

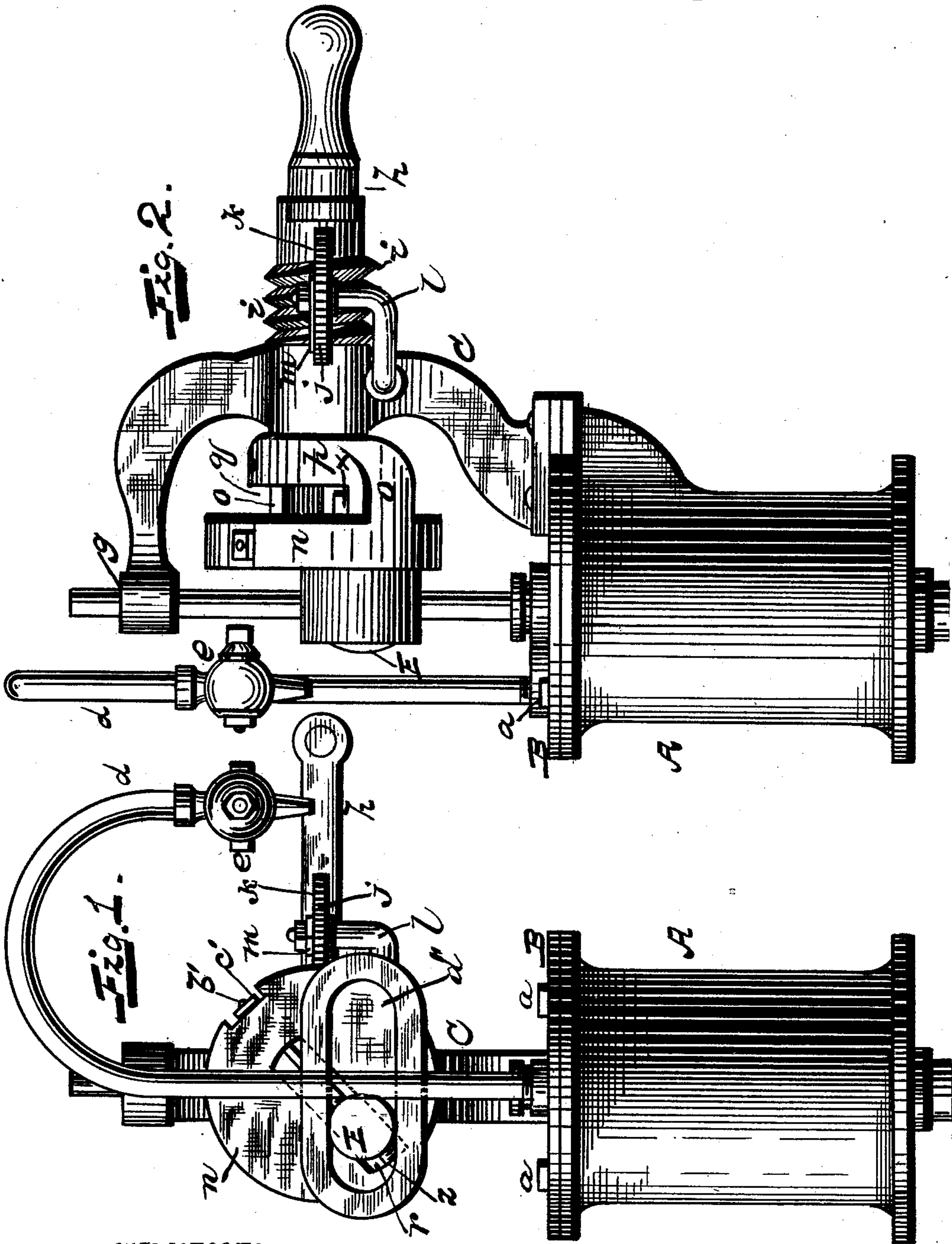
(No Model.)

3 Sheets—Sheet 1.

L. D. & P. W. MILLER.  
MEASURING PUMP.

No. 437,162.

Patented Sept. 23, 1890.



WITNESSES  
Jas B. Clarke  
L. S. Simpson.

INVENTORS  
L. D. Miller  
P. W. Miller  
By E. H. Bates Attorney.

3 Sheets—Sheet 2.

Patented Sept. 23, 1890.





