

No. 828,434.

PATENTED AUG. 14, 1906.

A. J. STAHL.
INDICATING VALVE.
APPLICATION FILED APR. 27, 1905.

Fig. 1.

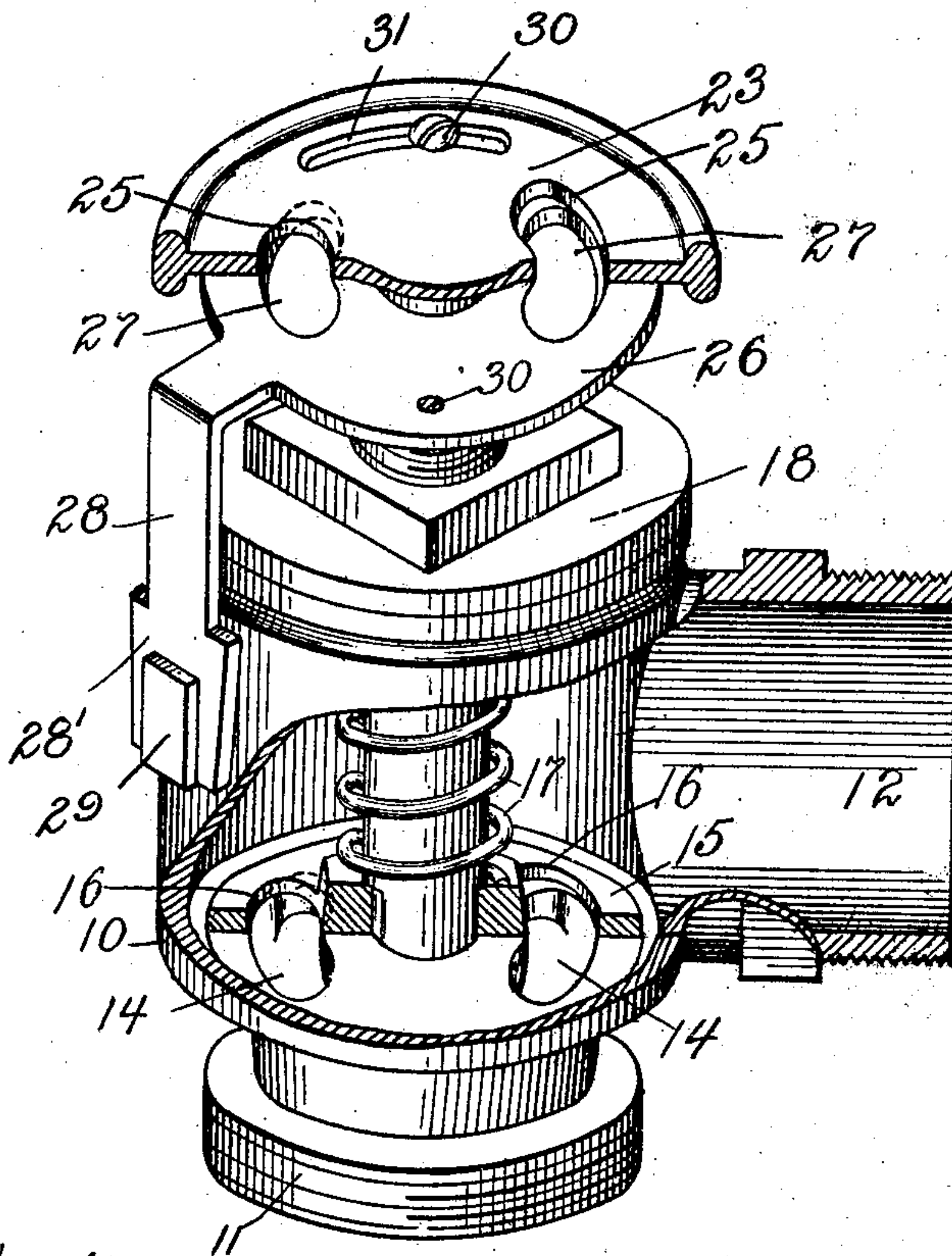


Fig. 3.

