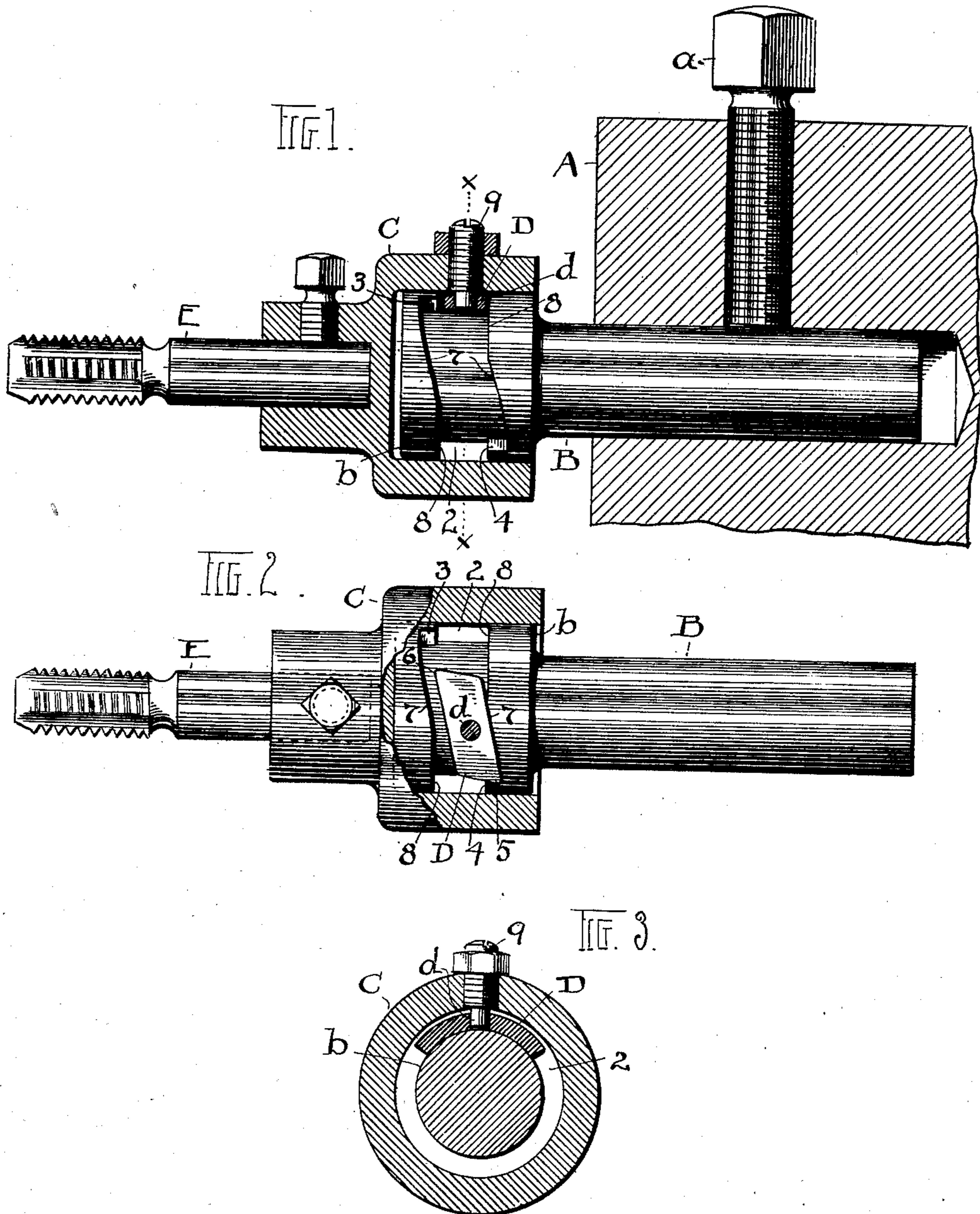


No. 711,085.

Patented Oct. 14, 1902.

F. C. TYLER.
TAP AND DIE HOLDER.
(Application filed June 23, 1902.)

(No Model.)



ATTEST

T. B. Moore
T. M. Madden.

INVENTOR.

Frederick C. Tyler

By *W. T. Fisher* ATTORNEY

UNITED STATES PATENT OFFICE.

FREDERICK C. TYLER, OF CLEVELAND, OHIO.

TAP AND DIE HOLDER.

SPECIFICATION forming part of Letters Patent No. 711,085, dated October 14, 1902.

Application filed June 23, 1902. Serial No. 112,760. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK C. TYLER, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Tap and Die Holders; and I do declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in tap and die holders; and the invention consists in the construction and combination of parts, substantially as shown and described, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a longitudinal sectional elevation of my improved construction of holder, and Fig. 2 is a plan view thereof with a fraction of the holder broken away. Fig. 3 is a cross-section on line *x x*, Fig. 1.