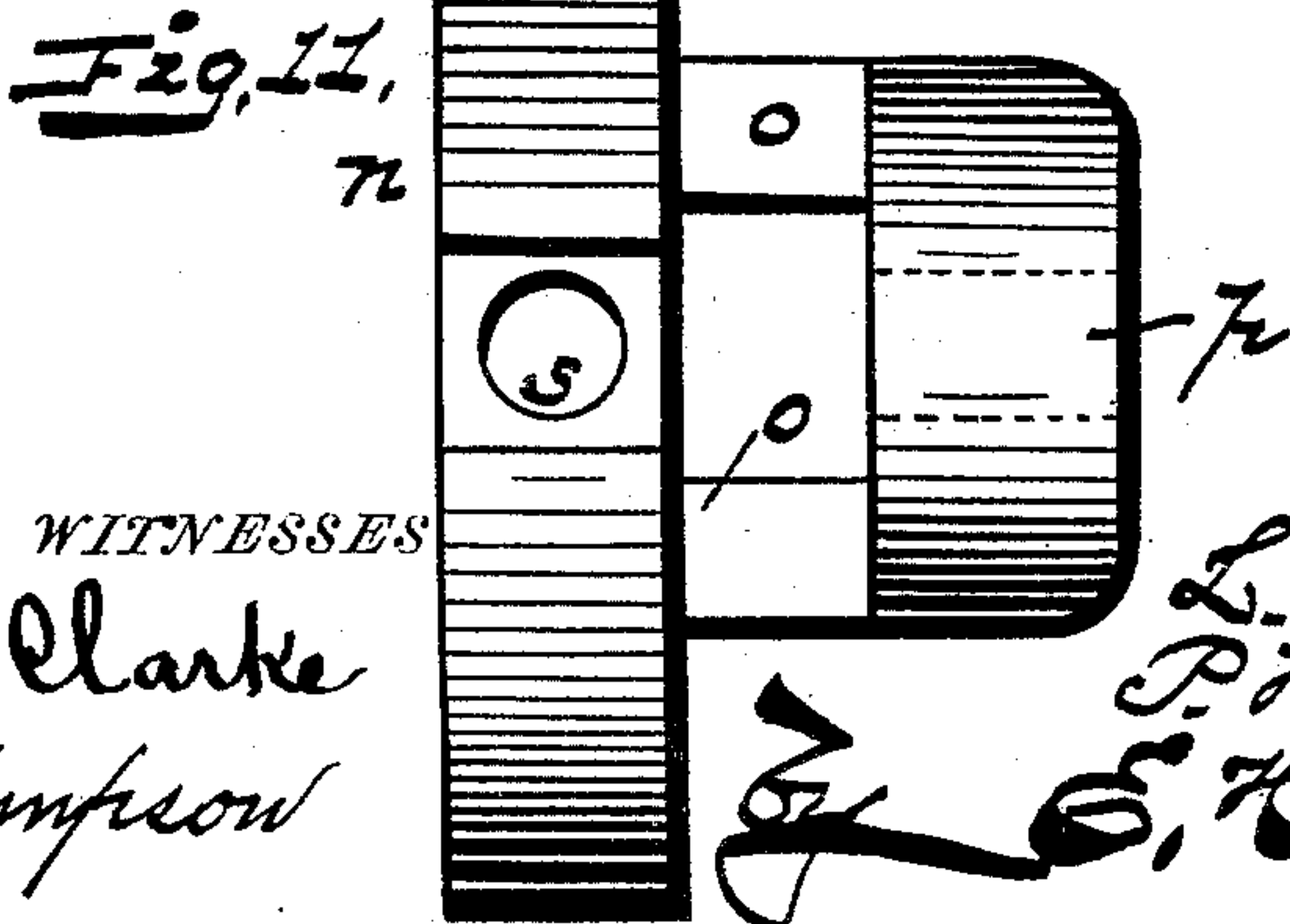
