

(No Model.)

F. C. AVERY.
VISE.

No. 429,105.

Patented May 27, 1890.

Fig. 1.

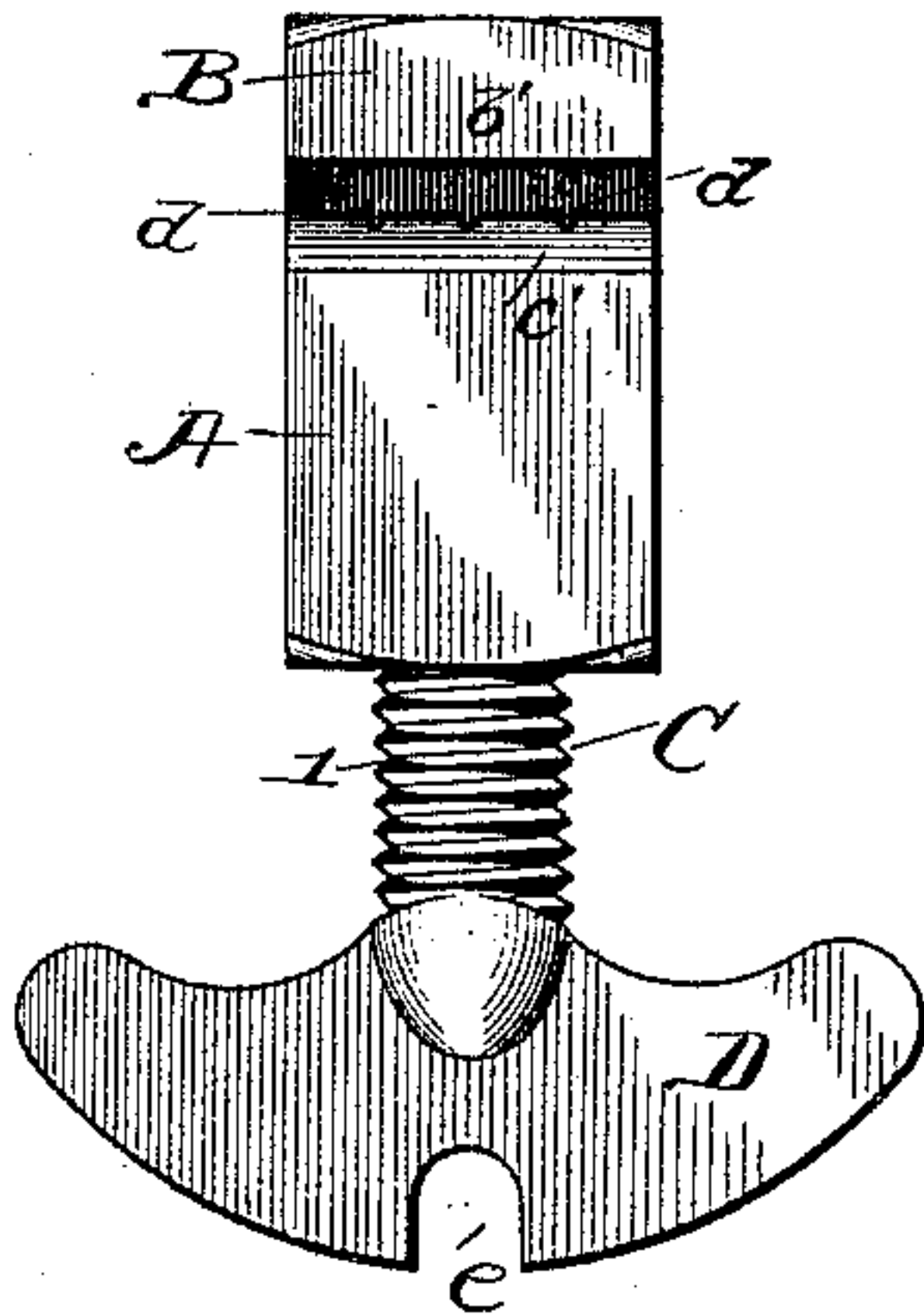


Fig. 2.

