

Nov. 5, 1935.

L. G. COPEMAN

2,020,255

PROTECTIVE COATINGS AND PROCESS OF APPLYING AND REMOVING

Filed Feb. 16, 1932

2 Sheets-Sheet 1

Fig. 1.

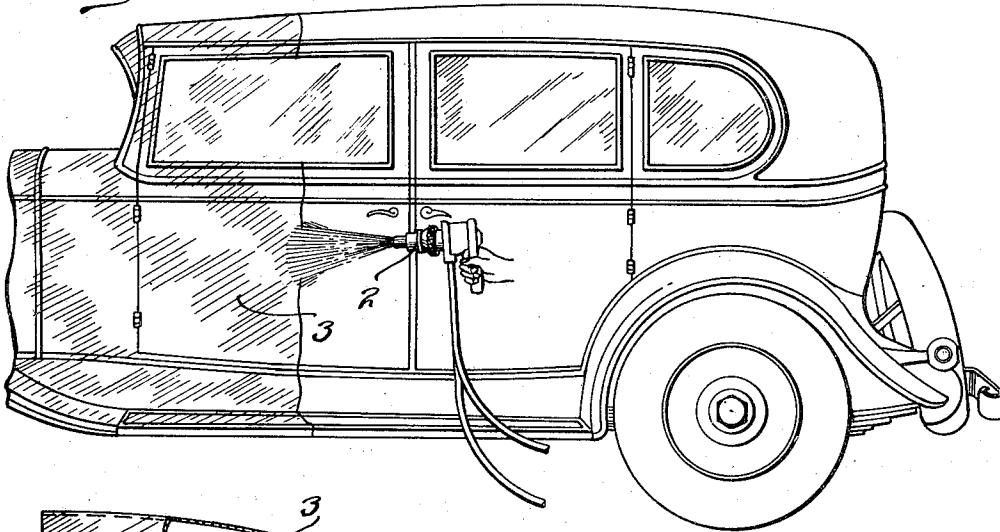
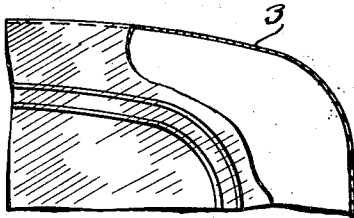
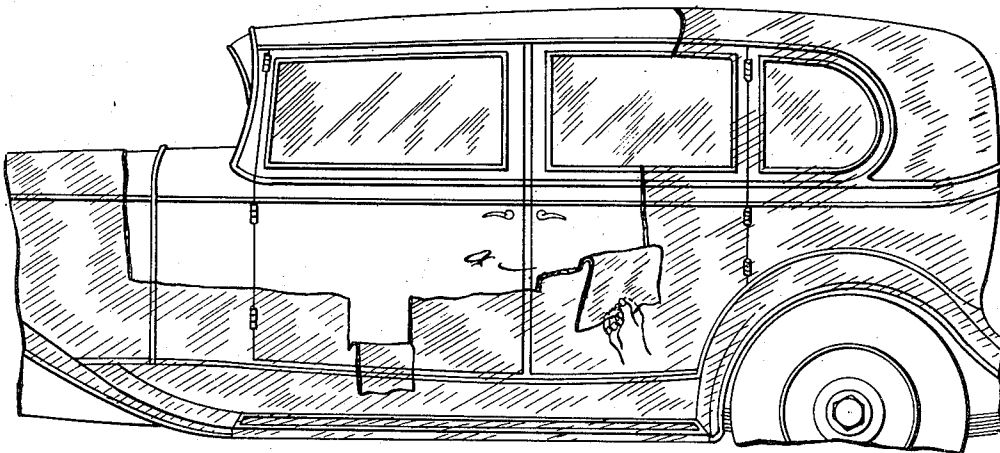


Fig. 2.

Fig. 3.



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2 Sheets-Sheet 2

Fig. 9.

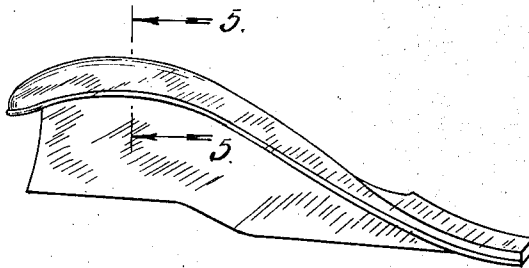


Fig. 7.

