

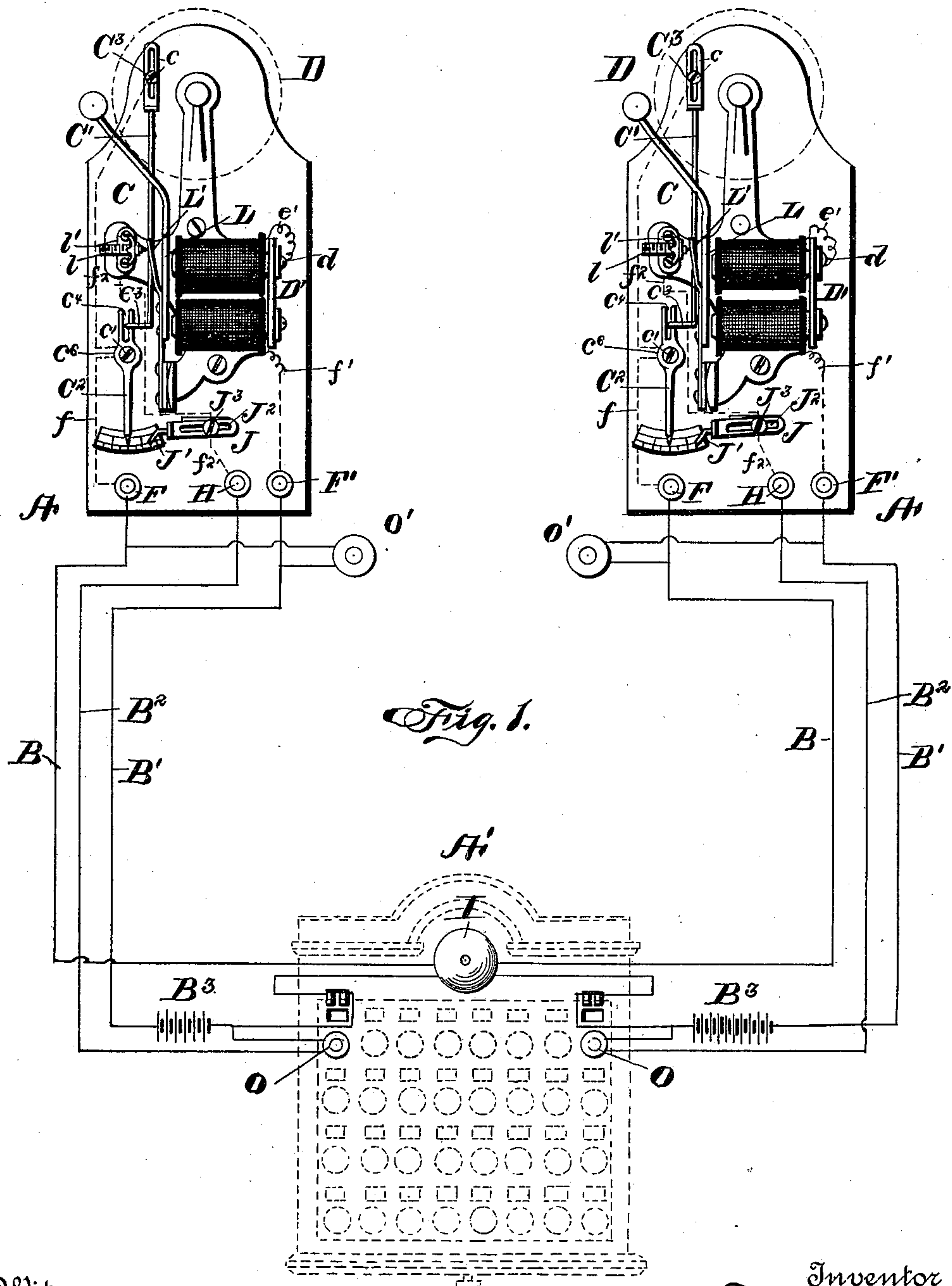
(No Model.)

2 Sheets—Sheet 1.

H. F. MAXIM.  
THERMOSTAT.

No. 564,567.

Patented July 21, 1896.



