

WITNESSES

M. O. Smith

Lenore Clark.

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BY *J. R. Cornwall* ATT'Y.

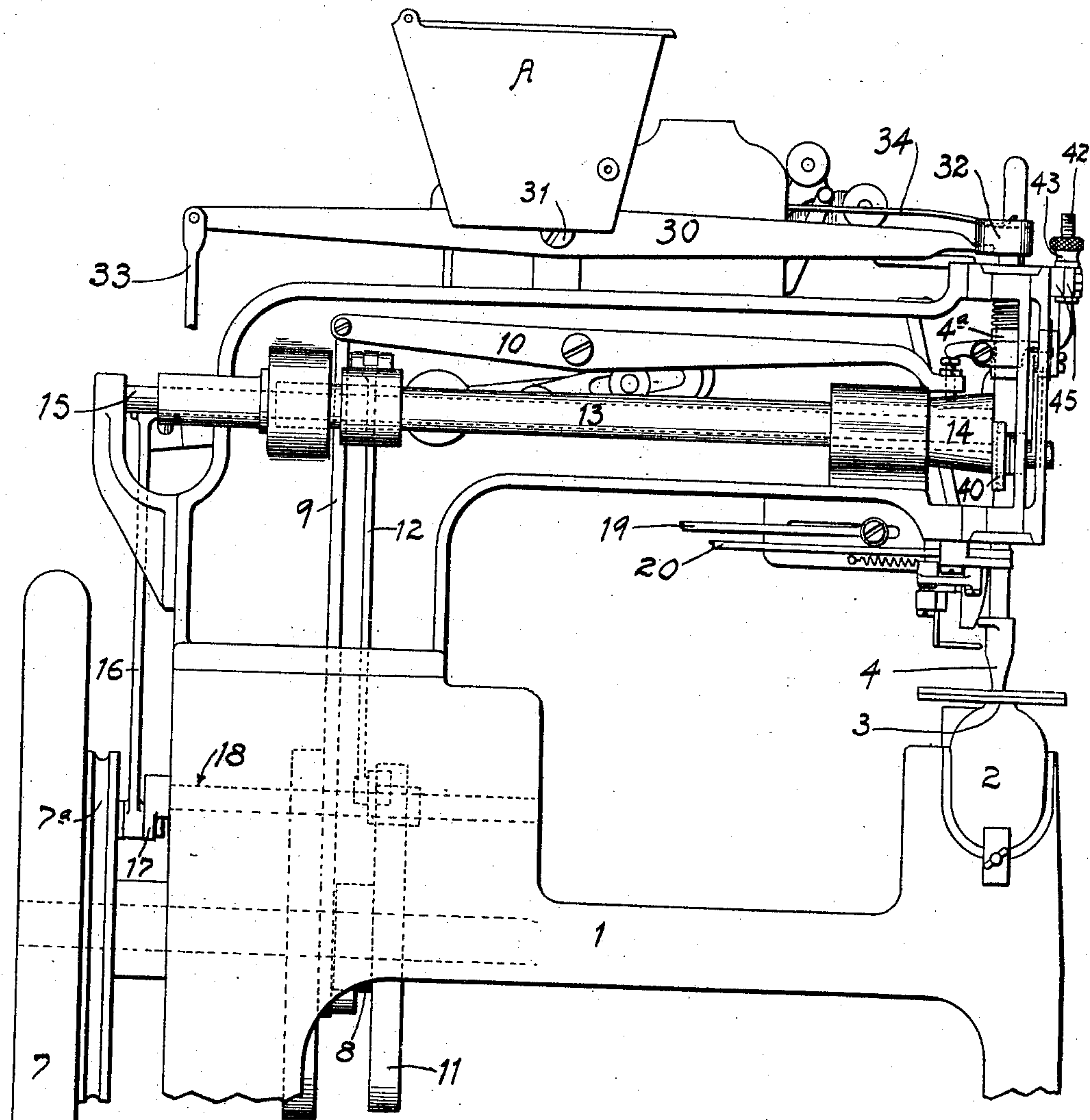
976,746.

C. PEDERSEN.
WAX THREAD SEWING MACHINE.
APPLICATION FILED APR. 23, 1909.

Patented Nov. 22, 1910.

5 SHEETS-SHEET 2.

FIG. 2.



