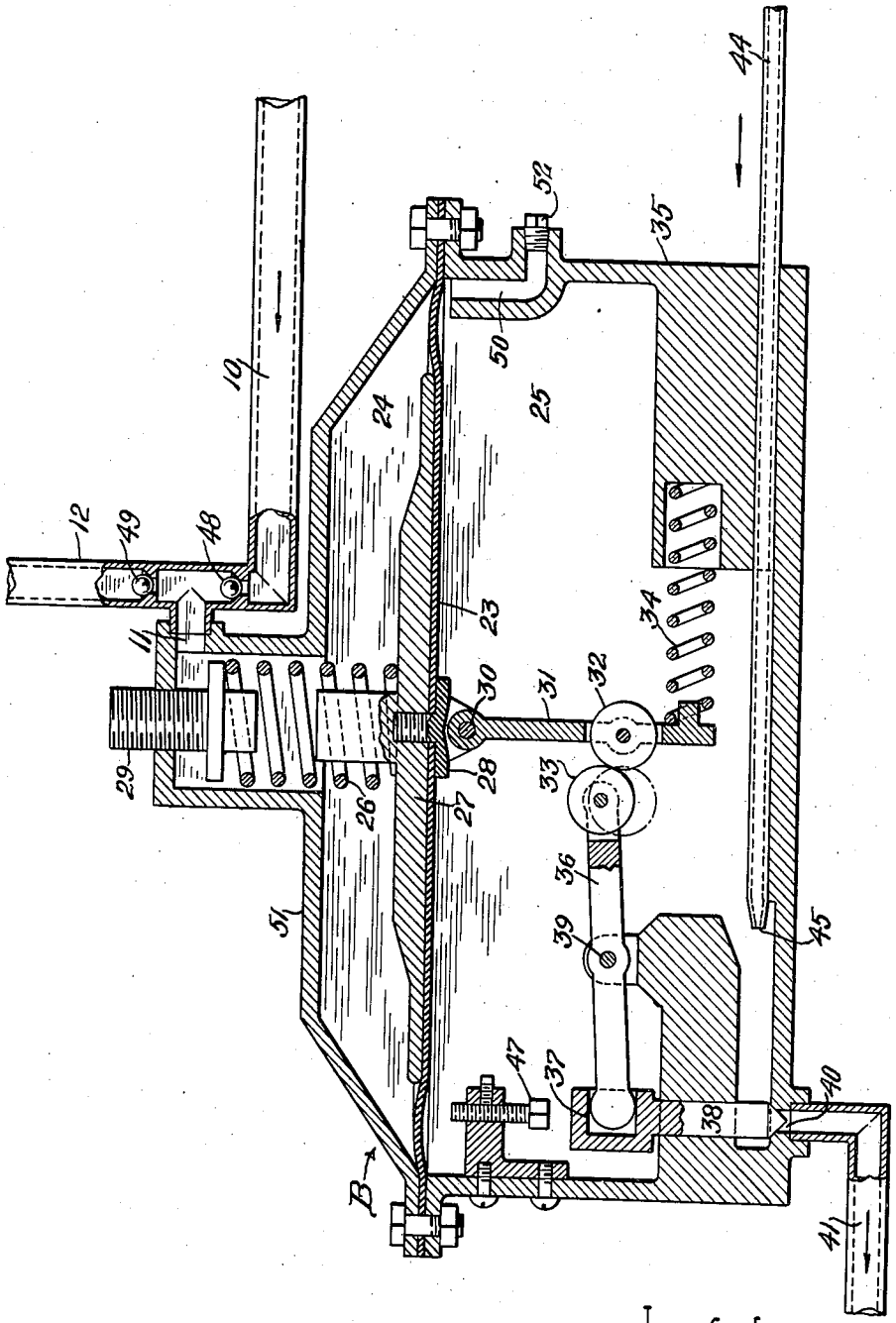
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FLUID MOTOR

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FLUID MOTOR

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1 Claim. (Cl. 121—164)

This invention relates to fluid pressure operated motors and the object of the invention is to provide an improved motor of this class of simple and efficient construction which can be operated by water pressure such as is available in the water service system of a building.

To this end I have provided an improved motor of the class described which, in its best form, may be constructed and operate as set forth in the following description, the several novel features of the invention being separately pointed out and defined in the claim at the close of said description.

The accompanying drawing is a central vertical sectional view of a motor constructed in accordance with this invention.

