(No Model.)

G. W. KERR.

BRACE CHUCK.

No. 295,408. Patented Mar. 18, 1884.

Fig. 1.

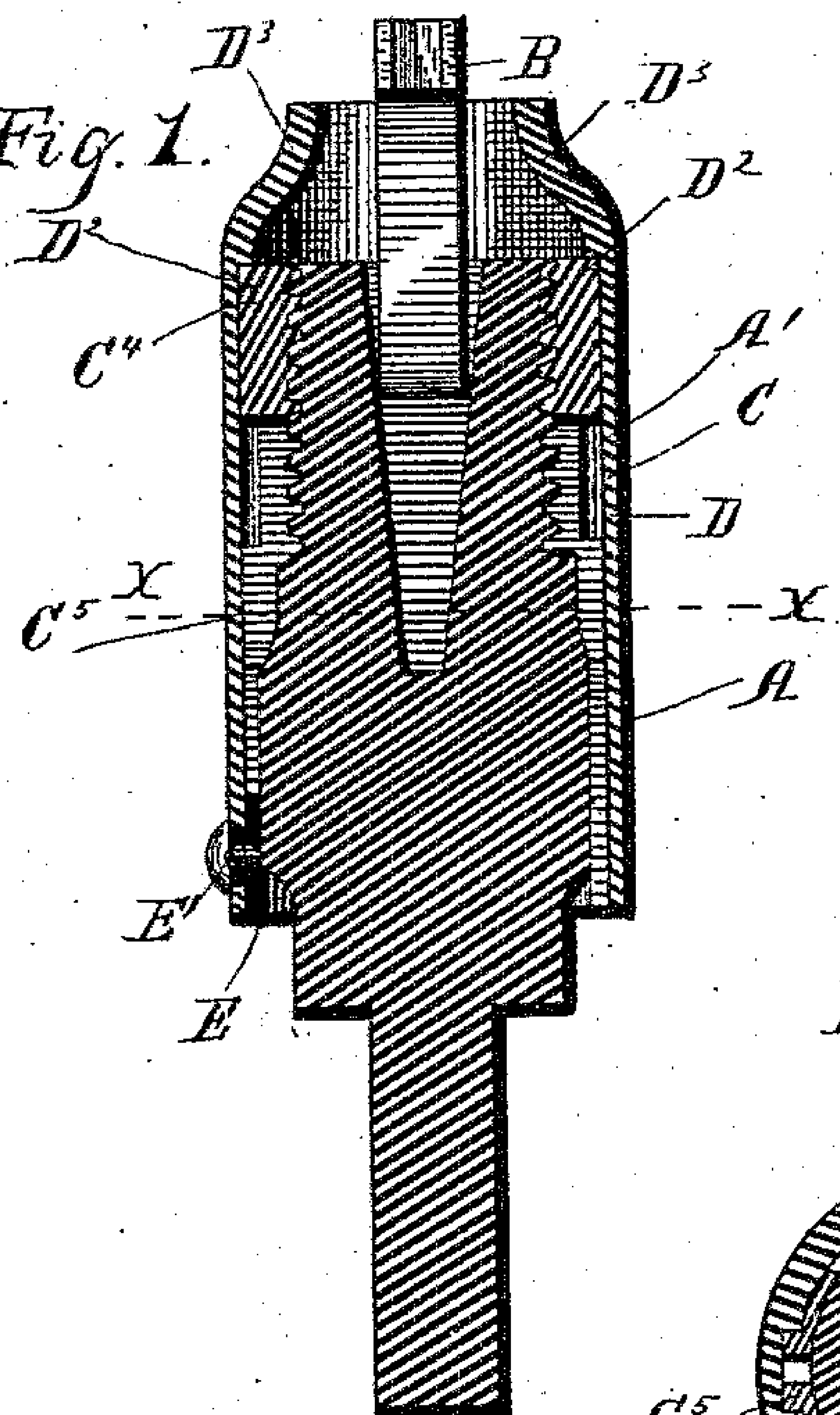


Fig. 2.

