Feb. 17, 1925. 1,527,080

H. RINGEL

CAR LINER

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Fig. 1.

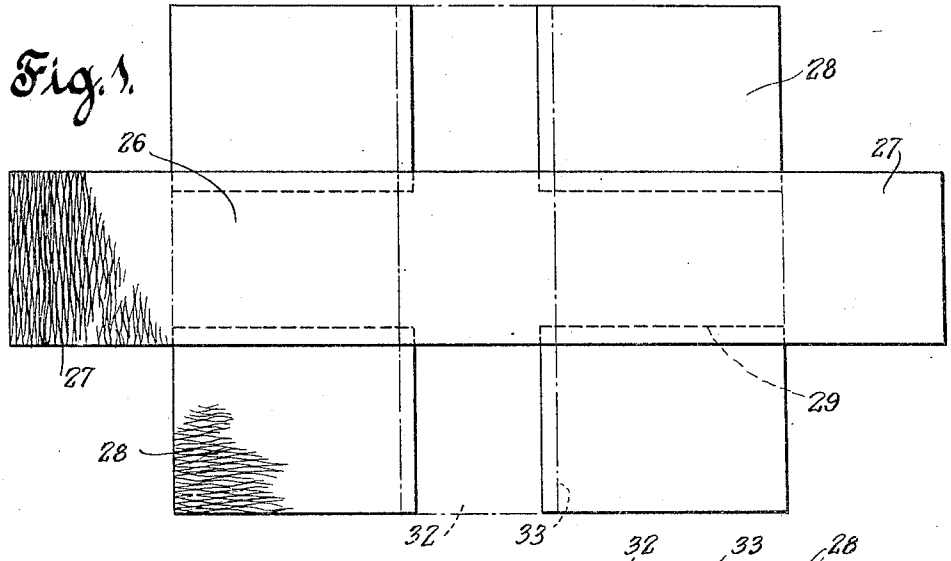


Fig. 2.

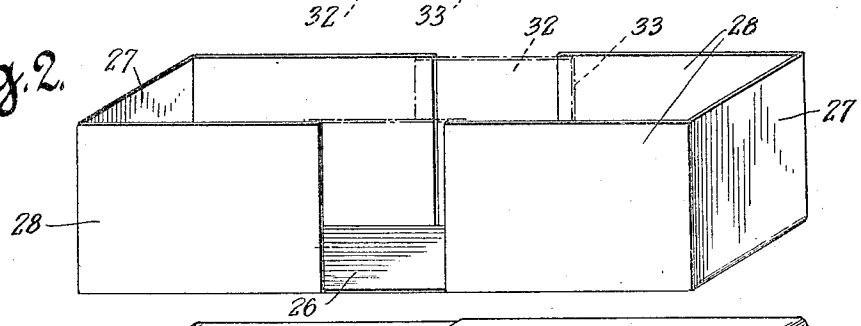
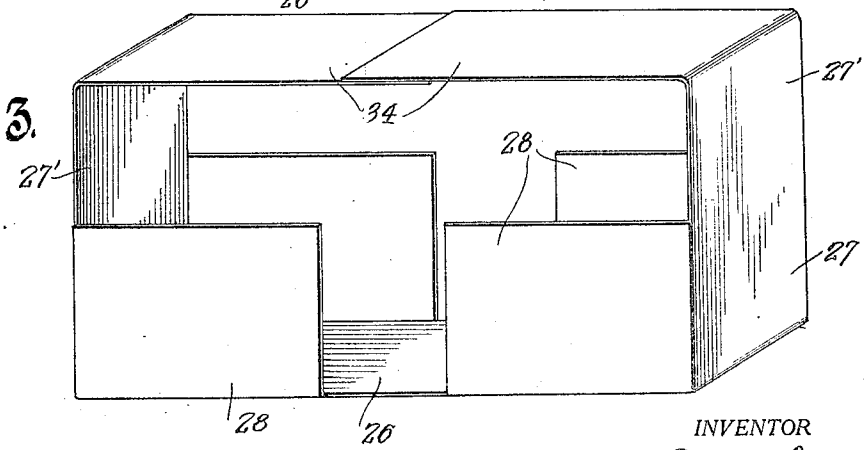


Fig. 3.



INVENTOR

Herman Ringel

BY Lack & Fischer

ATTORNEY

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Fig.4.

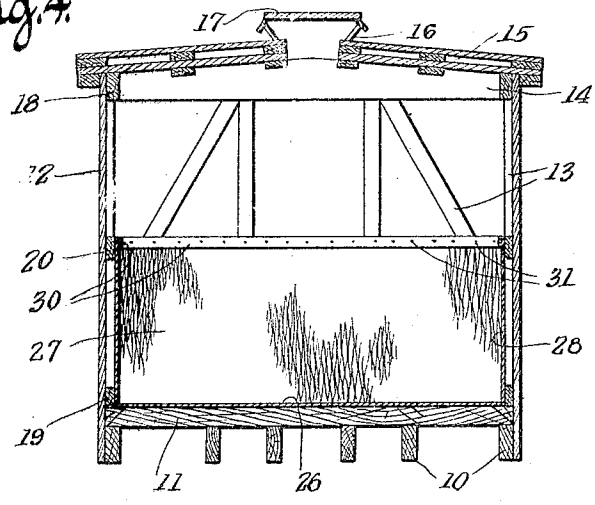


Fig.5.