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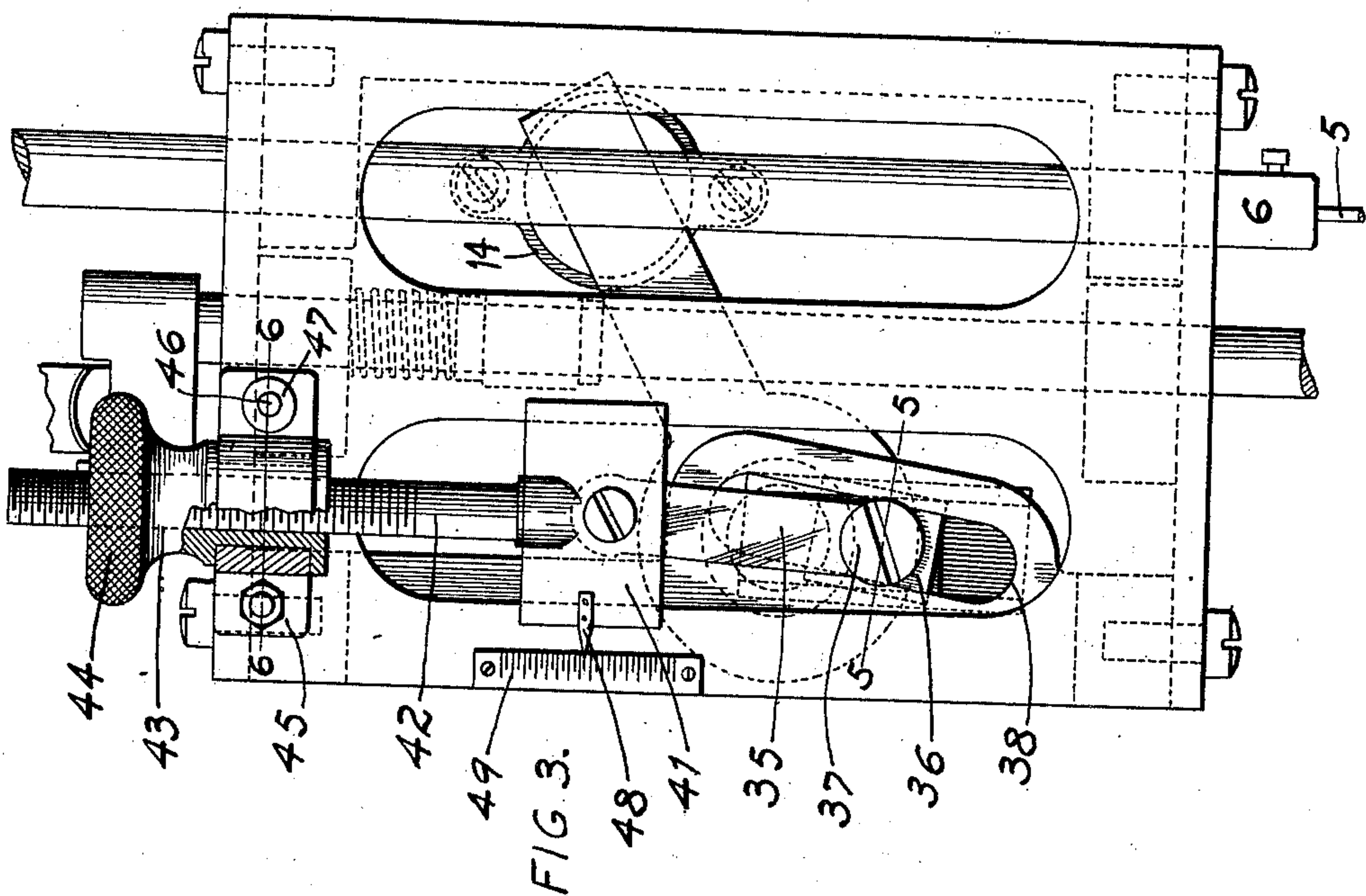
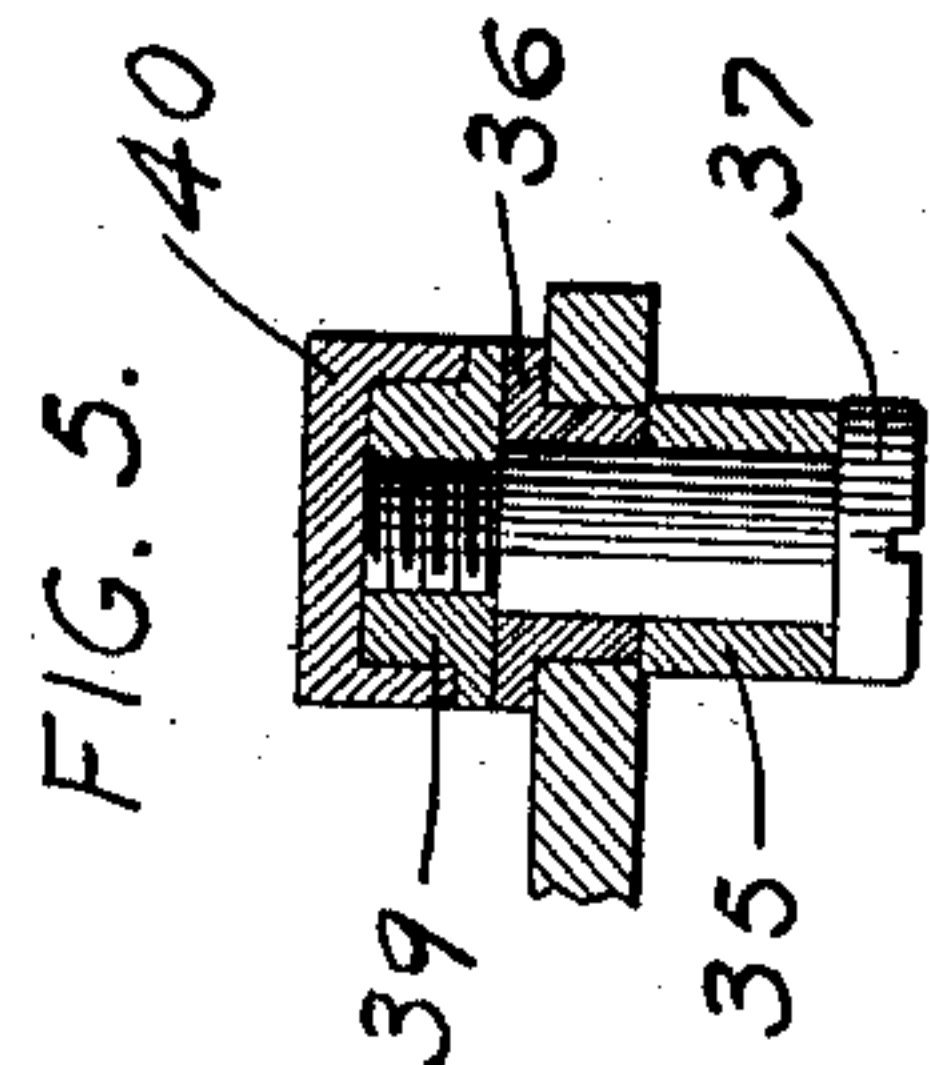
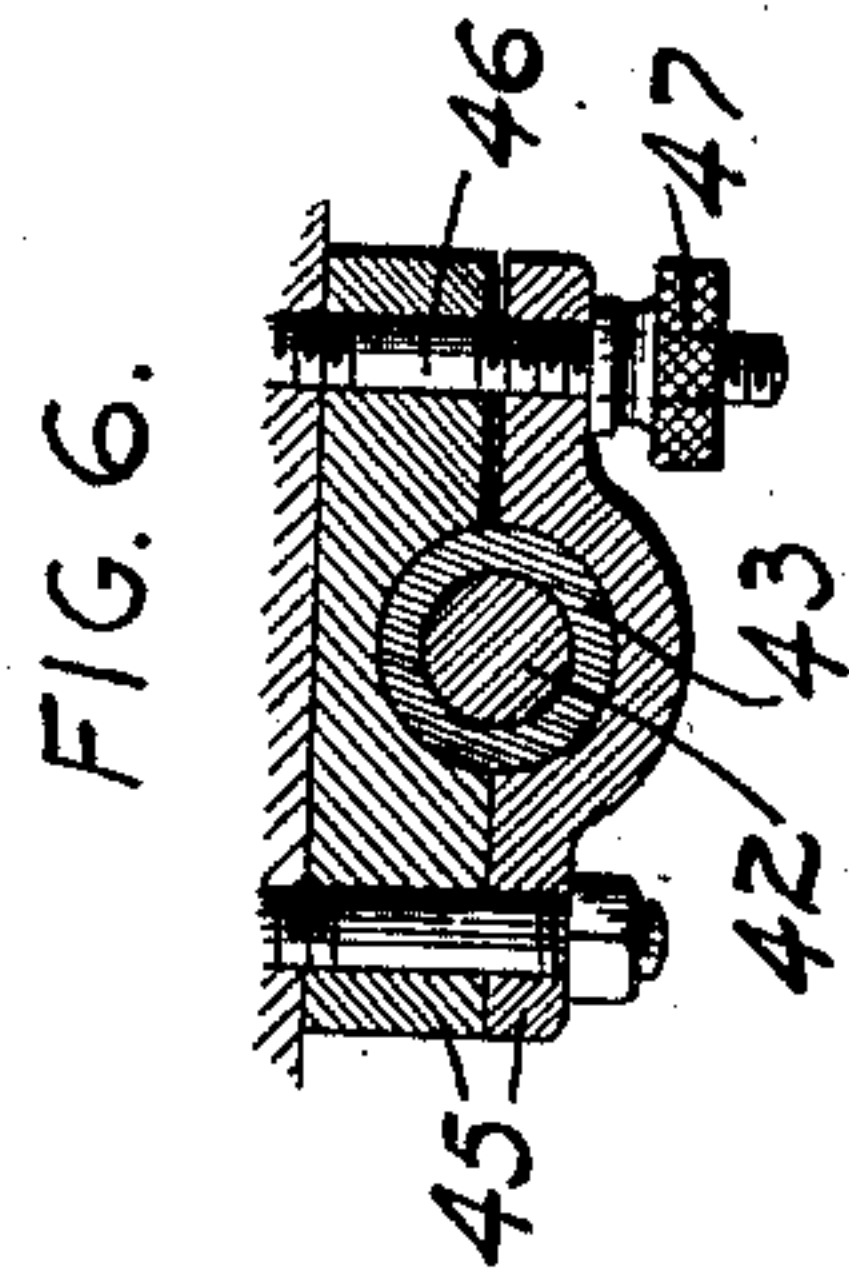
