

(No Model.)

2 Sheets—Sheet 1.

I. F. & F. C. BEERS.  
THERMOSTAT.

No. 483,339.

Patented Sept. 27, 1892.

Fig. 1.

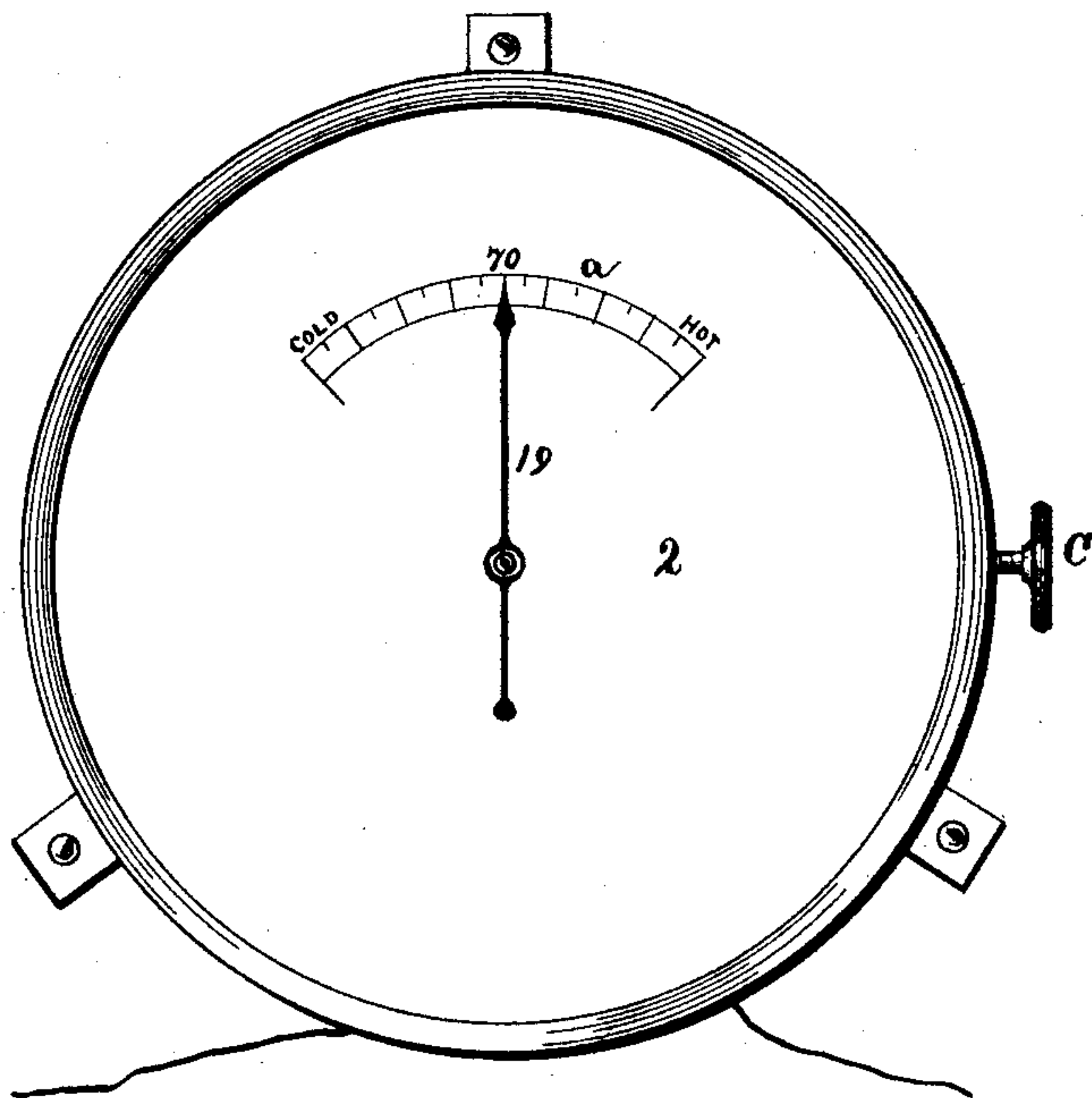
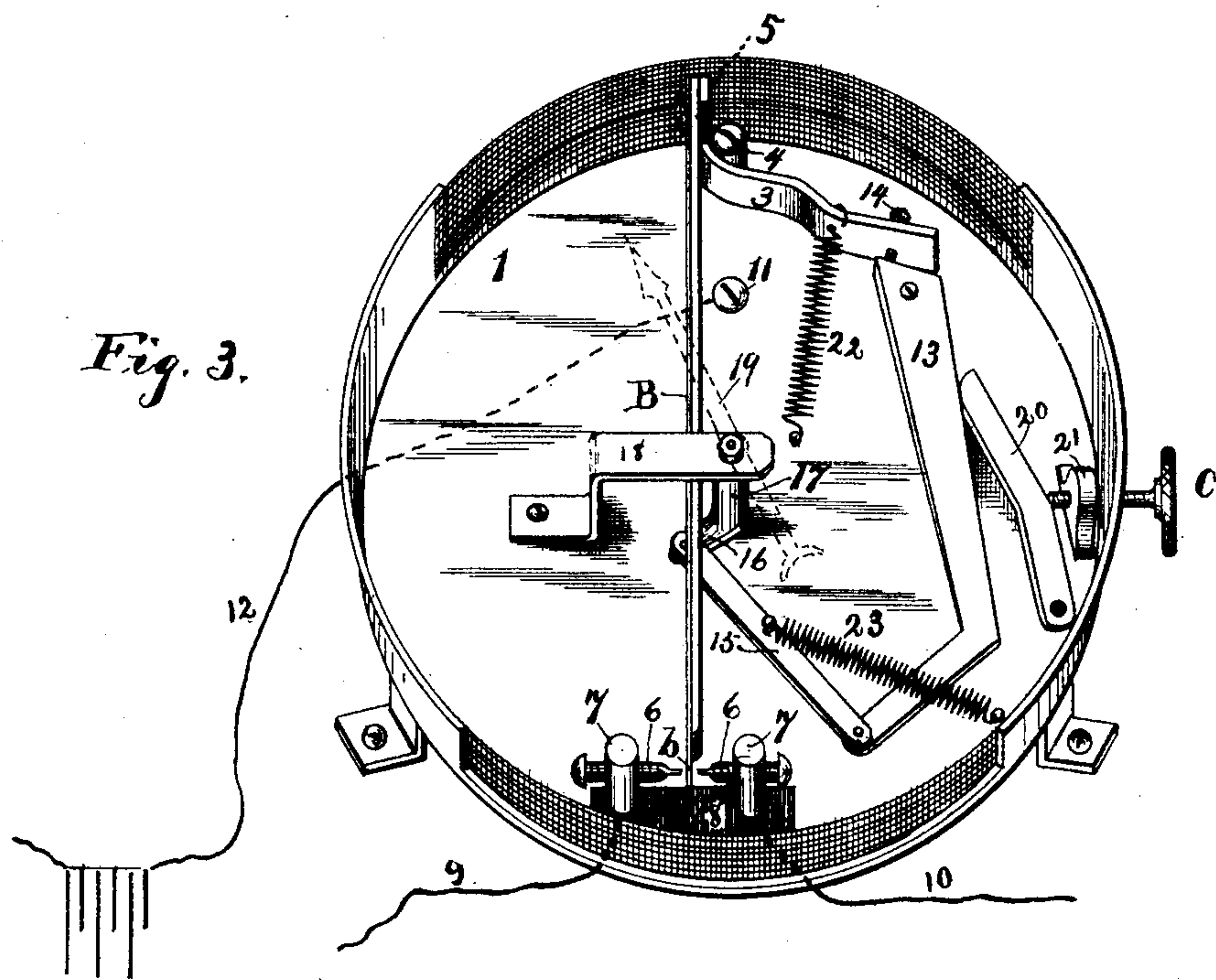


