

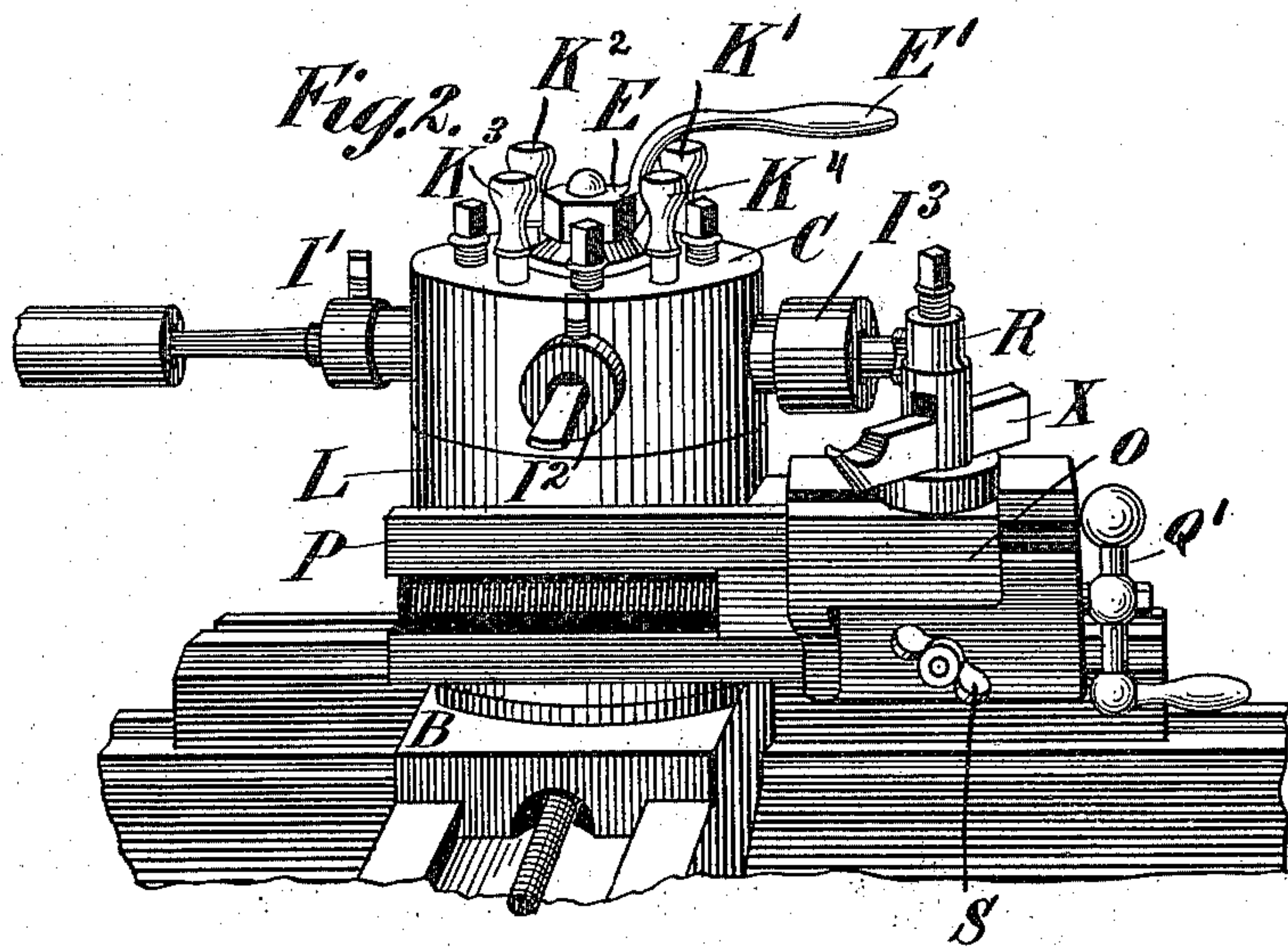
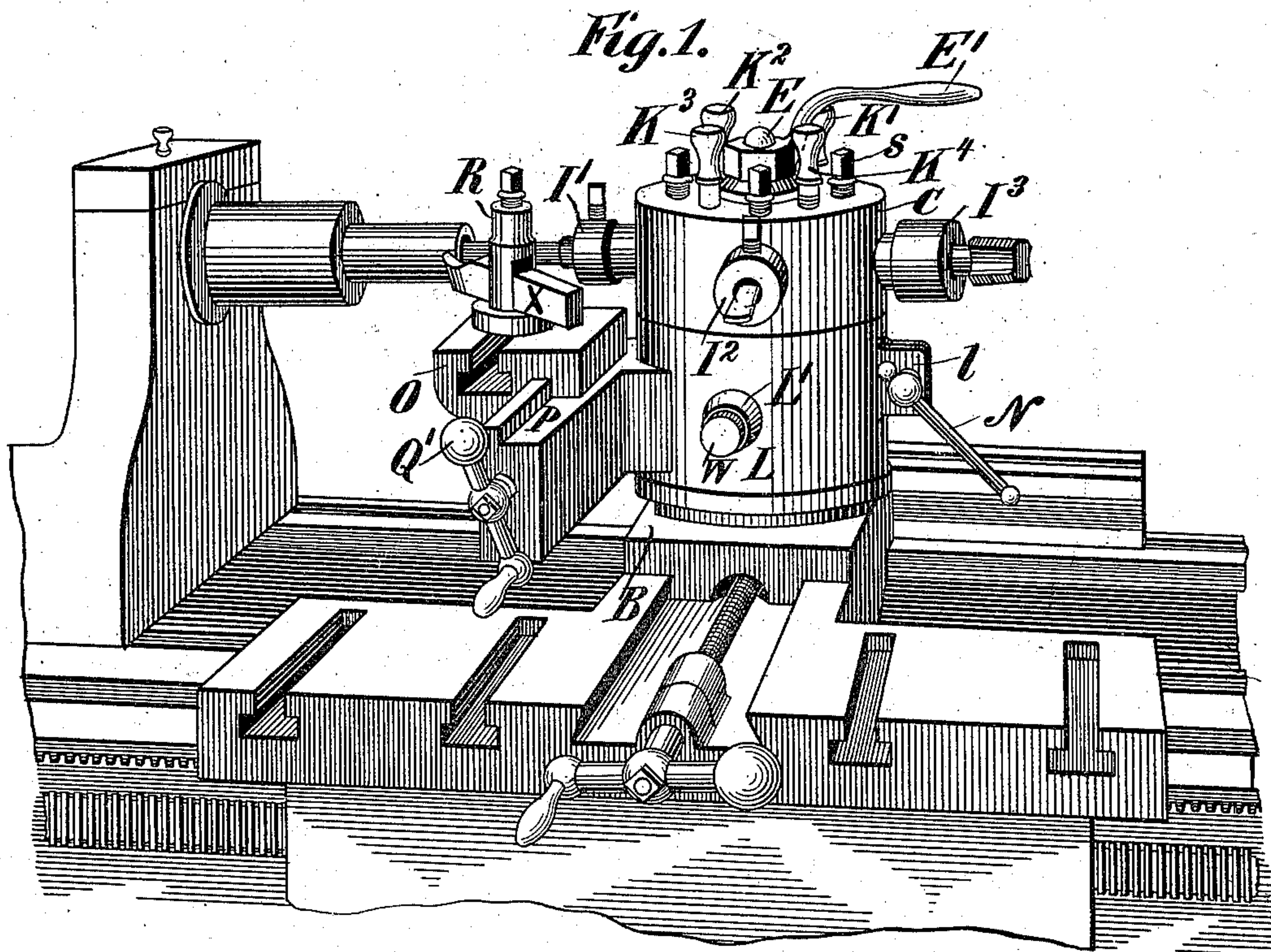
(No Model.)

