

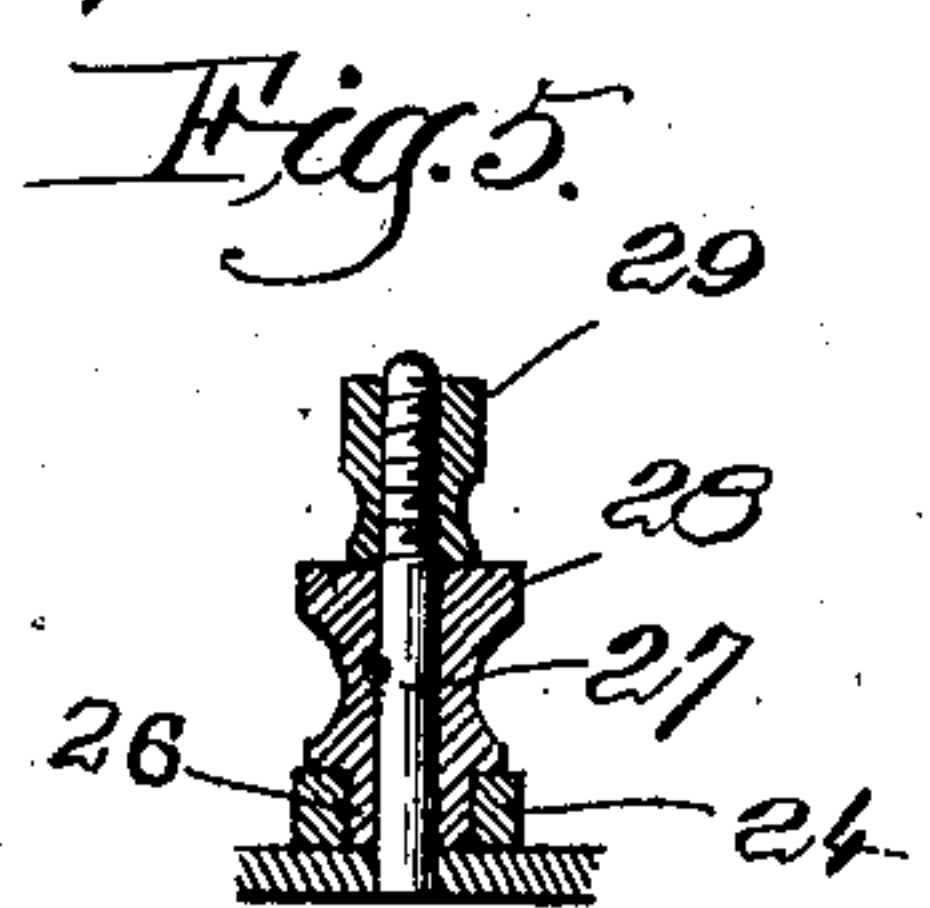