The illustrated embodiment of my invention comprises a casing B whose interior is divided by a diaphragm piston 23 into an upper pump chamber 24 and a lower motor chamber 25, and a port 11 is provided which communicates with the upper pump chamber 24 so as to serve as an inlet and as an outlet for the latter. A spring 26 bears at its lower end against the top of a disk 27 that is fastened at its middle to diaphragm 23 by a screw 28. At its upper end spring 26 bears against an adjustable abutment screw 29.

To the head of screw 28 is pivotally connected, at 30, a pendant lever 31 carrying a roll 32 which is yieldingly pressed against another roll 33 by a spring 34 disposed between the lower end of the lever 31 and an abutment on the base section 35 of the pump casing.

Roll 33 is mounted at one end of a lever 36 whose opposite end occupies a socket 37 provided at the upper end of a valve 38. Lever 36 is pivotally supported intermediate its opposite ends on section 35 of the pump casing as shown at 39.

The valve 38 controls an outlet 40 provided through the bottom of section 35 and an off-take pipe 41 connects this outlet with the drain pipe of the building.

A conduit 44 connects chamber 25 with a source of supply of water under head or pressure and this source may be one of the pipes of the water service of the building within which the pump is arranged. The delivery end of conduit 44 is constricted as at 45 so that it is of substantially less capacity than the outlet 40.

With the parts occupying the positions shown the valve 38 has just been closed and as the water enters chamber 25 from conduit 44 diaphragm piston 23 is moved upwardly carrying the lever 31 and roll 32 with it. These parts will continue to move upwardly until the roll 32 passes dead-center relationship with respect to roll 33 and pivot 39 whereupon the pressure of spring 34 will act through rolls 32 and 33 and lever 36 to abruptly lift valve 38 into position against an abutment 47. This opens outlet 40 and thereby not only stops further upward movement of the diaphragm but also starts movement of the diaphragm downwardly under the influence of spring 26.

When, during the downward movement of the diaphragm, the roll 32 passes dead-center relationship with respect to roll 33 and pivot 39 the spring 34 acts through lever 31, roll 32, roll 33 and lever 36 to abruptly restore valve 38 to its closed position again whereupon upward movement of the diaphragm is again started and the operation is repeated.

During the upward movement of diaphragm 23 a check-valve 48 in a fluid-supplying conduit 10 closes and part of the contents of chamber 24 is forced upwardly past a check-valve 49 in an off-take or delivery pipe or conduit 12.

During the downward movement of diaphragm 23 check-valve 49 closes and fluid is drawn into pump chamber 24 from the pipe or conduit 10 past check-valve 48. In this way the pump continues to operate automatically to pump fluid from conduit 10 into conduit 12 so long as fluid under pressure is supplied through conduit 44.

The diaphragm 23 may be made from leather or any other suitably flexible and/or elastic sheet material and its outer marginal portion occupies a position between flanges provided upon the two sections 35 and 51 of the pump casing, said flanges being fastened together and against opposite sides of the diaphragm by means of bolts.

The disk 27 and diaphragm 23 constitute a piston which is moved up and down alternatively by the pressure of water within chamber 25 and by spring 26.

The lower section 35 of the pump casing may be made with a port 50 normally closed by a plug 52, said port to be utilized in exhausting the air from section 35 in preparing the pump for operation.

What I claim is:

In combination, a casing; a diaphragm piston mounted within said casing so as to provide a motor chamber at one side thereof; a continuously open conduit of relatively small capacity communicating at its one end with said motor chamber and from which fluid under pressure is delivered into said chamber to move the piston in one direction; a spring for moving the piston in the opposite direction; an outlet for said

motor chamber of substantially greater capacity than said continuously open conduit; a valve within said motor chamber for controlling said outlet, and means within said motor chamber through which said piston acts to open said valve abruptly when said piston reaches the limit of its movement under the influence of the fluid pressure, and through which said piston acts to close said valve abruptly when said piston reaches the limit of its movement under the influence of said spring, said last-mentioned means comprising a lever pivotally supported at its one end by said diaphragm piston and extending perpendicularly from the latter; a second lever pivotally supported intermediate its ends on said casing and disposed approximately at right angles to said first-mentioned lever, one end of said second lever being co-operatively associated with said valve and the opposite end thereof being co-operatively associated with said first-mentioned lever, and a second spring yieldingly urging said first-mentioned lever laterally against said second lever so as to rock the latter on its pivot to cause said second lever to operate said valve when said first-mentioned lever is moved endwise back and forth with said piston, and said first-mentioned lever being provided with a roll through which it acts upon said second lever.

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