

No. 627,025.

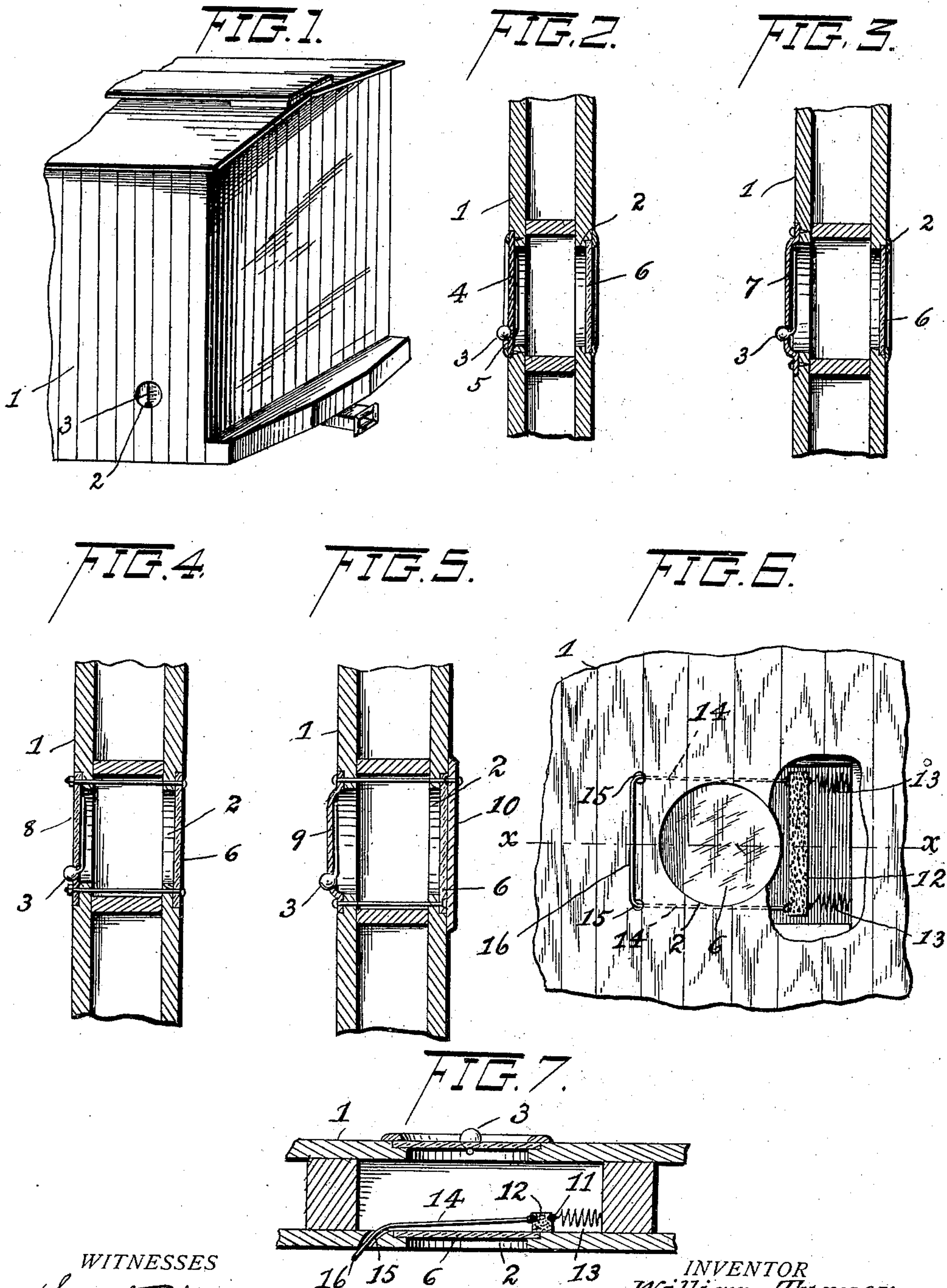
Patented June 13, 1899.

W. TURNER.

THERMOMETER ATTACHMENT FOR REFRIGERATING CARS.

(Application filed June 13, 1898.)

(No Model.)



WITNESSES  
*Saml R. Turner*  
*Chas. S. Hoyer.*

INVENTOR  
*William Turner.*  
*By R. H. Racy,*  
Attorney.



# UNITED STATES PATENT OFFICE.

WILLIAM TURNER, OF WENATCHEE, WASHINGTON.

## THERMOMETER ATTACHMENT FOR REFRIGERATING-CARS.

SPECIFICATION forming part of Letters Patent No. 627,025, dated June 13, 1899.

Application filed June 13, 1898. Serial No. 683,331. (No model.)

*To all whom it may concerns*

Be it known that I, WILLIAM TURNER, a citizen of the United States, residing at Wenatchee, in the county of Kittitas and State of Washington, have invented certain new and useful Improvements in Thermometer Attachments for Refrigerating-Cars; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to means for ascertaining the temperature of a refrigerating-car; and it consists of the construction and arrangement of parts hereinafter described and claimed.

The object of the invention is to provide convenient means for assisting in maintaining the degree of temperature within a refrigerating-car constant and regular through the medium of an exposed thermometer and avoid opening of doors and traps which will give ingress to outer warmer air, and thereby more positively preserve perishable merchandise which is sensitive to the slightest rise in temperature.

