

(No Model.)

J. E. WOODBRIDGE.

SCREW CUTTING DIE.

No. 399,367.

Patented Mar. 12, 1889.

Fig. 1.

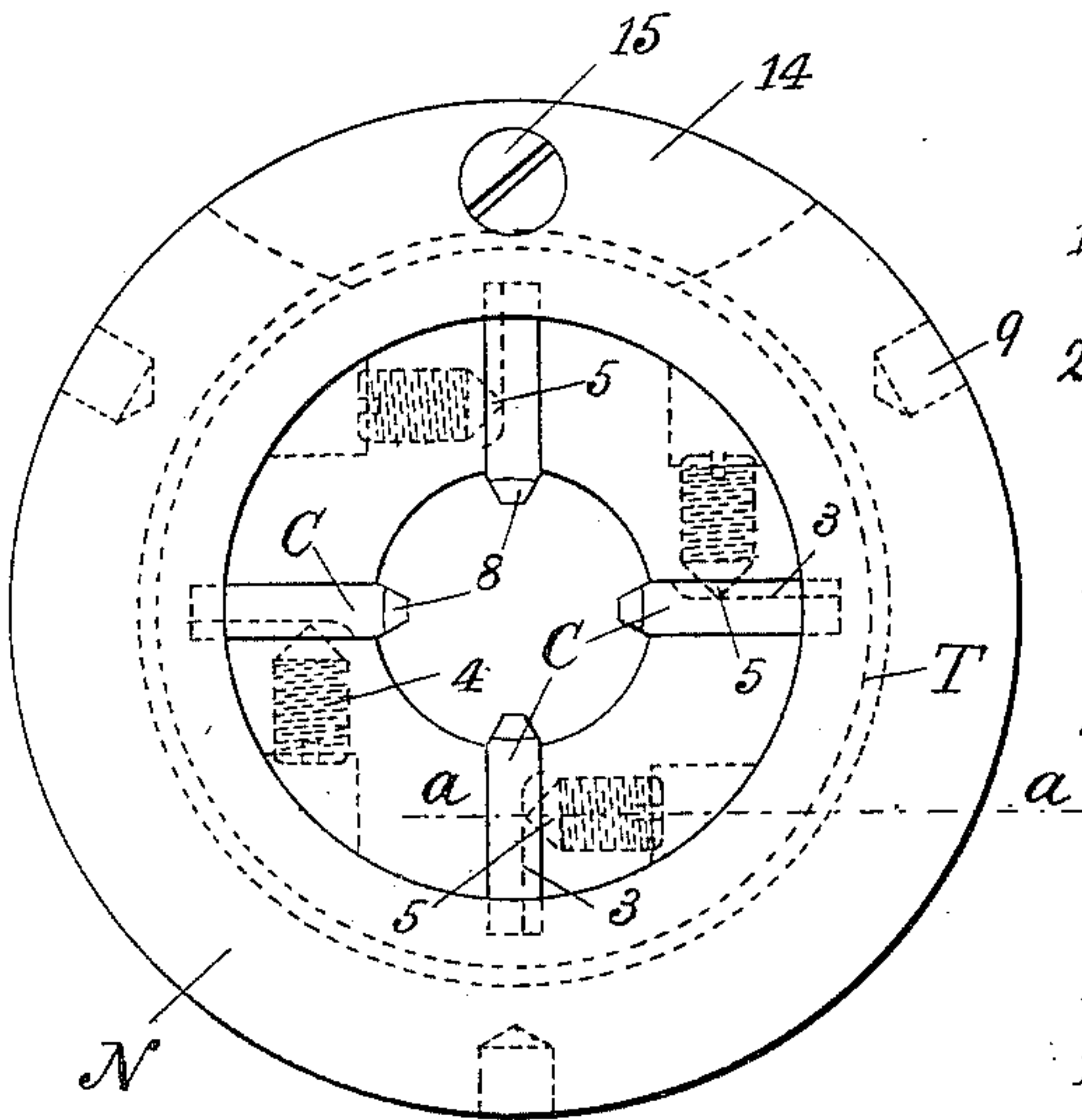


Fig. 2.