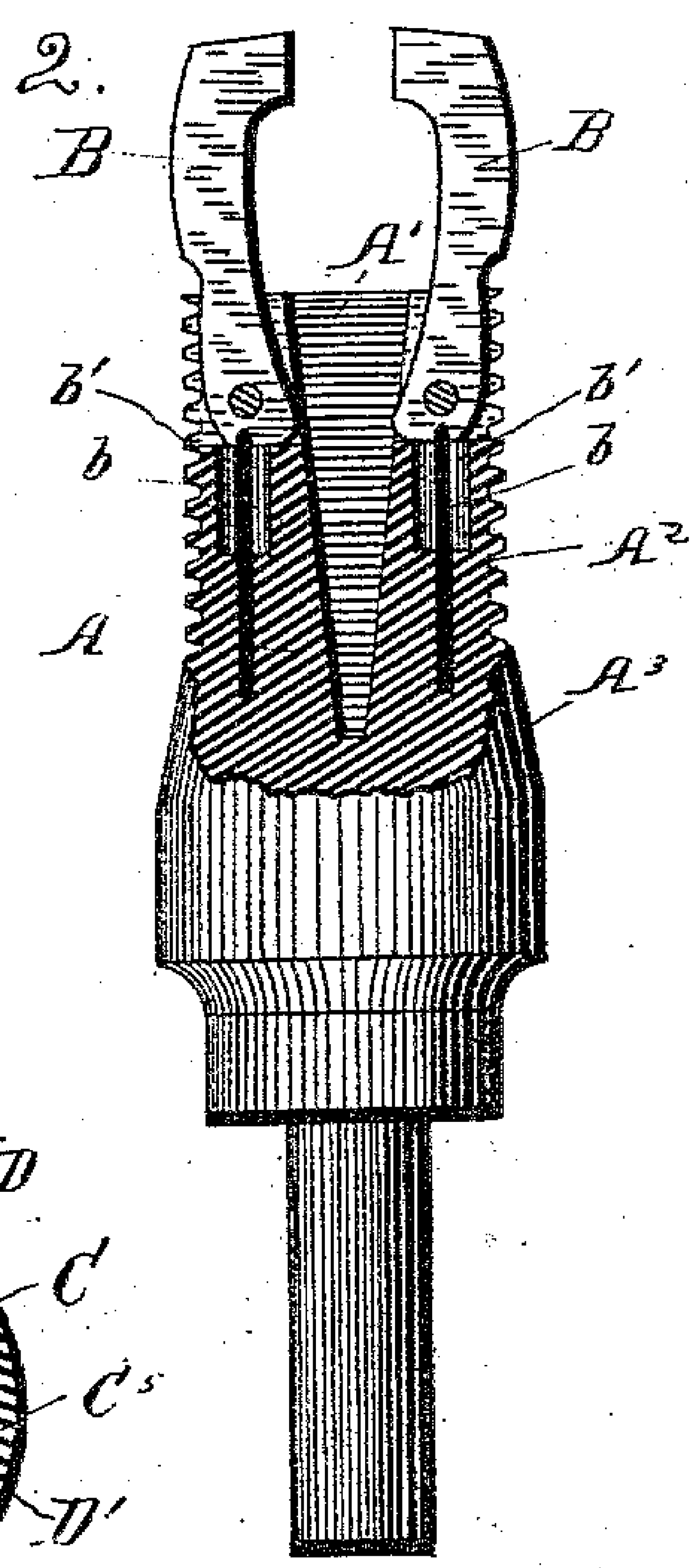


Fig. 6.

