

(No Model.)

S. FRANCIS.
BRACE CHUCK.

No. 414,768.

Patented Nov. 12, 1889.

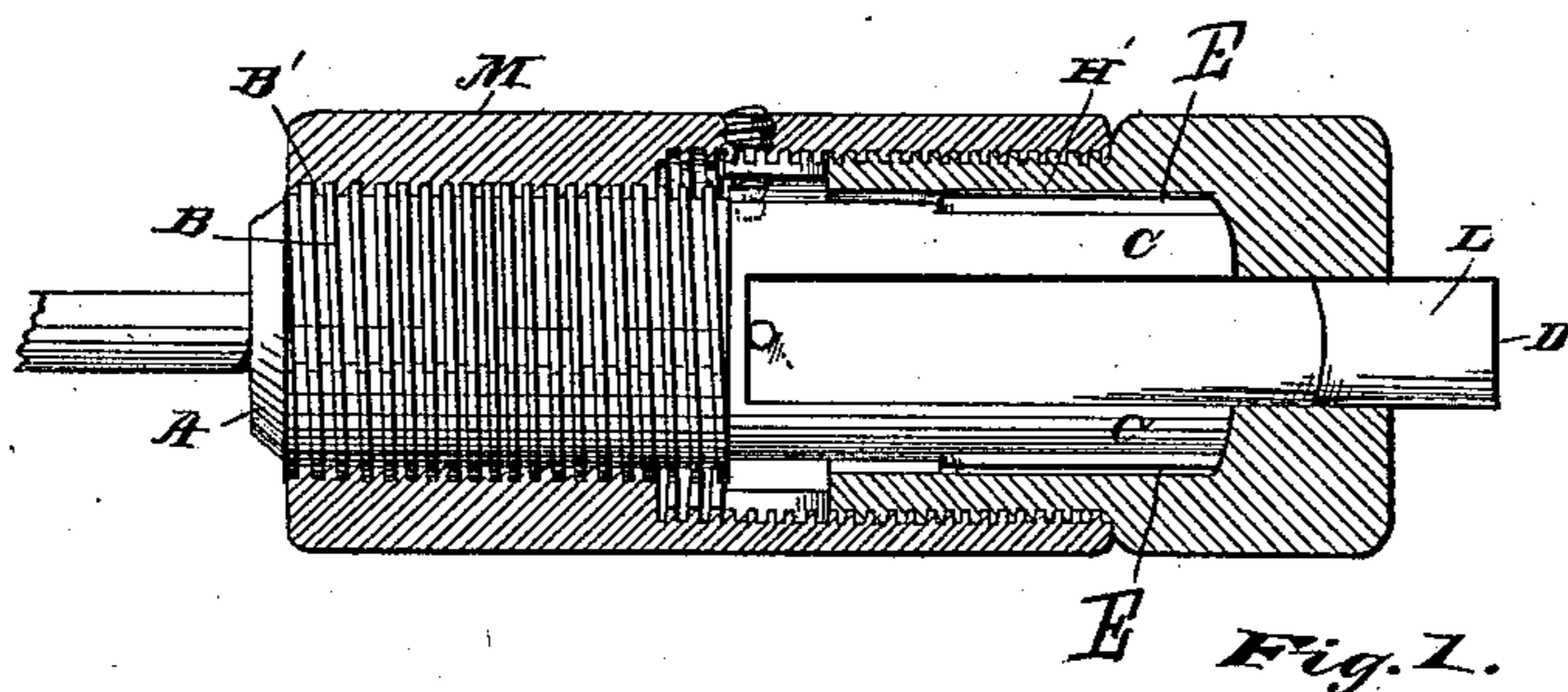


Fig. 1.

