

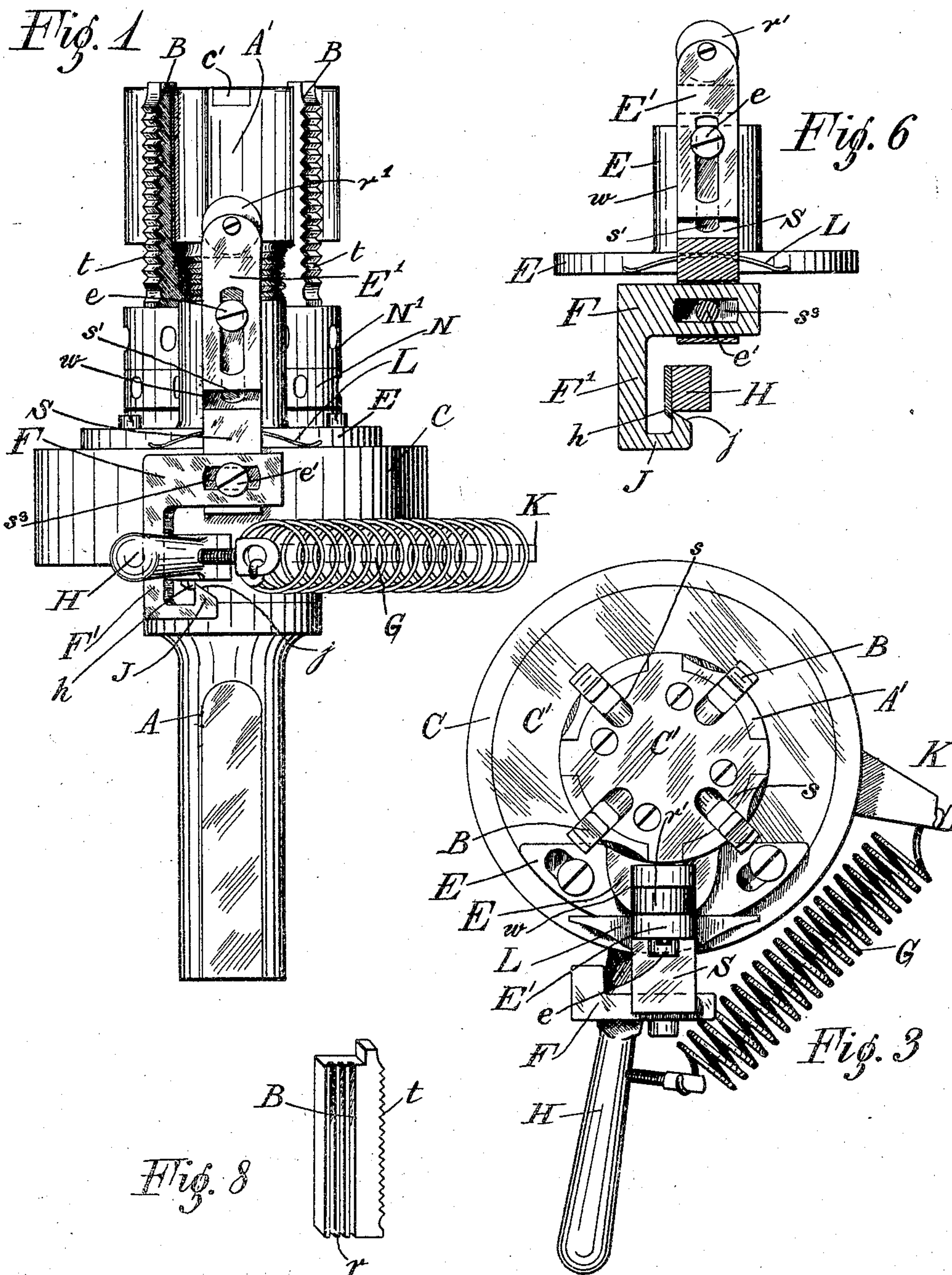
No. 775,672.