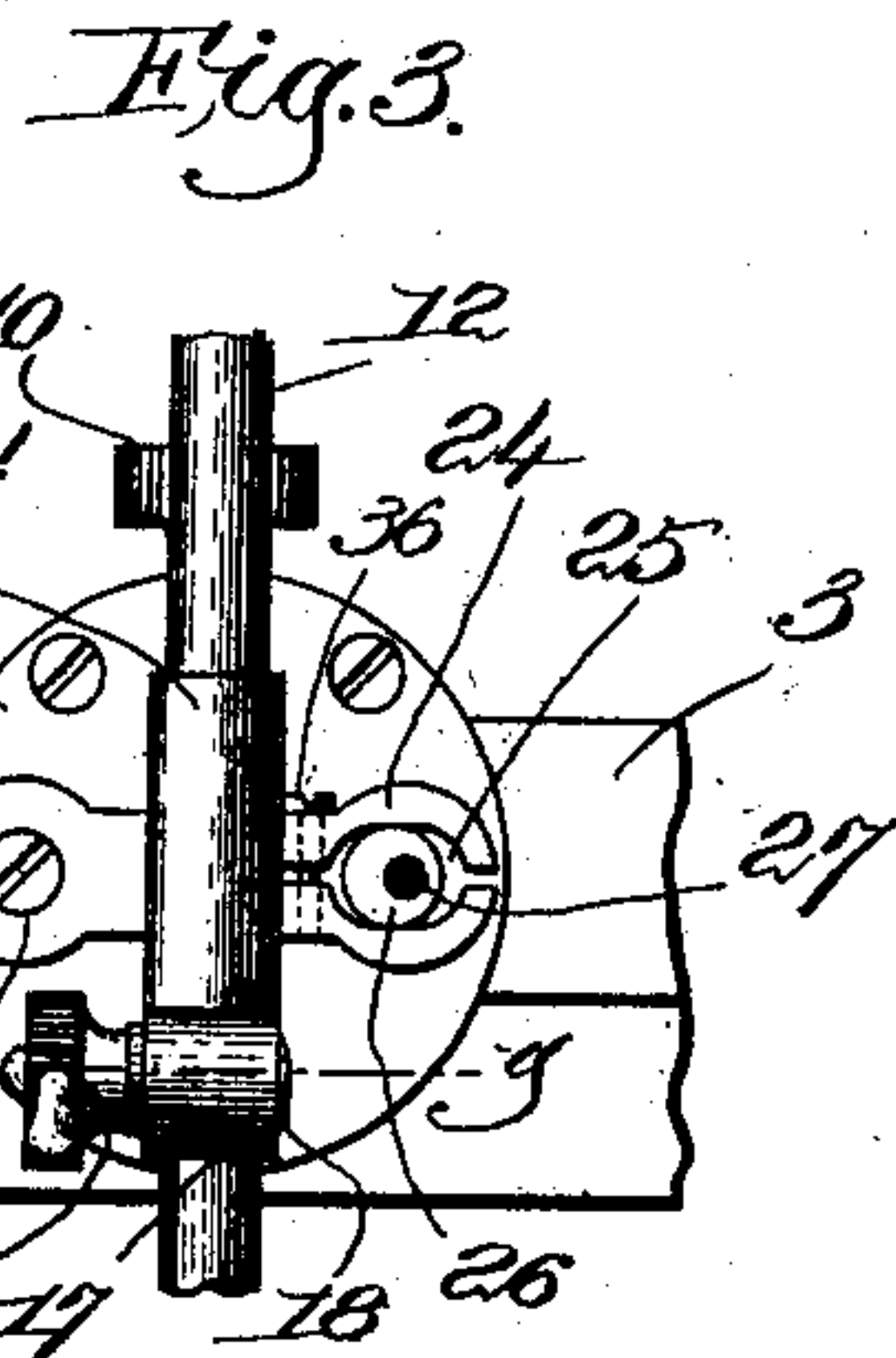
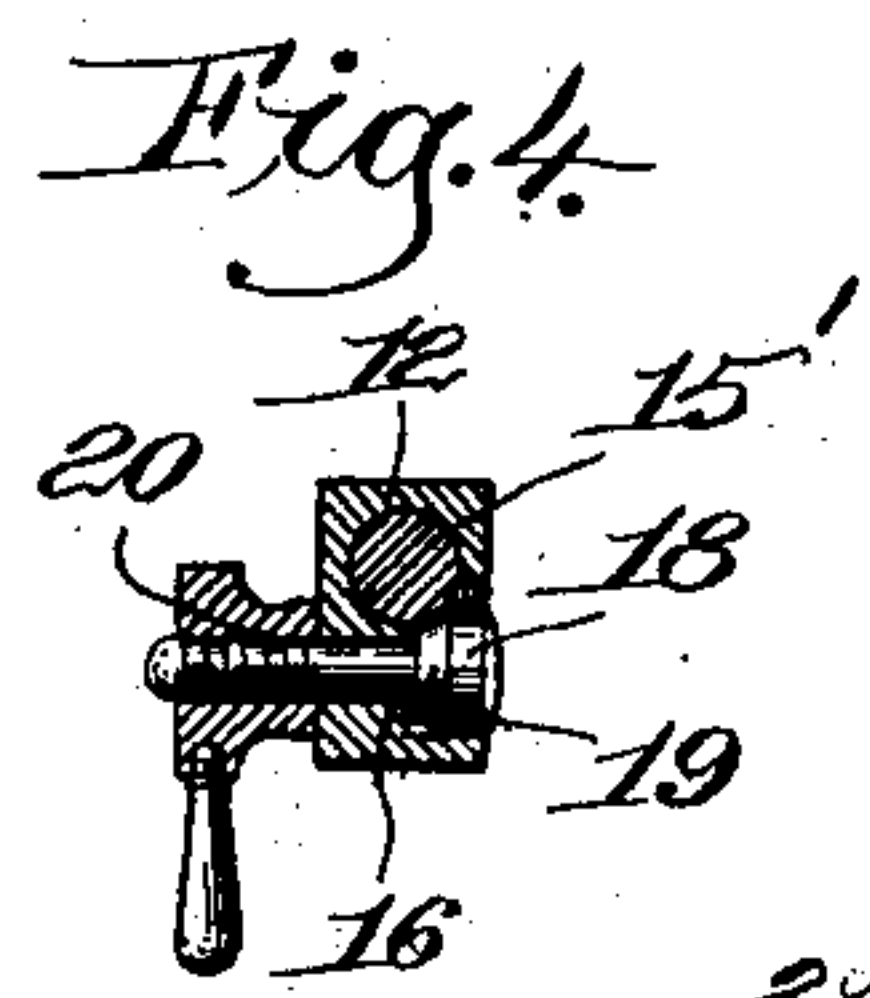