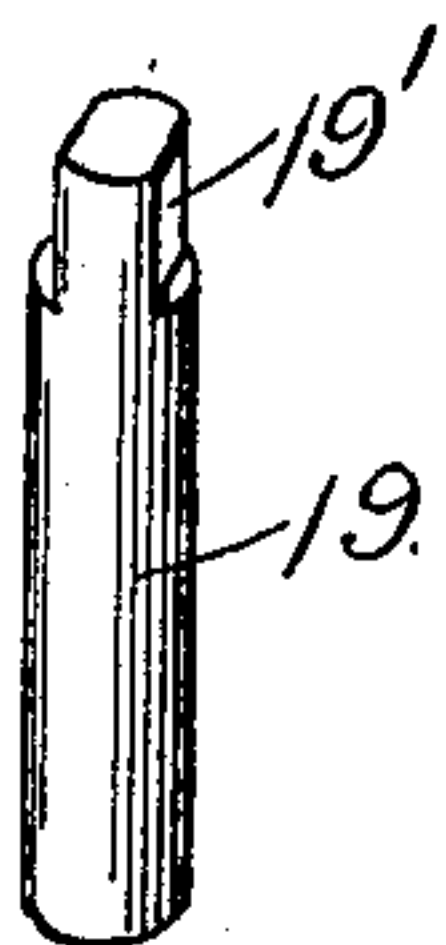
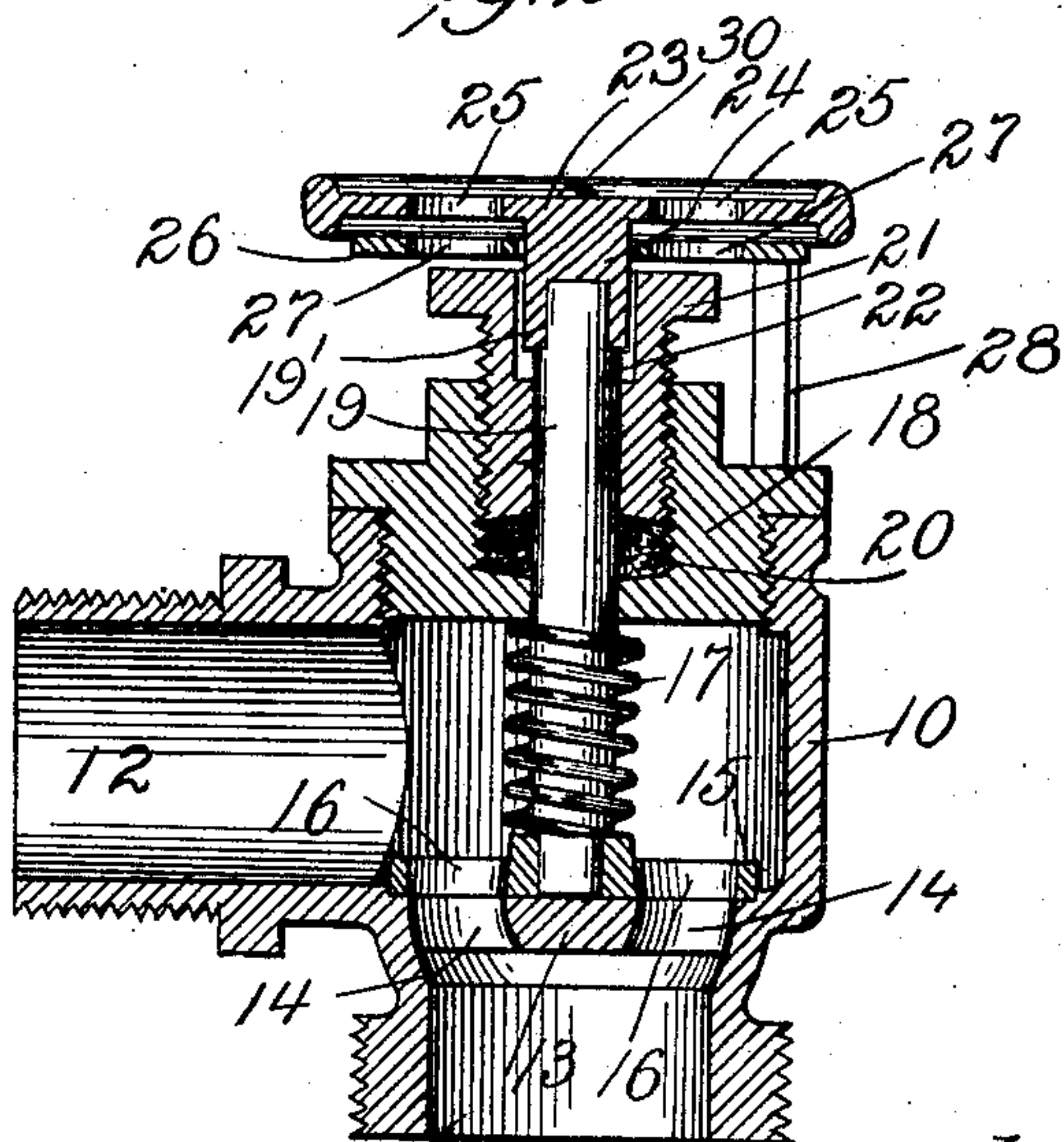


Fig. 2.



