Jan. 7, 1941. C. M. PATTEN 2,228,152

FINISHING STRUCTURE

Filed April 28, 1938

Fig. 1.

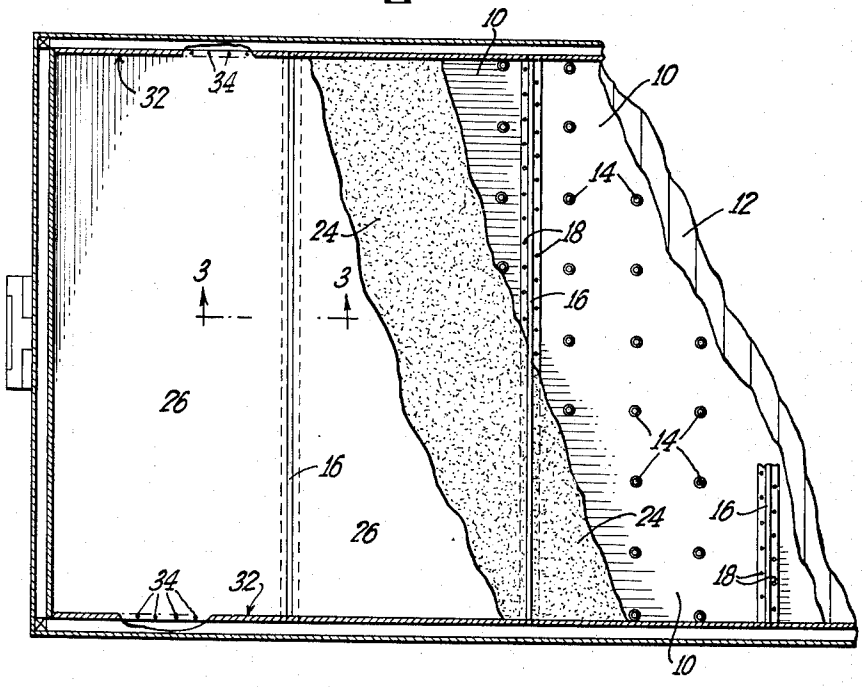


Fig. 2.

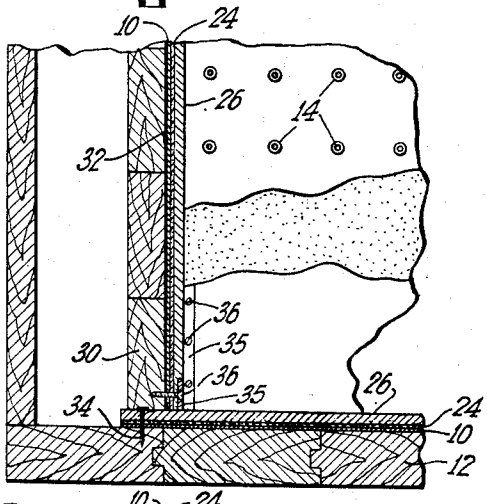
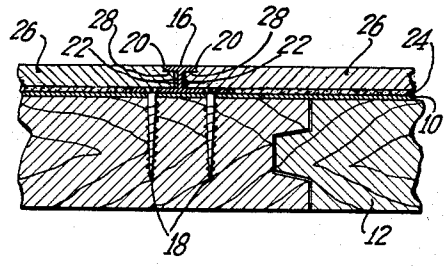


Fig. 4.



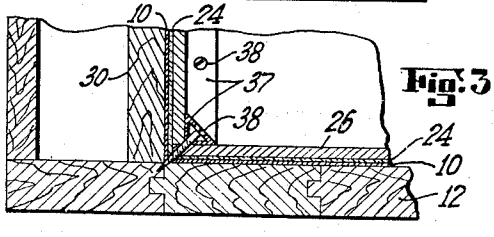


Fig. 3.

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FINISHING STRUCTURE

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Application April 28, 1938, Serial No. 204,797

11 Claims. (Cl. 20—6)

This invention relates to a finishing sheathing for the interior of a structure such as a freight car, and to a method of forming the same. More particularly, it relates to a finishing sheathing which can be applied over the floor and, if desired, the walls of an existing freight car or applied to a freight car during its original construction, and to a method of forming the sheathing.

It is an object of the present invention to provide a finishing sheathing, particularly a floor for a freight car or other structure, which sheathing has no exposed fastening means, is impermeable to dust and thereby provides a dust seal for the car or other structure to which it is applied, may be quickly and economically installed, does not splinter when spikes or nails are driven into it for the purpose of anchoring articles in position, has a small number of joints, is highly resistant to wear, and is flexibly connected to the main floor, or other base structure, so as not to be damaged by racking or weaving of the car while in motion.