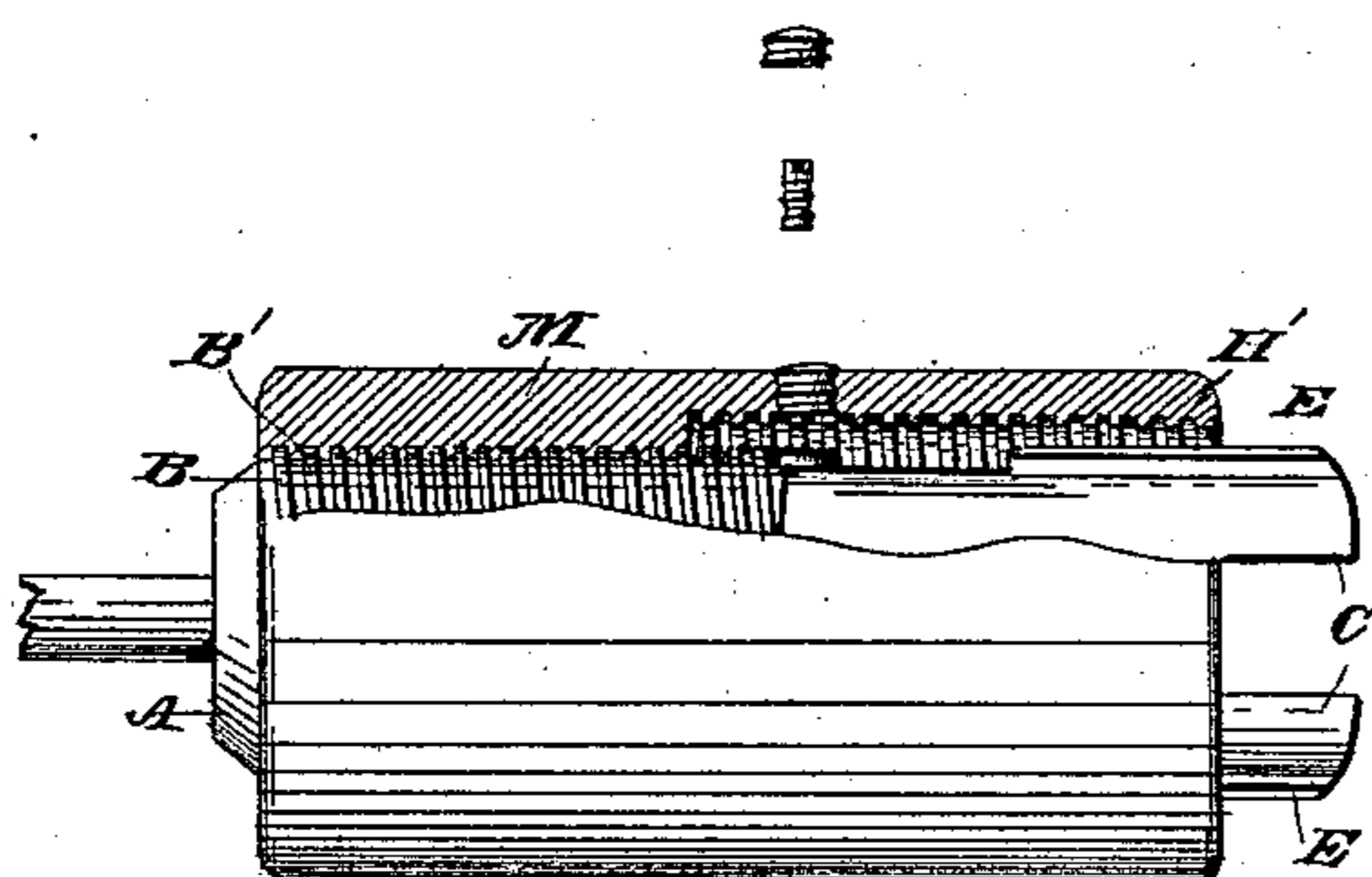


Fig. 2.

