

Patented Feb. 16, 1926.

1,573,537

UNITED STATES PATENT OFFICE.

GUIDO BLENIO, OF NEW YORK, N. Y., ASSIGNOR TO PROOFING LABORATORIES, INC., OF
NEW YORK, N. Y., A CORPORATION OF NEW YORK.

PAINT AND VARNISH REMOVER.

No Drawing.

Application filed April 23, 1920. Serial No. 376,060.

To all whom it may concern:

Be it known that I, GUIDO BLENIO, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Paint and Varnish Removers, of which the following is a specification.

This invention relates to paint removers; and it comprises as a new composition of matter for removing paint and varnish, a mixture of ordinary thin and volatile solvents of the type of those customarily used for removing paint and varnish in which sufficient caoutchouc (gum rubber) is dissolved to give the composition as a whole a viscid or syrupy consistency adapting it for application to vertical surfaces; all as more fully hereinafter set forth and as claimed.

In the art of removing paint and varnish it is customary to use mixtures of several solvents, such as a mixture of benzol and alcohol, for instance. By using a plurality of different solvents the action is much better. All of the solvents ordinarily employed for this purpose are relatively thin mobile liquids which are mostly quite readily volatile and in order to be able to use them it is necessary to use some sort of a thickener. Otherwise, the thin character and freely flowing qualities of the solvents render their use impractical. A relatively thick layer of remover must be used on a painted surface and it must stay in position during the softening of the coating, whether the surface be horizontal or vertical. As a thickening agent it is customary to employ more or less insoluble bodies like the waxes in a finely divided suspended state. The insoluble particles in the liquid mechanically impede flow and allow the use of relatively thick layers even on vertical surfaces. Wholly insoluble thickeners, like sawdust, etc., have been recommended but are not used for the reason that they generally tend to promote evaporation, acting in a wick-like manner. Waxes are preferred in the art. Their disadvantage is that they are not wholly insoluble in mixtures of solvents ordinarily employed and the character of the mixture therefore changes from day to day; more of the wax being out of solution on a cold day than on a hot day. In fact, the differ-

ence in this respect is so pronounced that there are even separate preparations made for winter removers and summer removers. In this connection it may be noted that by the use of semi-soluble thickeners like wax, the paint removing power of the solvents is cut down materially.

In the present invention I depart from the principle of using a solid or semi-soluble thickener, like wax, and use a soluble thickener which will render the whole body of mixed solvents gummy, viscid or syrupy. As this soluble thickener I employ ordinary raw rubber or gum rubber, such as Pará rubber, Ceylon rubber, Pontianak rubber. A small amount of caoutchouc in solution renders a liquid mass extraordinarily viscid; and the amount which imparts sufficient viscosity for all my purposes is quite insufficient to impair the solvent powers of the liquids present to any noticeable degree. As the liquids, I may use any of the ordinary volatile solvents or mixtures thereof. Most of the light hydrocarbons and chlorin substitution products which are employed in paint removers are solvents for caoutchouc; and in view of the very little caoutchouc which is necessary for my purposes the solution formed will tolerate an addition of comparatively large amounts of non-solvents, such as alcohol, without precipitation or flocculation. For various purposes or in special removers, some of the ordinary solvents may be employed alone; that is, unmixed. But it is better to use a mixture of solvents of different character, of which one is always a solvent for caoutchouc and the others may, or may not, be. Benzol, which is an excellent caoutchouc solvent, is usually a component of my removers. It is not necessary that the composition be neutral and such acids as glacial acetic acid, formic acid, phenol, cresols, phenol esters, such as phenyl acetate, etc., may be used.

Caoutchouc is an excellent thickener for paint and varnish removers and I find that in practice it also operates to restrict evaporation; possibly because drops or bodies of the remover skin over with a colloid film of caoutchouc through which included solvents diffuse but slowly. It is best not to use any large proportion of waxy or greasy matters since not only do they impair the efficiency of the volatile solvents but they

leave a greasy film which must be subsequently removed with gasoline, etc.

I may use any of the ordinary commercial raw rubbers and form a solution with benzol, carbon bisulfid, etc., but I find it more convenient to take ordinary commercial rubber cements in which the rubber is already in solution.