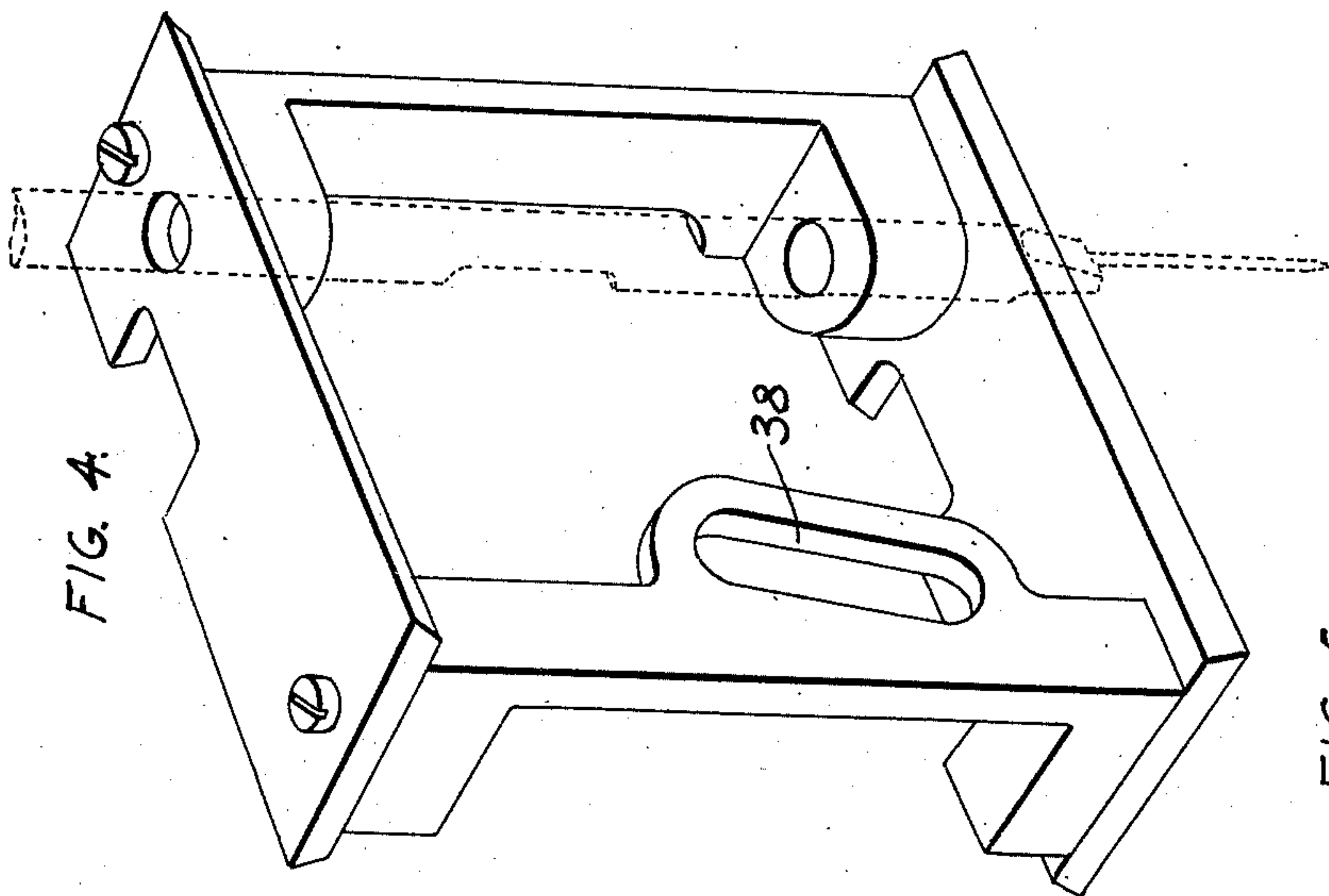
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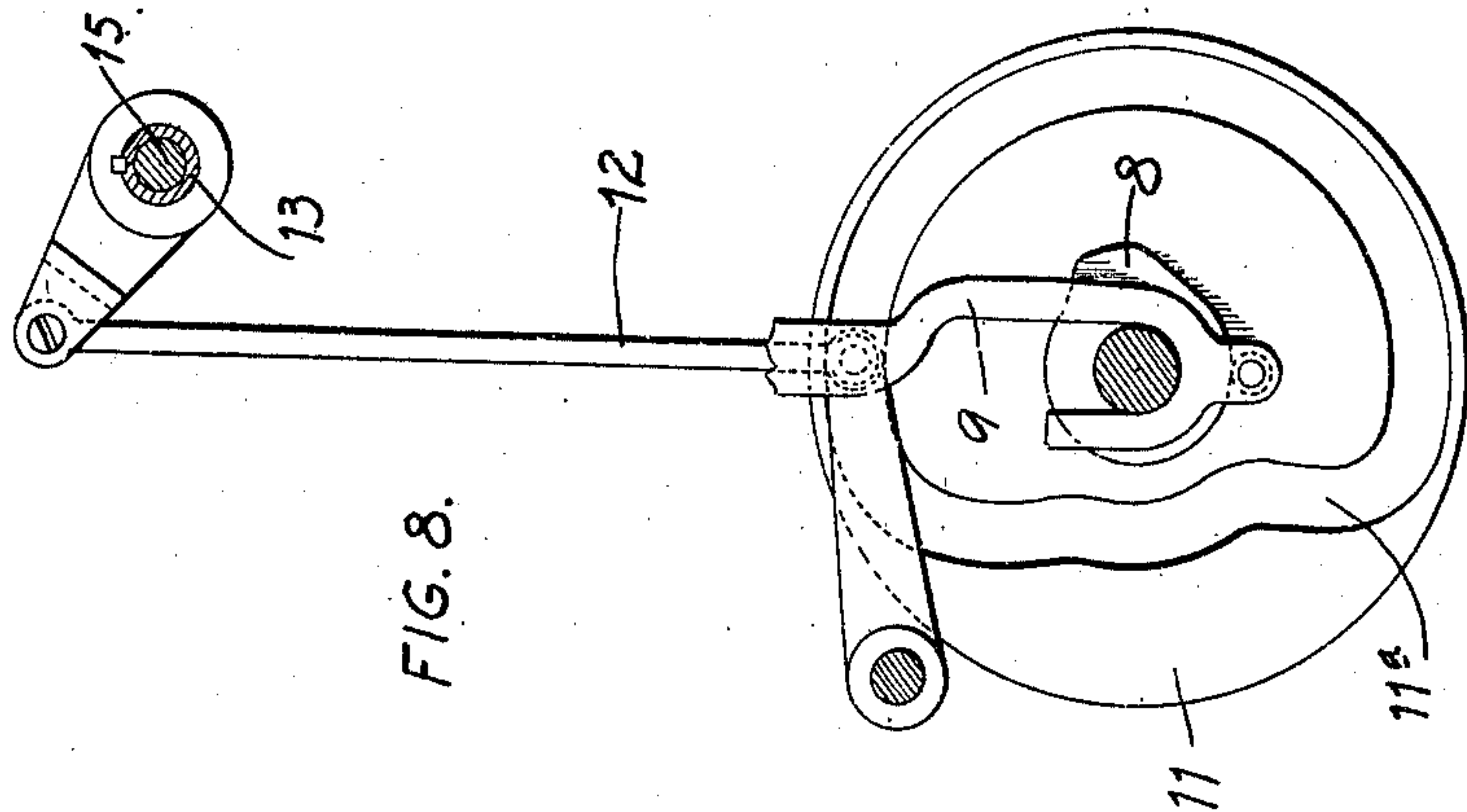