3 Sheets—Sheet 1.

F. SCHNEIDER.
LATHE.

No. 571,402.

Patented Nov. 17, 1896.



Witnesses
John R. Nordstrom
Richard J. Elliott.

Fritz Schneider, Inventor
By his Attorneys Henry Schreier

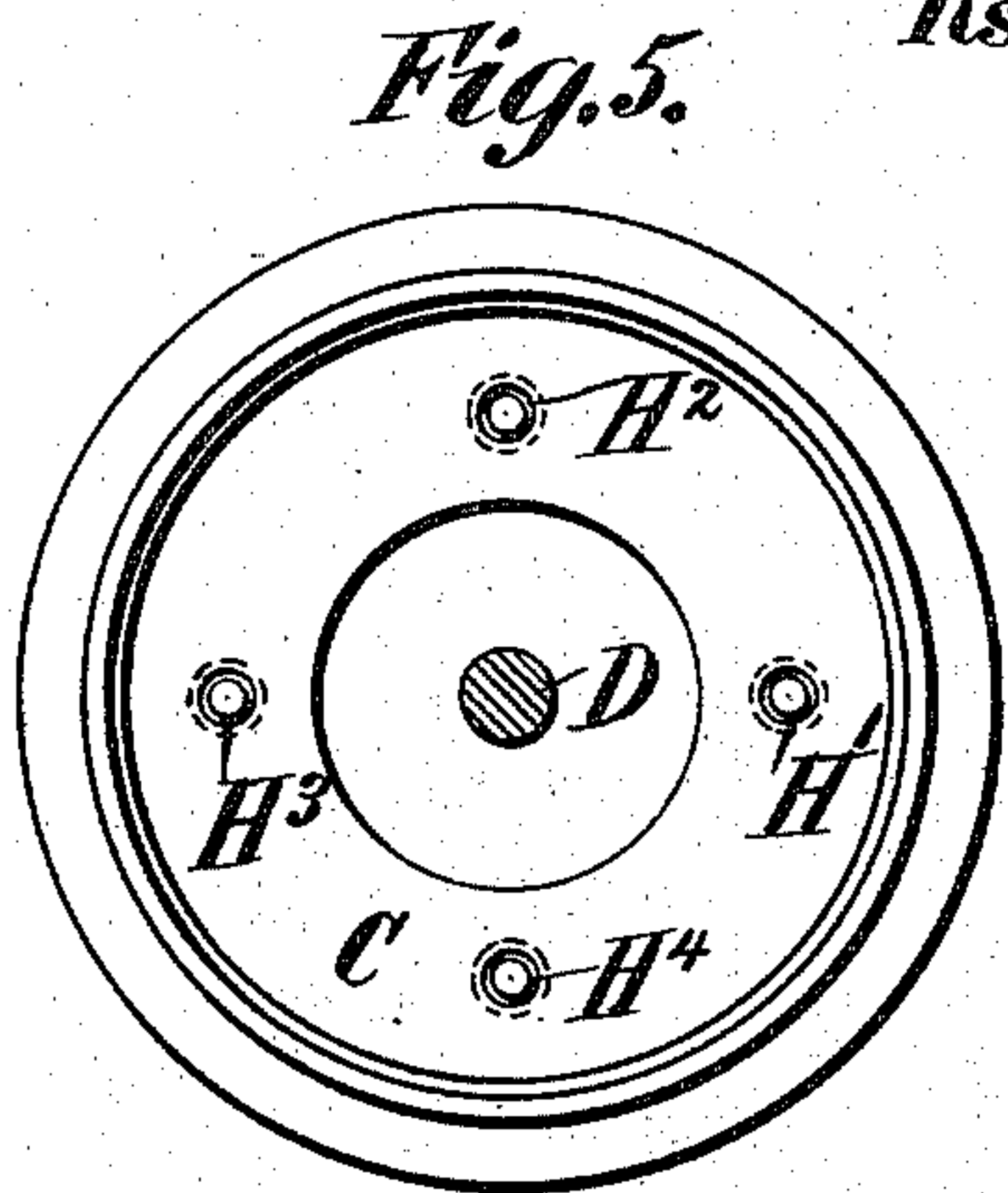
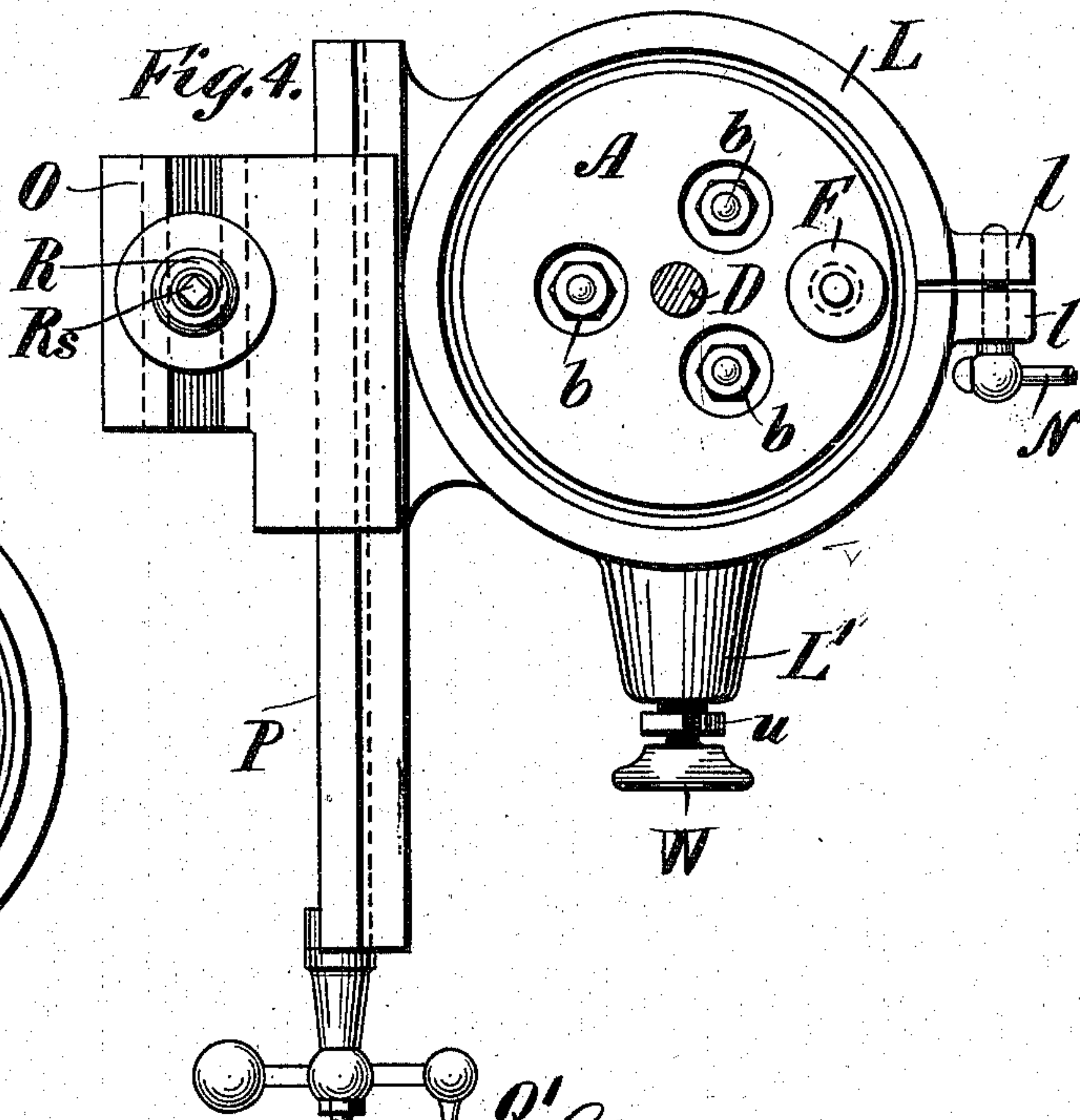
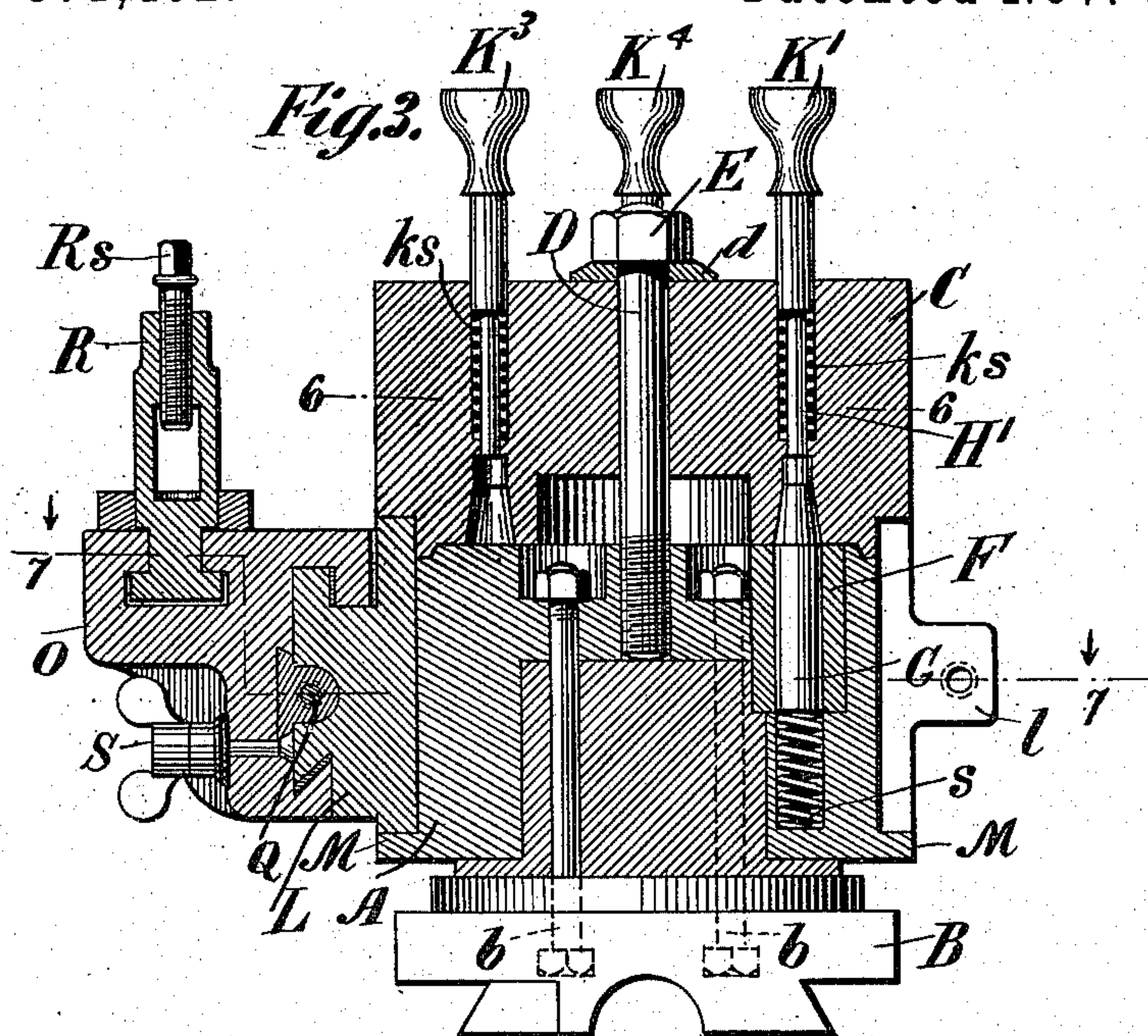
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3 Sheets—Sheet 3.

