

Jan. 31, 1928.

W. H. HIMES

1,657,504

THERMOSTATIC CONTROL FOR IRONING MACHINE TEMPERATURES

Filed Oct. 1, 1923

Fig. 1.

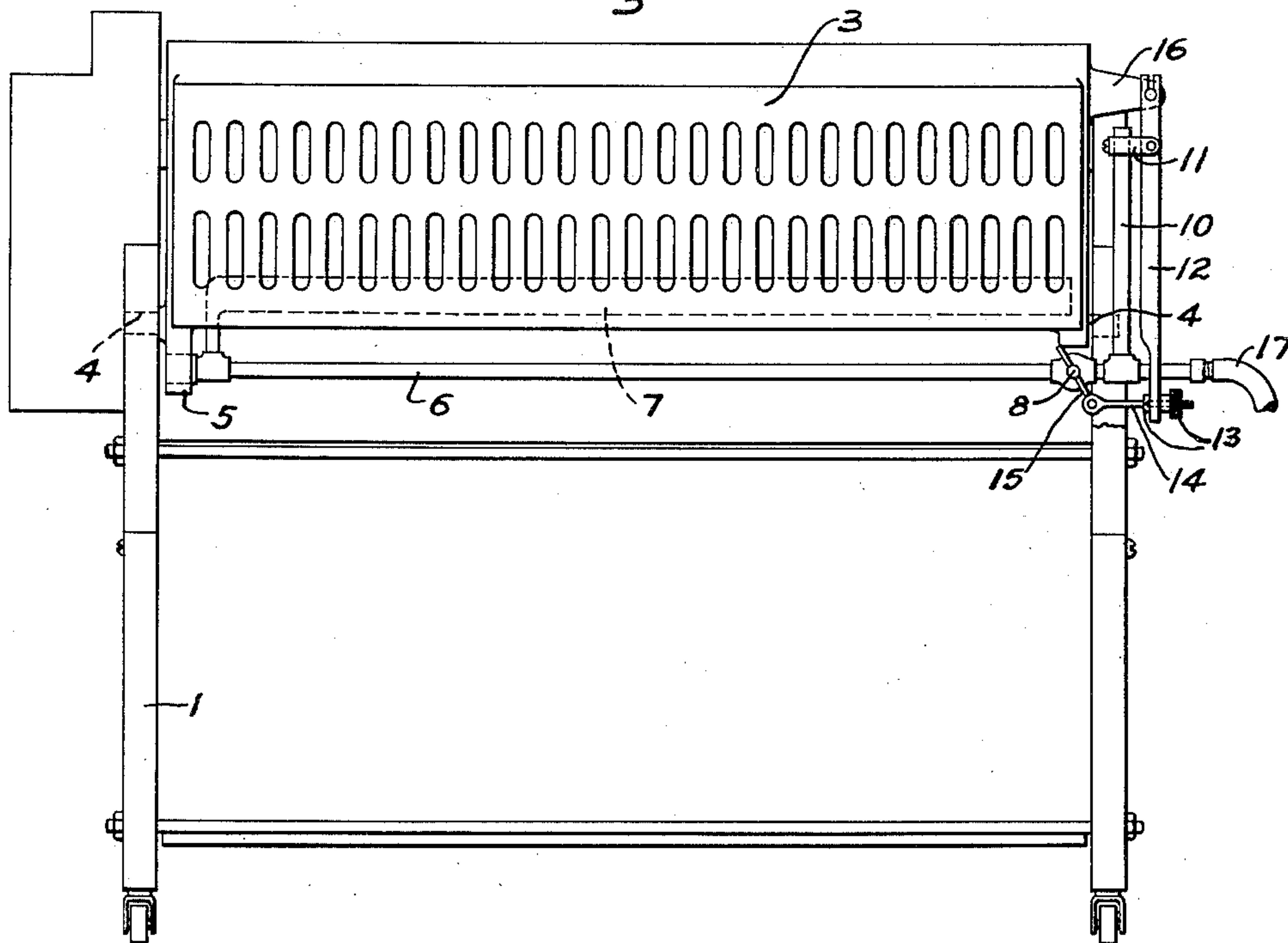


Fig. 2.