FIG. 8.

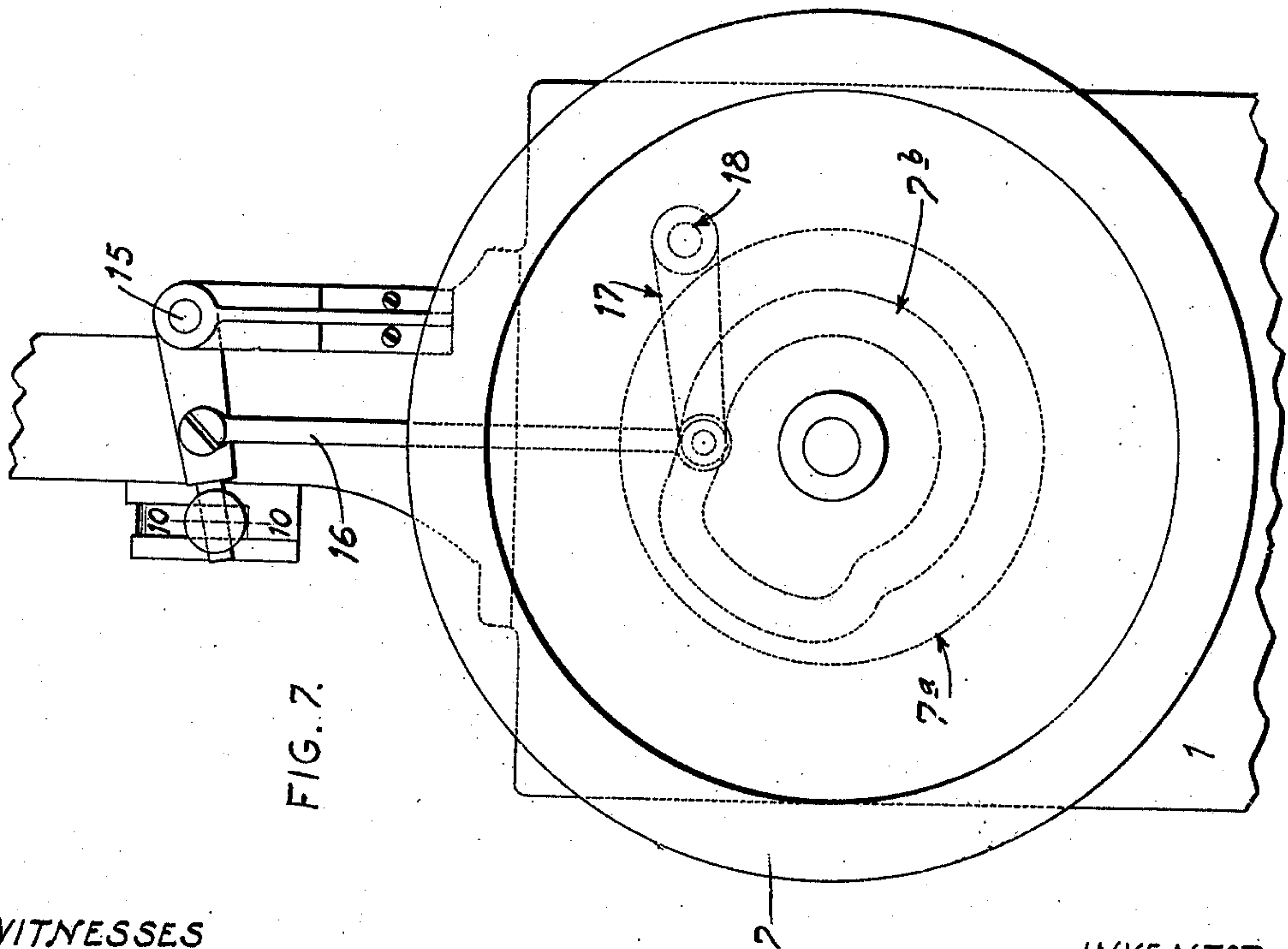


FIG. 7.

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5 SHEETS—SHEET 5.

FIG. 9.