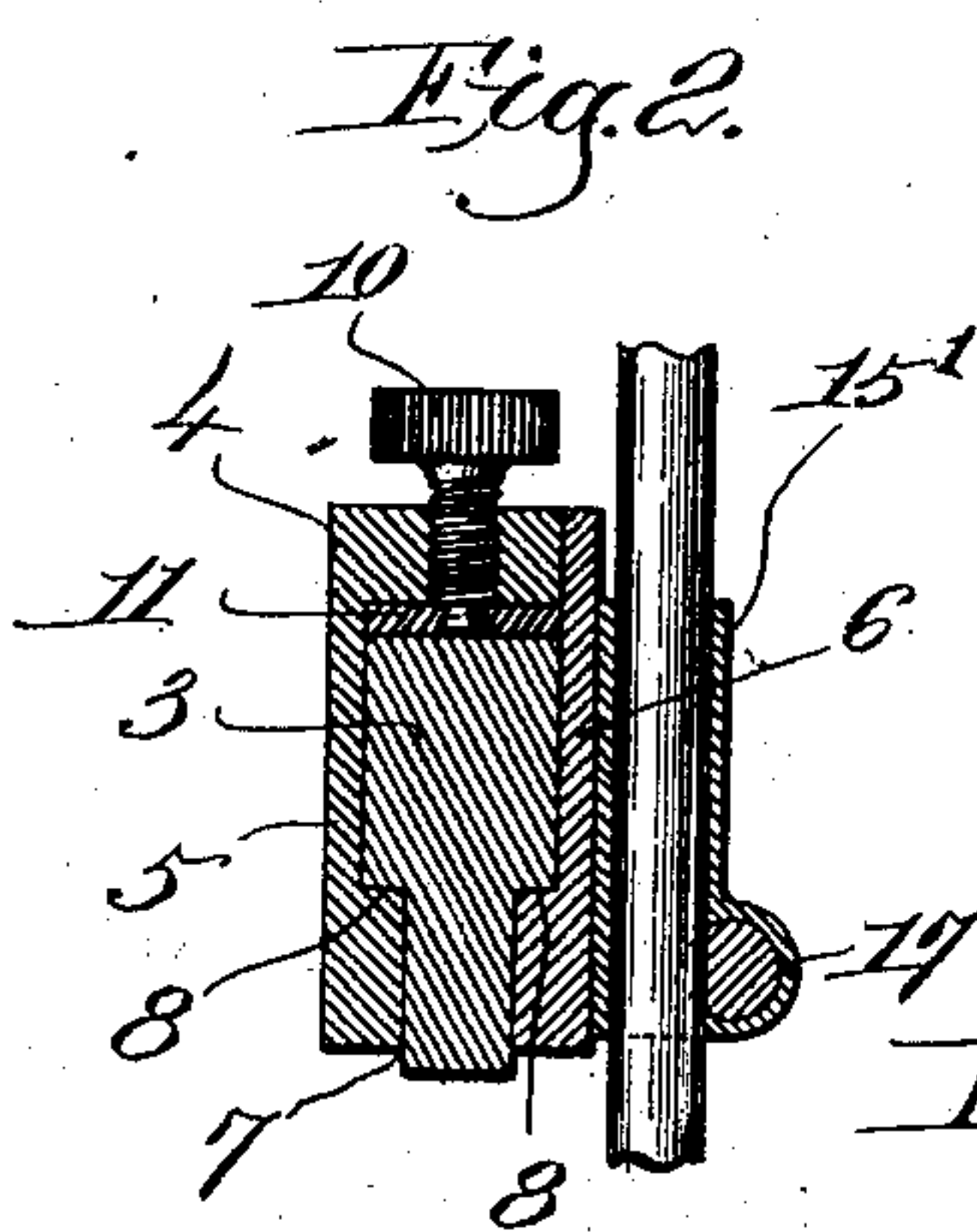
