

No. 627,395.

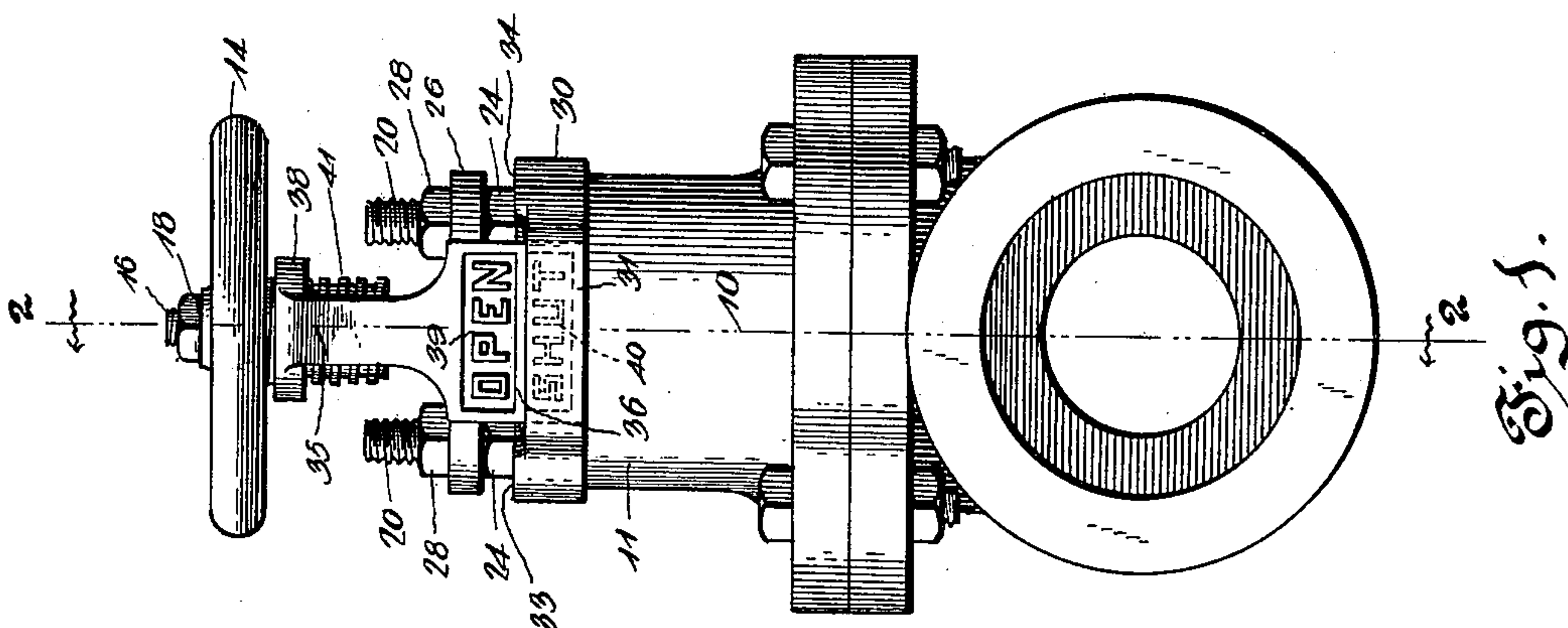
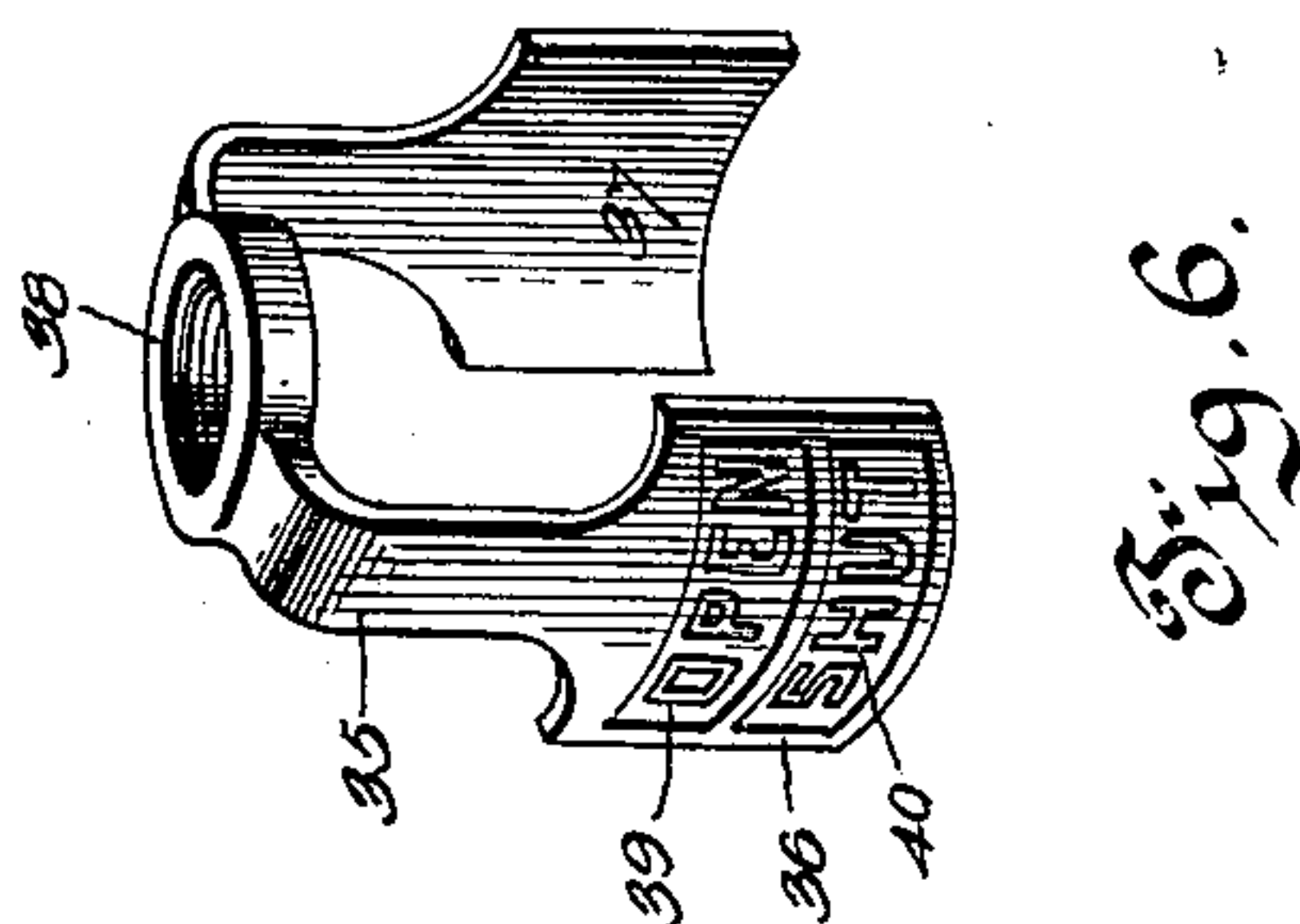