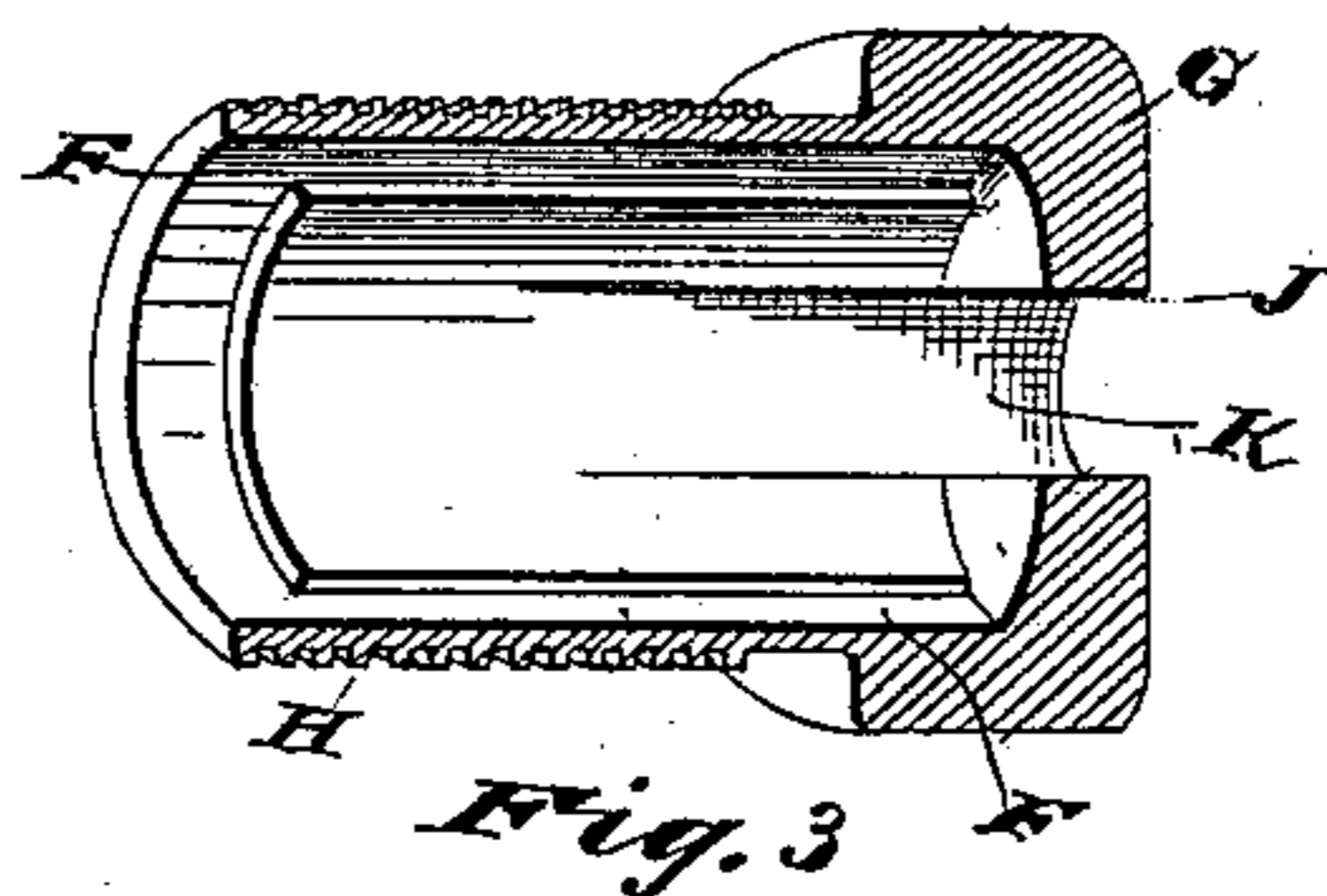


Fig. 3.

