Dec. 5, 1939. A. D. ADAIR 2,182,368

TESTING APPARATUS

Filed Oct. 6, 1938

Fig. 1.

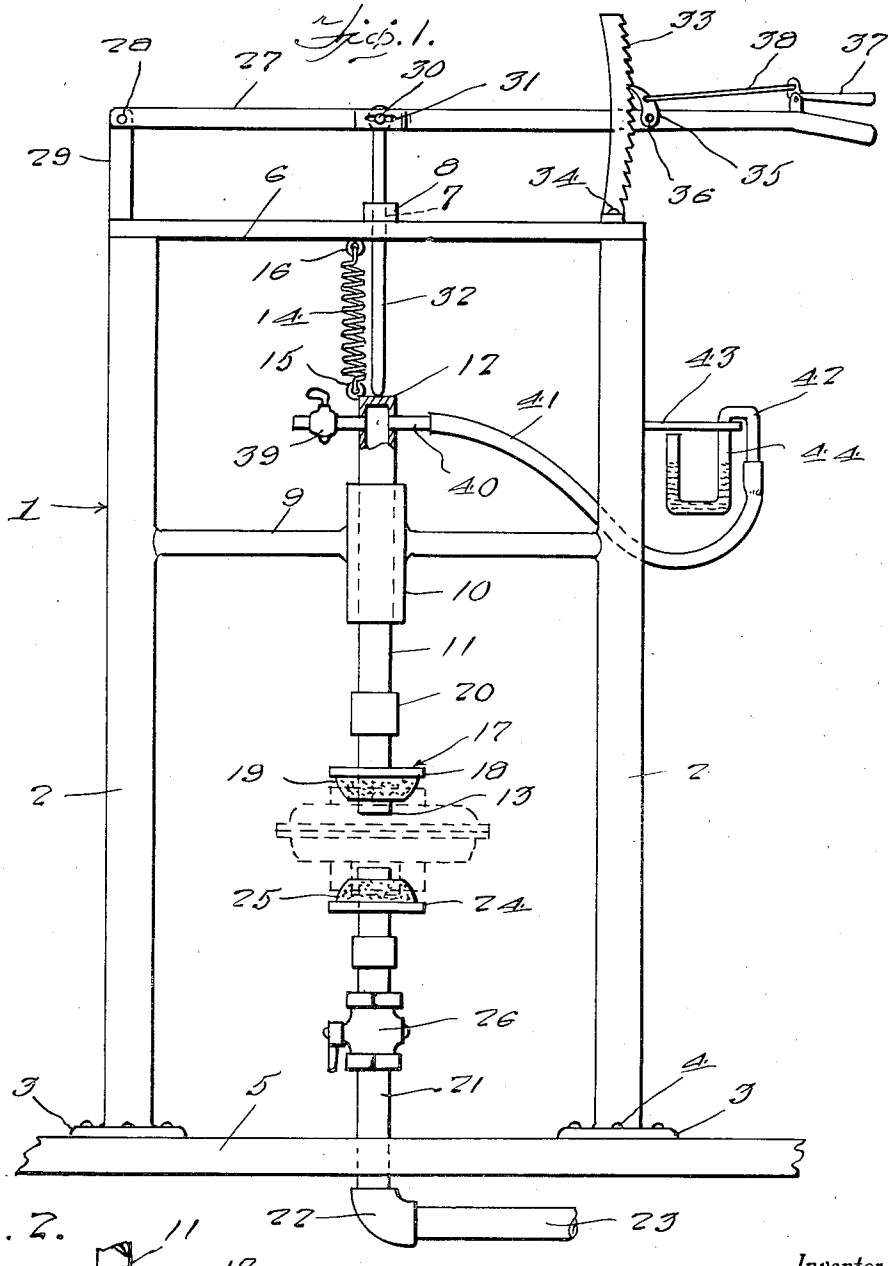
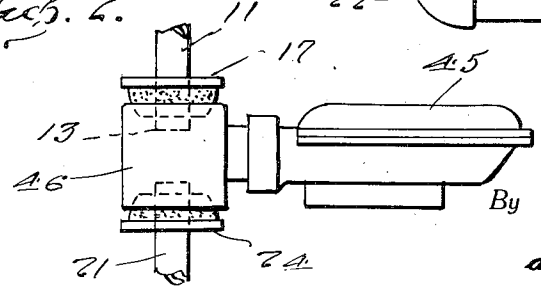


Fig. 2.



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TESTING APPARATUS

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2 Claims. (Cl. 73—51)

My invention relates to testing apparatus for use in connection with pressure regulators such as are interposed in household gas lines.

The primary object of the invention is to provide an inexpensive device for clamping and sealing such regulators, introducing air or gas under pressure into the same and accurately gauging pressure under which the regulator operates.

To the accomplishment of the above, and subordinate objects presently appearing, the preferred embodiment of my invention, has been illustrated in the accompanying drawing, set forth in detail in the succeeding description and defined in the claims appended hereto.

In said drawing:

Figure 1 is a view in front elevation of testing apparatus constructed in accordance with my invention, and

Figure 2 is a detailed fragmentary view in side elevation illustrating the manner in which the regulator is clamped and sealed.

