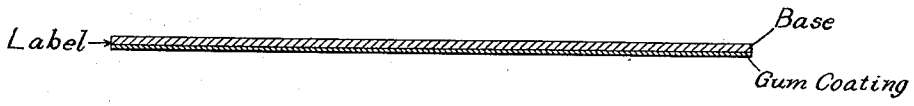
July 7, 1936. J. E. SNYDER 2,046,492

LABEL

Filed Feb. 3, 1932



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Patented July 7, 1936

2,046,492

UNITED STATES PATENT OFFICE

2,046,492

LABEL

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Application February 3, 1932, Serial No. 590,548

8 Claims. (Cl. 216—62)

This invention relates to the affixing of devices, such as labels, closures, instruction sheets, paper, cloth, tags attached to ribbons or strings, or the like, to articles having surfaces normally insensitive to water-energized adhesives, as well as uniting the last-named articles to like or dissimilar materials.

Recently, a moistureproof article comprising as its most common specie, a transparent, flexible, moistureproof film of regenerated cellulose prepared, for example, by coating the base film with a composition containing a cellulose derivative and a wax and preferably also a resin and a plasticizer, has come into extensive and widespread use as a wrapping material. For obvious reasons, in practice, it is extremely desirable to apply labels or other gummed devices to the package. Inasmuch as this wrapping tissue has a coating formed of a composition which is normally insensitive to water-energized adhesives, the ordinary gummed labels cannot be satisfactorily affixed thereto by the usual process of moistening with water and uniting.

To provide a method of affixing labels to this article it has been proposed to apply to either the gummed label or the wrapping tissue or both a moistening solution which rendered the gummed surface of the label tacky and also modified the coating so that it became sensitive to the adhesive and permitted satisfactory adhesion of the label. This procedure contemplated the use of a moistening solution which preferably comprised an aqueous solution of a solvent or softener of the cellulose derivative constituting the coating.

Another procedure contemplated gumming the rear surface of a label with a solution of a resin, such as manila gum, dissolved in a readily volatile solvent, such as alcohol, and after evaporating the alcohol moistening the residual resinous layer with a solution of castor oil in alcohol, whereby the label was prepared for application to the material to which it was to be affixed.

As evident from the preceding, the prior art methods of affixing gummed labels to articles having surfaces normally insensitive to water-energized adhesives required the utilization of a specific type of moistening solution.

I have found that by coating the rear surface of the label to be affixed with a composition comprising a water-soluble agglutinant, a solvent for one or more of the components of the water-insensitive surface, said solvent also preferably being a softener for the agglutinant, and preferably also a solid substance soluble in water to form an aqueous solution having a modifying effect on the composition constituting the surface normally insensitive to water-energized adhesives, and permitting the same to dry, there results a coating which, when moistened with water, may be readily secured to articles having surfaces normally insensitive to water-energized adhesives.

An object of this invention is to provide a device, such as a label, closure, instruction sheet, etc., with a coating which upon being moistened with water may be readily affixed to an article having a surface normally insensitive to water-energized adhesives.

A specific object of this invention is to provide a device for affixing to articles having surfaces normally insensitive to water-energized adhesives which comprises a device coated with a composition comprising a water-soluble agglutinant, a solvent for one or more of the components constituting the surface of the material to which the device is to be affixed, said solvent preferably also functioning as a softener for the agglutinant, and preferably also a solid substance soluble in water to form an aqueous solution having a modifying effect on the composition constituting the surface to which the device is to be affixed.

Other objects will appear from the following description, appended claims and accompanying drawing in which:

The figure is a cross-section of a device, such as a label, prepared in accordance with the instant invention.

In accordance with one illustrative embodiment of the principles of this invention, a device, such as a label, is provided with a dried coating of a composition which upon moistening with water may be readily and expeditiously affixed to an article having a surface normally non-responsive to water-energized adhesives.

As illustrative examples of articles to which the coated devices are to be affixed may be mentioned moisture-proof sheets or films of regenerated cellulose, and particularly that species in which the surface coating comprises a cellulose derivative and a wax and preferably also a resin and optionally a plasticizer, lacquered sheets or films of regenerated cellulose, articles made of or coated with compositions comprising cellulose derivatives, articles made of or coated with compositions containing resins, especially synthetic resins, and the like.