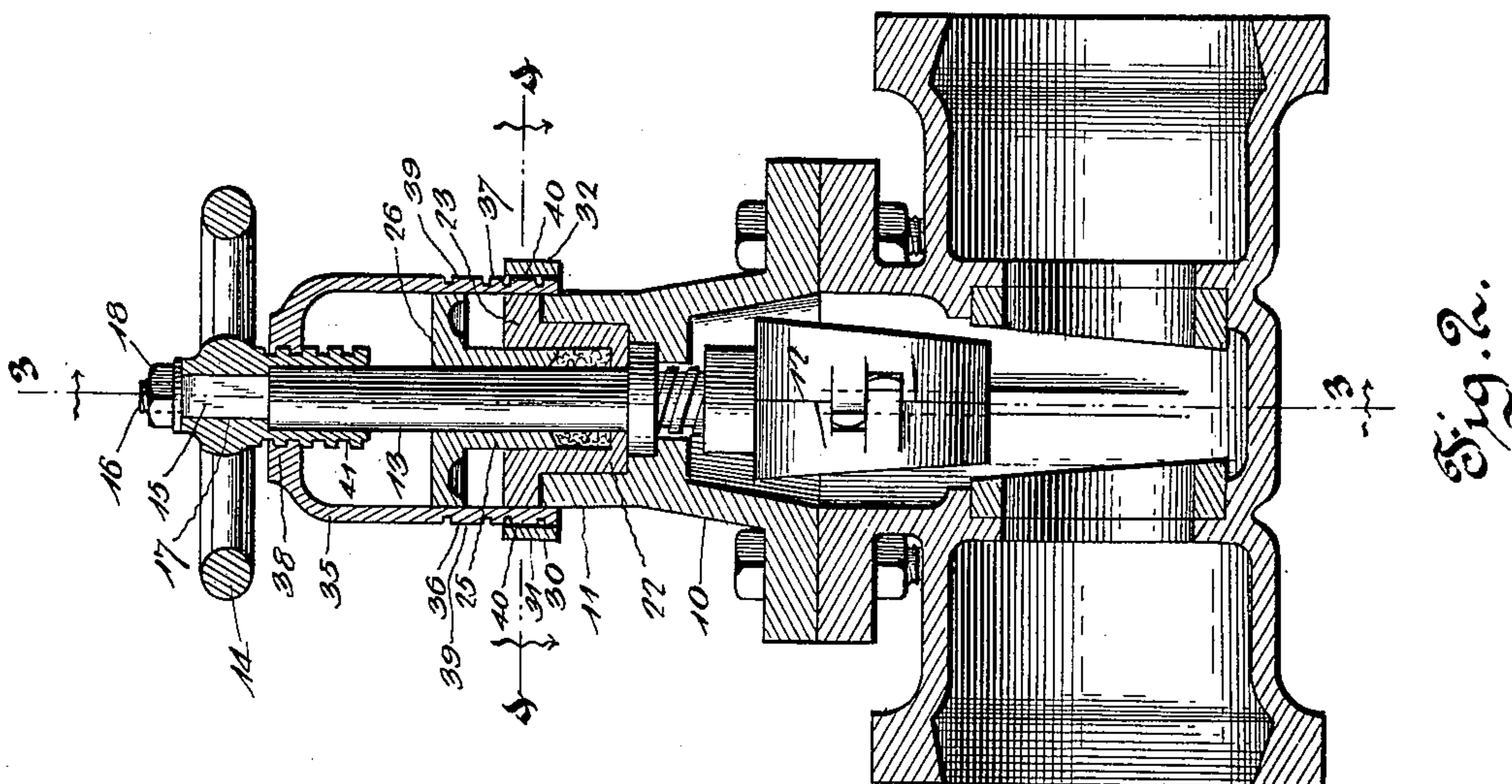
Patented June 20, 1899.

