E. J. DEEGAN.

EXPANSIBLE MECHANISM FOR DAMPER REGULATORS.

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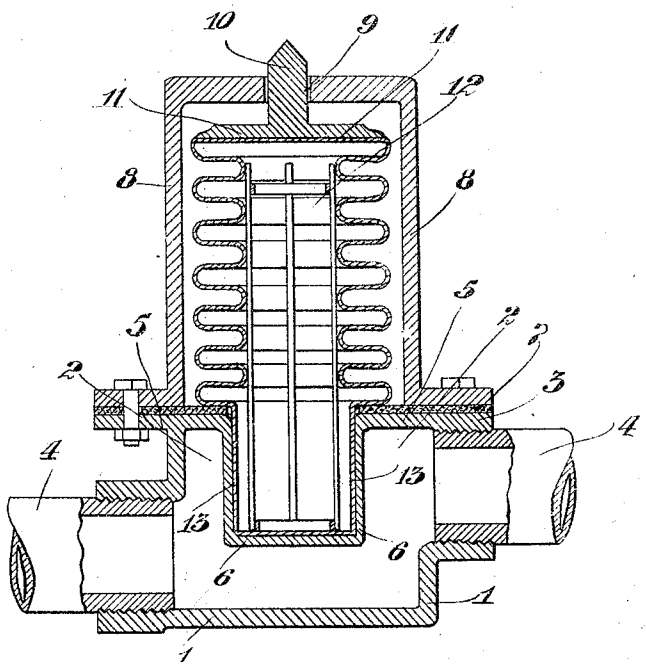
1,000,379. Patented Aug. 15, 1911.



Witnesses

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EXPANSIBLE MECHANISM FOR DAMPER-REGULATORS.

1,000,379. Specification of Letters Patent. Patented Aug. 15, 1911.

Application filed December 12, 1910. Serial No. 596,847. REISSUED

To all whom it may concern:

Be it known that I, EDWARD J. DEEGAN, a citizen of the United States, residing at New York city, in the county of New York and State of New York, have invented certain new and useful Improvements in Expansible Mechanism for Damper-Regulators, of which the following is a specification.

The invention relates to improvements in expansible mechanism for fluid heating damper regulator apparatus and has particular reference to that type of expansible mechanism consisting of a convoluted sheet metal pipe having formed therewith a depending chamber adapted to engage a depending bulb or chamber submerged in the line of the fluid circulation of a fluid heating generator for receiving the initial forces of said fluids under pressure to act upon damper controlling means.

A further object of the invention is the providing of a secondary expansible means comprising a convoluted pipe of a resilient material such as a molded form provided with a predetermined number of convolutions of hard rubber or of a similar substance adapted to act in connection with a primary expansible means preferably of the well known type of metallic expansible structure.

In the following is described in connection with the accompanying drawing one embodiment of the invention the features thereof being more particularly pointed out hereinafter in the claims.

In the drawing, the figure is a vertical sectional view of a damper regulator illustrating the expansible mechanism mounted therein provided with a depending chamber mounted in a corresponding chamber forming part of the damper regulator supporting means.

Similar numerals of reference indicate similar parts.

In the drawing 1 indicates the supporting casing of a damper regulator having formed therein a fluid chamber 2 and having cast therewith bosses 3 adapted to receive pipe end connections 4 of a suitable lead or flow means from a fluid generator (said generator is not shown herein, as it forms no essential part of the invention herewith).

Base 1 has formed in its upper end a diametrically extending diaphragm 5 having formed in its central portion thereof a depending bulb or chamber 6 projecting into fluid chamber 2. Base 1 may have mounted thereon a sheet of packing 7 which in turn has mounted thereon a bolted flange 5 and hood 8 having formed in its upper end an aperture 9 adapted to receive the actuating pin 10 on expansible head 11. Said head 11 has mounted thereon a convoluted sheet metal pipe 12 having formed therewith at its lower end a depending chamber 13 adapted to engage and contact the inner surfaces of depending bulb or chamber 6 on base 1. The expansible pipe 12 and depending chamber 13 is formed integrally and has placed therein a sufficient quantity of volatile fluids such as alcohol for assisting the expansion of the convoluted members of expansible pipe 12. The device as shown prevents the heated fluids from contacting the convoluted portions of expansible pipe 12 thus insuring the life of same and preventing the disintegration of any parts thereof the heated fluids as they pass through fluid chamber 2 impinging itself against the outside of chamber 6 thus heating the depending chamber 13 which thereafter acts upon the convoluted members of the expansible pipe 12, pin 10 on head 11 acting upon the damper regulator lever to actuate the dampers of a fluid generator as desired.