Witnesses  
Wm H. Edwards  
Arthur A. Bryant

Inventor  
H. F. Maxim  
By N. H. Bliss  
Attorney

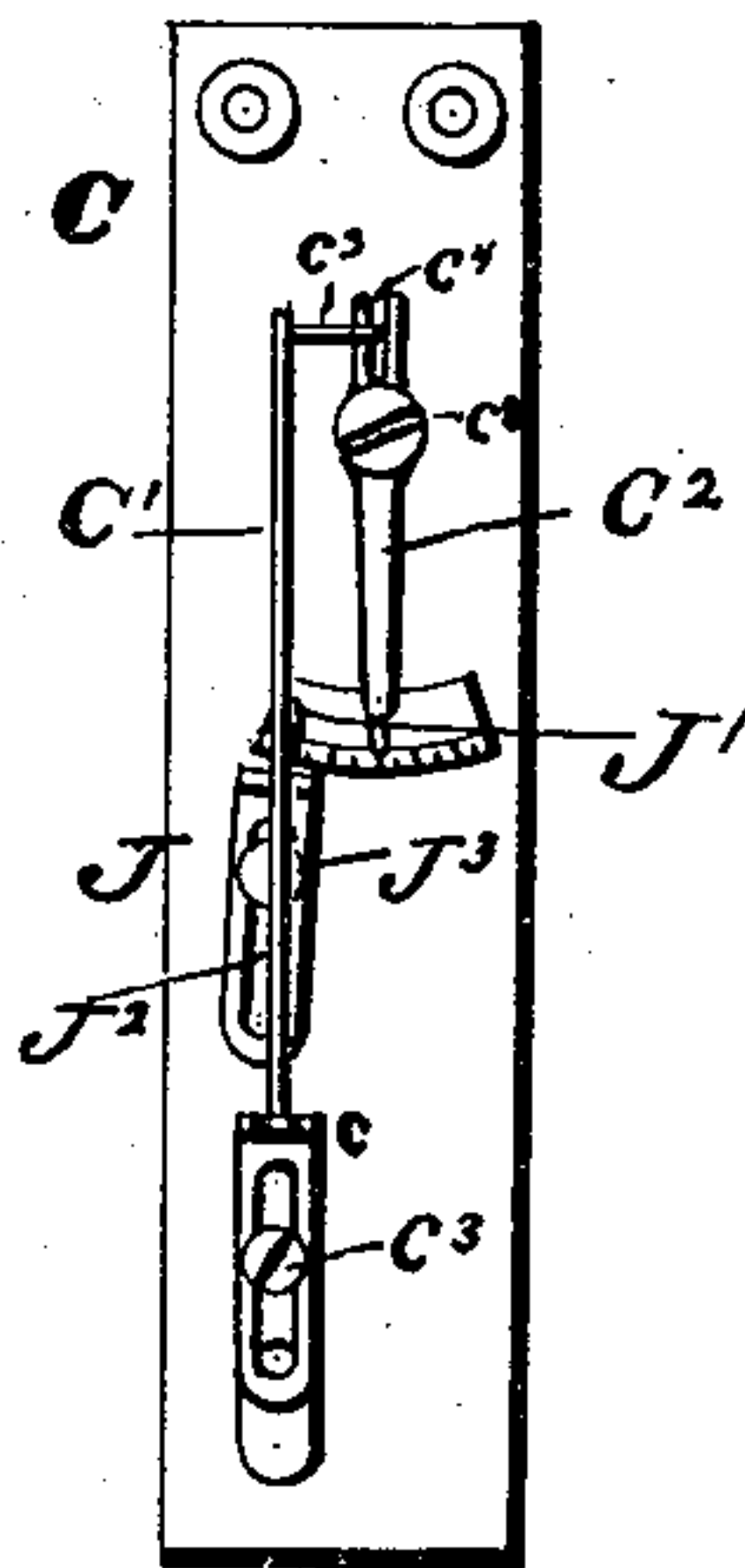
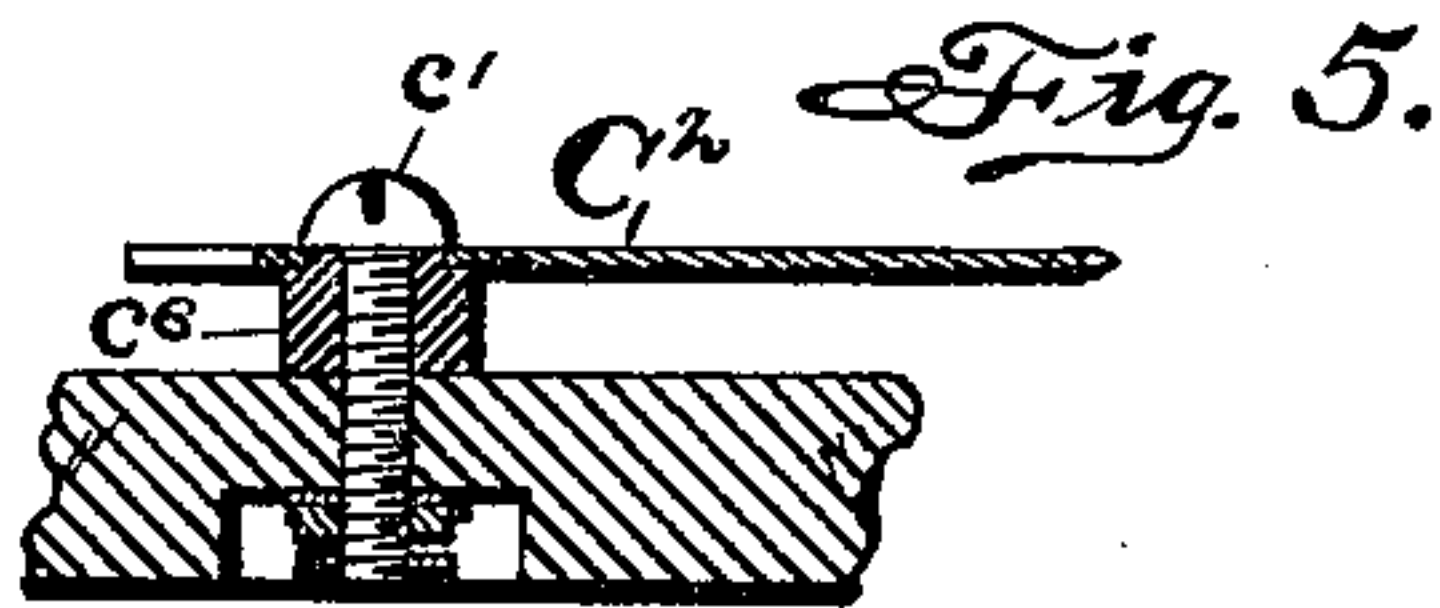