The coating composition comprises broadly a water-soluble agglutinant containing a solvent of the composition constituting the coating or surface of the article to which the gummed label is

to be affixed. In the case where the label is to be affixed to moistureproof regenerated cellulose sheeting of the type which is provided with a coating comprising a cellulose derivative and a wax with or without other ingredients, the solvent in the gumming composition is of the type which modifies, i. e. dissolves or softens, the composition constituting the coating, for example, the cellulose derivative. Since water is contemplated as the moistening medium, the solvent should preferably be water-soluble and also of relatively low volatility in order that it does not quickly evaporate from the finished coating. The latter is essential since the coated devices will not necessarily be used immediately after preparation.

In the preferred embodiment of the composition, the solvent above referred to is of the type which also functions as a softener for the water-soluble agglutinant.

The coating composition should preferably be free from other softeners, for example, glycerin, which do not have any action on the coating. If the composition contained softeners which were inert with respect to the surface insensitive to water-energized adhesives, the mixture would tolerate less solvent. The coating composition usually contains an excess of the solvent and consequently will produce a coating which is tacky to a very high degree. To compensate for this, there may be added solid substances, preferably those which are soluble in water to form aqueous solutions, which have a modifying action, i. e. destructive swelling or solvent effect, on the composition constituting the surface or coating.

As illustrative examples of agglutinants which have given satisfactory results may be mentioned glue, gelatin, starch, pectin, dextrin, sugars, gums, etc., used either alone or in combination as desired.

As illustrative examples of water-soluble solvents, which also preferably act as agglutinant softeners, may be mentioned diethylene glycol, triethylene glycol, glycerol monochlorohydrin, and diacetin.

As illustrative examples of solid substances hich form aqueous solutions having a modifying action on the pyroxylin film may be mentioned sodium naphthalene B-sulphonate, p-toluene sulphonamide, guanidine thiocyanate, triphenyl guanidine, m-toluene diamine, sodium oxalate and sodium bisulfide.

The proportions of the ingredients constituting the gumming composition may vary within wide limits and the invention is not restricted to any precise proportions of the ingredients. In order, however, to more clearly explain the nature of the invention, the following two illustrative specific embodiments of gumming compositions are set forth:

Example I

	Parts
Dextrin-fish glue gumming	10
Diethylene glycol	10
p-Toluene sulphonamide	9

Example II

	Parts
Dextrin-fish glue gumming	10
Diethylene glycol	10
Guanidine thiocyanate	2

The above compositions may be prepared by warming the dextrin-fish glue mixture to about 40° C. and then adding either gradually or at one time the other ingredients. The entire mass is agitated until a homogeneous composition is secured.

This composition, at a temperature of approximately 40° C., is applied to the desired material and dried at a slightly elevated temperature, such as 90° C.

The devices to which the composition is applied may be labels, instruction sheets, sealing tapes, closures, paper, cloth, tags attached to ribbons or strings, etc.

To apply a device coated as previously described to an article having surfaces normally insensitive to water-energized adhesives, such as a sheet or film of regenerated cellulose coated with a composition comprising a cellulose derivative and a wax with or without other ingredients, at least one of the surfaces of the articles to be united, and preferably the coating on the device, is moistened with water and the articles superposed. In the preferred form of affixing the device, sufficient pressure is utilized in order to bring the two articles into intimate contact. If desired, heat may be used in combination with pressure.

It is to be understood that, though the invention hereinbefore described was explained in connection with the affixing of devices to articles having surfaces normally insensitive to water-energized adhesives, the invention is not restricted thereto. The invention is equally applicable for joining, sealing, uniting or laminatng materials normally insensitive to water-soluble adhesives to like or dissimilar materials.