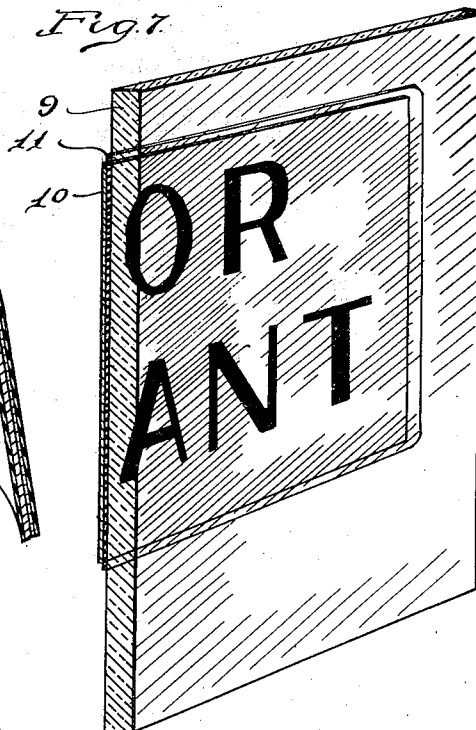


Fig. 5.

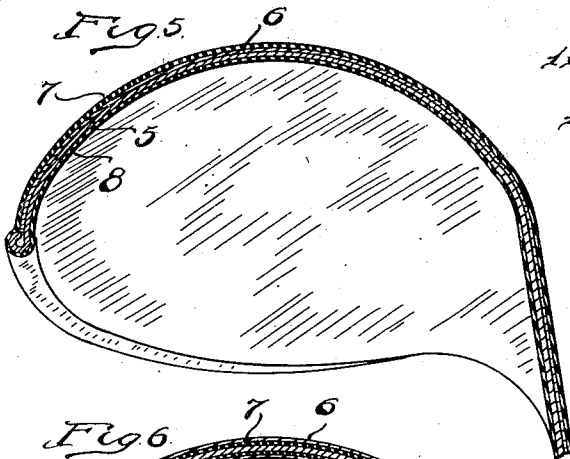
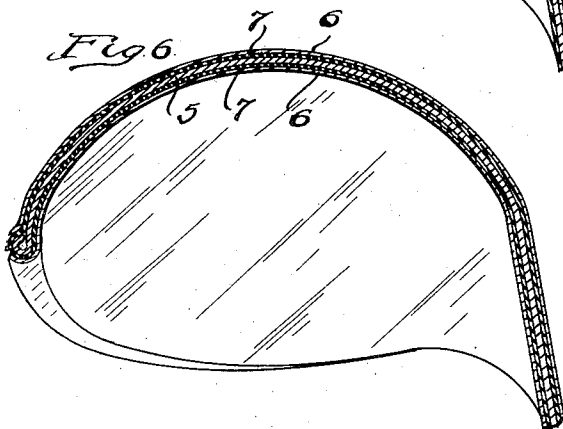


Fig. 6.



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PROTECTIVE COATINGS AND PROCESS OF
APPLYING AND REMOVINGLloyd G. Copeman, Flint, Mich., assignor to Cope-
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Application February 16, 1932, Serial No. 593,279

16 Claims. (Cl. 154-2)

This invention relates to protective coatings and process of applying and removing, and has to do particularly with a novel and inexpensive manner of preserving articles, and particularly the finished surfaces of articles, for a temporary period of time.

As disclosed in the patent to Van Deventer No. 1,548,776 of August 4, 1925, it has been known to protect or preserve articles by the application thereto of an air excluding film of latex. It is a primary object of the present invention to apply protective coatings to articles of manufacture, such as automobiles and the like, whereby such articles are substantially factory sealed and protected from substantial injury during shipment. The process is such that the coating applied not only protects the article during shipment, or during use, but of equally great importance it is readily removable by stripping.

Several of the important objects of the invention include the step of applying a sufficient depth of coating as to protect the finish of the article in addition to substantially excluding the air therefrom, and another important feature is the building up of a heavy enough coating so that the coating can be easily stripped from the article, when desired, in relatively large strips. In the case of automobiles, the relatively heavy coating could be stripped from the fenders, body, radiator, etc., in a few minutes, thus presenting an automobile having its original factory finish. Other features and applications will be more clearly brought out in the specification and claims.

In the drawings:

Fig. 1 illustrates the preferred manner of applying the protective coating material to the finished surfaces of an automobile.

Fig. 2 is a fragmentary sectional view illustrating the built up layer of coating material as it protects and seals the finish.

Fig. 3 illustrates the final and comparatively easy step of removing the protective coating in large strips.

Fig. 4 illustrates a separate fender unit coated as an entirety with a protective coating that may be peeled off before or after assembly.

