

No. 748,115.

PATENTED DEC. 29, 1903.

G. A. SODERLUND.
FAUCET.

APPLICATION FILED MAR. 20, 1902.

NO MODEL.

2 SHEETS—SHEET 1.

Fig. 1.

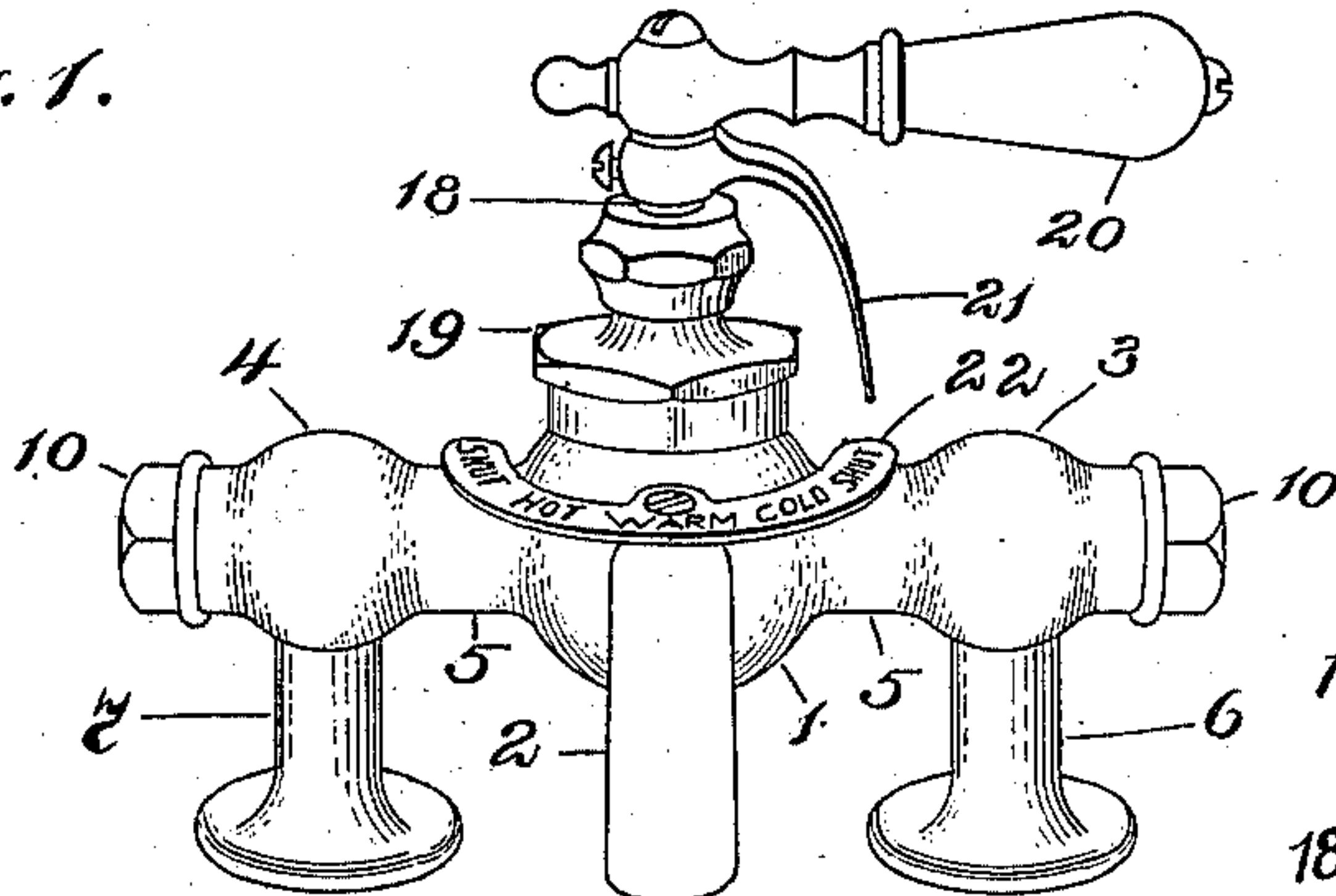


Fig. 14.

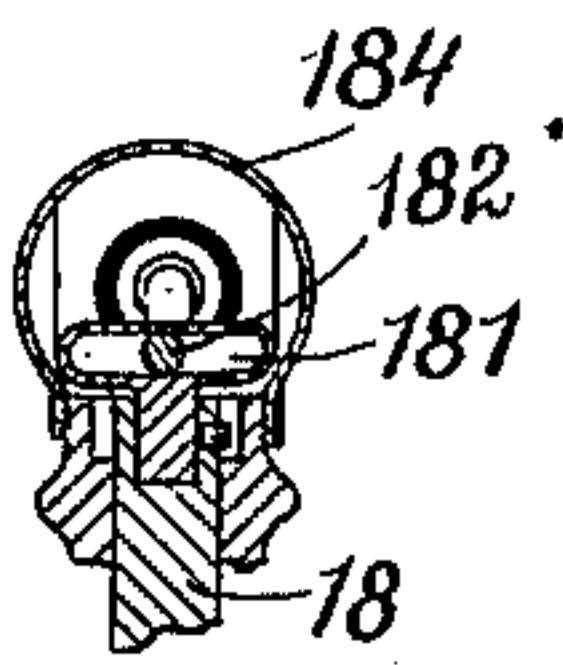


Fig. 13.

