Aug. 3, 1937. W. D. THOMPSON 2,088,881

MEANS FOR PROTECTING MATERIALS DURING TRANSIT FROM CONDENSED MOISTURE

Filed May 14, 1934 2 Sheets-Sheet 1

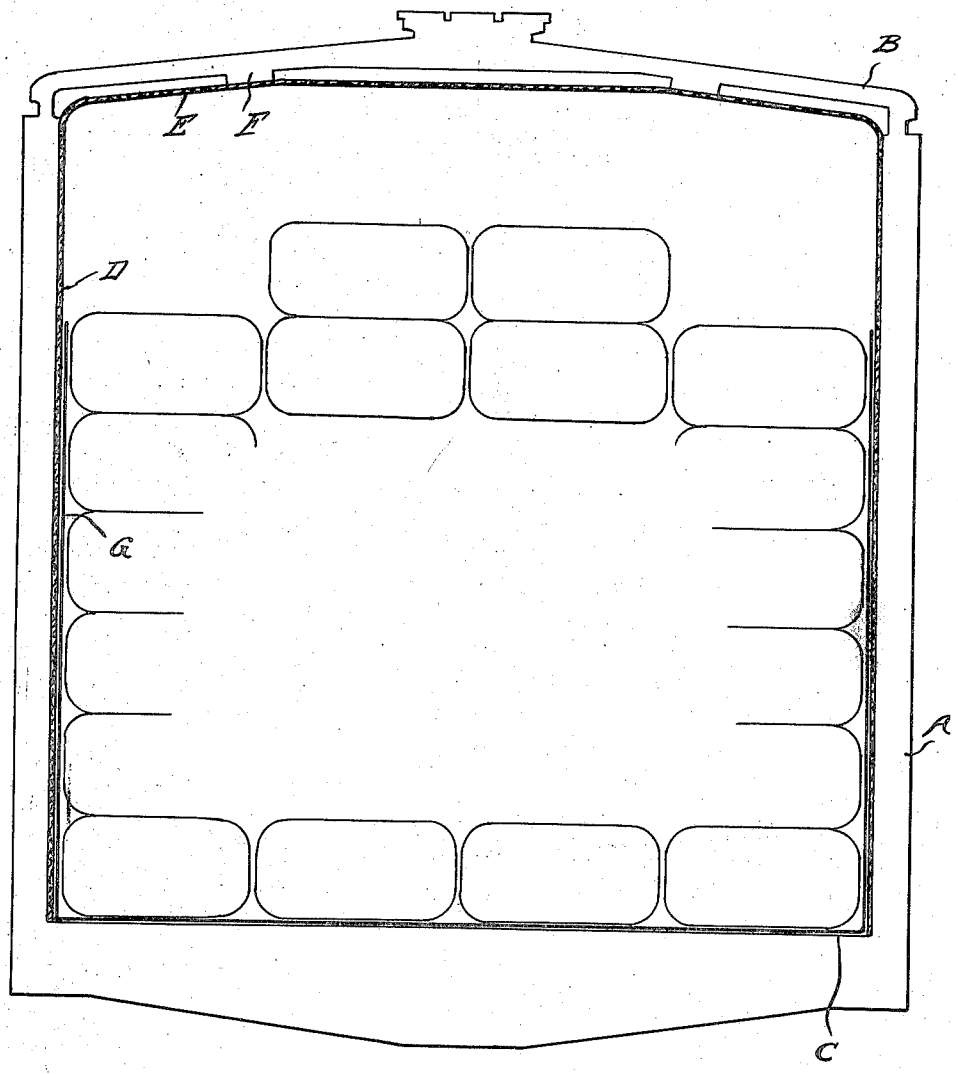

FIG. 1.

