAM R. CRAIG, OF SHELBY, ALABAMA, ASSIGNOR OF ONE-HALF TO
HOMER R. STOUGHTON, OF SAME PLACE.

DRILL-CHUCK.

SPECIFICATION forming part of Letters Patent No. 459,358, dated September 8, 1891.

Application filed January 29, 1891. Serial No. 379,543. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM R. CRAIG, a citizen of the United States, residing at Shelby, in the county of Shelby and State of Alabama, have invented certain new and useful Improvements in Drill-Chucks; 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 present invention relates to an improvement in drill-chucks, the object of the invention being to provide a simple and efficient means whereby a drill may be securely held; and the invention therefore consists in the construction, arrangement, and combination of parts, substantially as will be hereinafter described and claimed.

In the annexed drawings, illustrating my invention, Figure 1 is a sectional side elevation of my improved drill-chuck and drill securely held thereby. Fig. 2 is a longitudinal section of the sleeve belonging to the chuck. Fig. 3 is a right-hand elevation of the same. Fig. 4 is a longitudinal detail section of the internal split sleeve or ferrule which provides jaws to grip the drill. Fig. 5 is a right-hand elevation of the same. Fig. 6 is an enlarged perspective view of the same. Fig. 7 is a detail outline side view of the shank of the chuck which receives the end of the drill. Fig. 8 is a right-hand elevation of the same.

Similar letters of reference designate corresponding parts throughout all the different figures of the drawings.

A designates a drill. This is simply given as one example of drill which may be held by my improved chuck.

Various kinds of drills having various kinds of points and made after various forms may be inserted into and securely held by the chuck with equal facility, as the drill A herein given, for example. The drill A has the squared end A'.

B indicates the shank of the chuck, which may be of any suitable and desirable form and is adapted for connection with any desired machine for the purpose of operating the drill.

One end of this shank B is provided with the centrally-located socket a. This end of the

shank-piece is externally screw-threaded at b. The squared end A' of the drill A fits neatly into the socket a in the shank B.

C denotes a sleeve. One end of this is tapered and has the opening c, which is substantially equal in diameter to the diameter of the drill A. The other end of the sleeve C has an internal screw-thread section c', the threads of which are adapted to engage the threads of the shank-section b, so that the said sleeve C may be screwed upon the end of the chuck-shank. The sleeve C is therefore hollow, and it may be of any suitable metal and may have any desirable thickness. Its external surface is preferably provided with transverse grooves e e and longitudinal grooves f f, said grooves e and f intersecting each other at right angles. The purpose of these grooves is to enable the sleeves to be more readily grasped and manipulated for the purpose of screwing it upon the shank and also for unscrewing when the latter may be necessary to loosen the hold of the chuck upon the drill and allow the withdrawal of the latter.

Within the sleeve C is the internal split sleeve D. This sleeve is shown in longitudinal section in Fig. 4, in perspective in Fig. 6, and in end view in Fig. 5. It has one end beveled or inclined to correspond substantially with the bevel or incline of the end of the sleeve C. The other end d of the internal sleeve D is perforated with an opening having a diameter equal to the diameter of the first-named beveled end, both of said diameters of each opening being substantially equal to the diameter of the drill A, and consequently equal to the diameter of the opening c in the end of the sleeve C. The internal sleeve D is split into sections D' by means of longitudinal slots d', which run from the beveled end thereof close up to the perforated end d. It will thus be seen that the beveled end of the split sleeve is compressible, so that its diameter may be contracted more or less from its normal size into a less size. This contracting of the diameter of the end of the sleeve or compressing together of the several sections is accomplished by screwing the sleeve C upon the shank B. By observing

Fig. 1 it will be seen that the perforated end of the split sleeve D rests close against the end of the shank of the chuck. Therefore during a portion of the operation of screwing the sleeve C upon the screw-threaded end *b* of the shank the internal sleeve will not be compressed; but when the sleeve C has been screwed on far enough to cause the internal split sleeve to be firmly held within the interior of the sleeve C, with its beveled end close against the interior of the beveled end of the sleeve C and with its perforated end *b* close against the end of the shank B, then it will be obvious that any further screwing of the sleeve C upon the end of the shank will cause the beveled end of the split sleeve to be pressed more tightly into the beveled end of the sleeve C, and thus the sections of the split sleeve will be pressed together in a measure more or less, and accordingly the drill located within the openings in the beveled ends of the two sleeves will be gripped more tightly by the internal split sleeve, and thus held firmly, rigidly, and immovably by the drill-chuck. This, then, is the operation and function of the internal-split sleeve in conjunction with the other parts of the drill-chuck. When it is desired to connect the drill firmly to the chuck, the sleeve C will be loosened upon the shank sufficiently to allow the internal sleeve D to be in a normal uncontracted state. Then the drill A will be inserted through the opening *c* in the external sleeve, also through the opening in the end of the internal sleeve, and will have its squared end A' fit neatly into the socket *a*. The sleeve C will now be screwed in such a direction as to cause it to travel farther onto the shank B', and in so doing the operation will take place just described above, which will cause the split sleeve to contract the diameter of its beveled end sufficiently to grasp and tightly hold the drill. Many minor details may obviously be changed in the precise construction of the parts as herein described, and I

do not desire to be restricted to what I have here specifically shown.

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

1. The herein-described drill-chuck, consisting in the combination of the shank, the external sleeve screw-threaded to engage the shank, and the internal split sleeve within said external sleeve, the sleeves being adapted to receive the drill and tightly hold the same, substantially as described.

2. In a drill-chuck, the combination of the shank, the external sleeve, and the drill of the internal sleeve having a beveled end and split longitudinally to provide compressible sections, substantially as described.

3. The combination of the shank B, having the screw-threaded end *b* and the socket *a*, the sleeve C, having a beveled end and an opening *c*, and the split sleeve D, having the beveled end and the longitudinal slots, substantially as described.

4. The combination of the shank, the open-ended sleeve, which is internally screw-threaded to engage said shank, and the internal sleeve D, having the longitudinal slot *d'*, the sections D', and the perforated end *d*.

5. The combination of the shank B, having the screw-threaded end *b* and socket *a*, the sleeve C, having the internal screw-threaded portion *c'*, the beveled open end *c* and the grooved exterior surface, the split sleeve D, having a longitudinal slot *d'*, the sections D', and the perforated end *d*, its other end being beveled, the whole combined and adapted to receive and hold tightly the drill A, having the end A', substantially as described.

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

WILLIAM R. CRAIG.

Witnesses:

RICHARD W. FRANCIS,
C. B. TAPPAN.