PATENTED NOV. 22, 1904.

T. DOLLARD.
TAP OR THREAD CUTTER.
APPLICATION FILED MAR. 4, 1904.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses
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2 SHEETS—SHEET 2.

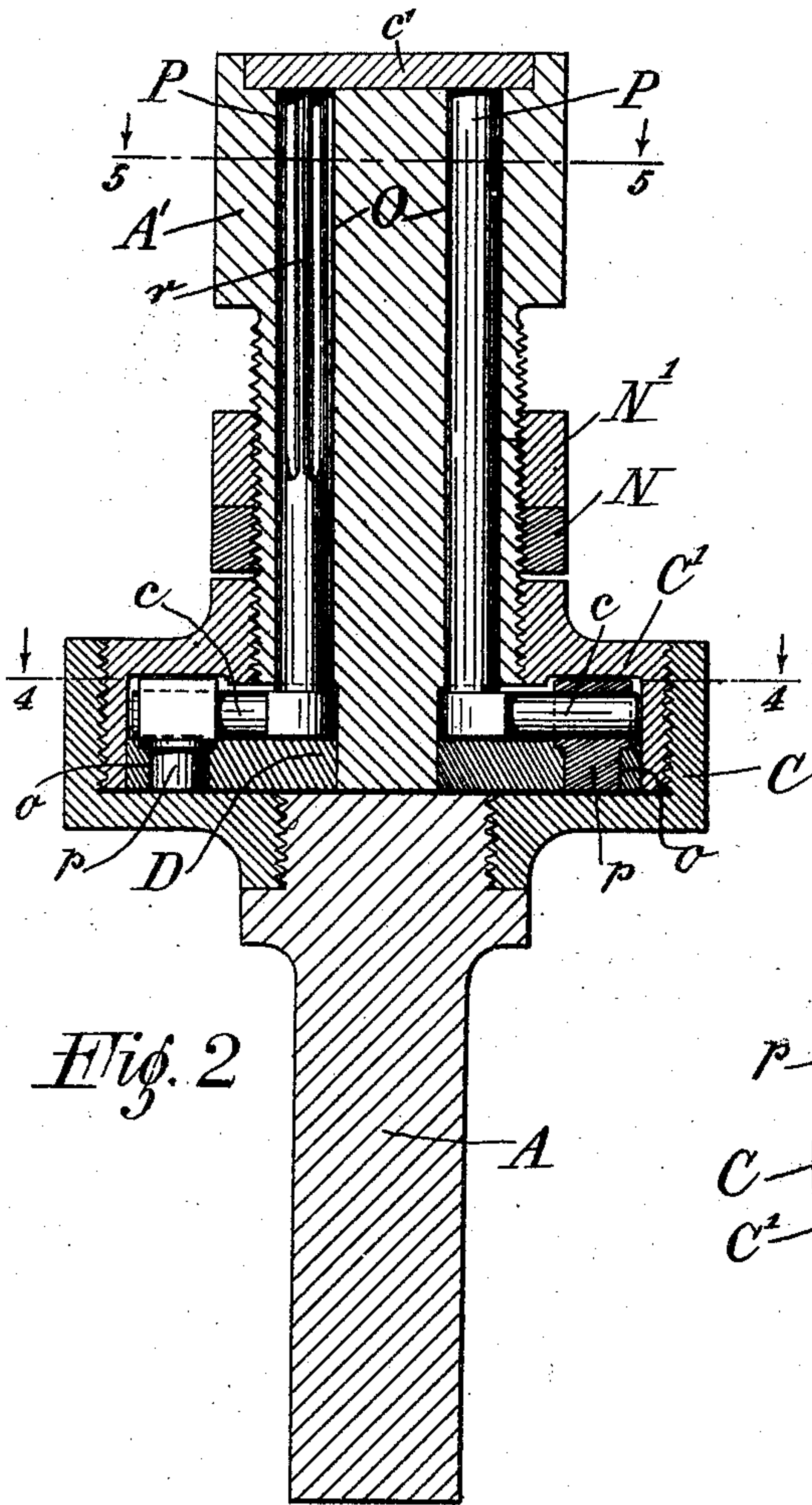