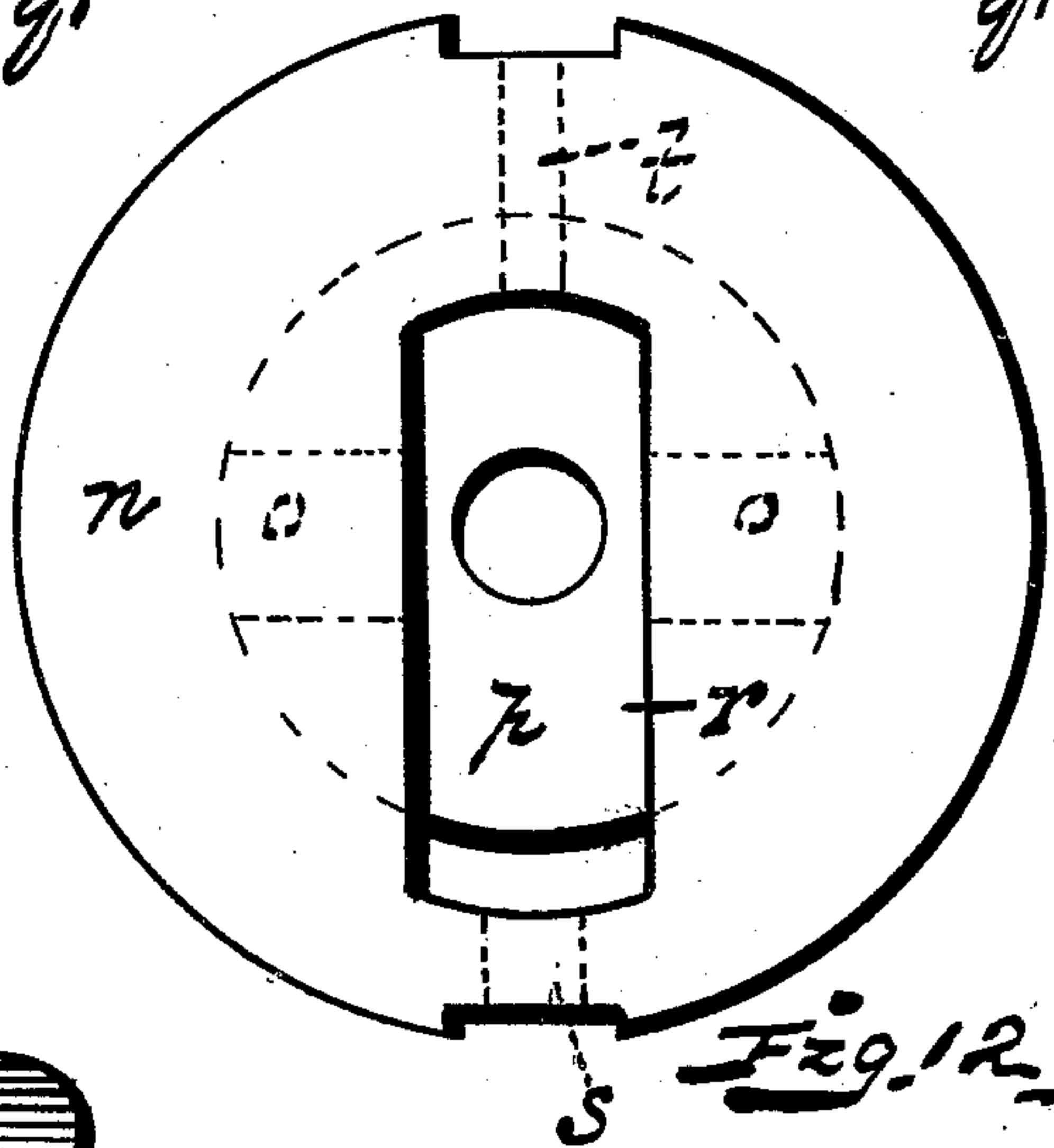
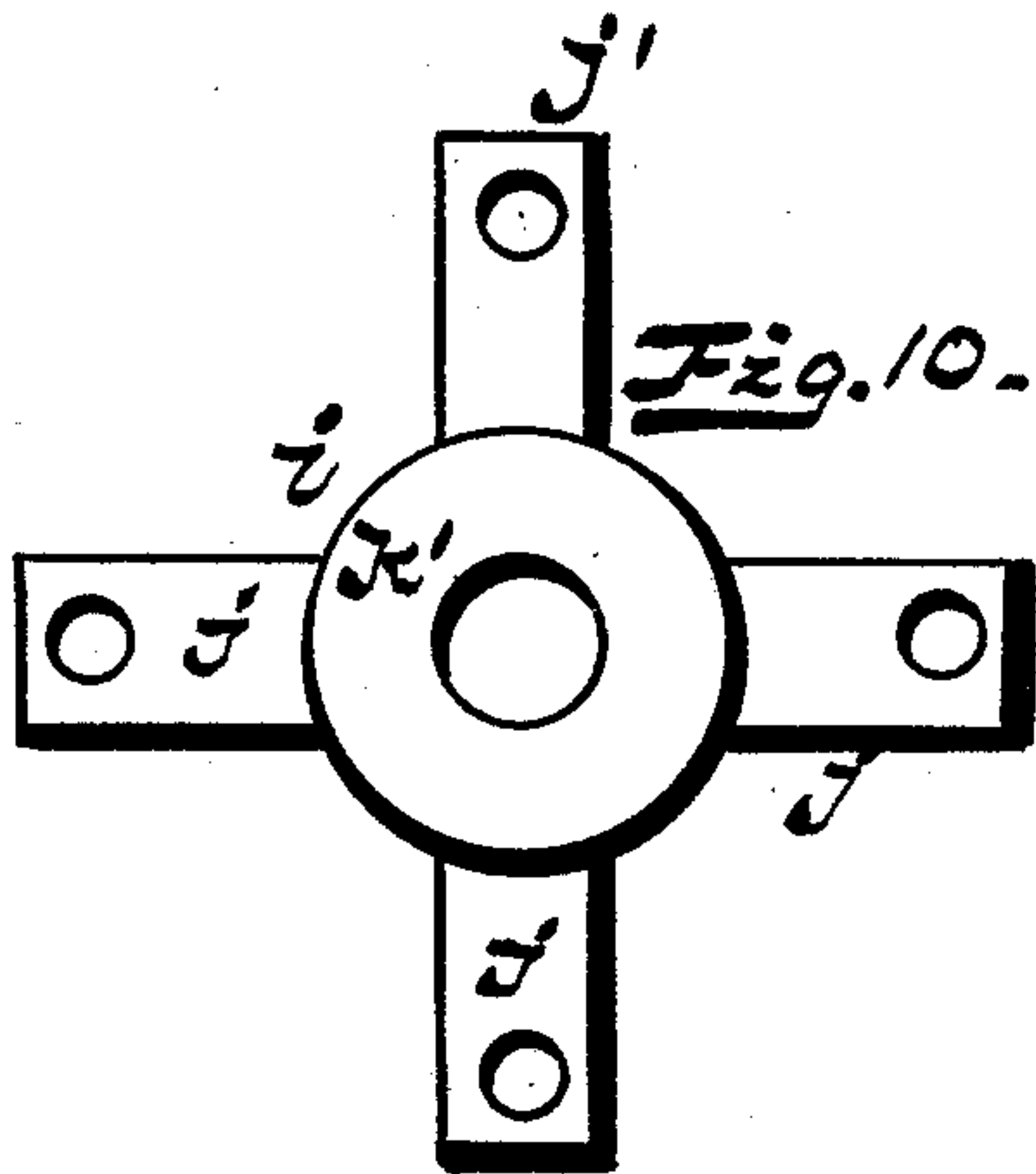