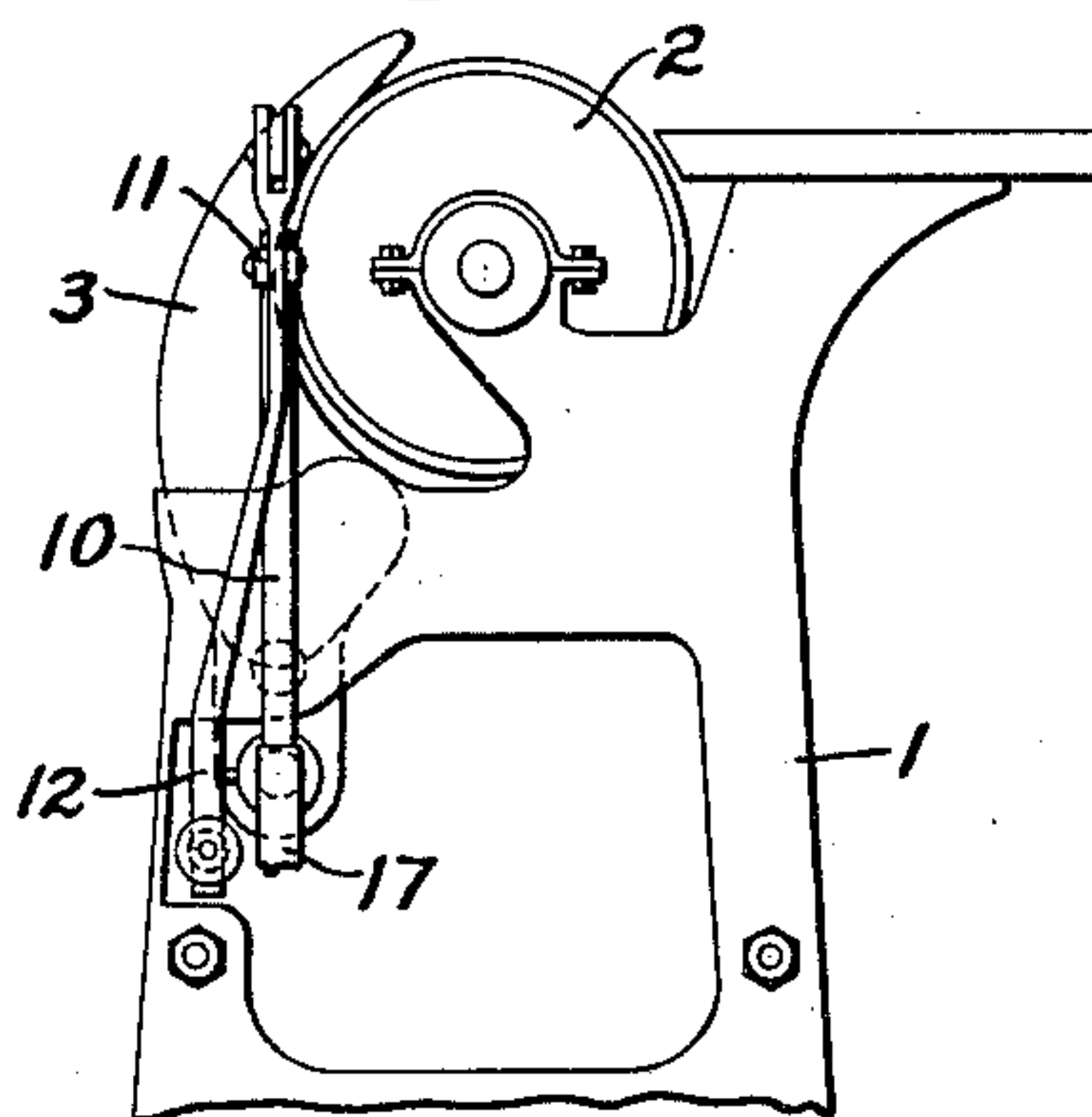
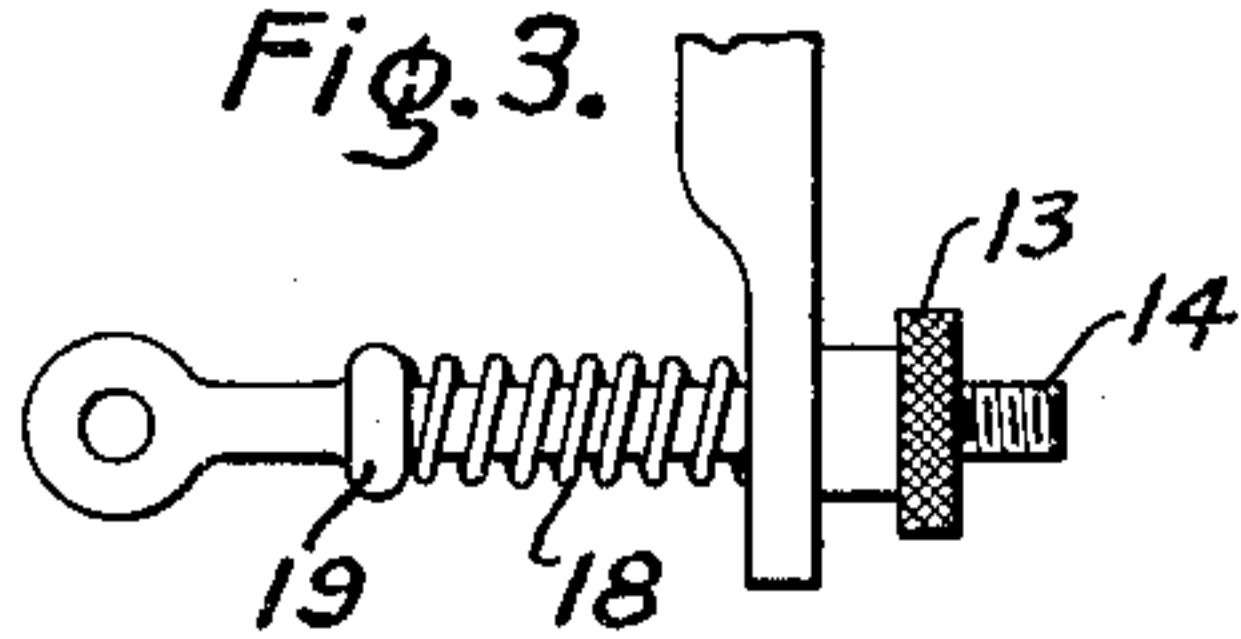