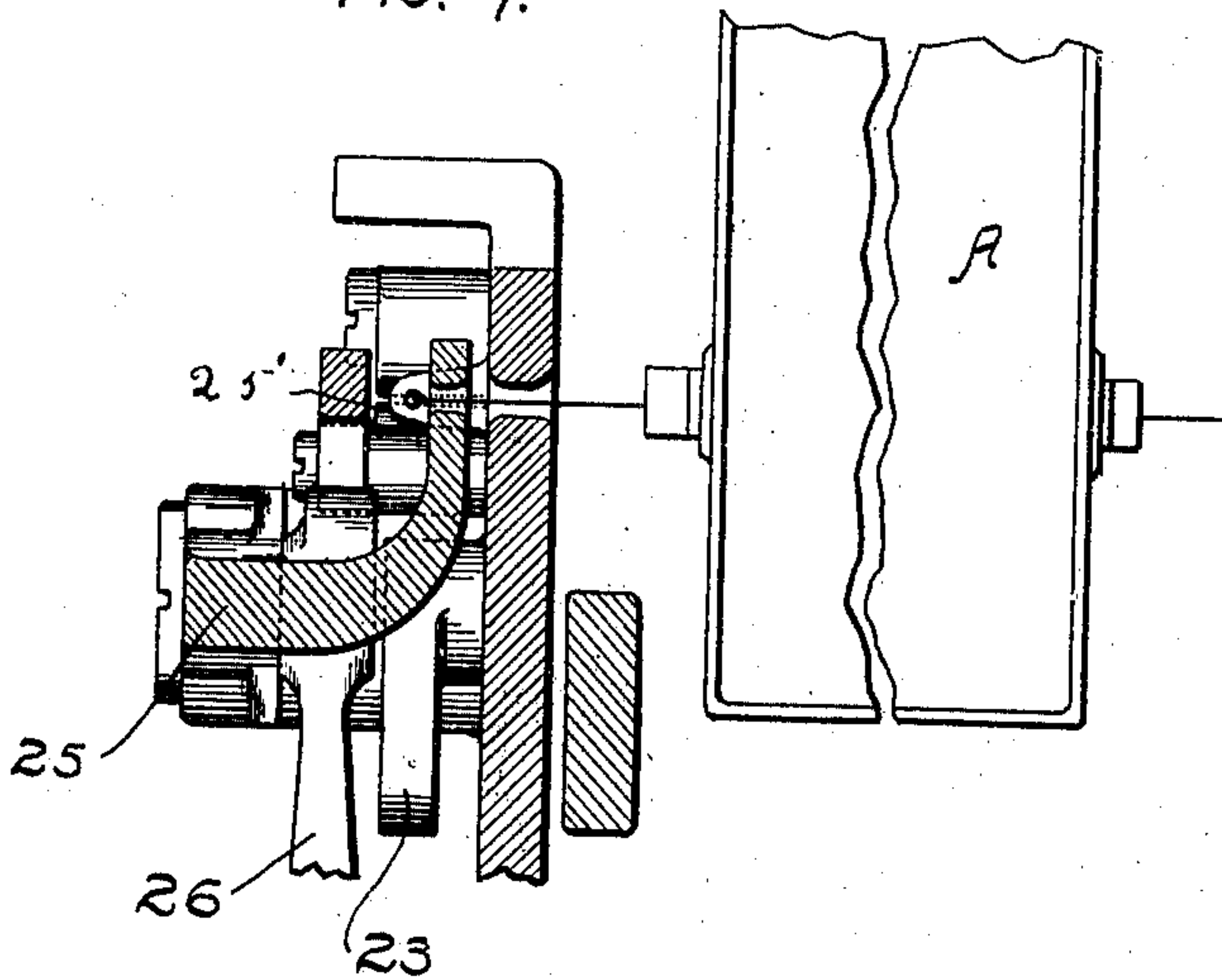


FIG. 10.

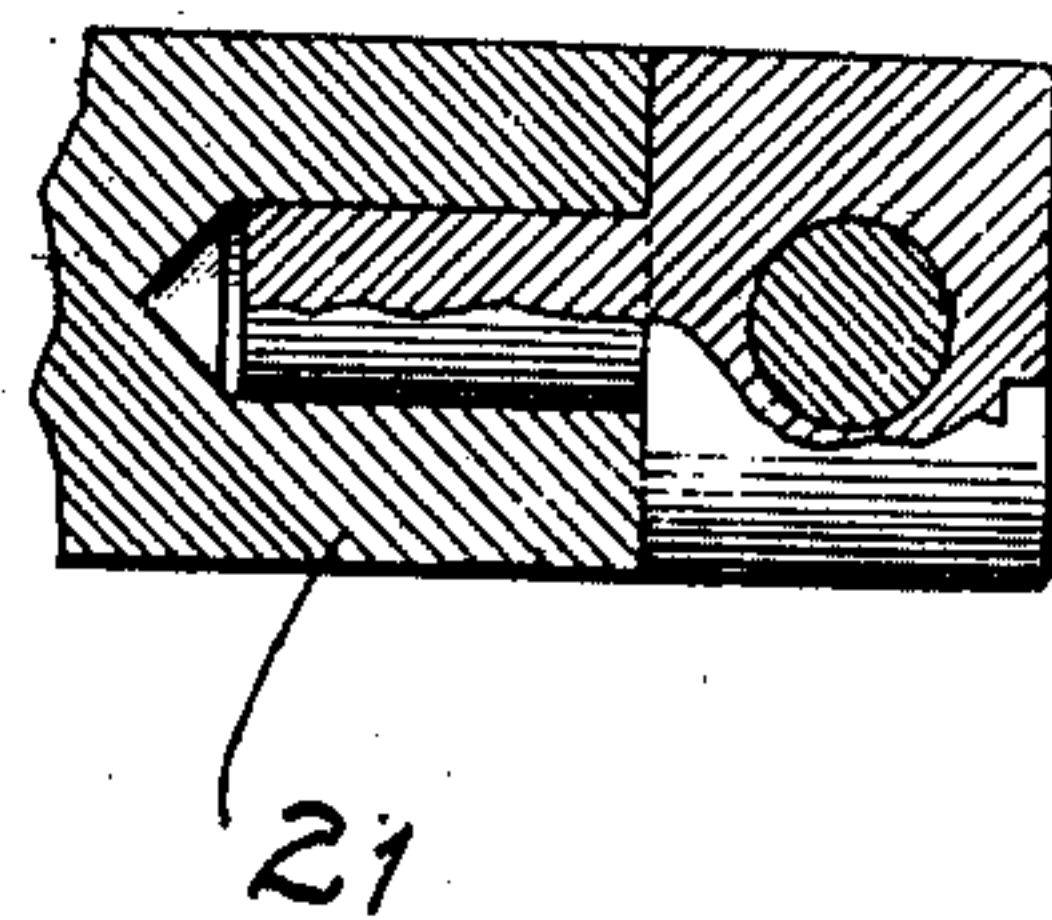


FIG. 11.

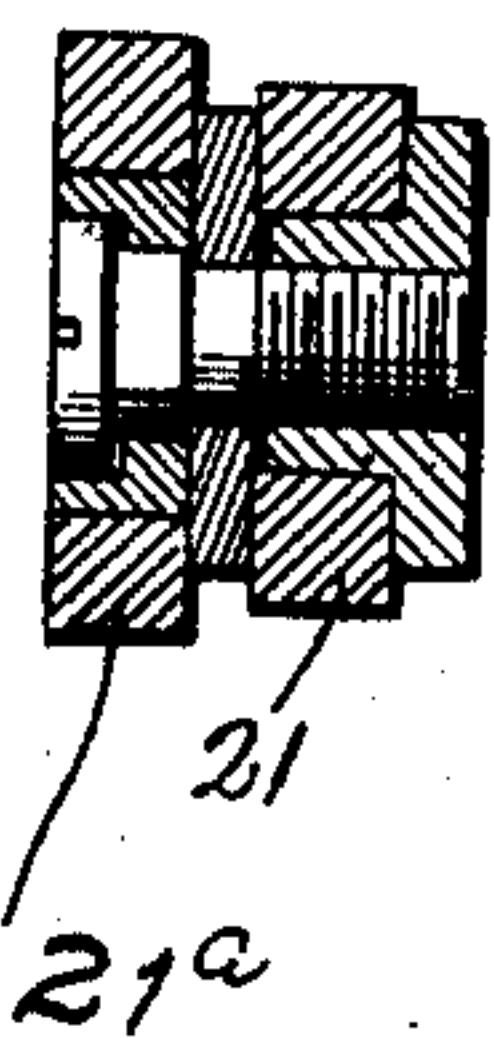


FIG. 12.