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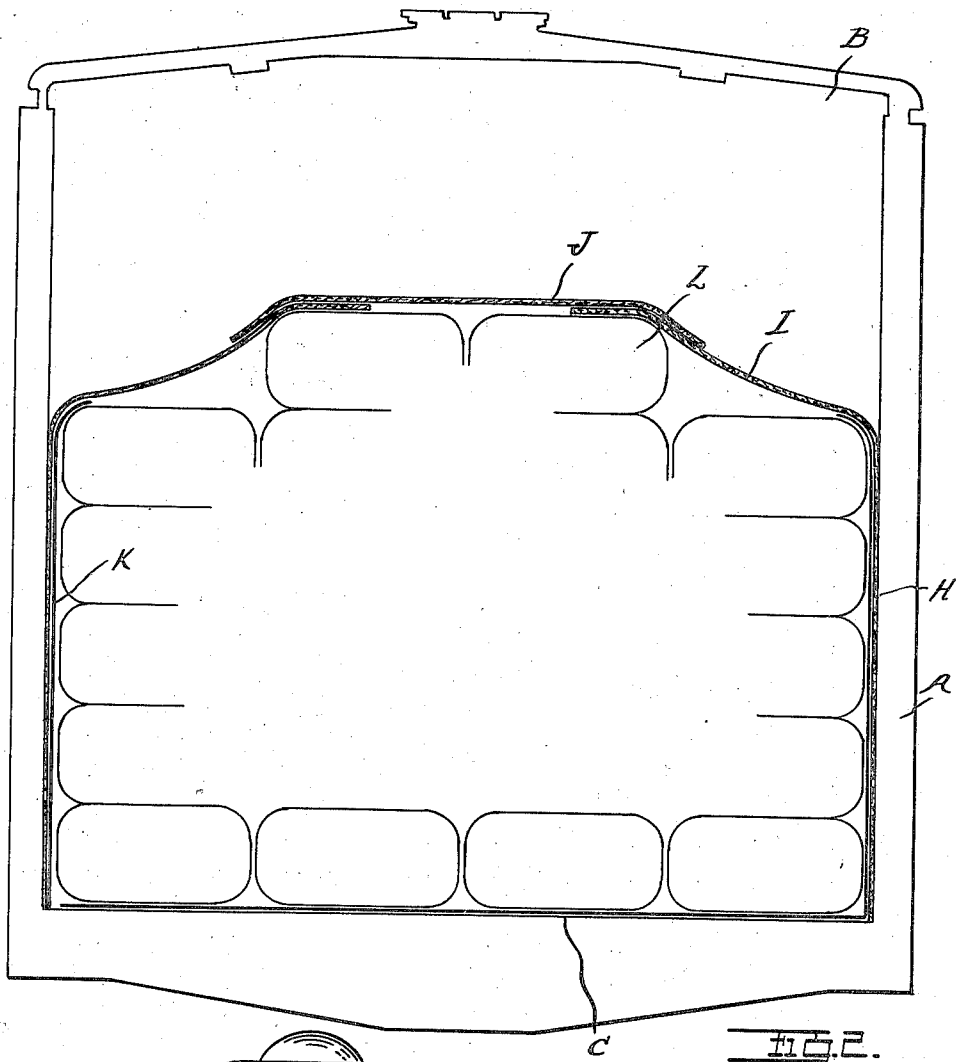

FIG. 2.

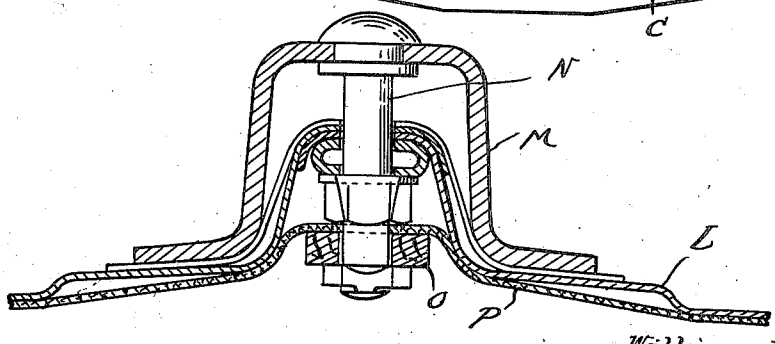

FIG. 3.

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MEANS FOR PROTECTING MATERIALS DURING TRANSIT FROM CONDENSED MOISTURE

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4 Claims. (Cl. 105—423)

The invention relates to the transportation of materials such as flour, which during transit liberate a large amount of condensable water vapor. In the present state of the art it is usual to load such materials while at relatively high temperature in freight cars which during transit in the winter season, are frequently exposed to very low temperatures. Thus flour when freshly ground may be at a temperature of approximately 80 to 100° F. If loaded in a freight car while at this temperature, it will have a large water content which will be liberated in the form of vapor during transit. The amount liberated will depend upon the humidity and therefore the temperature of the surrounding atmosphere, and the latter may drop as low as 20° or 30° below zero during transit. Thus as is well understood, the lowering of temperature will condense the vapor in the atmosphere which will thus permit further vaporization, with the result that a relatively large volume of water will be condensed on the ceiling and side and end walls of the car. This will drop upon the load, both injuring the contents and discoloring the sacks or containers by dirt which is carried by the water.