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Fig. 6.

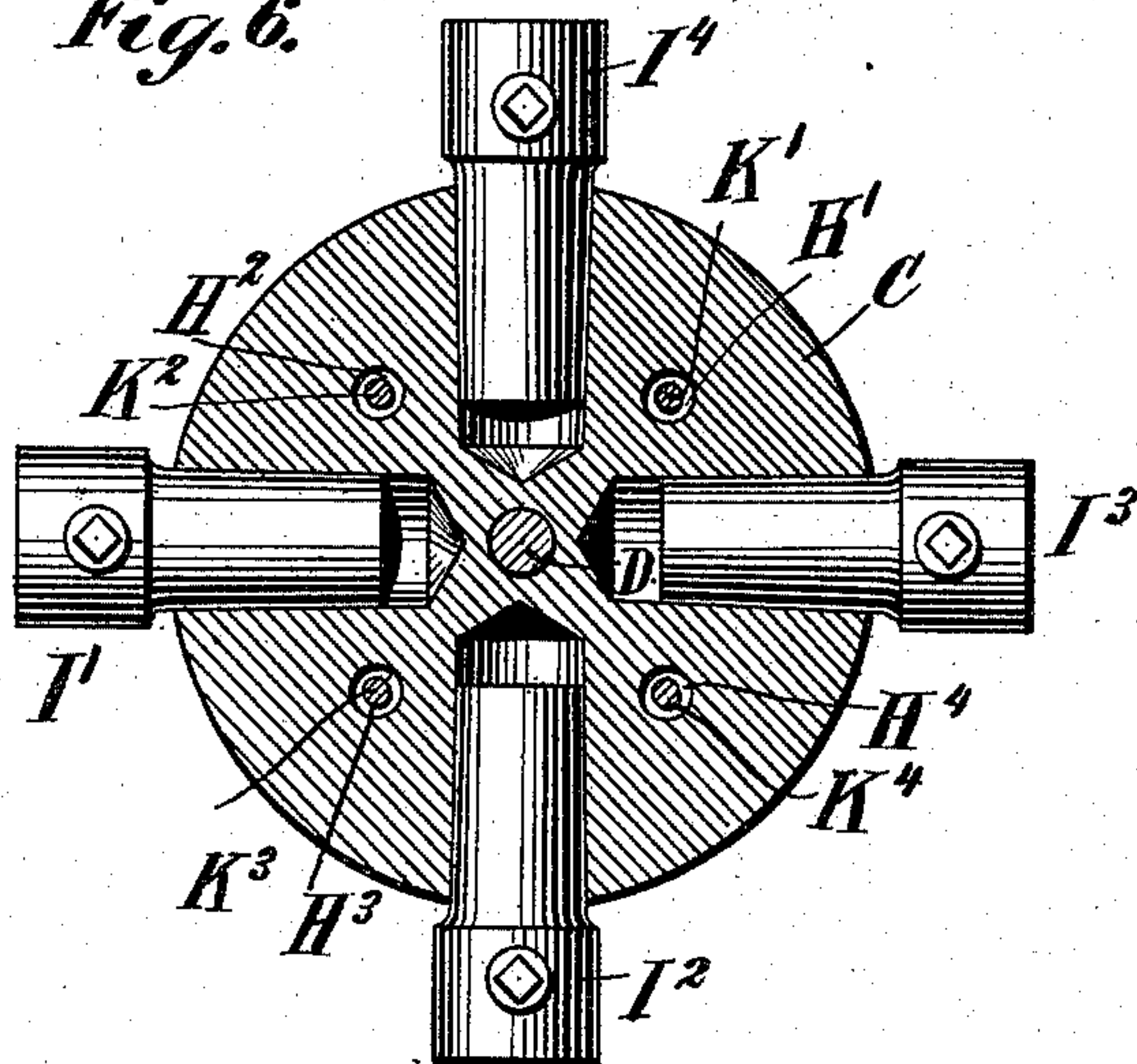


Fig. 7.