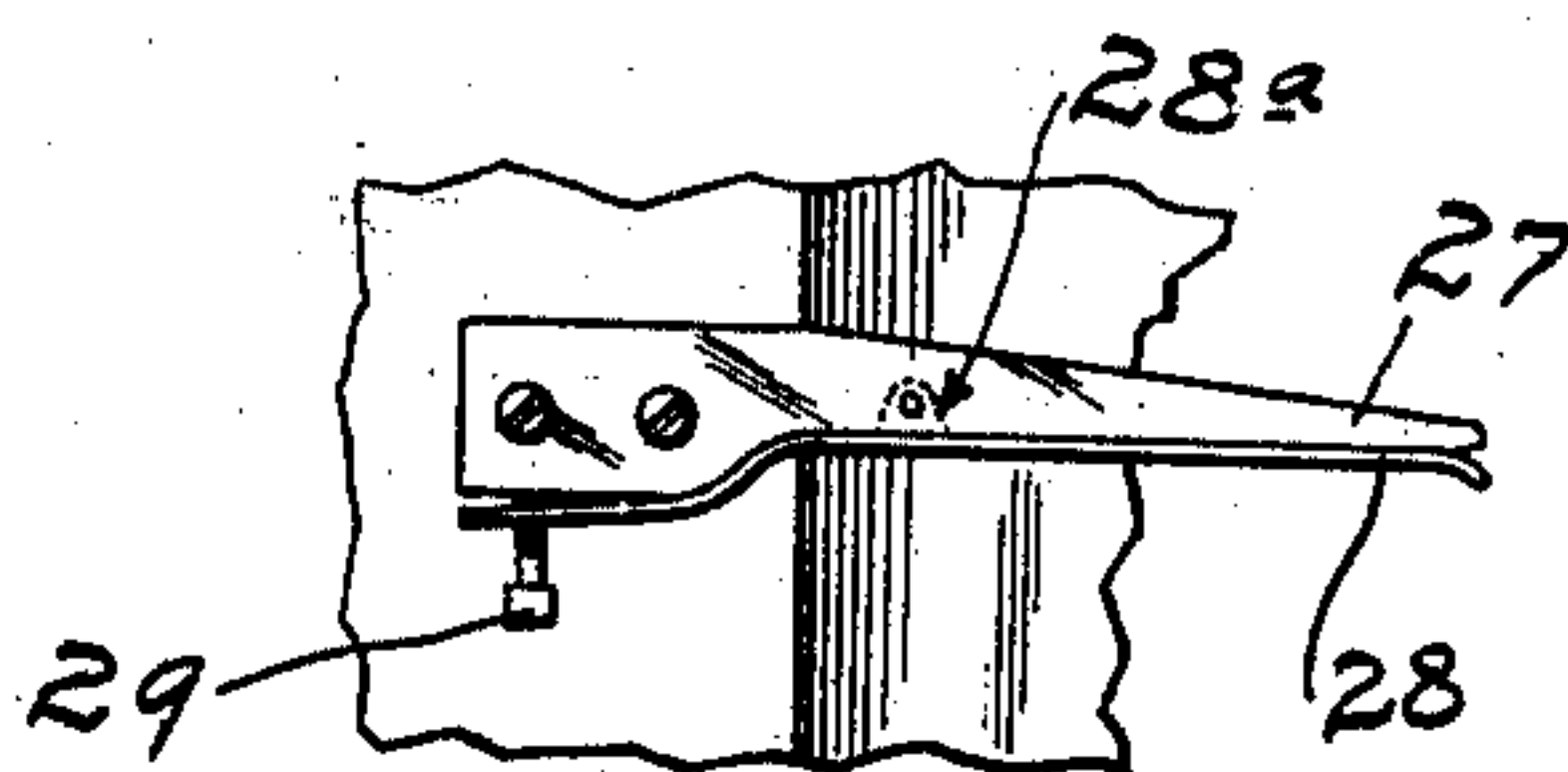
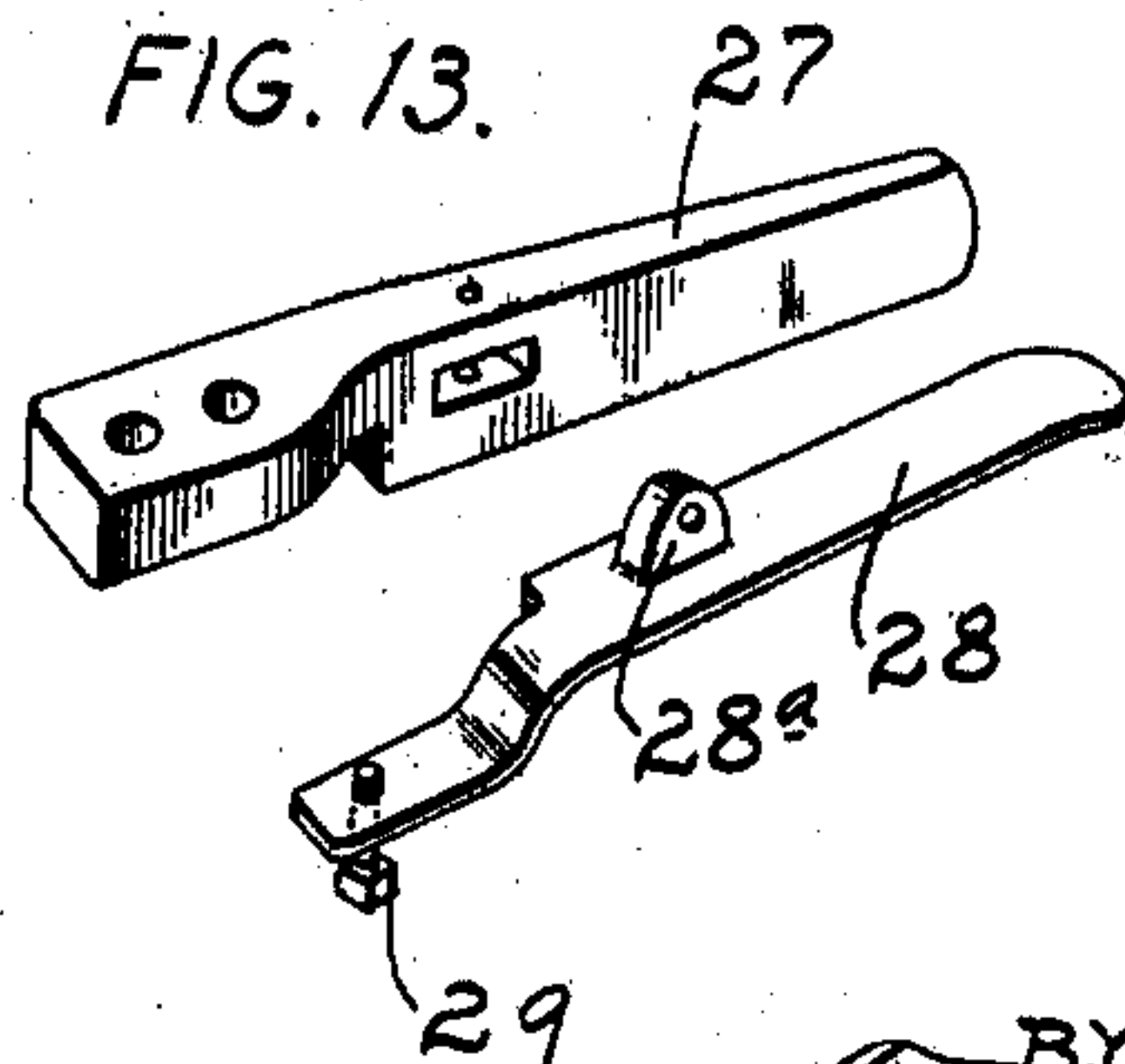


FIG. 13.