Fig. 5 is a sectional view taken on line 5-5 of Fig. 4 and showing the upper exposed surface of the fender as being covered with a fibrous material such as paper, with the plastically applied coating covering and sealing the paper in position.

Fig. 6 is a modified view similar to Fig. 5 but showing the plastically applied coating material as being applied directly to the exposed surface

of the fender and a layer of paper or other fibrous material secured in place by the plastically applied coating.

Fig. 7 is a sectional perspective view of a slightly modified adaptation of the process wherein the coating in transparent form may be used for securing signs to windows, the sign and the coating material being easily removed by stripping from the glass without in any way marring the appearance of the glass during or after removal.

The present invention may be best understood by describing its embodiment in connection with such an article as an automobile. In carrying out the process I preferably use what is commonly known as latex but it will be understood that I may use aqueous dispersions of rubber in general whether natural or artificial, or any other coating substance applied in a fluid state and preferably held in solution by a solvent. Substantially any of the well known types of latex may be used and such different types of latex may be used either in their original state or concentrated or diluted as desired.

The latex or other aqueous dispersions of rubber are preferably applied by spraying, as shown at 2 in Fig. 1. All the exposed surfaces of the automobile, except the windows and tires, may be coated as at 3 and a very advantageous time for coating the body itself is while the body is still in or has just come from the drying room. The body being warm will assist in accelerating the drying or setting up of the latex. A thin weather protecting film could be applied to the automobile but such thin film would be rather difficult to remove as there would not be enough body or strength in the latex to peel off in large sheets. Therefore, instead of stopping with one relatively thin layer of latex, I preferably build up this layer preferably of four or five thicknesses so as to provide material protection against bumps and scratches. This heavier body of rubber may then, whenever desired, be removed by tearing or stripping the same off of the finished surface in relatively large sheets, as shown at 4 in Fig. 3. The result is that the car is protected against the elements; against bumps and scratches during shipment, whether the car is driven or is shipped by other means, and when the car reaches its destination or is delivered to the customer the protective coating may be removed in a very few minutes, presenting an automobile with a finish exactly as it left the factory. The first coating of rubber applied to the finished surface of the article is preferably as pure as possible so as to have no deleterious effect on the lacquer,

porcelain, or what ever may be the finish of the article. Subsequent layers of latex may be provided with suitable accelerators to obtain fast drying or setting up.

It will be obvious that by this same process individual parts may be coated and temporarily protected prior to assembly and in the case of fenders and similar articles the rubber coated fender may be assembled to the rubber coated body and all rubber stripped from the parts except that clamped between the fender and the body. The result is ample protection during shipment and easy removability and elimination of the ordinary non-squeak welt used between fenders and bodies. Headlights, radiators, and other separate articles may be completely coated and assembled while coated, which will make for much faster assembly because the workmen will not have to be so careful in protecting the parts from scratches.

It will be understood that smaller articles such as fenders and the like, may be dipped as well as sprayed, the thickness of the coating, for protective purposes and to enable it to be easily stripped, being decided by the period of and/or number of dippings.

Other applications of the process are illustrated in Figs. 5 and 6, wherein the fender 5 is covered by first applying a layer of paper 6, preferably to the upper surface thereof and a coating 7 applied to the outer side of such paper so as to seal the same in position. This process is particularly applicable to articles having rather delicate finishes as the paper will absorb a small amount of water in the setting up of the latex and prevent the same from being injurious to the finish; or if the paper is waxed all vaporization will have to take place from the exterior. In the case of fenders, the latex is preferably applied directly to the under side of the fender as at 8, and in most cases it would be desirable to leave the built up coating 8 on the under side of the fender permanently after the coating on the exposed surface has been stripped off. This will protect the underside of the fender from abrasion, etc., which abrasion on modern high speed cars has been so severe at times as to wear completely through the fender.

In Fig. 6 the coating of latex 7 is shown as being positioned next to the exposed surface of the fender and the paper 6 on the outside. In this modification the latex may be sprayed or applied to the surface of the fender and the strips of paper then placed over the latex. This will require but one coating of latex and when the paper is applied to the latex the latex will adhere to the surface of the paper and also fill up the small interstices so that when the paper is torn away the latex will be removed with the paper. In other words, the bond between the latex and the paper is much stronger than between the latex and whatever surface it might be applied to. If desired, the latex may be first applied to one side of the paper, that is, by dipping or by spraying, and the latex coated paper then applied to the coating of the fender or other article. As before, the latex will become an inherent part of the paper, filling the pores thereof and while normally adhering to the surface of the fender may be easily stripped therefrom particularly because of the backing of the paper. In this case the underside of the fender may be covered by a layer of latex and paper as is the outside of the fender or such underside may be coated as at 8 in Fig. 5.