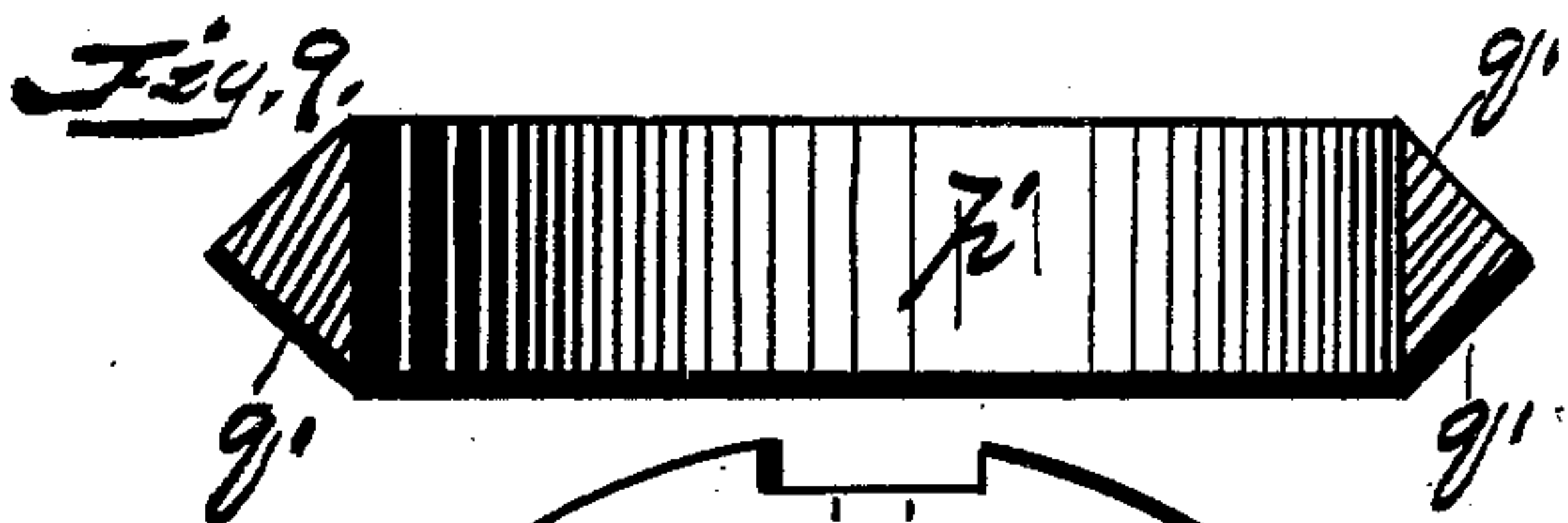
