Aug. 26, 1930. E. C. HORTON 1,774,374

CONDENSATION PREVENTER FOR WINDOWS

Filed March 11, 1929

Fig. 1.

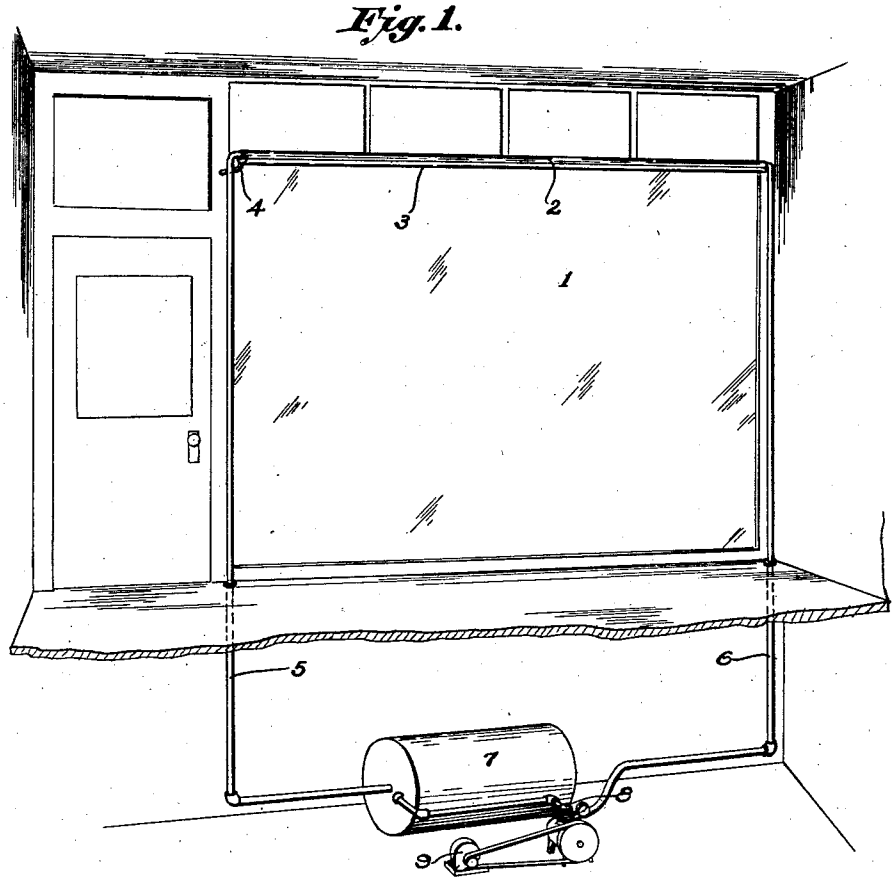
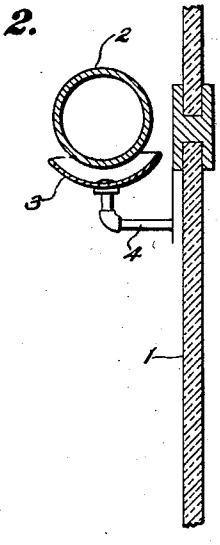


Fig. 2.



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CONDENSATION PREVENTER FOR WINDOWS

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This invention relates to a method and apparatus for preventing the condensation of moisture on windows in freezing weather. The annoyance and disadvantage of having the show windows "frosting" in cold weather and thereby obscuring and beclouding the display of the merchandise in the window is well known to the merchants and public. Attempts have been made to eliminate and avoid such moisture condensation, as by creating a forced circulation of air over the window with an electric fan, but this practice is not always convenient or feasible. The present invention aims to provide a simple apparatus for removing excessive moisture from the air; and for creating a circulation of air as well as for cooling the air at the inner side of the window.

Broadly my invention resides in the removal of moisture from the air at the inner side of the show window, or other surfaces designed to be freed from having the moisture in the air condensed thereon. The preferred embodiment of my invention resides in arranging a cooling element so that the air at the inside of the window will be caused to come in contact therewith and the moisture in the air will condense upon the cooling element and thereby render the air free from excessive moisture.

While the air may circulate through a system which embodies the cooling element, a simple form of the invention is illustrated in the accompanying drawings in which the cooling element is disposed adjacent the window, preferably in a position concealed from an exterior view through the window or so arranged as not to detract from the appearance of the window, for the purpose of cooling the air to a temperature more nearly approximating the outdoor temperature.

