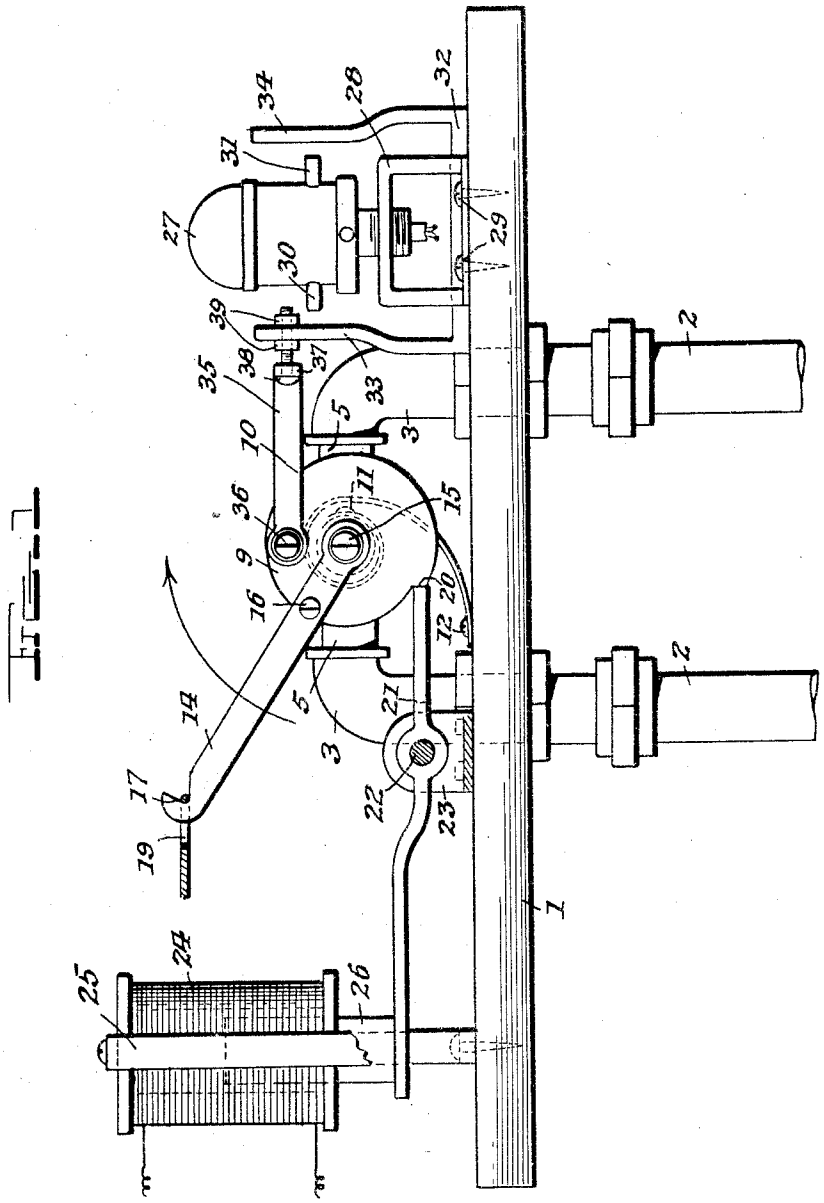
Oct. 27, 1931. P. ZIGELMAN ET AL 1,829,699

CONTROL FOR VALVES AND SWITCHES

Filed Aug. 14, 1930 2 Sheets-Sheet 1



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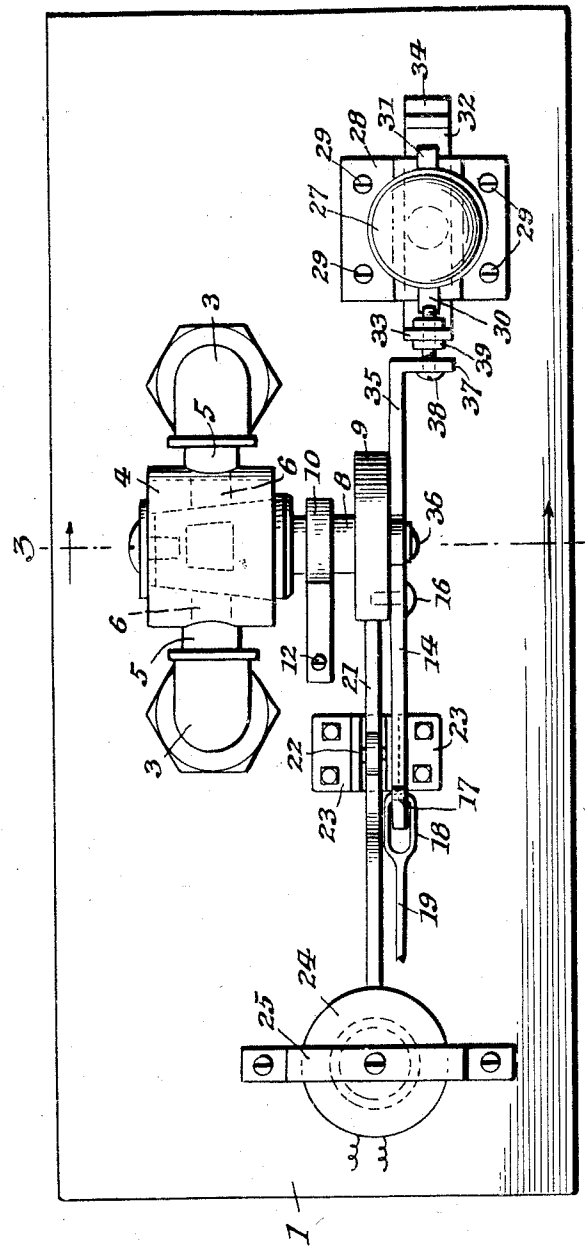


