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1,984,946

WICK FOR THERMALLY RESPONSIVE ELEMENTS

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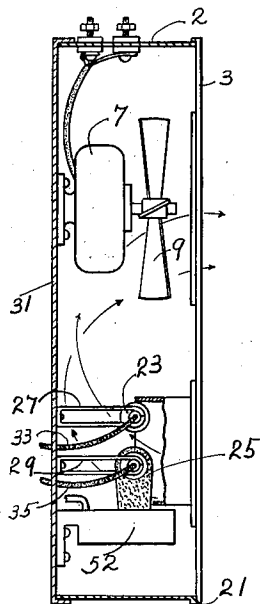


Fig. 2.

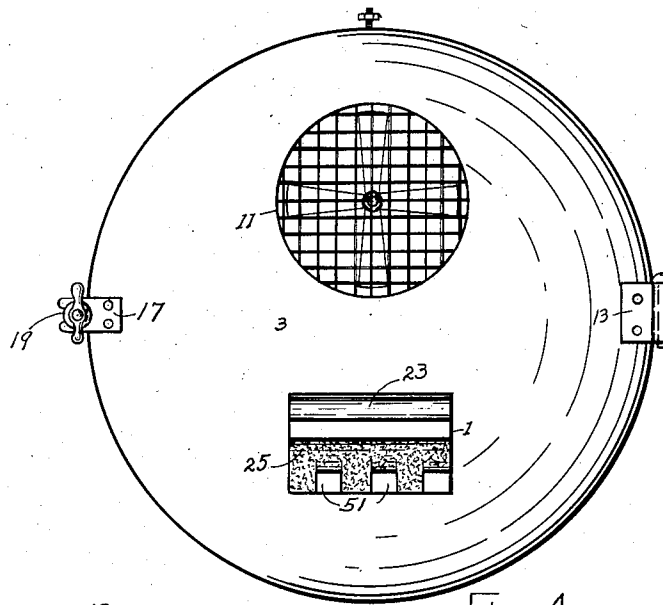


Fig. 1.

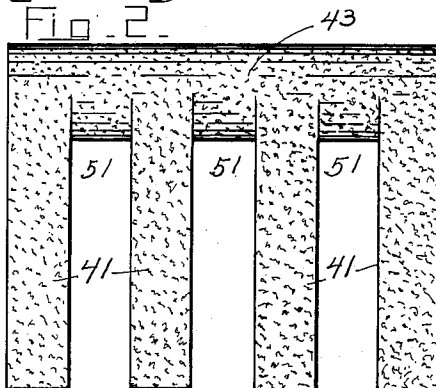


Fig. 3.

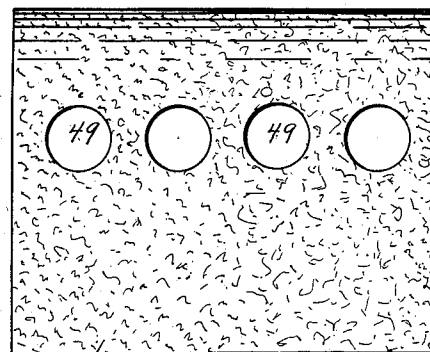


Fig. 4.

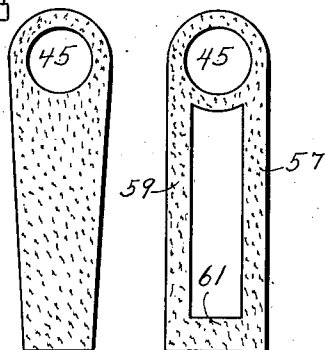


Fig. 5. Fig. 6.

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WICK FOR THERMALLY RESPONSIVE
ELEMENTS

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6 Claims. (Cl. 297—2)

The present invention relates to an apparatus for indicating, calculating, or controlling the humidity of the surrounding atmosphere.

The operation of this type of apparatus is well known in the art, which briefly consists in obtaining the temperature of both a wet and dry thermometer, the difference in reading is then utilized in operating the appropriate mechanism for manipulating the respective apparatus.

The invention deals more particularly with a wick for supplying moisture to the wet bulb, which consists of certain novel features in both material and construction which will be more fully prescribed in the accompanying drawing, in which like numerals are employed to designate like parts throughout the same.

Figure 1 is a front view of a form of unit for housing the temperature-sensitive elements.

Figure 2 is a side view of Figure 1 having the cover removed.

Figure 3 is a side view of one form of the wick.

Figure 4 is a side view of a modified form of the wick.

Figures 5 and 6 are end views of the wick shown in Figures 3 and 4.

