

Aug. 5, 1947.

P. SPENCE

2,425,284

VALVE

Filed Aug. 7, 1943

FIG. 1.

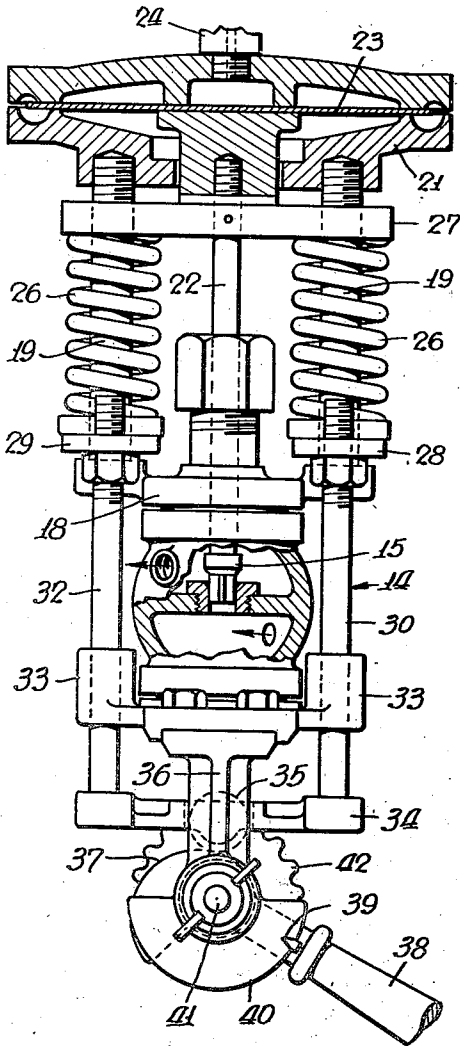
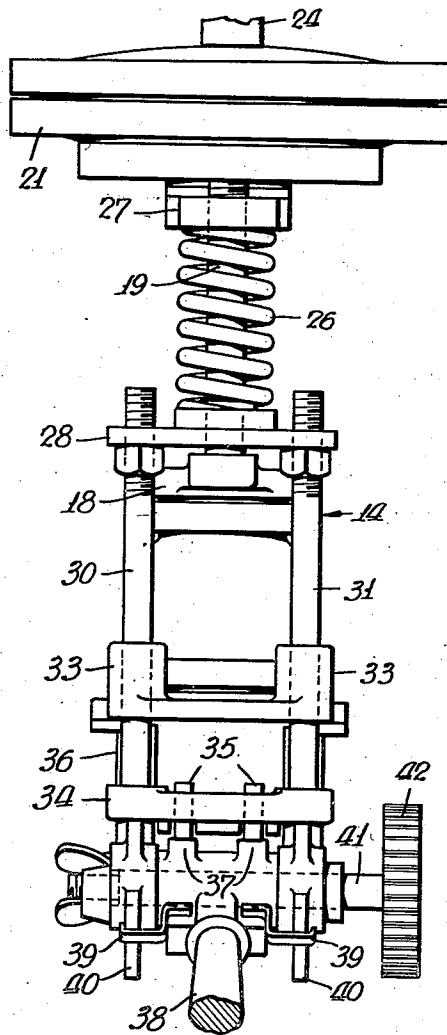


FIG. 2.



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UNITED STATES PATENT OFFICE

2,425,284

VALVE

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2 Claims. (Cl. 137—153)

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My invention relates to a valve, and this application discloses subject-matter shown but not claimed in my Patent No. 2,324,736, issued July 20, 1943.

It is an object of the invention to provide an improved valve means, particularly in connection with improved manual or automatic adjustment of the valve loading means.

Other objects and features of novelty and improvement will be hereinafter pointed out or will become apparent to those skilled in the art.

