

No. 657,359.

Patented Sept. 4, 1900.

H. E. REEVE.  
THERMOSTAT.

(Application filed Nov. 15, 1899.)

(No Model.)

Fig. 1

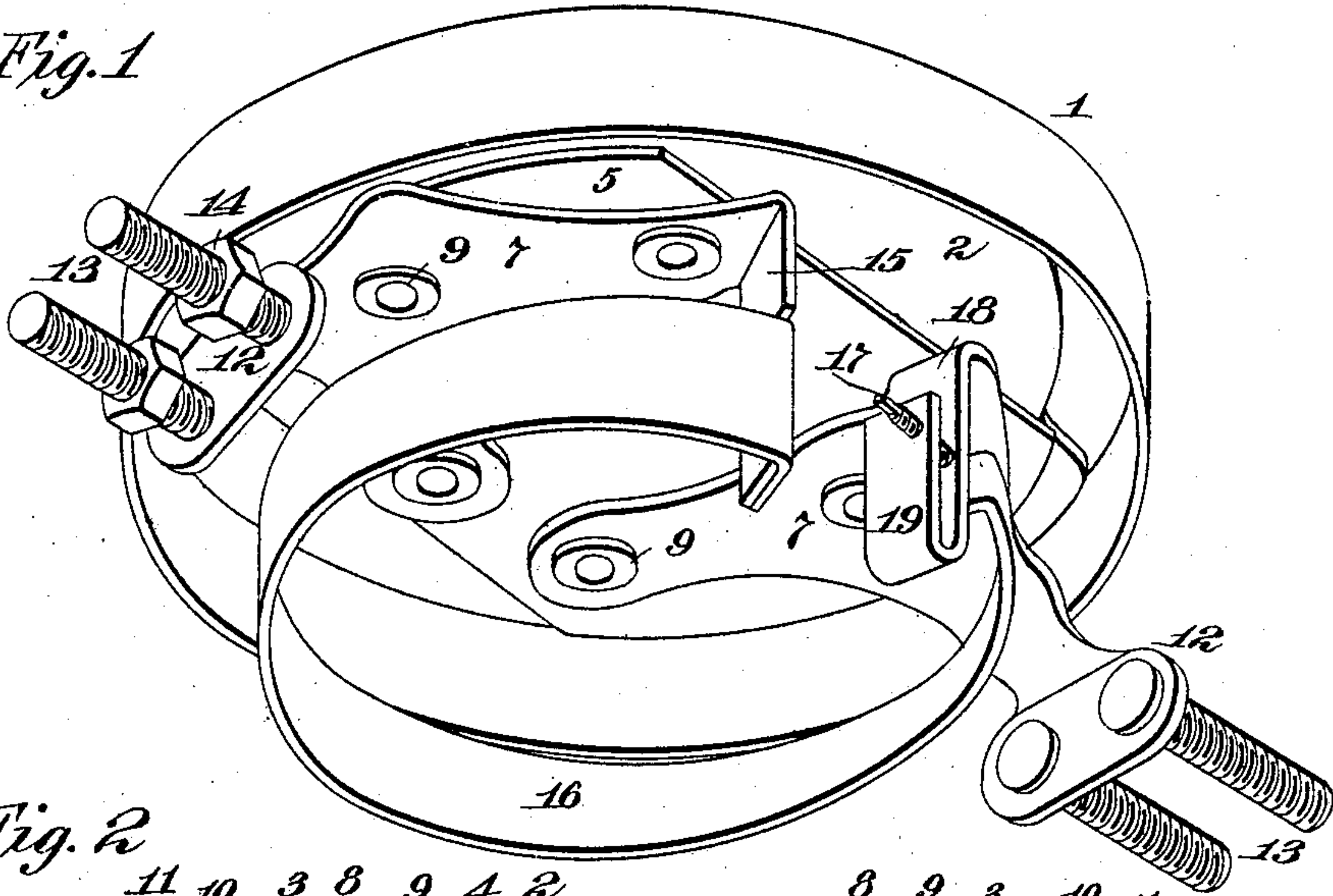


Fig. 2

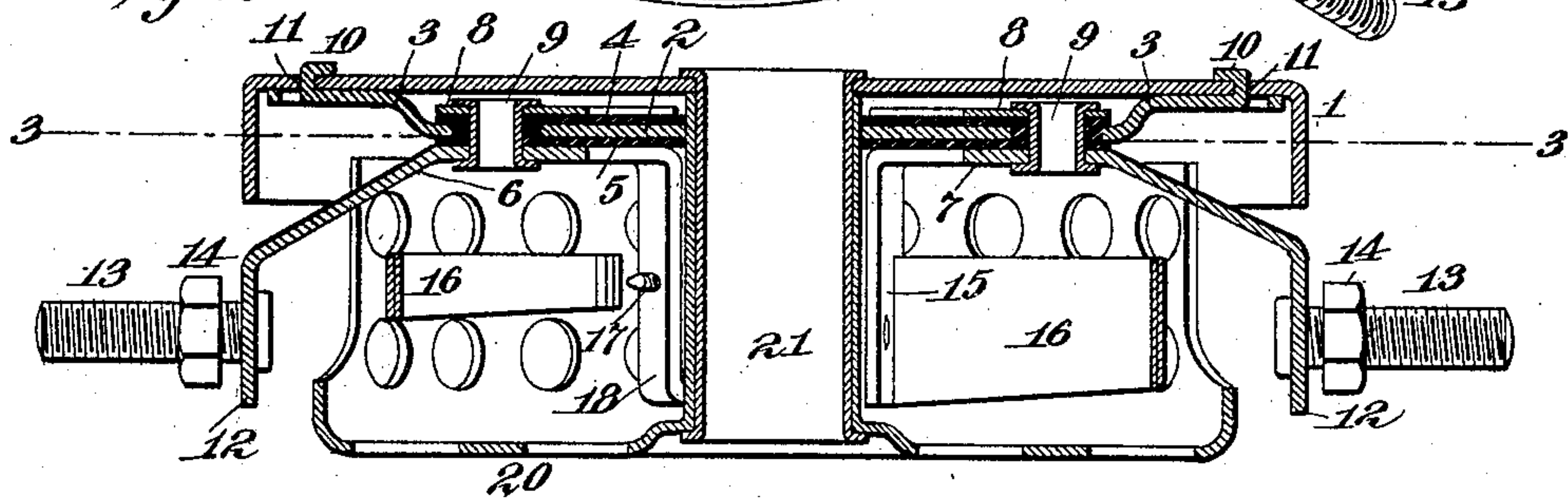
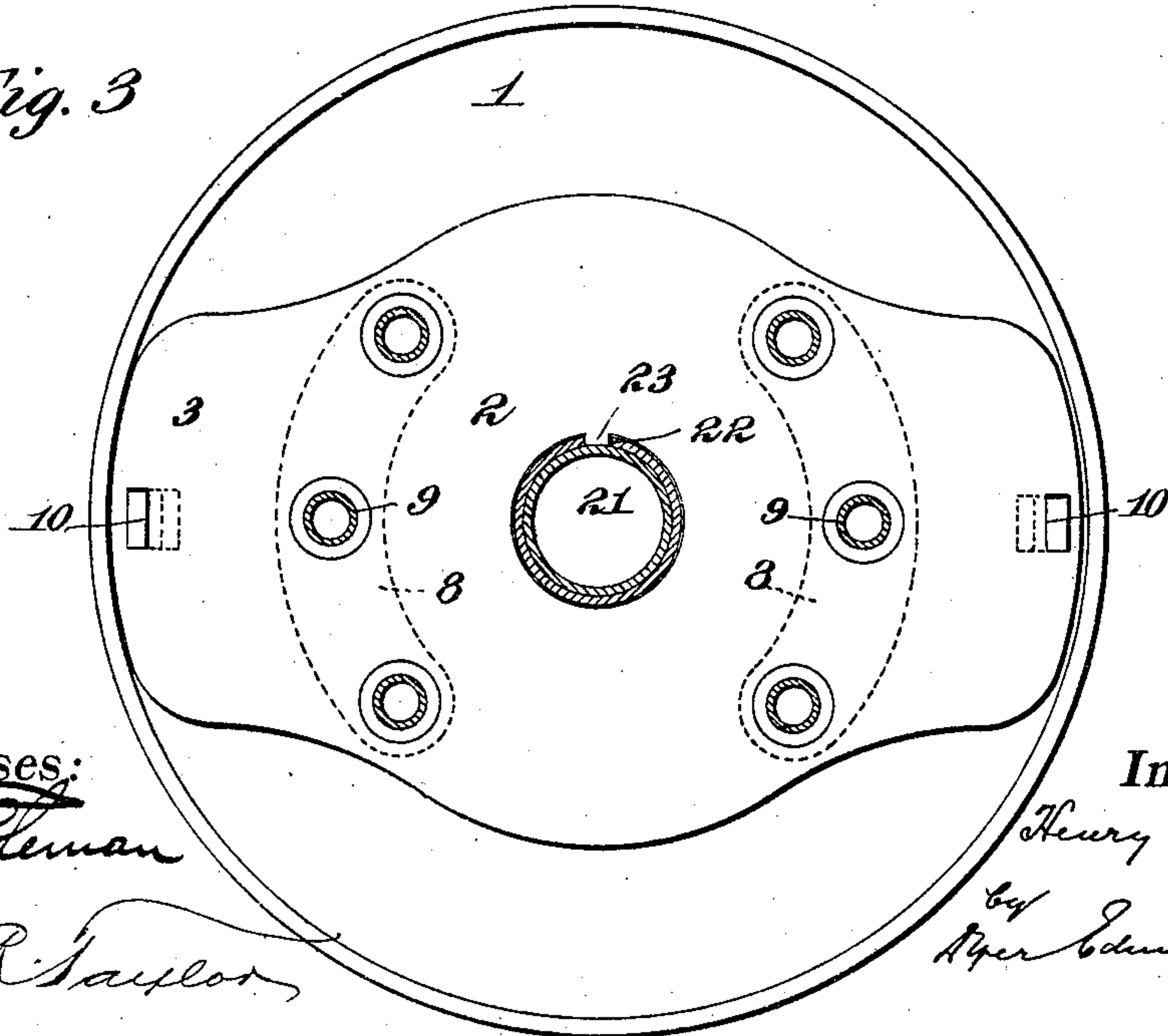


