

No. 620,152.

Patented Feb. 28, 1899.

T. KOVATSCH.

MACHINE FOR TURNING AND POLISHING CROOKED OR STRAIGHT WOODEN RODS OR STICKS.

(No Model.)

(Application filed Oct. 15, 1898.)

2 Sheets—Sheet 1.

Fig. 1.

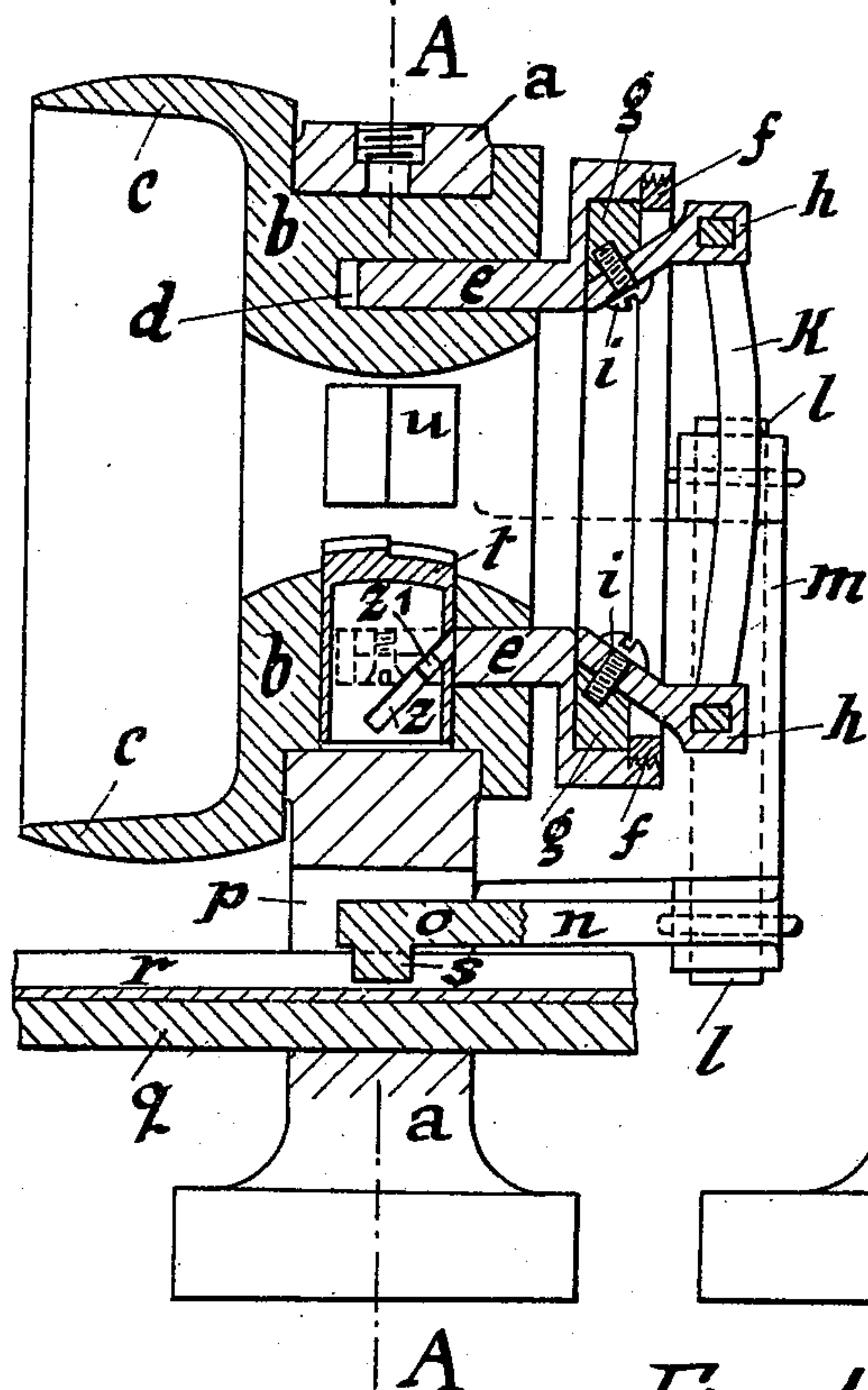


Fig. 2.