In the drawings which show, for illustrative purposes only, a preferred form of the invention—

Fig. 1 is a vertical, partly sectional view of a valve illustrating features of the invention; and

Fig. 2 is a view in elevation of the valve shown in Fig. 1 but viewed at right angles thereto.

The valve here illustrated is particularly adaptable as a pilot valve and will be so described, but it is to be understood that the valve has other uses and applications.

The body of the pilot valve 14 has a bonnet 18, which carries standards 19—19 and a pilot-valve diaphragm chamber 21 is secured to and carried by the upper ends of the standards 19—19. The valve stem 22 extends through the valve bonnet and its upper end is connected to or co-operable with the diaphragm 23. A pipe 24 leads into the diaphragm chamber 21 above the diaphragm 23. The pipe 24 at its opposite end may carry means such as a thermostat, which may be affected by the temperature of heated water, steam, etc. Thus, the thermostatic pressure acting through the pipe 24 will expand the diaphragm 23 downwardly to urge the valve 15 in a closing direction. The valve 15 is urged in the opposite or opening direction by loading means preferably in the form of spring means, which may include a pair of spaced apart coil springs 26—26.

The springs 26—26 may be centered on the standards 19—19 and at the upper ends may engage a bridging member 27 connected to or cooperating with the valve stem 22, as will be clear. The lower ends of the springs 26—26 are supported on movable abutment means and such means may include bridging members 28—29. The bridging member 28 is adjustably carried by

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guiding means such as guide rods 30—31, and the bridging member 29 may be carried by guides such as 32. The guides 30, 31, 32 are guided with relation to the valve body as by means of guide bosses 33 on the valve body or bottom closure thereof. The lower ends of the guide rods are connected to and carried by a bottom platform or bridging member 34; and, by adjusting the platform 34 either up or down, the stress on the springs 26—26 may be varied.

The actuation of the platform 34 may be by manual or automatic means, or both. In the form illustrated the platform 34 carries a pair of cam followers or rolls 35, and a bracket 36 carried by the valve body or a part of the lower bonnet carries pivotally mounted cams 37—37. A handle 38 may be carried by the cam assembly so that the latter may be rotated for raising and lowering the abutment system for the springs so that the spring stress may be varied. If desired the handle may carry a pointer 39 which passes along a dial scale 40, which may have designations thereon to indicate the stress of the springs or other designations; for example, to indicate the temperature of the water.

A shaft 41 which carries the cam assembly may also carry means such as a sprocket 42, which may be actuated by a chain driven by control mechanism. Thus, when the sprocket is rotated in one direction, the chain will cause the cams to raise the spring abutment system, and when the sprocket is rotated in the opposite direction the spring abutment system will be lowered and the spring stress thus lessened.

It will be seen that I have provided a very simple valve with simple means for adjusting the loading thereof.

While the invention has been described in considerable detail and a preferred form illustrated, it is to be understood that changes may be made within the scope of the invention as defined in the appended claims.

I claim:

1. In a valve, a valve body, a valve therein and having a stem, a pair of separated coil springs, a bridging member bridging the ends of both of said springs and cooperating with said valve stem at a point intermediate said springs, movable abutment means for the opposite ends of said springs, and a cam member movably carried by

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said valve body and cooperable with a part of said movable abutment means for moving the latter to vary the stress on said springs.

2. In a valve, a valve body, a valve bonnet thereon, a valve in said valve body, a valve stem projecting through said valve bonnet, standards on said bonnet, a diaphragm casing carried by said standards, a diaphragm in said diaphragm casing and cooperable with said valve stem where-
by the latter may be moved by said diaphragm in one direction, a coil spring surrounding each of said standards, a bridging member guided on said standards and coacting with the ends of said springs, abutment means coacting with the opposite ends of said springs, guide rods coacting with said abutment means and guided on said valve body, a cam follower means carried by said guide rods, a cam member rotatably carried by said

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valve body and cooperable with said cam follower means, and a handle for rotating said cam means.
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