It is a further object of the present invention to provide a method of forming a sheathing having the aforementioned characteristics.

The objects and advantages set forth above are primarily attained when the invention is embodied in a railway freight car floor and hence the following description is particularly directed to a construction of this type. However, similar and other advantages are exhibited by car wall constructions embodying the invention alone, or in conjunction with the floor construction.

Other objects and advantages, if not specifically pointed out, will be apparent to those skilled in the art from the following detailed description of what is now considered the preferred embodiment of the present invention.

In the drawing:

Fig. 1 is a fragmentary, horizontal sectional view of a freight car having a floor constructed in accordance with the present invention;

Fig. 2 is a fragmentary, vertical, sectional view of a freight car having the floor shown in Fig. 1, and also embodying a wall sheathing in accordance with the present invention;

Fig. 3 is a view similar to Fig. 2, illustrating a slightly modified form of the invention; and

Fig. 4 is a fragmentary, sectional view taken substantially on the plane indicated by line 3—3 of Fig. 1.

Freight cars are usually provided with floors which are formed of heavy planks or the like, and are frequently employed for transporting a variety of products at different times. For example, heavy packing cases or machines which have to be anchored in place, as by being spiked or nailed to the floor, will constitute one cargo, and packaged or sacked material such as sugar, flour, or grains may constitute the next cargo. When articles are spiked in place during shipment, the car floor timbers are frequently splintered when the spikes are removed, thereby rendering the cars unfit for future transportation of packaged materials, since the splintered floors will invariably damage the packages and cause spilling and waste of the cargo. Also, conventional freight car floors are relatively porous and permit infiltration of dust during transportation, which renders the car unsanitary or otherwise adversely affects the products being shipped.

The present invention provides a floor which can be quickly and economically applied to an existing freight car, or embodied in a car during its original construction, and which will enable the car to transport a variety of types of cargo without causing damage to any type. That is, the floor is constructed so that spikes may be driven into it and withdrawn without causing splintering and, at the same time, provides an effective dust seal for the bottom of the car and is sufficiently rugged to undergo the rigorous conditions to which a freight car floor is subjected without rapidly deteriorating and requiring frequent replacement. A floor provided in accordance with the present invention is furthermore of a hard surfaced, non-absorbent type which permits oil, grease, and the like, which may be spilled thereon, to be readily wiped up.

Referring to the drawing, the floor, according to the preferred construction, is formed by fastening a covering 10 to the main car floor 12, which now becomes a sub-floor. The covering 10 may be formed of any suitable material, such as sisalkraft paper, heavy burlap, asphalt impregnated felt, etc., hereinafter referred to generically as "web material." The covering 10 may be secured to the sub-floor 12 in any suitable manner, such as by adhesives or by tacking, but is preferably secured to the sub-floor by means of nails 14 having large heads which may be formed by flat caps, such as are conventionally used in the application of certain types of roofing. The nails 14 are driven through the covering 10 into the sub-floor 12 at suitable intervals, such, for example, as on 12-inch centers.

Strips of metal 16 (see particularly Fig. 4), which are substantially H shaped in cross-section, are attached to the sub-floor 12 at suitably spaced positions by means of screws 18 or similar fas-

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tening devices. The flanges forming the H sections of the strips 16 provide shoulders 20 which define recesses 22. The strips 16 may be rolled members or may be formed by joining suitable channel members, or may otherwise be suitably formed.

A layer of adhesive 24 is disposed over the covering of web material 10 substantially continuously between the strips 16. Any suitable adhesive may be used, such, for example, as an emulsified asphalt cement.

Sheets of material 26, each of which has a width substantially equal to the distance between adjacent strips 16, measured under the shoulders 20 or between the upstanding web portions of the strips 16, are flexed and allowed to snap into position with parallel edges of the sheets 26 received in the recesses 22 and their inner surfaces pressed into the adhesive layer 24. The parallel edges of the sheets 26 which are received in the recesses 22 are preferably rabbeted as shown at 28 in Fig. 3 to accommodate the shoulders 20 of the strips 16. The stops of the strips 16 and the upper surfaces of the sheets 26 are thereby brought flush with each other to form a substantially smooth surface throughout the extent of the finishing floor. The sheets 26 are formed of a suitable resilient, wear-resistant, non-splintering, non-absorbent material. For example, there may be employed for the sheets, material such as compressed fibre board, particularly that known as hard board, asbestos cement composition board and other materials having similar surface properties, including laminated boards having a surface or surfacing layer meeting the above requirements. In some instances, for example, where the sheets 26 are relatively narrow, they may be laid without the use of the adhesive layer, the shouldered strips 16 providing the sole securing means for the sheets.

