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PREGUMMED HANGING PAPER

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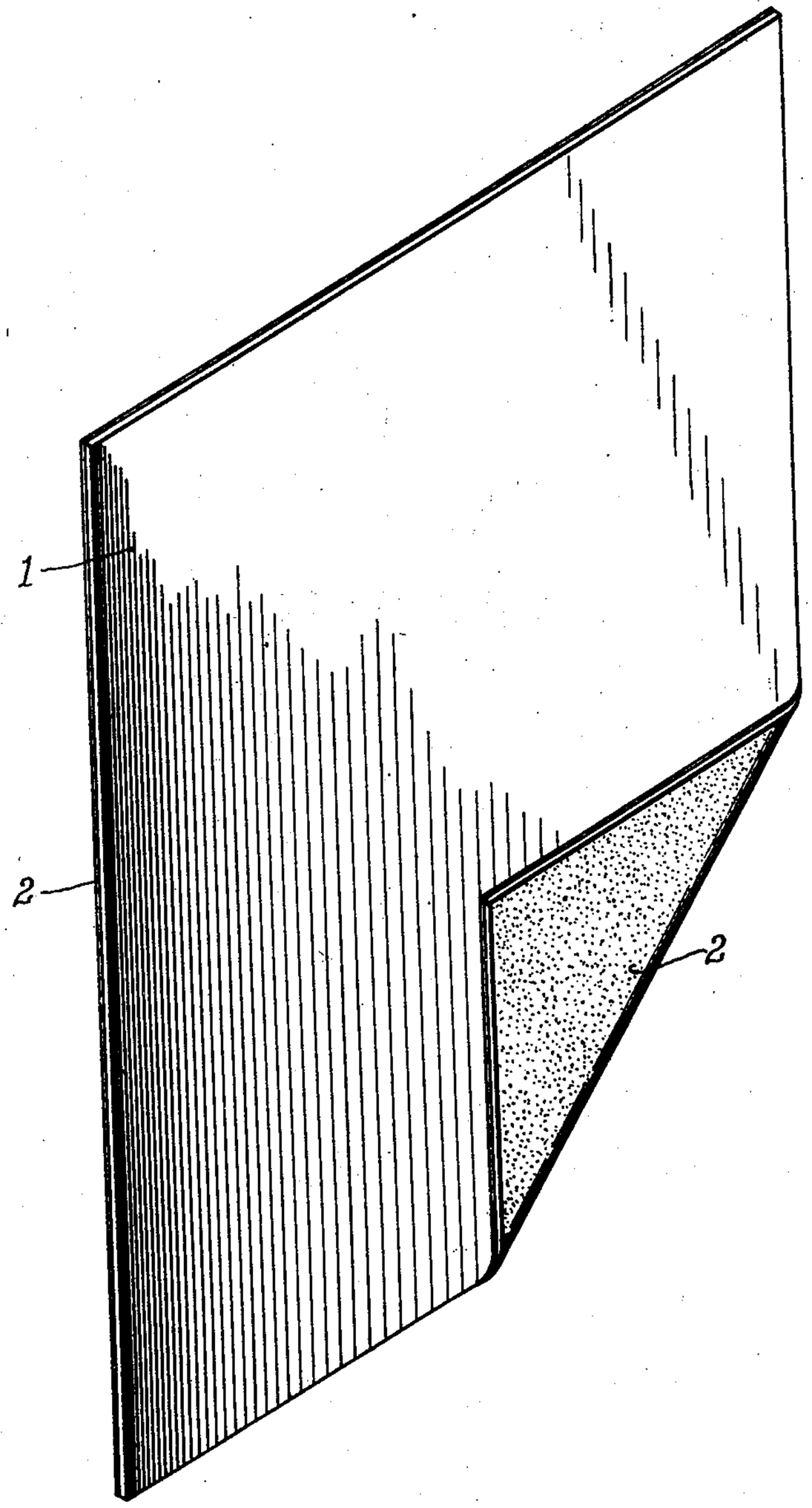

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PREGUMMED HANGING PAPER

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Application January 23, 1939, Serial No. 252,457

9 Claims. (Cl. 91—68)

This invention relates to pregummed hanging papers, more particularly wall-papers, poster papers, billboard papers and the like having a dried coating of adhesive thereon which requires only moistening to be applied to a wall or other surface.

