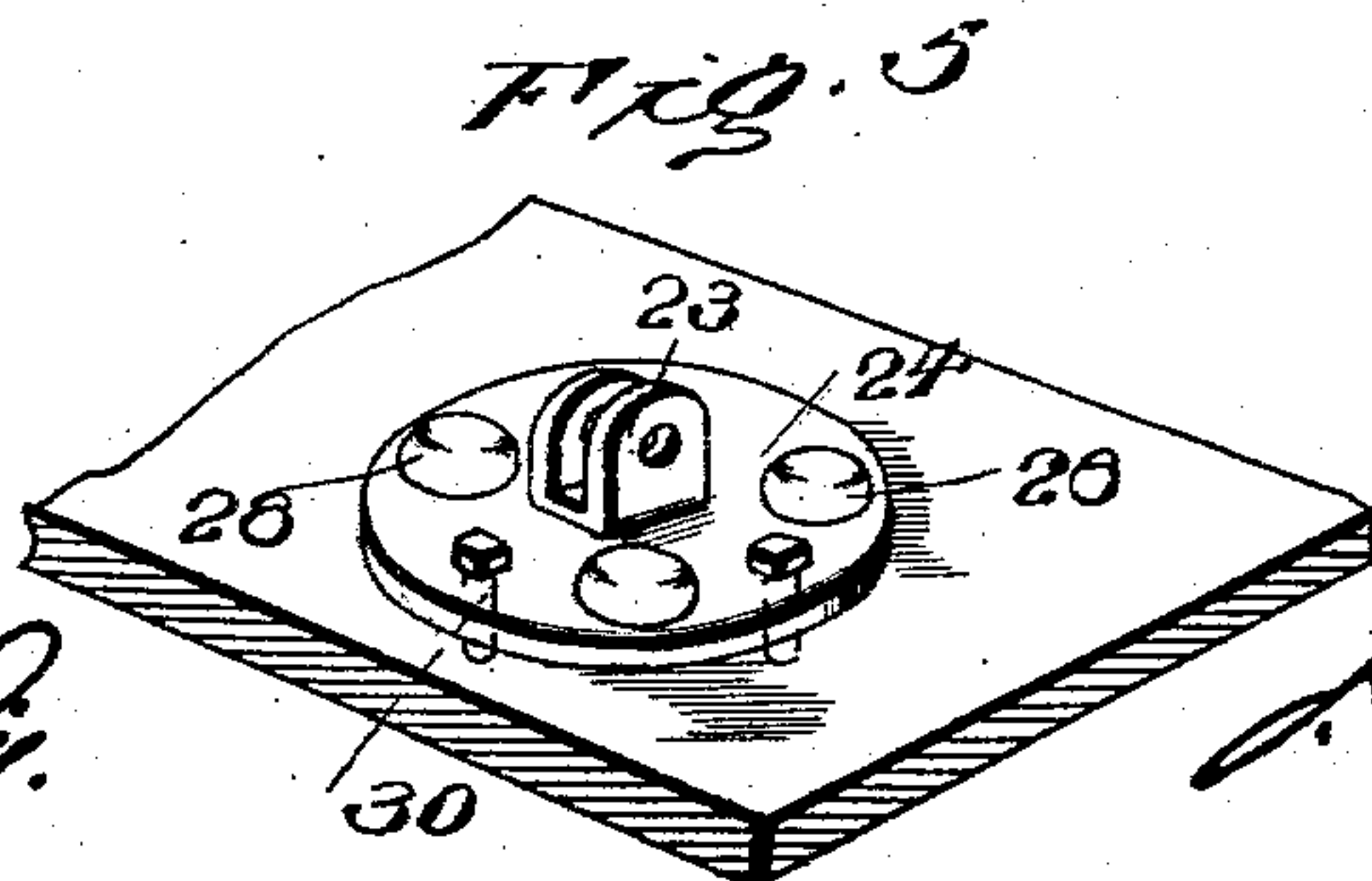