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UNITED STATES PATENT OFFICE.

ALBERT J. STAHL, OF LAPORTE, INDIANA.

INDICATING-VALVE.

No. 828,434.

Specification of Letters Patent.

Patented Aug. 14, 1906.

Application filed April 27, 1905. Serial No. 257,586.

To all whom it may concern:

Be it known that I, ALBERT J. STAHL, of Laporte, in the county of Laporte and State of Indiana, have invented certain new and useful Improvements in Indicating-Valves; and I hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to improvements in indicating-valves—that is to say, valves in whose construction provision is made for the visual indication of the condition of the valve with reference to the opening or closing thereof.

The primary object of my invention is to provide a valve construction such that not only may the proportionate opening of the valve compared with full range of opening be visually indicated, but such that the absolute area of the opening between the relatively movable parts of the valve may also be ascertained.

Another object of my invention is to provide such indicating mechanism in conjunction with the handle or key of the valve and, further, to have the visual index readily removable, but easily replaceable to instantly show the condition of the valve proper.

Other and further objects will become apparent to those skilled in the art from the following description, taken in conjunction with the drawings, wherein—

Figure 1 is a perspective view with parts broken away of a valve construction embodying my invention. Fig. 2 is a central vertical section therethrough. Fig. 3 is a detail of the valve-stem.

Throughout the drawings like numerals of reference refer always to like parts.

While my invention is applicable to valves of different styles, I have herein shown said invention as embodied in a valve construction involving a suitable casing 10, provided with inlet and outlet openings 11 and 12, intermediate of which is arranged a bridge 13, provided with ports 14 of suitable shape, said bridge affording a seat or bearing for a rotary valve member or disk 15, provided with ports 16, adapted to register when properly positioned with the ports 14 of the bridge 13 or to be moved out of register with ports 14 to close the valve. The rotary valve member is shown as held to its seat by a spring 17, bearing against the screw-cap 18, and a valve-stem 19, passing from the exterior of the cas-

ing through the cap 18, and the opened coiled spring 17 is suitably associated with the movable valve member 15 to effect the rotation of the latter therewith. Preferably the protruding end of the stem 19 passes through a stuffing-box 20, the cap 21 whereof is recessed, as at 22, to permit the insertion of a suitable key, the end of the stem 19 being preferably located within said recess to be inaccessible to the ordinary wrench and to thereby prevent the valve from being tampered with save by one having a proper key. It will be apparent now that as the valve-stem 19 is rotated the valve member 15, rotating coincidentally therewith, will be moved to vary the free opening afforded by the registering portions of the apertures 14 and 16 of the relatively movable and stationary valve members.

In conjunction with the valve described I have shown a form of indicating means peculiarly adapted to the specific valve; but I do not desire to be understood that my invention is limited either to the specific valve or the specific indicating mechanism further than as specified in the claims, as it will be apparent to those skilled in the art that the teachings of my invention are widely applicable, and divers changes might be made in the mechanical construction of the valve and consistently in the mechanical construction of the indicating means without departing from the spirit and scope of my invention.

Generally stated, I provide in association with the valve, upon the exterior thereof, visual index or indicating devices for showing mensurably the extent and area of the opening of the valve. Specifically, 23 indicates a handle or key member provided with a stem 24, adapted to fit in the recess 22 of the valve structure for rotation therein, and provided with a socket for engagement with the end of the valve-stem 19, the exterior whereof is preferably flattened, as at 19', to interfit in the correspondingly-shaped socket of the key, so that when the key engages therewith it may always have a definite relation to the stem 19, and consequently to the movable valve member 15.

The key 23 preferably constitutes one member of the index or indicator and is provided with index-openings 25, preferably of exactly the same size, shape, and relative disposition as the ports 16 of the movable valve member, so that when the key is properly associated with the valve-stem its aper-

tures 25 accurately represent by position and actual area the ports 16 of the movable element of the valve.

Preferably mounted upon the stem 24 of the key 23 to permit rotation of said key relative thereto I provide the relatively stationary index member 26, preferably a metallic disk, having thereon indicia or apertures 27, preferably corresponding in size, position, and area with the apertures 14 of the relatively stationary seat member of the valve, and I provide means for insuring that when the parts are properly assembled said member 26 will occupy such position that its apertures 27 exactly correspond in position with the apertures 14 of the seat member 13 of the valve. To this end, yet to make said member removable, I secure to or make integral with the disk 26 an arm 28, preferably provided at its end with fingers 28', adapted to straddle and make a close fit with a suitable lug 29, formed upon or secured to the exterior of the valve-casing 10. By this means it will be seen I insure the proper positioning of the disk 26, while permitting its ready removal with the removable key 23.