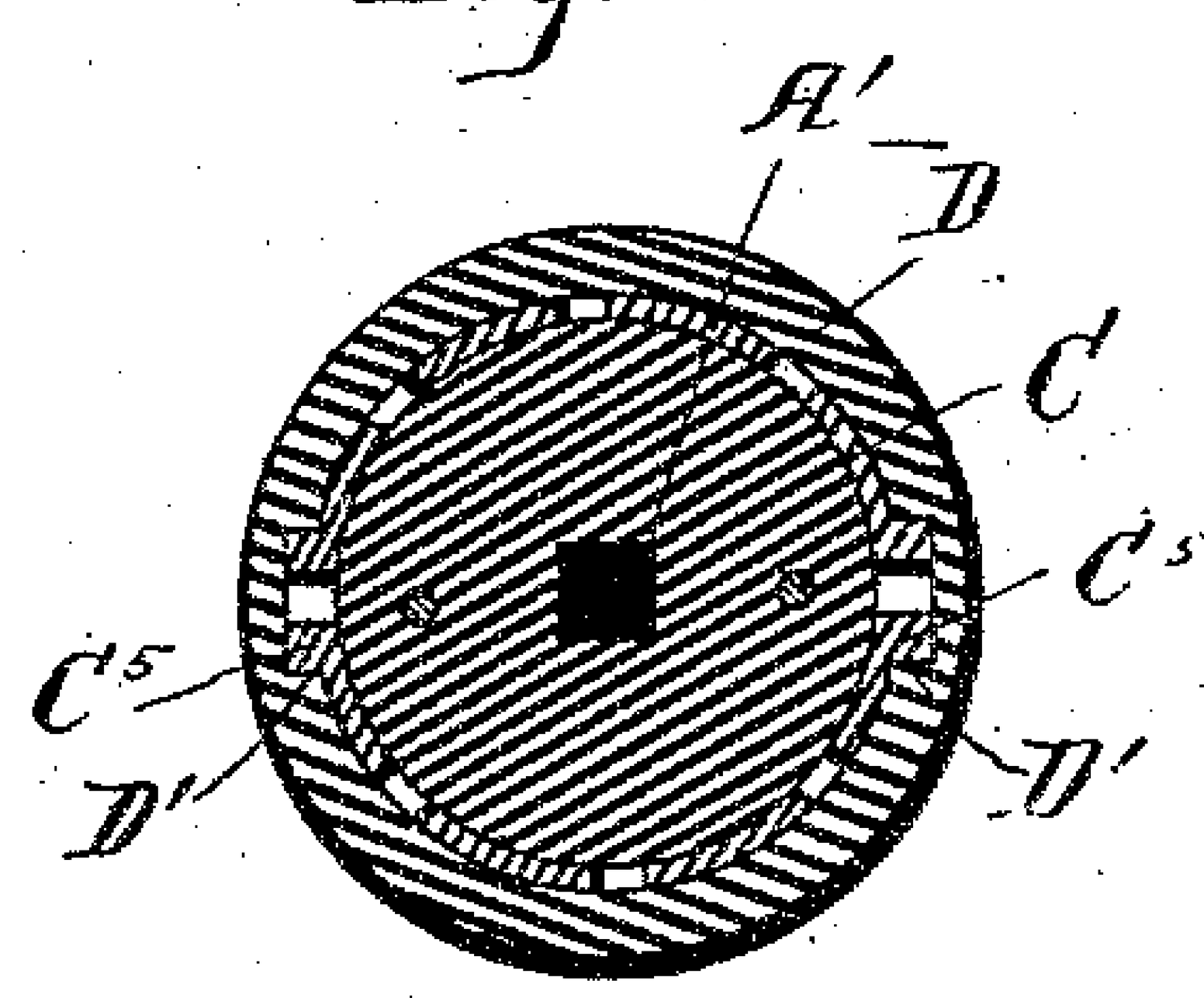


Fig 3

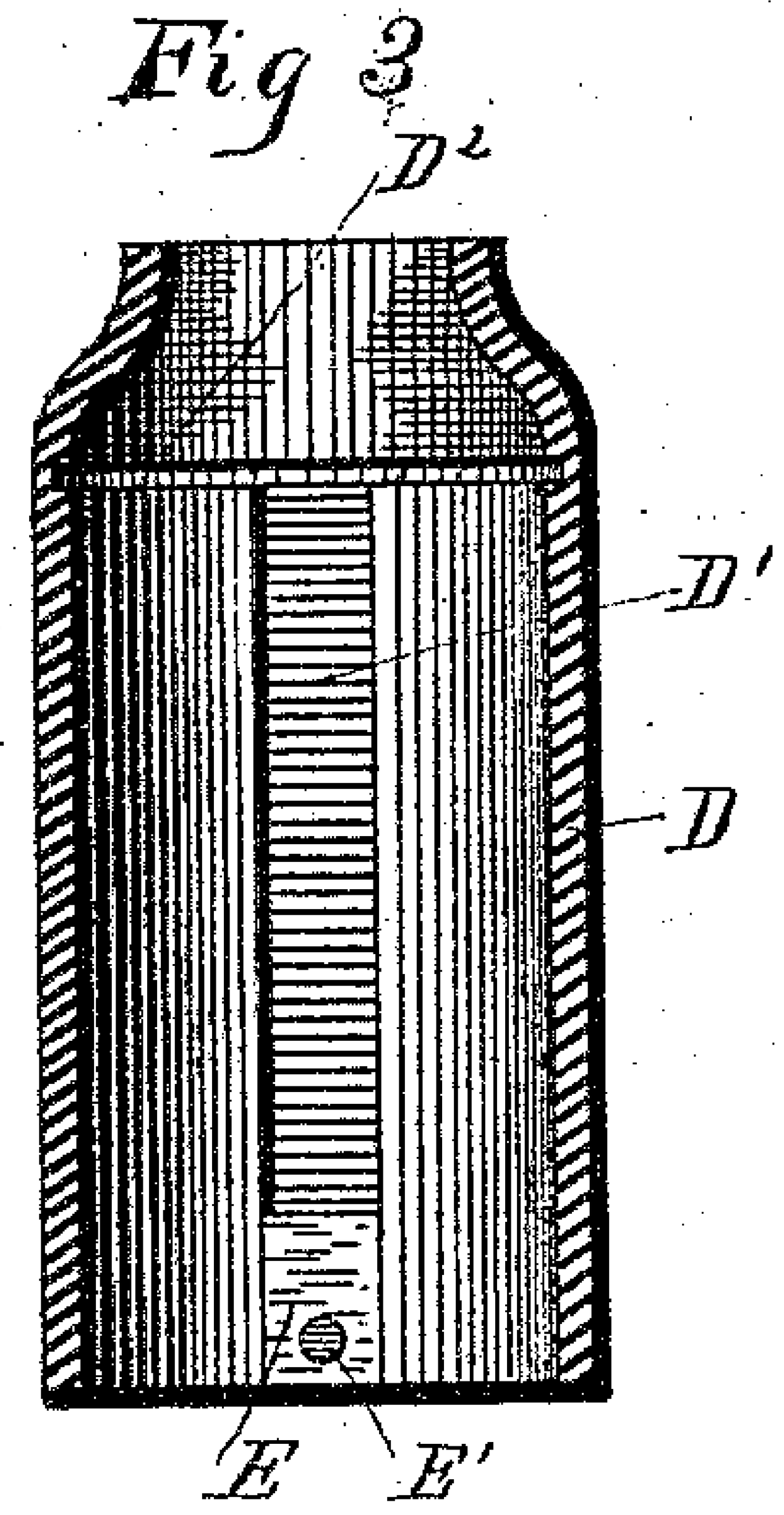


Fig. 7.

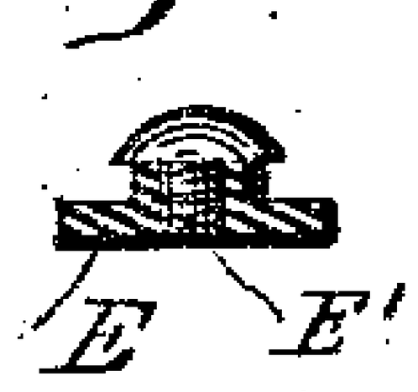


Fig. 4.