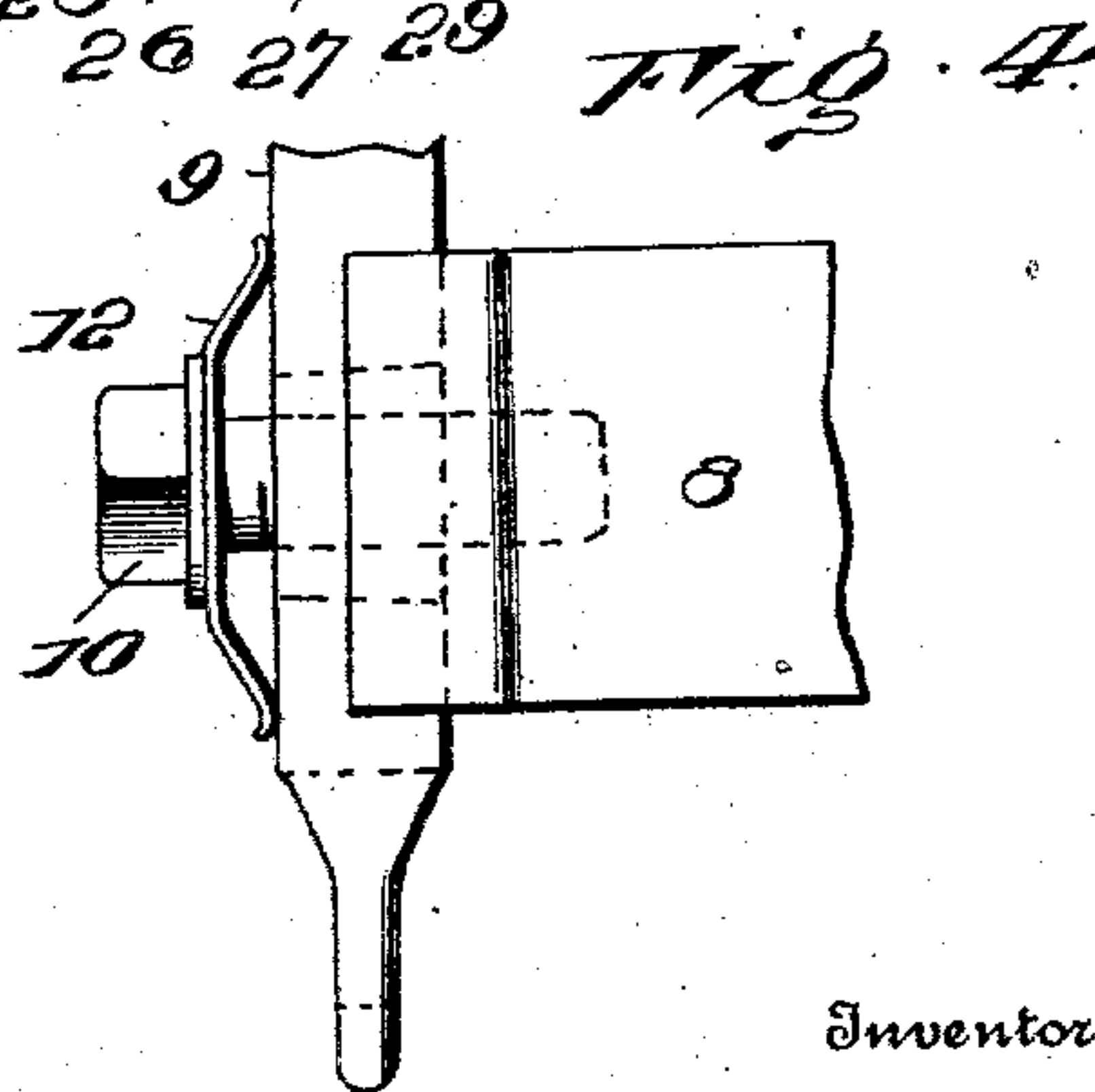
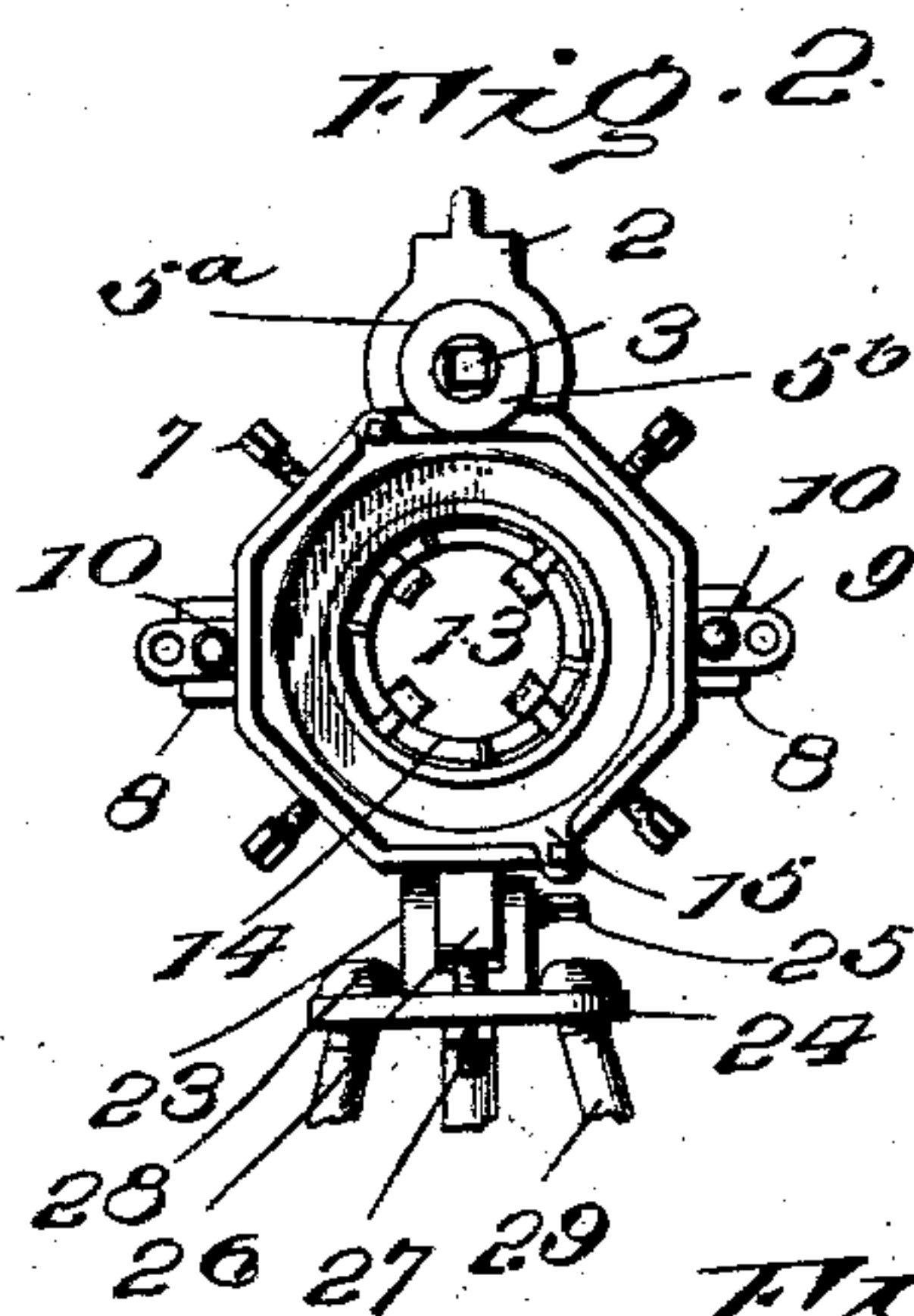