The sheets 26 are preferably installed by inserting one of the parallel edges of a sheet in a recess 22, placing one end of an instrument, such as a flat piece of metal, in the adjacent recess 22 with the body of the instrument inclined toward and in contact with the free, opposite parallel edge of the sheet. By pressing the metal instrument in the direction of the sheet, the sheet will be flexed sufficiently to enable the free edge to be forced down onto the adhesive covered web material. Then, when the sheet metal instrument is removed, the sheet will snap back to its normal position and force the free parallel edge into its respective recess 22. Other means of flexing the sheet 26 may, of course, be resorted to without departing from the scope of the present invention.

Referring now particularly to Fig. 2, a construction is illustrated employing the invention in the car side and end walls, as well as the floor. The wall sheathing is constructed in a similar manner to the floor previously described, and may preferably comprise a covering of the web material 10 secured to the base wall structure 32 as by an adhesive, but preferably by the nails 14 spaced at suitable intervals. Strips of metal 16, of the type illustrated in detail in Fig. 4, are attached to the main wall by screws, or the like, at suitable intervals, the strips 16 preferably extending vertically of the car walls. As in the case of the floor structure, a layer of adhesive 24 is preferably disposed over the covering 10 and sheets 26 of compressed fibre board, asbestos-cement, or other materials having equivalent surface properties as previously referred to, of a width substantially equal to the distance between the strips and with their edges rabbeted are snapped into place between the strips with their rabbeted edges underlying the shoulders 20 of the strips, and their inner surfaces pressed into the adhesive layer 24. The sheets 26 may extend the full height of the walls, or if desired, they may be limited to cover only that portion of the wall normally contacted by the contents of the car.

Before applying a finishing floor to an existing freight car, the bottom siding boards 30 of the interior wall 32 will usually be removed so that the strips 16 and the sheets 26 can be extended beneath the wall 32. If desired, nails 34 may be driven through sheets 26 and into the sub-floor 12 beneath the wall 32 to securely anchor the ends of the sheets to the sub-floor 12. It will be seen that when the siding boards 30 are replaced, the fastening means 34 will be concealed and thus not be in position to cause tearing of any shipping containers in which cargo materials may be placed.

The end edges of the sheets 26 forming the interior wall sheathing may be secured in any suitable manner. As illustrated in Fig. 2, this may be accomplished by rabbeting them to a suitable depth to accommodate a retainer strip 35. The retainer strip preferably has its outer surface flush with the surface of the wall sheathing. The retainer strip may be made of any suitable material and is preferably metal strap. Screws 36, or the like, may be employed to secure the retainer strip to the main wall structure 32. The retainer strip 35 may similarly be used for securing the upper end edges of the sheets and also, as shown in Fig. 2, for securing the vertically extending edges of the sheets at the wall intersections.

In Fig. 3, is illustrated an alternative means for securing the edges of the floor and wall facing sheets. In this embodiment, the lower siding board need not be removed for the installation of the floor sheets 26, these sheets in this instance preferably abutting or substantially abutting the siding boards. Strips 37, formed of wood, metal, or any suitable composition, such, for example, as the material of which the sheets 26 are made, are placed in the corners formed by the intersection of the walls and floor. The strips 37 are preferably of triangular cross section and are secured in binding contact against the edges of the sheets 26 by means of screws or the like 38 extending through the strips and into the base floor. As illustrated, retaining strips 37 may similarly be employed for securing the edges of the sheets at the vertical corners of the car.

The sheets 26, forming either the floor or wall structure, may be extended laterally of the car, as shown in Fig. 1, or may be extended lengthwise of the car, if such is desired. The former position of the sheets is preferred, however, since it is then not necessary to have any exposed joints between the sheets, as would be required if the sheets were extended longitudinally of the car, because of it being impossible to secure sheets of sufficient length to extend from end to end of the average freight car.

It will be seen that a finishing floor of the present invention can be rapidly applied to an existing freight car by a minimum number of workmen and also overcome all of the existing objections to present freight car floors which have been mentioned above. The finishing floor presents an uninterrupted surface across which articles may be easily dragged or hand trucks may be rolled, and at the same time prevents the entrance of dust through the sub-floor into the car. Spikes

or nails may be driven into the floor and removed without causing splintering of the surface material, and the web covering, which forms a flexible connection between the sub-floor and the major portion of the surface forming sheets **26**, permits sufficient movement between the sub-floor and surface sheets **26** during rocking and weaving of the car while in motion to prevent cracking of the sheets **26**. The hard, relatively non-absorbent surface provided by the sheets **26** permits grease, oil and the like, which may become spilled on the floor, to be readily wiped up. It will be noted that similar advantages are obtained by a car wall structure in accordance with this invention.