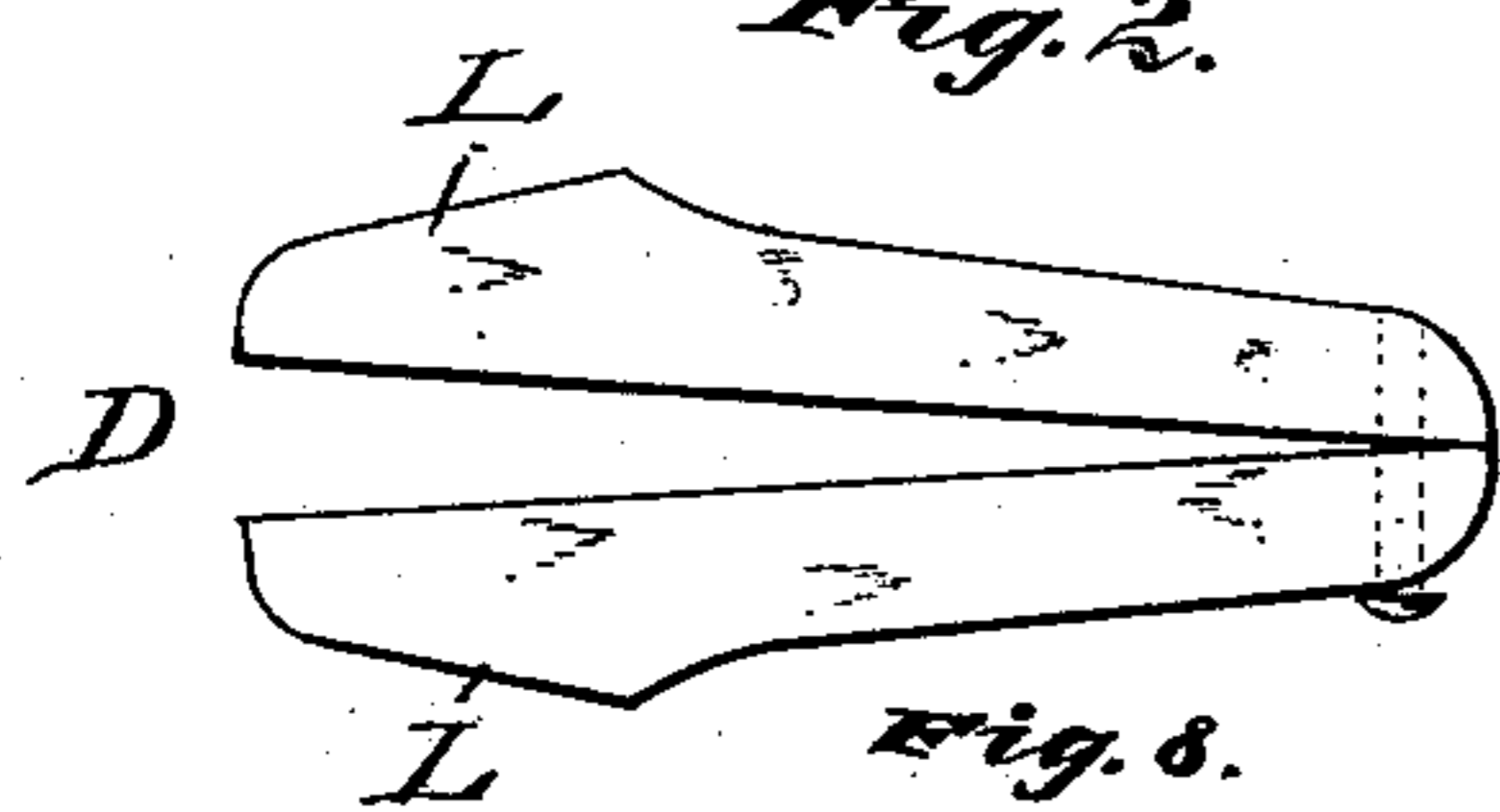


Fig. 4.

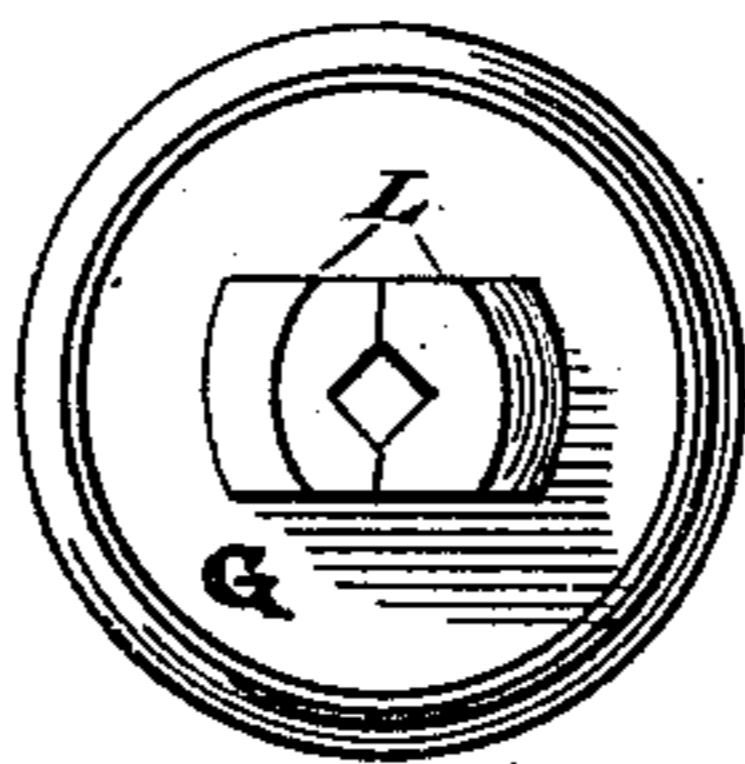


Fig. 5.