Fig. 2

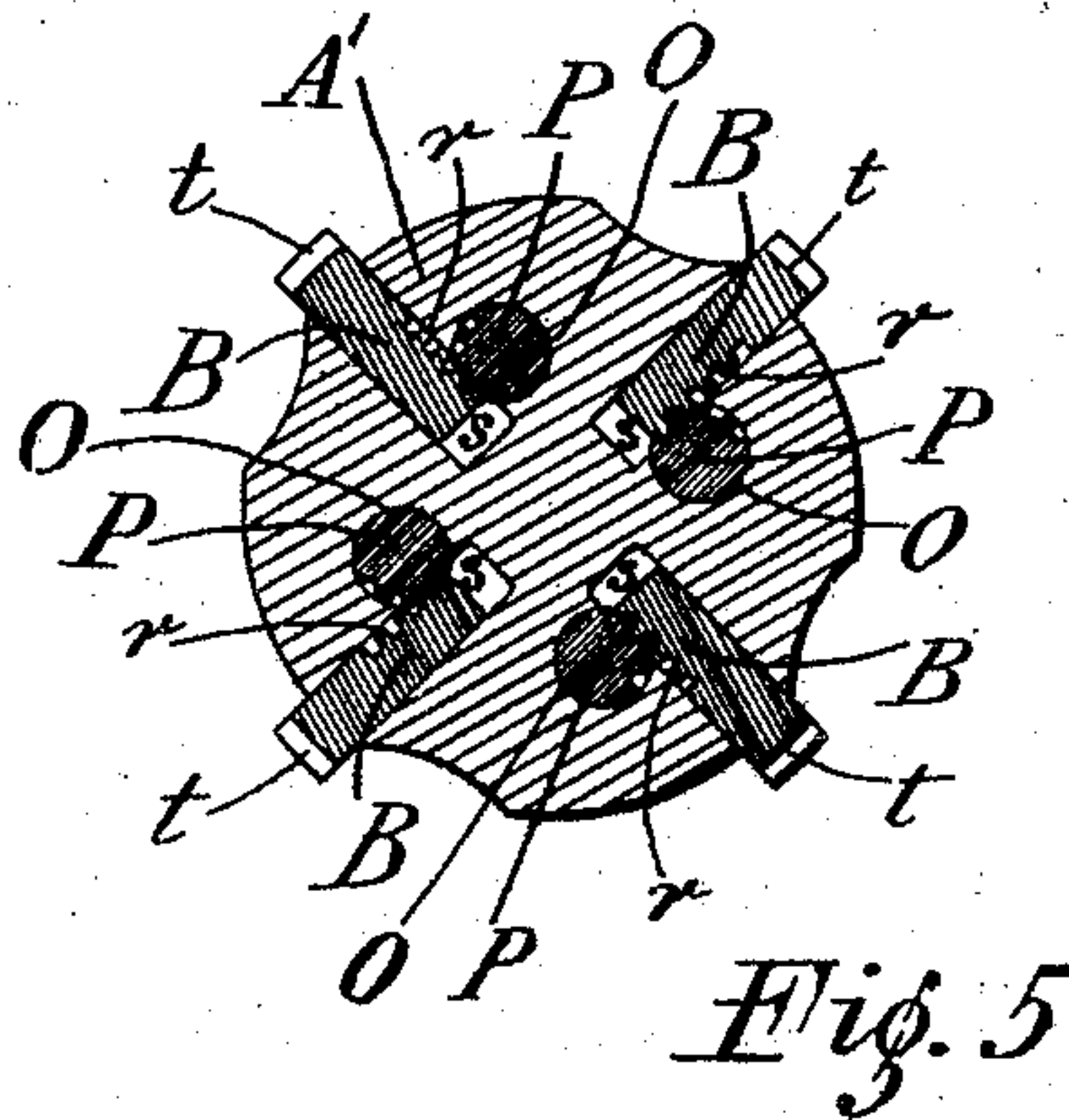


Fig. 5

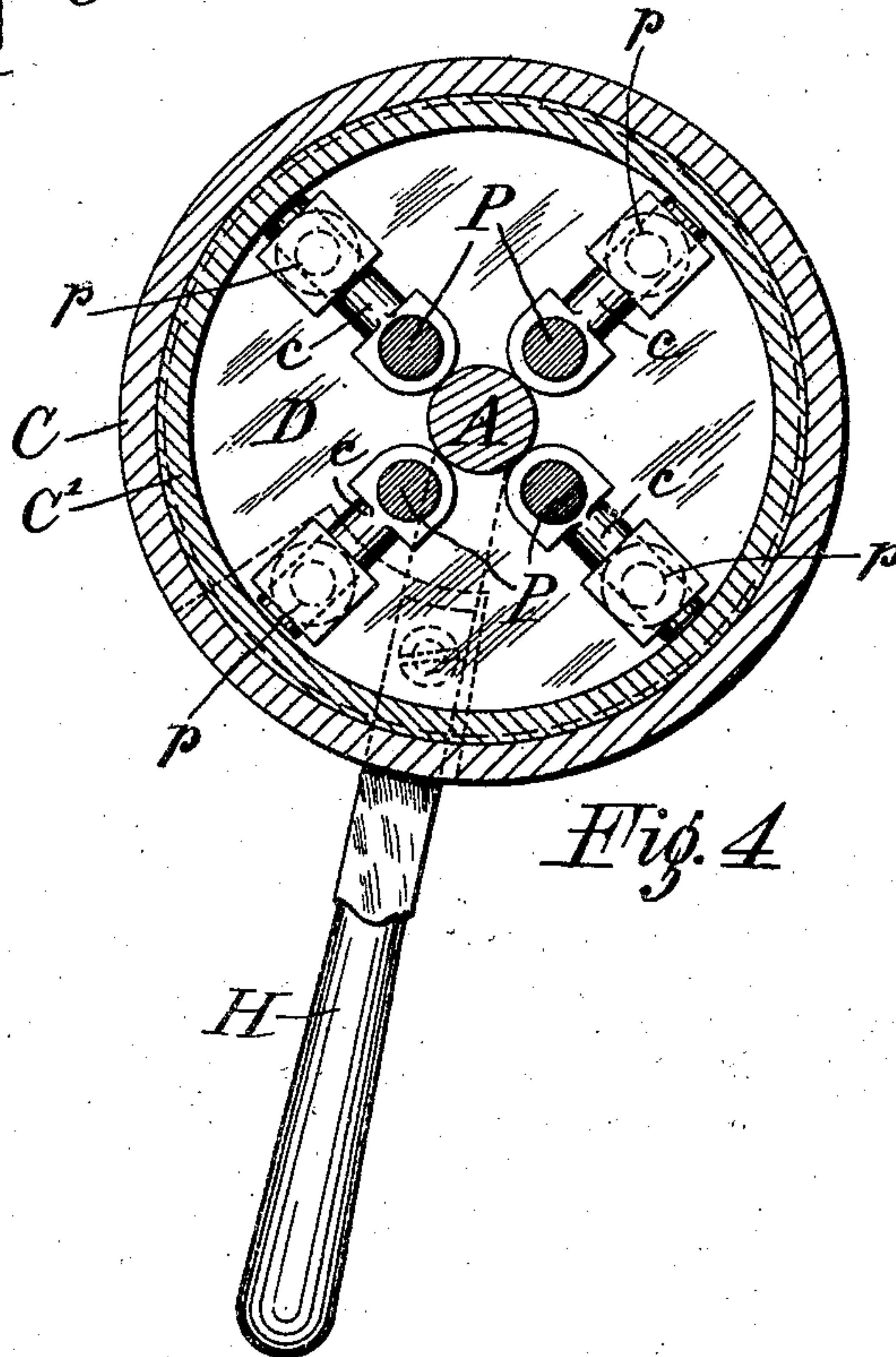


Fig. 4