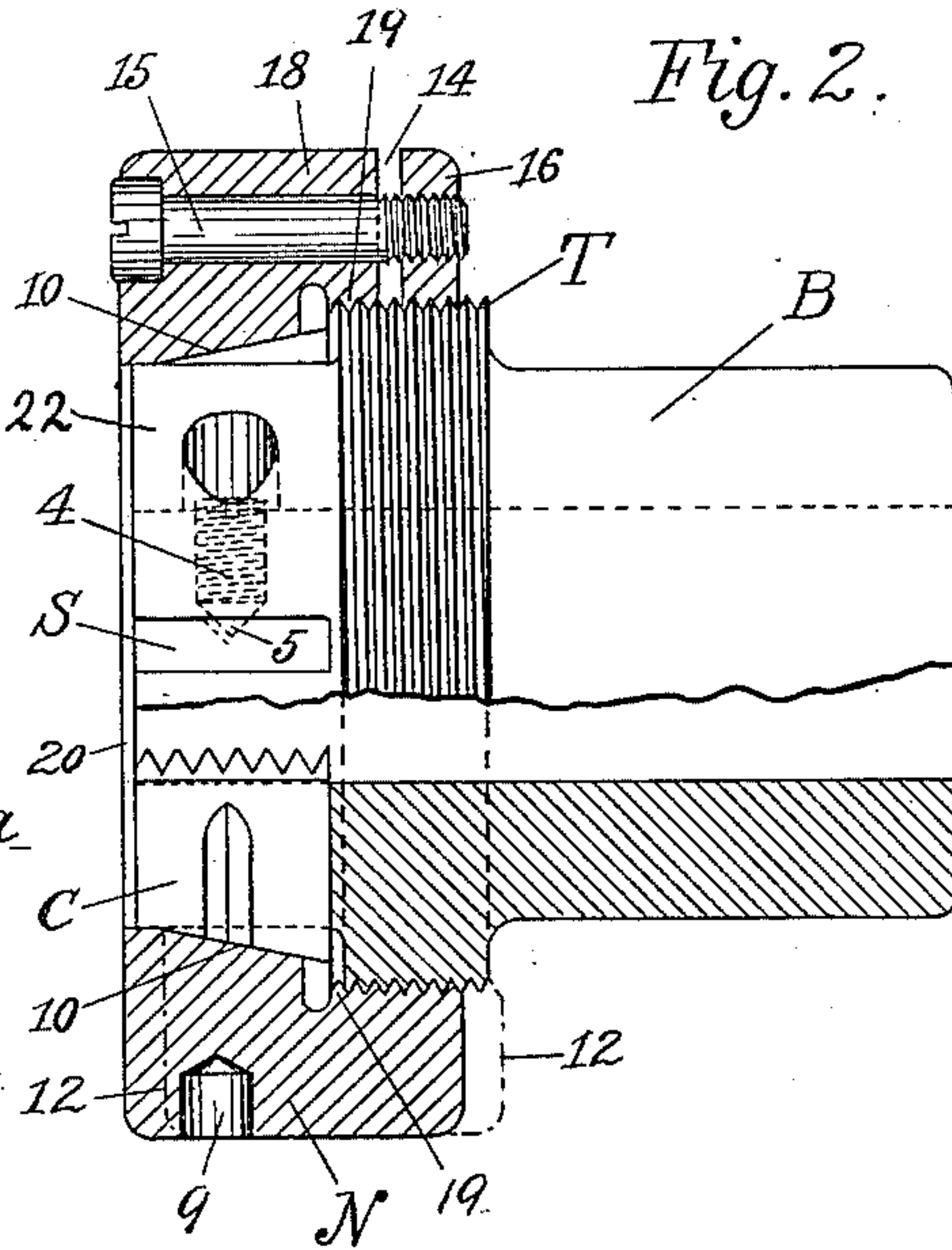


Fig. 4.