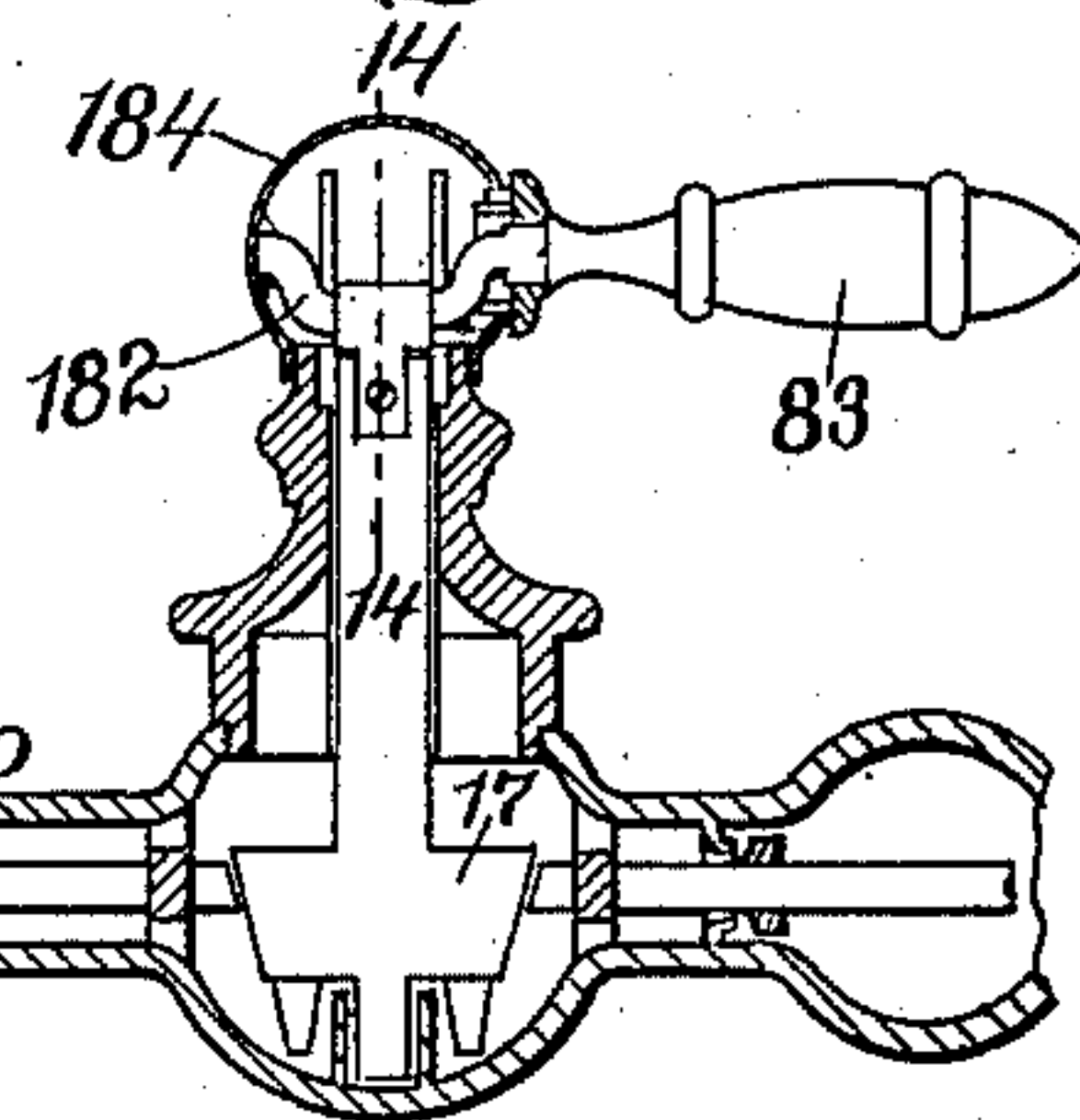


Fig. 2.

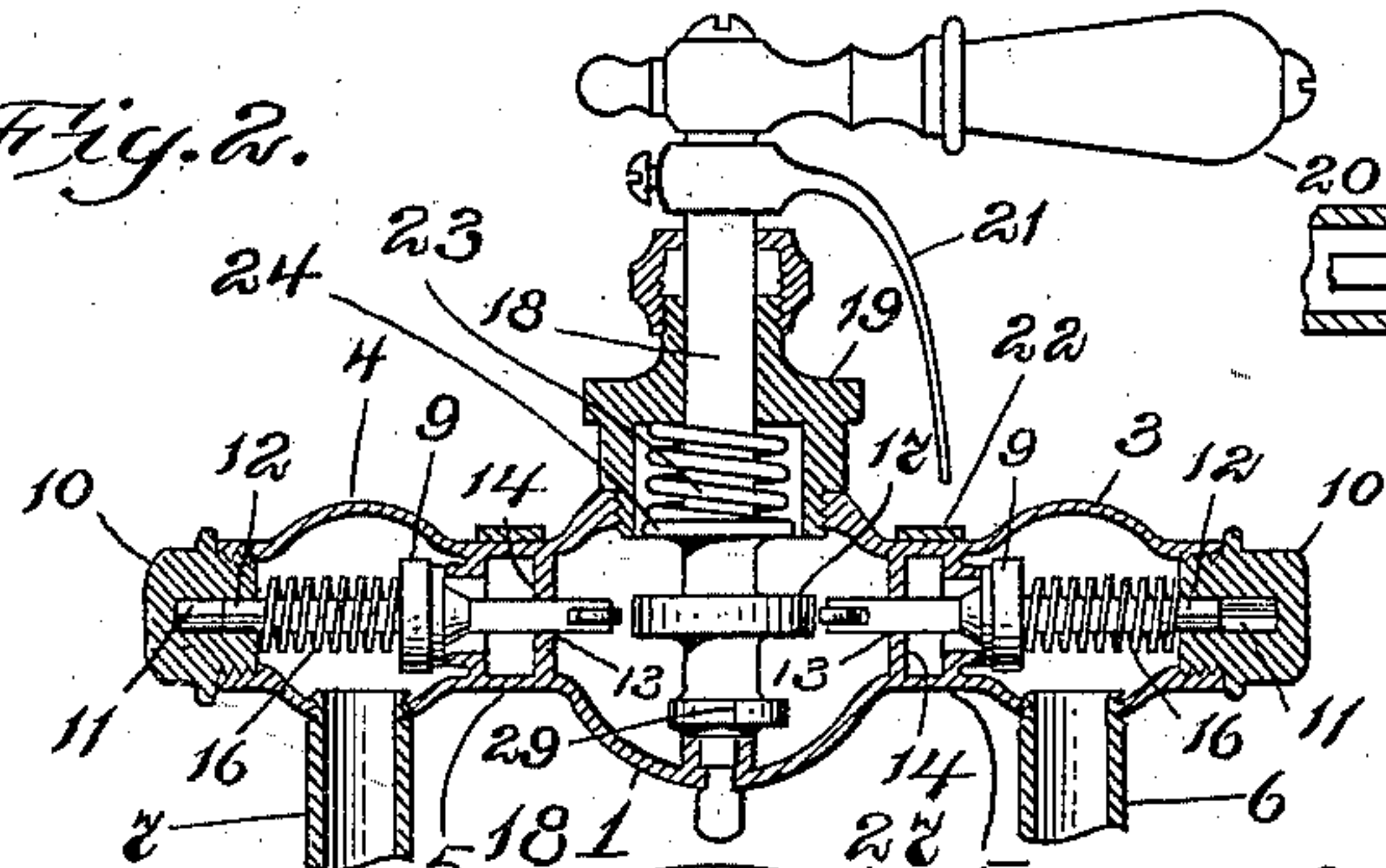


Fig. 3.