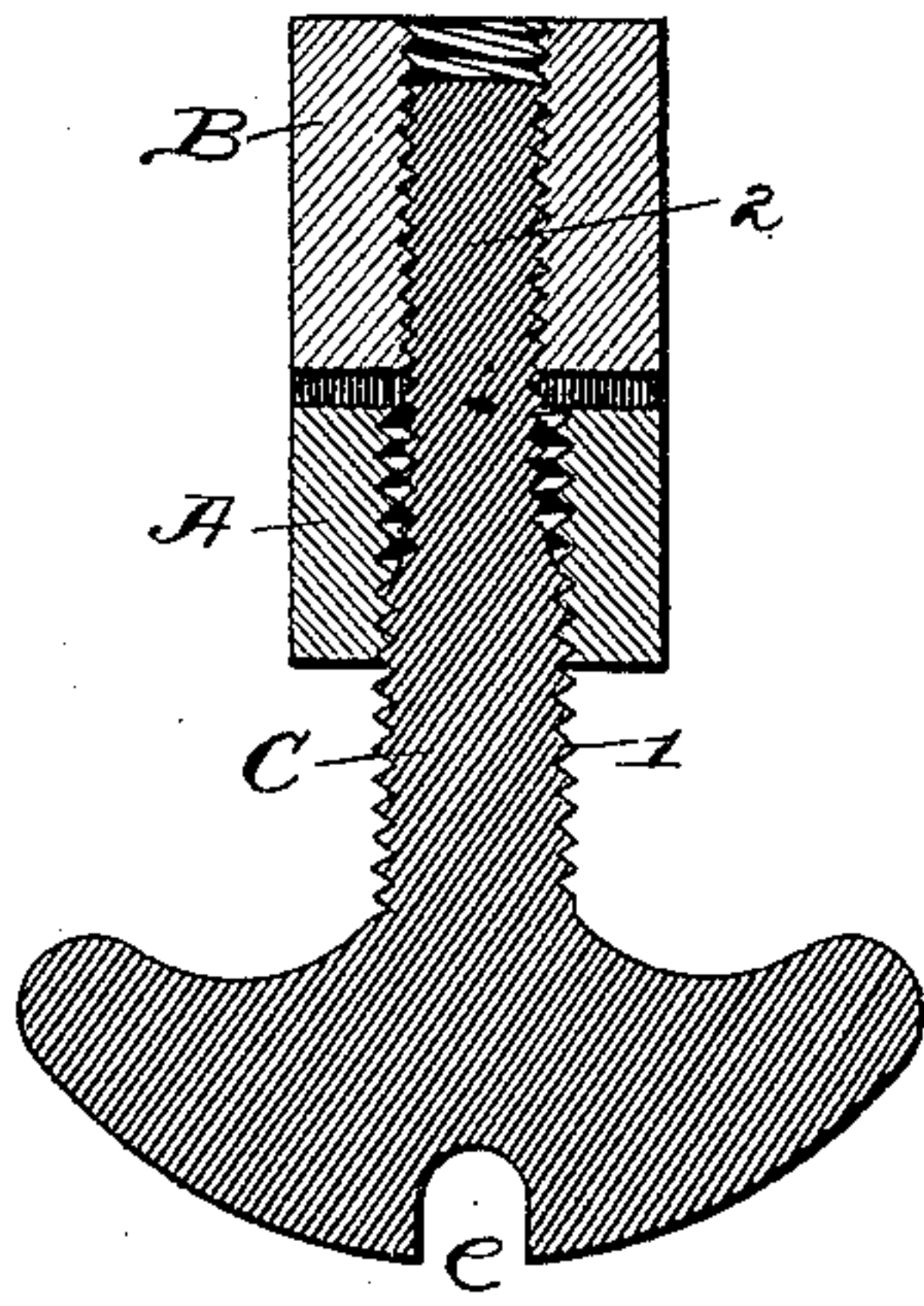


Fig. 3.