In the views thus shown there are present a section A of a turret and the shank B for the holder, which is a solid part and of such size and strength as to withstand all strain coming upon it and held lengthwise adjustable in the turret by screw *a*. The said shank has a head *b*, with an annular circumferential slot 2 of uniform width all around, except as hereinafter noted, and provided with inset shoulders 3 and 4, respectively on opposite sides and adapted to be oppositely engaged; as also will appear. Two such shoulders are shown herein; but there might be two other similar ones on the opposite side of the head, if desired. In said slot there is located a segmentally-curved dog D of somewhat less width than slot 2 and adapted to run around therein when not engaged in one or the other of the shoulders 3 and 4. The said dog has parallel sides and inclined ends, as shown in this instance, thus forming sharp corners 5 and 6 diagonally opposite at its ends and adapted to engage in or upon said shoulders 3 and 4, the corner 5 engaging shoulder 4 and the corner 6 engaging shoulder 3, according to certain inducing operations in which the dog is rotated on its pivot, as will be seen. Upon the said head and enveloping the same all around is the holder proper, C, which carries the tap E or other tool or part which may be secured therein or thereto. In this in-

stance I show a tap. I might show a die or other tool. The said holder is sleeved over or upon head *b* of shank B, with only enough direct or back-and-forth movement to cause the dog D to be tilted on its central pivot *d* to bring one or the other of its engaging corners into engagement with the corresponding shoulder in the edge of slot 2, according as the said holder is rotated to make a forward or a backward or backing engagement. For example, it is shown in Fig. 2 as locked on shoulder 4. This is the working position of the parts, brought about by feeding the work against the point of the tap, and thus forcing holder C back as far as it can go, which at the most is very little, as will be seen, and can scarcely be noticed in operation. The dog D is secured in operating position by the point of screw 9 through the holder C and is free to rotate on said point, but is controlled thereby as the holder is moved back and forth axially. It will be seen also that each shoulder 3 and 4, respectively, has an inclined edge 7 running to its rear portion from the straight edge 8 of channel 2, and this inclination of edge is of such length that it deflects the dog to engagement with one shoulder or the other the moment axial pressure is applied, and the pivot-screw 9 passes opposite one of said inclined surfaces. This switches the advance end of the dog inward, and a further rotation brings it up to that shoulder 3 or 4, as the case may be. In the present case it is the shoulder 4. The opposite point or end of the dog has room to swing laterally to accommodate this movement. Just the reverse of this occurs when backing off takes place and dog D changes position to engage with shoulder 3. The dog D can be thrown from engagement with one shoulder to the other in the short limit of rotation between shoulders 3 and 4. This obviously is very slight, so that the reverse movements can be quickly made with this holder, and all the actions are positive. In operation—say from position in Fig. 2—the movement of holder C axially to the left will draw dog D back against the opposite straight wall 8 and throw it out of engaging relation to both shoulders 3 and 4. Then holder C can be rotated indefinitely without a hitch; but if the holder be both rotated and drawn upon the dog will be tilted

inward on the inclined edge 7 and run into engagement with shoulder 3. This is the backing-off position of the parts.

Among the advantages of my improved construction I claim simplicity of construction, with fewer parts than formerly, a stronger shank than holders of ordinary type, and greater range of adjustment by reason of solid shank, and materially less travel between forward and backing motion than hitherto and consequent saving of time with increased amount of work accomplished.

The curvature of segmental dog D corresponds to the radius of the slot in which it travels, and so when it is rotated it must rise slightly at its ends to lie at an angle, as in Fig. 2. Hence it will always travel in said slot when free and not engage either shoulder 3 or 4, because to do so requires energy.

The present construction is for using a right-hand tap or die, and for a left-hand one the construction of dogs and shoulders would be reversed, as is obvious.

What I claim is—

1. In tap and die holders, a part having a circumferential channel about the same with shoulders in its edges, a dog in said channel constructed at opposite points diagonally to engage either shoulder, and a holder sleeved over said part and having said dog pivoted on its inside, substantially as described.

2. In tap and die holders, a suitable shank

having a channel about its outer end with shoulders in its edges, a dog in said channel constructed to engage said shoulders and a holder sleeved over said outer end of the shank and having the said dog pivotally connected therewith, substantially as described.

3. The shank having a channel about one end with shoulders in its edges and inclined edge portions of said channel leading to the rear of said shoulders, a segmental dog in said channel and a part sleeved over said channel and provided with a projection inside forming a pivot for said dog, substantially as described.

4. The shank and the channel about the outer end thereof having shoulders in its edges, in combination with a dog narrower than said channel and constructed at its ends to engage said shoulders, said channel having a portion of its edges inclined in advance of said shoulders, a holder sleeved upon said shank and a screw through said holder having its inner end projecting loosely into said dog and forming a pivot therefor, and means to operate the dog, substantially as described.

Witness my hand to the foregoing specification this 10th day of June, 1902.

FREDERICK C. TYLER.

Witnesses:

R. B. MOSER,

T. M. MADDEN.