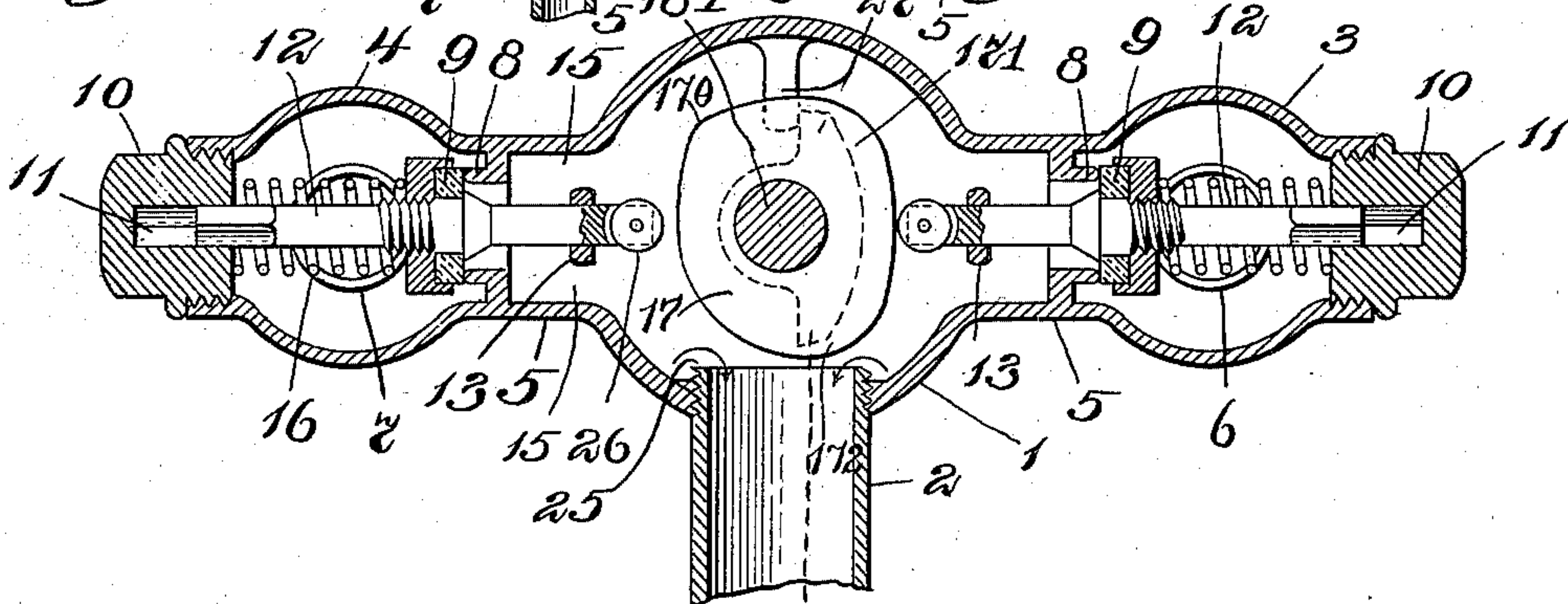
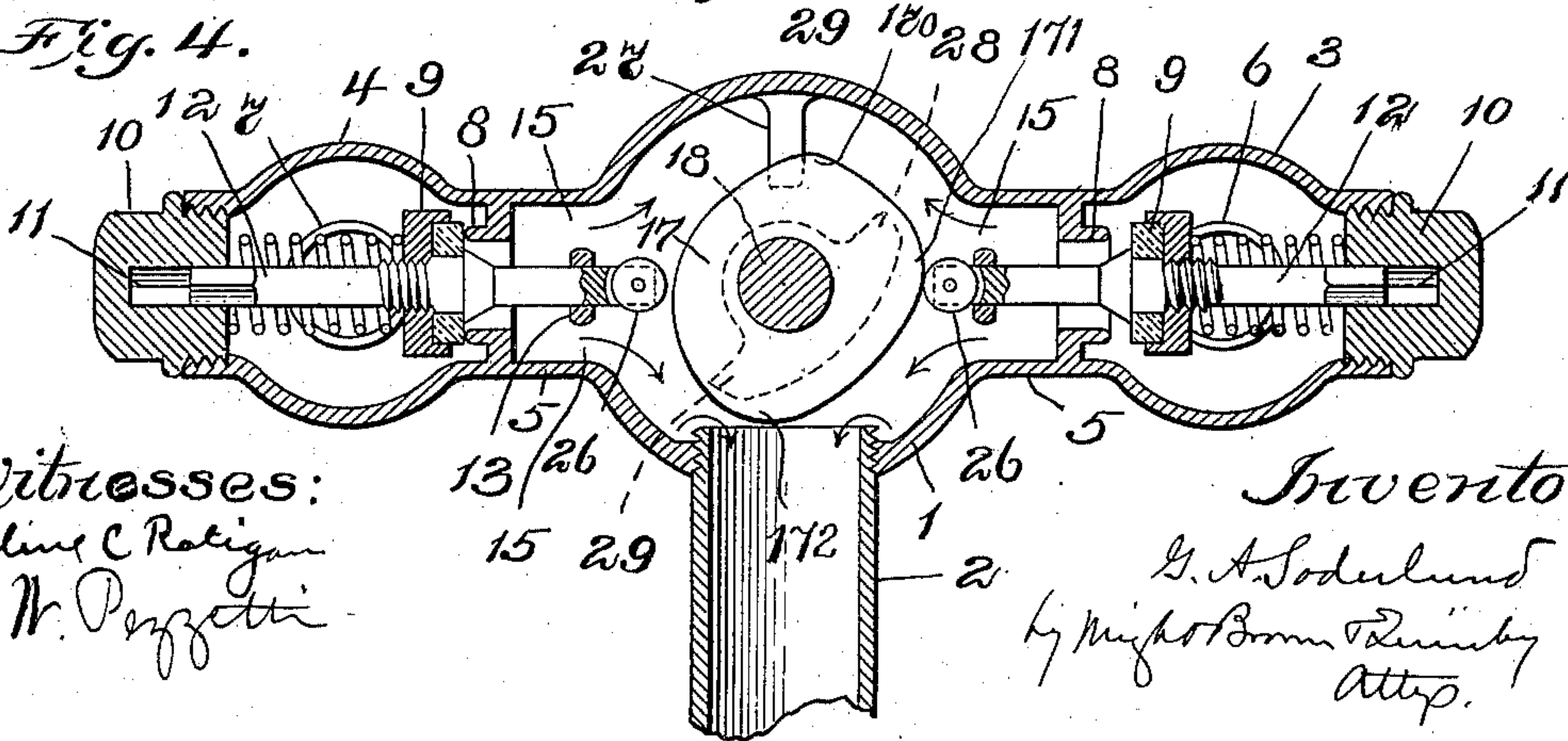


Fig. 4.