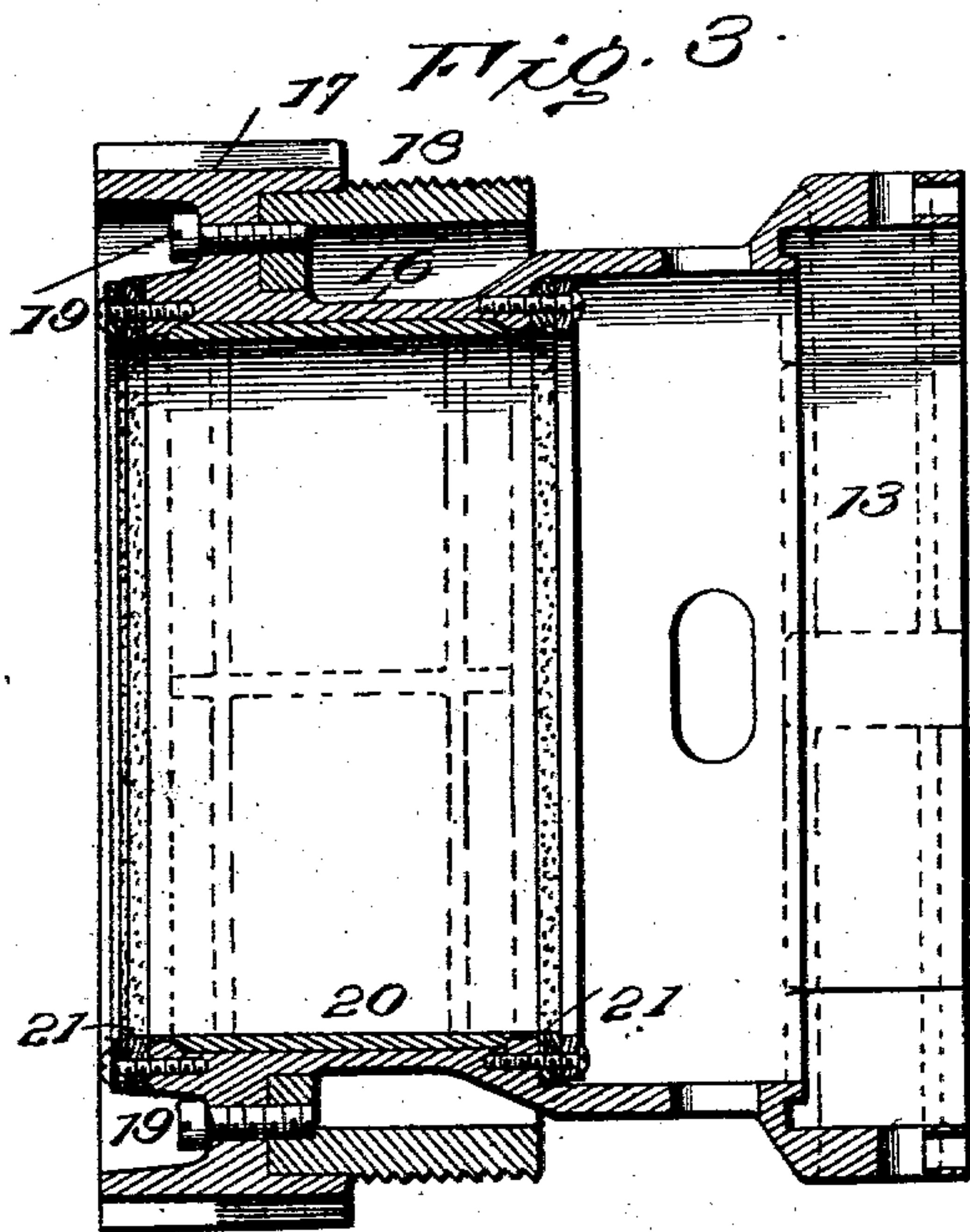