Fig. 3.



WITNESSES:

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(No Model.)

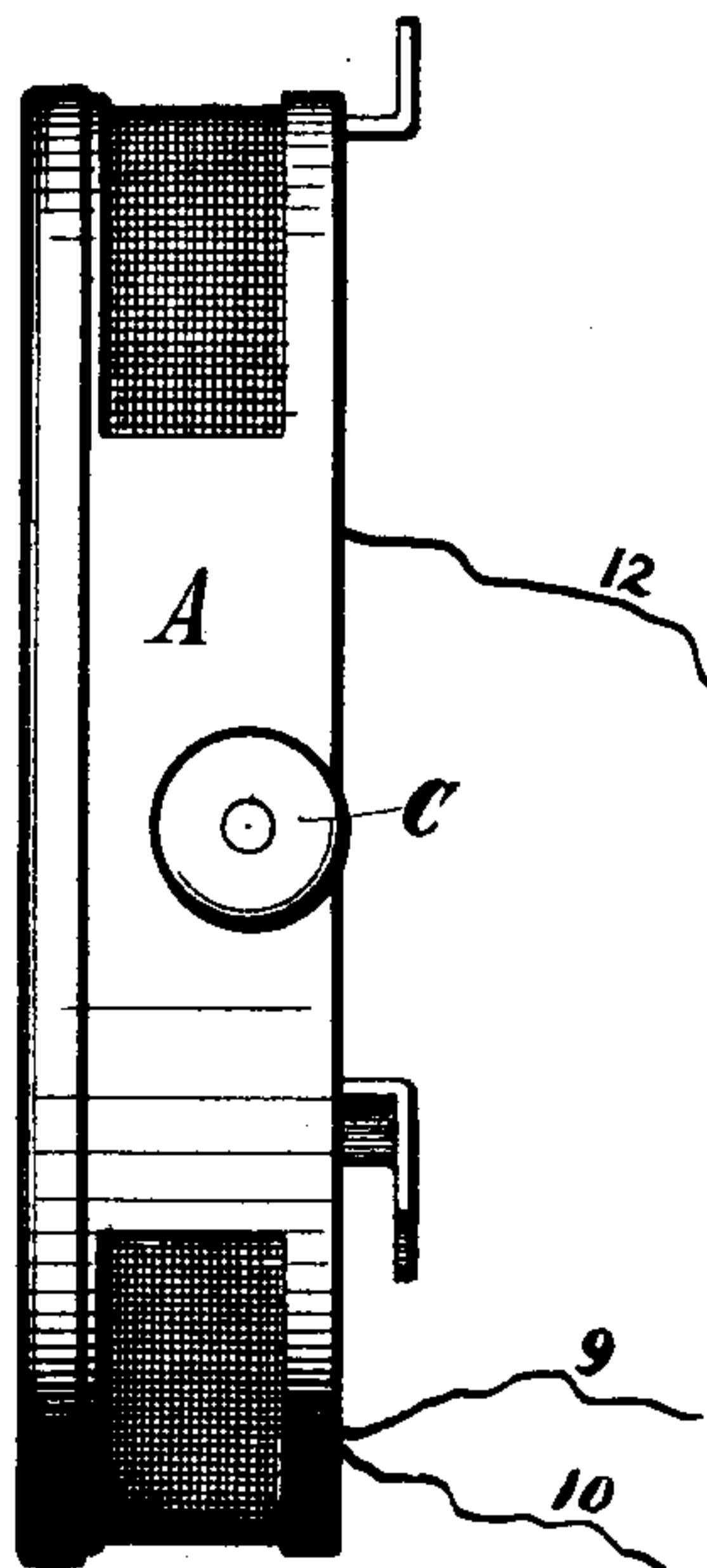
2 Sheets—Sheet 2.

