March 26, 1929. G. J. BELKNAP 1,707,040

VALVE OPERATING MECHANISM

Filed April 14, 1928

Fig. 1

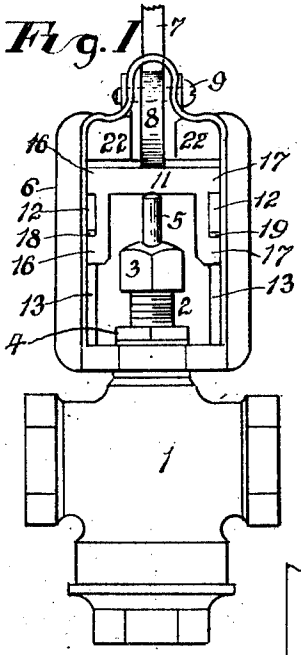


Fig. 2

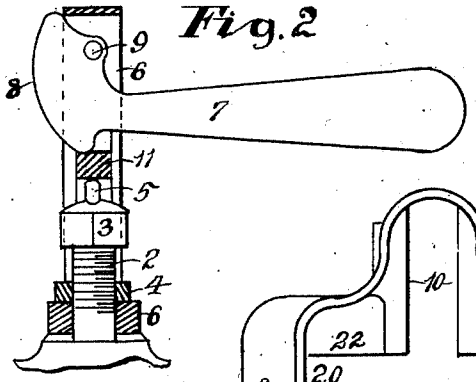


Fig. 3

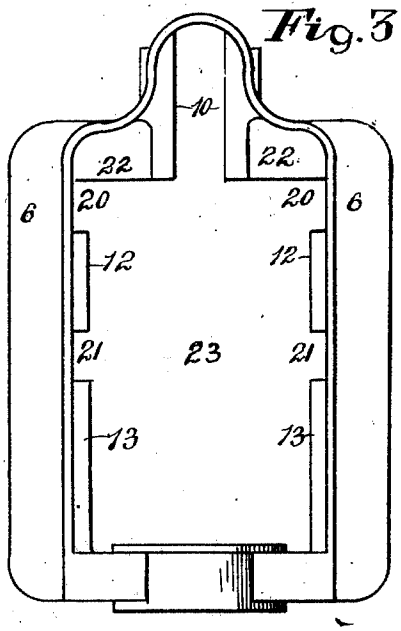


Fig. 4

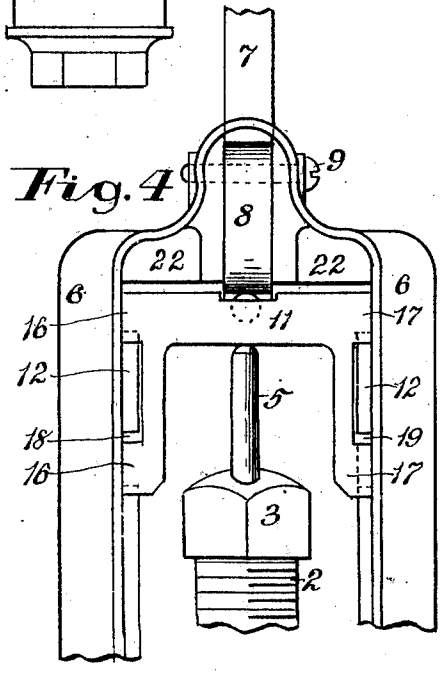


Fig. 5

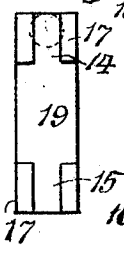


Fig. 6

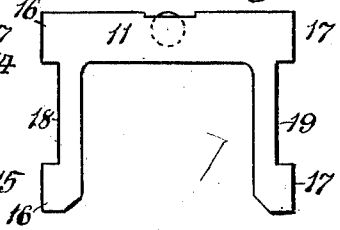
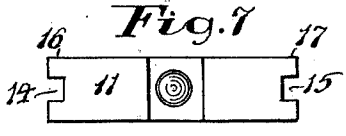


Fig. 7



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UNITED STATES PATENT OFFICE.