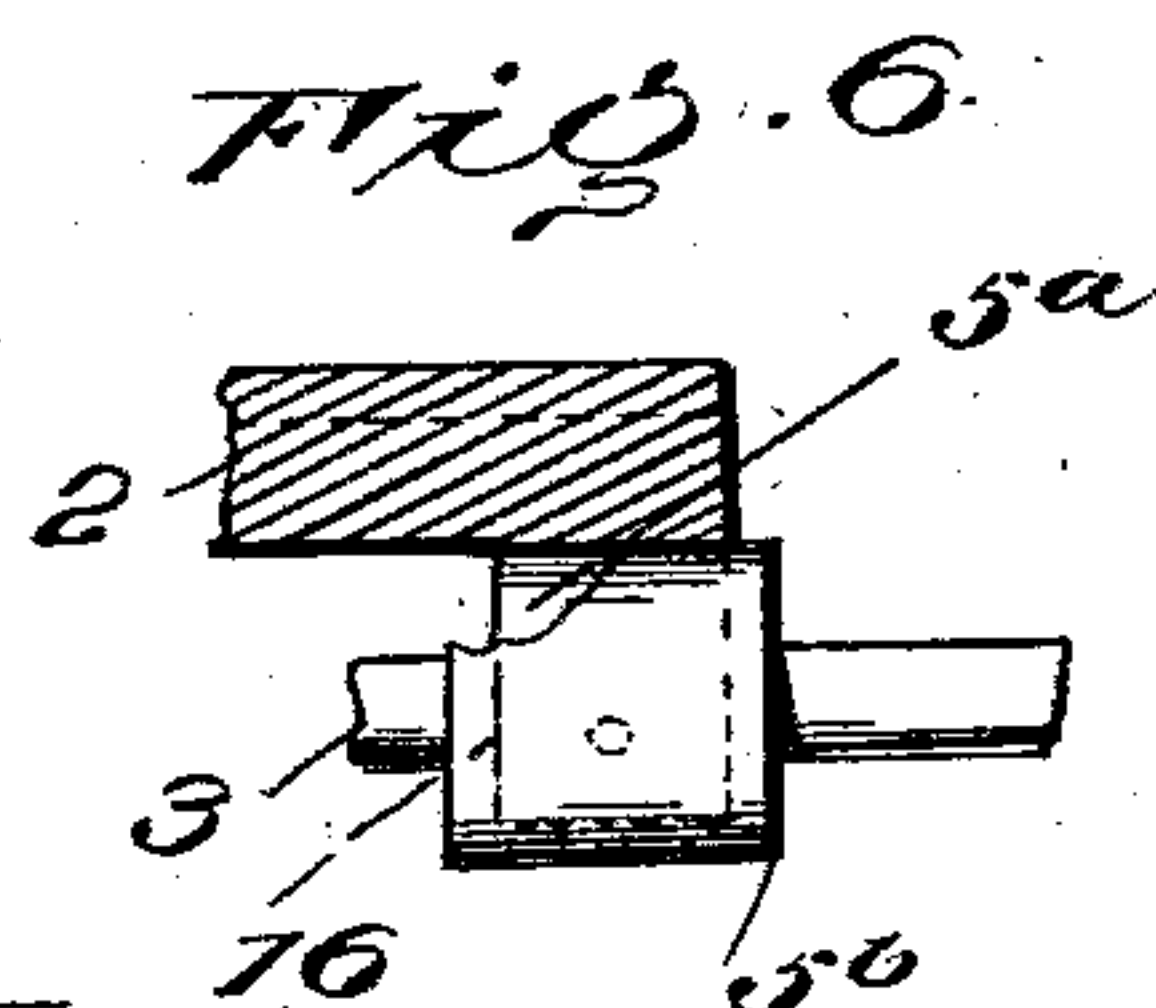
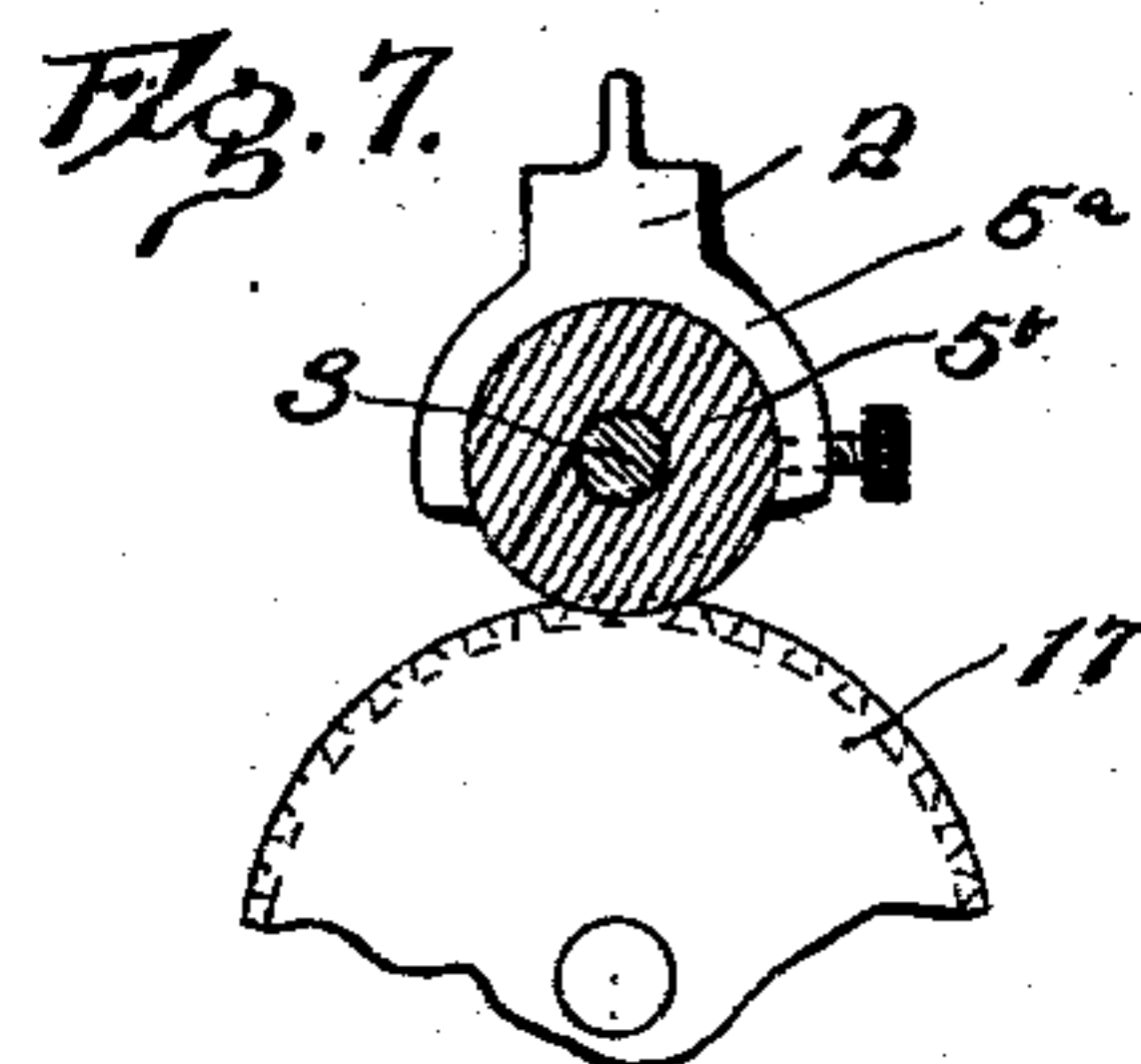