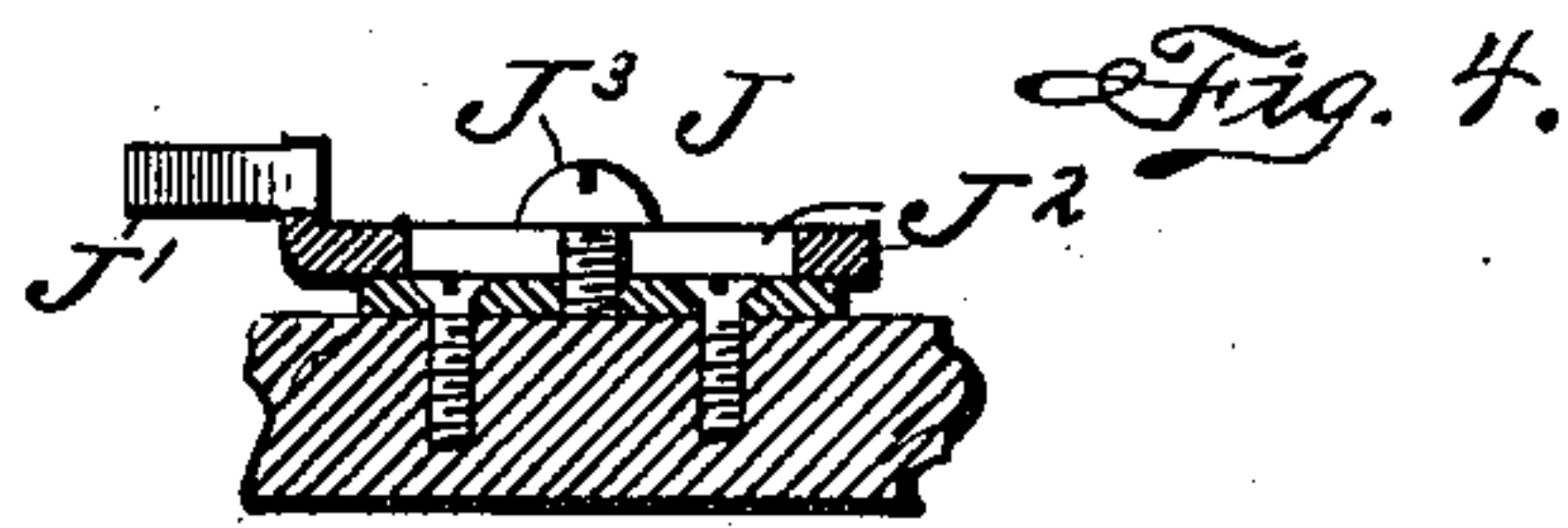
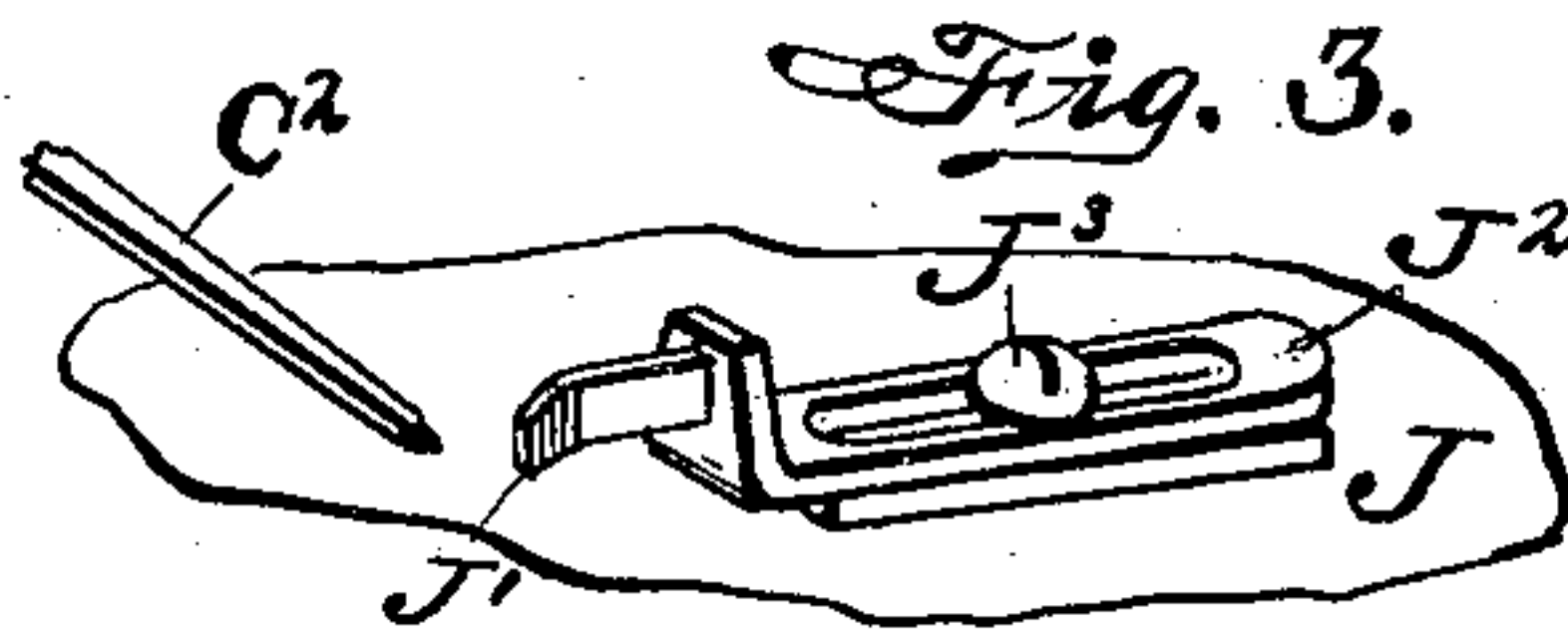
