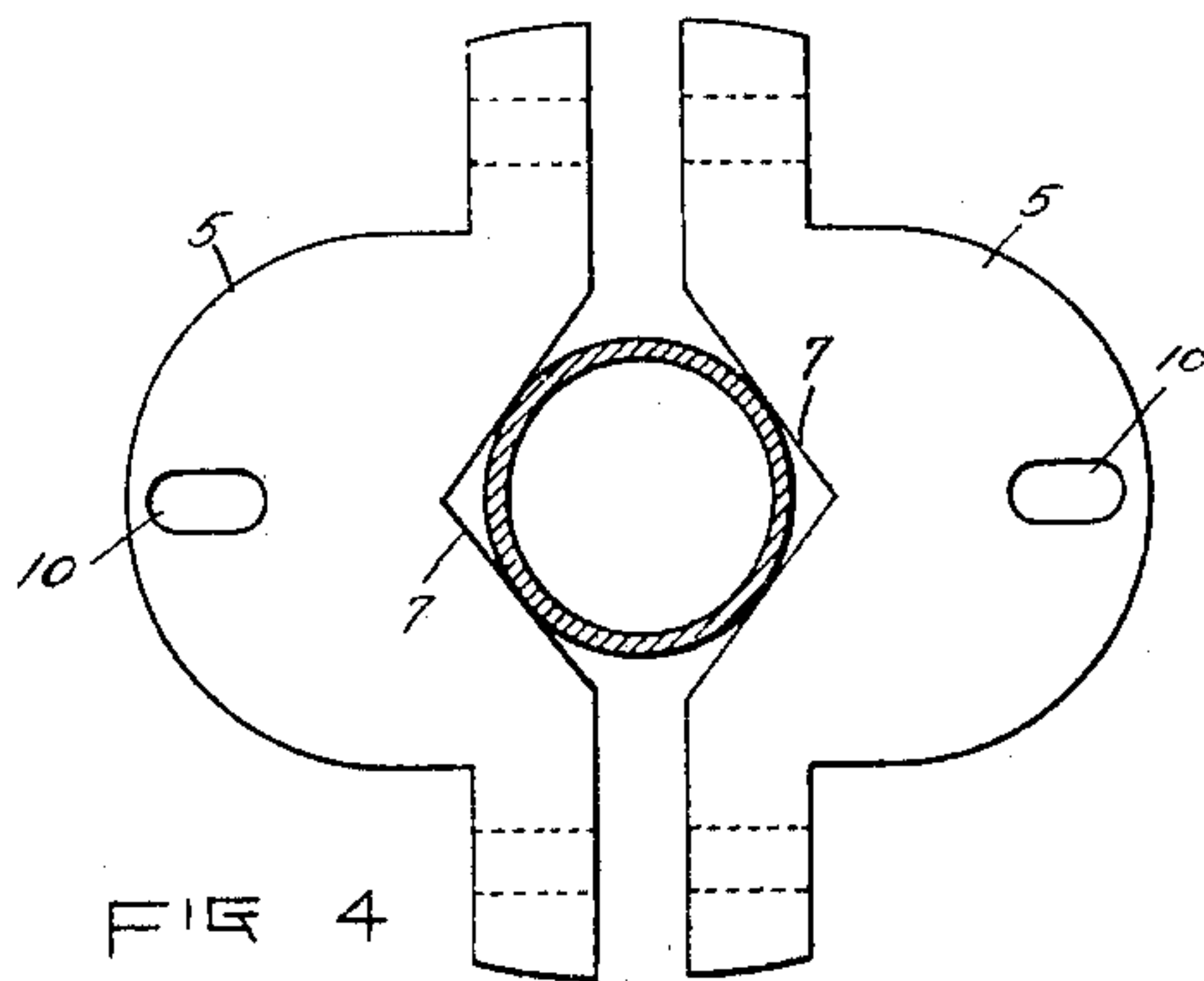
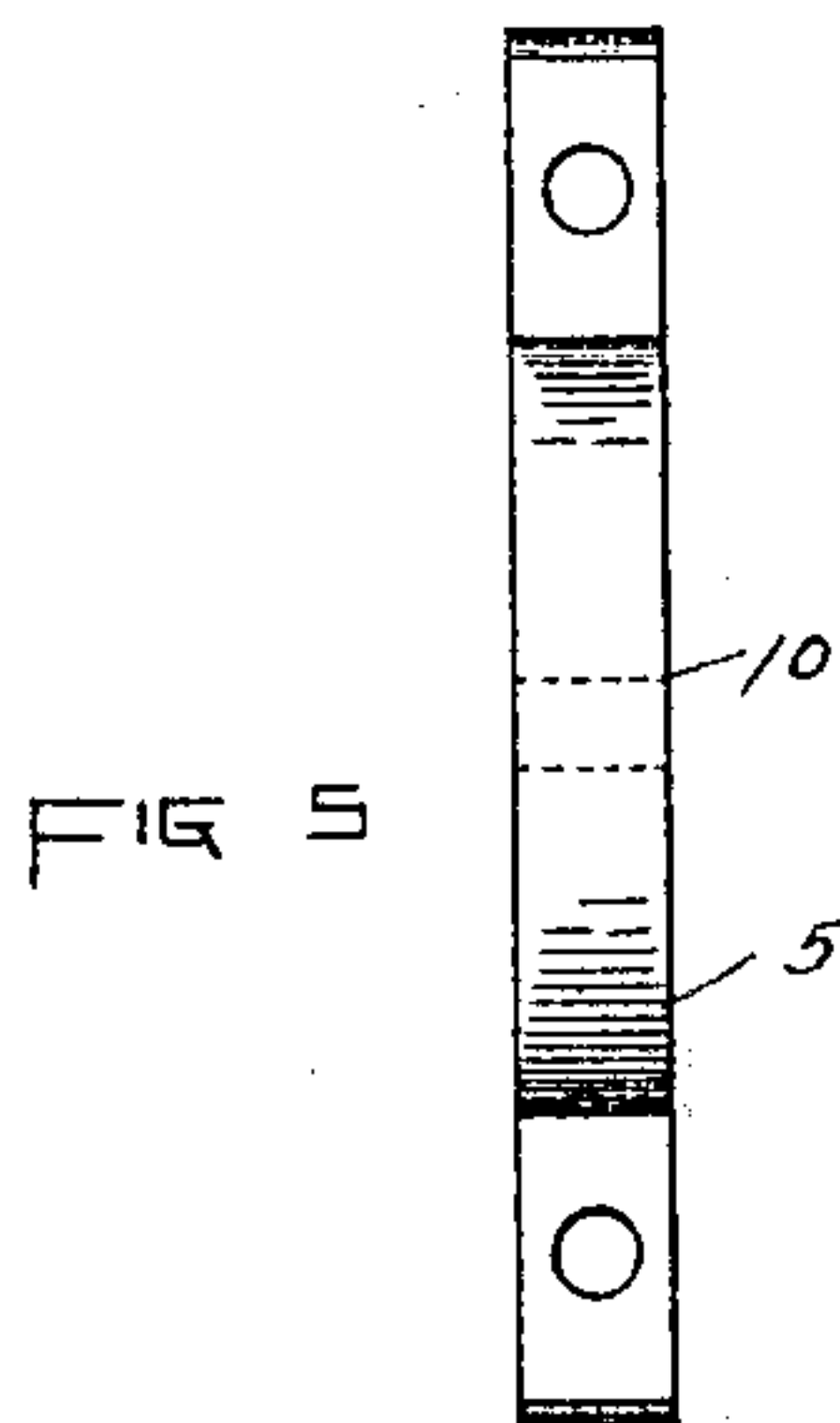