This application is a continuation-in-part of my copending application Serial No. 168,360, filed October 11, 1937.

As is well known, wall-papers and other types of hanging papers including poster papers and billboard papers are ordinarily applied to a wall or other surface by a paper hanger who makes up a paste and puts it onto paper just before applying the paper to the wall or other surface. It has heretofore been proposed to make wall-papers having a self-contained adhesive, but these papers have generally been unsatisfactory because of the numerous problems involved. Thus, Lobdell U. S. Reissue Patent 10,430 describes a wall-paper which is dry sized on its back and according to the patent may be hanged by moistening the sized surface and applying it to a wall. The sizing used is said to be dextrine, glue, paste or gums.

The preparation of suitable hanging paper of this type, however, is not so simple that it may be done merely by adding an ordinary type of sizing material or glue to the back of the paper and drying it. A hanging paper such as a wall-paper must have certain characteristics which cannot be obtained with an ordinary adhesive. For instance, it must be flexible, non-curling and the adhesive must not crack or chip off of the paper. The adhesive must be spread uniformly on the paper and when applied to the wall must dry and shrink evenly so as to shrink out any blisters or bulges which form on the surface of the paper. In view of the numerous problems involved, little progress has heretofore been made in the preparation of pregummed hanging papers and more specifically in the preparation of pregummed wall-papers.

One of the objects of the present invention is to provide a new and improved pregummed hanging paper having a dried coating of adhesive thereon which requires only moistening to be applied.

A further object is to produce a pregummed hanging paper and more particularly a pregummed wall-paper which is flexible, non-curling, non-cracking and upon which the adhesive is spread evenly and uniformly.

Another object is to provide a new and improved pregummed hanging paper in which the dried coating of adhesive thereon does not have the appearance of an adhesive on the paper and which when wet takes up a relatively large amount of water and possesses excellent slip so that it may readily be moved from one part of the wall to another while still wet and without damage to the paper or the wall.

An additional object is to produce a pregummed hanging paper of the character described in which the blisters, bulges, wrinkles and the like which sometimes form when a hanging paper such as a wall-paper is applied in the wet state shrink out or disappear as the paper dries.

Still a further object of the invention is the preparation of a pregummed hanging paper and more particularly a wall-paper which contains a dried adhesive coating that does not become tacky and cause the paper to stick together when rolled in the usual manner. Other objects will appear hereinafter.

These objects are accomplished in accordance with this invention by coating a wall-paper or other hanging paper with an adhesive which, as applied to the paper, requires relatively small amounts of water to be evenly spread, but which when dried will take up large amounts of water. This minimizes the amount of drying required in preparing the paper initially. At the same time, in carrying out this invention, the adhesive material is formed of amylaceous substances of specified characteristics intimately dispersed with auxiliary materials. In this manner a pregummed hanging paper is prepared which possesses excellent slip when the adhesive is remoistened for application to a wall or other surface. The adhesive material, preferably prepared as hereinafter described, also contains components which tend to prevent curling and cracking and cause the blisters to shrink out of the paper as it dries.

A preferred type of adhesive for preparing pregummed hanging papers such as wall-papers contains a combination of amylaceous materials some of which take up relatively small amounts of water and others of which take up relatively large amounts of water together with one or more substances, preferably normally solid, that exert a solubilizing influence on amylaceous materials. The term "amylaceous materials" is used herein to describe starch and starch degradation products such as dextrines and starch gums. Certain other materials may be added to the adhesive composition as long as they do not interfere with the essential properties and characteristics of the resultant adhesive.