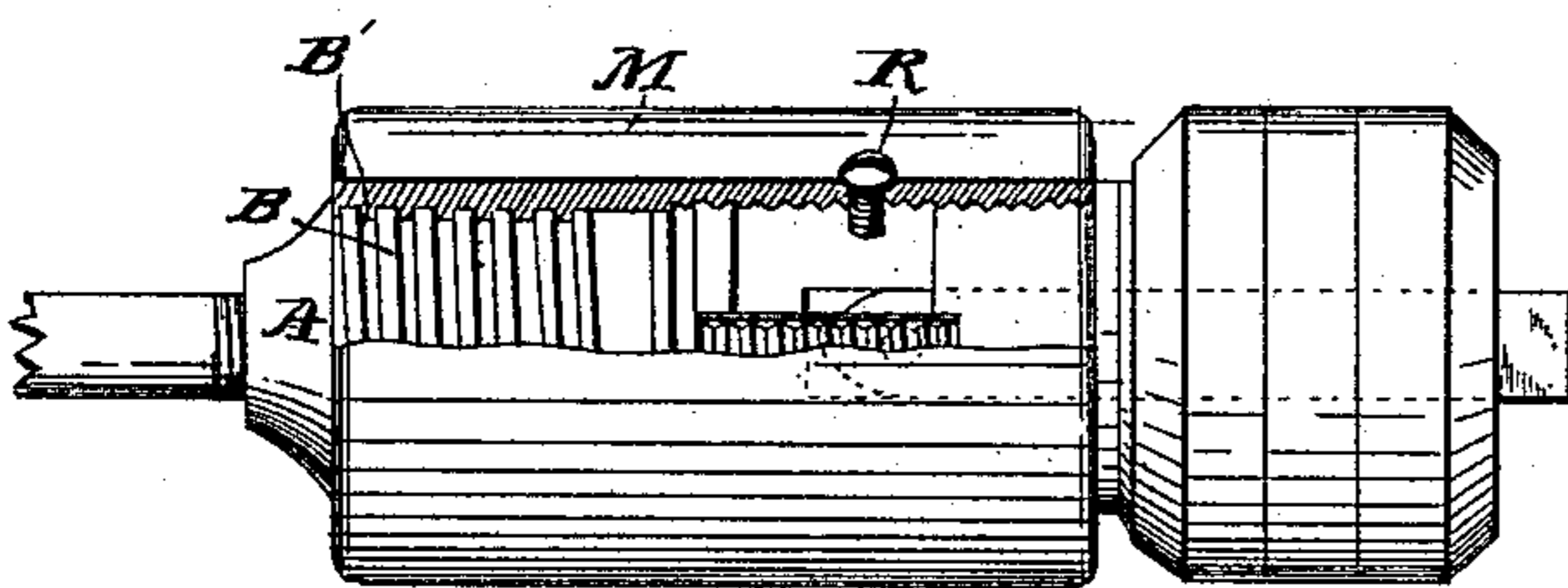


Fig. 6.