In one such composition under the present invention, I employ 30 parts commercial rubber cement or rubber dissolved to a syrupy consistency in a suitable solvent, as benzol or other solvent, 60 parts of benzol, with which the rubber cement is freely miscible, and 10 parts of oil of mirbane (nitrobenzol). Oil of mirbane is not only a good solvent but it has an additional function in retarding quick drying. In a similar formula the rubber cement may be taken at 20 parts and the benzol at 45 parts, with the oil of mirbane increased to 15 parts. To this composition may be added 20 parts of acetone or of acetic ether or methyl acetate, or the like. And these compositions do not congeal at freezing temperatures. A composition containing acetone or methyl acetate is not only an excellent paint and varnish remover but it is good solvent for celluloid and it attacks pyroxylin varnishes readily. While I do not desire to use any great amount of pyroxylin in my thickener, a little may be worked into the solution. Too much pyroxylin cuts down the solvent power of the liquids. In one formula using pyroxylin I employ it in the form of ordinary collodion. Making this composition I take 10 parts commercial rubber cement, 10 parts commercial collodion (a solution of pyroxylin in a mixture of ether and alcohol), 45 parts of benzol, 15 parts of mirbane and 20 parts of such a special solvent as methyl acetate, acetone, ether, butyl acetate, amyl acetate, ethyl alcohol, methyl alcohol, etc. If a noninflammable or slowly burning remover is desired, various chlorinated organic liquids may be worked into the above compositions. For instance, there may be added to any one of the mixtures just mentioned 40 or 50 per cent additional trichlorethylene, tetrachlorethylene (perchlorethylene), etc. When using these chlorinated products I find that better results are obtained by employing them in mixtures than by using them singly. For instance, an addition may be made of a mixture of 55 parts trichlorethylene and 35 parts tetrachlorethylene. Some triphenyl phosphate, say up to 10 parts, is a useful addition to this mixture. Butyl acetate, amyl acetate and ethyl acetate are very desirable solvent for my purposes. Ethyl alcohol, although it can be used in the present composition, is not as desirable as the other solvents for the reason that it is too active a non-solvent of caoutchouc so that in large pro-

portions it causes an undesirable separation.

The object of the dissolved rubber is to give the composition as a whole a certain viscid or slow-flowing consistence sufficient to immobilize it on a surface to be treated; and no more should be used than is necessary for this purpose. Unduly viscid solutions are inconvenient to handle for ordinary purposes, though sometimes they are wanted where the remover is to be used on under surfaces, as in cleaning ceilings and the like. Ordinarily and for general work I desire to obtain a consistence equivalent to that produced by the solution of about an ounce of good Pará raw rubber per gallon, but for very viscid compositions sometimes two to four ounces may be used. Commercial rubbers and rubber cements vary in the consistency they give the remover; and I therefore indicate Pará rubber as a standard. When commercial rubber cement (dissolved rubber) is not used the rubber may be first dissolved in such of the liquids to be used as are good solvents therefor and the other liquids then admixed. For example, in making a gallon of remover an ounce of Pará rubber may be cut into small strips and treated with a quarter gallon of benzol, carbon disulfid, ether or the like, being warmed to promote solution. If any wax is to be used, it may be incorporated in this rubber solution. In one composition using wax, I add to 18 parts of the rubber solution about 2 parts of paraffin. To this may be added successively 10 parts of oil of mirbane, 35 parts of benzol and 35 parts of any good volatile solvent, such as methyl acetate, acetone, etc.

With the present remover, after the action is complete any caoutchouc remaining on the treated surface can be readily peeled off in strips or films—the surface is not left greasy as in using wax. Some wax can be added to the present composition, although it is not necessary, provided that there is not enough to give a greasy separation or evaporation. With a little wax, say not over 2 per cent, the residue is not of a greasy character.

In using raw rubber instead of the commercial rubber cement, a solution can be readily prepared by cutting Pará rubber, or any other commercial caoutchouc, into small pieces and blending with a solvent with the aid of a suitable mixing device. Benzol, ether, etc., may be employed as the solvents. Admixture is continued until the composition is syrup-like. This composition may be employed in lieu of the rubber cement specified in the various examples. A suitable proportion is about 1 ounce to about a quart of benzol or the like. Ordinarily it is not necessary to have more rubber in the solution than corresponds to about an ounce to the gallon. If any wax is employed it

should be dissolved in the rubber solution or rubber cement prior to adding other solvents.

What I claim is:—

- 5 1. A paint and varnish remover comprising paint and varnish solvents, and dissolved rubber, one said solvent being oil of mirbane, the proportion of oil of mirbane being as high as 15 per cent.
- 10 2. A paint and varnish remover of

syrupe consistency, comprising 20 to 30 parts commercial rubber cement, 35 to 60 parts of benzol, 10 to 15 parts oil of mirbane, 20 parts of acetone, and a sufficient quantity

of a chlorinated hydrocarbon derivative to 15 render the compound noninflammable.

In testimony whereof, I affix my signature.

GUIDO BLENIO.