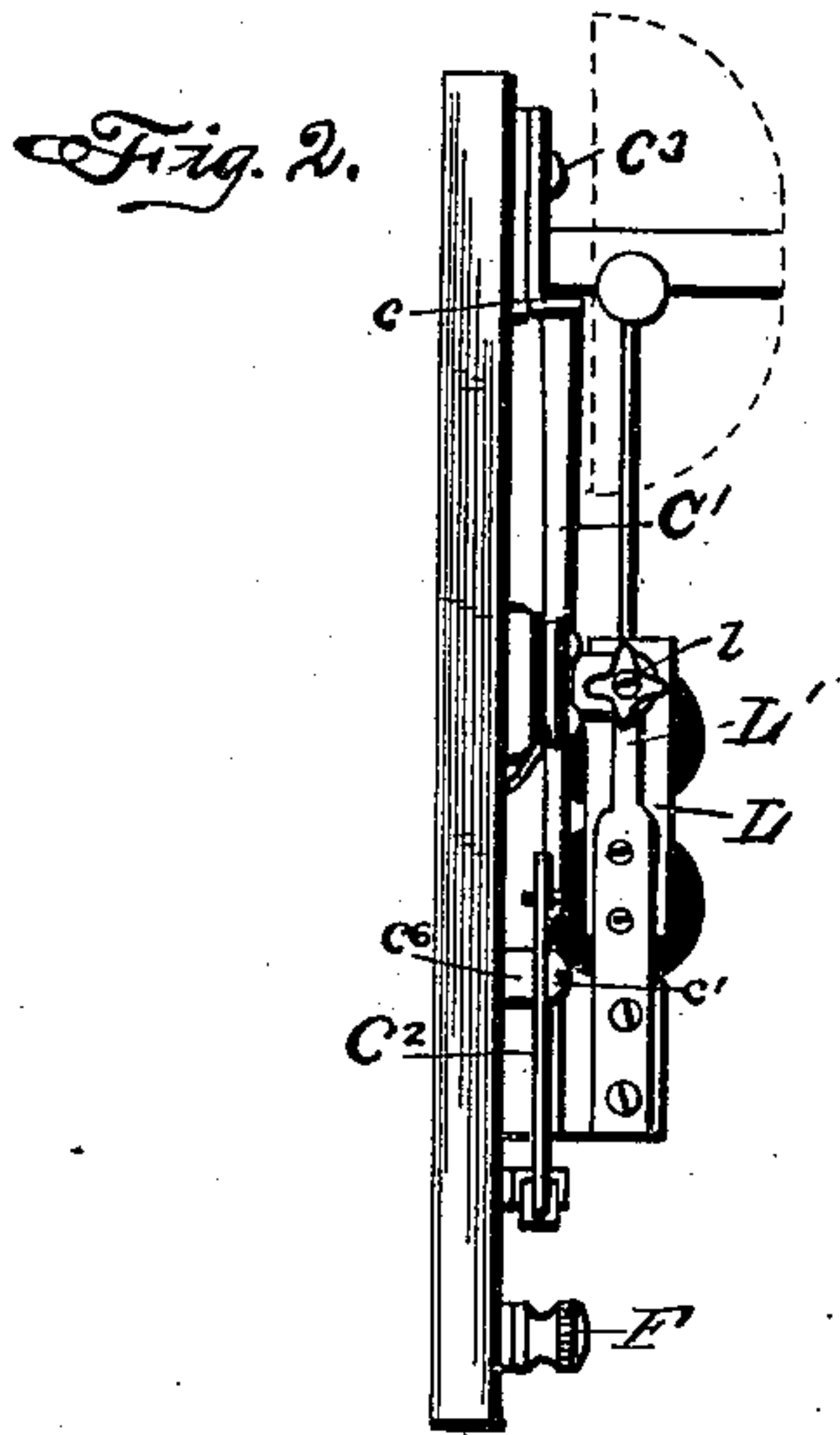
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2 Sheets—Sheet 2.