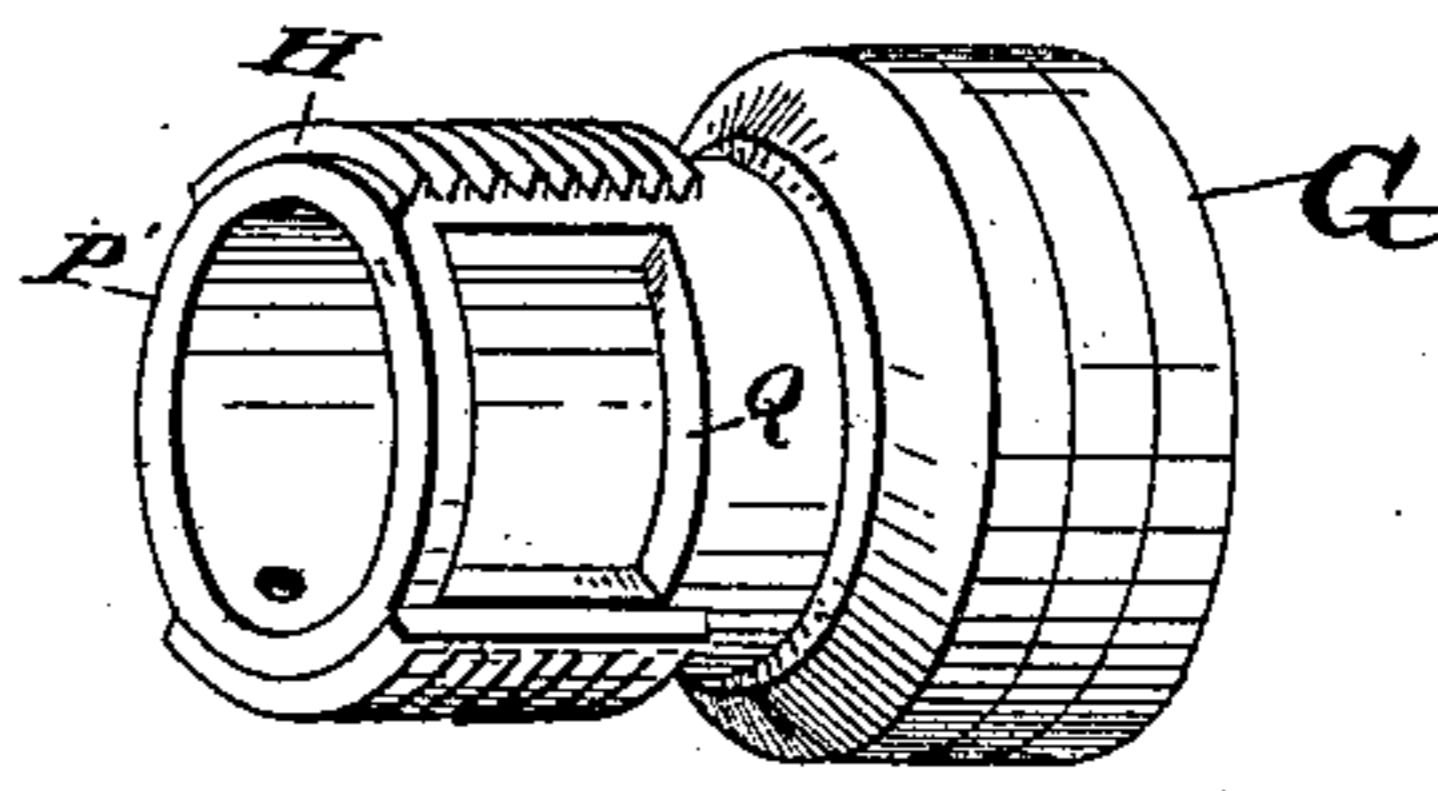
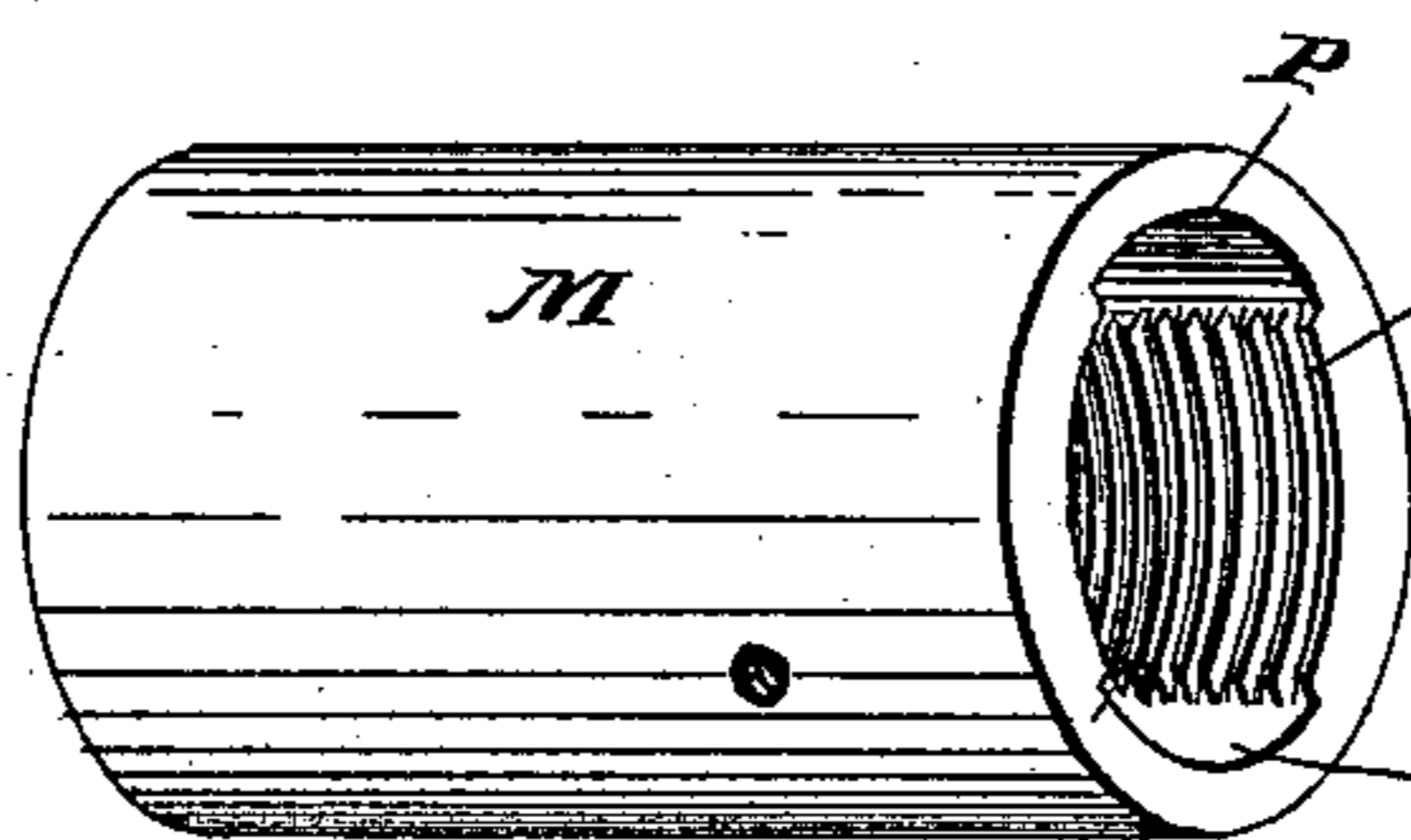