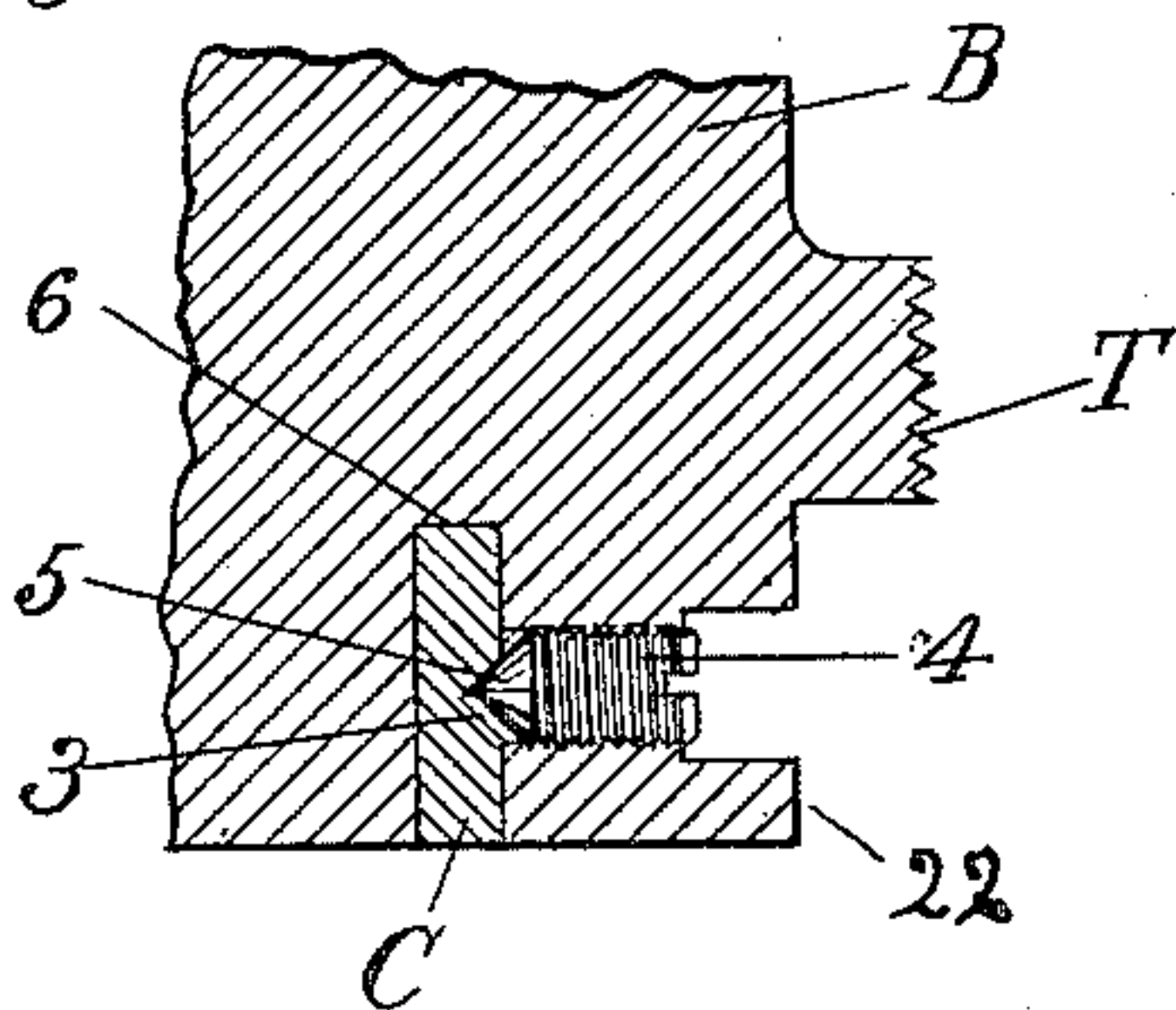


Fig. 3.