Witnesses:
Adeline C. Roligan
P. H. Perzetti

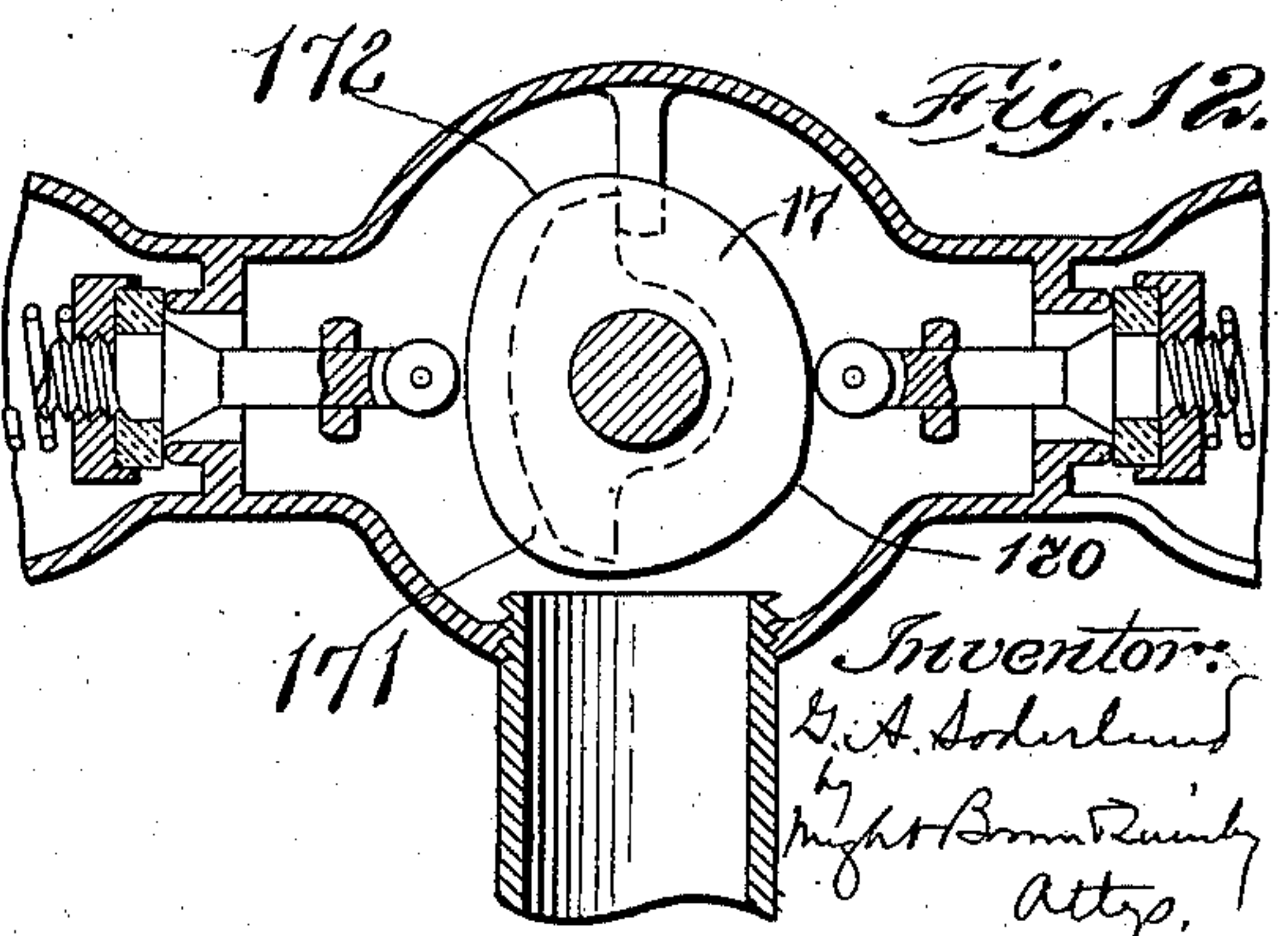
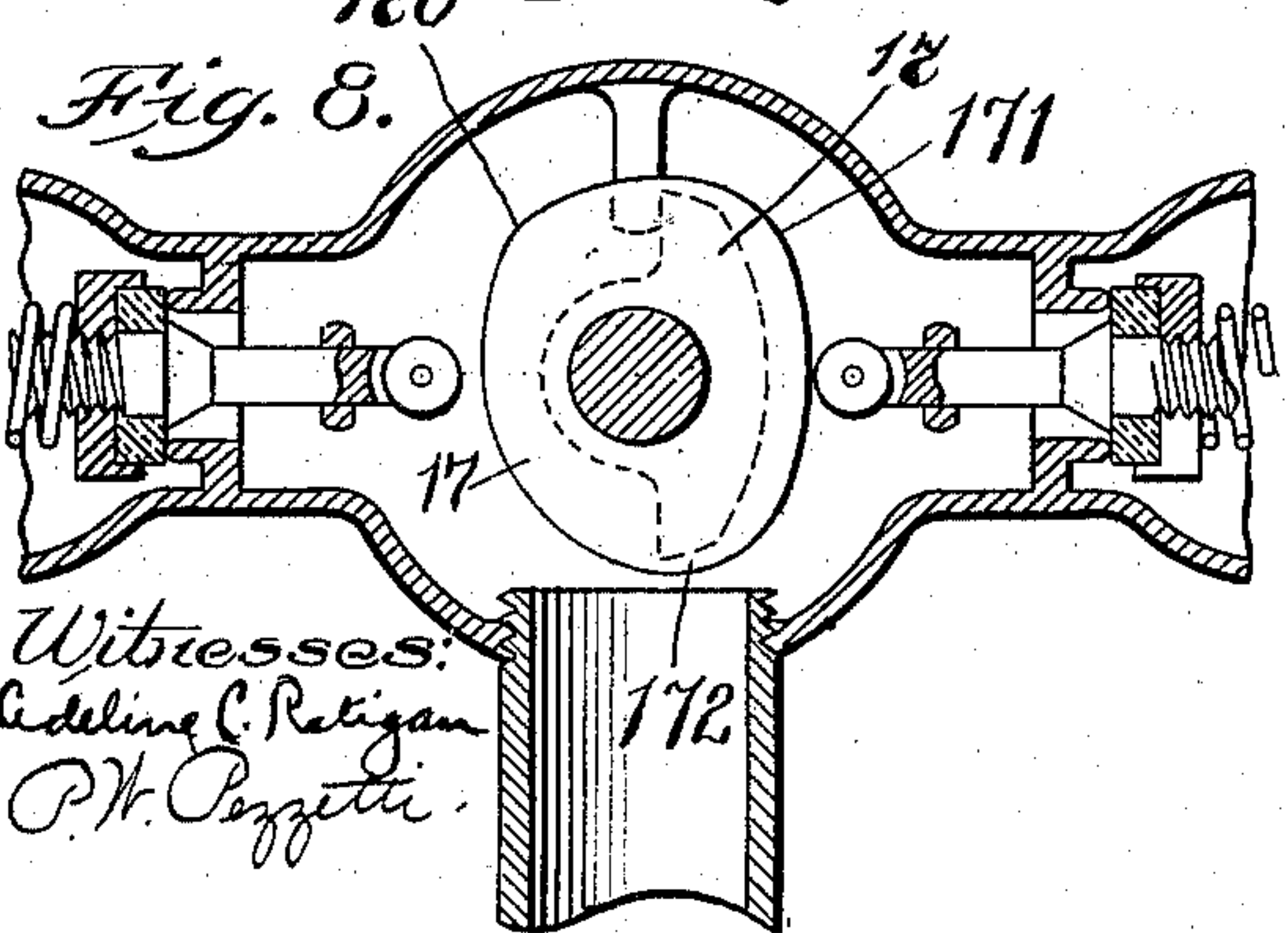