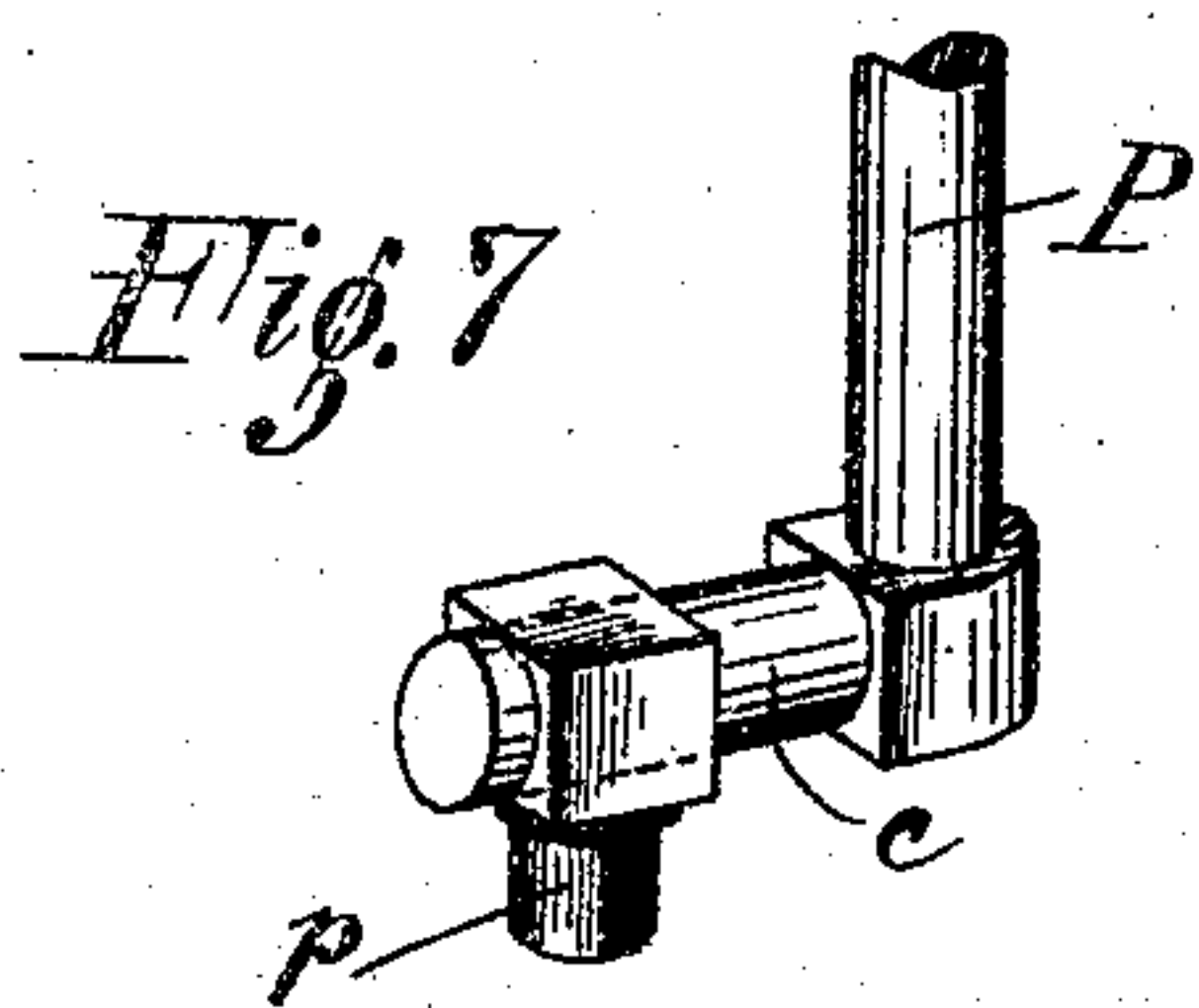


Fig. 7

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UNITED STATES PATENT OFFICE.