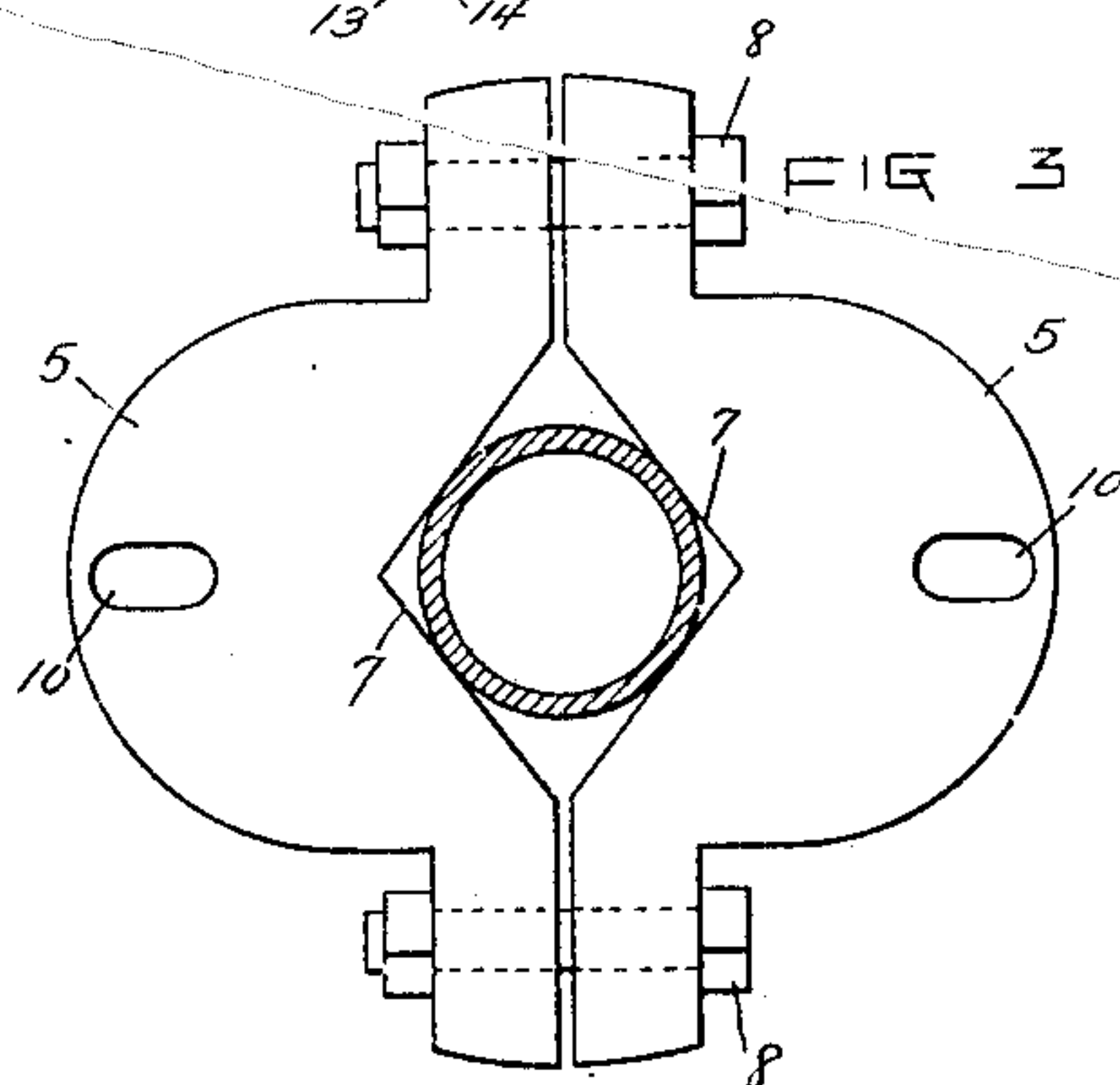
