

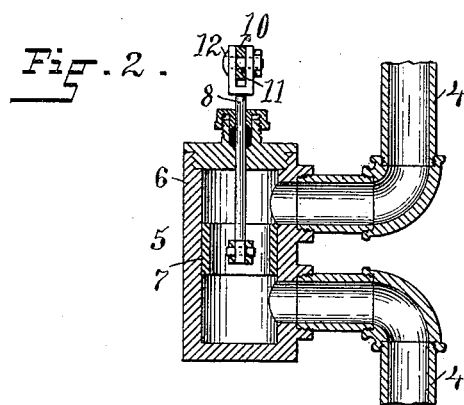
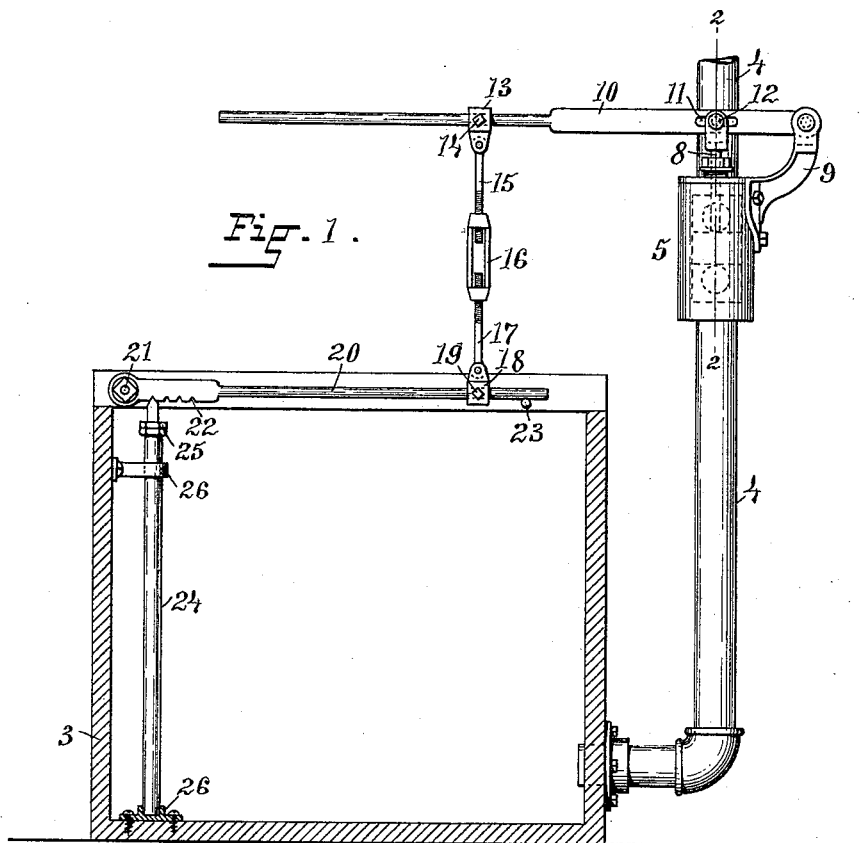
(No Model.)

R. NEWTON.

TEMPERATURE CONTROLLER.

No. 381,411.

Patented Apr. 17, 1888.



WITNESSES:

Chas. H. Luther Jr.
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UNITED STATES PATENT OFFICE.

ROBERT NEWTON, OF PROVIDENCE, RHODE ISLAND.

TEMPERATURE-CONTROLLER.

SPECIFICATION forming part of Letters Patent No. 381,411, dated April 17, 1888.

Application filed December 29, 1887. Serial No. 359,329. (No model.)

To all whom it may concern:

Be it known that I, ROBERT NEWTON, of Providence, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Temperature-Controllers, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

This invention relates to temperature-regulators for steam-heated vats, keirs, or tubs, and is designed as an improvement on Patent No. 374,847, granted to me December 13, 1887, and to which reference is hereby made for the more thorough understanding of the present improvements.

The object of the invention is to simplify the construction of the apparatus; and to this end the invention consists in the certain novel and peculiar constructions and combinations of the several parts of the device, all as hereinafter fully described and claimed.