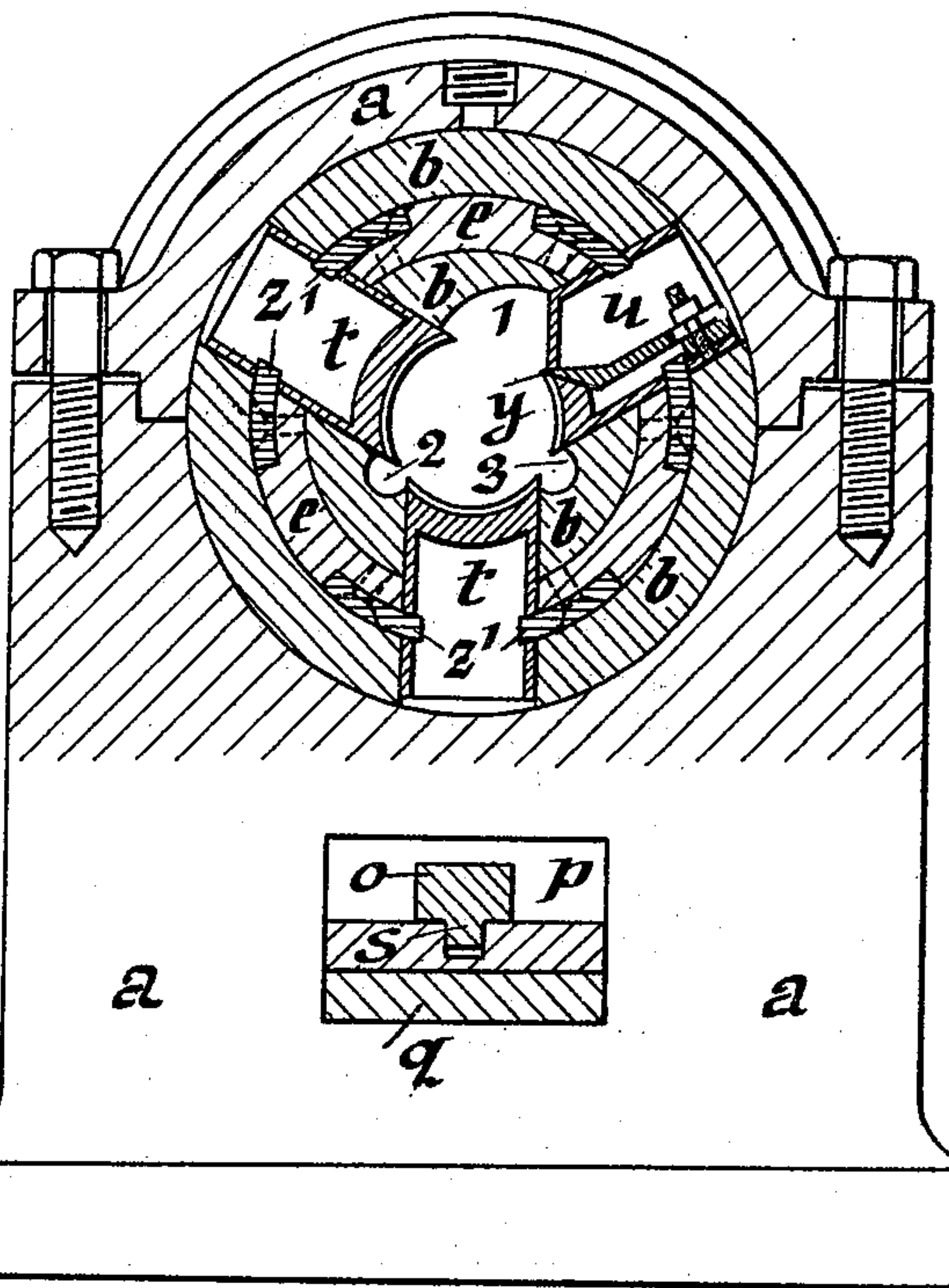


Fig. 4.