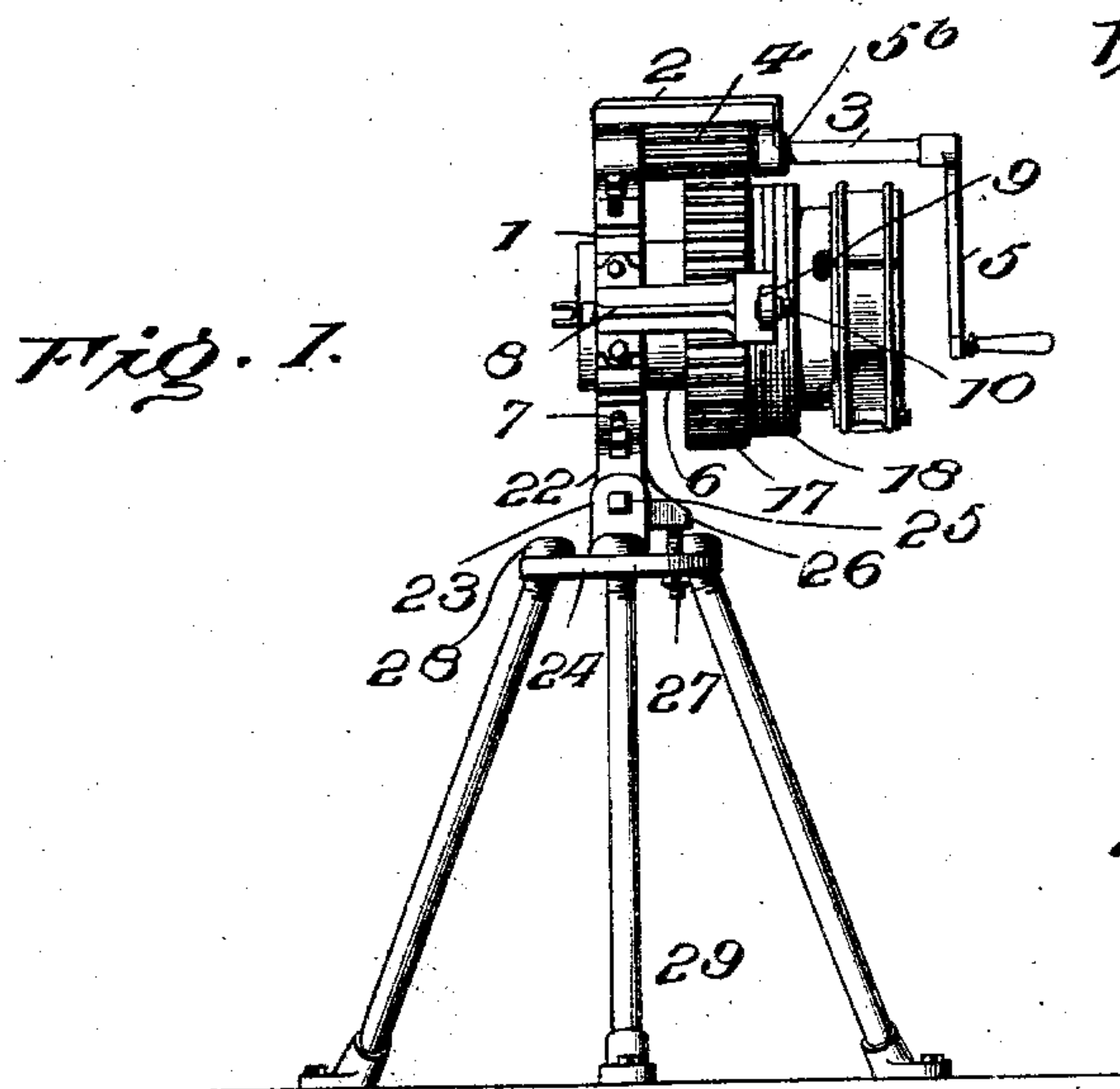