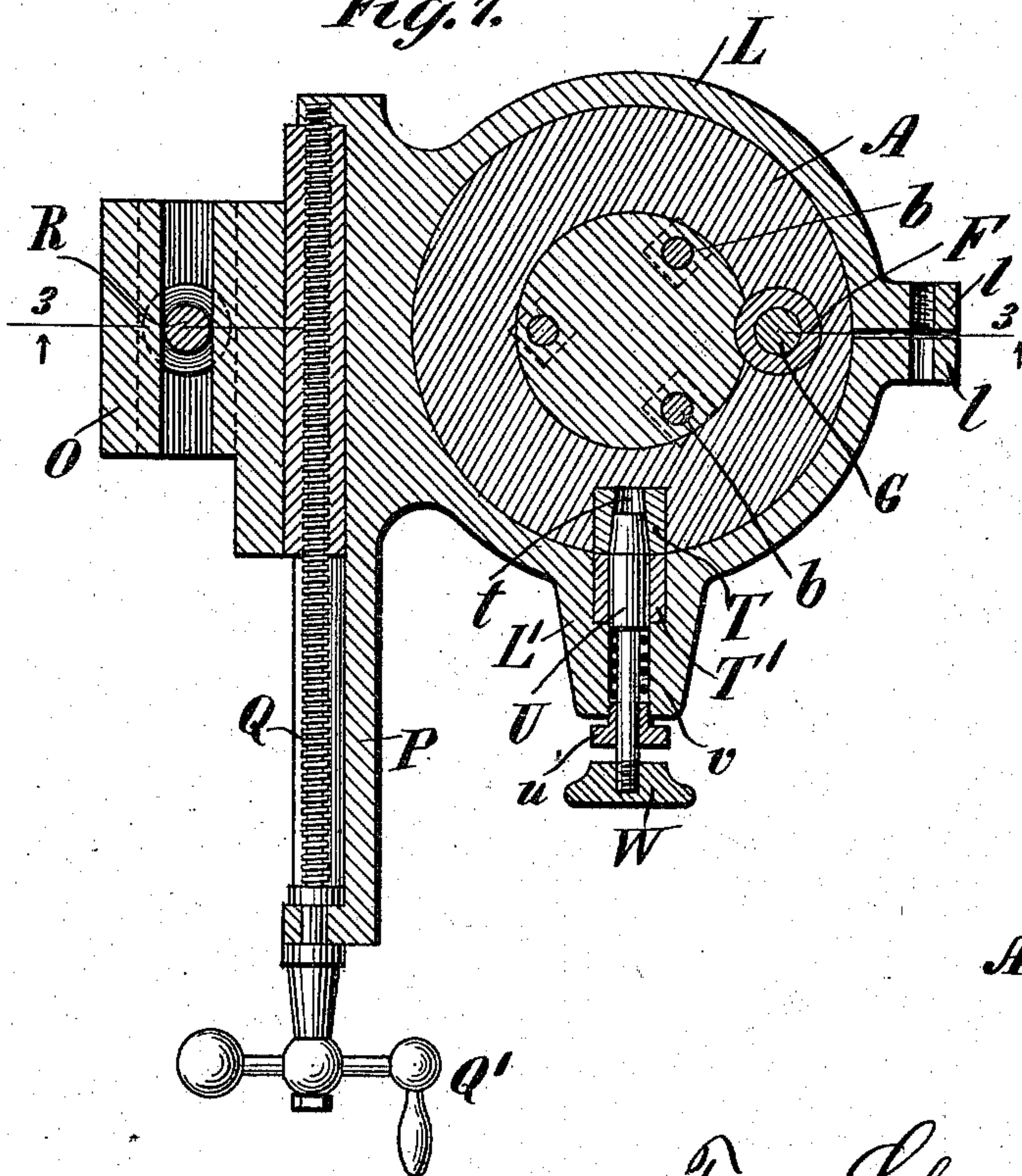


Fig. 8.

