

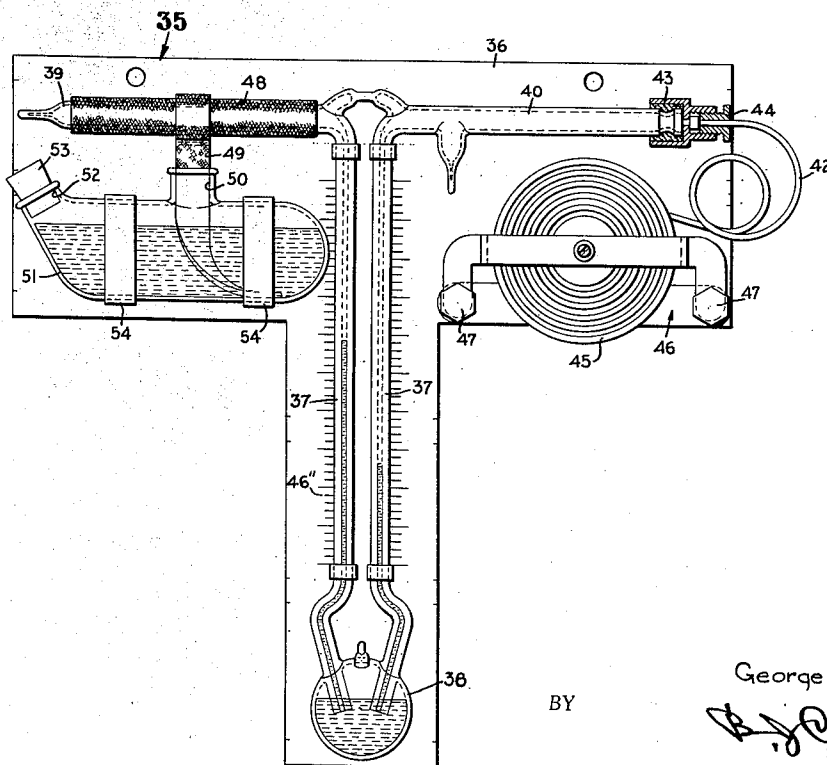
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HYGROMETER

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HYGROMETER

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4 Claims. (Cl. 73-338)

This invention relates to scientific measuring instruments.

The general object of the invention is to provide a novel instrument for determining the condition of the atmosphere or of other gases.

A more specific object of the invention is to provide a novel hygrometer.

A further object of the invention is to provide a novel thermometer.

Other objects and the advantages of my invention will be apparent from the following description taken in connection with the accompanying drawing, wherein:

The figure is a front elevation partly in section showing my invention.

In the figure I show my invention which is indicated generally at 35. The device 35 includes a frame 36 on which capillary tubes 37, bulb 38, opposed bulbs 39 and 40 and receptacle 51 are mounted.

The bulb 40 communicates at its outer end with a tube 42 secured thereon by a metal fitting 43 cemented to the bulb 40 and clamp nut 44. The tube 42 connects with a hollow diaphragm member 45 which is secured on the frame 36 by a bracket 46 and bolts 47. The instrument shown in the figure receives liquid such as light Russian mineral oil and gas such as nitrogen.

The bulb 39 receives a water absorbing fabric tube 48 which is connected to a wick 49 which passes through a neck 50 and into a receptacle 51. The receptacle has a filling neck 52 and a cork 53 therefore. Brackets 54 on the frame 36 support the receptacle.

In use the wick member 49 is moistened and the instrument is placed where a reading is to be taken. The changes in barometric pressure affect the member 45 which in turn increases or decreases the gas pressure in the bulb 40 thus causing the column of liquid in the capillary tubes 37 to fluctuate. Further the relative humidity affects the gas in the bulb 39 so that a reading taken on the scale 46" is a combined reading of barometric pressure, temperature and humidity. With the wick removed a combined temperature and barometric reading is secured.

The bulbs 39 and 40 are shown as horizontally directed and this arrangement is preferable although the bulbs may, if desired, have their axes directed upwardly from the axes of the capillary tubes. Such upward or horizontal arrangement produces an evaporative action which does not include a capillary drawing effect beyond that of the necessary evaporative effect required on the bulb.

Having thus described my invention, I claim:

1. In a device of the class described, a pair of capillary tubes, a hermetically sealed reservoir, one end of each of the capillary tubes communicating with the reservoir, liquid in the reservoir

and extending therefrom into the capillary tubes, a bulb extending from each of said capillary tubes and remote from the reservoir, gas in each bulb and communicating with the upper surface of the liquid in the tubes, and a diaphragm member responsive to the atmosphere and communicating with one of the bulbs whereby the diaphragm member affects the height of the column of liquid in the capillary tubes.

2. In a device of the class described, a pair of parallel tubes each having a hollow bulb communicating with and extending therefrom, said bulbs being axially aligned, a hermetically sealed reservoir into which the tubes extend, a liquid in the reservoir and extending into the tubes, a gas in the tubes above the liquid and in the bulbs, a wick member surrounding one of said bulbs, means to supply moisture to the wick member, said other bulb having a tube extending therefrom, and a hollow diaphragm member responsive to the atmosphere and communicating with said tube.

3. In a device of the class described, a pair of capillary tubes, a hermetically sealed reservoir, one end of each of the capillary tubes extending into and being secured to the reservoir, liquid in the reservoir and extending into the capillary tubes, a bulb extending from each of said capillary tubes, each of said bulbs being closed, gas in each of said bulbs and communicating with the upper surface of the liquid in the tubes, a tube communicating with one of the bulbs, a diaphragm member responsive to the atmosphere and communicating with the tube, the pressure of gas in said bulbs being less than atmospheric whereby the diaphragm member affects the height of the column of liquid in both of said capillary tubes.

4. In a device of the class described, a pair of capillary tubes, a hermetically sealed reservoir, one end of each of the capillary tubes extending into and being secured to the reservoir, liquid in the reservoir and extending into the capillary tubes, a bulb extending from each of said capillary tubes, said bulbs being hollow and enlarged with respect to the size of the capillary tubes, said bulbs being in axial alignment, a wick member mounted on one of the bulbs, means to supply water to the wick member, each of said bulbs being closed, a filling of gas in each of said bulbs and extending to the upper surface of the liquid in the tubes, a tube communicating with one of the bulbs, and a hollow diaphragm member responsive to the atmosphere and communicating with the last mentioned tube, the pressure of gas in said bulbs being less than atmospheric whereby the diaphragm member affects the height of the column of liquid in both of said capillary tubes.

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