In the accompanying drawings, illustrating my invention, Figure 1 is a vertical sectional view of my improved apparatus, and Fig. 2 is an enlarged sectional view taken on line 2 2 in Fig. 1.

Referring to the drawings, the number 3 designates a vat or tub supplied by steam by the supply-pipe 4, in which is located the controlling-valve 5, consisting in the casing 6, the tubular valve 7, and valve-stem 8. Upon the valve-casing is fixed a rigid arm, 9, to which is pivoted one end of the valve-lever 10, which is formed with the longitudinal slot 11, in which works the hinge pin 12 of the valve-stem. Upon the rounded end of the lever 10 is placed the slide 13, provided with set screw 14, and adjustable along the length of the lever. To the slide 13 is hinged the rod 15, having a screw-threaded end, to which is attached one end of the turn-buckle 16, the other end of the buckle being similarly attached to the rod 17, pivoted to the slide 18, which is adjustable on the pivoted lever 20, and is provided with the set-screw 19. The lever 20 is pivoted at 21, and is formed with the series of notches 22, and is provided with a stop, 23. The expansible bar 24 has an adjustable head-piece, 25, and is loosely mounted in vertical position in the brackets 26.

The operation of the apparatus is as follows:

The dye, size, or other liquid having been placed in the tub or vat, the cloth to be dyed or otherwise treated is immersed therein. Steam is then introduced into the tub or vat by means of the steam-supply pipe 4. When the liquid has reached the desired temperature at which the apparatus has been previously set, the expansion-bar will have expanded, by reason of its contact with the hot liquid, and lifted the free end of the lever 20, and with it, through the link, the lever 10, which will have closed the valve more or less, so as to allow only sufficient steam to pass into the tub or vat to keep the contents thereof at the desired temperature. If for any reason the liquid should reach a higher temperature than desired, the expansion-bar will in lifting the free end of lever 20 cause the lever 10 to be raised by means of the link, so as to entirely close the valve and shut off steam, and if the temperature should be lowered the valve will be correspondingly opened, so as to allow more steam to flow into the vat or tub, and thus the liquid will again be brought to the desired temperature.

By the arrangement of the various parts of the apparatus as above described it will be readily seen that the same is automatic in its action, and by virtue of the adjustable slides 13 and 18, and the adjustable connection intermediate the slides, I am enabled to obtain a very delicate adjustment, whereby the temperature may be maintained quite uniform.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination, as hereinbefore set forth, with the steam-heated vat and the steam-supply therefor provided with a controlling-valve, of an expansible bar supported within the vat, and a pivoted lever engaged by said bar, the pivoted valve-lever connected with and operating the valve, and a link of adjustable length connected adjustably with both of said levers, substantially as and for the purpose herein described.

2. The combination, as hereinbefore set forth, with the steam-heated vat and the steam-supply therefor provided with a controlling-valve, of an expansible bar supported within the vat, and a pivoted lever engaged by said bar, the pivoted valve-lever connected with and operating the said valve, each lever having a slide

mounted adjustably thereon, and a screw-threaded rod hinged to each slide, a turn-buckle connecting the said screw-threaded rods, substantially as and for the purpose
5 herein described.

3. The combination, with the vat 3, having the steam-supply pipe 4, provided with a controlling-valve, of the valve-lever 10, connected with and operating said controlling-valve, the slide
10 13, adjustable on the lever 10, and the rod 15, hinged thereto, the turn-buckle 16 and the rod 17, attached thereto, the pivoted lever 20, and the slide 18, adjustably mounted on lever 20 and connected with the rod 17, and the expansible
15 bar 24, engaging the lever 20, substantially as and for the purpose herein described.

4. The combination, with the vat 3, provided with the supply 4, and the controlling-valve 5, located in the supply 4, of the arm 9 and the valve-lever 10, pivoted to the arm and provided with slot 11, in which works the pin 12
20 of the valve-stem 8, the slide 13, provided with screw 14, the screw-threaded rod 15 and the attached turn-buckle 16, the rod 17 and the connected slide 18, provided with the set-screw
25 19, the pivoted lever 20, and the expansible bar 24, engaging said lever 20, substantially as and for the purpose herein described.

ROBERT NEWTON.

Witnesses:

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