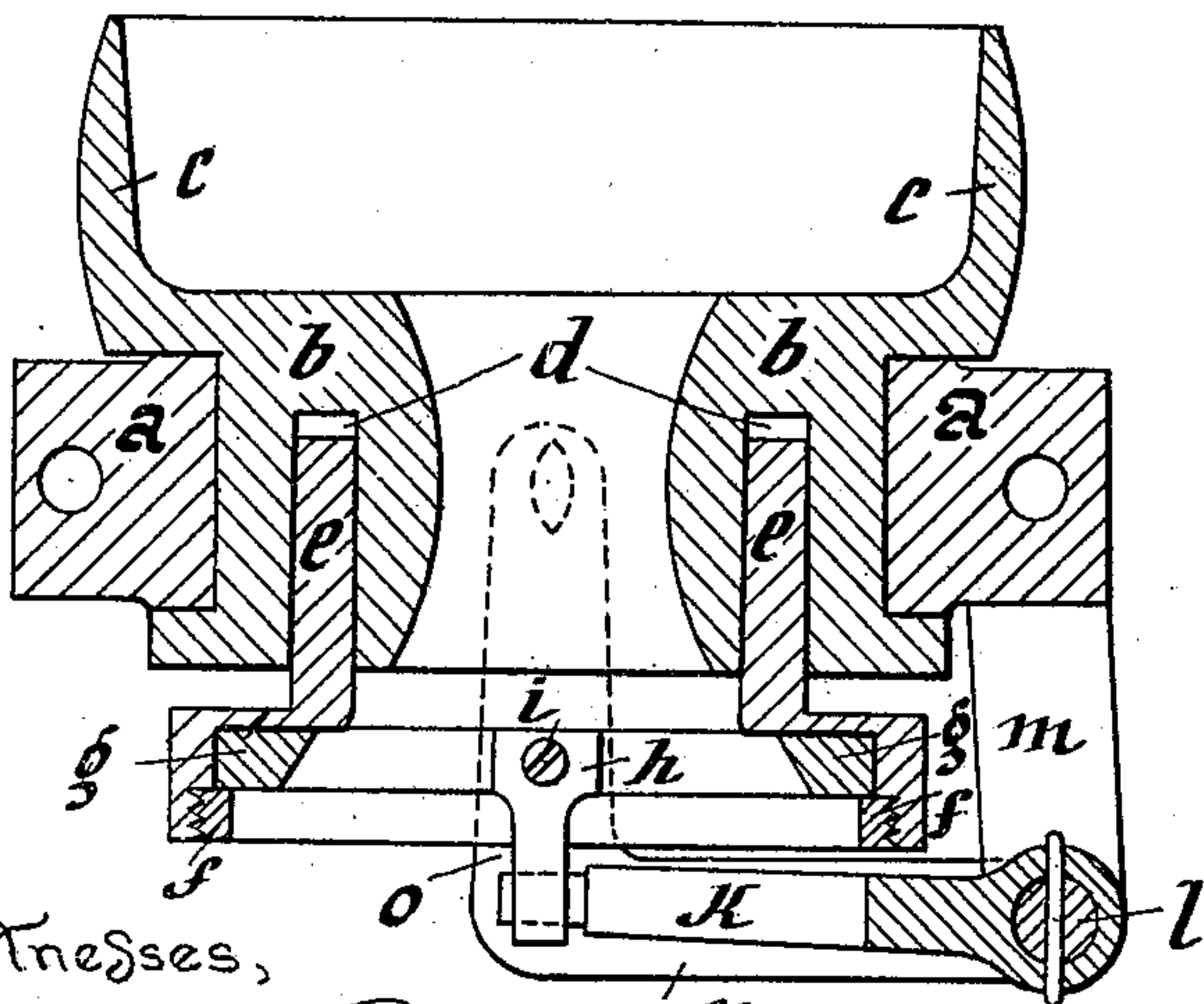