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*Fig. 6.*

Witnesses  
Jm H. Edwards  
Howard W. Orr.

Inventor  
Hosea F. Maxim  
By H. H. Bliss  
Attorney



# UNITED STATES PATENT OFFICE.

HOSEA F. MAXIM, OF NORFOLK, VIRGINIA.

## THERMOSTAT.

SPECIFICATION forming part of Letters Patent No. 564,567, dated July 21, 1896.

Application filed September 9, 1895. Serial No. 561,937. (No model.)

*To all whom it may concern:*

Be it known that I, HOSEA F. MAXIM, a citizen of the United States, residing at Norfolk, in the State of Virginia, have invented certain new and useful Improvements in Thermostats; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to improvements in thermal alarm devices. In an earlier patent granted to me, No. 522,022, of June 26, 1894, I illustrated and described a construction which I had devised to attain certain peculiar purposes. When it was put properly in place, it indicated at some distant point—as, for instance, the office of a large building—the fact that the temperature in the room containing the alarm device had reached a certain limit relatively low, and subsequently indicated in the room itself the instant when the temperature had arisen to a point considerably higher. Experience with the devices therein shown and described has led me to see that a mechanism of another character is necessary in order to meet numerous conditions and requirements.

The object of the present invention is to provide a device which will notify simultaneously both the occupant of a given room and parties at a remote point—as at an office—that a certain temperature has been reached.

Another object is to provide an alarm which can be adjusted for different temperatures more readily than those I have heretofore made. Another is to provide one which can be inserted into any of the ordinary electric circuits commonly used for calling or signaling purposes in hotels and similar buildings.

In the drawings, Figure 1 is a face view of an alarm device embodying my improvements and showing more or less conventionally the relations of the room in which it is placed to other parts of the building, as concerns electric circuits, &c. Fig. 2 is an edge view. Fig. 3 shows the adjustable contact detached and adjacent parts. Fig. 4 is a section of said contact. Fig. 5 is a section show-

ing the method of supporting pointer or vibrating contact. Fig. 6 shows a modified way of using an adjustable contact of the sort illustrated in the figures above described.

A A indicate apartments, and A' an office or central apartment in a building—such as a hotel, factory, or the like. Each apartment A is connected with the office by electric circuit, as at B B' B<sup>2</sup>, provided with a battery at any suitable place, as shown at B<sup>3</sup>. In each of the several apartments there is an alarm apparatus having the following parts.

C represents a mechanical thermostat as a whole—that is to say, one having a part or parts which are movable under variations in temperature.

The thermostat which I have devised can be readily applied to the electromagnetic bells which are now on the market or in use in large numbers for calls or signaling devices.

The thermostat comprises the expansible bar C'. It can be readily secured to a call-bell by means of a head at c, which can be fastened to the back plate by an adjustable screw C<sup>3</sup>.

C<sup>2</sup> is an index or pointer consisting of a needle or finger pivoted at c'. In order to hold it properly in place and yet allow it to be moved with the utmost freedom possible, I support it upon a post c<sup>6</sup>, to which it is held by a screw. This post gives it a wide bearing and insures that it shall swing in the desired fixed path. The expansible bar C' is connected by an arm c<sup>3</sup> with the index or pointer C<sup>2</sup>, the latter having a slotted heel at c<sup>4</sup> to receive the end of the arm. The end of the long arm of the index sweeps over a curved scale having indicated thereon degrees or marks corresponding to those on the ordinary thermometer-scale. The device in this respect differs from that shown in my aforesaid patent, No. 522,022, as herein the numerals on the pointer-scale increase as the pointer moves with a rising temperature, while under the system planned for in said earlier case they decreased at such times.

At J there is an adjustable bar carrying a contact J'. The latter is formed of light spring metal, and is curved to correspond as closely as possible to the curve of the index-scale. The bar J is slotted at J<sup>2</sup>, and a screw



$J^3$  passes through the slot. With these devices the contact  $J'$  can be adjusted forward or back along the arc of the scale and yet not be thrown out of such position as to readily  
 5 contact with the end of the pointer  $C^2$ . By having a spring like that at  $J'$ , and situated in the manner described, I provide a scraping contact which insures that the contact between the two parts shall be so effective as to  
 10 close the circuit under any circumstances.