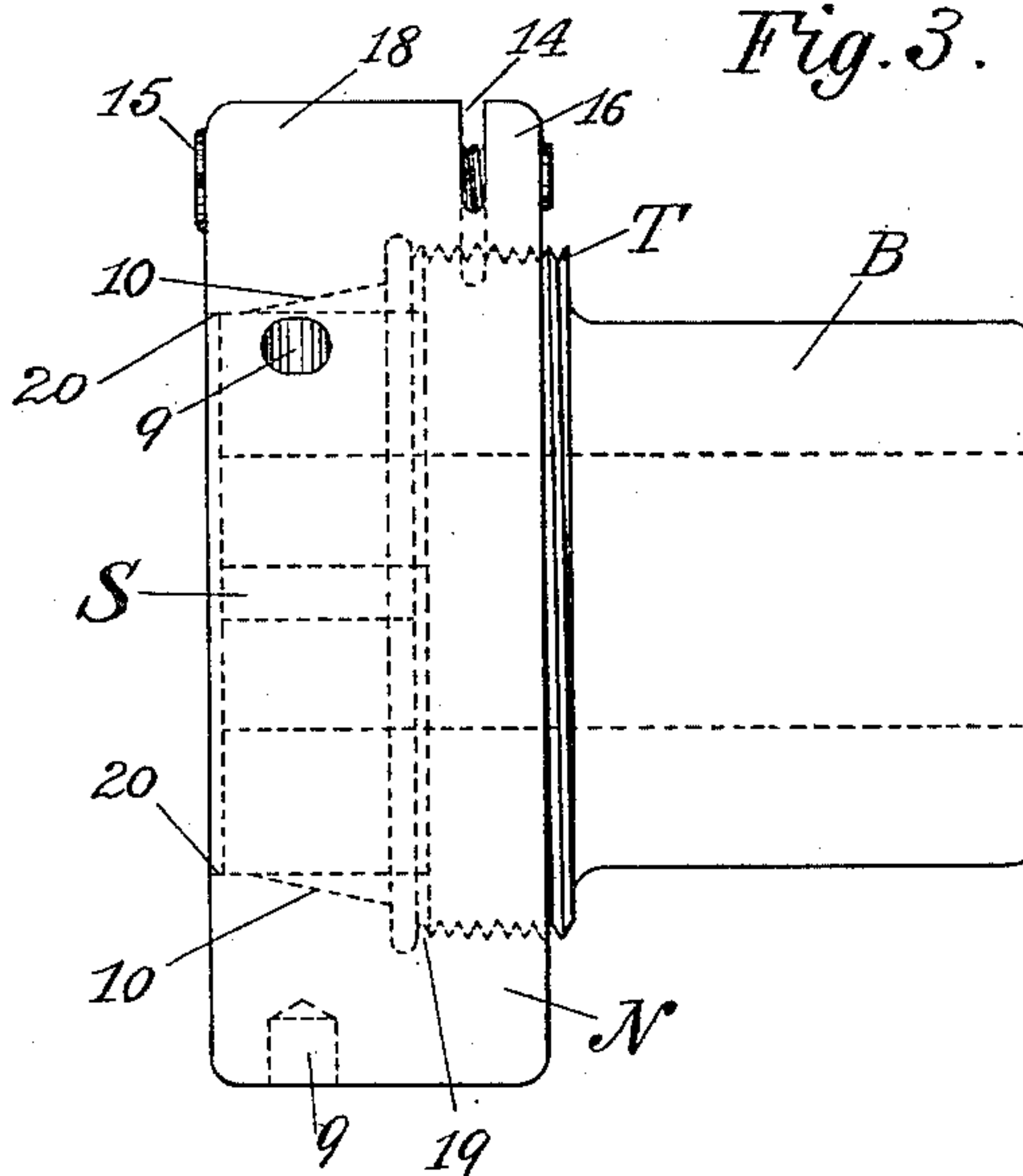
