

No. 704,115.

Patented July 8, 1902.

A. ROESCH.

THERMOSTAT.

(Application filed Jan. 14, 1901.)

(No Model.)

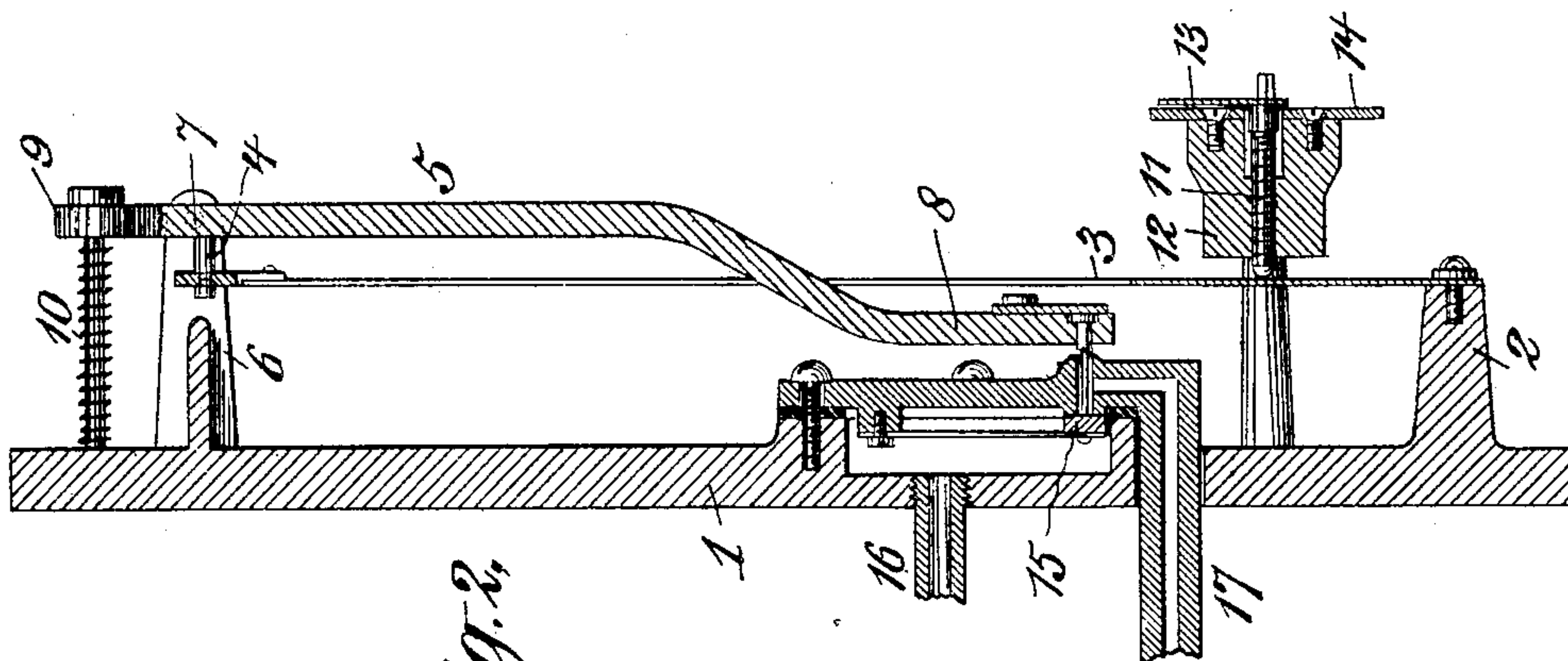


Fig. 2.