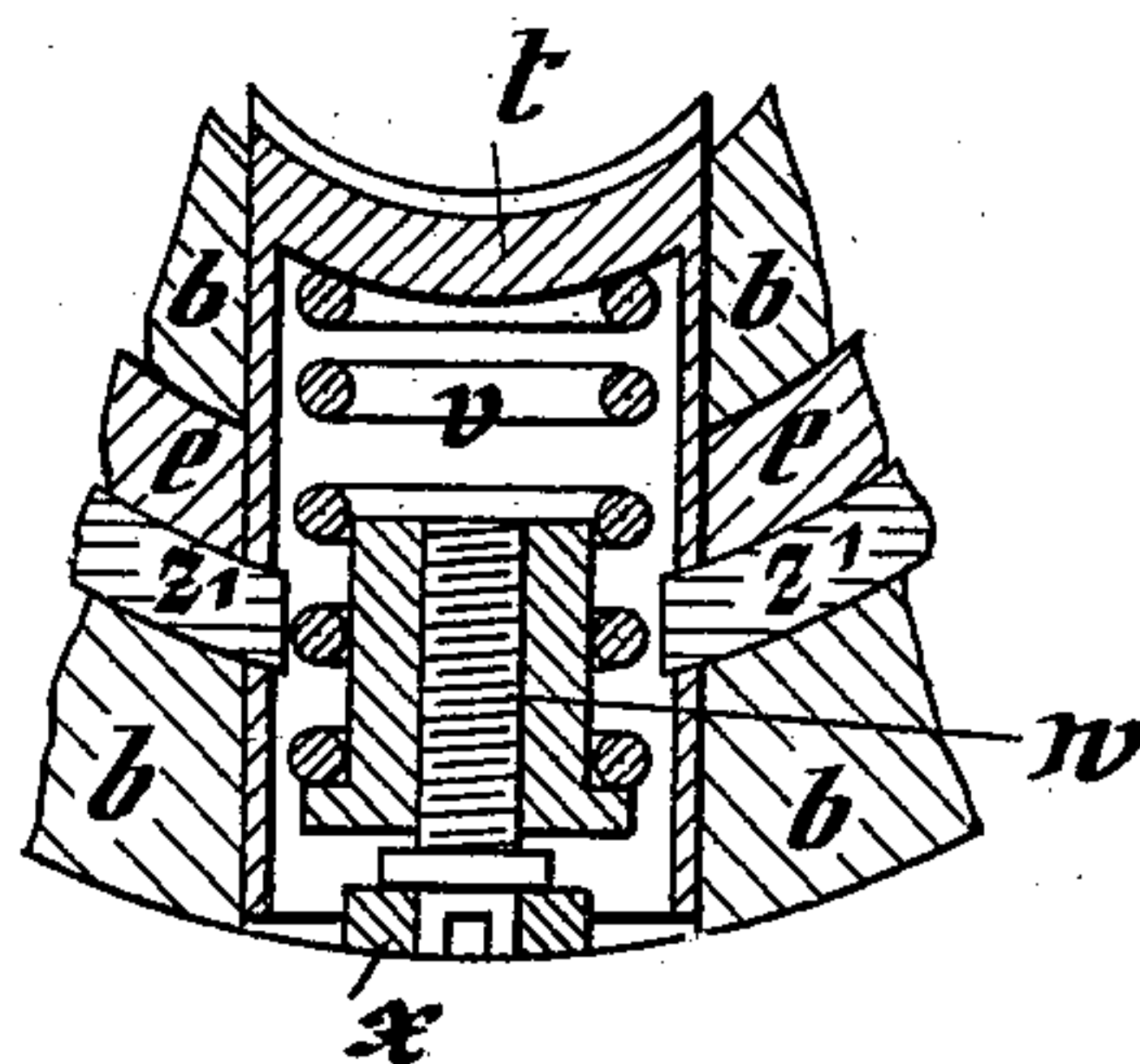