The foregoing details have been given for the purpose of explanation and not limitation, since many changes and modifications may be made in the structure disclosed without departing from the spirit of the invention.

Having described the invention, what is claimed is:

1. A car interior sheathing comprising a base structure, spaced strips overlying and secured to said base structure and forming opposed recesses, and sheets of wear-resistant, nonsplintering hard surfaced material disposed between the strips and supported over substantially the entire area by said base structure and with the edges thereof received in said opposed recesses.

2. A car interior sheathing comprising a base structure, spaced recessed strips overlying and secured to said base, a layer of adhesive over said base, and sheets of compressed, resilient, non-splintering, hard surfaced, non-absorbent fibre board disposed between the strips and in contact with the adhesive, the edges of said sheets being received in the recesses of said strips.

3. A car floor comprising a sub-floor, a layer of web material secured to said sub-floor, spaced, shouldered strips extending over and connected with said sub-floor with the shoulders thereof forming opposed recesses, adhesive disposed over said web material, and sheets of wear-resistant, non-splintering, resilient material disposed between said strips, in contact with said adhesive and with parallel edges of said sheets received in said recesses.

4. A car floor comprising a sub-floor, a layer of web material disposed over said sub-floor, fastening means securing said web material to said sub-floor at spaced points, spaced, shouldered strips extending over and connected with said sub-floor with the shoulders thereof forming opposed recesses, adhesive disposed over said web material, and sheets of resilient, non-splintering, hard surfaced, non-absorbent fibre board disposed between said strips, in contact with said adhesive and with parallel edges of said sheets received in said recesses, said parallel edges being rabbeted to receive the shoulders of the strips whereby the exposed surfaces of the strips and sheets are flush and a smooth finished floor is formed.

5. A non-splintering car floor comprising a sub-floor, spaced, shouldered strips extending over and connected with said sub-floor with the shoulders thereof forming pairs of opposed recesses, and sheets of resilient, non-splintering, wear-resistant composition board disposed between adjacent strips and supported over substantially their entire areas by said sub-floor, said sheets having parallel edges received in said opposed recesses.

6. An interior finish for cars and the like, comprising sub-floors and walls, layers of a web material disposed over said floors and walls, spaced recessed strips overlying and secured to the floors and walls, adhesive disposed over said web material, and sheets of wear-resistant, hard surfaced, non-splintering, resilient material disposed between the strips and in contact with the adhesive and with the edges of the sheets received in the recesses of said strips.

7. A wear-resistant, dust-proof car wall comprising a base wall, a layer of web material disposed over said base wall, spaced recessed strips overlying and secured to the base wall, adhesive disposed over said layer of web material, and sheets of wear-resistant, hard surfaced, non-splintering, resilient material disposed between the strips and in contact with the adhesive and with the edges of the sheets received in the recesses of the strips.

8. An interior sheathing comprising a base structure, spaced strips overlying and secured to said base structure and defining opposed recesses, and sheets of compressed, hard surfaced, non-splintering fibre board disposed between the strips and supported by the base structure and with the edges thereof received in said opposed recesses.

9. An interior sheathing comprising a base, spaced strips overlying and secured to said base and defining opposed recesses, adhesive disposed on said base, and sheets of compressed, hard surfaced, non-splintering fibre board disposed between the strips and in contact with the adhesive, the edges of said sheets being received in said opposed recesses.

10. A car interior sheathing comprising a base structure, a layer of web material disposed over said base structure, spaced shouldered strips extending over and connected to said base structure with the shoulders defining opposed recesses, adhesive disposed on said web material, and sheets of resilient, hard surfaced, non-splintering fibre board disposed between said strips in contact with said adhesive and with parallel edges thereof received in said recesses.

11. The method of forming a non-splintering, wear-resistant, dust-proof car sheathing in an existing car, comprising attaching shouldered strips to a base structure of the car in spaced, substantially parallel relationship with said shoulders defining opposed recesses, inserting an edge of a sheet of resilient non-splintering material in one of said recesses, said sheet being of a width substantially equal to the distance between adjacent strips measured under the shoulders, placing the end of an extended lever member in the other of said opposed recesses, with a face of the member in contact with the other edge of said sheet, and pressing the member in the direction of the sheet to flex the sheet and force said last-named edge into alignment with said last-named recess, removing said lever member, and permitting said last-named edge of said flexed sheet to snap into said last-named recess as said sheet assumes its normal flat shape.

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