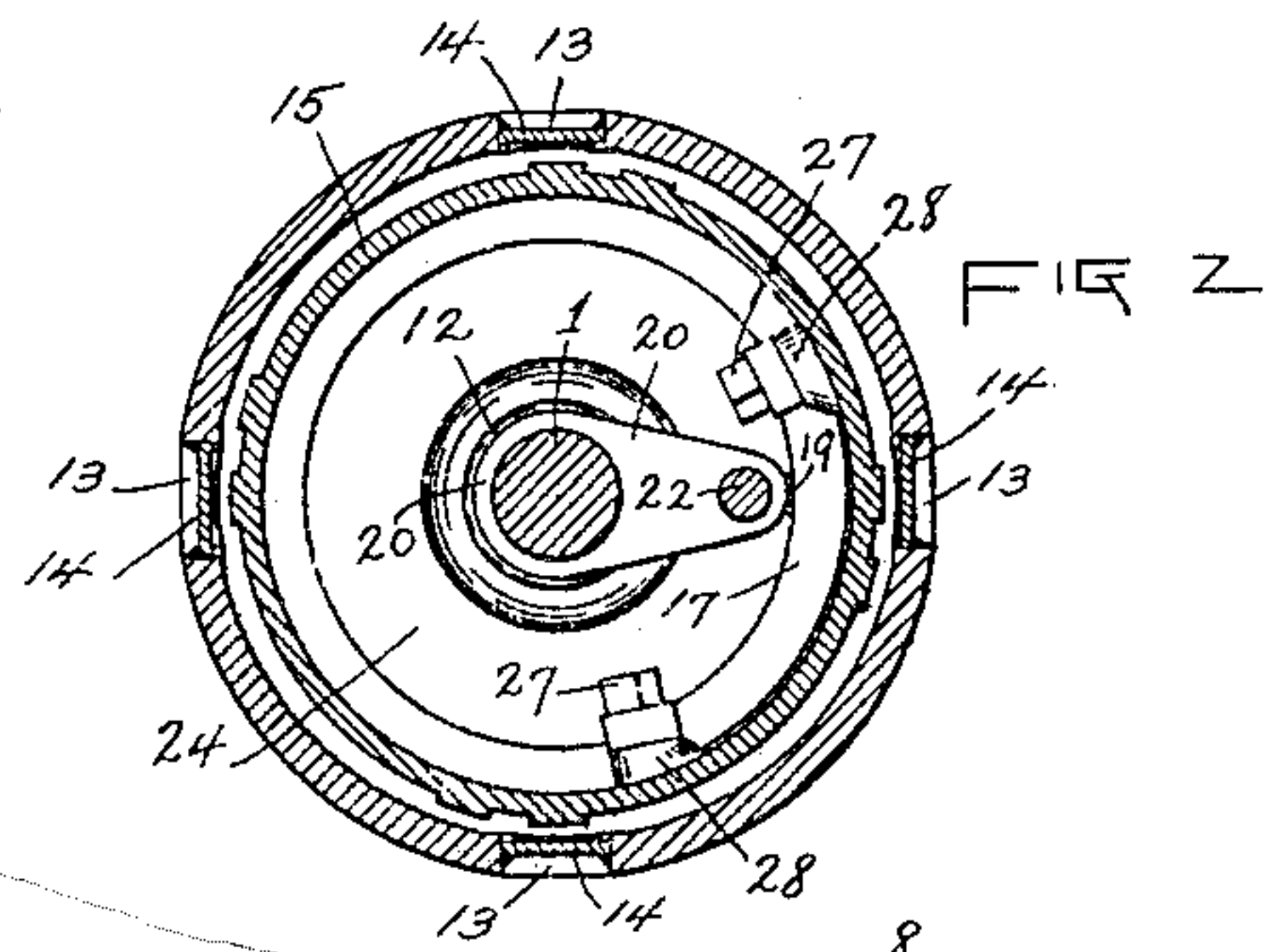
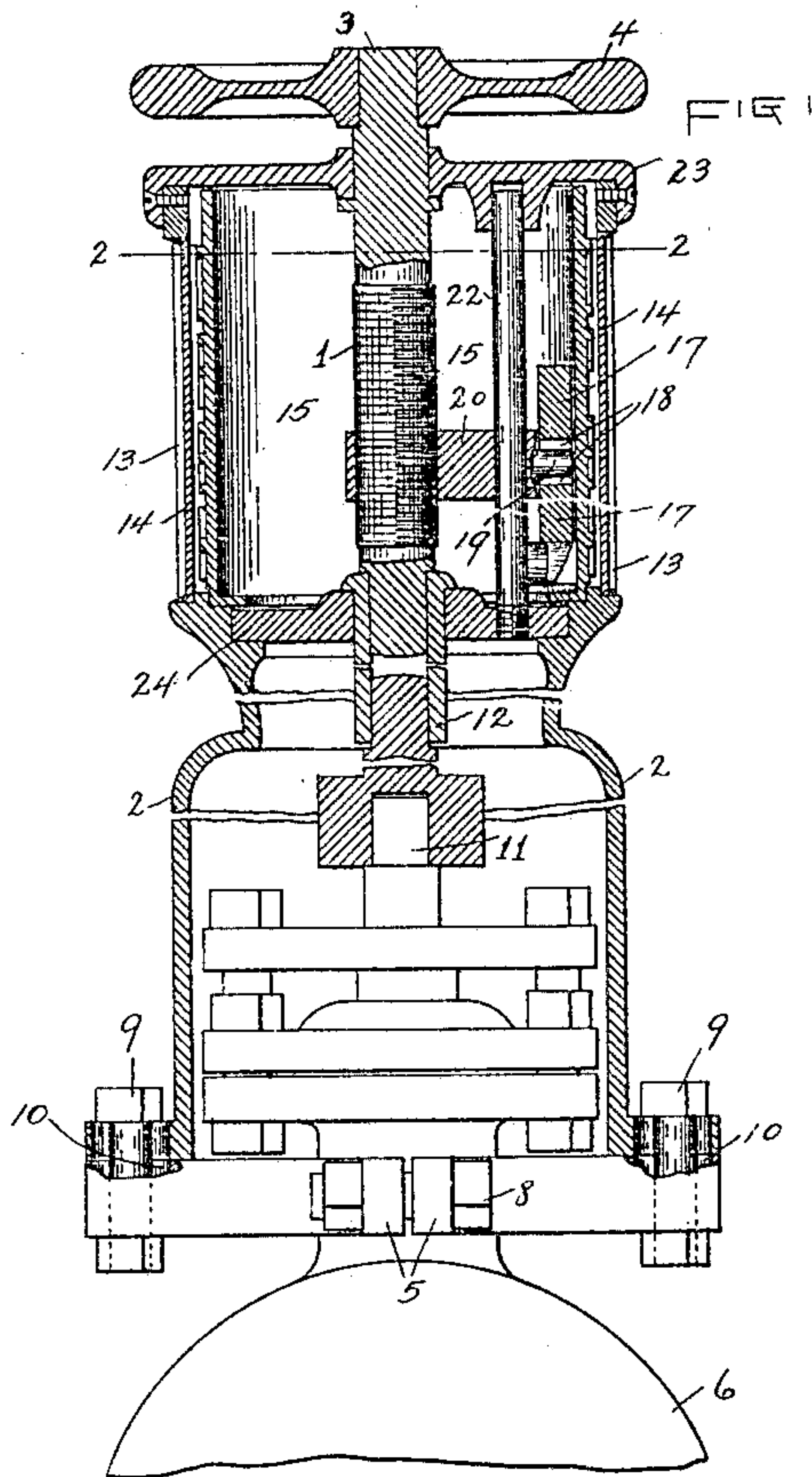