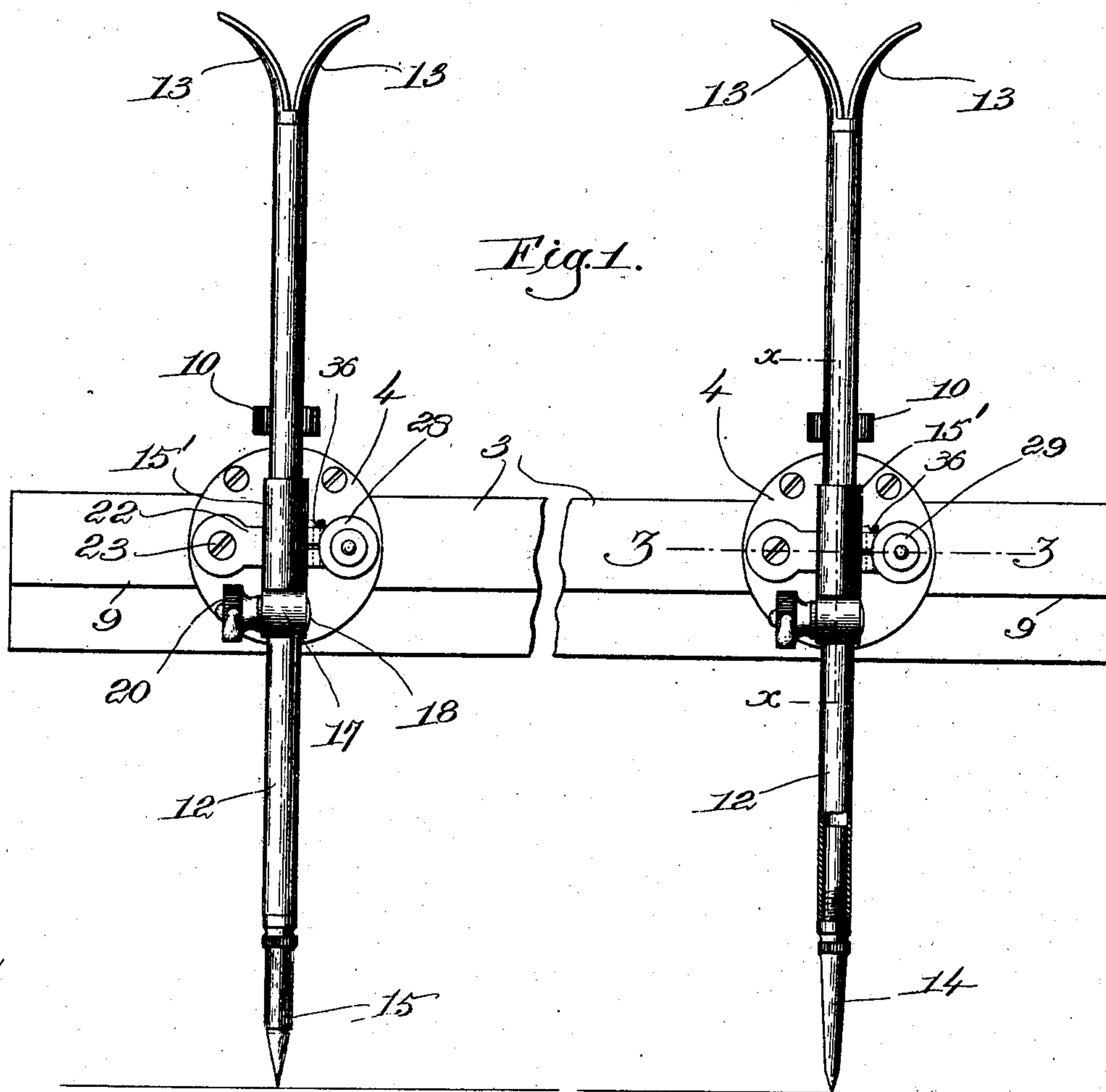
No. 746,221.