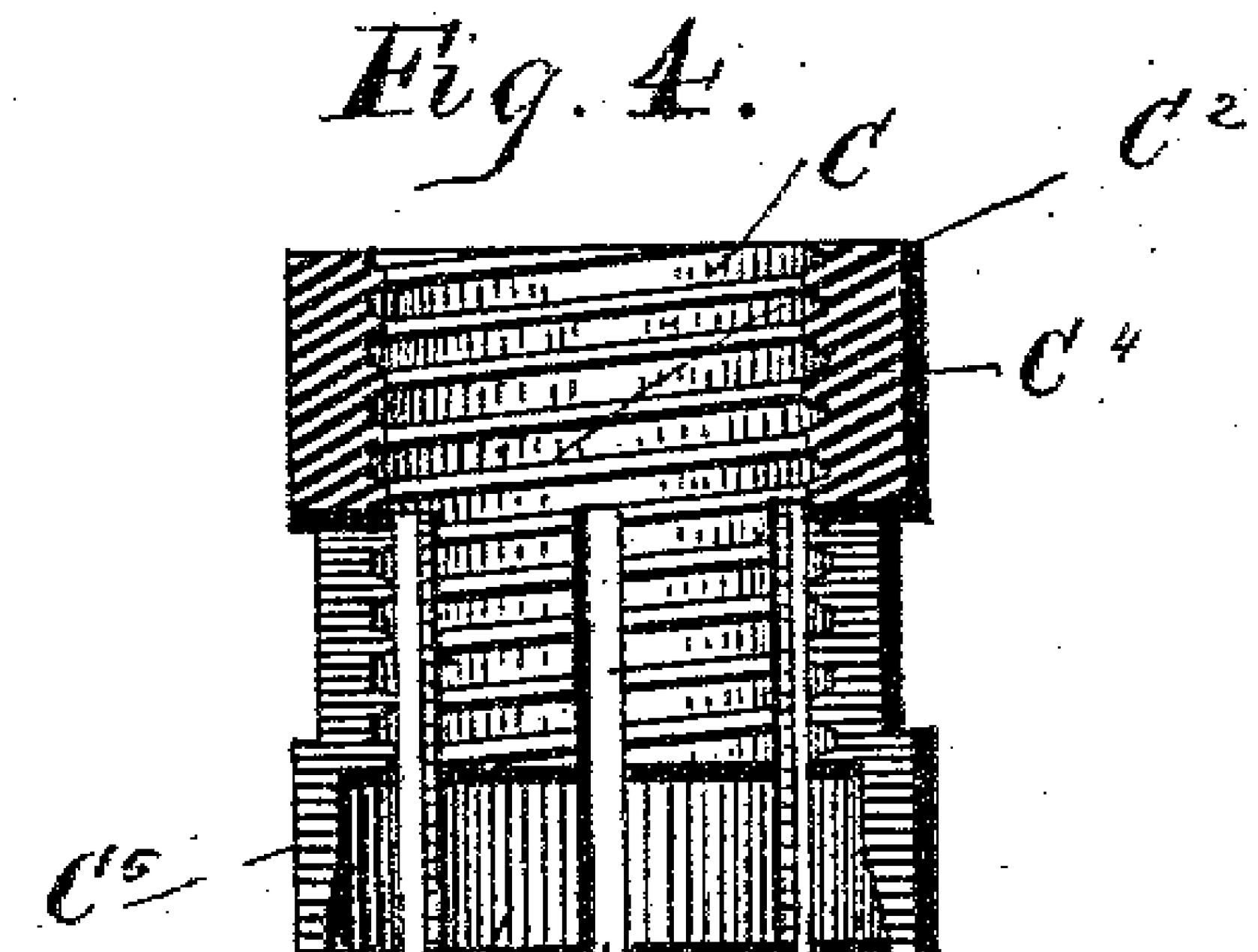
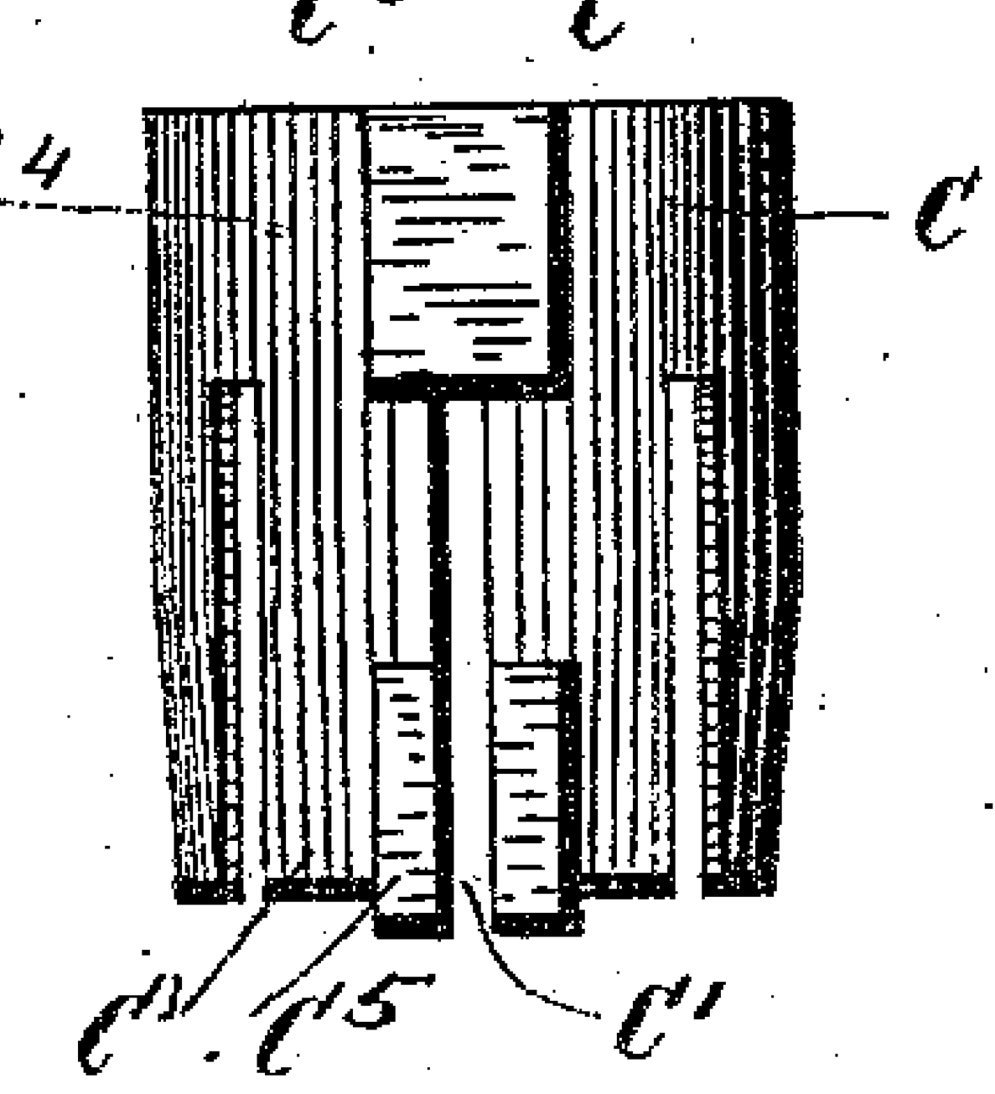