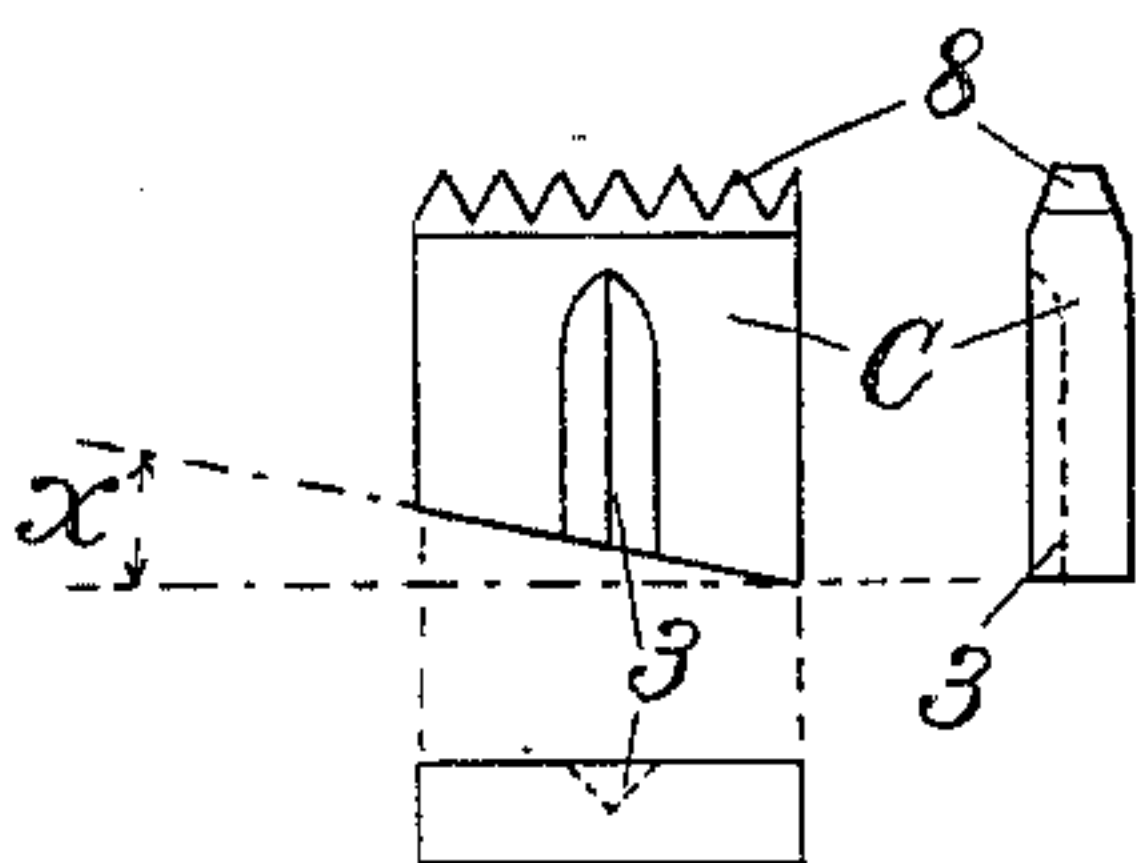