Fig. 5.



Witnesses,

George M. Richards  
J. H. Walmsley

Inventor,  
Thomas Kovatsch  
by W. H. Babcock  
Jm4

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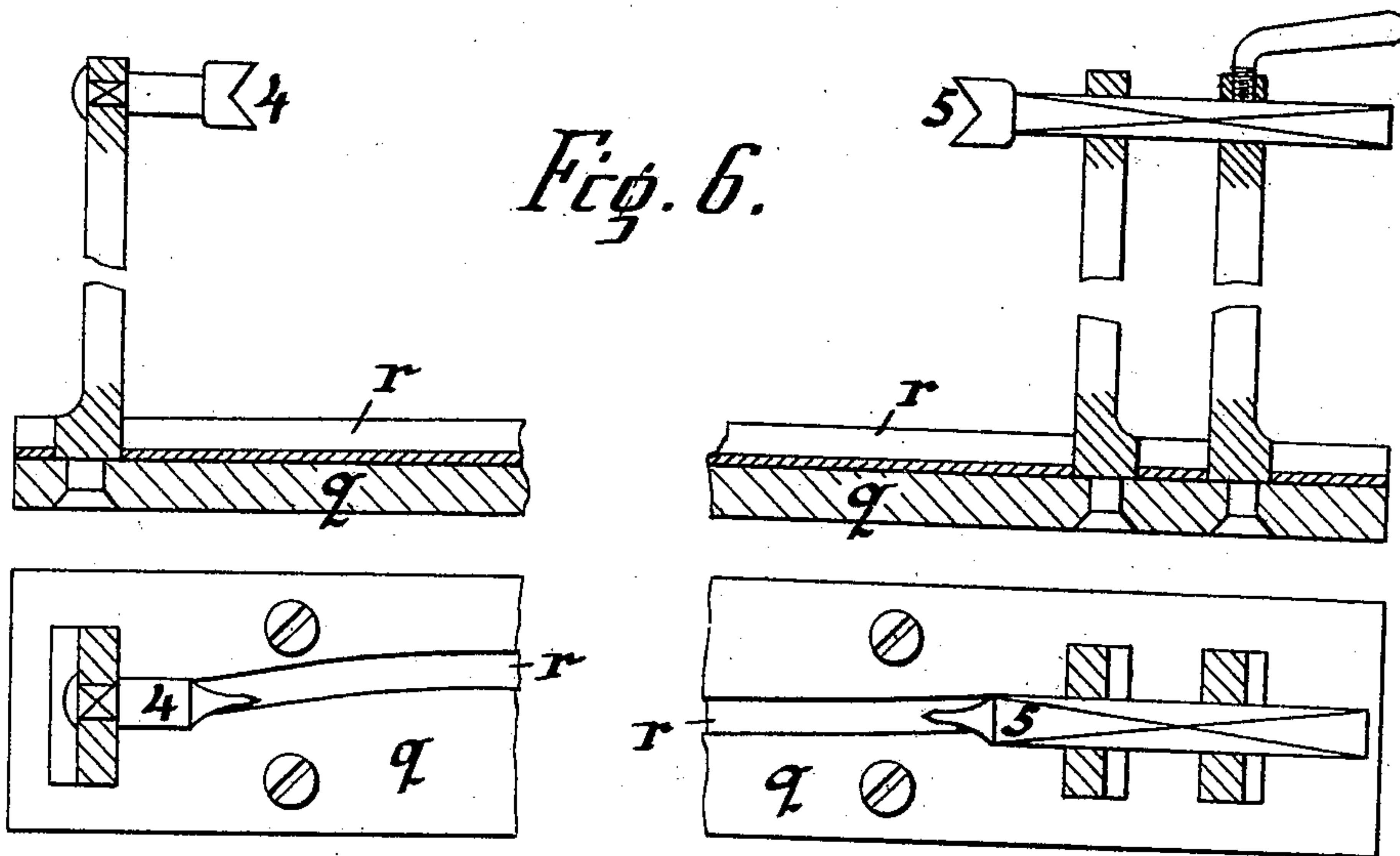
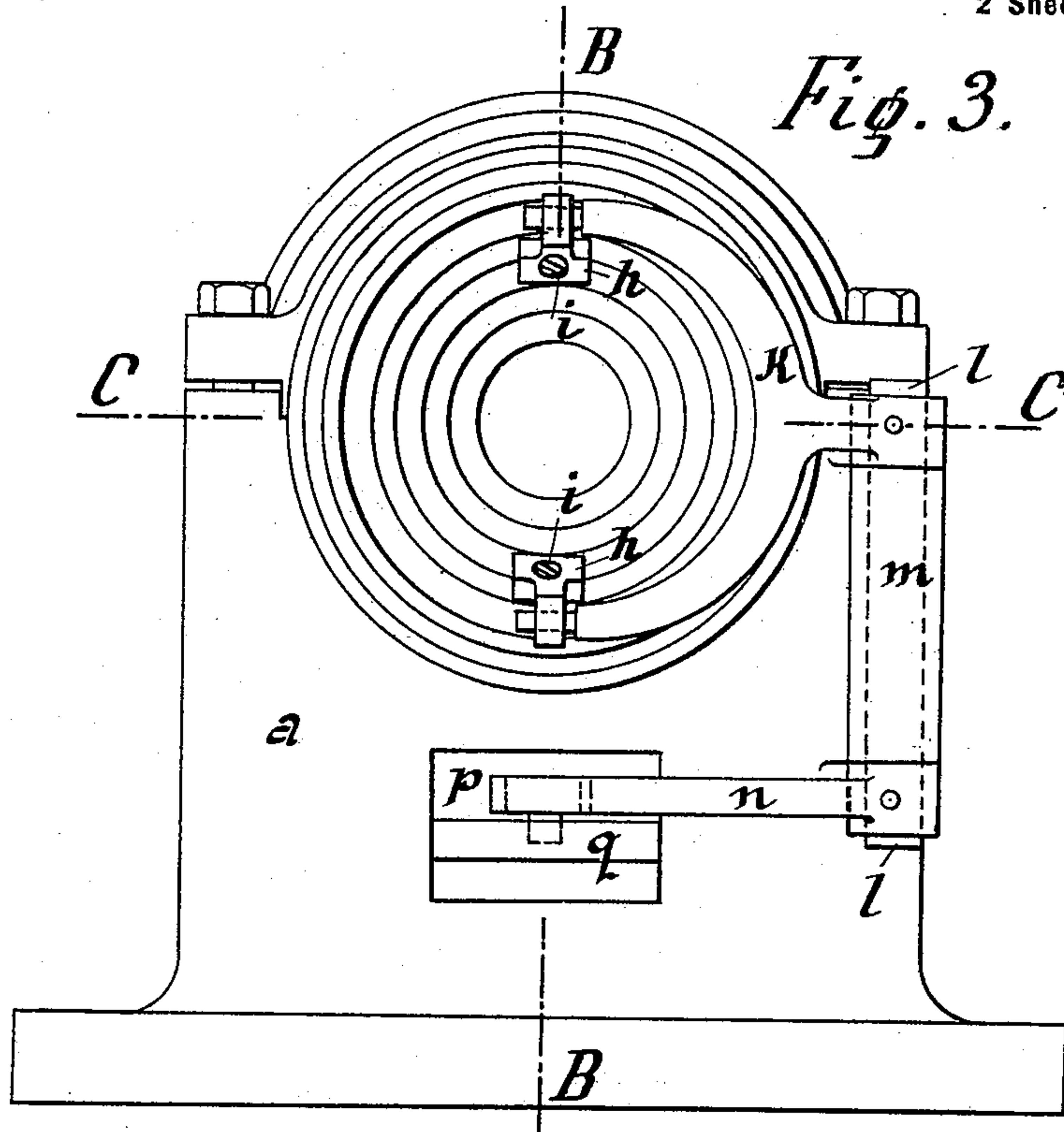
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2 Sheets—Sheet 2.