FIG. 2

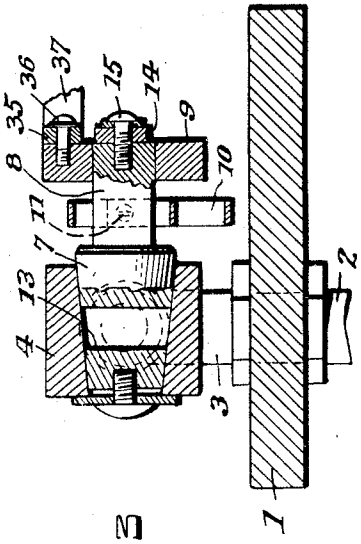


FIG. 3

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UNITED STATES PATENT OFFICE

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CONTROL FOR VALVES AND SWITCHES

Application filed August 14, 1930. Serial No. 475,306.

This invention relates to an improved control for valves and switches and one object of the invention is to provide a device of this character whereby flow of gas, electricity, steam, water or any other fluid desired may be controlled and a valve or switch regulating flow thereof opened or closed at a desired time.

Another object of the invention is to so form the apparatus that the valve or switch may be retained in a set position through a determined period of time and then permitted or caused to move to an adjusted position.

Another object of the invention is to provide a device of this character which is simple in its construction and will not be liable to get out of order.

The invention is illustrated in the accompanying drawings wherein:

Figure 1 is a view principally in side elevation of apparatus for controlling both a valve and an electric switch.

Figure 2 is a top plan view of the structure shown in Figure 1.

Figure 3 is a transverse sectional view taken along the line 3—3 of Figure 2.

The apparatus illustrated in Figures 1, 2 and 3 includes a base or support 1 which may be formed of wood, metal or any other desired material. This base has openings formed therein through which extend sections 2 of a pipe or conduit and these sections have their upper ends provided with elbows 3 connected with opposite sides of a valve 4 by nipples 5. Ports 6 are formed to opposite sides of the valve casing and in the valve casing is rotatably mounted a tapered plug 7, the stem 8 of which projects from the casing as shown in Figures 2 and 3 and carries a disk 9 which is firmly secured about its free end. A spring 10 is coiled about the neck between the plug and the disk and this spring has its inner end fixed to the neck by a screw or equivalent fastener 11 and its outer end secured upon the base 1 by a similar fastener 12. It will thus be seen that the valve will be normally retained in an open position in which its port 13 registers with and establishes communication between the ports 6 but the plug may be turned in opposition to the action of the spring to the closed position shown in Figure 3. A handle or lever 14 extends radially of the plug and is secured at its inner end to the outer end of the neck 8 by a securing screw 15 and is also secured to the disk by a screw 16. Therefore, when pull is exerted upon the handle the valve may be turned to the closed position shown in Figure 3.

If the apparatus illustrated in these figures is left exposed the handle may be directly grasped in order to close the valve but if the apparatus is to be enclosed in a casing or operated from a distant point the lever may have its free end formed with a hook or bill 17 engaged by an eye 18 at one end of a pull rod 19. This rod may be of any length and it will be readily understood that when the rod is pulled the lever will be swung to rotate the stem and move the valve to the closed position. The marginal edge of the disk instead of being circular is of an eccentric outline thereby forming a shoulder 20 for engagement by the inner end of a latch 21. This latch is pivoted upon a pin 22 carried by brackets 23 and the outer end portion of the latch extends beneath a solenoid 24 suspended in a vertical position above the base by a yoke 25. The core 26 of the solenoid projects through the lower end thereof and is attached to the outer end portion of the pivoted latch 21. Therefore, the core may serve as a weight to assist in yieldably retaining the latch in its normal position and causing the inner end of the latch to move into engagement with the shoulder 20 to secure the valve in the closed position. When so engaged the disk will be held against rotation by the spring 10 and the valve will remain closed until the latch is swung out of engagement with the shoulder of the disk. Sufficient play must be permitted between the solenoid and the outer end portion of the latch to prevent binding when the solenoid is energized and its core drawn upwardly, to move the latch to a releasing position.