Various attempts have been made to avoid such results. These have generally been in the form of liners for the sides and roof of the car, sometimes made of wood, sometimes of paper or of other materials. They have not been satisfactory, for the reason that no lining material can prevent the dissipation of heat through the walls or roof of the car if exposed to low external temperature for a sufficient period of time. Consequently, the vapor instead of condensing on the outer walls will condense on the liner and will drop down with the same objectionable results.

It is the object of the present invention to avoid these difficulties, which I have accomplished by a change in method and the means employed. This essentially is the absorption of condensed moisture by a porous medium, such medium being of sufficient mass to absorb and hold all of the liberated water content of the load, thereby preventing the dropping of any water on the goods.

My improved method may be carried out in various ways, but I will describe and illustrate only a few.

In the drawings:

Fig. 1 is a cross section through a railway freight car showing one method;

Fig. 2 is a similar view illustrating another method.

Fig. 3 is a similar view of still another method.

As shown, A are the side walls of a railway car, B the roof and C the floor, these parts being only indicated in outline as they form no part of my invention. The absorbent material which I preferably use is that known as dry felt which is made up in sheets or strips of such thickness as to obtain the desired mass. I have found that dry felt running 50 to 70 pounds to 480 square feet is satisfactory for most railway freight cars, but the larger the dimensions of these cars, or the greater the load, the greater the thickness should be. As shown in Fig. 1, the felt is nailed or otherwise secured to the inner walls of the car as indicated at D, and is also extended over the load beneath the roof as indicated at E, being secured to the purlines F or in any other suitable way. As the felt strip has a soft surface, it is not suitable for contact with the load and therefore I preferably place inside of the felt between the same and the load, a paper liner G such as ordinary miller's wrapping paper, having a smooth hard surface.

In Fig. 2 the felt is also attached to the inner walls of the car as indicated at H, but is only carried up the height of the load and is then extended to overlap the load as indicated at I and J. The paper lining strip K is carried up between the felt and the load at the sides and ends but not the top. The load in both Figs. 1 and 2 is diagrammatically illustrated as flour sacks L, which are stacked to fill the greater portion of the car.

In Fig. 3 I have shown still another method of attaching the felt which can be used on cars having metallic roofs without purlines. As shown, the roofing sheets L have upturned and return bent nested portions which are within the channel of a carline M, said sheets being supported by a hanger bolt N. To this same bolt I secure a wooden strip O over which the felt P is placed, being held thereby beneath the roofing sheets.

With all of the constructions as described, assuming that flour or other like material is loaded while at a temperature of approximately 80 to 100° F., it will have a large water content, as compared with the same material which has first been cooled to a lower temperature, for instance, 32° F. All of the excess water content will be liberated in the form of vapor during transit if there is a corresponding drop in temperature maintained for a sufficient period of time to equalize the temperature of the load. As the car is closed, there will be no escape for the liberated water which will condense on the cold surfaces of the walls and roof and will then run or drip therefrom. However, with the absorbent mate-

rial arranged as shown, all of the condensation may be absorbed and without rendering the material so wet as to lose its tenacity and therefore its strength. Consequently with the construction shown in Fig. 1, the material may be retained in position on the side walls and roof of the car and may be suitable for use with another load. With the arrangement shown in Fig. 2, the overlapping strips at the top of the load must first be removed before the sacks are unloaded, but it may be suitable for re-use with another load. The essential feature is that the capacity for absorption of moisture by the protective material must be great enough to take care of all condensed moisture while still leaving such material intact.

What I claim as my invention is:

1. Means for protecting materials during transit in an enclosed conveyance comprising a predetermined quantity of absorptive material placed along the vertical walls and over the top of the load, said material being of sufficient capacity to receive and hold all condensed moisture liberated during transit.

2. Means for protecting materials during transit in a closed conveyance comprising a lining of a predetermined quantity of absorptive material secured to the sides and ends of the car and extending up to at least the height of the load therein and over the top of the load, said material being of sufficient capacity to receive and hold all condensed moisture liberated during transit.

3. Means for protecting materials during transit in a closed conveyance comprising a lining of a predetermined quantity of absorptive material secured to the sides and ends of the car and extending upward to at least the height of the load and over the top thereof said material being of sufficient capacity to receive and hold all condensed moisture liberated during transit, and a protecting lining interposed between the absorptive material and the sides and ends of the load.

4. Means for protecting materials during transit in closed conveyances comprising a lining of a predetermined quantity of absorptive material of such mass and so positioned as to receive, absorb and hold all condensed moisture liberated during transit.

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