No. 819,185.

PATENTED MAY 1, 1906.

G. P. VINCENT.  
VALVE INDICATOR.  
APPLICATION FILED APR. 13, 1905.

2 SHEETS—SHEET 1.



WITNESSES  
S. Booth  
E. M. O'Reilly

INVENTOR  
George P. Vincent  
By Mosher & Curtis  
Attys.

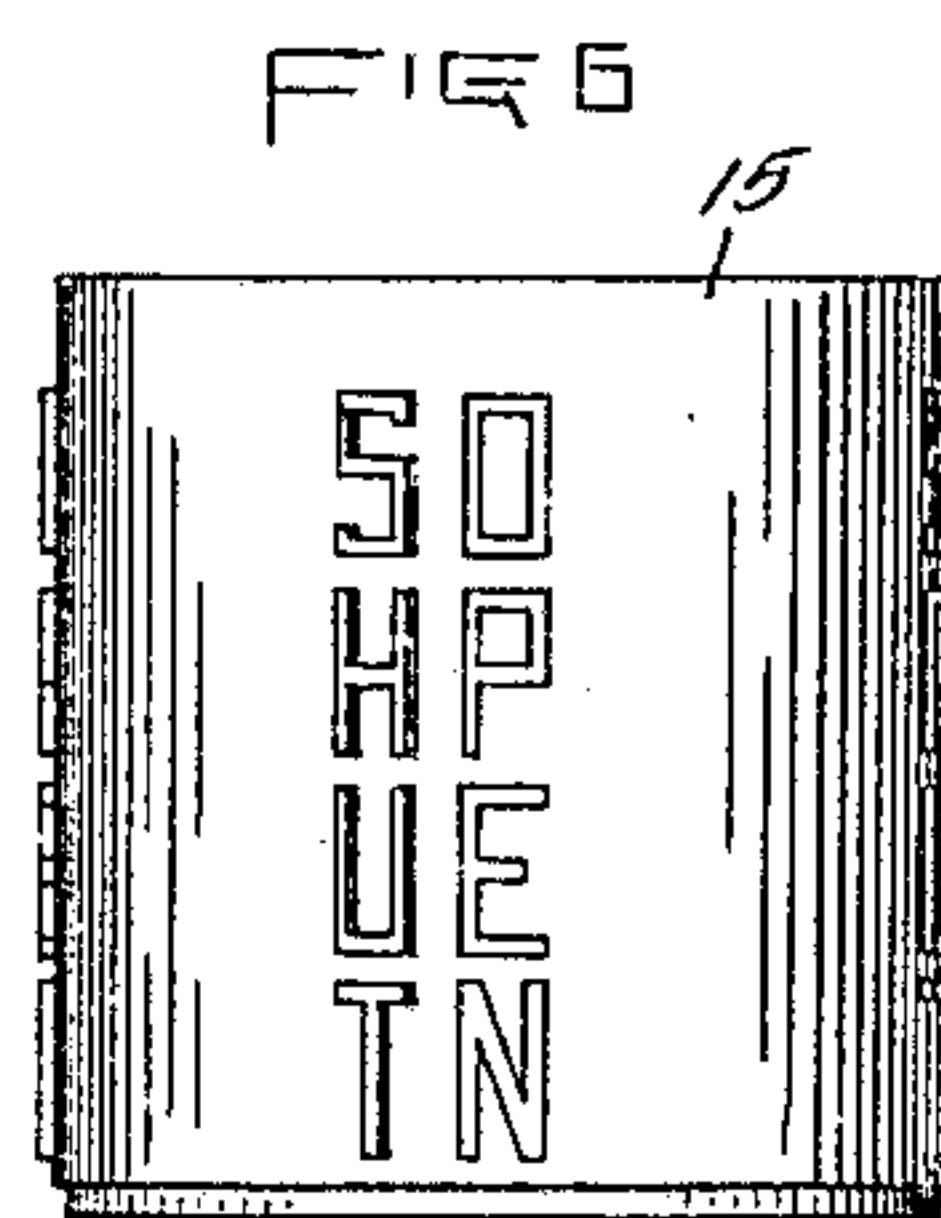
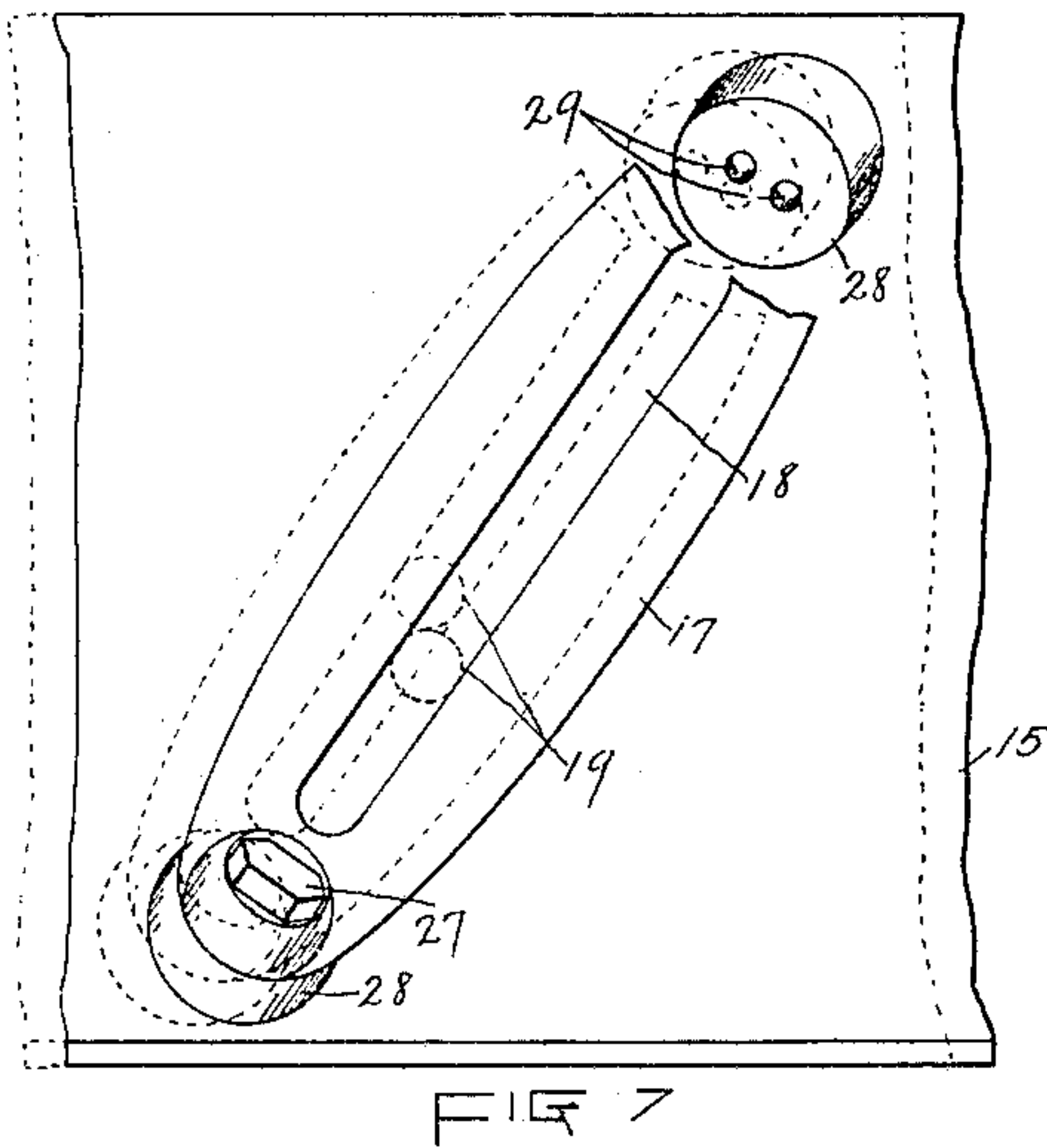