There has also been provided an electric switch 27 mounted in a vertical position upon a support 28 which rests upon the base where

it is firmly secured by screws or equivalent fasteners 29. This switch has push buttons 30 and 31 projecting from opposite sides thereof and it will be readily understood that when one button is pressed inwardly the switch will be turned on whereas when the other button is pressed the switch will be turned off. In order to operate the switch there has been provided an actuating element 32 having a bar extending through the support longitudinally of the base and arms 33 and 34 extending upwardly from ends of the bar at opposite sides of the switch. Intermediate their ends the arms are bent toward each other and then upwardly in parallel relation to each other. By this arrangement the bar may slide freely through the support 28 and from an inspection of Figures 1 and 2 it will be readily seen that when the actuating device is moved in one direction the button 30 will be pressed inwardly by the arm 33 whereas when the actuating element is slid in an opposite direction the button 31 will be pressed inwardly by the arm 34. Therefore, the switch may be opened when the actuating element is slid in one direction and closed when it slides in the reverse direction.

A pitman 35 has one end pivoted to the disk through its periphery by a screw or other suitable fastener 36 and the outer end portion of this pitman is bent to form a side arm 37. A bolt 38 is passed through the side arm 37 and also through an opening formed near the upper end of the arm 33. Nuts 39 which are threaded upon this bolt engage the arm 33 and by properly adjusting these nuts the effective length of the pitman may be controlled and proper operation of the switch actuating device 32 assured.

By this arrangement the switch actuating device will be moved whenever the valve plug is turned and therefore, the switch will be shut-off when the valve is closed and when the valve moves to an open position upon the latch moving to a releasing position the switch will be turned on. We therefore provide means whereby a valve controlling flow of water, gas or any other fluid through a pipe 2 and a switch for an electric circuit of a machine may be simultaneously adjusted.

Any suitable means may be provided to control the solenoid and the circuit for the solenoid may be closed by a switch adapted to be manually controlled or moved to a closed position by time controlled mechanism.

While we have shown the preferred embodiment of the invention it is to be understood that various changes in size, shape and arrangement of parts may be resorted to without departing from the spirit of the invention and the scope of the appended claims.

Having thus described the invention what we claim is:

1. In a structure of the character described, a valve having a rotary stem, a spring yieldably resisting rotation of the stem in one direction, a disk carried by said stem, and having a turning handle, a latch to engage said disk and hold the stem in a set position, electrically energized means to move the latch to a releasing position, a switch having opposed push buttons, a bar slidably mounted and having arms at opposite sides of said switch for engaging said buttons, and a pitman pivoted to said disk and connected to one arm to slide the bar and move one arm into engagement with a button to adjust the switch when the disk is turned.

2. In a structure of the character described, a valve having a rotary stem, a spring yieldably resisting rotation of the stem in one direction, a disk carried by said stem, and having a turning handle, a latch to engage said disk and hold the stem in a set position, electrically energized means to move the latch to a releasing position, a support, a bar slidable through said support and having upstanding arms, a switch upon said support between said arms having opposed push buttons engageable by the arms to open and close the switch, a pitman pivoted to said disk, and a bolt carried by said pitman and passed through one arm and carrying securing nuts engaging opposed faces of the arm.

3. In a structure of the character described, a valve having a rotary stem yieldably held against rotation in one direction, a disk carried by said stem, a latch to engage said disk and hold the stem in a set position, means to move the latch to a releasing position, a switch, an actuating element slidably mounted and having arms at opposite sides of said switch for opening and closing the switch according to the direction in which the actuating element moves and a pitman pivoted to said disk and connected to said actuating element to slide the same and move one arm into position to adjust the switch when the disk and stem are turned.

4. In a structure of the character described, a valve having a rotary stem yieldably held against rotation in one direction, a keeper carried by said stem, a latch to engage said keeper and hold the stem in a set position, means to move the latch to a releasing position, a support having an elevated bridge, an actuating element slidable beneath the bridge and having upstanding arms at opposite sides of the support, a switch upon the bridge disposed between the arms and engageable by the arms for movement to open and closed positions, a pitman pivoted to said keeper, and a fastener adjustably connecting said pitman with one arm.

In testimony whereof we affix our signatures.

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