I. F. & F. C. BEERS.  
THERMOSTAT.

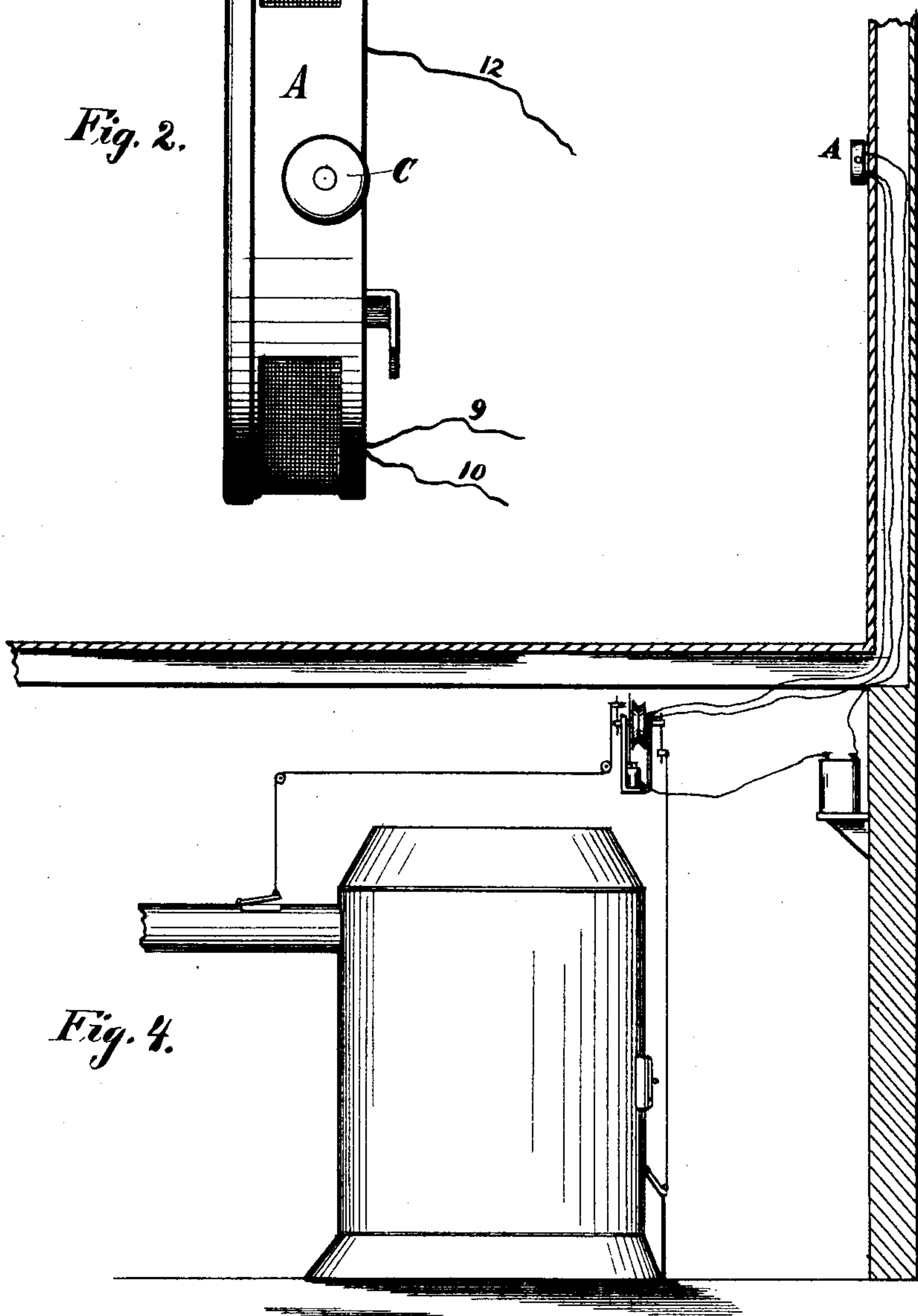
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*Fig. 2.*



*Fig. 4.*



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# UNITED STATES PATENT OFFICE.

IRA F. BEERS AND FREDERIC C. BEERS, OF ELMIRA, NEW YORK.

## THERMOSTAT.

SPECIFICATION forming part of Letters Patent No. 483,339, dated September 27, 1892.

Application filed March 17, 1892. Serial No. 425,230. (No model.)

*To all whom it may concern:*

Be it known that we, IRA F. BEERS and FREDERIC C. BEERS, of Elmira, in the county of Chemung, in the State of New York, have  
5 invented new and useful Improvements in Thermostats, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention relates to devices for automatically opening and closing the drafts of a heating apparatus, in which the draft and check dampers are respectively operated by means of a thermostatic bar, forming by its deflection an electric circuit, which causes the  
15 electro-motive power to operate the dampers.

The object of this invention is to produce a device for shunting by means of a thermostatic bar the current from one magnet to the other for the purpose of opening and closing  
20 the check-draft and check-damper respectively, or to be operated in connection with the device shown in Letters Patent upon automatic draft-regulators patented by us February 23, 1892, No. 469,462.

Our invention consists, first, in the mounting of the thermostatic bar vertically in a case having perforated edges, so that the temperature within will be the same as in the apartment where located; second, in providing  
30 binding-screws set adjustably for the purpose of closing the circuit by the deflection of the thermostatic bar; third, in connecting the thermostatic bar by intermediate levers adapted to be operated by a thumb-screw upon the  
35 outside for the purpose of setting the normal degree of temperature at any degree desired, and in the several other novel features of construction and operation hereinafter described, and specifically set forth in the claims hereunto annexed. It is constructed as follows, reference being had to the accompanying drawings, in which—

Figure 1 is a front view of the case complete. Fig. 2 is a side view thereof. Fig. 3 is  
45 a front view thereof with the cover removed, showing its internal construction. Fig. 4 is a view of an apartment, showing the location of the thermostatic-bar case, wire connecting it with the electro-motive power, and a draft-regulator connected by chains to the dampers of the furnace.

