

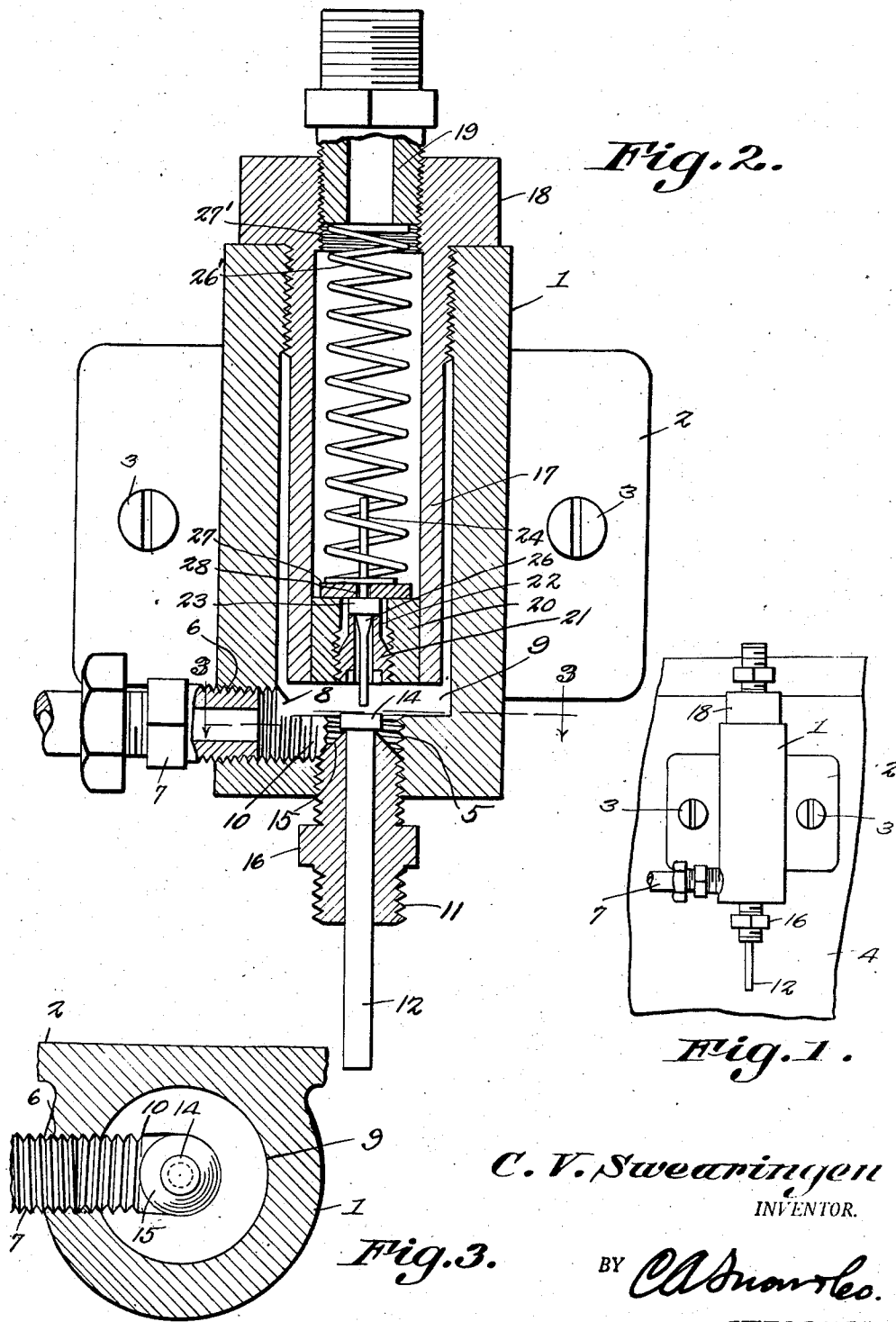
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VALVE MECHANISM

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VALVE MECHANISM

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2 Claims. (Cl. 251-137)

This application discloses a valve structure which has been divided out of my application Serial No. 401,396, now Patent 2,352,234, granted on June 27, 1944, this application being a continuation-in-part of the patent mentioned.

The improvements comprise the provision of means whereby movable elements, such as a tappet and a valve, may be replaced readily. Another object of the invention is to supply novel means for directing the liquid properly toward the outlet. The invention contemplates the provision of novel means for mounting and operating the valve element which controls immediately the passage of the liquid from the inlet to the outlet.

Within the scope of what is claimed, the structure described and shown may be changed, without departing from the spirit of the invention.

In the accompanying drawing:

Fig. 1 shows in elevation, a device constructed in accordance with the invention;

Fig. 2 is a vertical longitudinal section;

Fig. 3 is a transverse section, on the line 3-3 of Fig. 2.