Fig. 5.



Witnesses

Wm. T. Jones.

A. B. Fairchild

Inventor:

George W. Kerr

By atty F. A. Brewster

N. PETERS. Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

GEORGE W. KERR, OF BRIDGEPORT, CONNECTICUT.

BRACE-CHUCK.

SPECIFICATION forming part of Letters Patent No. 295,408, dated March 18, 1884.

Application filed January 11, 1884. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. KERR, a citizen of the United States, residing at Bridgeport, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Brace-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 invention has for its object to produce a chuck which shall be simple and economical in construction, exceedingly durable, and practically instantaneous in its operation.

With these ends in view my invention consists in the construction and combination of parts, as hereinafter fully described, and then pointed out in the claims.

In order that others may understand and use my improvement, I will proceed to describe the same, referring by letters to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a section of the chuck complete; Fig. 2, an elevation partly in section with both sleeves removed. Fig. 3 is a section of the outer sleeve, showing the block in position; Fig. 4, a section, and Fig. 5 an elevation, of the inner sleeve; Fig. 6, a cross-section on the line *x x*; Fig. 7, a detail of the removable stop which limits the motion of the outer sleeve and prevents it from slipping off.

Similar letters indicate like parts in all the figures.

A is the head, having socket A′, in which the shank of the bit rests, screw-thread A^2, and incline A^3.

B B are the jaws, pivoted in slots in the head. *b b* are springs recessed into the head, the outer ends of which engage with the bases of the jaws and act to hold them in their opened position, as in Fig. 2.

b′ b′ are recesses in the head, to permit the vibration of the springs.

C is a sleeve having splits or cuts C′, and beveled internally and externally at its lower end, as at C^3, all of which will be more fully explained. This sleeve is provided with an internal screw-thread, C^2, which engages with the thread A^2 on the head.