PATENTED DEC. 8, 1903

R. A. WILSON.
BEAM TRAMMEL AND CALIPERS.

APPLICATION FILED MAY 14, 1903.

NO MODEL.



Witnesses:

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UNITED STATES PATENT OFFICE.

ROBERT A. WILSON, OF WATERTOWN, MASSACHUSETTS.

BEAM TRAMMEL AND CALIPERS.

SPECIFICATION forming part of Letters Patent No. 746,221, dated December 8, 1903.

Application filed May 14, 1903. Serial No. 157,079. (No model.)

To all whom it may concern:

Be it known that I, ROBERT A. WILSON, a citizen of the United States, and a resident of Watertown, in the county of Middlesex and State of Massachusetts, have invented an Improvement in Beam Trammels and Calipers, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention relates to trammels or beam-compasses, and has for one of its objects to provide a novel device of this character which may be used both as a pair of calipers and as compasses and for another object to provide a novel construction by means of which a very fine adjustment of the legs of the compasses or calipers may be effected.

The device comprises the usual beam, upon which are adjustably mounted two heads. Each head carries a bar forming one of the legs of the calipers or compasses, as the case may be. These bars or legs, as usual in this class of devices, extend transversely to the beam, and in my improved construction one of them is pivoted to the head, so that the ends thereof may be swung toward and from the other bar or leg. Suitable adjusting devices are provided for thus swinging the leg and for locking it in its desired position. With this construction a general or rough adjustment of the calipers or compasses may be obtained by adjusting the heads longitudinally upon the beam relative to each other and the fine and final adjustment secured by swinging or turning one of the legs upon its head.

My invention also relates to a novel way of adjustably securing the legs to the head.

In the drawings, Figure 1 is a view of my improved device, part of the beam being broken out. Fig. 2 is a section on the line $x x$, Fig. 1. Fig. 3 is a plan view of one of the heads with the cap of the adjusting-cam removed. Fig. 4 is a section on the line $y y$, Fig. 3. Fig. 5 is a section on the line $z z$, Fig. 1.

3 designates the beam, which may be of any length desired, and 4 designates suitable heads which are slidably mounted upon the beam, and each of which carries a bar forming one leg of the calipers or compasses, as

hereinafter described. I have herein shown the heads as having two sides 5 and 6, between which the beam 3 is received, said sides being open at 7, so that different depths of beam may be employed, for it will be obvious that where the beam is a very long one it will be necessary to make it comparatively deep in order to give it sufficient strength. The sides 5 and 6 are shown as having the shoulders 8, which engage shoulders 9 on the beam, and the heads are held in any desired adjusted position by the set-screws 10, which are illustrated as bearing against clamping-plates 11.

12 designates the bars which form the legs of the calipers or compasses, and said legs are each branched at one end and the branches bent outwardly, as at 13, to form caliper-points. The other end of each of the legs is constructed to have removably secured thereto either a metallic or centering point 14 or a pencil 15, as desired. Preferably these legs 12 are made tubular, in which case the centering or pencil points may be screwed into the ends thereof, as shown. As herein illustrated, each leg 12 extends through and is held by a leg-holder 15', which is in the form of a sleeve through which the leg passes. The leg is clamped to the holder by means of a clamping-screw 16, which extends transversely through the holder, preferably through lugs 17 thereon, and situated at one side of the leg, as shown in Fig. 4. The clamping-screw has a head 18, provided with a curved surface 19, shaped to fit the curve of the leg 12, and coöperates with a clamping-nut 20. When the nut 20 is tightened, the curved surface 19 of the head is drawn against the leg 12 and the latter consequently clamped in position. This construction permits each leg 12 to be adjusted transversely of the beam and securely clamped in any adjusted position.