In carrying out the invention, there is provided an elongated, cup-shaped housing 1, including a back plate 2, held by securing elements 3 on a support 4. In the lower end wall of the valve housing 1 there is a longitudinal threaded bore 5. In the side wall of the housing 1 there is a transverse threaded bore 6, adapted to receive an outlet conduit 7. The bore 6 is of such diameter, and is so located, that the upper portion of it opens, as indicated at 8, directly into the chamber 9 which exists within the housing 1. A radial channel 10 is formed in the lower end wall of the housing 1 and establishes communication between the longitudinal bore 5 and the transverse bore 6.

A guide 11 is threaded into the bore 5. A slide or tappet 12 is mounted for longitudinal reciprocation in the guide 11, and is supplied at its upper end with an enlarged head 14. The head 14 of the slide (which constitutes a valve opener) rests on the upper end of the guide 11. At its upper end, the guide 11 has a conical surface 15, which extends from the periphery of the guide to the bore of the guide, the bore of the guide receiving the slide 12 for reciprocation. Assuming that liquid is flowing from the chamber 9 to the outlet conduit 7, it will be observed that the conical surface 15 aids in directing liquid through the radial channel 10 and toward and into the bore 6 and the outlet conduit 7.

A tubular casing 17 extends into the chamber

9 of the housing 1, the upper portion of the casing being threaded into the housing. The casing 17 is supplied at its upper end with an enlargement 18 which abuts against the upper end of the housing 1 and spaces the lower end of the casing from the upper surface of the lower end wall of the housing.

A coupling 19 is threaded into the enlargement 18 of the casing 17 and is adapted to cooperate with an inlet pipe (not shown) for liquid.

The tubular casing 17 has a lower or inner end wall 20, which may be a ring, soldered or secured in the casing.

A valve seat 21 is threaded upwardly into the end wall 20 of the casing 17 and includes a tapered upper or inner portion 22, the upper end surface of the part 22 being located within the part 20 and below the upper surface of the said part.

The passage of liquid through the valve seat 21 is governed by a valve 23 of disk-like form. The valve 23 is fixed to a stem 24 at a place midway between the ends of the stem. Directly below the valve 23, the stem 24 has a conical portion 26, which, cooperating with the bore of the seat 21, aids in centralizing the valve mechanism as it moves to closed position on the reduced part 22 of the valve seat 21.

It may be noted at this place that the valve seat 21 may be removed readily, permitting renewal of either the valve seat or the valve mechanism.

In order to maintain the valve mechanism normally in closed position, there is provided a strong helical spring 26', the upper end of which is received in the opening 27' of the part 18 of the casing 17, the upper end of the spring finding abutment against the coupling 19. The lower or inner end of the spring 26' engages an abutment washer 27, seated on the member 20 of the casing 17, and having an opening 28 through which the upper portion of the valve stem 24 passes. The spring 26' may be a strong and substantial structure, replacing the less practical mechanism shown in my application hereinbefore referred to.

As to gross operation, little need be written. The tappet 12 raises the valve mechanism by way of the stem 24, the valve proper 23 moves to open position, and water or other liquid flows from the coupling 19 to the outlet conduit 7, the spring 26' returning the valve mechanism to closed position when the tappet 12 retires.

I claim:

1. In a control for fluid, a tubular housing having a wall at its lower end, the wall having a

longitudinal bore, the housing having a lateral bore constituting an outlet, a guide mounted in the longitudinal bore and having its upper end spaced below the upper surface of the end wall, a valve-opening tappet mounted for reciprocation in the guide and having a head resting on the upper end of the guide, within the longitudinal bore, the end wall having a radial channel which opens at its top into the housing, the channel discharging into the lateral bore, the diameter of the lateral bore being greater than the depth of the channel, thereby to afford direct communication between the housing and the lateral bore, the guide being provided at its upper end with a conical surface leading to the head and located in the longitudinal bore, said surface being so located as to direct fluid from the longitudinal bore into the channel, an inlet for the housing, and a downwardly-closing valve mechanism within the housing and disposed in operative relation to the tappet, the valve mechanism operating between the inlet and the outlet.

2. In a control for fluid, a tubular housing provided near its lower end with an outlet, a tappet

mounted for reciprocation in the lower portion of the housing, a valve casing mounted removably in the upper end of the housing and having an upper end wall and a lower end wall, a coupling removably mounted in the upper end wall of the casing and constituting an inlet, a valve seat removably mounted in the lower end wall and having its upper end spaced below the upper surface of the lower end wall, a washer seated on the lower end wall, a compression spring in the casing, the lower end of the spring being supported by the washer, the upper end of the spring engaging the coupling, within the upper end wall, a stem extended through the valve seat and removably through the washer and aligned with the tappet, and a valve carried by the stem and engaged with the upper end of the valve seat, and located within the lower end wall when the washer rests on the lower end wall, the stem having an upwardly-flaring conical portion disposed immediately below the valve and cooperating with the seat to center the valve with respect thereto.

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