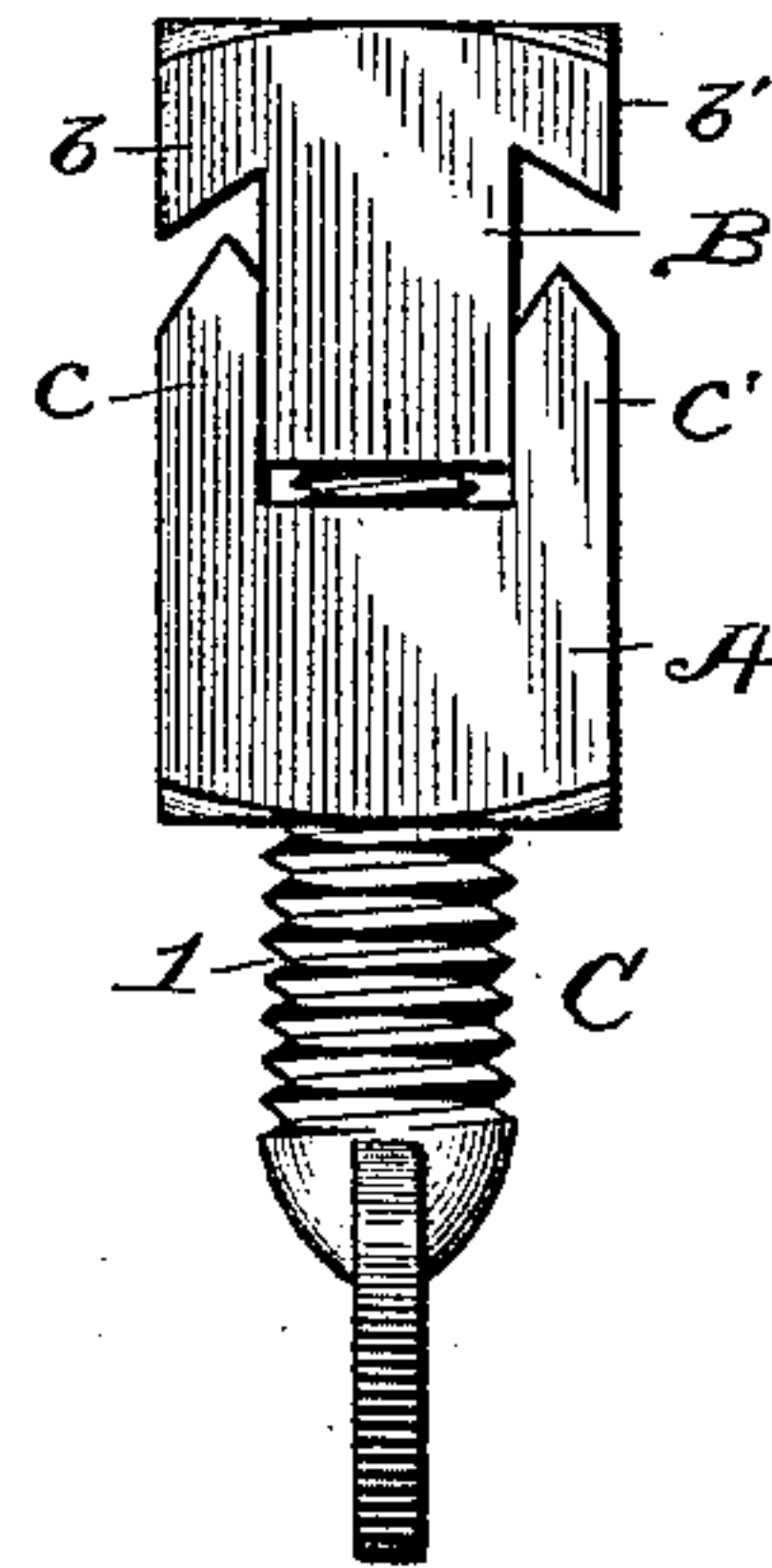


Fig. 4.



Fig. 5.