*Fig. 7.*

Witnesses.  
George M. Richards.  
J. N. Walmsley

Inventor  
Thomas Kovatsch  
by W. H. Babcock  
Atty



# UNITED STATES PATENT OFFICE.

THOMAS KOVATSCH, OF FRANZDORF, AUSTRIA-HUNGARY.

MACHINE FOR TURNING AND POLISHING CROOKED OR STRAIGHT WOODEN RODS OR STICKS.

SPECIFICATION forming part of Letters Patent No. 620,152, dated February 28, 1899.

Application filed October 15, 1898. Serial No. 693,690. (No model.)

*To all whom it may concern:*

Be it known that I, THOMAS KOVATSCH, a subject of the Emperor of Austria-Hungary, residing at Franzdorf, in Krain, Austria-Hungary, have invented certain new and useful Improvements in Machines for Turning, Smoothing, and Polishing Crooked or Straight Round-Figured Wooden Rods or Sticks; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention has for its object when turning decorated circular rods or sticks to avoid as much as possible the changing of the cutter and guide-chucks and to enable rods or sticks up to a certain range of diameter to be turned by a single cutter and a rest of a definite diameter; also, to enable crooked circular rods or sticks to be smoothed and polished by machinery.

The machine is shown in the accompanying drawings, in which—

Figure 1 is a section through B B of Fig. 3. Fig. 2 is a section through A A of Fig. 1; Fig. 3, a front view; Fig. 4, a section through C C of Fig. 3. Fig. 5 shows a guide-chuck; and Figs. 6 and 7 are a vertical section and plan, respectively, of the shaping-templet and rod or stick holder. For the sake of clearness the guide-chuck and cutter are omitted in Figs. 3 and 4.

The machine consists of a knife-head *b*, rotating in a seating *a*, made in two or several parts, and on one side of the head *b* is cast a belt-pulley *c*, while the other side is provided with a ring-shaped recess *d*, in which engages the concentric ring *e*, which at its outer edge surrounds the sliding ring *g*. The ring *g* is prevented from falling out by the nut *f* and by means of the ribs *h* and screws *i* is connected to a fork *k*. This fork is attached to the upper end of a bolt *l*, rotatable in a vertical seat *m*, attached to the side of the seat *a* and carrying at its lower end one arm *n* of a bell-crank lever, the other arm *o* of which extends into a recess *p*, made in the lower part of the seat *a*, through which latter the shaping-iron templet *q* is carried.

The templet *q*, Figs. 6 and 7, has a groove *r*, corresponding to the shape of the cross-section to be given to the rod or stick, and en-

gaging in the groove *r* is a round or oval-shaped stud *s*, fixed to the bottom side of the lever arm *o*, and which by drawing along the templet *q* is forced to the left or right, according to the shape of the groove. This movement is so transmitted by the bell-crank lever *n o*, bolt *l*, fork *k*, and sliding ring *g* to the ring *e* that the latter is forced out or in the circular groove *d*.

Adjustably arranged radially in the cutter-head and passing through the ring *e* are two or more guide-chucks *t* and also one or more knife-holders *u*. This ring *e* is provided with openings or recesses at suitable intervals to receive the said guide-chucks and knife-holders and permit the backward and forward motion of the said ring without being obstructed thereby.