Fig. 3



Witnesses:

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Att'ys.



# UNITED STATES PATENT OFFICE.

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## THERMOSTAT.

SPECIFICATION forming part of Letters Patent No. 657,359, dated September 4, 1900.

Application filed November 15, 1899. Serial No. 737,027. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY E. REEVE, a citizen of the United States, residing in the city of New York, borough of Brooklyn, county of Kings, and State of New York, have invented a certain new and useful Improvement in Thermostats, of which the following is a description.

My invention relates to new and useful improvements in thermostats of the class which are now employed in residences, stores, warehouses, &c., in connection with fire-alarm apparatus, such thermostats being adapted when subjected to a dangerously-high temperature to control a circuit, generally to a signaling apparatus at a central point in the building in which the thermostat is installed or elsewhere. It is the general practice to provide each thermostat with a compound bar made of two metals having different coefficients of expansion and which when subjected to a sufficient temperature will be distorted to control the desired circuit. Other thermostats are provided with sections of fusible metal, the melting of which results in the control of the circuit.

My present improvements are applicable to thermostats employing any desired device for controlling the circuit when the temperature surrounding the thermostat has reached a sufficiently-high point as to warrant the control of the circuit a necessity.

The object of my invention is to provide a thermostat which can be constructed very cheaply, which will be effective in use, and which will be so perfectly insulated as to make a short circuit practically impossible, even in the presence of moisture in considerable quantities.

To this end my invention consists of a thermostat the elements of which are carried by and beneath a suitable protecting-shell which, as heretofore, may be secured to the ceiling, and wherein the insulation of the parts is effected within the space inclosed by the said shell, whereby the dangers of a short circuit will be practically overcome.

In order that my invention may be better understood, attention is directed to the ac-

companying drawings, forming a part of this specification, and in which—

Figure 1 is a perspective view of my improved thermostat with the perforated protecting-cover removed; Fig 2, a vertical section with the cover in place, and Fig. 3 a section on the line 3 3 of Fig. 2.

In all of the above views corresponding parts are represented by the same numerals of reference.