The ordinary adjustment of the legs of the calipers or compasses is effected by sliding the heads back and forth on the beam in the usual way. In order to obtain a finer adjustment than is possible by adjusting the heads, I have so arranged one or both of the legs 12 that it or they may be turned to swing the ends thereof in the direction of the length of the beam. For this purpose

the holder 15 is pivoted to the side of the corresponding head. In the form of my invention herein illustrated the holder has an arm 22, extending laterally therefrom, through which a pivotal screw 23 passes into the head, and on the opposite side of the holder is another arm 24, having a slot 25, in which operates an adjusting-cam 26. This cam is shown as mounted to turn about a pivotal stud 27 and is provided with a suitable knurled head 28 for operating it. The end of the stud projects through the head and has a clamping-nut 29 thereon, by means of which the cam may be locked in any adjusted position. With this construction it will be seen that by turning the cam 26 in one direction or the other the point of the corresponding leg may be swung toward and from the other leg, and because of the short distance of the cam from the pivotal screw 23 relative to the distance of the point or end of the leg from said screw a very slight turning movement of the cam will result in considerable adjustment of the leg.

I have herein shown the cam 26 as circular and have obtained the necessary throw by pivoting it eccentrically, as best seen in Fig. 3. I prefer this construction, because in any position of the cam it just fills the slot 25, and thereby prevents any backlash or loose play. When the cam is clamped in its adjusted position, therefore, the corresponding leg 12 is firmly held from movement in either direction. In order to take up any wear that may occur between the cam 26 and the walls of the slot, I have made the two sides of said slot adjustable relative to each other. As herein illustrated, the arm 24 is split longitudinally and the two parts adjusted to vary the width of the slot by means of a screw 36. I have herein illustrated both of the legs 12 as being thus adjustably mounted upon their corresponding heads; but my invention would not be departed from if one of the legs was rigidly secured to its head, as in many cases sufficient adjustment could be obtained by making one of the legs so pivoted.

While I have herein illustrated one particular way in which the legs 12 may be adjustably secured to their heads, I do not wish to be limited to this precise construction, as various changes may be made in the construction of the device without departing from the spirit of the invention as expressed in the appended claims.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a device of the class described, a beam, two heads slidably mounted thereon, a leg-holder secured to the side of each head, one of said leg-holders being pivoted to its head, a leg adjustably mounted in each leg-holder, and means to adjust the pivoted leg-holder,

whereby the ends of the corresponding leg may be adjusted longitudinally of the beam.

2. In a device of the class described, a beam, two heads slidably mounted thereon, a leg-holding sleeve for each head, a leg adjustably mounted in each holding-sleeve, each holding-sleeve having one arm extending laterally therefrom which is pivoted to the head, and a second arm extending from the opposite side thereof and provided with a slot, and an adjusting-cam operating in said slot.

3. In a device of the class described, a beam, two heads thereon each adjustable longitudinally of the beam, a leg-holding sleeve secured to the side of each head, a leg adjustably carried by each sleeve, each sleeve completely surrounding the corresponding leg and being enlarged at one side to form a boss, a clamp-screw passing through each boss in a direction transverse to that of the leg and having a head thereon to engage the side of the leg, the shank of each screw being separated from and out of contact with the corresponding leg, and a clamping-nut on each screw.

4. In a device of the class described, a beam, two heads slidably mounted thereon, a leg-holding sleeve pivoted to one of said heads at one side of the leg, a leg adjustably supported in said sleeve, means to hold said sleeve in any adjusted position, and a second leg secured to the other head.

5. In a device of the class described, a beam, two heads slidably mounted thereon, a leg-holder carried by each head, a leg in each holder, one of said holders having rigid there-with a laterally-extending arm which is pivoted to the corresponding head, and means to turn said holder about said pivot.

6. In a device of the class described, a beam, two heads slidably mounted thereon, a leg-holder secured to each head, a leg in each holder, one of said leg-holders having an arm extending laterally therefrom which is pivoted to the head, and a second arm extending from the opposite side thereof, and adjusting means coacting with said second arm to turn said holder about its pivot.

7. In a device of the class described, a beam, two heads slidably mounted thereon, a leg-holder for each head, a leg adjustably mounted in each holder, one of said holders having an arm extending laterally therefrom which is pivoted to the head, and a second arm extending from the opposite side thereof and provided with a slot, an adjusting-cam operating in said slot, and means to vary the width of the slot to compensate for wear.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ROBERT A. WILSON.

Witnesses:

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WESLEY E. MONK.