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VALVE-OPERATING MECHANISM.

Application filed April 14, 1928. Serial No. 269,925.

This invention relates to mechanism for operating reciprocating valves of the quick action type, having an outwardly projecting valve spindle, said mechanism comprising a guide support adjustably connected to the valve body, a cam lever operatively mounted in the support, a guide operatively mounted in the support and interposed between the cam lever and valve spindle to insure a free movement of the spindle under the wiping pressure of the cam lever.

A further object of the invention is to provide means on the support whereby a one piece guide can readily be inserted and removed therefrom and maintained in operative position when assembled thereto.

Referring to the accompanying drawings wherein the same characters of reference indicate like parts throughout the several views—

Figure 1 represents in elevation a valve body and guide supporting mechanism attached thereto and broken view of the cam lever—

Figure 2 is a central sectional elevation of the guide supporting mechanism and broken view of the valve body—

Figure 3 is an enlarged detail elevation of the guide support—

Figure 4 is an enlarged broken view of the guide support, valve neck and cam lever, showing the guide in its elevated position—

Figure 5 is an enlarged detail end elevation of the guide—

Figure 6 is an enlarged side elevation of the guide, and

Figure 7 is an enlarged plan view of the same.

1 represents an ordinary valve body having the conventional threaded neck 2, the cap 3, jam nut 4, and the valve spindle 5, said spindle being normally under the tension of a spring and connected with a valve, not shown, within the body 1.

6 is a guide support rotatably mounted on the neck 2 and is secured in any desired position by the jam nut 4. 7 is a lever having the cam face 8 and is pivotally supported on the screw 9 passing transversely through the opening 10 of the support 6.

11 is a one piece guide having a reciprocating movement in the support 6 under the pressure of the cam lever and impulse of the spring actuated valve spindle.

In the absence of the cam lever, the guide is assembled to its support as follows:—

12, 13, are guide-way sections of the support adapted to register with the channels 14, 15, formed in the corners 16, 17, of the guide. The recesses 18, 19, of the guide admit the short guide way sections 12, while the corner portions 16, 17, of the guide pass freely through the openings 20, 21, to bring the channels 14, 15, in alignment with the said guide way sections.

When the guide and cam lever are assembled to the support, the cam part of the lever will always be in contact with the guide, and thus check its outward movement far enough below the head 22 of the central opening 23, Figures 1 and 4, to prevent its accidental displacement, for the guide cannot be assembled to its support or removed therefrom without first removing the cam lever.

To extend the guide ways of the support the full length of the central opening 23 would materially increase the cost of production as it would necessitate making the guide in two parts and joining the parts after assembling them in the support. Making the guide in one piece, and the guide ways in sections, the guide can readily be attached to the support and detached therefrom.

The advantage of interposing a movable guide member between the cam lever and valve spindle will avoid the lateral strain or spring of the spindle due to the wiping effect of the cam lever when brought in direct contact with the spindle. The guide being slidably engaged with both sides of its support will always insure its moving in parallel relation with the movement of the spindle. The advantage and beneficial result of this arrangement is equally applicable to supports having unbroken guide ways and a two part guide, as well as the preferable one piece guide and interrupted guide ways.

If desired, recessed or sunken guide ways could be substituted for the projecting ones shown.

Having thus described my invention what I claim is:—

1. The herein described quick opening valve mechanism, comprising a guide supporting member associated with a valve body and valve spindle, a cam lever pivoted

to the support, said support having guide ways with transverse openings, a one piece guide constructed to pass through said openings and mounted in the support and operatively positioned between the valve spindle and the cam lever.

2. The herein described quick opening valve mechanism, comprising a guide supporting frame rotatably associated with a valve body, a valve spindle projecting from the valve body, a cam lever pivoted to the frame, a guide member engaging opposite sides of the frame and positioned between the cam lever and the valve spindle.

In testimony whereof I affix my signature.

GEORGE J. BELKNAP.