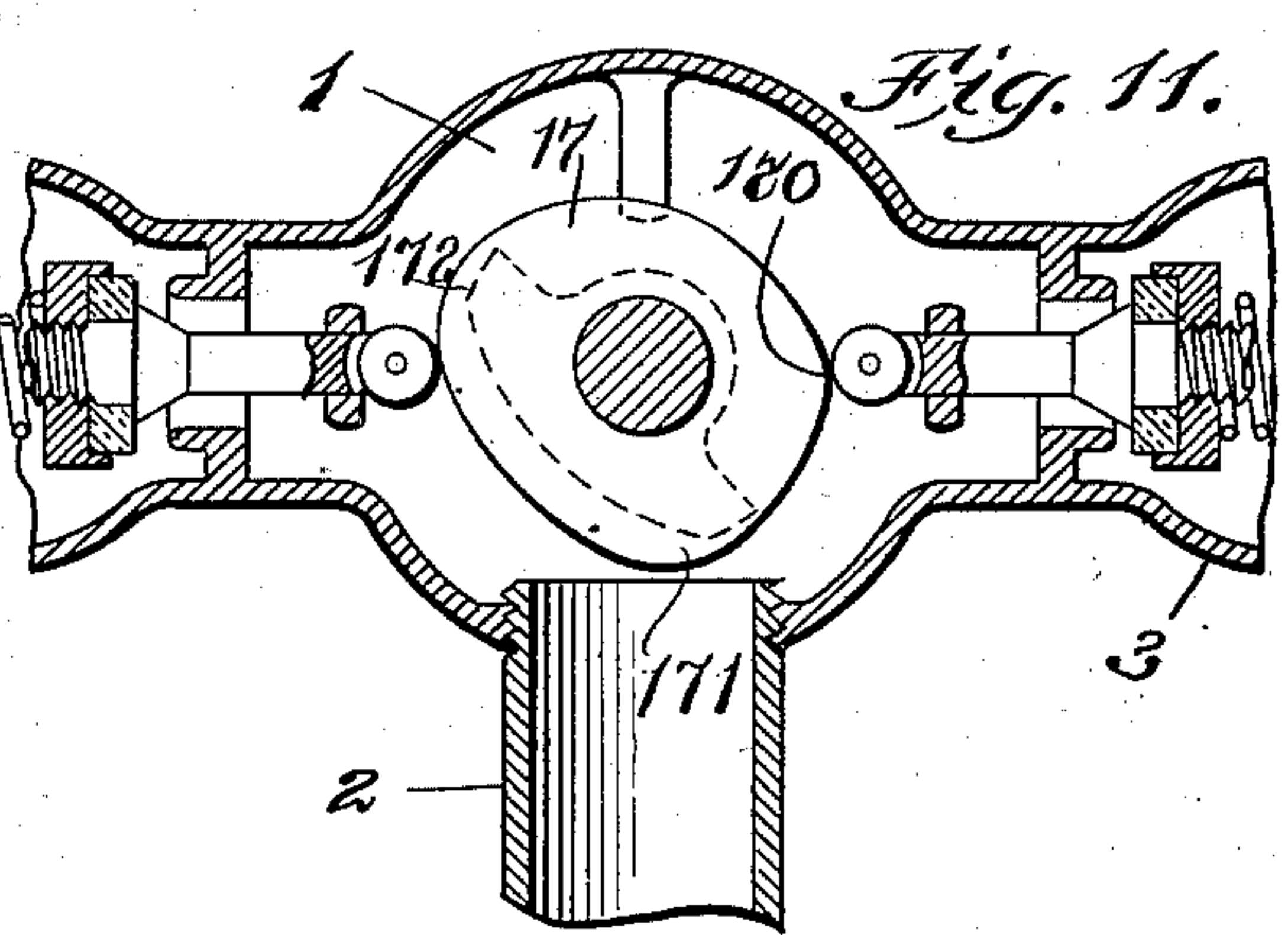
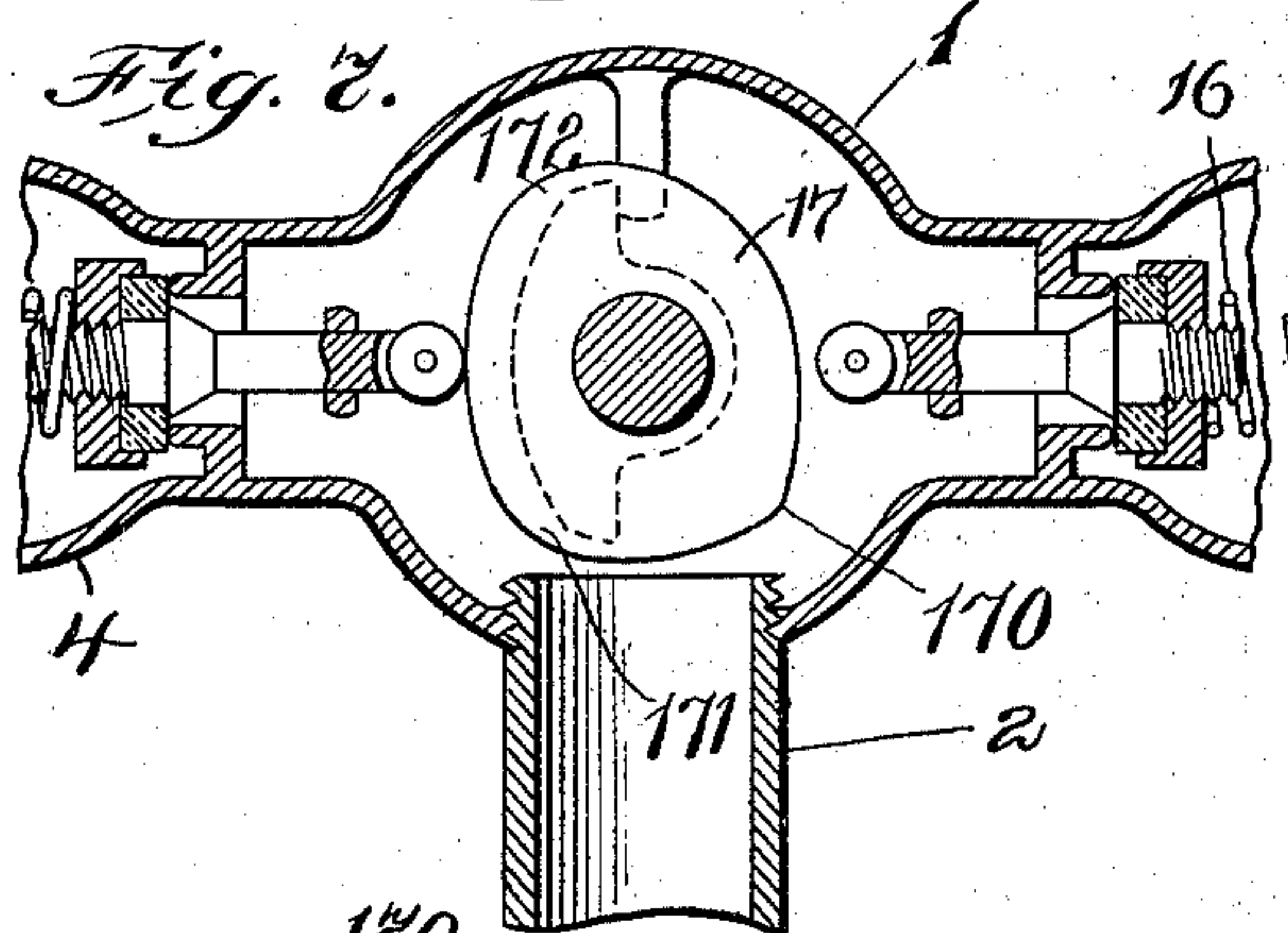
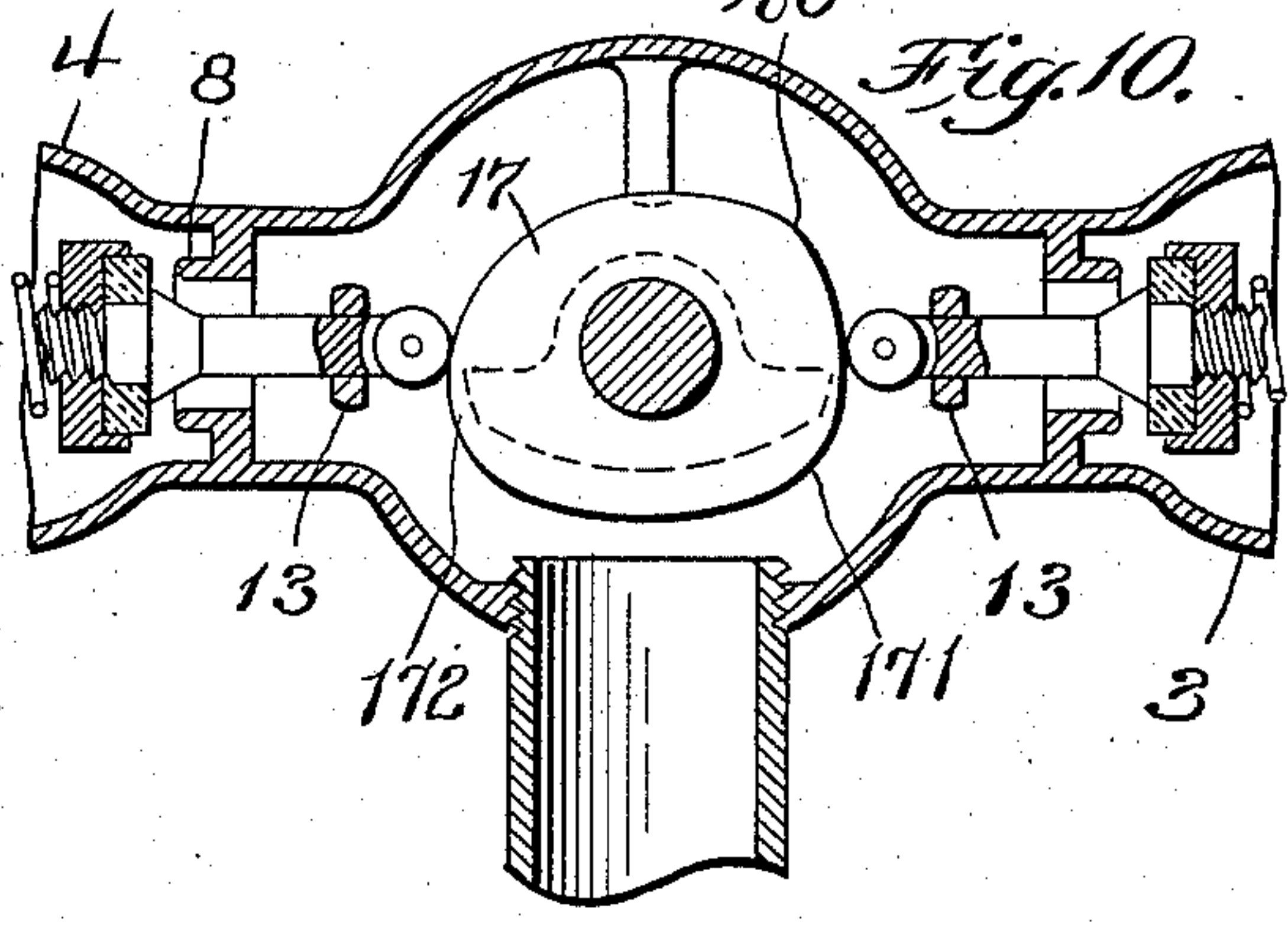
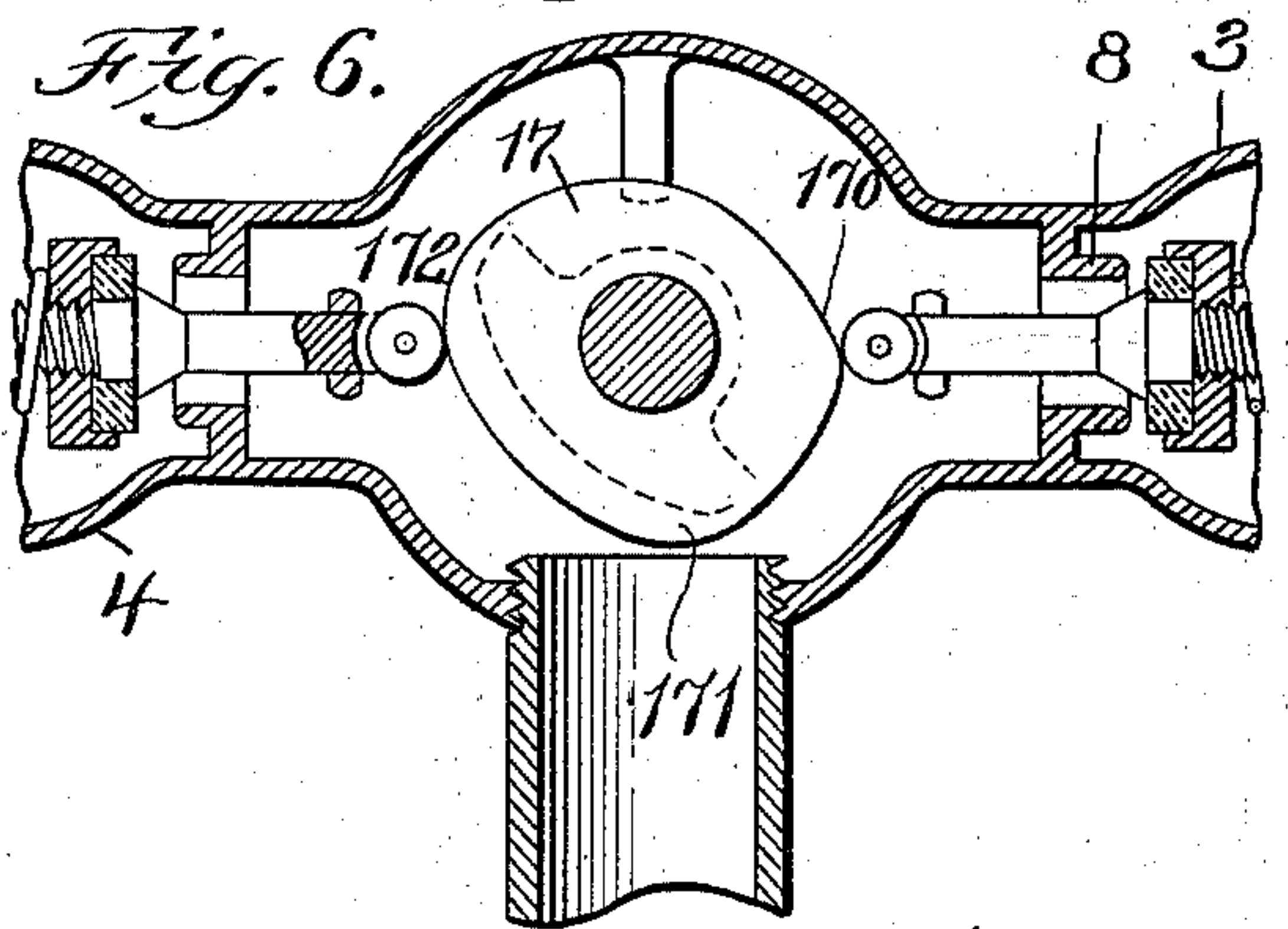
