

[54] **PSYCHROMETER WICK AND PSYCHROMETER HAVING SUCH A WICK**

[72] Inventor: **Oskar Alfred Kreiberg**, Kalkovnsvej 8, 6100 Haderslev, Denmark

[22] Filed: **July 30, 1969**

[21] Appl. No.: **845,965**

[30] **Foreign Application Priority Data**

July 31, 1968 Denmark3695/68

[52] U.S. Cl.73/338

[51] Int. Cl.G01n 25/62

[58] Field of Search73/338, 338.3, 338.6

[56]

References Cited
UNITED STATES PATENTS

168,505	12/1875	Klinkerfues.....	73/338
1,176,425	3/1916	Bristol	73/338
1,586,351	5/1926	Bristol et al.....	73/338
2,095,237	10/1937	Brooks.....	73/338.6
3,196,683	7/1965	Gross.....	73/338

Primary Examiner—Louis R. Prince

Assistant Examiner—Denis E. Corr

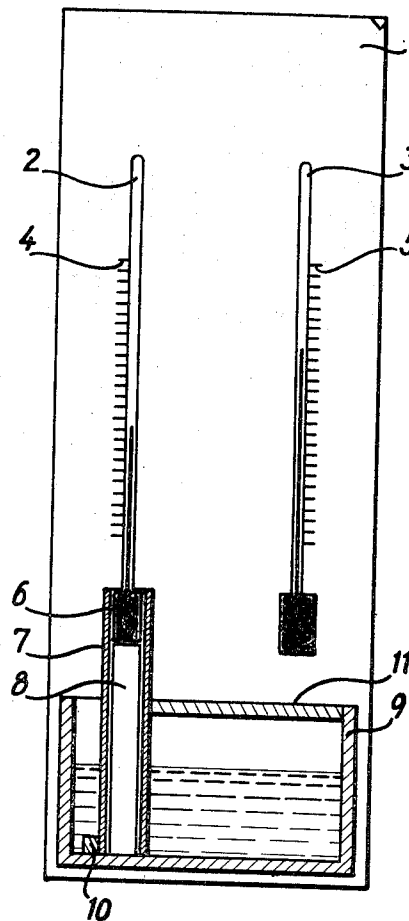
Attorney—Beveridge & De Grandi

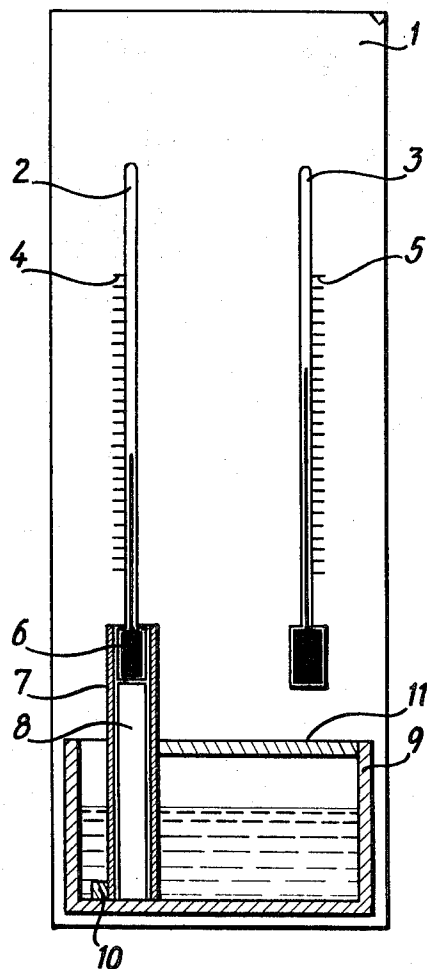
[57]

ABSTRACT

An improved psychrometer wick having a prolonged useful life, made possible by substantially filling the portion of a hose-shaped wick element intended to lie beneath the thermometer bulb with a body of suction material. The body of suction material may be in the form of a plug inserted into the hose-shaped wick element.

5 Claims, 1 Drawing Figure





INVENTOR

OSKAR ALFRED KREIBERG

BY

Beveridge + De Grandi,
ATTORNEYS

**PSYCHROMETER WICK AND PSYCHROMETER
HAVING SUCH A WICK**

The invention relates to a psychrometer wick having a hose-shaped wick part adapted to sheathe a thermometer bulb and to reach down into a water vessel.

Such wicks have to be replaced frequently because they are rapidly polluted by dust and fat from the surrounding air whereby the suction effect of the wick is reduced and the psychrometer will not show the correct value.

By the present invention a psychrometer wick is aimed at having a longer life than known wicks. To obtain this the psychrometer wick according to the invention is characterized in that at least the part of the wick intended to be situated beneath the thermometer bulb has a great cross section area of suctorial material. The invention is based on the recognition that the said pollution occurs only in the outermost layers of the wick. If therefore the cross section area of suctorial material is sufficiently great the wick will retain its suction effect for a very long time.

The part of the wick adapted to be situated beneath the thermometer bulb may have a greater cross section area of suctorial material than the part adapted to sheathe the thermometer bulb. In this case the outer dimension of the wick may be reduced without the suction effect being decreased.