Fig. 3.



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THERMOSTATIC CONTROL FOR IRONING-MACHINE TEMPERATURES.

Application filed October 1, 1923. Serial No. 665,832.

My invention relates to thermostats and it has special relation to thermostats for controlling ironing machines.

The invention is applicable to hot water heaters, domestic ranges, ironing machines and the like, but for convenience is described in connection with a domestic ironing machine having a heated shoe and padded roller.

One object of the invention is to provide a thermostat of such nature as to utilize the expansion of a standard part of the heater or like device with respect to a normally cold member for regulating the heating effect.

Another object of the invention is to provide a heated shoe and a device operated by the expansion of said shoe for controlling the temperature thereof.

A further object of the invention is to provide a device for controlling the temperature of a shoe, which does not necessitate any modification of the shoe structure.

A still further object of the invention is the provision of a device having the foregoing advantages and that is, at the same time, simple and inexpensive to manufacture.

In the drawing,

Figure 1 is a rear elevational view of an ironing machine embodying the invention;

Fig. 2 is a fragmentary elevational view of the left end of the machine; and

Fig. 3 is a detail view of a modified form of a connection.

The invention may be applied to ironing machines of various types. The embodiment illustrated comprises a frame 1, a roll 2 supported for rotation thereon, and a shoe 3.

Trunnions 4 are formed integrally on the shoe and support it for pivotal movement in the frame. An arm 5 depends from one end of the shoe and supports a pipe 6 which carries a burner 7. Preferably, the pipe 6 is disposed exteriorly and the burner interiorly of the shoe.

A valve 8 is provided in the other end of the pipe 6 adjacent to which an arm 10 projects upwardly, being rigid with the pipe. The arm 10 carries a bracket 11 on which a lever 12 is pivoted, its lower end being adjustably secured by nuts 13 to a link 14. The link is pivotally secured to a rod 15,

movements of which control the valve 8. The upper end of the lever 12 is pivoted on a lug 16 formed integrally with the shoe.

A flexible connection 17 is provided for connecting the pipe 6 to the source of supply.