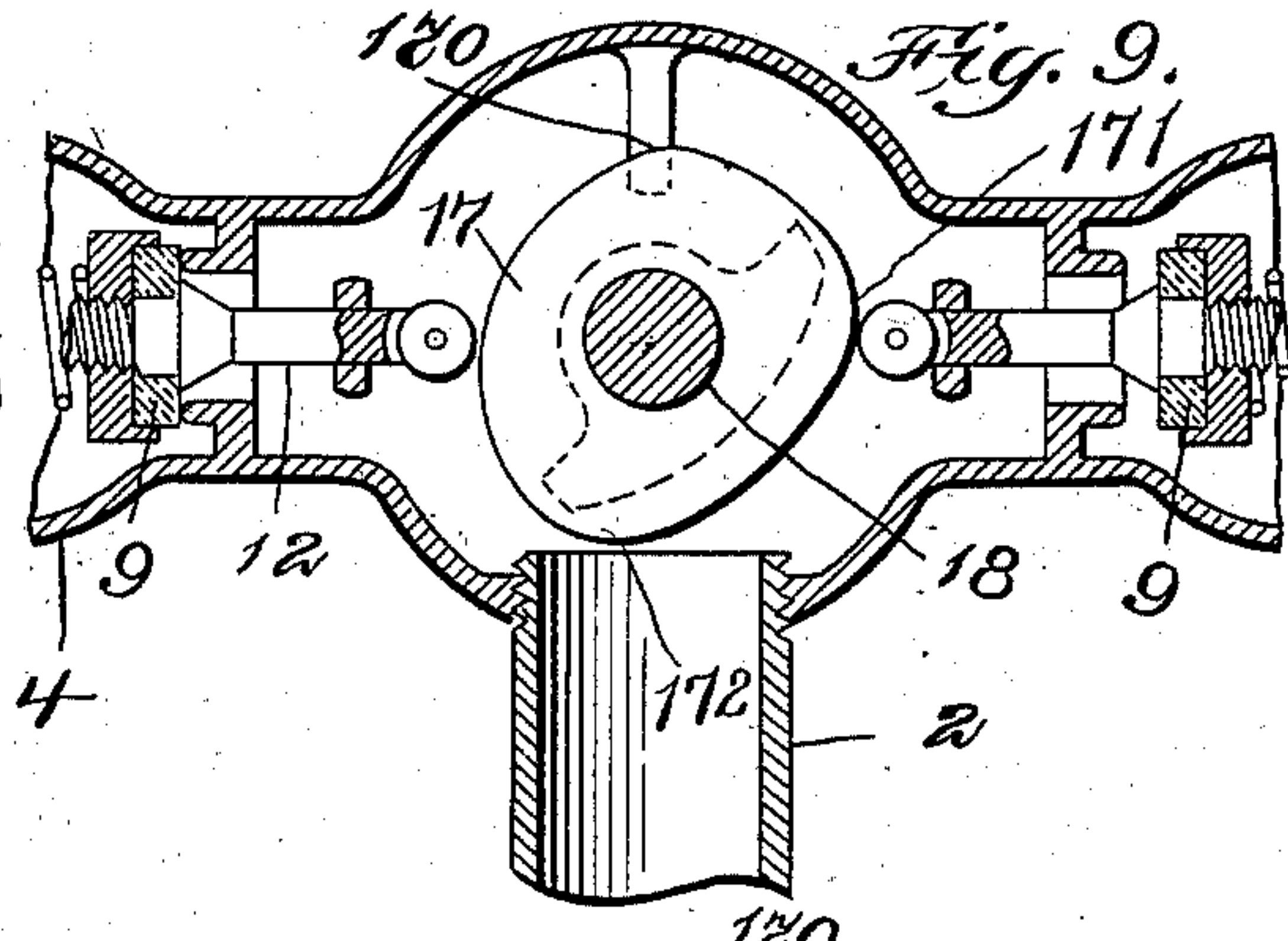
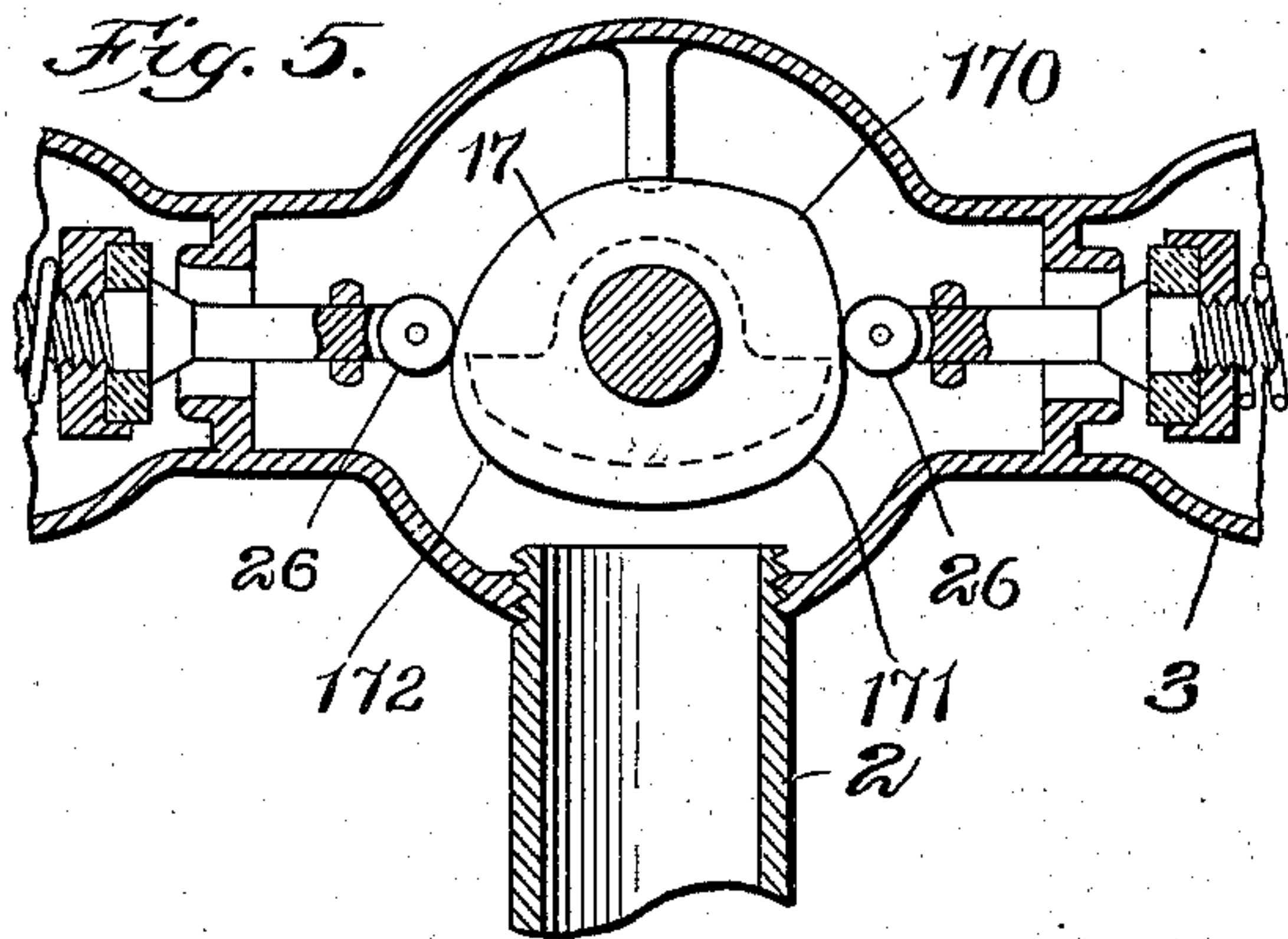
Inventor;
G. A. Soderlund
By *Night & Brown* Quincy
Attys.