In order to illustrate my invention, I have selected a form of housing unit as shown in Figures 1 and 2, in which the wet and dry thermometers are supported adjacent an opening 1 within the face cover 3. A funnel-like member 5 is positioned about the opening 1, and extends inwardly toward the respective thermometers. A fan 9 operated by motor 7 is utilized in increasing the air flow, the air being drawn in through the inlet opening 1 and out through the exhaust opening 11.

The cover 3 is secured to the sidewall 2 on one side by hinge 13, and on the other side by a slotted member 17, and a thumbscrew assembly 19. This allows the cover to be easily opened and closed at the same time it may be tightly fastened to form a relatively air-tight joint about its outer edge 21.

The thermometer elements 23 and 25 are supported directly opposite and in rear of the opening 1 by the brackets 27 and 29, which are secured to the rear wall 31 of the unit housing. Appropriate cables 33 and 35 convey the movements caused by the temperature sensitiveness of the respective thermometers to the recording or controlling mechanisms.

The improved wick is composed of a ground or powdered pumice mixed with an insoluble adhesive substance, and hardened under heat and

pressure in molds or solid slabs, from which the wick may be formed.

Referring to Figure 3, the upper portion 43 of the wick is formed with a horizontal aperture 45, the lower portion being slotted to form opening 51. The retained portions 41 are shown as being the same in width as opening 51, but this is not always necessary. It should be remembered however, that the upper portion of the wick 43 is kept moist by capillary action, and there is a limit in reducing the size of these members due to the fact that their capacity depends upon their cross-section area.

A modified form of the wick is shown in Figure 4, in which the members 41 are replaced by continuous surface 47, provided with openings 49, extending through the wick immediately below the horizontal aperture 45.

Figure 6 shows the modified end structure, in which each of the extended members 41 may be constructed to form side members 57 and 59, and a bottom member 61. This structure may also be applied to the type of wick shown in Figure 4, which would provide a longitudinal slot through the bottom portion 47.

The object of this structure is to increase the surface of the wick in close proximity of the wet bulb. The air flowing inwardly through the opening 1 will be drawn through the opening between the dry thermometer 23 and the wick 43, and out through the slotted portion of the wick 51, therefore the air completely circulates around that portion of the wick inclosing the wet bulb, increasing the evaporation from the wick.

Extensive experiments have shown that the wick is little affected by the ordinary impurities contained in water, or dust, soot, or other foreign matter collected on its surface by the circulation of the air. The capillary action being always sufficient to supply ample moisture to the wet bulb element.

In operation the wet bulb thermometer is placed within the aperture 45 of the wick, the lower portion is immersed within a liquid contained within a well 52 (best shown in Figure 2). By capillary action, the upper portion of the wick inclosing the thermometer becomes moist. This arrangement has marked advantages over the customary wick, in that, the air is allowed to circulate about the wick, which creates a more constant cooling effect than other wicks now in general use.

Although the invention is described in detail, the particular structure, and as illustrated in the accompanying drawing, is for the purpose of

clarity only, and is not to be understood as a limitation of the scope of the invention. What I claim as new, and desire to secure by Letters Patent, I shall express in the following claims.

5 I claim:

1. A wick for supplying moisture to a wet bulb element having a portion for receiving the bulb, and a portion for conveying moisture to the said bulb receiving portion, and means providing for the circulation of air around the wet bulb receiving portion consisting of openings formed within the said moisture conveying portion.

2. A wick for supplying moisture to a wet bulb element having a portion of the wick adapted to receive the said element, and a portion extending outwardly from the said element receiving portion, said extended portion having openings therethrough for increasing the evaporating surface of the said wick.

3. A wick for supplying moisture to a wet bulb element, said wick having a passage therethrough adapted to receive the said element and a portion extending outwardly from the said element receiving portion, said extended portion having openings formed therein, for the purpose of circulating an evaporating medium therethrough.

4. A wick for supplying moisture to a wet bulb element, said wick being formed of a rigid

material and having a passage therethrough adapted to receive the said element and a portion extending outwardly from the element receiving portion, said extended portion having openings forming air passages in close proximity to the element receiving portion.

5. A psychrometer apparatus having dry and wet bulb elements, means for supporting said elements within a housing unit, a wick for conveying moisture to the wet bulb element and means for supplying moisture to the said wick, said wick having passages therein for circulating an evaporating medium therethrough, means within said housing for circulating said medium.

6. A psychrometer apparatus having dry and wet bulb elements, means for supporting said elements within a housing unit, openings within said housing for admitting and exhausting air, a moisture supplying means within said housing, a wick for conveying moisture to the wet bulb element, said wick having a passage for receiving the said bulb and an outwardly extended portion for contacting the moisture supply means, the extended portion having openings therein forming air passages in close proximity to the element receiving portion and means for drawing the air through the said passage.

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