In its preferred embodiment the invention contemplates the arrangement of the cooling unit adjacent the top of the window and connected to a refrigerating mechanism arranged in a compartment or room separate from the show window, as in the basement of the store. Underlying the cooling member are arranged means for removing such waters of condensation as may have become deposited thereon in the form of an icy coating and which will thaw during the periods of rest on the part of the cooling unit.

In the drawings,

Fig. 1 is a more or less diagrammatic view in perspective illustrating the condensation preventing apparatus installed at the inner side of a show window.

Fig. 2 is a detailed cross sectional view depicting more clearly the cooling member and its associated trough.

Referring more in detail to the accompanying drawings, the numeral 1 designates the show window of a store adjacent the inner side of which is disposed the tubular or cylindrical cooling element 2 of the apparatus. This cooling element is depicted as being an elongated body arranged adjacent the upper portion of the window so that as the air is cooled thereby such cooled air will tend to fall or descend across the inner face of the window 1 and tend to create a circulation in which the cooler air has initial contact with the window. The arrangement of this cooling element adjacent the top of the window permits the same to be more readily concealed to view from the exterior of the window by the usual window drapes and trimmings. Since the cooling member 2 is colder than the inner face of the glass of the window the moisture in the store air will condense upon said colder member and gradually form an icy coating therefor. In view of the fact that the modern show windows have their display space partitioned from the remainder of the store by paneled walls, the air within the show window is more or less confined so that the action of the cooling member will be to remove excess moisture from this confined air and render it comparatively dry. Under this condition of the air the cooling member may be discontinued in its operation for a brief period, or until the air has been sufficiently mingled with moisture-ladened air as to necessitate its functioning in order to prevent the moisture from condensing upon the glass. When the cooling member is inoperative the icy deposit thereon will thaw and drip therefrom into the trough 3 substantially coextensive with the member 2 and from which the water of con-

densation will drain as through pipe 4 to a suitable escape.

The cooling member 2 is connected by pipes 5 and 6 in circuit with an expansion tank 7 forming part of a refrigerating apparatus embodying a compressor 8 and its operating motor 9. The major portion of the apparatus, including the motor, compressor and expansion tank, is preferably disposed in a concealed position, such as in the basement of the store, as diagrammatically illustrated in Figure 1.

The apparatus thus described will effectively prevent the condensation of water vapors upon the interior of the window by cooling the air adjacent the inner face of the window to a temperature approaching or even colder than the outdoor temperature. In addition to this a considerable portion of the moisture within the air is removed by reason of its condensation upon the cooling element 2 of the apparatus. Furthermore, with the disposition of the cooling element adjacent the top of the window the immediately cooled air will descend over the inner face of the window and create a circulation or agitation of the air to further prevent any vapors condensing and congealing upon the window glass.

What is claimed is:

1. Condensation preventing apparatus for show windows, comprising in combination with a window, of a cooling element arranged adjacent the top of the window and extending transversely thereof for substantially its full width, an expansion tank connected in circuit with the cooling element and concealed from view through the window, and a power driven compressor connected to the expansion tank, said cooling element causing a circulation of air adjacent a show window and acting to condense and precipitate moisture coming in the proximity of the cooling element.

2. In combination with a show window, of a cooling element disposed adjacent the same, and refrigerating apparatus connected in circuit with the cooling element and disposed in a position concealed to view through the window, said cooling element causing a circulation of air adjacent a show window and acting to condense and precipitate moisture coming in the proximity of the cooling element.

3. In combination with a show window of a store, of a cooling element extending transversely of the window adjacent its top, refrigerating apparatus disposed in a separate compartment of the store, and circuit pipes extending downwardly from the opposite ends of the cooling element and at opposite sides of the window and leading to the refrigerating apparatus.

4. In combination with a show window, a cooling element extending adjacent thereto, means for rendering the cooling element operative for the condensation and precipitation of water vapors of the air adjacent thereto, and a trough underlying the element in proximity thereto, for receiving said condensed water vapors.

5. Apparatus for preventing condensation of moisture on show windows, comprising an elongated cooling member adapted to lie disposed in proximity to the inner face of the window, a trough coextensive with and underlying the cooling member, a drain pipe for the trough, and means for rendering the cooling member active, whereby condensed moisture will be precipitated on the said cooling member and drip therefrom into said trough.

6. The method of preventing condensation on show windows, or the like, consisting in cooling the air adjacent the top of a window thereby causing a downflowing current of air to pass over the window and simultaneously condensing and precipitating the vapors in the air.

7. In combination with a show window, a cooling member of a refrigerating apparatus mounted adjacent thereto, for creating a circulation of the air at the inner side of the window and simultaneously acting to remove excessive moisture from the air whereby the air is rendered partly dry.

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