G. A. SODERLUND.
FAUCET.

APPLICATION FILED MAR. 20, 1902.

NO MODEL.

2 SHEETS—SHEET 2.



Witnesses:
Addeline C. Religan
P. H. Pozzetti.

Inventor:
G. A. Soderlund
by *Myrtle B. Soderlund*
Atty.

UNITED STATES PATENT OFFICE.

GUSTIVE A. SODERLUND, OF SOMERVILLE, MASSACHUSETTS, ASSIGNOR TO
UNION BRASS WORKS COMPANY, OF BOSTON, MASSACHUSETTS, A COR-
PORATION OF MAINE.

FAUCET.

SPECIFICATION forming part of Letters Patent No. 748,115, dated December 29, 1903.

Application filed March 20, 1902. Serial No. 99,079. (No model.)

To all whom it may concern:

Be it known that I, GUSTIVE A. SODERLUND, of Somerville, in the county of Middlesex and State of Massachusetts, have invented certain
5 new and useful Improvements in Faucets, of which the following is a specification.

This invention relates to combination-faucets adapted to discharge water from two different sources of supply, one for hot and the
10 other for cold water.

The invention has for its object to provide a faucet of this character adapted particularly for a shower-bath faucet and provided with means for insuring a sufficient admix-
15 ture of cold water with the hot water discharged to prevent the possibility of a scalding effect.

Of the accompanying drawings, forming a part of this specification, Figure 1 represents
20 a perspective view of a faucet to which my invention may be applied. Fig. 2 represents a vertical section of the same. Figs. 3, 4, 5, 6, 7, 8, 9, 10, 11, and 12 represent horizontal sections showing the valves and their operat-
25 ing-cam in different positions. Fig. 13 represents a vertical section showing the cam made tapering in form and vertically adjustable. Fig. 14 represents a section on line 14
14 of Fig. 13.

30 The same reference characters indicate the same parts in all the figures.

In the drawings, 1 represents a central receiving or mixing chamber having a discharge-nozzle 2.

35 3 and 4 represent valve-chambers at opposite sides of the central chamber, said valve-chambers being connected by necks 5 5 with the central chamber. A cold-water supply-pipe 6 communicates with the valve-chamber
40 3 and a hot-water supply-pipe 7 communicates with the valve-chamber 4. The valve-chambers are provided at their inner ends with valve-seats 8 8, communicating with the necks 5 5, and at their outer ends with inter-
45 nally-screw-threaded openings formed and arranged to permit the insertion and removal of the valves 9 9. Said openings are closed by screw-threaded plugs 10 10, which are provided with squared sockets or guides 11 11,
50 in which are loosely fitted the squared outer

end portions of the stems 12 12, affixed to the valves 9 9, said sockets preventing the valves from turning when they are moving to open and close the valve-seats. The inner end portions of the valve-stems 12 extend through
55 the necks 5 and are fitted to slide in guide-eyes 13, which are connected by arms 14 with the walls of the necks 5 and are separated from the portions of said walls at opposite sides of said arms by passages 15, through
60 which water flows to the central chamber when the valves are opened. The valves 9 may be yieldingly held against their seats by springs 16.