Fig. 5.



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UNITED STATES PATENT OFFICE.

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SCREW-CUTTING DIE.

SPECIFICATION forming part of Letters Patent No. 399,367, dated March 12, 1889.

Application filed October 5, 1888. Serial No. 287,343. (No model.)

To all whom it may concern:

Be it known that I, JAMES E. WOODBRIDGE, a citizen of the United States, residing at Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Screw-Cutting Dies, of which the following is a specification.

This invention relates to that class of screw-cutting dies having renewable chasers, and has for its object to furnish an improved die of that class in which the chasers are adjustable by means of the improvements and combinations hereinafter more fully set forth.

In the drawings accompanying and forming a part of this specification, Figure 1 is a front view of a die embodying my improvements. Fig. 2 is a sectional side elevation of the same. Fig. 3 is a side elevation, in which dotted lines show some features of the interior construction. Fig. 4 is a section in line *a a*, Fig. 1. Fig. 5 shows one of the chasers in four views, which are drawn in projection, one view with the other, in the usual manner.

Similar characters designate like parts in all the figures.

The body of the die which carries the series of chasers is designated by B. This part B is usually bored, as shown, to permit the passage through it of the bolt or other piece being threaded. The front end of said die-body (at left hand in Figs. 2 and 3) has a series of radially-disposed slots formed to receive the chasers, one of which slots is designated by S in Figs. 2 and 3. Into these slots the chasers C, two or more in number, are respectively fitted closely, but not firmly. The chasers each have a beveled (or concave) groove, 3, whereby they are held in place in said slots S by means of pointed screws 4, whose points bear in said grooves. Screws 4 are contained in tapped holes suitably located, substantially as shown, in the die-body, said screw-points being located and constructed to bear against the rear side of said groove, thereby forcing the chasers back onto the bottom of the slot S, as shown at 6, Fig. 4. The chasers have the usual cutting teeth or threads, 8, and on their outer ends are beveled at a suitable angle—as, for instance, the angle X, Fig. 5—whereby the chaser-adjust-

ment may be effected by the means herein-after described.

The die-body rearward of slots S has a screw-thread, T, onto which the annular collet N is fitted by a corresponding thread. This collet or ring N is or may be furnished with holes 9, or similar means, whereby a wrench or other suitable tool may be used for adjusting it on said thread T. The inner and forward part of said ring has formed therein two bearing-surfaces, one conical and one cylindrical. The cylindrical surface 20 is at the extreme forward part of the ring, and has a close-working fit on the cylindrical forward end, 22, of the collet or die-body B. By this means any strains acting on said ring crosswise to the axis of the die are resisted by the said surface 20, and the accurate position on the die-body of said ring is obtained by a close cylindrical bearing which is readily made accurately, and is not obtained by the aforesaid engaging screw-threads, which are more difficult and expensive to make and much less reliable for the said purpose, for in practice it is desirable the threaded part T should be freely fitted, while such mode of fitting renders the same incapable of accurately and firmly holding the ring in place. Between the cylindrical bearing 20 and the internal thread, 19, there is the internal conical bearing-surface, 10, formed smallest at the front end, where it joins (or comes contiguous to) the cylindrical surface 20. Against this conical surface the chasers C take their bearing, as well shown in Fig. 1, and by screwing the ring N a greater or less distance onto the die-body B the chasers may be adjusted within given limits to cut screws to any required gage.

For holding or setting the collet N in place, I cut a slot, 14, entirely through the same and in the threaded part thereof, crosswise to the axis of the thread. A binding-screw, 15, extending across said slot, serves to spring the thin part 16, and thereby bind and securely clamp said ring from turning on the die-body.

The operation of cutting a thread is carried out in the usual manner and forces the chasers firmly outward against the ring N, and owing to the incline described also tends to

keep them against the bottom of the chaser-receiving slots.

Having thus described my invention, I claim—

5 1. The combination, in a screw-cutting die, with the die-body formed cylindrical at its forward end and having therein radially-disposed chaser-receiving slots and having a screw-thread rearward of said slots, of chas-
10 ers contained in said slots, and an annular ring having an internal thread fitting the thread on said die-body, having a cylindrical bearing fitting the cylindrical forward end of said die-body, and having a conical portion
15 between said cylindrical and threaded portions for taking the outward thrust of the chasers, all substantially as described.

2. The combination, in a screw-cutting die,

with the die-body B, having the cylindrical forward part, 22, the thread T, and carrying the 20 chasers C in the radial slots S, of the chaser-adjusting ring N, threaded to engage with the thread T, and having the inclined surface 10, for receiving the thrust of the chasers, and the cylindrical surface 20, bearing on said sur- 25 face 22, substantially as described, and for the purpose specified.

3. The combination, in a screw-cutting die, of the threaded die-body and the chaser-ad-justing ring having the slot 14, and a binding- 30 screw extending across said slot, as set forth.

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