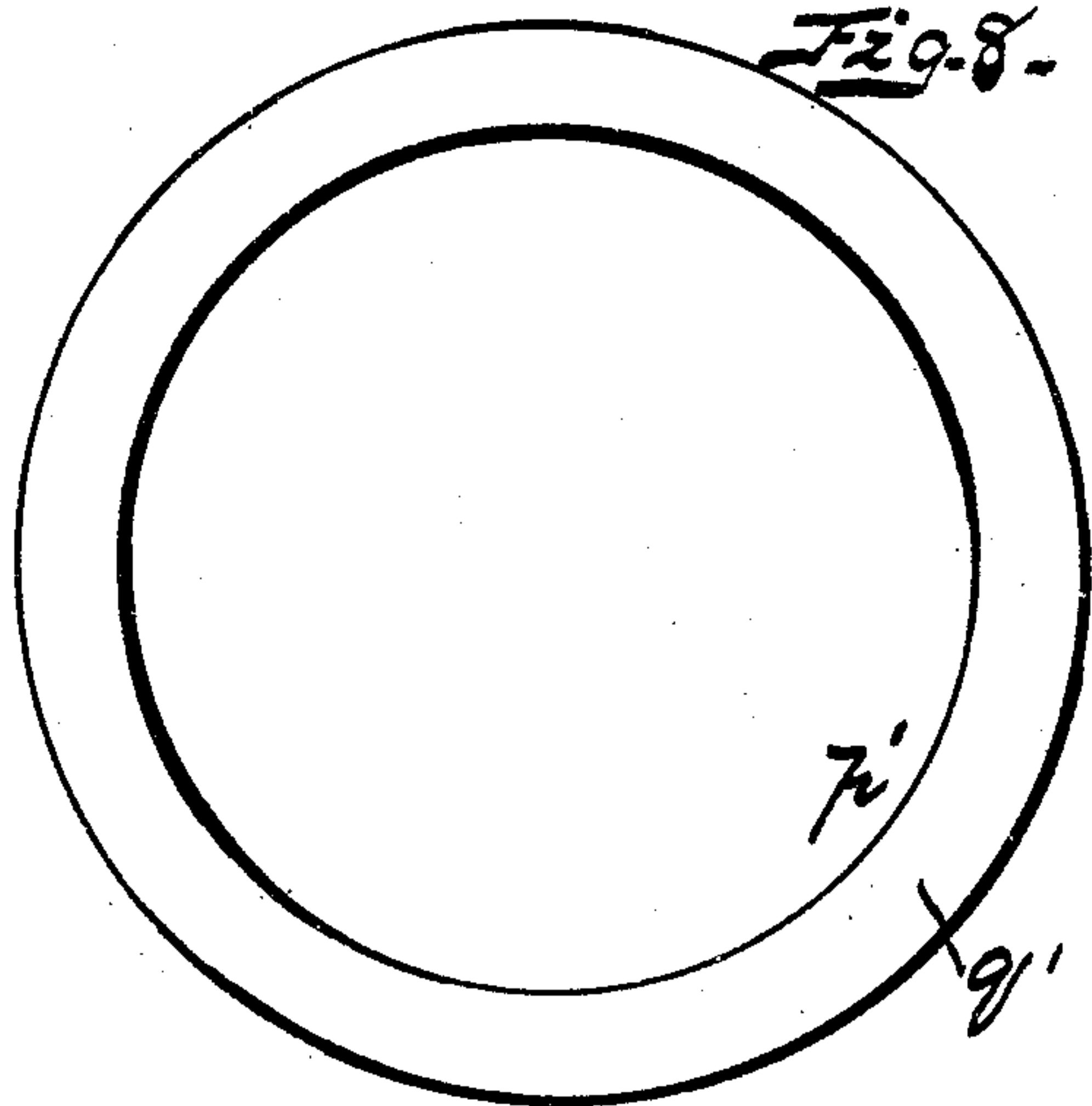