No. 740,799.

PATENTED OCT. 6, 1903.

B. BORDEN.
PIPE THREADING MACHINE.
APPLICATION FILED NOV. 4, 1902.

NO MODEL.



Witnesses

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UNITED STATES PATENT OFFICE.

BRADFORD BORDEN, OF WARREN, OHIO, ASSIGNOR TO FRANK S. CHRYST,
TRUSTEE, OF WARREN, OHIO.

PIPE-THREADING MACHINE.

SPECIFICATION forming part of Letters Patent No. 740,799, dated October 6, 1903.

Application filed November 4, 1902. Serial No. 130,053. (No model.)

To all whom it may concern:

Be it known that I, BRADFORD BORDEN, of Warren, in the county of Trumbull and State of Ohio, have invented certain new and useful Improvements in Pipe-Threading Machines; 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.

The object of this invention is to improve the construction and enhance the utility of the pipe-threading machine patented to me in and by Letters Patent of the United States No. 686,577, dated November 12, 1901.

The objects of the improvements contemplate, first, mounting the machine as a whole so that it will automatically adjust itself into perfect alinement with the pipe to be threaded and properly center such pipe in the die-block and relieve the head and thread-cutting chasers of undue strain, thereby avoiding breakage; second, to enable me to thread a pipe presented to the machine at different angles, as when one end is resting on the ground; third, to provide removable supports, so that the machine may be secured to a work-bench or table or used for portable work; fourth, to so locate the feed-screw that it will not be injured by metallic chips or clippings entering its thread; fifth, to so locate the feed-blocks that they will force chips or clippings out of the screw; sixth, to provide the movable portion of the die stock or socket with an interior facing which cannot be injured by clippings getting between it and the spindle or tubular portion of the machine; seventh, to have the feed-screw, gear-wheel, and die block, stock, or socket in practically one piece and capable of being readily returned bodily to the starting-point without a reverse rotation, and, finally, to allow such parts, together with the operating-pinion, to be readily removed from the frame.

The invention will be hereinafter fully set forth, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a view in side elevation. Fig. 2 is an end elevation. Fig. 3 is a vertical longitudinal sectional view. Fig. 4 is an enlarged view of

one of the feed-blocks. Fig. 5 shows the supporting base-plate secured to a work-bench. Fig. 6 is a sectional detail view, and Fig. 7 is a slightly-enlarged end view showing the outer support for the crank-shaft.