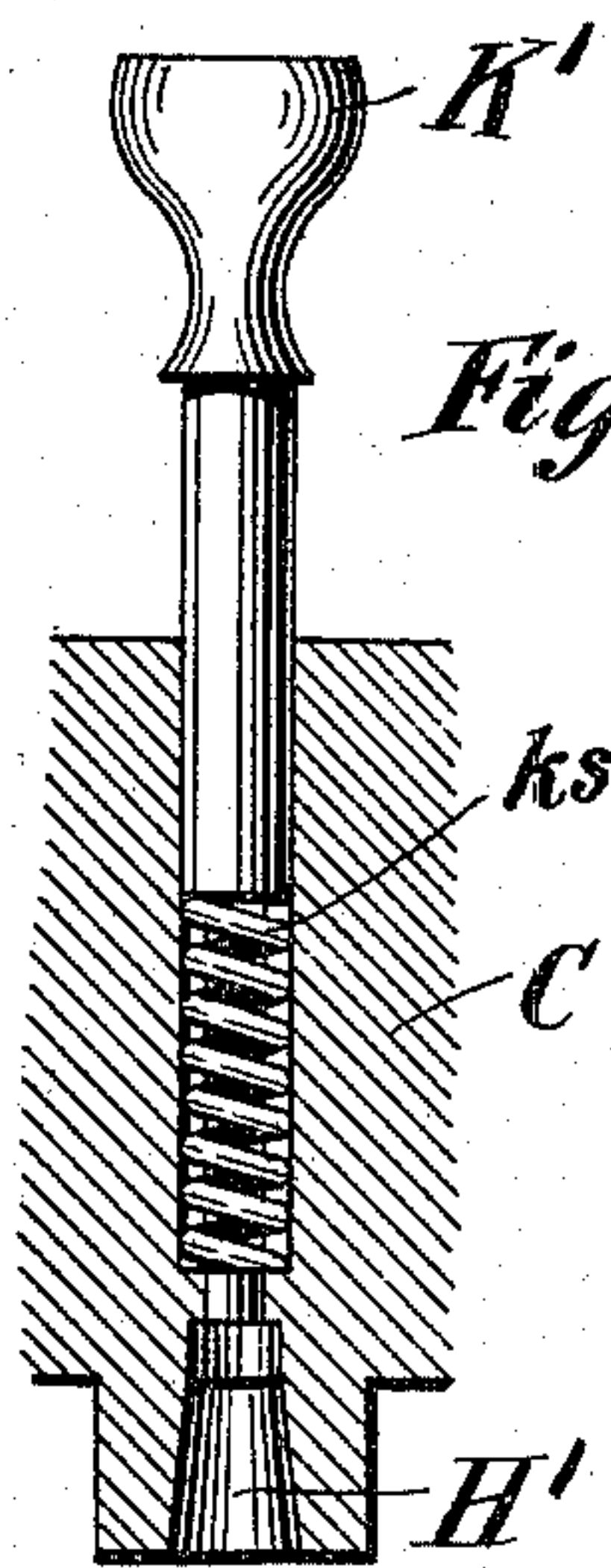
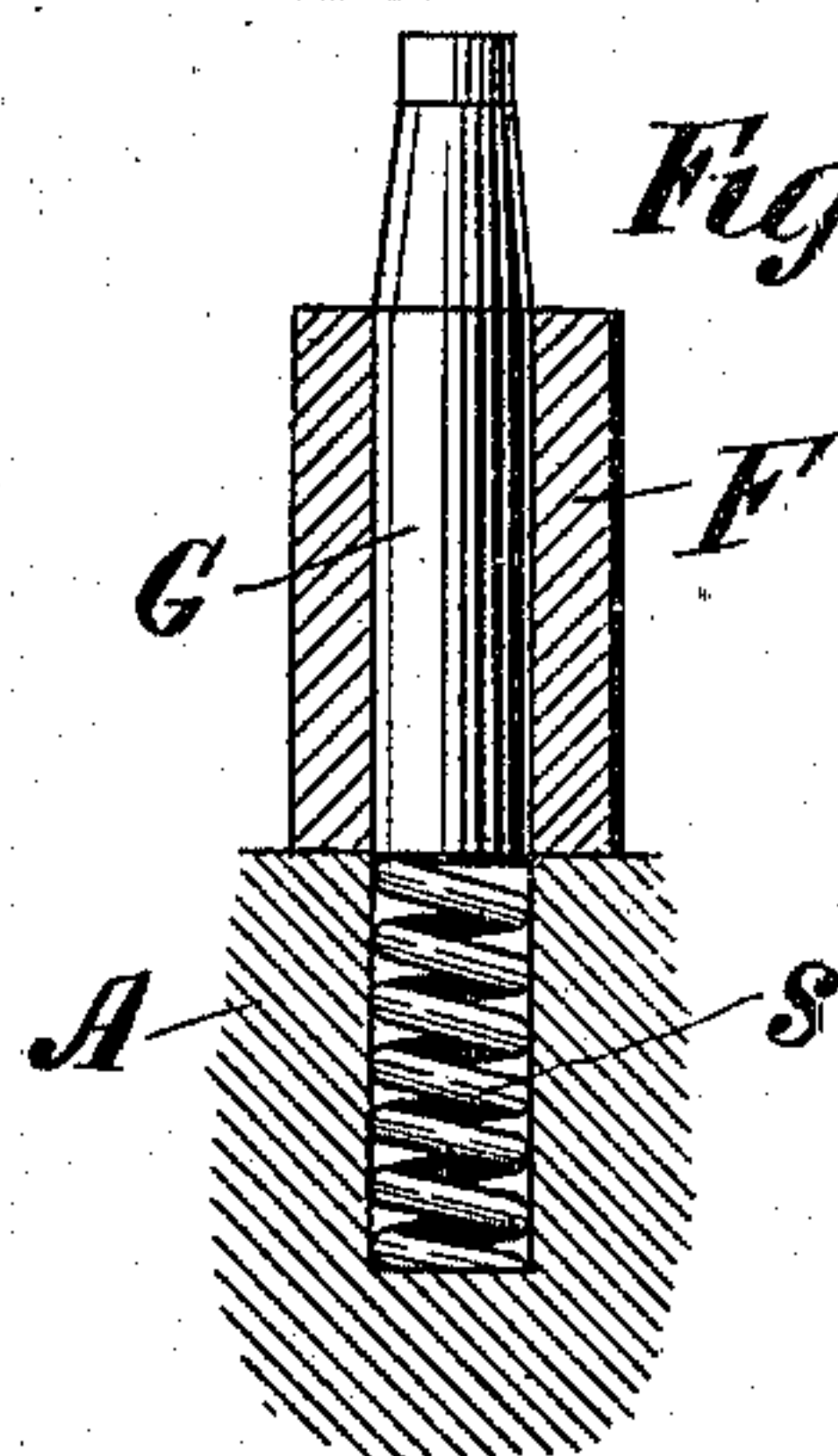