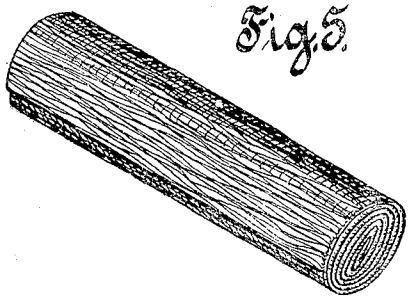


Fig.6.

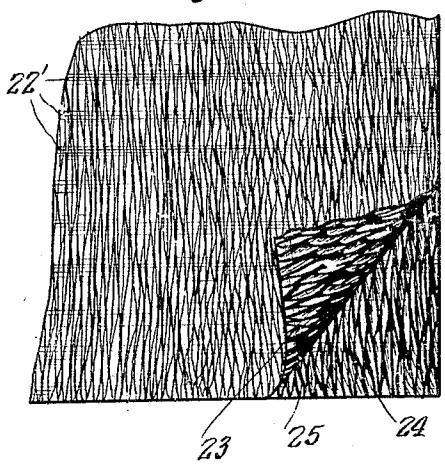
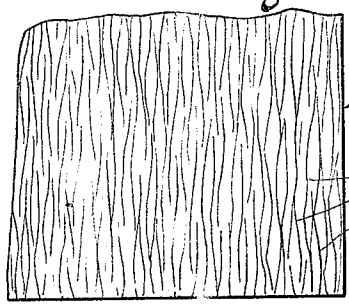


Fig.7.



INVENTOR

Herman Ringel

BY Frank C. Fischer

ATTORNEY

Patented Feb. 17, 1925. 1,527,080

UNITED STATES PATENT OFFICE.

HERMAN RINGEL, OF NEWARK, NEW JERSEY.

CAR LINER.

Application filed April 5, 1923. Serial No. 629,995.

To all whom it may concern:

Be it known that I, HERMAN RINGEL, a citizen of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented new and useful Improvements in Car Liners, of which the following is a specification.

This invention refers to improvements in freight car linings, of the box type, in which granular or pulverized substances, such for instance as the smaller grains, wheat, oats, rye, etc., sugar, salt, chemicals, sand and the like, particles of which will sift out through interstices between the elements of the car walls or flooring, knot and nail holes, and similar openings that are invariably present.

It is known that linings for avoiding such occurrences are in use, the same being usually made of paper tacked to the inner surfaces of the car walls, and which, due to their inelasticity, are frequently punctured in assembling by blows of the hammer, fingers of the operator and other sources of inadvertent injury.

It is further apparent that, due to contraction and expansion of paper, when subjected to climatic or tempermatic changes, the linings crack or tear apart thereby becoming, at least locally, ineffective in the performance of their functions.

This condition is further aggravated by moisture which as is well-known, softens paper, making it easily vulnerable to punctures and tears, caused by shifting of the load under usual train conditions of sudden shock, that vitiate the value of the casing and frequently expose the cargo contained in the casing to entering rain or snow, creating material damage.

It is therefore one important object of the invention to provide a casing made of material that is both pliable and elastic, as well as possessing unusual strength, enabling it to resist punctures and fractures to a far greater extent than any ordinary cheap material used for such casings.

Another purpose is to produce a casing that is waterproof, thus not only insuring its own integrity but effectively protecting its contents.

A further aim is in the production of a casing covering the sides, ends, and bottom of a car and at the same time further protecting the cargo by preventing leaks through the roof from dropping on the materials in the car.

These several objects and others, such as cheapness of production, ease of application and ready portability, when rolled into a compact form prior to use, are accomplished by the novel material used in the construction and combination of parts hereafter described and graphically shown in the accompanying drawing, forming part of this disclosure, and in which:—

Figure 1 is a plan view of a blank from which the lining is made, together with the wing elements which upon being folded constitute the sides.

Figure 2 is a perspective view of the same as folded to produce a rectangular lining within the walls of a car.

Figure 3 is a similar view showing a modified form of liner having cover elements formed therewith.

Figure 4 is a transverse sectional view of a conventional freight car body showing an application of the invention.

Figure 5 is a perspective view of the liner, the sides being infolded and rolled into a compact bundle.

Figure 6 is a fragmentary detail view of a doubled thickness of the material having a waterproof filler, one corner ply being turned out to show the structure.

Figure 7 is a similar view of another type of like material.

The main elements of the car body shown in Fig. 4 are the longitudinal joists 10 supporting the floor 11, the side joists also having secured to them the side walls 12, and enclosed frame elements 13, adjacent the side and end walls, supporting transverse rafters 14 carrying a roof 15 which may be provided with ventilating means 16 below the running board 17.

At the ends of the rafters are rails or beams 18, similar rails 19 being above the floor 11 and intermediate thereof are other rails 20 interjacent the side and end walls except at the doors.