While I prefer to apply the adhesive composition to the labeling device in the form of a homogeneous mixture, I may also coat the rear surface of the label with a composition comprising a water-soluble agglutinant and a solvent for one or more of the components of the water insensitive surface, said solvent also preferably being a softener for the agglutinant. After this coating is dry, the surface is dusted with the finely divided solid substance which is soluble in water to form an aqueous solution having a modifying effect on the surface normally insensitive to water energized adhesives. This coating may then be moistened with water in the usual manner and the labeling device applied.

In the claims the water-soluble solid substance is defined as forming an aqueous solution "having a softening action" on the composition constituting the surface normally insensitive to water-soluble adhesives. It is to be understood that this terminology is intended to also cover a dissolving action as set forth in the specification.

Since it is obvious that various changes and modifications may be made in the above description without departing from the nature or spirit thereof, this invention is not restricted thereto except as set forth in the appended claims.

I claim:

1. A device, capable of being moistened with water and readily joined or affixed to an article having a surface formed of a composition containing a cellulose derivative and which surface is normally insensitive to water-soluble adhesives, comprising a base having a dried coating comprising a water-soluble agglutinant and a solvent for the composition constituting the surface of said article.

2. A device, capable of being moistened with water and readily joined or affixed to an article having a surface formed of a composition containing a cellulose derivative and which surface is normally insensitive to water-soluble ad-

hesives, comprising a base having a dried coating comprising a water-soluble agglutinant and a solvent for the composition constituting the surface of said article, said solvent also being a softener for the agglutinant.

3. A device, capable of being moistened with water and readily joined or affixed to an article having a surface formed of a composition containing a cellulose derivative and which surface is normally insensitive to water-soluble adhesives, comprising a base having a coating comprising a water-soluble agglutinant, a solvent for the composition constituting the surface of said article, and a solid substance soluble in water to form an aqueous solution having a softening effect on the composition constituting the surface normally insensitive to water-soluble adhesives.

4. A device, capable of being moistened with water and readily joined or affixed to an article having a surface formed of a composition containing a cellulose derivative and which surface is normally insensitive to water-soluble adhesives, comprising a base having a coating comprising a water-soluble agglutinant, a solvent for the composition constituting the surface of said article, said solvent also being a softener for the agglutinant, and a solid substance soluble in water to form an aqueous solution having a softening effect on the composition constituting the surface normally insensitive to water-soluble adhesives.

5. A device, capable of being moistened with water and readily joined or affixed to an article having a surface formed of a composition containing a cellulose derivative and which surface is normally insensitive to water-soluble adhesives, comprising a base having a coating comprising dextrin-fish glue gumming, diethylene glycol, and p-toluene sulphonamide.

6. A device, capable of being moistened with water and readily joined or affixed to an article having a surface formed of a composition containing a cellulose derivative and which surface is normally insensitive to water-soluble adhesives, comprising a base having a coating comprising dextrin-fish glue gumming, diethylene glycol, and guanidine thiocyanate.

7. A device, capable of being moistened with water and readily joined or affixed to an article having a surface formed of a composition containing a cellulose derivative and which surface is normally insensitive to water-soluble adhesives, comprising a base having a dried coating comprising a water-soluble agglutinant of the class which consists of glue, gelatin, starch, pectin, dextrin, sugars and gums, a solvent for the composition constituting the surface normally insensitive to water-soluble adhesives and of the class which consists of diethylene glycol, triethylene glycol, glycerol monochlorohydrin and diacetin.

8. A device, capable of being moistened with water and readily joined or affixed to an article having a surface formed of a composition containing a cellulose derivative and which surface is normally insensitive to water-soluble adhesives, comprising a base having a dried coating comprising a water-soluble agglutinant of the class which consists of glue, gelatin, starch, pectin, dextrin, sugars and gums, a solvent for the composition constituting the surface normally insensitive to water-soluble adhesives and of the class which consists of diethylene glycol, triethylene glycol, glycerol monochlorohydrin and diacetin, and a water-soluble substance which forms an aqueous solution having a softening effect on the composition constituting the surface normally insensitive to water-soluble adhesives and of the class which consists of sodium naphthalene B-sulphonate, p-toluene sulphonamide, guanidine thiocyanate, triphenyl guanidine, m-toluene diamine, sodium oxalate and sodium bisulphide.

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