17 represents a three-part cam which is lo-
65 cated in the central chamber 1 between the inner ends of the valve-stems 12. Said cam is formed on a shaft or spindle 18, the lower end of which is journaled in a socket in the lower portion of the central chamber. The
70 upper end portion of the spindle 18 passes through a stuffing-box 19 on the upper portion of the central chamber and is provided with an external operating-handle 20 and with a pointer 21, cooperating with a seg-
75 mental plate 22, which is concentric with the spindle 18 and is suitably inscribed, as hereinafter described, to indicate the positions of the spindle and cam required to draw cold and warm water and to permit the closing of
80 the valves. The spindle is pressed downwardly into the socket which receives its lower end by a spring 23, which is interposed between the top of a cavity in the stuffing-box and a flange 24 on the spindle.
85

The cam 17 has three parts or cam protuberances 171, 172, and 170 and is so formed and proportioned that when in the positions shown in Figs. 3, 7, and 12 its perimeter is
90 out of contact with the valve-stems 12 and has no effect on the valves. When the cam is moved to the position shown in Figs. 4 and 9, the part 171 opens the valve of the chamber 3, which chamber receives cold water from the supply-pipe 6, the valve of the
95 chamber 4, which receives hot water from the pipe 7, remaining closed, so that only cold water is admitted to the central chamber 1 and discharged at the outlet 2. When the cam is moved to the position shown in 100

Figs. 5 and 10, the parts 171 and 172 open both valves, and two streams, one of hot and the other of cold water, enter the central chamber and are mixed therein, the result-
 5 ing warm or tepid water flowing out through the outlet 2. When the cam is moved from the position shown in Figs. 7 and 12 to the position shown in Figs. 6 and 11 to open the valve of the hot-water chamber to its fullest
 10 extent, the protuberance 170 opens the valve of the cold-water chamber just before opening the valve of the hot-water chamber and holds the cold-water valve open to a limited extent so long as the hot-water valve is open,
 15 so that whenever the valve of the hot-water chamber is opened a sufficient supply of cold water will be admitted to the central chamber to temper the supply of hot water and prevent a discharge of scalding water from
 20 the outlet 2. A short movement of the cam from the position shown in Figs. 6 and 11 to that shown in Figs. 7 and 12 permits the closing of the valve of chamber 4, so that the water can be abruptly shut off without return-
 25 ing the cam to the position shown in Figs. 3 and 8.

The indicator-plate 22 is inscribed with the words "Shut, Hot, Warm, Cold, Shut," these words being arranged so that when the pointer
 30 is over either of them the cam will be in position to cause the result indicated by the word over which the pointer is located.

The guide-eyes 13 and bars 14 divide the water entering the central chamber from each
 35 of the valve-chambers into two streams, which are directed outwardly toward the sides of the central chamber, so that the hot and cold water is mixed in the central chamber before escaping through the outlet 2. This
 40 mixture is made more complete by the inner end of the outlet-nozzle, which projects into the central chamber and forms a curb 25, surrounding the entrance to the outlet, this curb causing a thorough mixture of the hot
 45 and cold water.

The inner ends of the valve-stems 12 may be provided with antifriction-rollers 26, which bear on the perimeter of the cam and prevent wear of the contacting parts. The
 50 squared sockets 11 and the squared portions of the valve-stems prevent the stems from turning, and thus preserve the proper relation between the rollers 26 and the cam. These rollers may be omitted, however, if
 55 desired.

The cam is arrested in the positions shown in Figs. 3, 7, 8, and 12 by means of a stop 27, affixed to the central chamber, and stop-arms 28 29, affixed to the cam-spindle. The arm
 60 28 abuts against the stop 27 when the cam is in the position shown in Figs. 3 and 8, and the arm 29 abuts against said stop when the cam is in the position shown in Figs. 7 and 12.

It will be observed that the arrangement
 65 of the valves is such that the pressure of the water in the valve-chambers holds the valves against their seats, so that the springs are

not essential when the pressure is relatively high.

In Fig. 13 I show the cam 17 made taper-
 70 ing in form and vertically adjustable, so that the quantity of water admitted to the discharge-nozzle 2 from the supply-pipes 6 and 7 may be varied by adjusting the cam ver-
 75 tically. When the cam is in its lowest position, as shown in Fig. 13, it permits the minimum opening of the valves 9 9, and when it is raised from said position its tapering form permits a wider opening of the valves, the
 80 extent of the opening of the valves depending on the height of the cam. The stem 18 is provided at its upper end with a yoke 180, having a slot 181, which receives the wrist portion of a crank 182, formed on or attached to
 85 the handle 183. Said crank is journaled in a casing 184, which is rotatable with the handle and with the stem 18. The handle is rotatable on its own axis to vary the height of the wrist portion of the crank.

I claim—

1. A combination-faucet comprising a cen-
 90 tral receiving-chamber having a discharge nozzle or outlet, hot and cold water valve-chambers located at opposite sides of the cen-
 95 tral chamber and having valve-seats at their inner sides communicating with the central chamber, valves movable in said valve-chambers toward and from the central chamber and provided with stems projecting into the
 100 central chamber, water-supply pipes communicating with said valve-chambers, a single three-part cam located in the central chamber and interposed between the inner ends of the valve-stems, the periphery of said cam
 105 on one side of its axis of oscillation in any direction being differently shaped from that on the opposite side of said axis whereby the two valves may be simultaneously engaged by the cam but opened unequally, and means
 110 for rotating said cam.

2. A combination-faucet comprising a cen-
 115 tral receiving-chamber having a discharge nozzle or outlet, hot and cold water valve-chambers located at opposite sides of the cen-
 120 tral chamber and having valve-seats at their inner sides communicating with the central chamber, valves movable in said valve-chambers toward and from the central chamber and provided with stems projecting into the
 125 central chamber, water-supply pipes communicating with said valve-chambers, a single three-part cam located in the central chamber and interposed between the inner ends of the valve-stems, the periphery of said cam
 130 on one side of its axis of oscillation in any direction being differently shaped from that on the opposite side of said axis whereby the two valves may be simultaneously engaged by the cam but opened unequally, and means for rotating said cam, the periphery of the
 135 cam being free from abrupt shoulders to enable it to be turned from one valve shutting position to another and to be then returned.

3. A combination-faucet comprising a cen-

tral receiving-chamber having a discharge
nozzle or outlet, hot and cold water valve-
chambers located at opposite sides of the cen-
tral chamber and having valve-seats at their
5 inner sides communicating with the central
chamber, and openings at their outer sides
of sufficient size to permit the insertion and
adjustment of valves in said valve-chambers,
plugs detachably fitted to said openings,
10 valves movable in said valve-chambers to-
ward and from the central chamber and pro-
vided with stems projecting into the central
chamber, water-supply pipes communicating

with said valve-chambers, a tapering cam lo-
cated in the central chamber and interposed 15
between the inner ends of the valve-stems,
said cam being formed to permit the opening
of both valves, and means for vertically ad-
justing the cam to vary the opening move-
ment of the valves. 20

In testimony whereof I have affixed my sig-
nature in presence of two witnesses.

GUSTIVE A. SODERLUND.

Witnesses:

CHAS. E. BOWERS,
C. F. BROWN.