In operation the device is substantially as follows: In a great many instances it has been found that a single expansible mechanism did not suffice in moving the operative parts of a damper regulator controlling means a sufficient distance and with accuracy, it being the object of this invention to provide a primary as well as a secondary expansible means which consists of a primary convoluted expansible pipe 12 provided with a depending chamber formed integrally therewith and mounted in a suitable reception bulb or chamber 6 any part of the expansible mechanism being so arranged that the fluids under pressure will not contact same to injure or disintegrate any parts of same the remaining operation of the damper controlling means being shown, described and claimed in my co-pending application Serial No. 595,586 filed December 5th, 1910, for damper regulators.

What I claim and desire to secure by Letters Patent of the United States is:—

1. A device of the character described comprising a damper regulator supporting casing having formed therein a fluid chamber and fluid pipe reception means, an ex-

pansible mechanism reception chamber depending in said fluid chamber formed in said casing, a pipe adapted for expansion having formed on its lower end a supporting base adapted to engage said reception chamber in said casing and having its upper body portion formed into a plurality of convolutions, a cap having cast integrally therewith an actuating pin adapted to engage the extreme upper convolution in said pipe, and a hood surrounding said expansible pipe provided with an aperture adapted to receive the pin on said cap.

2. A device of the character described including an expansible pipe for damper regulators having formed on its lower closed end a supporting base and in its upper body portion a plurality of convolutions, a regulator supporting casing having formed therein a fluid chamber and fluid pipe reception means, an expansible pipe reception chamber formed in said casing and depending in said fluid chamber adapted to receive the lower closed end of said expansible pipe, a cap mounted on the upper convolution of said expansible pipe having cast integrally therewith an actuating pin, a hood engaging said casing and adapted to surround the convoluted portion of said expansible pipe, the lower closed end of said expansible pipe being so arranged with relation to the reception chamber as to form a supporting base or wall for the upper convoluted portion of said pipe.

3. A device of the character described, comprising an expansible tube, a fluid chamber with fluid pipe reception means, a chamber projecting into said fluid chamber substantially as set forth, and provided with a closed wall interposed between the fluid chamber and the interior of the chamber projecting into the fluid chamber, whereby it will be surrounded and acted upon by the fluid entering the fluid chamber, a hollow extension projecting from the expansible tube and entering and fitting closely within the chamber projecting into the fluid chamber, but removable therefrom as described, without opening the pipe or its chamber, and means connected with said expansible tube for operating a regulating device, all substantially as set forth.

4. A device of the character described, comprising an expansible tube, a fluid chamber with fluid pipe reception means, a chamber projecting into said fluid chamber substantially as set forth, and provided with a closed wall interposed between the fluid chamber and the interior of the chamber projecting into the fluid chamber, whereby it will be surrounded and acted upon by the fluid entering the fluid chamber, a hollow extension projecting from the expansible tube and entering and fitting closely within the chamber projecting into the fluid chamber, but removable therefrom, as described, without opening the pipe or its chamber, a cap closing the outer end of the expansible tube and provided with a pin extending therefrom all substantially as set forth.

5. A device of the character described, comprising an expansible tube, a fluid chamber with fluid pipe reception means, a chamber projecting into said fluid chamber substantially as set forth, and provided with a closed wall interposed between the fluid chamber and the interior of the chamber projecting into the fluid chamber, whereby it will be surrounded and acted upon by the fluid entering the fluid chamber, a hollow extension projecting from the expansible tube and entering and fitting closely within the chamber projecting into the fluid chamber, but removable therefrom, as described, without opening the pipe or its chamber, a cap closing the outer end of the expansible tube and provided with a pin extending therefrom, and a casing apertured for the passage of said pin, and surrounding said expansible tube all substantially as set forth.

6. A fluid conveying pipe, provided with a fluid chamber therein, closed at the sides, a chamber projecting into said fluid pipe chamber substantially as set forth, and provided with a closed wall interposed between the fluid chamber and the interior of the chamber projecting into the fluid chamber, whereby it will be surrounded and acted upon by the fluid entering the fluid chamber, an expansible tube, a hollow extension projecting from the expansible tube and entering and fitting closely within the chamber projecting into the fluid chamber, but removable therefrom as described, without opening the pipe or its chamber, and means connected with said expansible tube for operating a regulating device, all substantially as set forth.

In testimony whereof I have hereunto signed my name in the presence of two subscribing witnesses.

EDWARD J. DEEGAN.

Witnesses:

LAURA E. SMITH,

E. M. PENNYPACKER.