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UNITED STATES PATENT OFFICE.

CHRISTIAN PEDERSEN, OF ST. LOUIS, MISSOURI, ASSIGNOR TO LANDIS MACHINE COMPANY, OF ST. LOUIS, MISSOURI, A CORPORATION OF MISSOURI.

WAX-THREAD SEWING-MACHINE.

976,746.

Specification of Letters Patent.

Patented Nov. 22, 1910.

Application filed April 23, 1909. Serial No. 491,667.

To all whom it may concern:

Be it known that I, CHRISTIAN PEDERSEN, a citizen of the United States, residing at St. Louis, Missouri, have invented a certain new and useful Improvement in Wax-Thread Sewing-Machines, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a front elevational view of my improved wax thread sewing machine; Fig. 2 is a rear elevational view; Fig. 3 is an elevational view illustrating the mechanism for adjusting the length of the stitch; Fig. 4 is a detail view of the awl carriage; Fig. 5 is a sectional view on line 5—5, Fig. 3; Fig. 6 is a sectional view on line 6—6, Fig. 3; Fig. 7 is a detail view of a part of the awl-shifting and take-up mechanism; Fig. 8 is a similar view of another part of the awl-shifting mechanism; Fig. 9 is an enlarged sectional view on line 9—9, Fig. 1, illustrating the thread-feeding mechanism; Fig. 10 is a sectional view on line 10—10, Fig. 7; Fig. 11 is a sectional view on line 11—11, Fig. 1; Fig. 12 is a detail view of the tension devices for the wax thread; Fig. 13 is a view illustrating parts of said tension devices separated.

This invention relates to a new and useful improvement in wax thread sewing machines of the Campbell-Bosworth type, such as is illustrated in United States Letters Patent No. 253,156, D. H. Campbell, dated January 31st, 1882, Nos. 374,934, 374,936 and 374,937, D. H. Campbell, dated December 20th, 1887, and No. 388,752 to G. Amborn, Jr., dated August 28th, 1888.

The novel features of my present invention reside in the construction and operation of the take-up devices; the mechanism for adjusting the length of the stitch; and the tension devices for the wax thread.

In the accompanying drawings, 1 indicates a casting, at one end of which is the shuttle-race, closed by a cover plate 2, upon which is mounted a work table 3.

4 is the presser-foot and 5 the awl mounted in a bar 6.

The stitch-forming mechanism, including the looper and thread-laying devices, are old, as illustrated in the patents cited, and I,

therefore, do not claim any of the details of this old construction in this application.

7 is the hand wheel which is conjoined to a pulley 7^a belted to some suitable source of power for driving the main shaft of the machine. On this main shaft is a cam 8 for operating the presser-foot through the medium of a roller on the lower end of a bar 9, which bar embraces the main shaft in order to be guided in its movement, and whose upper end is connected to a lever 10 whose opposite end coöperates with the presser-foot bar 4^a (see Fig. 2).

A cam 11, also mounted on the main shaft, is connected by a link 12 to an arm on the hollow shaft 13, on the forward end of which shaft is a rock-arm 14 for moving the awl vertically. A shaft 15, passing through the hollow shaft 13, is operated by a link 16 (see Figs. 2 and 7). This link 16 is connected at its lower end to a rock-arm 17 mounted on a shaft 18. Arm 17 carries a roller at its outer end which operates in a cam groove 7^b in the pulley 7^a, as shown in Fig. 7. In this manner, the shaft 15 is rocked appropriately, the shaft 13 being operated by the cam groove 11^a in cam 11, which latter is illustrated in Fig. 8. The details of this awl-lifting and shifting mechanism being old in the patents heretofore referred to, I deem it unnecessary to describe the same further here.

19 and 20 are links (see Figs. 1 and 2) which are connected to suitable cams for operating the thread-laying devices, but I have not illustrated the connection between these links and the cams, as the same forms no part of my present invention.

The take-up lever 21 (Fig. 1) is pivotally mounted in the frame of the machine, its inner end being slotted to receive a longitudinally-movable, adjustable device in the form of blocks exactly in the manner illustrated in the Campbell Patent No. 374,936 heretofore referred to. This adjustable swivel block, which is clamped in the slot of lever 21, is loosely arranged in a slot in lever 21^a pivotally mounted in the frame of the machine at 21^b.

22 is a link connected to the end of lever 21^a and to a pivoted take-up arm 23, which, operating on the upper side of the thread, draws said thread through the eye 24. A thread-finger 25, in the form of a lever, op-

erates upon the under side of the thread, at one side of its pivot, and at the opposite side carries a thread eye 25' through which the thread passes from the wax pot (see Fig. 9), said thread-finger 25 being connected by a link 26 to the inner end of lever 21. This construction is similar to that illustrated in the Campbell Patent No. 374,936, except that the arm 23 is a novel element in the take-up mechanism.

Appropriate heating devices are provided for the wax pot A and such parts of the machine as carry the wax thread, whereby the wax thread is kept flexible from the wax pot to the leather being stitched. After leaving the thread-finger 25, the thread passes through a tension device consisting of two pieces 27 and 28 (see Figs. 12 and 13). Piece 27 is secured by screws to the end of the overhanging arm of the machine, and the piece 28 is provided with a perforated lug 28^a by which it is pivoted to the piece 27. An adjusting screw 29 mounted in the end of piece 28 regulates the tension of the flexible spring end which grips the thread.

The means employed for elevating the presser-foot from the work when the same is removed from or positioned upon the work table, comprises a lever 30 fulcrumed at 31 on top of the frame of the machine, the forward end of which lever engages beneath a block 32 carried by the upper end of the presser-foot carrier bar. A connecting rod 33 is connected to the opposite end of this lever 30, and the lower end of this rod is connected to a pedal (not shown) arranged beneath the machine. The free end of a flat spring 34 engages on top of the block 32 and normally forces the presser-foot downward. When the pedal connected to the rod 33 is engaged and moved downwardly, the forward end of the lever 30 bears against the under side of the block 32, thus elevating the same and the presser-foot.