In the shipping of fenders and similar articles

it has heretofore been customary to apply relatively heavy paper to the fender by means of an adhesive. In order to remove the paper it is usually necessary to soak the fender in water or other liquid for a comparatively long time before all the adhesive and paper can be removed. In the present process a much lighter weight paper may be used than has heretofore been the practice in using an adhesive and the entire cover can be easily removed by stripping. The rubber forming an elastic backing for the paper to resist bumps and abrasion and the paper forming an inherent backing for the rubber to permit easy stripping.

In Fig. 7 I have shown a further modified application of paper and latex. In this figure 9 represents a glass display window such as is used on store fronts, 10 a paper containing an announcement or advertisement of any kind, and 11 an intermediate layer of latex or similar substance. The latex may be first sprayed or applied to the window and the paper or fabric sign then applied to the latex before it is set, or the face of the sign may be dipped in a latex bath and then applied directly to the window. In either case the latex will quickly set up and being transparent the sign will be smoothly and securely held in place. When it is desired to remove the sign, all that is necessary is to grasp the corner of the sign and the entire unit, including the sign and the latex coating, may be instantly stripped from the window. This method is quicker and much more positive in action than the usual vacuum cups, and certainly presents a much neater sign. In the event that the sign is not made of relatively porous material the coating may be stripped from the face of the sign after removal from the window and the same coated and used again.

Another important application of my process is the protection of frangible objects such as china ware during shipment, the ware can be separately coated either by dipping or spraying or by the applying of latex coated paper and the stacked units then sprayed with a separate coating or coatings. It will be obvious that the various units will be individually protected one from the other and will be securely maintained in stacked position. The coating of latex or similar material will permit sufficient flexibility to prevent cracking by pressure. It will be understood that the stack of plates or the like may be sprayed or coated after stacking instead of individually.

A relatively large proportion of solid content of rubber or other substance will usually be found desirable, particularly when a highly resilient but easily stripped coating is desired.

What I claim is:

1. In the art of temporarily protecting an article during shipping, handling, storage and the like, the process of forming a temporary readily peelable protective coating for a relatively non-porous surface of said article, which comprises applying temporary coating substances including an aqueous dispersion of rubber and paper to the surface to be protected, depositing the rubber from said aqueous dispersion, said paper being bonded to the rubber coating during the setting up step to form a flexible coating, said paper being of sufficient thickness to protect and cushion the relatively non-porous surface against bumps and external marring and also of sufficient body as to make the entire coating readily peelable in large sheets from said non-porous surface.

2. In the art of temporarily protecting an article during shipping, handling, storage, and the

like, the process of forming a protective readily peelable temporary coating for a relatively non-porous surface of said article, which comprises applying an aqueous dispersion of rubber to the surface to be protected, backing said aqueous dispersion with a separate coating of paper, setting up the aqueous dispersion of rubber, and bonding said paper to the deposited rubber, said paper being of sufficient mass as to render the entire coating readily peelable in large sheets from the temporarily protected surface and to protect and cushion said surface and coating rubber against bumps and external marring actions.

3. In the art of temporarily protecting articles during shipment, handling, storage, and the like, the process of applying and building up a temporary readily peelable protective coating for relatively non-porous surfaces of said articles, which comprises, applying a coating substance carried by a liquid vehicle to the surface to be protected, backing said substance with plastic with a separate coating of sheet fibrous material, setting up the plastically applied coating into a homogeneous non-tacky flexible coating, said plastically applied coating and sheet material being bonded together and the said sheet material being of sufficient body to cause said complete coating to readily strip off the relatively non-porous surface in relatively large sheets.

4. In the art of protecting relatively non-porous surfaces of articles during shipment, handling, storage and the like, the process of forming a readily peelable protective coating for said relatively non-porous surfaces, which comprises applying to said surfaces temporary coating substances including a coating substance carried by a liquid vehicle and a coating of liquid absorbent fibrous sheet material, said material being of sufficient porosity and body to accelerate the evaporation of the liquid vehicle and depositing of the coating substance, the backing material and plastically applied coating bonding together and setting as a non-tacky flexible coating, said material being also of sufficient body to cause the complete coating to peel off in relatively large sheets, and then peeling off said flexible coating to expose the temporarily protected surface.

