W. MORELLI.

THERMOSTATIC INDICATOR.

APPLICATION FILED AUG. 18, 1919.

1,406,476. Patented Feb. 14, 1922.

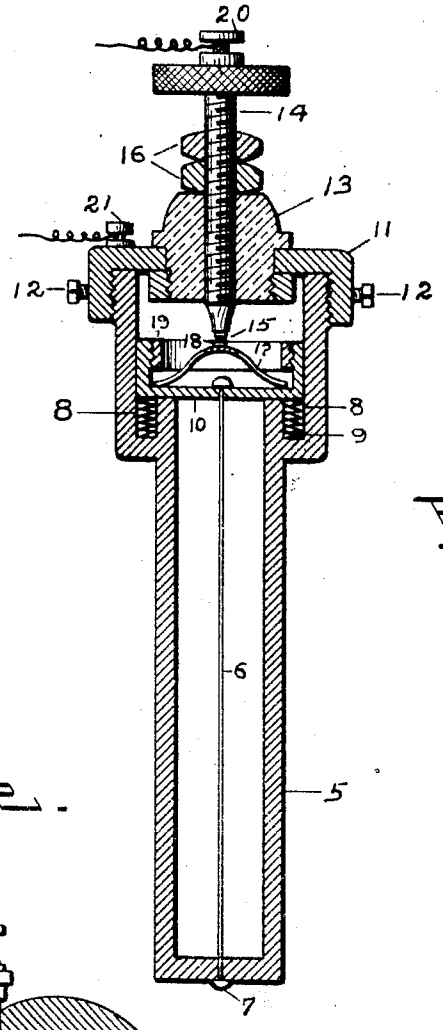


Fig. 1.

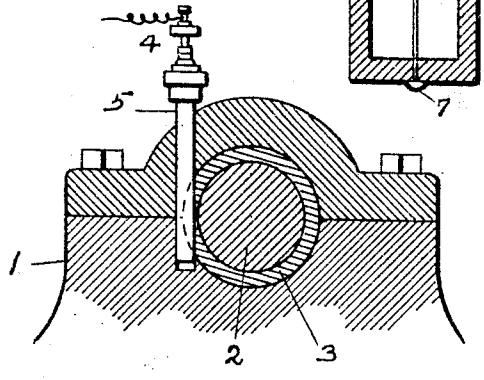


Fig. 2.

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UNITED STATES PATENT OFFICE.

WILLIAM MORELLI, OF SAN FRANCISCO, CALIFORNIA, ASSIGNOR OF ONE-HALF TO PHILLIP J. WALSH, OF SAN FRANCISCO, CALIFORNIA.

THERMOSTATIC INDICATOR.

1,406,476. Specification of Letters Patent. Patented Feb. 14, 1922.

Application filed August 18, 1919. Serial No. 318,430.

To all whom it may concern:

Be it known that I, WILLIAM MORELLI, a citizen of the United States, and residing in the city and county of San Francisco, State of California, have invented certain new and useful Improvements in Thermostatic Indicators, whereof the following is a specification.

This invention relates to thermostatic indicators, for giving a warning when the temperature of any desired apparatus reaches a predetermined limit.

I consider that my invention will be more particularly useful in connection with the bearings of machinery, and I shall now describe it with reference to that use. It is important that an instrument for this purpose be extremely sensitive and delicate and it is an object of my invention to produce such an instrument.

The invention may be best understood by reference to the accompanying one sheet of drawing and the following description thereof. The drawing illustrates the invention in what I at present consider its best form.

Figure 1 is a longitudinal section of the thermostat.

Figure 2 is a cross-section of a shaft, showing the bearing in the pillow block and the journal therein, and the thermostat applied to the journal.

In the figures:—The pillow block 1 supports the journal 2, and the usual Babbitt lining 3. The thermostat 4 may be set in contact with the babbitt, or in a hole drilled therein for the purpose. Should the bearing become too warm, the thermostat closes an electric contact, and an alarm is given. I have shown but one such connection but of course any number of journals and thermostats may be connected to one circuit, and an annunciator applied to show from which one the alarm originates.

I will now describe the structure of the thermostatic instrument itself. 5 is a tube, which may be of copper, and which contains an exceedingly fine rod or wire 6, fastened to it at the bottom 7, in any suitable manner, and extending toward the other end of the tube. The wire and the tube should be of different material, for example a copper tube and an aluminum wire, having different coefficients of expansion. At its top the tube is enlarged to provide sockets 8, containing springs 9. These springs push upward against a disc or piston 10, which is fastened to the upper end of the wire 6, and is held thereby against the push of the spring 9. Upon the top of the tube, above the disc 10, is a cap 11, closing the tube, and secured by set screws 12. The cap 11 is provided with a central insulating bushing 13, through which is tapped a screw 14, having at its lower end an electric contact point 15. The screw may be adjusted to any degree and secured by the jam nuts 16. Upon the disc 10 is a metal spring spider 17, bearing a contact point 18, in register with the contact point 15 on the end of screw 14. The spring or yielding quality of the spider prevents injury to the delicate contact point from any excess of action of the devices. A screw ring 19, screwing down on the inside of the piston 10 retains the spring 17 in place. Electric wires may be connected to the top of screw 14, as at 20, and to any part of the tube or cap, as at 21, so that a current may flow when the contacts 15 and 18 touch.

The operation of the instrument is as follows: The wire or rod 6 is made from a material having a greater co-efficient of expansion than the tube 5, so that when the tube 5 is heated, its expansion will neutralize the effect of the heat upon the rod 6, so that as it elongates, the piston 10 is pushed up by the springs 8, and when it is pushed up sufficiently the contacts 15 and 18 will be closed, thereby notifying the attendant of an undesired increase in temperature of the bearing.

Having thus described my invention, and an embodiment of it, in the full, clear and exact terms required by law, and knowing that it comprises a novel, useful and valuable improvements in the art to which it pertains, I here state that I do not wish to be limited to the precise construction and arrangement of the several parts, as herein set forth, as the same may be variously modified by a skilled mechanic without departing from the spirit of the invention.

What I claim and desire to secure by Letters Patent of the United States, is the following, to wit:

A bearing heat indicator comprising a tube, a rod connected with said tube having a different thermal coefficient of expan-

sion therefrom, a piston connected with said rod, springs to push the piston against the rod, a spring carried by the piston, a ring for retaining said spring in place and an adjustable contact screw adapted to bear upon the spring when the apparatus is overheated.

In testimony that I claim the foregoing, I have hereto set my hand this 11th day of Aug. 1919, in the presence of two witnesses.

WILLIAM MORELLI.

Witnesses:

P. J. WALSH,

FLORENCE L. WOLFE.