1 represents the shell or body in the form of a disk with a downturned rim, as shown; said body being made of a single piece of sheet metal. Carried within and beneath the shell 1 are the main elements of the thermostat, comprising, essentially, a sheet-metal disk 2, having upturned feet 3 3, two disks of mica 4 and 5; one on each side thereof, and the plates 6 and 7, which are included in the circuit. On the upper side of the mica disk 4 are washers 8 8 of substantially the shape of the main portions of the plates 6 and 7, (see dotted lines, Fig. 3,) and holding all of these elements tightly together are the rivets 9 9 of any desired character and number. These elements are secured in place within the shell 1 in any suitable way, but preferably by striking the lugs 10 10 up from the feet 3 3 of the disk 2, passing said lugs through openings 11 in the disk 1, and riveting said lugs over upon the disk 1, as shown. The openings in the disk 2 through which the rivets 9 pass are preferably bushed with insulating material, so that it will be seen that the contact-plates 6 and 7 are effectively insulated from each other, while at the same time such plates will be very firmly and rigidly supported from the shell 1. The plates 6 and 7 are provided with downturned extremities 12 12, in each of which one or more screws 13 are riveted, said screws being provided with nuts 14 and by which the circuit connections to the thermostat will be made. The contact-plate 7 is provided with a downturned arm 15, from which may be carried in any suitable way a thermostatic compound bar 16, made of two metals having different coefficients of expansion, said bar being of a normal curved form, as shown. The end of the thermostatic bar 16



coöperates with a screw 17, mounted in the downturned portion 18 of the contact-plate 6, said downturned portion being bent back on itself at 19, as shown, so as to offer a better support for the adjusting-screw 17. Normally the end of the thermostatic bar 16 is out of contact with the adjusting-screw 17, but when the said bar is subjected to a sufficiently-high temperature it will be distorted and will make contact with the adjusting-screw to control the circuit in the usual way. Instead of employing a thermostatic bar for accomplishing this result any other thermostatic device capable of operation under sufficient heat may be substituted—as, for example, a strip of fusible metal—which may connect the contact-plates 6 and 7 and which will be melted, thereby opening a normally-closed circuit when the temperature reaches a dangerously-high point.

The improved thermostat is provided with the usual cover 20, perforated, as shown, so as to be effectively ventilated, said cover being formed with a central tube 21, which passes through openings in the disk 2 in the mica disks 4 and 5 and in the shell 1, said tube being riveted over upon said shell, as shown.

The improved thermostat may be secured in place by means of a screw passing through the tube 21 and entering the ceiling. By passing the tube 21 of the cover 20 through openings in the shell 1 and in the disk 2 the cover will be held much more securely than if the tube for the cover engages an opening in the shell 1 only. In order that the cover 20 may be prevented from being turned to make a short circuit possible through the cover, I provide the tube 21 with a longitudinal groove 22 therein, which groove engages a lug 23, formed in the disk 2, as shown particularly in Fig. 3.

Having now described my invention, what I claim as new, and desire to secure by Letters Patent, is as follows:

1. As a new article of manufacture, an improved thermostat comprising a shell, a metal disk within said shell having upturned feet which are secured to the shell, insulating-disks carried above and below said metal disk, two contact-plates carried beneath the bottom insulating-disk, rivets passing through the contact-plates, both insulating-disks and the metal disk, and a thermostatic device carried by said contact-plates and arranged to control an electric circuit when influenced by sufficient change in temperature, substantially as set forth.

2. As a new article of manufacture, an improved thermostat comprising a shell, a metal disk carried by said shell by means of lugs which are struck up from the metal disk and which pass through openings in said shell, an insulating-disk carried below said metal disk and an insulating-disk carried above said metal disk, two contact-plates carried beneath the first insulating-disk, washers carried above the last-mentioned insulating-disk, and rivets passing through said washers, both of the insulating-disks, the metal disk and the contact-plates, integral arms extending down from said contact-plates and with which circuit connections are made, and other arms depending from said contact-plates for carrying a thermostatic device adapted to control an electric circuit when influenced by sufficient change in temperature, substantially as set forth.

This specification signed and witnessed this 3d day of November, 1899.

HENRY E. REEVE.

Witnesses:

FRANK L. DYER,  
JNO. R. TAYLOR.