Suitable means may be provided for retaining the disk 23 upon the stem of the key, if desired, such means being herein indicated as screws 30, attached to the disk 26 and taking through slots 31 in the body of the key 23. It will be apparent now that as the index-disk 26 when in use stands always stationary, with its apertures 27 coinciding with the ports 14 of the valve-seat 13, and the index-key 23 always rotates with the movable valve member 15, with its apertures 25 coinciding with the apertures 16 of said movable valve member, said two index parts afford, however the valve may be moved, a visual measurable presentment of the valve-opening and shows the exact positions of the relatively movable ported parts of the valve. Furthermore, it will be seen that the valve-index may be readily removed, but that whenever replaced, by reason of the construction insuring the proper interfitting of its parts with the relatively stationary and movable parts of the valve, it invariably indicates exactly the conditions then obtaining within the valve.

The utility of the invention, it is thought, will be apparent when it is considered that the keys of valves having any given size port employed, say, in a heating system may be made to interfit only with the stems of valves of such given size, so that a person interested in ascertaining the condition of any given system involving the use, perhaps, of various sizes of valves may readily determine the condition of each valve by applying thereto a properly-interfitting index-key, which, with its disk, instantly indicates visually upon the exterior of the valve the exact area of the opening through which the fluid is or may be in flow.

Having thus described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

1. The combination with a valve comprising a casing, a relatively fixed, ported seat, within the casing, a valve member within the casing associated with said seat for movement to vary the effective opening of the port, and means for moving said movable valve member, extending to the exterior of the casing, of a relatively stationary index part without the casing, having an opening corresponding in size and aspect with the valve-port; and a relatively movable index member, corresponding in size and aspect with the movable valve member, associated with the valve-moving means for movement coincidently and to like degree with the movable valve member, and associated with the relatively stationary index member to constantly display the relation of the valve parts, whereby said index parts visually present a facsimile of the valve parts in their relative positions.

2. The combination with a valve comprising a casing, relatively stationary and movable valve parts concealed therein, and a valve-stem, of an index without the valve-casing, comprising relatively stationary and movable parts which are practically reproductions of the corresponding parts of the valve, associated to simulate the valve, the relatively movable index part being associated with the valve-stem for movement relative to the stationary index part, in character and extent corresponding with movements of the valve parts, whereby said index presents visually a facsimile representation of the valve in its exact condition of adjustment.

3. The combination with a valve comprising a casing, relatively movable valve parts concealed therein, and upon the casing, exposed to view, index parts corresponding in size, relation and arrangement for movement with the corresponding valve parts, the index parts being associated with the respective valve parts for relative movement coincident with the relative movements of the valve parts, to present at all times without the casing a facsimile of the valve-opening.

4. The combination with a valve comprising a casing, and relatively movable valve parts concealed within the casing, of index parts constituting representations of the valve parts, detachably associated with the respective valve parts in predetermined relation to such parts, for movement coincidental with the valve parts to represent at all times the condition of said valve parts, whereby the index parts may be removed, and upon replacement must assume positions to indicate visually the relations of the valve parts.

5. The combination with a valve compris-

ing a casing, relatively movable valve mem-
bers therein, and a valve-stem protruding
from the casing, of a handle detachably se-
cured to said stem, providing a facsimile of
5 the valve member associated with the stem,
and an index part, providing a facsimile of
the remaining valve part, connected with
said handle for detachment therewith from
the valve structure, and means for position-
10 ing said index part relative to the valve-cas-
ing, whereby the handle and coacting index
part, when in place on the valve structure,
present a facsimile of the valve for visual in-
spection.

15 6. The combination with a valve compris-
ing a casing, a seat having a port 14, a ro-

tary valve member having a port 16, a stem
projecting through the valve-casing, of an in-
dex removably associated therewith com-
prising a removable key for connection with 20
the stem and having an aperture 25 therein,
a plate 26 having an aperture 27, a part pro-
jecting from said plate for engagement with
the valve-casing to definitely position said
plate relative to the casing. 25

In testimony that I claim the foregoing as
my own I affix my signature in presence of
two witnesses.

ALBERT J. STAHL.

In presence of—

CHAS. E. BARRETT,
EARL BENNETHUM.