Fig. 9.



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UNITED STATES PATENT OFFICE.

FRITZ SCHNEIDER, OF ERIE, PENNSYLVANIA.

LATHE.

SPECIFICATION forming part of Letters Patent No. 571,402, dated November 17, 1896.

Application filed March 25, 1896. Serial No. 584,834. (No model.)

To all whom it may concern:

Be it known that I, FRITZ SCHNEIDER, a citizen of the United States, and a resident of Erie, county of Erie, and State of Pennsylvania, have invented certain new and useful Improvements in Lathes, of which the following is a full, clear, and exact specification.

My invention relates to engine-lathes; and it consists of the hereinafter-described mechanism for setting and automatically locking the turret-head upon the socket in position, whereby the tool to be used is secured in exact concentric position with the spindle of the lathe, and in combination with the turret of a supplementary attachment comprising a swinging slideway with a tool-carriage and post movable thereon, and with mechanism for setting and locking this slideway in exact working position at a right angle to the spindle of the lathe.

In the accompanying drawings, illustrating my invention, Figure 1 is a perspective view of my improved turret-head with the swinging slide set in position for work. Fig. 2 is a perspective view of the same turret-head with the swinging-slide attachment swung out of position. Fig. 3 is a vertical cross-section on line 3 3, shown in Fig. 7. Fig. 4 is a top view of the lower part of the turret, showing the swinging slideway, the upper part of the turret being removed. Fig. 5 is a bottom view of the upper part of the turret. Fig. 6 is a horizontal cross-section on line 6 6 in Fig. 3. Fig. 7 is a horizontal cross-section on line 7 7 in Fig. 3. Figs. 8 and 9 are enlarged details of the setting and locking devices.

Similar letters of reference indicate corresponding parts in all the figures of the drawings.

Turrets used on lathes are usually provided with several radial bores, wherein tool-holders are set. In using these turrets it is absolutely necessary and a prerequisite of accurate working with the tools that these tool-holders are brought into a concentric position with the spindle of the lathe and secured therein. Without some mechanical contrivance for the purpose this setting of the tools is a cumbersome task and requires considerable time even of an experienced and skilled worker. There are different devices in use

for setting and locking the turret-head in correct position. All these devices require, however, a previous setting of the turret itself in a certain position, and as the turret must frequently be turned during the progress of the work—at least at every change of tool—considerable time is consumed in these operations. To save this time, I construct a turret having automatically-working locking devices simple in construction and absolutely reliable. By means of these locking devices the tool is rapidly secured in exact position and the efficiency of the lathe increased.