C^4 C^5 represent lugs which engage with grooves D′ in the outer sleeve, D.

E is a block, held in place in one of the grooves in the outer sleeve by a screw, E′, passing through the outer sleeve from the outside. The aperture in the sleeve preferably permits a projection on the block to pass through also. This projection is smaller than the head of the screw, and thus gives firmness to the block.

The parts are assembled as follows: The inner sleeve is placed within the outer one, with lugs C^4 C^5 in grooves D′. Block E is then slipped into its place at the base of the outer sleeve in one of the grooves, and screw E′ is turned in from the outside. The two sleeves are then placed over the head and turned down until the beveled portion C^3 of the inner sleeve begins to bear on and be expanded by incline A^3. The block acts as a stop to limit the outward-sliding motion of the outer sleeve and prevent it from slipping off by contact with one of the lugs C^5 upon the inner sleeve. The inward-sliding motion of this sleeve is limited by the striking of the lugs C^4 against the shoulder D^2 upon the outer sleeve near its smaller end.

In use the shank of the bit rests firmly in the socket, and the jaws are compressed against it by the incline D^3 at the small end of the sliding sleeve.

The operation is as follows: The bit having been placed between the jaws, the sliding sleeve is moved down, lugs C^4 C^5 sliding in grooves D′. The incline D^3 coming in contact with the backs of the jaws forces them firmly against the bit. When the outer sleeve has been forced down as far as possible, it is partially rotated. The lugs C^4 C^5 upon the inner sleeve being in engagement with the groove D′, the inner sleeve must of course be rotated with the outer one. This brings the beveled portion C^3 of this sleeve in contact with the incline A^3 upon the head. The splits or cuts in the inner sleeve allow it to expand as it is forced down upon the incline, which causes the lugs C^5 to be forced against the groove D′, thus firmly locking the two sleeves together, and at the same time locking the bit firmly in the jaws. In removing or inserting the tools, the outer sleeve is most conveniently grasped by the left hand, leaving the right free to handle the bit. Suppose that it is desired to remove a bit already in the chuck, it is simply necessary to give the outer sleeve a partial turn to the right, (about one-fourth turn is suf-

ficient,) holding the brace (not shown) in the right hand. Upon letting go with the right hand, the weight of the parts will cause them to drop down, thus releasing the grip of the jaws upon the tool. To insert a bit, place the shank in the socket in the head, slide the outer sleeve down and give it a slight turn to the left, which securely locks it. It will thus be seen that the action of this chuck, either to grasp or release a tool, is practically instantaneous.

Having thus described my invention, I claim—

1. The combination, with the jaws and the head, of an inner sleeve, screw-threaded thereon, and an outer sliding sleeve which engages with and is adapted to turn the inner sleeve, substantially as described.

2. The jaws pivoted in the head and operated by a sliding sleeve, in combination with a screw-threaded split sleeve having lugs which engage the outer sleeve and are expanded to lock said outer sleeve by an incline upon the head.

3. In a chuck, the combination, with means for gripping the tool, of a sliding sleeve which operates the gripping device, and a threaded split sleeve which, when expanded, locks the outer sleeve.

4. Head A, to which the jaws are pivoted, and which is provided with an external screw-thread, and an incline, A^3, in combination with a split sleeve, C, engaging the screw-thread, and provided with lugs which, when forced outward by the incline, engage in grooves in an outer sleeve, thus locking the two sleeves.

5. The head and the jaws, in combination with a sliding sleeve which closes the jaws, and means, substantially as described, for locking the sliding sleeve, and with it the jaws, by the rotation of said sleeve.

6. The head having an external screw-thread and an incline, and the jaws pivoted thereto, in combination with a sliding sleeve which closes the jaws, and lugs, engaging the screw-thread and operated by the incline, which lock the sliding sleeve.

7. In a chuck-head, A, a sleeve, C, having lugs C^4 C^5, in combination with sliding sleeve D, having grooves D′ and shoulder D^2, and block E, secured in one of the grooves D′, as described, and for the purpose set forth.

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

GEORGE W. KERR.

Witnesses:

A. M. WOOSTER,

A. B. FAIRCHILD.