Referring to the drawings, 1 designates a ring-frame, and 2 an overhanging arm supporting the shaft 3 of a pinion 4, a crank 5 being secured on such shaft. The outer end of arm 2 has two depending slightly-curved cheeks 5^a, conjointly forming a support for a collar or bushing 5^b, the bottom of which latter extends below the lower ends of the cheeks. By withdrawing this collar from its support the crank-shaft and pinion may be removed from the frame. Extending centrally from the ring-frame is a smooth spindle or tubular portion 6, wherein the pipe to be threaded is held by grip-screws 7. To the sides of the ring-frame are removably secured two horizontally-disposed arms 8, the free ends of which are grooved to accommodate two brass feed-blocks 9, threaded on their inner end faces. Each of these blocks is formed with a slot through which extends a stationary bolt 10, holding a plate-spring 12, the tension of which latter serves to retain the feed-blocks in their proper positions according as the latter may be moved inwardly or outwardly.

13 is the die-socket, 14 the die-block, and 15 the hinged plate by which the latter is held in place. On the rearwardly-extended sleeve 16 of the die-socket is mounted a gear-wheel 17, which meshes with the pinion 4, and to this gear-wheel, surrounding the sleeve 16, is secured the feed-screw 18, held by bolts 19, so that different feed-screws may be substituted. With the feed-screw engage the feed-blocks 9 at the sides of the machine. When these are disengaged and shaft 3, its pinion, and collar 5^b are removed, the feed-screw, gear-wheel, and die-socket may be withdrawn from spindle 6; but when the collar 5^b is in position its lower depending portion forms a stop which will prevent the outward movement of the gear-wheel.

The sleeve 16, which is designed to telescope the spindle or tubular portion 6, is equipped with a lining 20, of soft or Babbitt metal, and at its ends are felt washers 21 to

aid in preventing metallic chips or clippings from entering between the sleeve and the inclosed portion of the smooth spindle. If, however, the chips or clippings should so enter, the sleeve-lining being soft they will be embedded therein, and hence cause no serious injury or in any way interfere with the operation of the machine.

To allow the machine to automatically accommodate itself to the pipe to be threaded, and thereby insure perfect alinement and avoid undue strain on any of the chasers of the die, the machine as a whole is pivotally mounted on its support.

From the ring-frame depends a lug or tongue 22, held between two posts or jaws 23, projecting upwardly from a base-plate 24, through which lug and posts is passed a nutted bolt 25, on which the machine may turn axially until in the desired position to allow a pipe to be properly presented to the die. This is a very important feature, since if an operator should fail to properly support the free end of a pipe the whole weight thereof is thrown on the machine-head and die, subjecting the upper chasers of the latter to a severe strain, with great danger of breakage; but by my improvement the weight of the pipe itself will automatically tilt the machine-head backward until the free end of the pipe finds a resting-place on the floor or elsewhere, thereby giving a bearing-point for the pipe at each end and distributing the weight of the pipe between the floor and the head, so relieving the die of undue strain and preventing breakage. Furthermore, I am enabled to also thread pipes with only one end elevated, the other remaining on the floor or ground. This is of special advantage in working in trenches. The machine is limited in its adjustment in one direction by a projection 26 engaging an adjustable stop 27 extending upwardly from the base-plate.

The base-plate 24 is equipped with a series of bosses 28 on its upper face, such bosses being interiorly threaded from the under side of the plate to accommodate supporting-legs 29. These legs are designed to be used when the machine is secured to the floor or when employed for portable work, as when working in trenches. When, however, the machine is to be secured on a work-bench, the legs are removed and holding screws or bolts are inserted through holes 30, the threaded bosses being on the upper side of the plate, not in any way interfering with the latter when attached to a bench. Thus the utility of the machine is extended.

The pipe to be threaded is inserted longitudinally through the spindle or tubular portion until its forward end enters into the die-block, after which the grip-screws are turned to hold the pipe in place. The pinion 4 being rotated imparts a rotary motion to the gear-wheel and being longer than the width of the gear-wheel the latter moves lengthwise as the feed-screw works in the feed-blocks,

and the sleeve 16 slides on the smooth spindle or tubular portion of the machine. This turns the die-block and effects the cutting of a thread on the pipe corresponding to the pitch of the coacting threads of the feed-screw and feed-blocks.

The advantages of my invention are obvious to those skilled in the art. It will be specially observed that the machine as a whole will automatically adjust itself into proper alinement with the pipe to be threaded, thereby avoiding all danger of undue strain on the head or die and permitting pipes to be threaded when held on an incline.