I dispense entirely with a number of the parts that were necessary in my earlier mechanism and provide for sounding of alarms differently, as will be understood from the  
 15 following: The wire  $B$  is connected with a binding-post at  $F$ . The latter is connected by a wire  $f$  with the post  $c^6$ . The wire  $B^2$  is connected with a binding-post  $H$ , and from the latter a wire  $f^2$  runs to the post  $l'$  in front  
 20 of the bell-magnet; this post having a screw  $l$ , against which the spring  $L'$  of the armature  $L$  impinges. The armature  $L$  has electric connection with the base-piece of the magnet in the usual manner, and the latter has elec-  
 25 tric connection with the coils of the magnet through the terminals  $e'$  and the screw  $d$ . The other terminal of the magnet is connected by the wire  $f'$  with the binding-post  $F'$ , to which is also attached the wire  $B'$ .

30 I have so related the parts of the present apparatus that, as aforesaid, it can be utilized in connection with the ordinary call-bell circuits of a hotel or other building.

The office or central apartment is provided  
 35 with a bell  $I$  and with one or more batteries  $B^3$ .

If the temperature in the apartment  $A$  should rise to or beyond a predetermined degree the contacts at  $C^2$  and  $J'$  are closed, and as contact  $J'$  and the bar  $J$  are in the circuit  
 40 of the wire  $f^2$  and magnet  $D'$  of the alarm  $D$ , it will be seen that instantly and simultaneously both the bells at  $D$  in the apartment and at  $I$  in the office will be sounded. This does not interfere with the use of the bell for  
 45 ordinary calling purposes, for a party in the office can by a suitable contact-closer, such as a push button at  $O$ , close the circuit through the magnet  $D'$  and effect the ringing of the bell in the apartment, and at the same time  
 50 the system can be utilized for calling the office from the apartment in the usual manner. At  $O'$  a contact-closer, such as a push-button, in the apartment  $A$ , can be so introduced in the circuits  $B B'$  that the occupant of such room  
 55 can at any time put the battery upon the office-bell  $I$ .

The bell at  $D$  is not necessary to attain all of the purposes which can be accomplished with the other parts. Thus in Fig. 6 I have  
 60 shown how the adjustable contact  $J J'$  and

the expansible bar and swinging pointer can be used independently of a bell in the apartment, though they can be utilized to effect the sounding of a distant alarm. In this case the pointer is preferably arranged oppositely with  
 65 respect to the expansible bar, so that the device shall have its parts compactly arranged within small compass. The wires  $B B'$  lead through and from the thermal contact-closers substantially as in the mechanism above described.  
 70 A device of the character of this, in Fig. 6, I have found to be very advantageous for use in such places as halls or unoccupied apartments, as I can attain the end of indicating when a certain temperature has been reached,  
 75 and without the expense incident to an apparatus of the other form.

What I claim is—

1. In a thermal alarm, the combination of the expansible bar, the swinging contact ac-  
 80 tuated by the said bar, the electromagnetic bell, the relatively stationary contact mounted in a support and adjustable toward and from the swinging contact, said stationary contact terminating in a curved portion  $J'$  of light  
 85 spring metal lying in the path of the swinging contact, and an electric circuit, including the bell and adapted to be closed by said contacts, substantially as set forth.

2. The combination of the thermally-closed  
 90 contacts, the signaling apparatus in the apartment with said contacts, the signaling apparatus remote from said contacts, the electric circuit including the said contacts and signaling devices, means supplemental  
 95 to said contacts and adjacent thereto for closing a circuit through the remote signaling mechanism without affecting the signaling mechanism adjacent to the thermal contacts, and means adjacent to said remote signaling  
 100 mechanism for closing, independently of the thermal contacts, a circuit through the signaling mechanism adjacent to said contacts alone, substantially as set forth.

3. The combination of the thermal contacts,  
 105 the signaling devices adjacent thereto, the signaling devices at a remote point, the battery  $B^3$ , the wires  $B B' B^2$ , said wires  $B B'$  forming part of an electric circuit including both sets of signaling devices the push-but-  
 110 ton for closing the wires  $B B'$  on each other, and the push-button for closing the wires  $B' B^2$  on each other, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

HOSEA F. MAXIM.

Witnesses:

WM. L. SPEIDEN,

WM. H. EDWARDS.