Fig. 7.

WITNESSES:

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STEPHEN FRANCIS, OF CANTON, OHIO.

BRACE-CHUCK.

SPECIFICATION forming part of Letters Patent No. 414,768, dated November 12, 1889.

Application filed July 12, 1889. Serial No. 317,324. (No model.)

To all whom it may concern:

Be it known that I, STEPHEN FRANCIS, a citizen of the United States, and a resident of Canton, county of Stark, State of Ohio, have invented a new and useful Improvement in Brace-Chucks, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification.

My invention relates to improvements in brace-chucks; and it consists in providing, as a new article of manufacture, a brace-chuck consisting of certain features of construction and combination of parts, as will be herein-
after described, and pointed out in the claims.

Figure 1 of the accompanying drawings is a longitudinal view, partly sectional, showing the inside portion of the chuck. Fig. 2 is a similar view, the head of the chuck removed. Fig. 3 is a perspective of a section of the head; Fig. 4, an end of the head. Fig. 5 is a side view, partly sectional, of a modification of my invention. Fig. 6 is a perspective of the head of the same. Fig. 7 is a similar view of the sleeve, and Fig. 8 is a side view of the jaws.

As my invention is alike applicable for use on a boring-brace, drill-press, or other forms of machinery used for boring and drilling, I will proceed with a description of my invention, not referring to its use on any particular tool or machine.

A represents the body of the chuck, which may be adapted to be secured on the shank of a carpenter's brace-stock or for use on other forms of machinery. About the upper end portion of the body is provided an annular right-hand screw-thread B. The other end portion of said body is bifurcated, the prongs C adapted to embrace the jaws D. On the outside portion of the prongs C are provided longitudinal ribs E, fitted to grooves F, provided in the head G. About the shank portion of the head G is provided an annular left-hand screw-thread H. There is also provided in said head a grooved portion J, having inclines K, that engage corresponding inclines L on the jaws D.