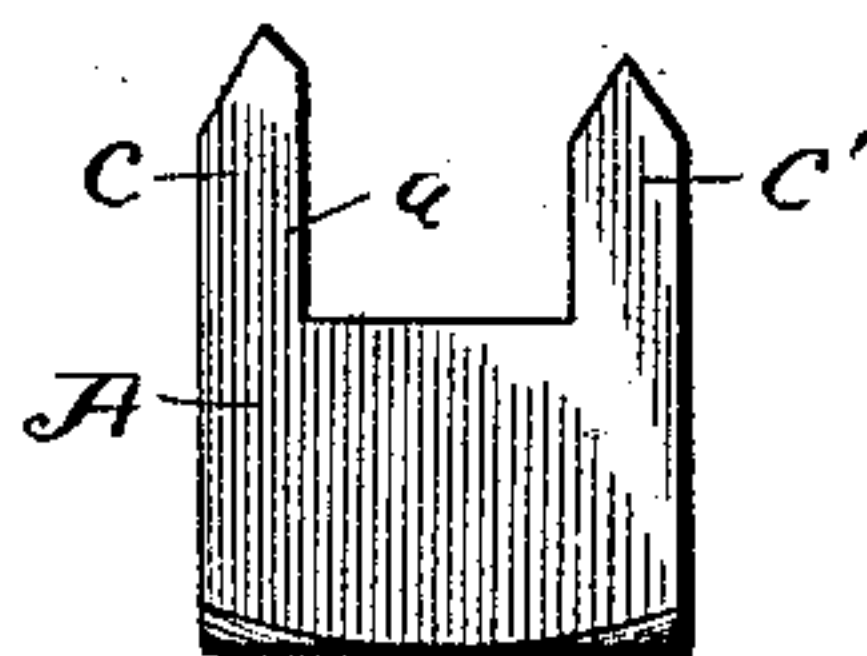
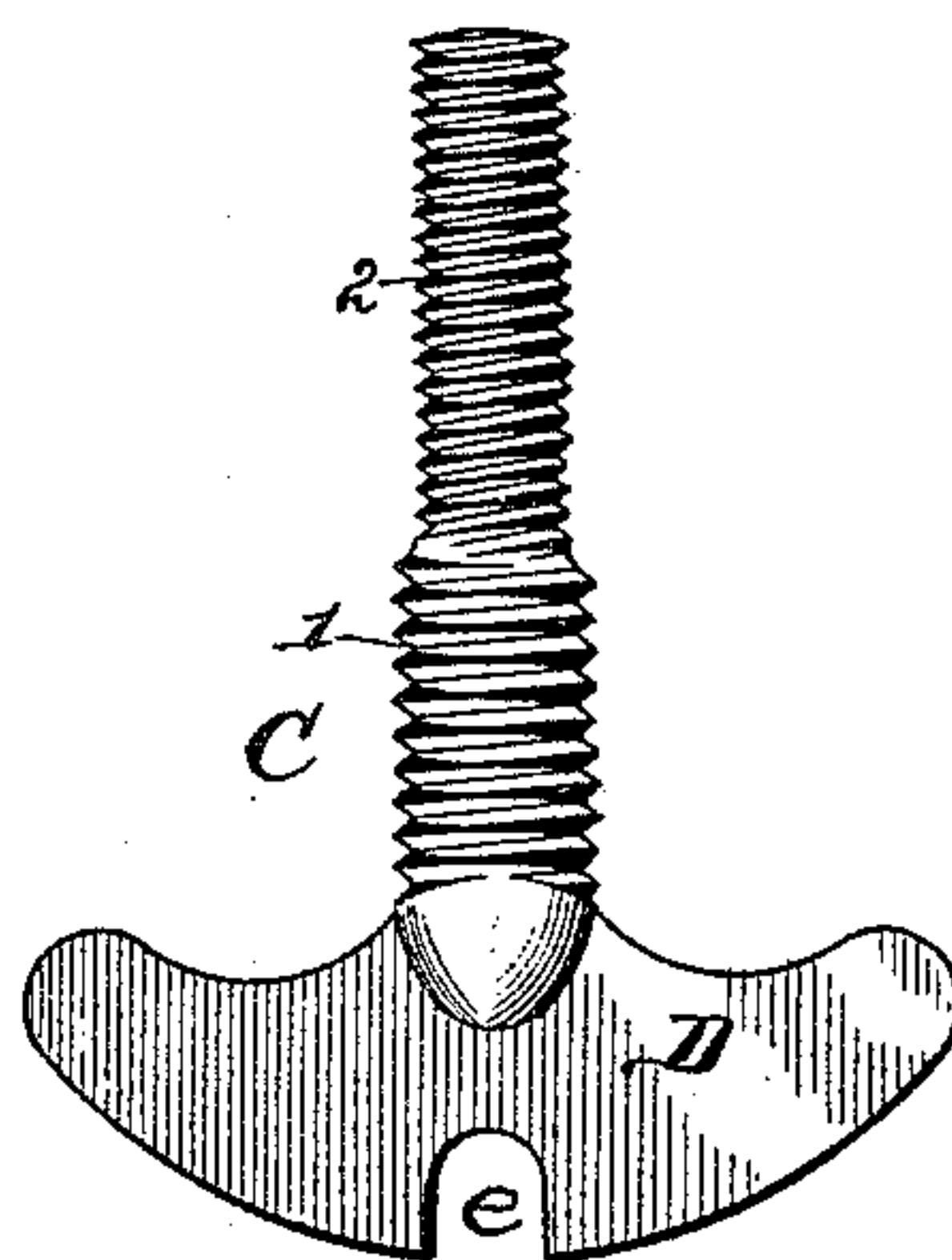


Fig. 6.



Witnesses
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Inventor.
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UNITED STATES PATENT OFFICE.

FREDERICK C. AVERY, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-HALF TO
CHARLES L. JENNESS, OF SAME PLACE.

WISE.

SPECIFICATION forming part of Letters Patent No. 429,105, dated May 27, 1890.