A turret-head has been used heretofore only for tools working in a line parallel to the spindle of the lathe. It is, however, often required to move the tools at right angles to the axis of the lathe-spindle. For this purpose different auxiliary appliances are used. They are usually secured to the lathe-bed between the turret and the spindle of the lathe, and consequently hinder the turret being brought closely to the work-piece. To overcome this, long tools must be used, whereby again their efficiency and the accuracy of the work performed are reduced. In my improved turret I have provided for such tools a swinging bed or slide turnable around the socket of the turret, that does not interfere with the relative position of the turret to the spindle of the lathe and can be swung out of position when not in use. This attachment to my improved turret is also automatically stopped and locked in position.

My improved turret comprises a cylindrical socket A, secured on carriage B by three screw-bolts *b*. The carriage B moves on the lathe and is secured thereto when in position in the usual manner.

C is the main or top turret turning on bolt D and also secured on it in position by nut E.

E' is a handle to nut E, and *d* is a washer. Sleeve F, made of hardened steel, is set in a boring in socket A and serves as a bearing for the conically-shaped pin G, made also of steel and hardened. Spiral spring *s* drives the pin G in position shown in Figs. 3 and 9, locking the turret-head. In turret-top C are provided four conical borings H¹, H², H³, and H⁴. The number of these holes corresponds with the number of tool-holders I¹, I², &c.,

and in these borings are set pins K^1 , K^2 , K^3 , and K^4 , provided with push-knobs on their upper ends and held in uplifted position, as shown in Fig. 3, by springs k s. The borings
5 are conically widened on their lower ends, wherein the tapered end of the pin G enters, driven by the spring s , when turret-head C reaches its correct position.

The adjusting and locking device operates
10 as follows: To change from one tool to another, first nut E is loosened, then the corresponding knob K^1 (or K^2 , &c., as the case may be) is pushed downward to recede pin G from its locking position, and turret-head C
15 is turned in required direction, the point of pin G sliding on the bottom surface of the turret-head until the next boring (H^2 , for instance) reaches the position above the pin, whereupon the pin G slips in automatically
20 (actuated by spring s) and locks the turret-head. The tool will then be in exact concentric position with the lathe-spindle.

The supplementary turret or attachment consists of a split collar L with flanges l set
25 on socket A and secured in position thereon by lock-screw N . The ring rotates on socket A and rests on flange M , where an anti-friction-bearing may be provided on very large tools.

30 The socket A of the turret is permanently secured to carriage B , and the supplementary turret, turning thereon, is locked to it automatically by pin U in similar manner as the main or top turret when the slideway P is in
35 a line exactly at a right angle to the lathe-spindle.

The locking device is arranged as follows: In the center of the boss L' slides in a bushing T' pin U . Its conically-shaped point is
40 tightly fitted in the similarly-shaped recess t of bushing T , set in the socket A exactly in the place where pin U will strike when the supplementary turret is in the position described above. Spring v , slid on the stem of
45 the pin, between bearing u and the head of the pin, presses the pin forward. Knob W serves as a handle for withdrawing it from recess t when the supplementary turret is to be shifted from its working position. Slideway P is cast
50 in one piece with the ring L , and the tool-carriage is fed (adjusted) thereon by feed-screw Q , operated by handle Q' . Tool X is secured in tool-post R by screw R_s , securing at the same time also tool-post R in the tool-carriage
55 O , which in turn is secured by the thumb-screw S to the slideway. When the supplementary turret is locked in its position, the

tool will move in a line exactly at a right angle with the lathe-spindle.

I claim as my invention and desire to secure 60 by Letters Patent—

1. In a lathe-turret, comprising a stationary socket, adapted to be secured to the bed of a lathe, a pivot-bolt, set in the center of the
65 socket, a turret-head, set concentrically on the socket and turnable on the pivot-bolt, the combination with the turret, of mechanism for adjusting and automatically locking the turret-head in position on the socket, comprising a tapered locking-pin, set in a bush-
70 ing, sunk in the socket, a spiral spring, set underneath the pin and pressing the pin upward into conical recesses in the turret-head, adapted to receive the tapered end of the locking-pin, pins provided with push-knobs on
75 their upper ends, set in the turret-head vertically above the recesses and adapted to dislodge the locking-pin, when pushed downward, and spiral springs pressing the pins upward.
80

2. In a lathe-turret, the combination with a stationary cylindrical socket, adapted to be secured to the bed of a lathe, of an auxiliary turret, pivoted thereon and adapted to be rigidly secured to it, the auxiliary turret comprising a slideway for a tool-carriage, a feed-
85 screw for adjusting the tool-carriage in position and for feeding it at a right angle to the lathe-spindle, and a thumb-screw for securing the tool-carriage in adjusted position on the
90 slideway.

3. In a lathe-turret, comprising a stationary cylindrical socket, adapted to be secured to the bed of a lathe, and a turret rotatably secured thereto, the combination of mechanism
95 for automatically locking the turret to the socket when in right position to the spindle of the lathe, the combination comprising a spring-actuating pin, set in the socket and having a tapered end adapted to slide automatically into a correspondingly-shaped recess in
100 the turret, thus locking the turret in position, and a pin having a knob, set in a boring opposite the recess, and a spring, holding the pin in retracted position.
105

In witness that I claim the improvements described in the foregoing specification I have signed my name in the presence of two subscribing witnesses.

FRITZ SCHNEIDER.

Witnesses:

JOHN HEUER,

CHARLES HEYDRICK.