Referring to the drawing by numerals, the apparatus of my invention comprises a substantially rectangular frame 1 including parallel legs 2 preferably of tubular form and provided with lower end feet 3 by means of which said frame may be secured, as at 4, in upright position on a base 5. The upper ends of the legs 2 are connected together by a cross-bar 5 having a central vertical aperture 7 therein and a collar 8 surrounding said aperture. A second cross-bar 9 connects said legs 2 slightly above the transverse center thereof, said bar 9 having interposed therein a vertically disposed guide sleeve 10 axially aligned with the aperture 7. The guide sleeve 10 has slidably fitted therein a tubular member 11 provided with a closed upper end 12 extending above said sleeve and an open lower end 13 extending below the sleeve. A coiled spring 14 having its opposite ends connected to said bar 6 and to the upper end 12 of the member 11, as at 16 and 15, respectively, urges said member upwardly. Fixed on the lower end 13 of the member 11 concentrically thereof and with said end extending slightly below the same, is a combined sealing and clamping member 17 of annular form having an upper metal back 18 and a lower beveled facing 19 of resilient material such as rubber. A stop collar 20 on the member 11 intermediate member 17 and sleeve 10 limits upward movement of said member 11 under the urge of the spring 14 by engagement with the lower end of said sleeve 10.

Extended through the base 5 in axial alignment with member 11 is a pressure pipe line 21 adapted to be connected below the base, by an elbow 22, to a supply line 23 leading from a suitable source of air or gas pressure, not shown, said line 21 having its upper end terminating well below the end 13 of member 11 and provided thereon with a combined clamping and sealing member 24 similar to member 17 but reversed with the beveled resilient facing 25 uppermost. A valve 26 interposed in the pressure pipe line 21 provides for controlling the passage of air or gas therethrough.

The member 11 is designed to be moved downwardly in opposition to the spring 14 to clamp, in a manner presently described, a regulator between the members 17 and 24 and by means of the following. A hand lever 27 is pivoted at one end, as at 28, on a post 29 arising from the bar 6, said lever being vertically movable above the bar 6 and operatively connected, as by the pin and slot connection 30, 31, to the upper end of a plunger rod 32 slidably mounted in the aperture 7 and collar 8 and with its lower end bearing on the closed end 12 of member 11. An arcuate detent rack 33 is secured to the bar 6, as at 34, in upstanding position alongside said lever 27. A detent dog 35 is pivotally mounted, at 36, on said lever 27 to engage said rack and dog upward movement of said lever, said dog being disengaged by the usual hand grip 37 on the lever 27 operatively connected to the dog 35 by a link 38.

A pressure release cock 39 extends laterally from the member 11 adjacent the upper end of the latter. A nipple 40 extends laterally from said member 11 opposite the cock 39 and is connected by a hose 41 to a well-known type of tubular mercury gauge 44 suspended on an arm 43 extending laterally from one leg 2, the gauge 44 being of a type adapted for registering pressure variations therein.

The members 17 and 24 are designed for the clamping therebetween of a well-known type of regulator, shown in Figure 2, and comprising a casing 45 forming an expansible chamber adapted to expand under a fixed pressure, said casing having extending laterally therefrom a T-fitting 46 for coupling in a gas line.

Referring to the use and operation of the described invention, the hand lever 27 is manipulated upwardly to raise the plunger rod 32 and permit the member 11 to move upwardly under the urge of the spring 14 into the limits of movement thereof as determined by engagement of the collar 20 with the sleeve 10. In this position

of the parts, the combined clamping and sealing member 17 is spaced well above the opposed member 24. The fitting 46 is now positioned over the member 24 and the hand lever 27 manipulated downwardly to correspondingly move the plunger rod 32 and depress the member 11 until the combined clamping and sealing member 17 is properly positioned relative to the fitting 46 to clamp the latter between the same and the member 24 in sealing position relative to the opposite ends of said fitting. The control valve 26 may now be opened to permit air under pressure to pass through the line 21 into and through the casing 45 by way of the fitting 46 and into the member 11, the pressure as it rises being registered in the gauge 44. When the casing 45 expands, the pressure under which such action takes place may be determined by reading the gauge 44. After the test is made the cock 39 may be opened to relieve the pressure in the line as will be understood. The dog 35 may then be disengaged from the rack 33 by means of the detent lever 37 and the hand lever 27 elevated to permit the member 11 to rise under the urge of the spring 14 thereby moving the member 17 out of clamping and sealing relation.

The foregoing will, it is believed, suffice to impart a clear understanding of my invention without further explanation.

Manifestly, the invention as described, is susceptible of modification without departing from the inventive concept, and right is herein reserved to such modifications as fall within the scope of the subjoined claims.

What I claim is:

1. Apparatus for testing regulators having a pipe fitting extending therefrom comprising a base, a vertically disposed frame on said base, a pressure line upstanding from said base, a tubular member vertically reciprocable in said frame toward and from the upper end of said line axially of the line and having a closed top and an end opposed to the upper end of said line, means to reciprocate said member including a hand lever pivoted on the frame, a pair of combined clamping and sealing members of annular form fixed to the opposed ends of said line and tubular member, respectively, for clampingly engaging opposite ends of said pipe fitting therebetween under downward movement of said tubular member, a pressure gauge connected to the upper end of said member, and a pressure release cock at the upper end of said tubular member for exhausting the pressure therefrom at will.

2. Apparatus for testing regulators having a pipe fitting extending therefrom comprising a base, a vertically disposed frame on said base, a pressure line upstanding from said base, a tubular member vertically reciprocable in said frame toward and from the upper end of said line axially of the line and having a closed top and an end opposed to the upper end of said line, means to reciprocate said member including a hand lever pivoted on the frame, a pair of combined clamping and sealing members of annular form fixed to the opposed ends of said line and tubular member, respectively, for clampingly engaging opposite ends of said pipe fitting therebetween under downward movement of said tubular member, and a pressure gauge connected to the upper end of said member, said combined clamping and sealing members including a pair of opposed resilient exteriorly beveled facings for sealing said ends of said fitting.

ALONZO D. ADAIR.