W. E. CRIST.  
SLIDING VALVE INDICATOR.

(Application filed Mar. 20, 1899.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses

J. Frank Culverwell.

H. J. Benham

By his Attorneys,

William E. Crist, Inventor.

C. A. Snow & Co.

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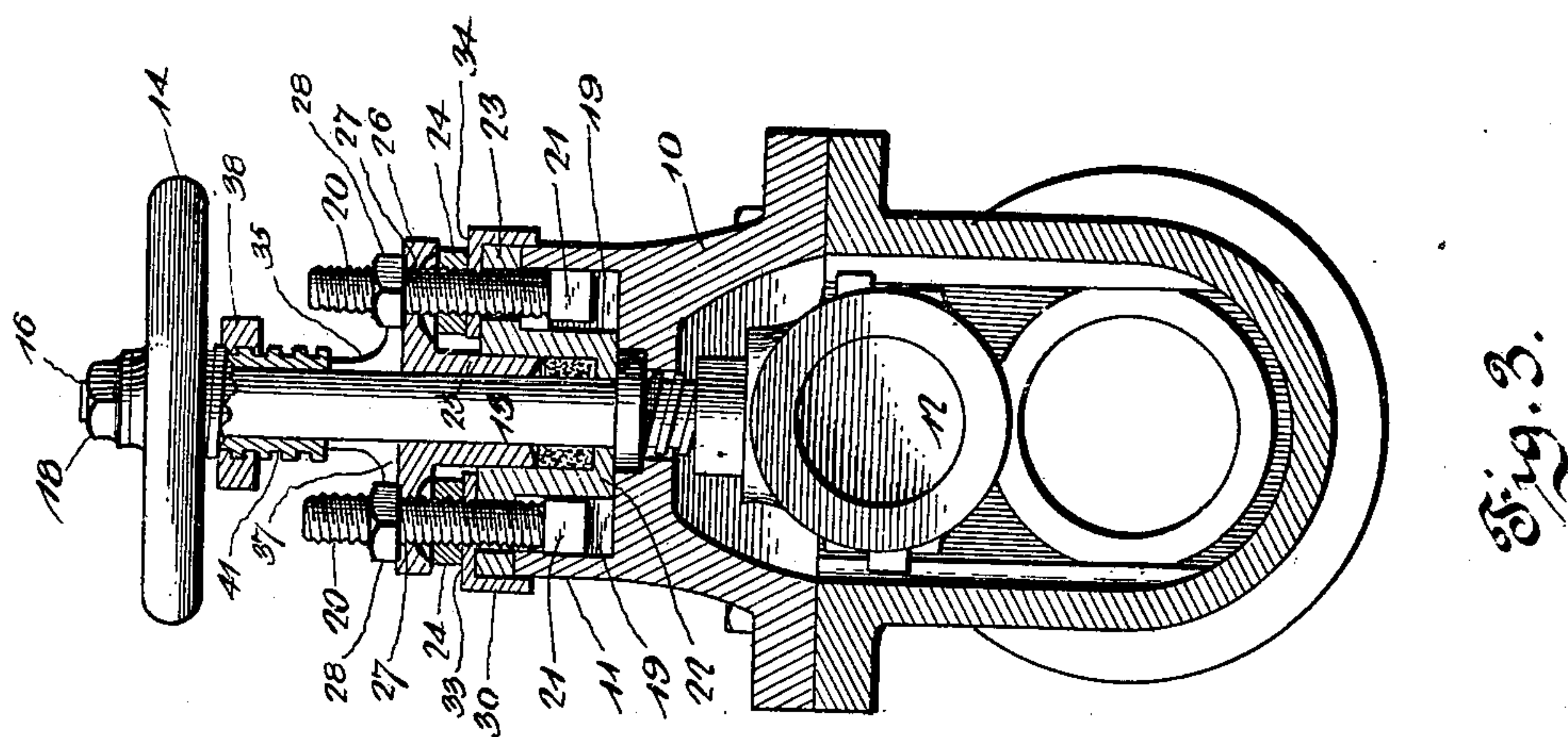