It is to be understood that the foregoing is merely generally descriptive of ordinary box car construction and forms no part of the present invention.

The novelty of the invention is largely in the use of strong crêpe paper 21, either that shown in Fig. 7, formed to present a crinkly surface composed of short sinuous inter-related corrugations 22, and used in single thickness, or the type illustrated in Fig. 6 in which two plies or thicknesses 23 and 24

are held together by a water proof adhesive, as indicated at 25, and then transversely corrugated as at 22′ in Fig. 6.

The lateral elongation of this material is approximately thirty per cent and the longitudinal elongation nearly equal, so that tearing by stretching cannot occur except under the most abnormal circumstances.

This material, due to its toughness and elasticity, is able to withstand severe usage, such as hammer blows, the thrust of dull implements and repeated strains, such as would rupture, perforate and destroy ordinary paper of equivalent weight or even materially heavier, instantly recovering the normal condition and showing no effect from the usage to which it is subjected.

This quality of endurance is far more pronounced in the doubled fabric, besides preventing the passage of moisture from one side to the other, and while ordinary paper fabrics become softened and hence puncturable while in a moist or saturated condition, this cannot occur in the double ply fabric because of the interposed water-proofing.

In preparing the liner for use in a car a strip 26 is cut from a roll, the length of the roll being equivalent to the width of the car, so as to form an integral floor covering which includes additions 27 adapted to be bent up at right angles to cover the end walls of the car to a height above the plane to which it will be loaded.

Other rectangular sheets 28 are cut to conform to the side walls of the car and attached by cement, as indicated at 29, to the floor covering, these sheets being bent up, like the end elements and to an equivalent height.

The upper edges of the end and side elements are secured to the rails or car walls by thin strips of wood, as laths 30 or heavy strips of stout card board, the same being held by tacks 31 passing through the strips and material as shown.

At the space between the inner edges of the upturned sheets 28, which corresponds to the car door openings, a separate strip of the same material, as indicated by the broken lines at 32, is cut to extend from the upper edges of the side elements 28, over the floor covering and attached by a suitable adhesive along the lines 33, the completed structure being clearly apparent in Fig. 2.

In the modification shown in Fig. 3 the end elements 27 are extended further up, as at 27′, to cover the entire end of the car and then folded over, as at 34, below the car roof to prevent any leakage from damaging the contents of the car.

In storing or shipping these liners, the wing or flap elements 28 are folded upon the main strip 26, the center or door filler laid thereover and the strip then rolled compactly as indicated in Fig. 5.

Although the foregoing is descriptive of the preferred embodiment of the invention, it will be apparent that minor changes may be made in its construction, without the exercise of invention or conflicting with the scope of the claims hereto appended.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. A car liner comprised wholly of pliable, puncture resisting and waterproof paper crêped to produce an elastic effect, comprising an integral floor and end wall covering, a side wall covering connected to said floor covering having spaced inner ends to correspond to the car door openings, and a means for covering the space between the ends of said side wall covering.

2. A car liner comprised wholly of one or more plies of pliable, fracture resisting, and waterproof paper crêped to produce an elastic effect in all directions, comprising an integral floor and end wall covering, a side wall covering connected to said floor covering and having spaced ends, the spaces corresponding to the car door openings, and a means for covering these spaces.

3. A car liner comprised wholly of one or more plies of pliable, puncture and fracture resisting paper crêped to produce an elastic effect in all directions, and waterproofed throughout, comprising an integral floor covering and end wall covering angularly disposed thereto, a side wall covering connected to said floor covering and having spaced inner ends, the spaces corresponding to the car door openings, and a means for covering these spaces.

4. A car liner comprising a strip of waterproofed two ply crêped and pliable, puncture and fracture resisting paper disposed over the floor and ends of the car, and side elements of similar material cemented to the edges of said strip, having spaced inner ends to correspond to the car door openings, and a separate strip of like material extending from the upper edges of said side elements over said floor covering and attached thereto.

5. A car liner comprising a strip of elastic pliable, strong, puncture and fracture resisting crêpe paper extending along the bottom and ends of the car, and flaps cemented to the edges of said strip disposed at the sides of the car, having spaced inner ends corresponding to the car door openings, and a separate strip of like material extending from the upper edges of said side flaps and over the bottom strip, connected therewith, said flaps being foldable on said strip and said strip capable of being rolled into a compact bundle.

6. A car liner comprised wholly of crêpe paper capable of stretching in all directions, composed of a single integral strip

disposed over the entire floor, ends and below the roof of a car, flaps at the side walls thereof secured to said strip, and a strip extending from the upper edges of said flaps to cover the spaces therebetween.

7. A car liner comprised wholly of pliable, elastic, durable, puncture and fracture resisting crêpe paper capable of stretching in all directions composed of a single integral strip disposed over the floor and ends of the car, flaps cemented thereto to line the side walls, having spaced inner ends, the spaces corresponding to the car door openings, and a strip secured at the adjacent edges of said flaps to cover the door opening, said strip extending over the floor liner.

This specification signed and witnessed this third day of April, 1923.

HERMAN RINGEL.

Witnesses:

FREDK. C. FISCHER,

FERDINAND NALL.