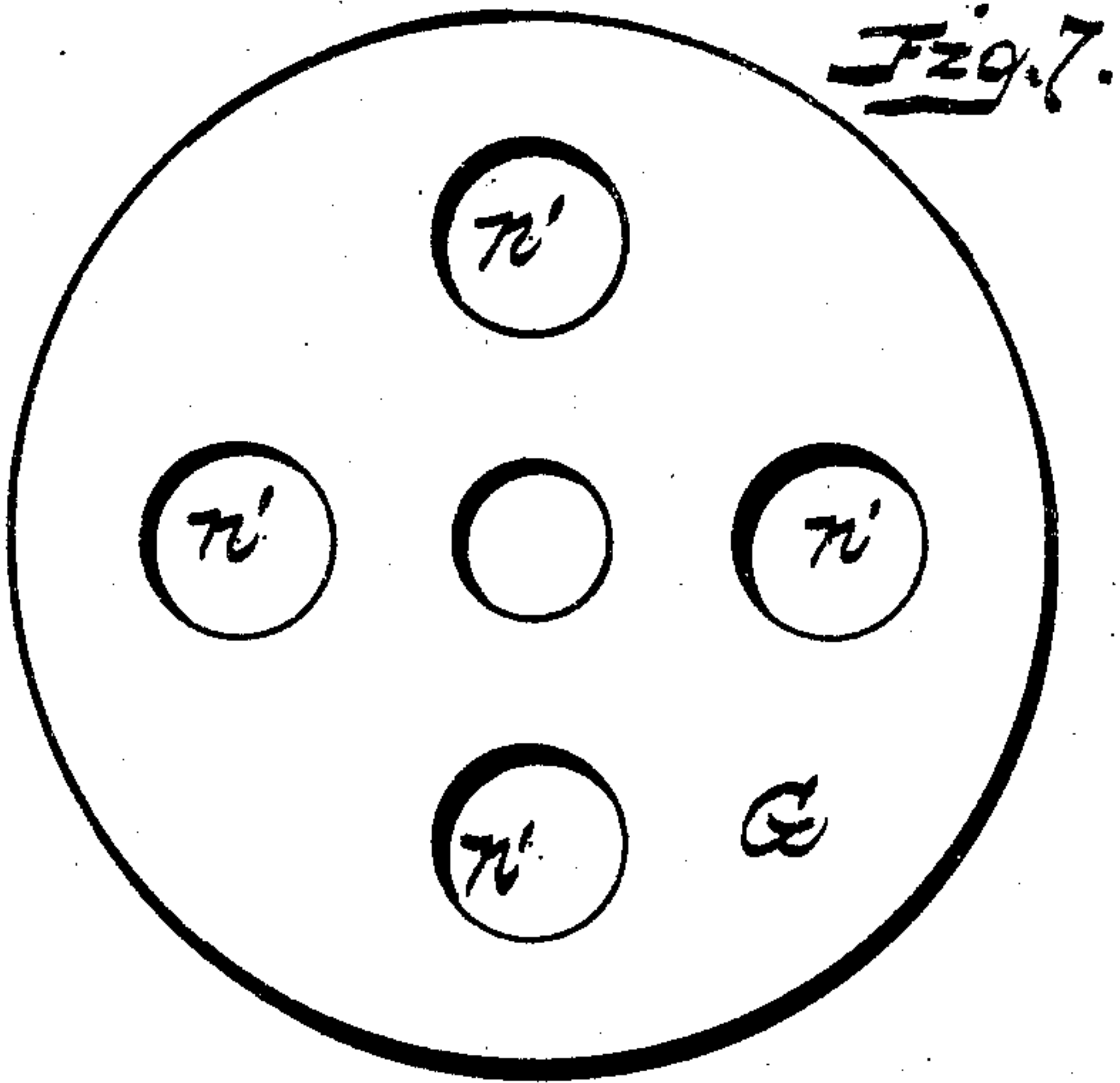
(No Model.)