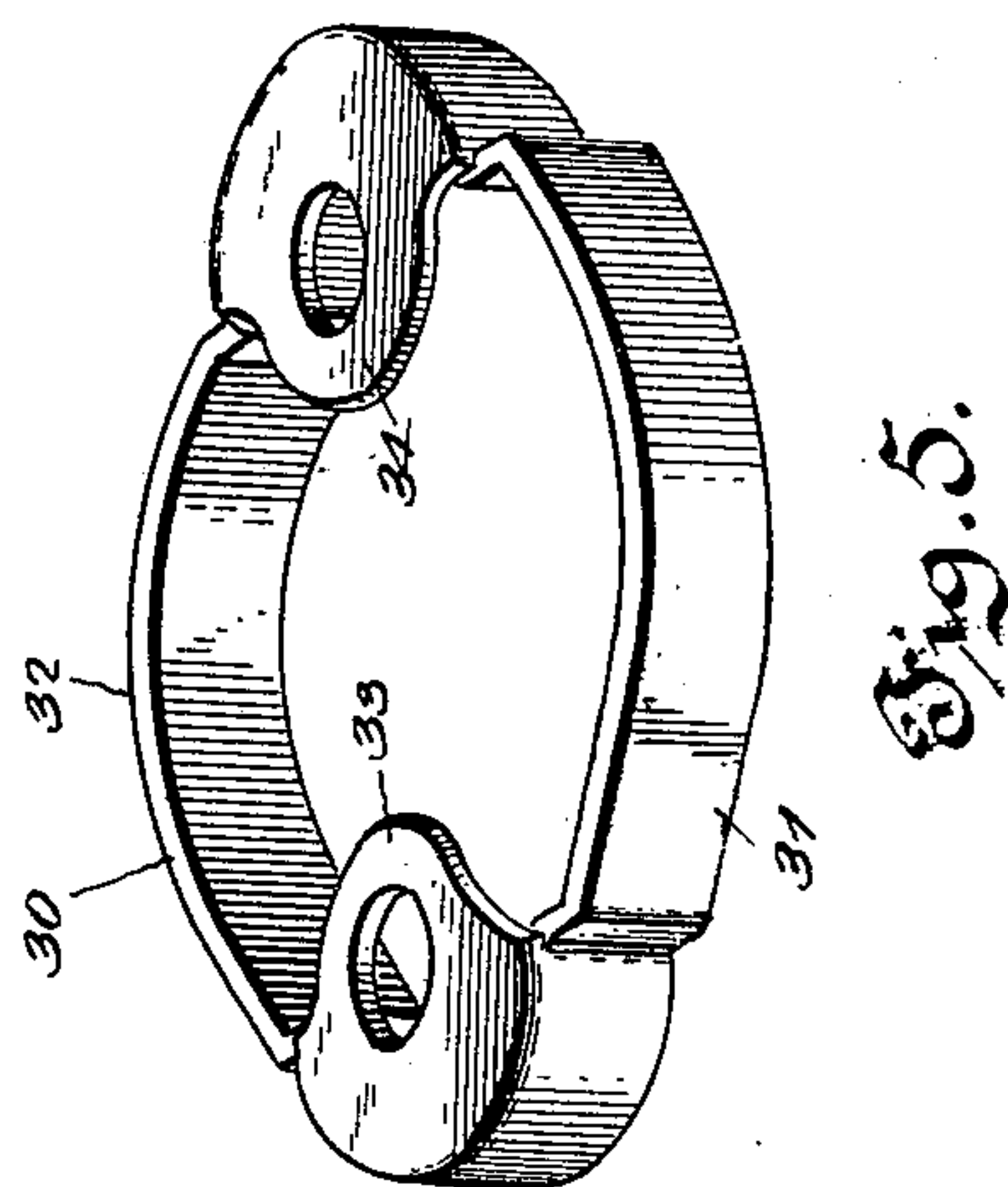
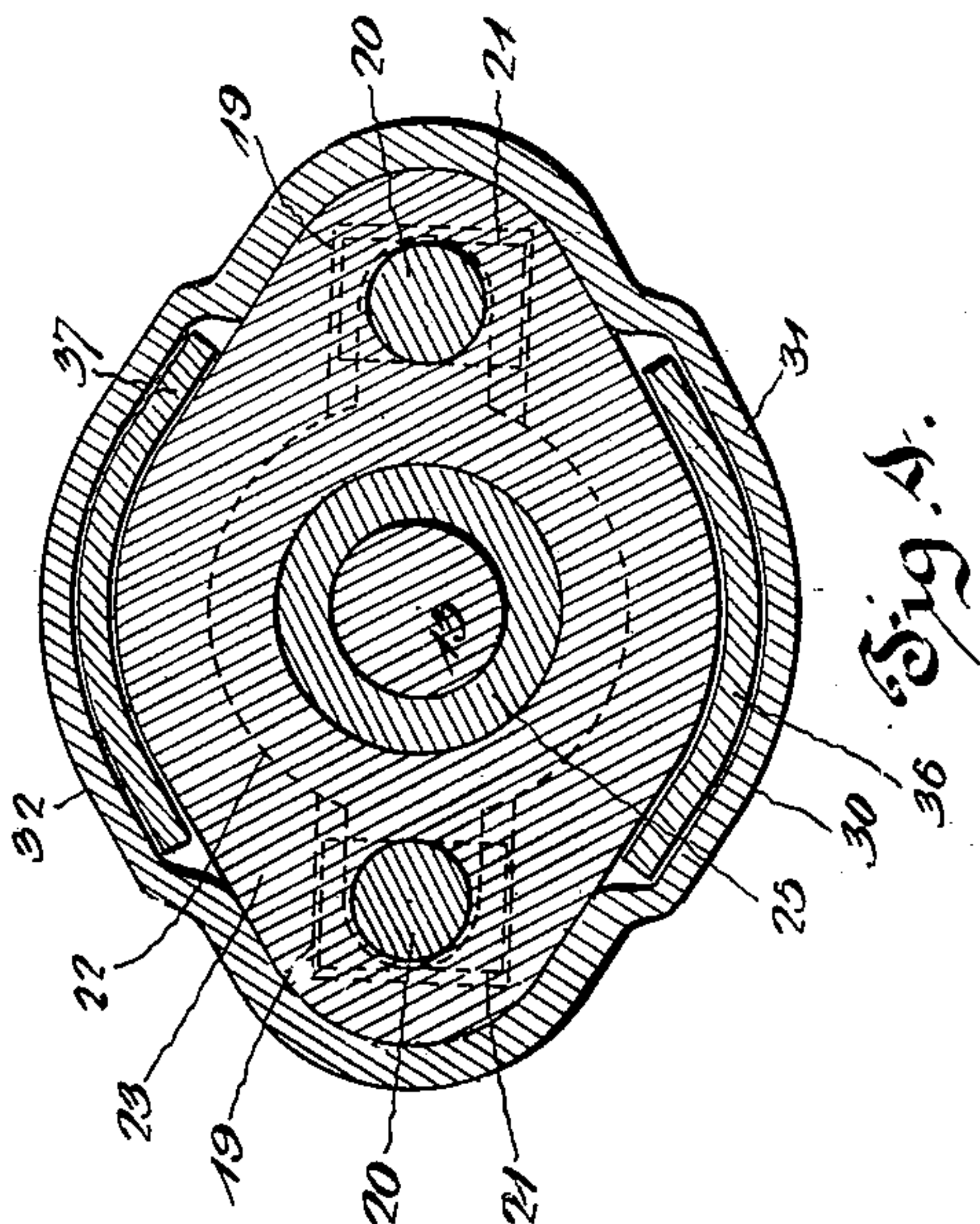
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Witnesses  
*J. Frank Culverwell.*  
*H. J. Benson*