The means employed for adjusting the length of the stitch is illustrated in Figs. 3, 5 and 6, and comprises a link 35, the lower end of which is pivotally connected to a block 36 by means of a screw 37, and said block occupying a vertically disposed slot 38 formed in the awl carriage, which latter is mounted to move in the usual manner in the forward end of the arm of the sewing machine. The rear end of the pivoted screw 37 is seated in a block 39 carried by an arm 40 which is fixed on the forward end of the shaft 15. Pivotally connected to the upper end of the link 35 is a plate 41, and extending upwardly therefrom is a screw-threaded rod 42. Arranged on this rod 42 is a nut 43 having a milled head 44, and said nut is held against vertical movement between a pair of plates 45 fixed on the frame in which the awl carriage operates. Passing through

these plates 45 at one end is a threaded pin 46 on the outer end of which is arranged a clamping nut 47. Carried by the plate 41 is a finger or pointer 48, and arranged on the frame of the machine adjacent said finger is a graduated scale 49, the graduations of which correspond to the various stitch lengths which the machine is capable of producing. When the stitch length adjusting mechanism is to be set for a certain stitch, the clamp 47 is loosened and the adjusting nut 43 is now free to be rotated between the plates 45, which movement raises or lowers the rod 42 corresponding to the rotary movement of the nut 43. The graduated scale 49 forms a guide for the adjustment of the stitch length, and when the pointer or finger 48 is moved to the proper mark on said scale, the parts are so adjusted as to insure the proper length of stitch. As the rod 42 is raised or lowered, the link 35 will be correspondingly moved, and the pivot screw 37 and parts carried thereby will be raised or lowered in the slot 38, thus increasing or decreasing the distance between the axes of the pivot screw and the shaft 15. It will be readily understood that by changing or varying this distance, the length of stroke of the arm 40 will be varied or changed and the movement of the awl carriage will be correspondingly varied and changed. After the proper adjustment is obtained in the manner just described, the nut 47 is tightened to clamp the nut 43, and thus the parts are held in their adjusted positions.

The general operation of the machine is as follows: As the wheel 7 is driven, the roller on the lower end of the link 12 operating in the cam groove 11^a will impart a vertical movement to said link 12, thus actuating the rock-arm on the hollow shaft 13, and the rock-arm 14 carried on the forward end of said hollow shaft reciprocates the awl bar through the awl carriage, and the awl is intermittently forced through the leather on the work table 3. During the time the awl is in the leather, the awl carriage is shifted laterally by the action of the rock-arm 40, which latter is fixed on the forward end of the shaft 15, said shaft being rocked by means of the link 16 and rock-arm 17, which latter is provided with a roller operating in the cam groove 7^b in the pulley 7^a. During the time the awl carriage is shifting laterally, the presser-foot 4 is elevated by the action of the lever 10 engaging the presser-foot bar 4^a, and said lever being actuated by the cam 8 engaging the roller on the lower end of the bar 9, the upper end of which bar is connected to said lever 10. When the awl carriage is stationary, the presser-foot 4 engages on top of the leather located on the work table 3, and during this period of time the needle is moved upwardly through the

aperture made by the awl on its preceding downward movement, and the thread is engaged upon said needle by the thread-laying devices actuated in the usual manner by the links 19 and 20. The tension devices for the wax thread (see Figs. 12 and 13) are suitably located on the forward portion of the frame of the machine, and the wax thread passes between the parts 27 and 28, the pressure of the part 28 against the part 27 being regulated by means of the adjusting screw 29. When the take-up lever 21 is actuated, the link 26 draws the rear end of the finger 25 downward, and the wax thread which passes through the rear end of said finger 25 (see Fig. 9) will be drawn through the wax pot A, said wax thread being clamped by suitable devices located in front of the rear end of the finger 25 and adjacent the eye 24. This action intermittently pulls the wax thread through the wax pot, and said wax thread is in turn pulled between the forward ends of the take-up lever 23 and the finger 25 by the action of the needle and the thread-laying devices. After the needle has engaged the wax thread and pulled the same downward through the work upon the table 3, it is necessary to take up the excess thread in the loop so formed, and this is accomplished by the pivoted take-up arm 23 and the finger 25, the forward ends of which move in opposite directions when the take-up lever 21 is actuated, during which movement the thread is clamped by the clamping devices located adjacent the rear end of the finger 25. The tension devices for the wax thread hold the same taut between the take-up devices and the thread-laying devices.

While I have described in a general way a complete wax thread sewing machine, it will be understood that my invention relates particularly to the pivoted arm in the take-up mechanism, the means for adjusting the length of stitch, and the tension devices for the wax thread.

I do not in this application claim the novel features of the tension device or of the awl feed mechanism, as they form the subject matter of divisional applications filed by me which have matured into patents, the tension device in Patent No. 961,893 dated June 21, 1910, and the awl feed mechanism in Patent No. 960,692 dated June 7, 1910.

I claim:

1. In a wax thread sewing machine, a horizontally disposed thread finger pivotally mounted intermediate its ends, both ends of which finger are adapted to engage the thread, a take-up arm pivotally mounted at one end to one side of the pivot point of the thread finger, the free end of which take-up arm engages the thread at a point ad-

jacent one end of the thread finger, and means whereby said finger and take-up arm are simultaneously actuated to cause the thread-engaging ends thereof to move in opposite directions.

2. In a wax thread sewing machine, a horizontally disposed thread finger pivotally mounted intermediate its ends, both ends of which finger are adapted to engage the thread, a take-up arm pivotally mounted at one end to one side of the pivot point of the thread finger, the free end of which take-up arm engages the thread at a point adjacent one end of the thread finger, independent links connected to the thread finger and the take-up arm and a pivoted take-up lever to which said links are connected.

3. In a wax thread sewing machine, a horizontally disposed thread finger pivotally mounted intermediate its ends, both ends of which finger are adapted to engage the thread, the take-up arm pivotally mounted at one end to one side of the pivot point of the thread finger, the free end of which take-up arm engages the thread at a point adjacent one end of the thread finger, independent links connected to the thread finger and the take-up arm, a pivoted take-up lever to which said links are connected and there being an adjustable joint in said take-up lever for adjusting the throw of the pivoted take-up arm.

4. In a wax thread sewing machine, a thread finger pivotally mounted intermediate its ends, both ends of which thread finger are adapted to engage the thread, a take-up arm pivoted at one end and its free end engaging the wax thread adjacent one end of the thread finger, a pair of independently pivoted adjustably connected take-up levers and links connecting said levers with the take up arm and thread finger.

5. In a machine of the class described, a thread finger pivotally mounted intermediate its ends, both ends of which finger are adapted to engage the wax thread, a take-up arm pivotally mounted at one end and its opposite end adapted to engage the thread adjacent one end of the thread finger, a pivotally mounted take-up lever, a link connecting said take-up lever with the thread finger, a lever adjustably connected to the first-mentioned lever and a link connecting the take-up arm with the second-mentioned lever.

In testimony whereof I hereunto affix my signature in the presence of two witnesses, this 19th day of April 1909.

CHRISTIAN PEDERSEN.

Witnesses:

F. R. CORNWALL,
LENORE CLARK.