THOMAS DOLLARD, OF BROOKLYN, NEW YORK, ASSIGNOR OF ONE-HALF
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TAP OR THREAD-CUTTER.

SPECIFICATION forming part of Letters Patent No. 775,672, dated November 22, 1904.

Application filed March 4, 1904. Serial No. 196,533. (No model.)

To all whom it may concern:

Be it known that I, THOMAS DOLLARD, a citizen of the United States of America, residing at Brooklyn, Kings county, New York, have
5 invented certain new and useful Improvements in Taps or Thread-Cutters, of which the following is a specification, reference being had to the accompanying drawings, forming part of the same, in which—

10 Figure 1 is a side elevation of a tap embodying my invention. Fig. 2 is a central vertical longitudinal section thereof. Fig. 3 is a front elevation. Fig. 4 is a vertical cross-sectional view on line 4 4 of Fig. 2.
15 Fig. 5 is a similar sectional view on line 5 5. Fig. 6 is a detail view, partly in section, of the tripping mechanism. Fig. 7 is a perspective of the crank-pin, the crank, and pinion; and Fig. 8 is a perspective view of one
20 of the cutters.

My invention relates to taps for threading pipes, nuts, and articles requiring an interior thread; and it consists in the combination of devices whereby the cutting-blades are projected to a cutting position, are held there,
25 are retracted to permit ready withdrawal of the tool, the retracting devices are automatically brought into action, and various other operations are accomplished.

30 In the form shown the stock, for convenience of manufacture, is made in two parts—A the stock proper, and A' the head. The part A may be any ordinary form of stock for mounting in a lathe or other operating
35 device. The head A' is provided with longitudinal slots *s* in its outer face, the number (here four) corresponding to the number of blades desired to be used. In these slots I seat cutting-blades B, the inner side faces
40 of which are provided with racks *r* and the outer faces of which are provided with cutting-teeth *t*. Adjacent to slots *s* the head-piece is bored at O to accommodate shafts P, which near the outer ends are each cut to
45 form partial pinions, two teeth being usually sufficient, though a greater range of operation is accomplished with three or more; but I prefer to use not more than three in order to leave as large a surface as possible for a

firm bearing for the shafts P upon the walls 50 or orifices O.

On the end of stock A, I locate a case C for holding a part of the projecting and retracting devices, said case C being closed by a cap C', fitting closely therein and centrally bored 55 to accommodate and securely hold the inner end of head-piece A', all parts being preferably securely threaded together.

Within case C', I place a wheel or disk D, journaled on the inner end of piece A', and 60 near its outer circumference I provide circular orifices *o*, in which I journal crank-pin *p*. Cranks *c* are secured to or formed on the inner ends of shafts P and are connected to crank-pins *p* by passing through openings in 65 the forward ends of said crank-pins.

A cap-piece *c'*, secured, preferably by screws, to the head A', holds the cutting-blades B longitudinally in place.

The rear face of case C C' has a section removed, (see dotted line, Fig. 4.) giving access to the rear face of disk D, and to this disk a lever-handle H is securely attached, having a stroke of course equal to the width of the opening in case C C' less the width of 75 the handle.

On the outer face of cap C', I secure a block E, extending over the head-piece, and in it are ways *w* to accommodate a slide S, centrally slotted at *s'* and holding therein a screw *e*, 80 which holds a slotted contact-piece E', carrying a bearing-roller *r'* at its outer end.

A leaf-spring L, interposed between the end of slide S and the face of cap C', tends to keep the slide and contact-piece extended at 85 its inner end slide S, carries also a catch-piece F, secured thereto by a screw *e'*, extended through slot *s'*, the piece F being consequently capable of adjustment on said slide.