In the operation of the device, gas is admitted to the pipe 6 through the connection 17 and is admitted to the burner 7 under the control of the valve 8, which is fully open during the initial heating of the shoe. However, the pipe 6 is located outside the shoe and rigid with respect thereto. The shoe 3 expands as its temperature rises and is so supported on the frame 1 as to freely permit expansion thereof.

The lateral movement of the lug 16 as the result of the heating and expansion of the shoe rocks the lever 12 on the bracket 11, the location of the bracket 11 being such as to magnify the movement of the lug 16 at the lower end of the lever 12. The movement of the lever is transmitted through the link 14 to the valve 8 which is throttled thereby. If the temperature of the shoe falls below a desired point, it contracts and moves the lever 12 in a reverse direction, thus opening the valve 8 more widely and admitting more gas to the burner 7.

The device operates to maintain the shoe at a constant temperature for the reason that the expansion of the shoe is directly proportional to the temperature thereof.

Nuts 13 provide a convenient means for varying the adjustment of the lever 12 and thus changing the temperature at which the shoe will be maintained.

As the pipe 6 is spaced below and away from the burner 7, it is maintained at a substantially constant temperature. The admission of fuel through the pipe tends also to keep its temperature low. The pipe constitutes, therefore, the cold or non-expanding member of a couple.

In the modification shown in Fig. 3, the end of the lever 12 may be prevented from moving along the link 14 by a nut 13 on one side of the lever, and a spring 18 compressed between the shoulder 19 on the link and the other side of said lever.

The invention is not limited to the embodiment illustrated and described but is capable of extensive modification and variation. A substantial range of equivalents

is contemplated within the spirit of the invention and the scope of the appended claims.

I claim as my invention:

5 1. In an ironing machine, the combination of a shoe, means for heating said shoe, a member capable of expansion due to heat spaced from said shoe beyond the heating zone, to be free of its influence, and means
10 operative by the movement of said shoe with respect to said member for controlling the action of the first-mentioned means.

2. In an ironing machine, the combination of a shoe, means for heating said shoe, a
15 relatively cold member located beyond the region of heat developed by said means and secured at one end to an end of said shoe and means cooperating with said cold member and said shoe connected to the other end
20 of said shoe and the other end of said member for controlling the action of the first-mentioned means.

3. In an ironing machine, the combination of a shoe, means for heating said shoe, a
25 member extending longitudinally of said shoe and beyond the region of immediate action of said heating means and secured at one end to an end of said shoe and adjustable means connected to the other end of
30 said shoe and the other end of said member operated by the expansion of said shoe for controlling the flow of fluid through said member.

4. In an ironing machine, the combination
35 of a shoe, a pipe, a burner communicating with said pipe, a valve in said pipe, said pipe being spaced below said burner, a lever pivoted at one end to said shoe and a link connection between the other end of said
40 lever and said valve whereby said valve is controlled by the expansion of said shoe.

5. In an ironing machine provided with

a supporting frame, the combination with a shoe supported on the frame to permit expansive movement, and means for heating
4 said shoe, of thermostatic means for controlling the temperature of said shoe, the elements of said thermostatic means comprising the shoe and a fixed part of the ironing machine supported with the shoe on the sup-
50 porting frame, the relative movements of said shoe with respect to said part being adapted to control the action of said heating means.

6. In an ironing machine, the combination
55 with an ironing element supported on a frame to have freedom of movement at one end in response to expansion and contraction of the element, of a heater therefor adjacent the element, a tubular member for supplying
60 gas to the heater and disposed beyond the heated region, one end of the tubular member being secured at the stationary end of the ironing element, and a pivoted lever controlled by the free end of the ironing
65 element and the associated end of the tubular member for controlling the passage of gas through the tubular member to the heater for the shoe.

7. In an ironing machine, a supporting
70 frame structure, an ironing shoe disposed lengthwise thereon and secured at one end but free to move at the other end under expansion and contraction, a heater for the shoe, a cold member disposed lengthwise on
75 the frame beyond the influence of the heater for the shoe, and a lever fulcrumed on the cold member and controlled at one end by the shoe to control the admission of heating
80 fuel to the heater for the shoe.

In testimony whereof, I have hereunto subscribed my name this 28th day of September, 1923.

WALTER H. HIMES.