To operate the jaws D to secure therein or to release a drill or bit, a sleeve M is provided, having at one end portion a right-hand female screw-thread B', adapted to the screw

B on the body A, and at the other end of said sleeve a left-hand female screw-thread H', adapted to turn onto a similar thread H on the shank of the head G, and in operation the head G is held from rotation by the ribs E engaging the slots F and jaws D by the rotation of the sleeve M. Its right-hand thread B', engaging the thread B on the body A, will carry the sleeve forward over prongs C the same movement of the sleeve. The left-hand thread H', engaging the thread H on the shank of the head G, will carry the head outwardly from the sleeve over the prong C and jaws D, by which movement the incline K of the head is removed from the incline L of the jaws D and the bit or other tool released; and to tighten the jaws onto a tool the rotation of the sleeve is reversed, the sleeve will be carried toward the brace or drill-stock and the shank of the head G into the sleeve M, bringing the incline K of the head into engagement with the inclines L of the jaws D, by which the jaws will be made to grasp the bit or other tool. It will be noticed that one revolution of the sleeve M will move the head G twice the distance of the pitch of the screws on the body A—that is, for illustration, supposing the pitch of the threads B B' to be one-eighth and the thread H H' the same, as the sleeve is carried one-eighth of an inch over the body A the head will have moved out of the sleeve one-eighth, making the movement of the head over the jaws one-fourth of an inch for each revolution of the sleeve. It will be further noticed that this rapidity of movement is obtained without increase of pitch—that is, the movement of the head is twice that of the sleeve or the pitch of the thread, both the sleeve and the head moving out over the jaws in the same direction, the head moving with twice the speed of the sleeve. It will be noticed that the head G does not revolve about the body or the jaws, but is held from rotation by the ribs E and the jaws D, the head moving only forward and back, the inclines K of the head engaging the inclines L of the jaws, by which movement side raking and cutting is avoided.

Figs. 5, 6, and 7 show a modification of my invention, using all the parts hereinbefore described and in precisely the same manner,

simply removing portions of the thread H' from the sleeves M diametrically opposite, as shown in Fig. 7, forming blank spaces P, and removing corresponding portions of the thread H on the head G, as shown in Fig. 6, forming corresponding blanks P'. The object of this modification is to provide a quick adjustment of the head G on the jaws D, and in operation the threaded portion H of the head G is passed into the blank spaces P of sleeve M and the threaded portions H' of sleeve M passed into the blank spaces P' on the head G, a portion of which is cut away, forming a mortise Q, as shown. A pin, as R, is turned through the sleeve M into said mortise, whereby the longitudinal movement of the head is arrested. The threads H and H' being disengaged, the head will be free to move back and forth on the jaws D to grasp the tool, and the threads turned into engagement by turning the sleeve M to tighten the jaws on the tool. It will be noticed that when the parts have been brought into position as stated a very slight rotary movement of the sleeve, the threads H and H' engaging, will serve to tighten the jaws on the tool.

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

30 1. As a new article of manufacture, a chuck composed of a body portion A, having an exterior right-hand screw-thread B, prongs C, and ribs E, a sleeve M, having at one of its ends an internal right-hand screw-thread B',

to engage the thread B on the body portion A, 35 and at its other end an internal left-hand screw-thread H', a non-rotative head portion having a corresponding screw-thread H, to engage the thread H', and inclines K and jaws D, having inclines L, to engage the in- 40 clines K, when constructed and operated substantially as described, and for the purpose set forth.

2. In a tool-holding chuck, an exterior threaded and pronged body portion A, an interior-threaded sleeve M, to rotate about said body portion, and a non-rotative head portion G, adapted to be reciprocated on said body portion by the rotary movement of the sleeve M to engage the tool-holding jaws D, 50 substantially as described, and for the purpose set forth.

3. In a tool-chuck, a body portion A, having an exterior screw-thread B, prongs C, and ribs E, a sleeve portion having interior threads 55 B' and H', portions of the latter removed, forming blanks, as P, a non-rotative head G, having an exterior thread H, portions of which are cut away, forming blanks P', aperture Q, pin R, and jaws D, substantially as described, 60 and for the purpose set forth.

In testimony whereof I have hereunto set my hand this 27th day of June, A. D. 1889.

STEPHEN FRANCIS.

Witnesses:

W. K. MILLER.

ATLEE POMERENE.