By *his* Attorneys,  
*William E. Crist, Inventor.*  
*Chas. Snow & Co.*



# UNITED STATES PATENT OFFICE.

WILLIAM E. CRIST, OF LYNCHBURG, VIRGINIA, ASSIGNOR TO THE GLAMORGAN PIPE AND FOUNDRY COMPANY, OF SAME PLACE.

## SLIDING-VALVE INDICATOR.

SPECIFICATION forming part of Letters Patent No. 627,395, dated June 20, 1899.

Application filed March 20, 1899. Serial No. 709,800. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM E. CRIST, a citizen of the United States, residing at Lynchburg, in the county of Campbell and State of Virginia, have invented a new and useful Sliding-Valve Indicator, of which the following is a specification.

My invention relates to improvements in indicators for overground valves of that class wherein a slidable gate-valve is raised and lowered by the rotary action of a valve-spindle having a threaded engagement with the valve.

The primary object of the present invention is to provide an improved indicator to denote the open and closed positions of the valve, which indicator is capable of easy application to the neck of the valve-shell and of operative connection with the revoluble valve-stem.

A further object of the invention is to provide an indicator device which shall have its stationary element clamped firmly in place by the nuts and bolts that hold the stuffing-box in position on the shell, whereby the indicator-cap shield may remain in position when the stuffing-box gland is removed and the box is packed, and, furthermore, the means for actuating the movable element of the valve-indicator is a part of the hand-wheel and is removable therewith from the valve-stem, thus overcoming the formation of threads on the valve-stem and facilitating the removal and replacement of the several working parts.

With these ends in view the invention consists in a valve-indicator having its cap-shield clamped in place on the neck of the valve by the same bolts which hold the stuffing-box gland in fixed position on the valve-shell; also, in the provision of a threaded sleeve for actuating the valve-indicator plate, said sleeve being integral or fast with the hand-wheel and removable therewith from the spindle of the gate-valve; also, in the novel construction, arrangement, and adaptation of parts, which will be hereinafter fully described and claimed.

To enable others to understand the invention, I have illustrated the preferred embodiment thereof in the accompanying drawings,

forming a part of this specification, and in which—

Figure 1 is a side elevation of a valve with my improvements applied thereto to indicate the open and closed positions of the slidable gate-valve. Fig. 2 is a vertical transverse sectional elevation on the plane indicated by the dotted line 2 2 of Fig. 1. Fig. 3 is a vertical transverse section on a plane at right angles to Fig. 2 and indicated by the dotted line 3 3 on Fig. 2. Fig. 4 is a horizontal sectional plan view, the plane of the section being indicated by the dotted line 4 4 of Fig. 2. Fig. 5 is a detail perspective view of the cap-shield removed from the valve-shell. Fig. 6 is a similar view of the indicator-yoke.

The same numerals of reference are used to indicate like and corresponding parts in each of the several figures of the drawings.

In the embodiment of the invention represented by the accompanying drawings an ordinary valve-shell is indicated by the numeral 10, and said shell is prolonged or extended at its upper part to provide the neck 11. The gate-valve 12 is slidably fitted within the shell for adjustment transversely therein under the action of a revoluble stem 13, which at its protruding end is provided with a hand-wheel 14. In the style of valve shown by the drawings the protruding end of the valve-stem is provided with an angular length 15 and with a threaded tenon 16; but the inner end of the valve-stem has a threaded engagement with the gate-valve 12 for the purpose of adjusting the latter across the waterway within the valve-shell.

The hand-wheel 14 is provided in its hub with a polygonal socket 17, which conforms in contour and dimensions to the angular length 15 of said stem. The hand-wheel is fitted snugly to the angular length of the valve-stem in order to rotate the latter for the adjustment of the valve, and said wheel is prevented from becoming displaced on the stem by a nut 18, which is screwed on the threaded tenon 16 and is adapted to bear upon the upper face of the hand-wheel hub.