Piece F has an arm F' extending to the rear 90 and is there provided with the catch proper, marked J, which extends inwardly and is provided with a beveled edge *j*, adapted to engage a projection *h* on the lever H. A strong spring G is linked to lever H and an arm K, 95 extending from the case C, and threaded on the head-piece A' are two jam-nuts N and N'.

The operation of the parts is manifest.

Swinging lever H to the left turns disk D correspondingly, and that causes cranks *c* to be turned through an arc of a circle, which rotates shaft P and by the action of their partial pinions and the racks on blades B projects those blades. When they have reached such points that a circle contacting their outer faces is of the required diameter of the thread to be cut, the hook or catch is brought to position to cause the lip at *j* of catch J to engage the projection *h* and then secured by turning down tightly the screw *e'*, and the blades will thus be locked in position. Now the contact-piece on slide S is extended until its bearing-roller is the same distance from the outer edge of the cutting-teeth *t* as the desired length of thread to be cut and secured in that position by tightening-screw *e*. The tool is now ready for use and by reason of the extended circumferential bearing of shafts P in the head-piece A' the blades are very firmly held and not liable to yield from the stress of cutting. When the required length of cut has been reached, the roller *r'* of the contact-piece E' will be brought against the pipe or other article being cut and will thereby be forced backward, carrying the lip of catch J out of engagement with projection *h* and surrendering lever L to the stress of spring G, which will immediately carry that to the right and disk D and pins *p* as well, thereby rotating shafts P and (by a positive movement) retracting the cutting-blades B, so that the tool may be readily drawn out of the threaded pipe or nut without the tedious operation of revolving it until it runs out, (as with the ordinary tap.) To tap another pipe with a similar thread, it is only necessary to swing the lever to the left again. The action will be as before. It is already set, and the engagement of catch J and projection *h* will be automatic.

If a larger pipe or nut or a smaller one is to be tapped, it is only necessary (within certain limits) to reset the catch-piece F to correspond.

If the blades are dull or one with a different thread is desired, it is but the work of a moment to remove the cap-piece *c'*, draw out blades B, and sharpen and return them or substitute others.

Provision for their rigid longitudinal holding is provided in the jam-nuts N N', which when blades B are in place may be turned, first one and then the other, until it and they are locked firmly in place.

The action of this is tool always positive,

its adjustment simple and easy, and at whatever degree of projection the blades are set their bearings are always ample and not liable to injury. Again, by operating the shafts by cranks connected to pins near the periphery of disk D, I gain much power for throwing them easily and holding them firmly, the socket-and-pin connection furnishing all the movement required to permit the ready turning of the locked parts on different centers, while otherwise preserving the rigidity of the connection and avoiding lost motion.

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

1. In a thread-cutter, the combination of a stock, a head-piece, cutting-blades with racks, two or more shafts with long bearings in the head-piece and pinion-teeth on one side engaging respectively the respective racks of the cutting-blades, cranks secured to the respective shafts, a movable disk or ring, pins connecting the said cranks to the said disk, a case partially inclosing the disk, cranks, head-piece and shafts, and a lever secured to said disk and extending through said case, all substantially as set forth.

2. In a thread-cutter, the combination of a stock, a head-piece, cutting-blades with racks, two or more shafts with long bearings in the head-piece and pinion-teeth on one side engaging respectively the respective racks of the cutting-blades, cranks secured to the respective shafts, a movable disk or ring, pins connecting the said cranks to the said disk, a case partially inclosing the disk, cranks, head-piece and shafts, and a lever secured to said disk and extending through said case, together with means for holding said lever in a given position, all substantially as set forth.

3. In a thread-cutter, the combination of a stock, a head-piece, cutting-blades with racks, shafts with long bearings and having pinion-teeth on one side, and a full bearing upon the other side thereof, the pinions engaging respectively the respective cutter-blades, and means for operating said shafts and blades, including a lever and connections, all substantially as set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 27th day of February, 1904.

THOS. DOLLARD.

Witnesses:

H. M. VERMILYA,
A. G. N. VERMILYA.