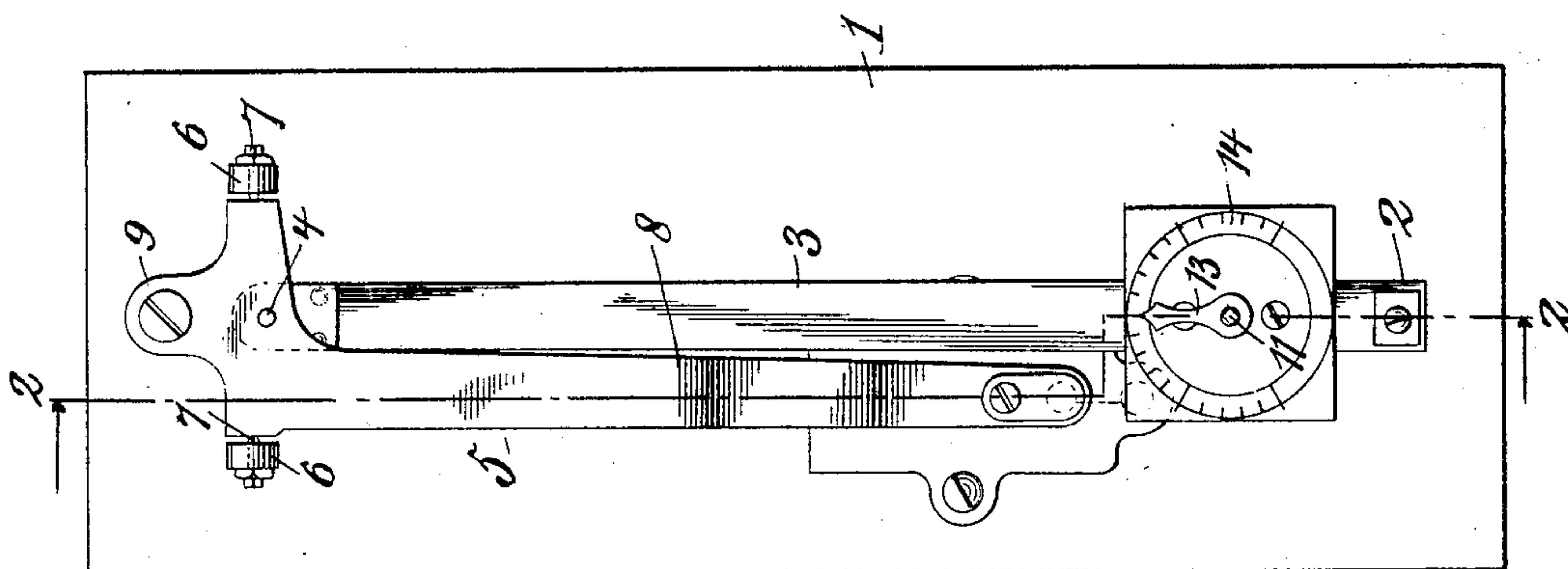


Fig. 1.

WITNESSES:

R. H. Hayworth
C. F. Carrington

INVENTOR
Alfred Roesch
BY
James M. Hill
ATTORNEY

UNITED STATES PATENT OFFICE.

ALFRED ROESCH, OF BRIDGEPORT, CONNECTICUT, ASSIGNOR TO DAVIS & ROESCH TEMPERATURE CONTROLLING COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW JERSEY.

THERMOSTAT.

SPECIFICATION forming part of Letters Patent No. 704,115, dated July 8, 1902.

Application filed January 14, 1901. Serial No. 43,188. (No model.)

To all whom it may concern:

Be it known that I, ALFRED ROESCH, a citizen of the United States of America, and a resident of Bridgeport, county of Fairfield, and State of Connecticut, have invented certain new and useful Improvements in Thermostats, of which the following is a specification.

My invention relates to improvements in thermostatic controlling devices; and it consists in the novel construction and arrangement of parts therein.

My invention is particularly applicable to thermostatic controlling devices employed in connection with temperature-regulators for heating systems.

Heretofore the plates affected by changes in temperature in a thermostatic controlling device have commonly been constructed of two parallel plates of metal having an unequal coefficient of expansion and secured together, the said plates forming a so-called "compound bar," one end of which is secured to a base and the other end of which is free to move laterally under the unequal expansion of the plates due to changes in temperature. In such a form of thermostat but little power can be exerted, owing to the elasticity and flexibility of the parts used in the construction.

In carrying out my improvement I utilize the pull of a single plate of metal caused by its longitudinal contraction, the power of which is limited only by its tensile strength. In such a manner a very much greater power will be developed for the purpose of controlling the movements of a valve or other device than is possible in the lateral movement of a compound bar.

My invention further consists in certain novel details of construction and combination of parts and in certain novel adjusting means for the expansion-plate, as will hereinafter be more fully set forth.