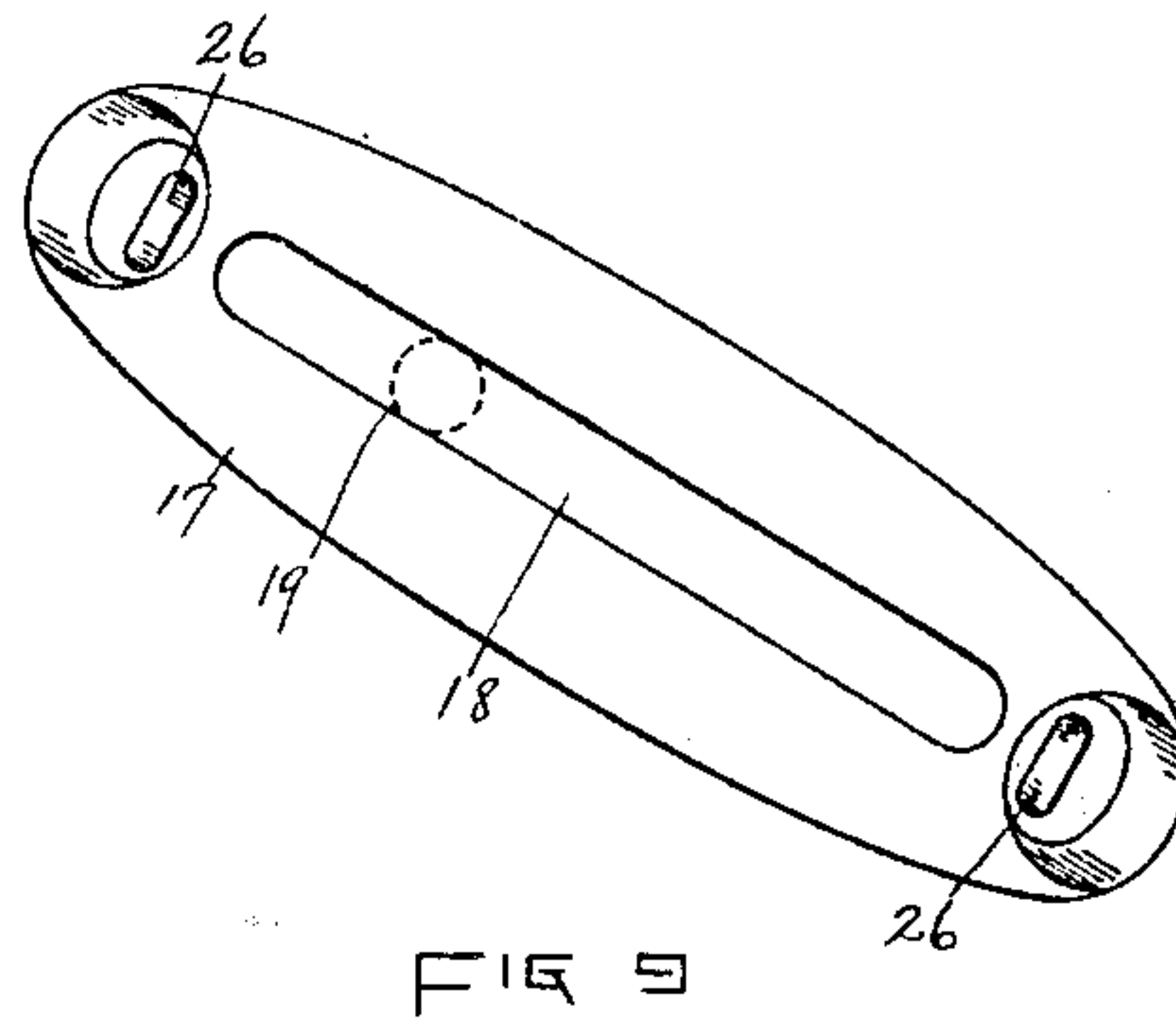
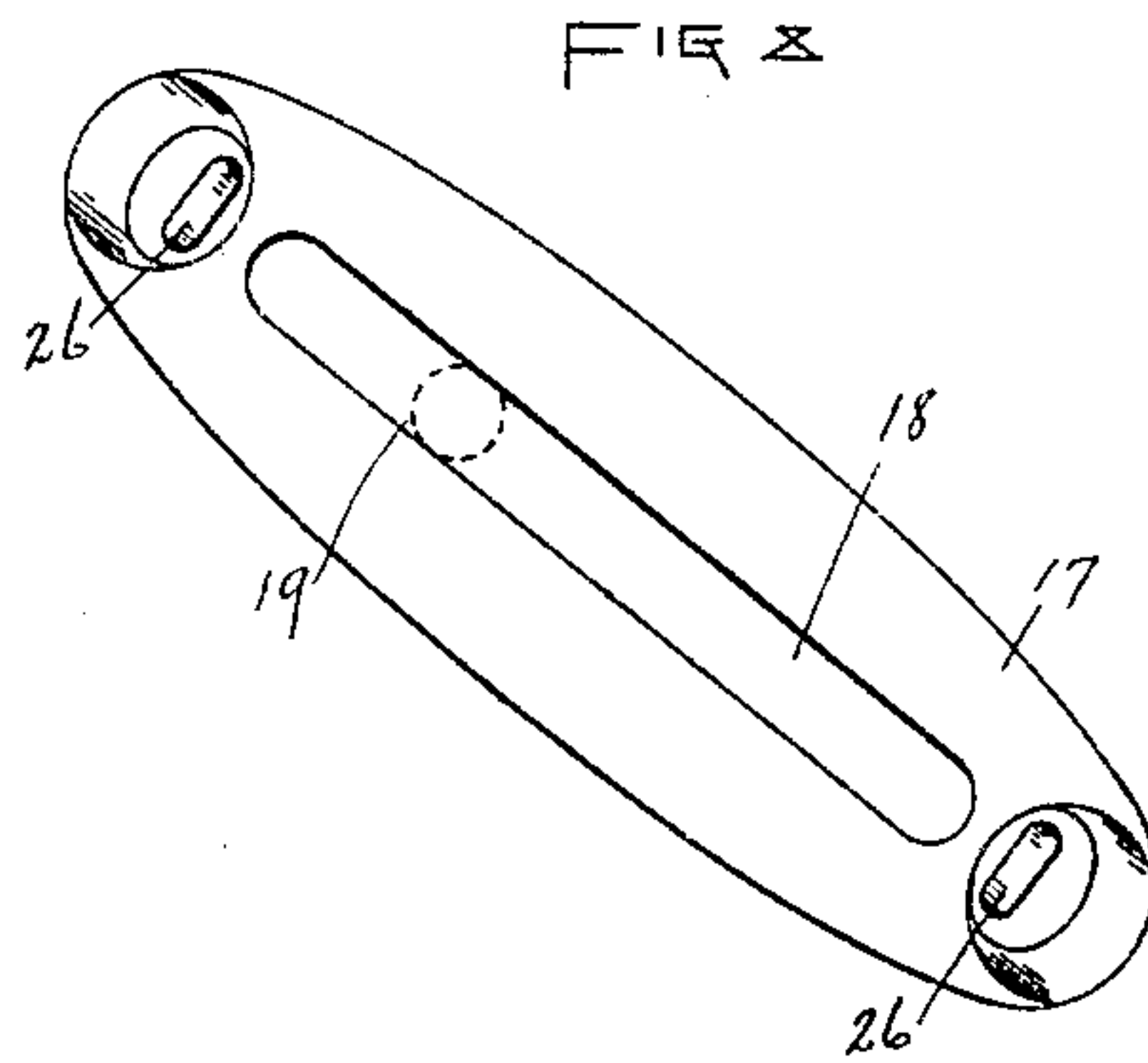
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G. P. VINCENT.  
VALVE INDICATOR.