3 Sheets—Sheet 3.

L. D. & P. W. MILLER.  
MEASURING PUMP.

No. 437,162.

Patented Sept. 23, 1890.



WITNESSES  
Jas. B. Clarke  
C. S. Simpson

INVENTORS.  
L. D. Miller  
P. W. Miller  
E. C. Bates  
Attorney

# UNITED STATES PATENT OFFICE.

LEMUEL D. MILLER AND PHILIP W. MILLER, OF COLLAMER, PENNSYLVANIA,  
ASSIGNORS OF ONE-THIRD TO EMORY H. BATES, OF WASHINGTON, DIS-  
TRICT OF COLUMBIA.

## MEASURING-PUMP.

SPECIFICATION forming part of Letters Patent No. 437,162, dated September 23, 1890.

Application filed January 27, 1890. Serial No. 338,264. (No model.)

*To all whom it may concern:*

Be it known that we, LEMUEL D. MILLER and PHILIP W. MILLER, both citizens of the United States, residing at Collamer, in the county of Chester and State of Pennsylvania, have invented certain new and useful Improvements in Measuring-Pumps; and we 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 relates to novel improvements in measuring-pumps; and it consists in the novel construction and arrangement of parts, all as will be hereinafter fully explained.

The annexed drawings, to which reference is made, fully illustrate our invention, in which—

Figure 1 represents a front view of our device. Fig. 2 is a side view of the same. Fig. 3 is a vertical sectional view. Fig. 4 is a plan view of the crank-pin, and Fig. 5 is a plan view of the adjusting-screw. Fig. 6 is an end view of the crank-pin. Fig. 7 is a top view of the cap G. Fig. 8 is a plan view of the ring  $p'$ . Fig. 9 is a vertical sectional view of the same. Fig. 10 is a plan view of the plate  $i$ . Fig. 11 is an edge view of the disk, and Fig. 12 is a face or front view of the same.

Referring by letter to the accompanying drawings, A designates the cylinder of the pump, and B the top plate thereof, which is secured thereto by the bolts  $a$ , and this plate is provided with a central opening  $b$  for the piston and an opening  $c$  for the screw end of a pipe or goose-neck  $d$ , having a cut-off valve  $e$ . Rising from this cap and secured thereto is a rearwardly-curved arm or standard C, which has an eye or vertical bearing  $g$  in its upper forward end to receive the upper end of the piston aforesaid.

D indicates a horizontal shaft, which has its bearing in the curved standard, the rear end of which shaft is provided with a crank-handle  $h$ , the hub of which handle is constructed on its outer face with a worm-screw  $i$ , in which engage the teeth  $j$  of an indicator-wheel  $k$ , which latter has its horizontal movement on a bent arm  $l$ , secured to one side of

the standard. This arm has fixed to it a pointer  $m$ , which indicates the amount of liquid drawn as the handle is turned, as this toothed or dial wheel has indicator-marks which register from a gill to one or more gallons. The inner end of the crank-shaft is provided with a disk  $n$ , the arms  $o o$  of which connect the same with a hub  $p$ , which is keyed to the end of said shaft, and between said hub and disk is an open space  $q$ , whereby access may be readily had to a binding-nut, hereinafter explained. This disk is provided with a slot  $r$ , and communicating therewith is an opening  $s$  through the disk, and opposite thereto is also an opening, but smaller in diameter than the opening  $s$ , which opening is lettered  $t$ .

E represents the crank-pin, the reduced portion  $u$  of which has flattened sides  $v v$ , which fit snugly within the slot of the disk, and the rear end  $w$  is screw-threaded to receive a binding-nut  $x$ , which when in position lies within the space between the disk and the hub thereof. This reduced portion of the crank-pin has an opening  $y$  through it, which is female screw-threaded to receive a screw  $z$ , having its threads engaging the threads in said opening. This screw is constructed with an enlarged portion  $a'$ , which corresponds with the opening in the reduced portion of the crank-pin, and a reduced portion  $b'$ , having screw-threads to receive a binding-nut  $c'$ . The crank-pin E projects from the slot in the disk and enters a horizontal slot  $d'$  on the piston-rod, and in which said pin has its play in raising and lowering said piston. At the lower end of this piston is removably secured the plunger F, consisting of the lower section  $e'$ , having an outer beveled flange  $f'$  and a vertical wall  $g'$ , upon which is secured by bolts  $h'$  a frame  $i'$ , having the arms  $j'$  and a hub  $k'$ , which is centrally perforated and female screw-threaded to receive the lower threaded end of the piston-rod. The lower end of said piston-rod is hollow, into which the stem  $l'$  of the valve  $m'$  projects and provides guideway for said stem in its up-and-down movement.