5. In the art of temporarily protecting articles during shipping, handling, storage, and the like, the process of forming a protective readily peelable temporary coating for relatively non-porous surfaces of said articles, which comprises applying to said surfaces temporary coatings including paper and an aqueous dispersion of rubber, said aqueous dispersion being applied first to the paper and then to the surface to be protected, while still plastic, said paper accelerating the depositing of rubber as a homogeneous flexible coating, said coating materials being inherently bonded together and said paper being of sufficient body as to temporarily protect and cushion the relatively non-porous surfaces against bumps and external marring and also being of sufficient body as to enable the complete coating to readily strip from the protected surface.

6. In the art of temporarily protecting articles during shipping, handling, storage, and the like, the process of forming a temporary readily peelable protective coating for the relatively non-porous surfaces of said articles, which comprises applying an aqueous dispersion of rubber to the surface to be protected, backing said layer after application to said surface and while still plastic with sheet fibrous material, setting up the coating substance into a homogeneous non-tacky

coating and bonding said backing material to said coating, said backing material being added in sufficient body to protect and cushion said surfaces and coating against bumps and external marring actions.

7. As a new article, a sealed product having a relatively non-porous surface and a temporary protective coating therefor comprising a thin homogeneous, flexible inner coating of non-tacky material, and one or more coatings of fibrous sheet material bonded to said first coating, said first coating being of a material which will adhere to but will be readily removable from the relatively non-porous surface, and said bonded coating or coatings of backing material presenting sufficient body as to effect removal of the entire coating in relatively large sheets.

8. As a new article, a sealed product having a relatively non-porous surface and a temporary protective covering therefor to protect the non-porous surface during shipping, handling, storage and the like, comprising a thin homogeneous flexible inner coating of thin non-tacky rubber deposited from an aqueous dispersion of rubber, and one or more coatings of paper bonded to said first thin coating of rubber, said paper being of sufficient thickness as to protect the thin rubber coating and non-porous surface against bumps and external marring actions and also of sufficient body as to effect removal of the entire coating in relatively large sheets.

9. In the art of temporarily protecting articles during shipping, handling, storage, and the like, the process of forming a temporary readily peelable protective coating for the relatively non-porous surfaces of said articles, which comprises applying a coating substance carried by a liquid vehicle to the surface to be protected, backing said layer after application to said surface and while still plastic with paper, setting up the coating substance into a homogeneous non-tacky coating and bonding said backing material to said coating, said backing material being added in sufficient body to protect and cushion said surfaces and coating against bumps and external marring actions.

10. In the art of temporarily protecting articles during shipping, handling, storage, and the like, the process of forming a protective readily peelable temporary coating for relatively non-porous surfaces of said articles, which comprises applying temporary coatings including paper and an aqueous dispersion of rubber, said paper being first applied to the surface to be protected and then coated after application with said aqueous dispersion of rubber, said paper accelerating the depositing of rubber as a homogeneous flexible coating, said coating materials being inherently bonded together and said paper being of sufficient body as to temporarily protect and cushion the relatively non-porous surfaces against bumps and external marring.

11. In the art of temporarily protecting articles during shipping, handling, storage, and the like, the process of forming a temporary readily peelable protective coating for the relatively non-porous surfaces of said articles, which comprises applying a coating substance carried by a liquid vehicle as a thin layer to the surface to be protected, backing said thin layer while still plastic with paper, setting up the coating substance into a thin non-tacky coating and bonding said paper to said coating.

12. As a new article, a sealed product having a relatively non-porous surface and a temporary

protective covering therefor to protect the non-porous surfaces during shipping, handling, storage, and the like, comprising a thin homogeneous flexible inner coating of thin non-tacky rubber deposited from an aqueous dispersion of rubber, and a coating of paper bonded to said first thin coating of rubber.

13. As a new product, a rigid article of manufacture having a finished surface provided with a temporary readily removable covering for protection during shipping, handling, storage and the like comprising a non-tacky inner coating of the solids of a latex composition, and a layer of paper over said inner coating and adhered thereto.

14. The method of temporarily protecting the relatively non-porous surface of an article during shipping, handling, storage, and the like, which comprises applying an aqueous dispersion of rub-

ber, which when dried forms a non-tacky deposit, to paper material, applying the dispersion-coated side of the paper while wet to said surface, and evaporating water from the dispersion to form a readily removable temporary coating on said surface.

15. The method of temporarily protecting the relatively non-porous surface of an article during shipping, handling, storage, and the like, which comprises removably securing paper to the finished surface by means of a non-tacky rubber deposit of an aqueous dispersion of rubber to form a readily removable temporary protective coating on said surface.

16. An article of manufacture having at least a portion of its surface covered with a removable non-tacky solids deposit from an aqueous dispersion of rubber and paper material thereover.

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