Another advantage lies in the fact that when it is desired to return the die-socket, the feed-screw, and the gear-wheel to the starting-point after the thread has been cut it is not necessary to rotate such parts, but merely to disengage the feed-blocks from the feed-screw by sliding them outwardly, whereupon the die-socket, &c., may be bodily pulled outwardly on the smooth spindle or tubular portion of the machine. Furthermore, by having the outer end of the overhanging arm free the driving-pinion and its shaft may be readily removed to permit the gear-wheel and parts connected thereto to be withdrawn from the frame and its spindle, thereby facilitating cleaning or repairing the parts. The free end of the overhanging arm permits the gear-wheel to be readily slipped off once the collar or bushing 5^b is removed from its support in such end of the arm.

I claim as my invention—

1. A pipe-threading machine having its head pivotally mounted to permit of the automatic adjustment thereof under the weight of the pipe to be threaded, as set forth.

2. A pipe-threading machine having a support and means for pivotally securing the machine to such support, such means permitting the bodily automatic adjustment of the machine as a whole relatively to its support under the weight of the pipe to be threaded, as set forth.

3. A pipe-threading machine having its frame equipped with a depending lug, a base-plate having ears, and a pivot-bolt passed through such lug and ears to permit of the bodily adjustment of the machine as a whole.

4. A pipe-threading machine having a tubular portion, means for holding a pipe within the latter, and a pivot-bearing for such machine to allow it and its tubular portion to move as a whole under the weight of a pipe held within the latter, substantially as set forth.

5. In combination, a pipe-threading machine, a base-plate therefor having interiorly-threaded bosses on its upper face, and supporting-legs removably fitted in such bosses, as set forth.

6. A pipe-threading machine having a frame, an exteriorly smooth tubular portion extended therefrom, a die-socket having a sleeve movable on said tubular portion, a

feed-screw on the outside of said sleeve, threaded feed-blocks at the side of the machine for engaging with said feed-screw, and means for rotating the latter, as set forth.

5 7. A pipe-threading machine having a frame, an exteriorly smooth tubular portion extended therefrom, a die-socket, a sleeve therefor movable on said tubular portion, said sleeve having an inner facing of soft
10 metal, a feed-screw on the outside of said sleeve, threaded feed-blocks at the sides of the machine for engaging with said feed-screw, and means for rotating the latter, as set forth.

15 8. A pipe-threading machine having a frame, an exteriorly smooth tubular portion extended therefrom, a die-socket, a sleeve therefor movable on said tubular portion, said sleeve having an inner facing of soft
20 metal, soft washers at the ends of such sleeve, a feed-screw on the outside of said sleeve, threaded feed-blocks at the sides of the machine for engaging with said feed-screw, and means for rotating the latter, as set forth.

25 9. The combination with the frame having a central tubular portion, of arms secured to such frame at the sides thereof and paralleling said tubular portion, feed-blocks mounted in said arms, a die-socket, a sleeve there-
30 for movable in said tubular portion, a feed-screw on the outside of said sleeve engaged at its sides by said feed-blocks, and means for rotating the screw, substantially as set forth.

35 10. The combination with the frame having a central tubular portion, of arms secured to such frame at the sides thereof and paralleling said tubular portion, feed-blocks having slots, bolts passed through such slots, spring-plates held by said bolts and engaging said
40 feed-blocks, a die-socket, a sleeve therefor movable on said tubular portion, a feed-screw on the outside of said sleeve engaged at its sides by said feed-blocks, and means for rotating the screw, substantially as set forth.

45 11. The combination with the frame having a smooth tubular portion, and an overhang-

ing arm, of a shaft, and a pinion thereon, said shaft being supported at its inner end by said frame, a collar on said shaft fitted in the outer end of said arm, said collar depending below
50 the lower plane of the latter, a sleeve telescoping said tubular portion, a die-socket carried thereby, a feed-screw and a gear-wheel also carried by said sleeve, said gear-wheel intersecting the plane of the depending por-
55 tion of said collar, arms extending from opposite sides of the frame paralleling the tubular portion thereof, threaded feed-blocks mounted on the arms for engaging the feed-screw, and means for holding the feed-blocks
60 in different positions, as set forth.

12. In a pipe-threading machine, the combination with the frame having a central smooth tubular portion, and an overhanging
65 arm, of the pinion, the shaft therefor, supported at one end by said frame and at its other end by said arm, the sleeve telescoping said tubular portion, a facing of soft metal within said sleeve, from end to end thereof, a gear-wheel on the outside of said sleeve
70 meshing with said pinion, the die-socket at one end of said sleeve, the die-block therein, and gripping-screws mounted in the frame, substantially as set forth.

13. In a pipe-threading machine a frame
75 having a tubular spindle and an overhanging arm free at its outer end, a die-socket and gear-wheel secured together and movable on said spindle, an operating-pinion in mesh with said gear-wheel, the shaft therefor, and means
80 for removably securing such shaft to the free end of such arm, such means normally forming a stop for limiting the outward movement of the gear-wheel on the tubular spindle, sub-
85 stantially as set forth.

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

BRADFORD BORDEN.

Witnesses:

I. W. NONNEMAN,
FRANK S. CHRYST.