Application filed November 4, 1889. Serial No. 329,145. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK C. AVERY, of Chicago, in the county of Cook and State of Illinois, have invented certain new and
5 useful Improvements in Vises, of which the following is a specification.

The object of my invention is to produce a vise having a powerful grip, which shall be strong and simple in construction, and which
10 shall be provided with two pairs of permanent jaws having different sized openings, so that the range of its capacity may be thereby increased.

My improved vise may be applied to a variety of purposes; but in the accompanying
15 drawings I have shown one having jaws specially adapted to grasp a round object. If made of the size shown in the drawings or somewhat smaller, it is suitable for holding
20 pieces of wire or as a spoke-grip for screwing up the spokes of suspension-wheels, such as are used in bicycles and other light vehicles. If made of a larger size, it is adapted for screwing in studs or gas-pipes.

25 In the accompanying drawings, Figure 1 is a side, and Fig. 3 an edge, elevation of the vise complete. Fig. 2 is a central longitudinal section of the same on a plane parallel to the edge of the vise-jaws. Figs. 4, 5, and 6
30 show the several parts of the vise detached.

The vise consists of two parts A and B, drawn together by the screw C, which is turned by the thumb-piece D. The part A, which for convenience of designation I will
35 term the "fixed" part of the vise, is channeled or slotted so that its general outline as viewed from the edge resembles the letter U. Part B, which for convenience of designation I will call the "movable" part, has a prismatic
40 body, which fits the slot *a* in the part A, and at one end is provided with a projecting-jaw on each side *b b'*. The portions *c c'* of the part A, which are left on each side of the slot *a*, form jaws, which are in opposition to the
45 jaws *b b'* of the part B when the two are placed together. Holes are drilled lengthwise through the parts A and B, so as to register with each other when the parts are in place, and are tapped for the reception of the screw

C. The screw C consists of a single integral 50 piece comprising two portions 1 and 2. The portion 1 is of greater diameter than the portion 2, and has a single-threaded screw cut thereon. The portion 2 is of smaller diameter, and has a double or other multiplex 55 threaded screw cut thereon of greater pitch than that on the part 1. The hole in the part B is tapped to fit the thread cut on portion 2 of the screw C, and the part A is tapped to fit the portion 1 of the screw C. The result of 60 this construction is that when C is screwed into the parts A and B differential closing motion is imparted to the latter equal to the difference in the pitch between the screws on the two portions 1 and 2 of the screw C. By 65 reversing the movement the jaws are opened.

By constructing the screw C as just described—that is, by making the portion 2, next the point, the smaller and cutting thereon a double-threaded screw of greater pitch than 70 that of the portion near the head—I retain ample strength in the screw. If a single thread of greater pitch than that upon the head portion were cut upon the point of the screw, the thread upon the point would necessarily be 75 so coarse as to cut too deeply into the point of the screw, which would thereby be weakened, or the screw-thread at the head of the screw would be so fine as to lack durability. On the other hand, if the coarser thread were 80 at the head of the screw, then to close the vise it would be necessary to turn the screw out from the part A in order to close the vise-jaws, and the greatest pressure would come upon the screws when the fewest threads upon the 85 part A and the screw C were left in engagement.

In order to give a better hold upon a circular object, the jaws on the part A are made V-shaped and the opposite jaws form an acute 90 angle with the body of the part B. The V-shaped edge of the part A if applied to an object having a painted or enamel surface will necessarily mar it to some extent; but I have found that if the edge be notched, as seen at 95 *d d*, Fig. 1, the paint or enamel will be much less flaked. By making one or more notches, as *e*, in the thumb-piece of the vise it may be

used as a wrench for small nuts and bolts. This is especially useful in connection with a spoke-grip, as the notches may be made to fit the small nuts or nipples which are sometimes used for securing the spokes.

What I claim, and desire to secure by Letters Patent, is—

1. The combination, in a vise, of two parts, as A and B, one part having a channel or slot cut therein, a jaw or jaws, as $c c'$, being left on one or on each side of the channel, and the other part having a prismatic body, which is fitted to the slot in the former, both said parts having screw-threaded holes which register with each other and are adapted to receive a differentially-threaded screw for moving said

parts relatively to each other, substantially as described.

2. The vise comprising, in combination, the part A, having a slot or channel cut therein, a jaw, as $c c'$, being left on one or on each side of the channel, the part B having a prismatic body fitted to the channel in the first-named part and having projecting jaws, as $b b'$, in opposition to the jaws $c c'$, and a screw adapted to move said parts A and B relatively to each other, substantially as described.

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Witnesses:

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