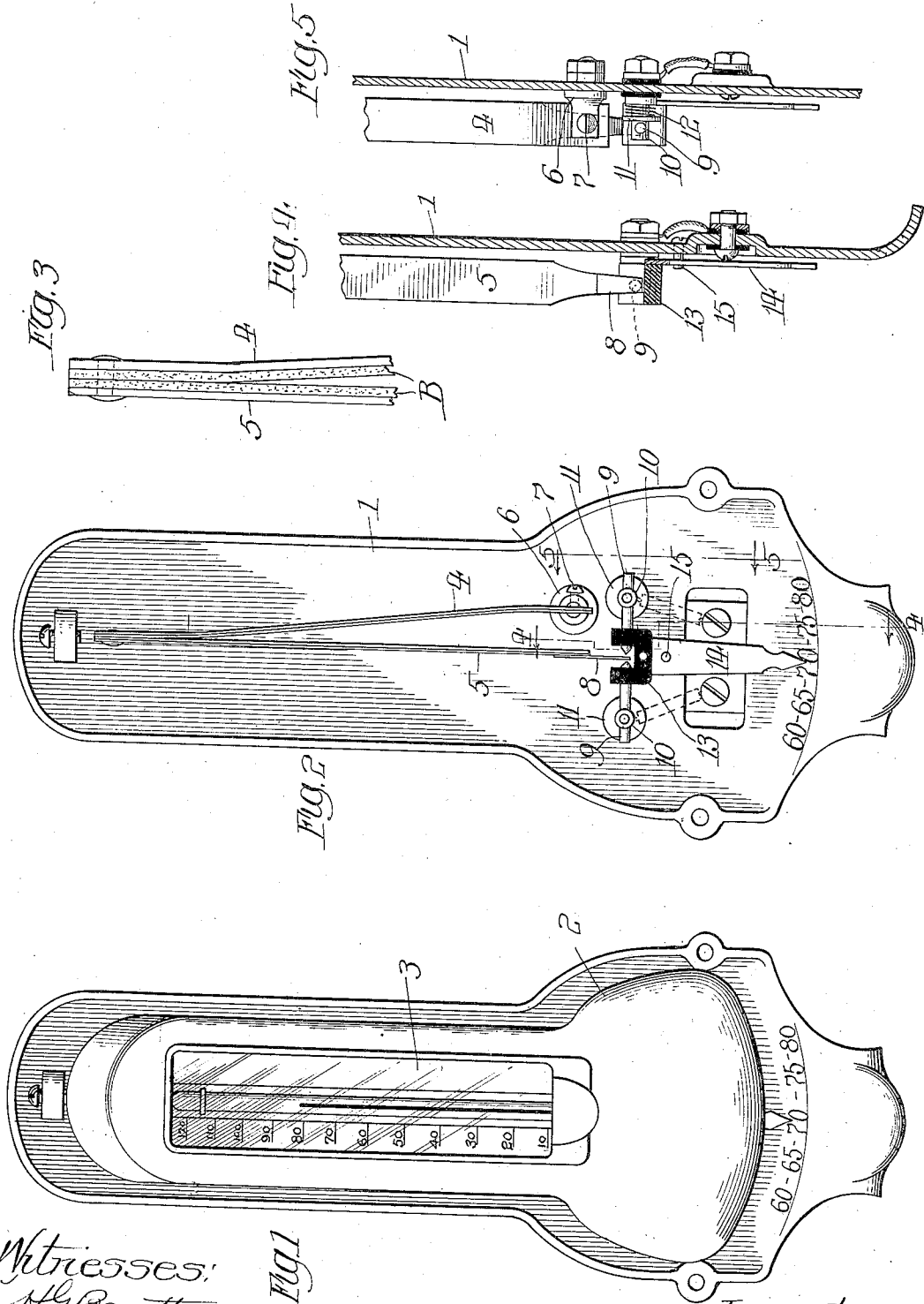


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J. NELSON.
THERMOSTAT.

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UNITED STATES PATENT OFFICE.

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THERMOSTAT.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JOHN NELSON, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Thermostats, of which the following is a specification.

My invention relates to what are commonly designated thermostats, used in connection with automatic heat regulating apparatus and the object thereof is to provide a simple, efficient and reliable device of this character, whose various features of advantage and utility will be made apparent from the description hereinafter given.

In the drawings, Figure 1 is an elevation of my thermostat complete; Fig. 2 a similar view, but with the front casing and thermometer thereof removed; Fig. 3 an enlarged sectional view of the thermostat-bar illustrating the different materials of which both arms of the bar are made; Fig. 4 a side elevation of the operating parts of the thermostat, particularly the laterally movable contact points and the frame in which they are mounted; and Fig. 5 a view similar to Fig. 4 but taken from the other side of said parts.