APPLICATION FILED APR. 13, 1905.

2 SHEETS—SHEET 2.



WITNESSES  
*E. M. O'Killy.*

INVENTOR  
*George P. Vincent.*  
*By Mosher & Curtis,*  
*Attys.*



# UNITED STATES PATENT OFFICE.

GEORGE P. VINCENT, OF SCHENECTADY, NEW YORK, ASSIGNOR OF ONE-FOURTH TO HERMAN WAGNER, ONE-FOURTH TO ALBERT B. VAN VOAST, AND ONE-FOURTH TO M. FRANKIE VINCENT, OF SCHENECTADY, NEW YORK.

## VALVE-INDICATOR.

No. 819,185.

Specification of Letters Patent.

Patented May 1, 1906.

Application filed April 13, 1905. Serial No. 255,366.

*To all whom it may concern:*

Be it known that I, GEORGE P. VINCENT, a citizen of the United States, residing at Schenectady, county of Schenectady, and State of New York, have invented certain new and useful Improvements in Valve-Indicators, of which the following is a specification.

The invention relates to such improvements; and it consists of the novel construction and combination of parts hereinafter described and subsequently claimed.

Reference may be had to the accompanying drawings, and the reference characters marked thereon, which form a part of this specification. Similar characters refer to similar parts in the several figures therein.

Figure 1 of the drawings is a view in central vertical section of my improved valve-indicator applied as an attachment to a valve, the upper end of the valve being shown in side elevation. Fig. 2 is a horizontal cross-section of the same, taken on the broken line 2 2 in Fig. 1. Fig. 3 is a top plan view of a pair of clips adapted to embrace the neck of the valve-case and also to be connected with and form a support for a valve-indicator case. Fig. 4 is a similar view showing the stem-clips applied to the neck of a larger valve-case. Fig. 5 is an edge view of one of said clips. Fig. 6 is a side view of the indicator-cylinder detached. Fig. 7 is a view in elevation of the interior of the indicator-cylinder, on an enlarged scale, showing the cam-plate mounted thereon, partly broken away and indicating the movement of the plate and cylinder by the action of the nut on the operating-spindle. Figs. 8 and 9 are views in elevation, showing the cam-plate detached and in differently-inclined position.

The principal object of my invention is to provide a simple, durable, and reliable mechanism for indicating at any time the condition of a valve, whether the same be open or closed.

Other objects of the invention will appear in connection with the following description.

My invention is adapted for use in connection with different kinds of valves, and is particularly adapted for use as an indicator attachment for a valve wherein the valve-gate is operated by a stem-nut which travels up

and down a screw-threaded stem or spindle, in which construction the stem or spindle has a rotary but no longitudinal movement.

Referring to the drawings, wherein the invention is shown in its preferred form, 1 represents a rotary spindle, and 2 an inclosing case, provided with bearings for the spindle. The spindle projects through the top of the case, and its projecting end 3 is adapted to receive operating mechanism, as a wrench or hand-wheel 4, in the usual manner. The case may be a portion of the valve-case when desired and the spindle the valve-stem or an extension thereof by means of which the valve is operated.

As shown in the drawings, the invention is more particularly adapted for use as an attachment for a valve, and in adapting the invention for such use I provide means for detachably mounting the indicator-case upon the valve-case, the same comprising a pair of clips 5, adapted to be applied from opposite sides to the neck of the valve-case 6, said clips being provided on their neighboring sides with recesses 7 of a form adapted to receive cylindrical valve-case necks of different diameters, so that each clip will bear upon the neck of the case at two points. These clips are provided in their ends with bolt-holes adapted to receive screw-bolts 8, whereby the clips are clamped tightly upon the neck of the valve-case, in which position they are adapted to support the indicator-case, the lower flanged end of which rests upon said clips and is connected thereto by screw-bolts 9, inserted through apertures 10 in the respective clips, which apertures are slotted to permit of such connection being made with the clips at different distances apart which they are caused to assume in their application to different sizes of valve, thus adapting the indicator-case for use with different sizes of valve.

The spindle 1 is operatively connected with the projecting end 11 of the valve-stem, which is angular in cross-section, by means of one or more extension-pieces 12, which can be selected of a length adapted to operatively connect the spindle 1 with the valve-stem 11, the connecting ends of the several stems and extension piece or pieces being angular and fitted to each other, whereby the valve is adapted to be operated by means of



the hand-wheel 4 or such other means as may be employed for rotating the spindle 1.

The head of the indicator-case is shown provided with four inspection-apertures 13, each of which is preferably provided with a glass or other transparent closure 14. Within the head of the indicator-case is rotatively mounted an indicator-cylinder 15, the axis of rotation of which corresponds with the axis of the spindle 1. At distances apart corresponding with the distance apart of the inspection-apertures 13 are formed upon the outer side of the indicator-cylinder four sets of characters, each set forming the word "Open," and alternating therewith and similarly spaced apart are four sets of characters, each set forming the word "Shut." The characters forming each of these words are arranged in a vertical line and are adapted to be read preferably from top to bottom, as shown in Fig. 6. It will be readily seen that in certain positions of the indicator-cylinder the word "Open" will be exposed to view through each of the inspection-apertures 13, and in certain other positions of the indicator-cylinder the word "Shut" will be exposed to view through each of the said inspection-apertures 13, permitting the indicator to be read from any side of the case. I am thus able by providing means whereby the indicator-cylinder is rotated back and forth in accordance with the movement of the valve to properly indicate the position of the valve whether open or closed. By extending the characters forming the indicating-words in vertical lines I am able to accomplish the object sought with a minimum degree of rotary movement of the indicator-cylinder, thus enabling me to expose the indicating-words at four or more points on the periphery of the indicator-head.

As a preferred means for imparting to the indicator-cylinder the necessary rotatory movements I have shown the same provided with a slotted cam in the form of a cam-plate 17, attached to the inner side of the cylinder, with its cam-slot 18 extending obliquely, as shown in Fig. 7. This cam-slot is adapted to receive the pintle or roller 19, projecting from the nut 20, fitting a screw-threaded portion of the spindle 1 and also apertured to receive and fit a steady-post 22, supported at its upper end in the cap 23 of the indicator-case and at its lower end in a bearing-plate 24, mounted upon the indicator-case and forming a bearing for the upper end of the spindle extension 12.