G represents a cap for the plunger, which



is centrally perforated to permit the lower end of said piston-rod to pass through, and has also perforations  $n'$ , whereby communication is had between the valve and upper portion of the cylinder, and the lower edge of the vertical wall of this cap is beveled, as at  $o'$ , and between which and the lower beveled flange is interposed a ring  $p'$ , which is beveled on its upper and lower edges, as at  $q'$ , and between the ring and lower flange and the cap is arranged the packing  $r'$ , which is kept close against the inner wall of the cylinder. These spaces between the parts just mentioned are V-shaped, and when it is desired to tighten the packing the nut  $s'$  is screwed down, thus forcing the cap downward and, in connection with the ring and lower flange, forcing the packing outward, making close connection between same and wall of the cylinder.

It will be seen that at every upward stroke of the piston liquid is drawn up through the cylinder and forced out the pipe or gooseneck. At the same time with the turning of the crank-handle the pointer is indicating on the dial-wheel the amount of liquid drawn. This is caused through the medium of the worm-wheel on the hub of said crank-handle; and it will be further observed that we provide means whereby the stroke of the piston can be regulated by increasing or diminishing the stroke, and consequently the flow of liquid. This is accomplished by loosening the jam-nut on the reduced portion of the crank-pin and the small binding-nut  $c'$ , when the screw  $z$  can be turned, thus forcing the crank-pin from or toward the center of the slot in the disk, and when adjusted as desired the binding-nuts above mentioned are screwed tight, thereby securely holding the crank-pin in position. It will be further observed that by our device we are able to keep the plunger solid against the inner walls of the cylinder simply by turning the jam-nut  $s'$ , which forces the cap, the ring, and the lower flange of said plunger toward each other, thereby expanding the packing, and the stroke of the piston is regulated to a nicety by means of the screw passing through the crank-pin and parallel with the slot in the disk. At the same time that the crank-handle is turned and drawing liquid the amount of said liquid is indicated on the dial-plate by the pointer, which latter remains stationary while said dial-plate and the worm which turns it are in motion; and the invention is simple in operation, not liable to get out of order, and at same time cheap to manufacture.

Having thus described our invention, what we claim, and desire to secure by Letters Patent, is—

1. The combination, with the cylinder, piston-rod, and plunger, of the disk having the hub and slot and perforated at each end of said slot, the crank-pin and the screw engag-

ing said pin, the shaft attached to said disk-hub, and handle for operating the same, substantially as and for the purposes set forth.

2. The combination, in a measuring-pump, with the cylinder and piston-rod and plunger, standard, and slotted disk, of the crank-pin having a reduced portion female screw-threaded and a rear extension having male threads, the nut therefor, the screw adapted to engage the female threads in said crank-pin, and perforations in the ends of the slots in the disk, substantially as described.

3. The combination, with the cylinder, disk constructed substantially as described, the standard, horizontal shaft and handle therefor, piston-rod, and means for operating said rod, the latter having the hollow lower end screw-threaded and provided with a jam-nut, of a plunger consisting of a cap perforated and having a lower beveled edge, the plate having the arms  $j'$  and centrally female screw-threaded, the lower or base portion having the beveled flange, the ring constructed with upper and lower bevel, the packing between the bevels, and the valve, the stem of which is guided in its vertical movement by the lower hollow end of the piston-rod, all substantially as described.

4. The combination, with the cylinder, cap, and base  $e'$ , and means, substantially as described, for operating the plunger, of the beveled-ring packing, the beveled flange  $f'$ , the beveled edge  $o$ , and valve, all as and for the purposes substantially as set forth.

5. In combination, in a measuring-pump, an adjustable crank-pin moved back and forth by means of a screw, substantially as described, a slotted piston-rod, a plunger composed of a movable cap having beveled edge, a bevel-flange  $f'$ , a beveled ring, the packing-shaft  $D$ , cylinder, and crank-handle, for operating substantially as described.

6. The combination, in a measuring-pump, of the cylinder, a piston-rod, plunger, rod slotted at  $d'$ , crank-pin  $E$ , disk  $n$ , having slot  $r$ , discharge-pipe  $d$ , screw  $z$ , the hub  $p$ , forming a part of said disk, the standard, and shaft  $D$ , the latter adapted to receive a hub of the crank-handle  $h$ , which hub is provided with the worm engaging a toothed wheel having a pointer  $m$  and mounted on the bent arm- $l$ , all substantially as described.

7. In a measuring-pump having an adjustable crank-pin adapted to engage a slot of a piston-rod, an adjusting-screw engaging said pin, whereby the latter may be adjusted back and forth for different strokes by manipulating said screw, substantially as described.

In testimony whereof we affix our signatures in presence of two witnesses.

LEMUEL D. MILLER.  
PHILIP W. MILLER.

Witnesses:

J. A. JOHNSON,  
S. H. MORRISON.