The guide-chucks *t* are hollow bodies, which by means of springs *v* within them and screws *w*, the heads of which bear against a plate *x*, fixed in the knife-head, are forced toward the center in order to prevent the guide-chucks flying outward on the rotation of the knife-head. The knife-holder *u* is also a hollow body, in which the knife *y* is fixed in the usual manner, and is also partially formed like a guide-chuck, as shown by Fig. 2.

In both sides of the guide-chucks *t* and also of the knife-holder *u* are arranged inclined slots *z*, Fig. 1, in which slide projections *z'*, fixed to the ring. If the ring *e* is moved in a horizontal direction by means of the before-mentioned lever action, the guide-chucks *t* and the knife-holder *u* are forced toward or away from the center by means of the projections *z'* accordingly as the ring is forced inward or outward, which, as before mentioned, is dependent upon the groove *r*. Consequently the shape determined by the templet is imparted by this process to the rods or sticks being operated upon.

The rod or stick inserted between the guide-chucks *t* and cutter *y* to be worked is suitably connected with the templet, for example, by dipping between two horns 4 and 5, supported on standards 6 7 8, Figs. 6 and 7, fastened on the templet *q*, in order that it may receive the same movement as the templet.

The slide-rests which are used for the polishing of curved rods or sticks are step-shaped on their polishing-surface in order to give a



guide to the worked and also the raw surface of the article operated on.

The thickness of the shaving removed in the smoothing can be regulated by the adjustment of the knife. Both the guide-chucks and knife-holder can be fitted with file attachments, as may be desired.

The difference between the largest and smallest diameter to be worked with the guide-chucks and knife-holder of a certain diameter depends upon the length of the slot  $z$  and extent of the movement of the ring  $e$ , and consequently this machine can be made as large as desired.

The above-described construction of guide-chucks and knife-holder permits of the working and polishing of crooked circular sticks by machinery.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is—

1. In a machine for turning, smoothing and polishing crooked and straight round-figured wooden rods or sticks, in combination with a knife-head  $b$ , rotating in a seating made in two or more parts, provided on one side with a belt-pulley  $c$  and on the other side with a ring-shaped recess  $d$  with a concentric ring  $e$  sliding horizontally into said recess, the guide-chucks and knife-holder operated by the said ring, a sliding ring  $g$  encircled by the outer edge of the said ring  $e$  held therein by means of a nut  $f$ , the ring  $g$  being connected to a fork  $k$  the bolt  $l$  of which is actuated by means of a bell-crank lever  $n o$  fixed to its lower end, one arm  $o$  of which projects into an opening  $p$  made in the seating  $a$  and carries under-

neath it a projection  $s$  of any desired form which engages in the groove  $r$ , corresponding to the shape to be given to the article worked on; of a templet  $q$  passing through the opening  $p$  and connected in any suitable manner with the article worked, so that on the sliding through of the templet  $q$  the ring  $e$  is so acted upon that it is forced in or out of the recess in the knife-head  $d$  according to the shape of the groove in the templet.

2. In combination with the knife-head, recessed pulley, rings  $e$  and  $g$ , templet, and intervening and actuating mechanism, substantially as described, the guide-cheeks  $t$  and knife-holders  $u$  consisting of hollow bodies adjustable radially in the knife-head  $b$  and passing through the concentric ring  $e$ , which hollow bodies by means of springs  $v$  fixed therein in any usual manner are pressed against the work, and which are provided on their sides with inclined slots  $z$  in which slide projections  $z'$  fixed to the concentric ring, whereby on moving the concentric ring  $e$  the guide and knife cheeks  $t u$  are forced inward or extended outward, and which guide-cheeks  $t$  for the purpose of polishing are provided with polishing-pads on their contact-surfaces, such surfaces being if desired made step-shaped in order to be in contact with the finished and raw part of the article worked.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

THOMAS KOVATSCH.

Witnesses:

HENRY C. CARPENTER,  
FRANZ NOWORSED.