The neck 11 of the valve-shell is provided with the interior offset sockets 19, which are disposed on opposite sides of the valve-stem,



and these sockets receive the lower headed ends 21 of the clamping-bolts 20. The headed ends of the bolts are fitted in the offset portions of the sockets 19 for the bolts to be held firmly or immovably in position within the sockets against either rotary adjustment or endwise movement, thus enabling the clamping-nuts to be rotated by a wrench or other implement on the stationary bolts 20.

22 designates the stuffing-box, which is fitted in the neck 11 of the valve-shell and occupies a position between the bolts 20, and this stuffing-box is thus adapted to impinge against the bolts in order to hold them in the sockets and prevent the heads 21 of the bolts from turning in the offset portions of said sockets. As is usual in the art, the stuffing-box is provided with a head-plate 23, which is arranged outside of the neck of the valve and is adapted to bear upon the upper face of said valve-neck. The head-plate of the stuffing-box is perforated transversely to permit the bolts 20 to pass therethrough, and said stuffing-box is clamped firmly upon the valve-neck by the employment of nuts 24, which are threaded on the bolts 20 and are adapted to bind upon the head-plate 23 of said stuffing-box.

With the stuffing-box coacts the gland 25, which is arranged to fit around the valve-stem, and is housed or contained within the box 20, and the space between the box and its gland is adapted to receive a packing of any suitable character, by which the leakage of the fluid under pressure is minimized. The gland 25 of the stuffing-box is provided with a head-plate 26, which is perforated at 27 to fit the fastening-bolts 20, and this stuffing-box gland is secured in place by the nuts 28, which are screwed on the bolts 20, and are adapted to bind upon the head-plate of the gland 25, whereby the gland is fastened in place independently of the stuffing-box and is removable from the valve-shell without disturbing the position of the stuffing-box within the neck thereof.

The indicator of my invention consists of a cap-shield 30 and a movable yoke 35, each of which parts is made or cast in a single piece of metal for simplicity and strength of construction and economy in the manufacture of the indicator. The cap-shield 30 conforms to the contour and dimensions of the neck 11 on the valve-shell, and said cap-shield is provided on opposite sides with the offsets 31 32 and with the perforated ears 33 34, which project inwardly from the rim of the cap-shield and lie in planes at right angles to said rim. The yoke 35 of the indicator is provided at its respective ends with the indicator-plates 36 37, and at its middle portion this yoke is formed with a female threaded nut 38. The indicator-plates 36 37 are each provided with inscriptions, as at 39 40, to indicate the open and closed positions of the valve, and these inscriptions may be in the form of the words "Open" and "Shut," al-

though any other appropriate terms may be employed. The hand-wheel 14 is provided with a sleeve 41, which is either made integral with the hub of the wheel or is made separate therefrom and secured fast thereto, so that the sleeve will rotate with the hand-wheel. The sleeve 41 is formed with an external male thread of proper dimensions to engage with the threads in the nut 38 of the adjustable yoke 35.

In applying my indicator to a valve of the character described the nut 18 is removed from the threaded tenon of the valve-spindle, the hand-wheel is displaced from the angular length of said spindle, the nuts 28 are unscrewed from the bolts 20, and the stuffing-box gland is withdrawn from engagement with the stuffing-box and said bolts. The cap-shield 30 may now be slipped over the bolts 20 in order to assume a position upon the neck of the valve-shell and the head of the stuffing-box. When in proper position, the perforated ears 33 34 of the cap-shield rest upon the head of the stuffing-box, and the shield itself serves to conceal said head of the stuffing-box and the upper edge of the valve-neck. The offset portions 31 32 of the cap-shield provide spaces between the rim of the shield and the neck of the stuffing-box for the reception of the indicator-plates on the vertically-adjustable yoke. The cap-shield is clamped firmly in place upon the valve-shell of the stuffing-box by means of the nuts 24, which are screwed on the bolts 20 to bind upon the ears 33 34 of said shield, and the shield may thus remain a permanent fixture on the valve-shell. The gland 25 is now adjusted for the bolts 20 to pass through the openings 27 in the head-plate 26 of said gland, and the gland is held firmly in its proper position within the stuffing-box by the nuts 28, which are also screwed in the bolts 20 and are adapted to bind upon the head-plate of said gland. The hand-wheel 14 is now fitted to the angular length of the valve-spindle, and in applying the hand-wheel care must be taken to have the indicator-plates 36 37 of the yoke fit in the spaces between the neck of the valve-shell and the offset portions 31 32 of the cap-shield. It only remains to apply the nut 18 to the threaded tenon of the valve-stem, and the hand-wheel is thus clamped firmly in place on the spindle.