In the accompanying drawings, Figure 1 is a perspective view of a portion of a refrigerating-car, showing the invention applied thereto and its appearance from the exterior. Fig. 2 is a transverse vertical section of the arrangement shown by Fig. 1. Fig. 3 is a view similar to Fig. 2, showing a slight change in the construction and arrangement of the parts. Fig. 4 is a similar view showing a further change. Fig. 5 is a similar view showing a still further change. Fig. 6 is a sectional elevation of a portion of a car, showing the invention applied thereto and a wiping device adapted for use in connection with all the forms. Fig. 7 is a horizontal section on line *xx*, Fig. 6.

Referring to the drawings, wherein similar numerals are employed to indicate corresponding parts throughout the several views, the numeral 1 designates a portion of a car-body, which may be either side or end, and therein a circular or other opening 2 is cut. In rear of the opening 2 a thermometer 3 is supported on a suitable plate or frame 4, as shown by Fig. 2, and secured against movement. It is preferred that the bulb of the

thermometer be exposed in the interior of the car, and with this end in view it is projected through an opening in its support or frame, as at 5, so as to be exceptionally sensitive in recording the exact temperature and avoid obstruction by the interposition of a shield, which might cause a variation or incorrect reading relatively to the temperature of the atmosphere within the car proper.

In applying the thermometer for the purpose stated one or more of the same may be used and mounted in position in either one or both sides or one or both ends, and by inspecting the same the conductor or trainman can quickly ascertain the exact temperature within each refrigerating-car and increase the refrigerating medium if the slightest variation from the required degree is found to exist. To protect the thermometer from the exterior, close the opening 2 to prevent the ingress of warm air, and also expose the thermometer for exterior inspection. A glass plate 6 of suitable thickness is secured in the opening 2 and joints are hermetically sealed by suitable means. It is not necessary that the opening 2 should be curved, as a square or oblong opening would equally well serve the purpose and in some instances will be preferable. The position of the opening 2 and its glass cover and the thermometer in rear of the same will be at such an elevation as to be conveniently accessible.

In Fig. 3 a slight change or modification in the structure is shown and a box or box-like casing 7, in which the thermometer 3 is mounted, is placed over the opening 2 on the inside of the car. This box-like casing is intended to be constructed of suitable material, preferably of a non-conducting cold nature, and it will be observed in this instance that the bulb of the thermometer is exposed to the interior of the car.

In Fig. 4 a further change or modification is illustrated, wherein two glass plates are employed, the outermost being similar to plate 6 and the rearmost 8 supporting a thermometer 3, and in this instance a double scale is employed, so as to make the thermometer readable either from the exterior or interior of the car. In this form of device the bulb of the thermometer is also exposed to the interior of the car, and the two glass plates 6



and 8 when applied in position have their joints hermetically sealed.

In Fig. 5 a still further change is illustrated, and consists in mounting the thermometer on a dished plate 9, through which the bulb of the thermometer also projects to the interior of the car, and over the glass plate 6 a protecting-slide 10 is pivotally mounted, which, as shown, may be swung to one side or the other, and it will be understood in this connection that the ordinary straight slide mounted in guideways could be equally well used. By use of the slide 10 breakage of the glass plate is prevented.

In Figs. 6 and 7 an attachment is illustrated which is adapted to be used with either one or all of the previously-described forms, and consists of a frame 11, in which a piece of suitable absorbent material 12 is secured and adapted to be moved over the inner surface of the outer plate 6 to take up the moisture of condensation that may be formed thereon, and particularly where a virtually-dead-air chamber is formed by confining the thermometer in a tightly-sealed space. This wiping attachment has a partially-automatic operation, as the frame 11 is attached at one side to coiled springs 13, and at the opposite side pull-wires or analogous devices 14 are secured and extend through smaller openings 15 in a part of the side or end of the car and located exteriorly either in the form of a loop 16, as shown, or other analogous arrangement, which can be readily engaged and pulled to draw the absorbent material across the inner face of the plate 6. After releasing the loop or analogous device 16 the springs 14 will return the wiping device proper to its normal position. Any moisture that may collect on the outside surface of the glass plate 6 can be easily removed by the conductor or trainman; but a collection of the same on the inner surface would obstruct the reading of the ther-

mometer, and hence the advantage of the use of the wiping adjustment set forth. This wiping adjustment can be arranged in a variety of ways, and the form illustrated and described in detail is to merely show the application of such a device.

By the use of the thermometer in connection with the refrigerating-car loss of merchandise by heating, due to a rise of temperature, which cannot now be ascertained, is avoided and convenient means are provided for assisting in maintaining the proper refrigerating temperature.

It is obviously apparent that changes aside from those enumerated might be made in the proportions, dimensions, and minor details of construction without departing from the spirit of the invention or sacrificing any of the advantages thereof.

Having thus described the invention, what is claimed as new is—

The combination of a refrigerating-car having a tightly-inclosed chamber in one of its sides and provided with an outer transparent cover and an inner supporting-plate having an opening therethrough, a thermometer in said chamber secured against the outer side of the inner plate and having its bulb closely and immovably fitting the opening therein and exposed to the interior of the car, the scale and registering-tube of said thermometer being directly in front of the transparent cover, and a longitudinally-movable wiping device contained within the said tightly-inclosed chamber and adapted to bear against and operate to remove moisture from the inner side of the said transparent cover.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM TURNER.

Witnesses:

A. H. BOSWORTH,  
W. O. PARR.