A is a case constructed, preferably, circular

in form and open or perforated on its edges, as shown in the drawings, for the purpose of preserving the same temperature within the  
55 case as without, and having a back 1 of metal or other good conducting material and provided with a cover 2, having a scale *a* thereon, for the purposes hereinafter set forth.

3 is a movable lever journaled upon the  
60 post 4 and having a laterally-extending arm 5, from which the thermostatic bar B is suspended, extending down between the binding-screws 6 6 upon the binding-posts 7, which are insulated in the back 1 by a non-conductor  
65 8, to which post are connected wires 9 10, respectively.

The thermostatic bar B is of any ordinary and well-known construction, composed of strips of different expansible properties—as,  
70 for example, rubber and steel—and in case, however, one of the strips is rubber or any other poor conductor we do not extend the rubber quite the entire length of the bar, but leave the conducting part of the bar to extend  
75 down between the binding-screws, as shown at *b*, so that by the deflection of the thermostatic bar different circuits will be formed.

Mounted in the back 1 of the case is a connecting-screw 11, to which a wire 12, passing  
80 to the damper-lifting device, is connected.

13 is a lever hinged near its upper end and having its end cut to an oblique angle and adapted to engage with the lever 3 or with  
85 the set-screw 14 therein.

To the lever 13 is attached a lever 15, which is connected to the arm 16 of the vertical post 17, which is held in position by the strip 18  
90 or in any other well-known manner, the upper end of said post 17 passing through the dial of the cover, upon which post is secured the indicating-finger 19.

20 is a lever hinged at its lower end and adapted to engage at its upper end with the  
95 outer edge of the lever 13.

21 is a bracket provided with an opening threaded internally and adapted to receive the set-screw C, said set-screw passing through the bracket and adapted to engage with the  
100 lever 20.

22 is a spring or elastic material connected at one end to a post in the back of the case and at its other end to the lever 3 for the pur-



pose of exerting a tension upon said lever to always keep the lever 3 or its thumb-screw 14 in engagement with the upper end of the lever 13.

5 23 is a similar spring connected at one end to the side of the case or a post in its back and at its other end to the lever 13 or 15, as shown, for the purpose of producing a tension to keep the lever 13 in engagement with the  
10 lever 20, for the purposes hereinafter set forth.

Our invention is operated as follows: We first adjust the thermostatic bar by means of the thumb-screw C at the side of the case, which operates against the lever 13, and by  
15 the upper end of that lever operates to determine the position of the thermostatic bar as regards its position to the binding-screws 6 6, and by its lower end it operates to rotate the indicating-hand 19 upon the scale  $\alpha$  upon the  
20 dial, so as to indicate just the temperature at which it is set. It will be seen that if the thumb-screw be turned inward the upper end of the lever 20 will be exerted against the lever 13, which in turn will rotate the indicator 19 toward the  
25 right, and the upper end will operate against the screw 14 and lever 3 and force the lower point of the thermostatic bar toward the right, where a circuit will be formed by a slighter deflection. When the thermostatic bar is de-  
30 flected to the left and comes in contact with the binding-screw which is connected with the wire 9, a circuit is immediately completed through the battery and the wire 12, which operates the draft-lifting device, through the

thermostatic bar which is connected to the  
35 back of the case, through the post 11, and thence to the wire. When the thermostatic bar is deflected to the right, another circuit is formed through the wire 10 with the wire 12, as above set forth, and again the other damp-  
40 ers are operated.

Having described our invention, what we claim is—

1. In a thermostat, the combination, with the bar B, mounted upon the lever 3, of the lever 13, engaging therewith, the lever 15, se-  
45 cured at one end to the lever 13 and at its other end to the arm upon the post 17, and the indicating-hand 19, as set forth.

2. In a thermostat, the combination, with  
50 the case, binding-posts therein insulated from the case and from each other, and binding-screws extending inwardly from said posts, of a thermostatic bar, a pivotally-mounted lever from one end of which said bar is suspended,  
55 an intermediate pivotally-mounted lever in engagement with the first lever and operatively connected to an indicator, and adjusting-screws in engagement with said levers, as set  
60 forth.

In witness whereof we have hereunto set our hands this 11th day of March, 1892.

IRA F. BEERS.  
FREDERIC C. BEERS.

In presence of—  
IRA S. BEERS,  
M. F. BEERS.