The gate-valve is adjusted across the waterway in the valve-shell by rotating the spindle or stem through the medium of the hand-wheel, and the rotation of said hand-wheel operates to adjust the yoke 35 with relation to the cap-shield. The operation of opening the gate-valve causes the nut of the yoke to travel upwardly on the threaded sleeve 41 of the hand-wheel, and the indicator-plates of the yoke are thereby raised within the stationary cap-shield, whereby the words "Shut" on the plates are concealed by the rim of the cap-shield, while the words "Open" are exposed above the cap-shield. A reverse adjustment of the hand-wheel and spindle to



move the gate-valve to its closed position causes the yoke to travel in a downward direction on the threaded sleeve of said hand-wheel, and the plates of the yoke are lowered through the offsets of the cap-shield for the purpose of concealing the words "Open" and exposing the words "Shut" to view.

From the foregoing description it will be observed that the cap-shield of my indicator is clamped firmly upon the valve-shell by the same bolts and nuts which are employed to hold the stuffing-box in place and that the gland 25 is secured in proper relation to the shell and stuffing-box for removal independently therefrom, whereby the stationary element of the valve-indicator may remain permanently in place on the valve-shell when the gland is detached. This is an important feature in a valve-indicator embodying my invention, because the stuffing-box may be removed for repacking the valve-stem without affecting in any manner the position of the cap-shield. It will, furthermore, be noted that the valve stem or spindle is free from screw-threads and that the thread for adjusting the movable element of the valve-indicator is embodied in the form of a sleeve which is fast with the hand-wheel and is removable therewith from the valve-spindle. The absence of threads from the valve-spindle is advantageous, in that the gland and other parts of the valve may easily and quickly be removed without hindrance from the valve-spindle.

While I have shown and described my improved indicator in connection with a particular style of valve, I would have it understood that I do not strictly confine myself to the particular construction of the parts for use in connection with the described form of valve; but it will be understood that the cap-plate should under all circumstances be made to conform accurately to the part of the valve upon which it is applied.

Changes in the form, proportion, size, and the minor details of construction within the scope of the appended claims may be resorted to without departing from the spirit or sacrificing any of the advantages of this invention.

Having thus described the invention, what is claimed is—

1. A valve-indicator provided with a cap-shield which is clamped in place upon a valve-shell by the fastening devices for the stuffing-box thereof, in combination with a slidable

indicator-plate provided with inscriptions and fitted between the cap-shield and a part of the valve-shell, and means for adjusting the indicator-plate, substantially as described. 60

2. The combination with a valve-box, a stuffing-box, and a valve having a spindle which, at its protruding portion, is smooth or unthreaded, of a yoke-shaped indicator provided at its closed end with a nut and slidably confined on the valve-box, and a hand-wheel provided with a male-threaded sleeve which engages with the nut of said indicator, said hand-wheel being fitted removably to the spindle and the threaded sleeve being removable with said hand-wheel, substantially as described. 65 70

3. The combination with a valve-shell, a stuffing-box therefor, and fastening-bolts for the stuffing-box, of an offset cap-shield clamped in place upon the stuffing-box by the nuts which hold the stuffing-box in place, a slidable indicator fitted to the offset cap-shield, and means for adjusting the indicator-plate, substantially as described. 75 80

4. The combination with a valve-shell, a stuffing-box therein, and fastening-bolts for the stuffing-box, of an offset cap-shield clamped in place on the stuffing-box by said bolts, a gland secured within the stuffing-box by the bolts and removable therefrom without disturbing the cap-shield, an indicator-yoke fitted slidably in the offset portions of the cap-shield, and means for adjusting said yoke, substantially as described. 85 90

5. The combination with a valve-shell, a stuffing-box therefor, and clamping devices for the stuffing-box, of a cap-shield, provided with the offsets and the perforated ears and confined in place by said clamping devices, a gland fitted to the stuffing-box and fixed by the clamping devices for removal without disturbing the cap-shield, a hand-wheel fixed to the valve-spindle and provided with a male-threaded sleeve, and a movable yoke having a nut which engages with said sleeve, and also provided with the indicator-plates that are slidably fitted in the offsets of the cap-shield, substantially as described. 95 100

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses. 105

W. E. CRIST.

Witnesses:

R. C. BLACKFORD,  
EDWIN D. HOOK.