I will now proceed to describe a device embodying my invention and will then point out the novel features in claims.

In the drawings, Figure 1 is a front or face view of a device embodying my invention.

Fig. 2 represents a central longitudinal section of the same, the plane of section being taken on the line 2 2 of Fig. 1.

Similar reference characters designate corresponding parts in both views.

Reference character 1 designates a suitable base, which is formed of some such material as cast-iron or similar substance, which is but slightly affected by changes of temperature.

Supported at one end upon the base-plate 1—as, for instance, upon the uprising lug 2—is a device 3, which is here shown as consisting of a single thin metallic plate. This plate may conveniently be of brass or of other metal or metallic compound of greater expansibility under the influence of a rising temperature than the supporting-base 1. The opposite end of the said metallic strip 3 is secured to a stud 4, projecting from an operating-lever, (designated as a whole by the reference character 5.) The operating-lever 5 is pivotally supported upon uprights 6, made integral with or rigidly secured upon the supporting-base. The pivots, which may conveniently be adjustable cone-points, are designated by the reference character 7. The operating-lever has a long arm 8, one end of which is adapted to operate a valve or other device, as desired, and a short arm or extension 9, between which and the base is arranged a compression or return spring 10.

By the foregoing description and an examination of the drawings it will be clear that under the influence of a decreasing temperature the metallic strip 3 will contract and being rigidly secured to the base at 2 will pull upon the stud 4 and rotate the lever 5 upon its pivot 7. This will raise the end of the long arm 8 of the lever and lower the short arm or extension 9 against the resistance of the spring 10. A rise in temperature and a consequent expansion of the metallic strip 3 will permit the spring to react and force the lever back, thereby lowering the end of the long arm 8.

A regulating-screw 11 is mounted in a screw-threaded bracket 12, which is rigid with the base 1. The end of this screw is arranged to bear against the strip 3, as shown in Fig. 2,

and when it is desired that the thermostat shall act more quickly or at a lower temperature the said screw will be adjusted to bear harder against the said strip, with the result
 5 that the same will be forced out of a straight line, and hence relatively shortened. A pointer or indicator 13 may be secured to the said adjusting-screw and a dial 14 provided, having degrees of temperature marked there-
 10 on corresponding in positions to the positions the pointer will assume when the regulating-screw has adjusted the strip to operate at such degrees.

I have herein illustrated my thermostatic
 15 controlling device as adapted to control the movements of a valve, such valve being designated by the reference character 15 and which controls the passage of fluid from an inlet-pipe 16 to an outlet-pipe 17. I have
 20 illustrated such construction and arrangement merely as one of the many uses to which my invention may be applied. It is of course entirely obvious that other devices may be substituted for the valve and that the valve
 25 itself forms no part of the invention disclosed in this application. It is further obvious that the particular construction and arrangement of the parts herein shown and described serving to make up my improved thermostat is
 30 capable of various modifications within the spirit and scope of my invention, and I do not wish, therefore, to be limited to the particular form herein shown and described.

What I claim is—

35 1. In a thermostat, the combination with a base and a lever having a pivotal connec-

tion, near one of its ends, with said base, of a metallic strip whose coefficient of expansion is greater than that of the base, secured at one end to the base, and at its other end
 40 linked to the lever adjacent to its pivotal point, whereby contraction of the said strip relatively to the base will move the lever in one direction; a spring between the lever and the base opposing such movement, and adapted
 45 to move the lever in the opposite direction upon the relative expansion of such strip and a regulator adapted to bear laterally against said strip.

2. In a thermostat, the combination with
 50 a base and a lever having a pivotal connection, near one of its ends, with said base, of a metallic strip whose coefficient of expansion is greater than that of the base, secured at one end to the base, and at its other end
 55 linked to the lever adjacent its pivotal point, whereby contraction of the said strip relatively to the base will move the lever in one direction, a spring between the lever and the base opposing such movement and adapted
 60 to move the lever in the opposite direction upon the relative expansion of such strip, and a regulating-screw adapted to bear laterally against the said strip.

In testimony whereof I have signed my
 65 name to this specification in the presence of two subscribing witnesses.

ALFRED ROESCH.

Witnesses:

FRED. H. DAVIS,
 C. F. CARRINGTON.