As the spindle 1 is rotated in one direction the nut 20 will be caused to travel upwardly and by engagement with one of the walls of the cam-slot 18 will cause the indicator-cylinder to be rotatively moved in one direction, and as the spindle 1 is rotated in the opposite direction said nut will be caused to travel downwardly and by engagement with the

other wall of said cam-slot will cause the indicator-cylinder to be rotatively moved in the opposite direction.

By locating the words "Open" and "Shut," adapted to be displayed through the same inspection-aperture, the proper distance apart by properly regulating the inclination of the cam-slot 18 and by having the pitch of the screw-threads on the cylinder 1 properly proportioned to the screw-threads (not shown) on the valve-stem 11 the proper position of the words "Open" and "Shut" can be secured to indicate at any time the true position of the valve.

An important object of my invention is to adapt the same indicator for use with valves of different sizes differing in the number of turns of the valve-stem required for their operation.

It will be understood that the pitch of the cam-slot being adapted to cause the proper movement of the indicator-cylinder as a result of a given number of turns of the spindle 1 a different number of rotations of said spindle would cause a greater or less movement of the cylinder, due to the greater or less movement of the nut 20 thereby induced.

To adapt the device for the same movement of the cylinder in cases where the nut 20 has a greater or less movement, due to a greater or less number of turns of the spindle, I make the cam-plate 17 adjustable upon the inner side of the cylinder, so that its position can be changed to change the inclination of the cam-slot to compensate for the increased or diminished movement of the nut. Thus if the nut is to have a greater movement than that for which the apparatus was primarily adjusted the cam-plate will be adjusted so that the cam-slot is inclined less to the vertical, and if the nut had a less movement the cam-plate will be adjusted so that the cam-slot is more inclined to the vertical. Provision is made for such adjustment of the cam-plate within certain limits by providing the ends of the cam-plate with slotted apertures 26, adapted to receive the attaching screw-bolts 27, which pass through said slotted apertures into screw-threaded apertures in the respective bosses 28, formed on the interior of the cylinder. By loosening the screw-bolts the position of the plate can be shifted within the limits permitted by the slotted apertures 26 to vary the inclination of its cam-slot. Further adjustment of the cam-plate is provided for by providing the boss 28 with a plurality of screw-bolt apertures 29, permitting the positions of the screw-bolts themselves to be shifted, if desired.

The cam-plate is curved to conform substantially but not closely to the curvature of the cylinder, sufficient space being left therebetween to permit of the adjustment referred to.

Any desired characters adapted to convey



the desired information may be substituted for the words "Open" and "Shut."

While I have shown the invention in its preferred application to a valve, it will be apparent that it is adapted for use in other situations where similar conditions prevail.

What I claim as new, and desire to secure by Letters Patent, is—

1. In an indicator, the combination with the case provided with an inspection-aperture; and a spindle rotatively mounted within said case to rotate or revolve concentrically with said spindle, said member being adapted in certain of its positions for the display through said inspection-apertures of indicating characters; and operating connections between said spindle and indicator member whereby said member is rotated.

2. In an indicator, the combination with a case provided with an inspection-aperture; and a spindle rotatively mounted within the case; of an indicator-cylinder rotatively mounted within the case concentrically with said spindle, and adapted in certain of its positions for the display through said inspection-aperture of indicating characters; and operating connections between said spindle and cylinder whereby rotative movements are imparted to the latter.

3. In an indicator the combination with a case provided with a plurality of inspection-apertures disposed about its periphery; and a spindle rotatively mounted within the case; of an indicator-cylinder rotatively mounted within the case concentrically with said spindle, and adapted in certain of its positions for the display through all of said inspection-apertures simultaneously of like indicating characters; and operating connections between said spindle and cylinder whereby rotative movements are imparted to the latter.

4. In an indicator, the combination with a case provided with an inspection-aperture; and a spindle rotatively mounted within said case; of an indicator member capable of rotative or revoluble movements within the case concentrically with said spindle, and adapted in certain of its positions for the display through said inspection-aperture of indicating characters; a nut fitting and adapted to travel along a screw-threaded portion of said spindle; and cam connections between said nut and indicator member whereby rotative or revoluble movements are imparted to the latter.

5. In an indicator, the combination with a case provided with an inspection-aperture;

and a spindle rotatively mounted within the case; of an indicator-cylinder rotatively mounted within the case concentrically with said spindle, and adapted in certain positions for the display through said inspection-aperture of indicating characters; a nut fitting and adapted to travel along a screw-threaded portion of said spindle; and cam connections between said nut and cylinder whereby rotative movements are imparted to the latter.

6. In an indicator, the combination with a case provided with an inspection-aperture; and a spindle rotatively mounted within the case; of an indicator-cylinder rotatively mounted within the case concentrically with said spindle; a cam fixed upon said cylinder and provided with an inclined cam-slot; and a nut fitting and adapted to travel along a screw-threaded portion of said spindle; and having a projection adapted to fit within said cam-groove.

7. In an indicator, the combination with a case provided with a plurality of inspection-apertures disposed about its periphery; and a spindle rotatively mounted within the case; of an indicator-cylinder rotatively mounted within the case concentrically with the spindle and adapted in certain positions for the display through all of the inspection-apertures simultaneously of like indicating characters; a cam fixed upon said cylinder and provided with an inclined cam-slot; and a nut fitting and adapted to travel along said spindle and having a projection adapted to fit within said cam-groove.

8. In an indicator, the combination with a case having an inspection-aperture; and a spindle rotatively mounted within said case; of an indicator-cylinder rotatively mounted within said case concentrically with said spindle and adapted in certain of its positions for the display through said inspection-aperture of indicating characters; a cam-plate provided with an inclined cam-slot adjustably mounted upon the inner side of said cylinder; means for locking said cam-plate in different positions of adjustment in which said slot occupies differently-inclined positions; and a nut fitting and adapted to travel along a screw-threaded portion of said spindle and having a projection adapted to fit within said cam-groove.

In testimony whereof I have hereunto set my hand this 8th day of April, 1905.

GEORGE P. VINCENT.

Witnesses:

SCHUYLER C. BOOTH,  
FRANK C. CURTIS.