Referring to the present embodiment of my invention, as illustrated in the drawings, the thermostat comprises a base portion or plate 1, on which is secured in any suitable manner a casing 2 carrying a thermometer 3, as usual and arranged to conceal and protect the working parts of the thermostat, such as the thermostat-bar and the movable contacts hereinafter described.

Within the casing 2 and supported by the base plate 1 is a thermostat-bar which is of peculiar and novel construction, inasmuch as it is formed as two arms 4 and 5, of which the arm 4 is alone supported on the base plate, while the other arm 5 which is connected to the upper end of the arm 4 is unsupported by said plate, except, of course, through the medium of the arm 4. This latter arm may be supported on the base plate in any suitable manner, as by means of the post 6, to which such arm may be secured in any suitable manner, as for instance, as shown, by the set screw 7. As shown more particularly in Fig. 3, the thermostat-bar, which is in the form of two comparatively thin strips secured together at their upper ends, is formed of different materials on its opposite sides. In the present instance and by preference,

the arm 4 is composed of tin on its outer face or surface and of zinc on its inner face or surface, while the same is true of the arm 5, that is to say, such latter arm is composed of tin on its outer face and of zinc on its inner face, with the result that the zinc faces of the respective arms 4 and 5 are adjacent and opposed to each other. The purpose of this construction and arrangement is to cause both of the arms 4 and 5 to bow inwardly during contraction of the thermostat-bar, so that a given amount of such movement of the arms and their consequent contact will cause an increased movement of the contact terminal 8, which depends from the lower end of the arm 5 and which coöperates with the contact points as now about to be described.

The contact points or contacts which are arranged in the electrical circuit, as usual in devices of this character, consists of a pair of pins 9, adapted to move or slide transversely of the thermostat in openings formed near the upper ends of the posts 10, which are mounted upon the base plate 1, as indicated more particularly in Figs. 2 and 5. These pins are arranged to slide with a yielding tension or resistance which, in the present instance, is provided by washers 11 surrounding the posts 10 and arranged to be outwardly pressed and caused to bear against the under or inner sides of the contact pins by means of springs 12. Thus, a frictional resistance is provided which, however, is not sufficient to prevent proper and ready lateral adjustment of the contact points or pins. These contact points or pins are mounted at or near their inner adjacent ends to a block or frame 13 which has a U-shaped opening or slot through whose sides the contacts extend and in which the contact points proper are positioned. As clearly indicated in Fig. 2, the contact terminal 8 of the thermostat-bar extends into said opening in the block or frame 13 in position between the contact points. The block or frame 13 is secured to the upper end of an index or pointer 14 which, as shown in Figs. 2, 4 and 5, is in the form of a lever pivoted on the base plate 1, at the point 15 and pointed at its lower end to coöperate with the series of figures arranged on the arc of a circle to indicate the different degrees of temperature at which the thermostat may be adjusted or set.

By means of the block or frame 13 the contact points are not only moved in unison in a

transverse direction, but their alinement is always preserved, inasmuch as such contacts are securely mounted in the block 13. Moreover, the novel construction of the thermostat-bar has been found to be most efficient and reliable in its proper coöperation with the contact points.

I claim:

1. In a thermostat, the combination of a pair of pins having contact points, a thermostatic bar arranged to coöperate with said contact points, posts having transverse openings in which the pins slide, and a laterally movable frame carrying said pins and adapted to move them in unison and to preserve their alinement, said frame having an index or pointer.

2. In a thermostat, the combination of a pair of pins having contact points, a thermostatic bar arranged to coöperate with said contact points, posts having transverse openings in which the pins slide, means for applying to the pins a yielding resistance substantially uniform throughout the range of movement thereof, and a laterally movable frame in which said pins are mounted and which is adapted to move them in unison.

3. In a thermostat, the combination of a pair of pins having contact points, a thermo-

static bar arranged to coöperate with said contact points, posts having transverse openings in which the pins slide, springs arranged to apply a frictional resistance to the movement of the pins in the posts, and a laterally movable frame carrying said pins and adapted to move them in unison.

4. In a thermostat, the combination, of contact points, posts in which said contact points are arranged to slide in unison, a spring-pressed collar surrounding said posts and bearing against the contact-points, and a laterally movable frame carrying said pins and adapted to move them in unison.

5. In a thermostat, the combination of a thermostat-bar, a pair of pins forming contacts with which such bar coöperates, a pair of posts having openings in alinement in which the pins are arranged to slide transversely, and a block or frame in which such pins are mounted and which has an opening or recess in which the contacts terminate, and an index or pointer connected with the frame and forming an operating lever or handle therefor.

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