The greater cross section area of suctorial material can be obtained by the fact that in the part of the wick adapted to be situated beneath the thermometer bulb a cylindrical plug of suctorial material is inserted. This plug is protected against pollution by the surrounding hose-shaped wick part and will therefore retain its suction effect for a long time. Furthermore, the hose-shaped wick part now only has to lift the water a little distance by capillary action, viz a distance corresponding almost to the height of the thermometer bulb, since the well-protected plug lifts the water through the first distance. It has been proved in practice that hereby a substantial prolongation of the life of the wick is obtained.

Another advantage of this wick is that it gets a more pleasant appearance because it retains its shape not only in the part surrounding the thermometer bulb but over its entire length.

This effect is further improved if the plug is of a comparatively stiff material. In this case is not only obtained that the wick has substantially the same cross section over its whole length but also that the wick is straight which gives a pleasant appearance. The plug may be made by rolling a suctorial paper, e.g., crepe paper.

The invention also relates to a psychrometer having a wick according to the invention sheathed on the thermometer bulb and reaching down into a water vessel, said psychrometer being characterized in that the bottom of the water vessel is shaped to support the wick. In this case it is in a simple way obtained that the wick remains around the thermometer bulb without it being necessary, as with the known wicks, to bind it to the thermometer bulb or secure it in another way and furthermore that the plug reaches the bottom of the thermometer bulb.

The invention will be described more in details in the following with reference to the drawing showing an embodiment of a psychrometer according to the invention partly in section.

On a plate 1 two thermometers 2 and 3 are arranged each having its own scale 4 and 5. The bulb 6 of the thermometer 2 is sheathed by a wick having a hose-shaped wick part 7 and a plug 8 of suctorial material inserted therein. The wick reaches down into water in a water vessel 9 arranged on the plate 1. The plug 8 of suctorial material may be formed in any suitable manner such as by rolling a sheet of crepe paper.

As a consequence of the evaporation from the wick a cooling of the thermometer bulb 6 occurs so that the thermometer shows less than the thermometer 3. The evaporation from the wick and thereby the difference between the readings of the two thermometers depend on the relative humidity of the surrounding air and this humidity can therefore be determined from the difference between the temperature readings.

On the plate 1 a table may be provided between the two thermometers 2 and 3 at the levels of the temperature indications of the scale 5, this table has horizontal series of numbers indicating the relative humidity of the air for a number of differences between the thermometer readings. For the sake of clearness the table may be so designed that there is only one series of numbers for every second indication of degree of the scale 5.

The plug 8 which is well protected within the hose-shaped wick part 7 is substantially not polluted by dust and fat from the surrounding air and will therefore retain its suction capacity almost unaltered for a very long time. The wick part 7 now only has to lift the water a distance corresponding almost to the length of the thermometer bulb and this effect is maintained for a much longer period than the capacity of this wick part to suck water the whole way from the water level in the vessel 9. Hereby the wick as a whole gets a very long life.

The plug 8 is preferably comparatively rigid and fits rather exactly in the hose-shaped part 7, so that the wick as a whole is straight and has substantially the same outer dimension throughout its whole length which gives a pleasant appearance. The plug preferably reaches from the lower end of the wick to a place immediately beneath the thermometer bulb 6, whereby it functions in an optimal way as a wick. By means of a projection 10 in the bottom of the water vessel 9 and a lid 11 the wick is supported in the desired vertical position. The plug 8 preferably contacts the bottom of the thermometer bulb 6.

The projection 10 may have another shape. It may for instance be constituted by a stud fitting into the hose-shaped wick part 7 in which case the plug preferably not reaches the whole way down to the lower end of the hose-shaped wick part. The projection may also be constituted by a rib which completely or partly surrounds the lower part of the wick.

The plug 8 preferably has substantially the same diameter as the thermometer bulb 6, whereby is obtained that it fills the hose-shaped wick part 7 which fits well around the thermometer bulb 6.

The hose-shaped wick part and the plug may be of circular cross section or may have any other cross section. They may for instance be of polygonal or star-shaped cross section.

Instead of the plug described use may be made of an increased wall thickness which may, if desired, be present only in the part lying beneath the thermometer bulb.

An increase of the desired effect described above may be obtained if the wick is impregnated against pollution.

What is claimed is:

1. A psychrometer wick structure comprising an elongated hose-shaped wick member of suctorial material, and a body of suctorial material in the form of a cylindrical plug positioned in and at least substantially filling the cross section of said hose-shaped wick member over a substantial portion of its length, said hose-shaped wick member having at least one end thereof extending axially outward from said body of suctorial material for receiving a thermometer bulb.

2. The psychrometer wick structure as claimed in claim 1 wherein the plug is relatively rigid.

3. A psychrometer comprising a dry bulb thermometer, a wet bulb thermometer, a water vessel beneath said thermometers, a hose-shaped wick having its upper end sheathing the bulb of said wet bulb thermometer and its lower end reaching the bottom of said water vessel, and a relatively rigid plug of suctorial material substantially filling the portion of said hose-shaped wick not sheathing said bulb of said wet-bulb thermometer.

4. The psychrometer as claimed in claim 3 further comprising means on the bottom of said water vessel adapted to engage and prevent said wick from moving laterally in at least one direction.

5. The psychrometer as claimed in claim 4 wherein said plug is sufficiently rigid to support said wick on said bottom of said water vessel to thereby obviate the necessity of binding said wick to said bulb of said wet bulb thermometer.