The adhesive is prepared by dispersing the ingredients in a dispersion medium such as water in sufficient amount to give the mixture a fluidity so that it may be suitably spread or coated upon the paper. The dispersion may be accompanied by the application of heat. The mixture is then applied to the paper by any suitable method of surface coating involving the use of a doctor blade or other means such as are well known to those skilled in the coating art and dried or allowed to dry. When dry the paper with the self-contained adhesive is non-curling, flexible and preferably substantially non-cracking and non-tacky. It will take up a relatively large amount of water when remoistened and possesses excellent slip characteristics when applied to a wall or other plane surface.

Other features and advantages of the invention will be apparent by reference to the following specification and the accompanying drawing in which the single figure represents a wall-paper having a self-contained adhesive, as herein described.

As illustrated in the drawing, the wall-paper 1, which may be of any suitable character or design, has a self-contained adhesive backing 2, as more fully hereinafter described.

The invention will be further illustrated but is not limited by the following examples:

Example I

A blend was made by mixing together 64% chlorinated corn starch sold under the trade name of "Hercules" starch (fluid at 1 part to 3 parts of water), 25% urea, 5% sodium acetate and 6% Royal tapioca. After these ingredients had been thoroughly blended, an adhesive composition was made by mixing water therewith in proportions corresponding to about 2 parts of water per each part of blend. This mixture was then heated to 175° F. until clear.

It was coated on the back of wall-paper in a thin film which was alowed to dry. Wall-paper thus prepared was non-curling, non-cracking, flexible and the adhesive was non-tacky under ordinary atmospheric conditions. When the adhesive is moistened it will take up relatively large amounts of water, and the paper possesses excellent slip characteristics so that it will slide from one place to another after it has been applied to a wall and before the adhesive is dried. Blisters, wrinkles and the like, which sometimes form in the paper when it is applied, readily shrink out when the paper dries on the wall.

In this example the amount of sodium acetate may be increased from 5% to 15%, the amount of urea being correspondingly decreased.

Example II

A blend was prepared by mixing together 64% Hercules starch, 25% sodium acetate, 5% urea and 6% Royal tapioca. This blend was then mixed with water in proportions corresponding to 1 part blend to about 2.5 parts of water and was applied to the back of wall-paper with excellent results similar to those described in Example I.

In this example the amount of urea may be increased from 5% to 15%, the amount of sodium acetate being correspondingly decreased.

Example III

A blend was prepared by mixing together 20% Royal tapioca, 45% RH–4 dextrine, which is white corn dextrine having a solubility within the range of about 3% to about 12% in water at 75° F., 25% urea and 10% sodium acetate. To this blend was added about 1% to about 1.5%, based upon the weight of the blend, of sulfonated castor-oil which was about 75% sulfonated. After all of these ingredients had been thoroughly blended an adhesive composition was made by mixing water therewith in proportions corresponding to about 2 parts of water per part of blend. This mixture was then heated to 175° F. until a substantially clear dispersion had been obtained.

The adhesive composition thus prepared was coated on the back of various types of wall-paper in a thin film and allowed to dry. Wall-paper prepared in this manner was non-curling and the adhesive was non-cracking, flexible and non-tacky, under ordinary atmospheric conditions. When the dried coating of adhesive on the wall-paper was moistened it took up relatively large amounts of water and the paper possessed excellent slip characteristics so that it would slide from one place to another after it had been applied to a wall and before the adhesive had dried. Blisters, wrinkers and the like which sometimes formed in the paper when it was applied would readily shrink out when the paper dried on the wall.

In a similar manner poster papers and billboard papers may be prepared with an adhesive of the type described in this example.

It will be understood that variations may be made in the composition of the adhesive, in the method of applying it to the paper and in the various types of papers to which it is applied. Many wall-papers are unsized or contain very little sizing, while poster papers and billboard papers are often highly sized. Tests have shown that pregummed poster papers and billboard papers prepared in the manner herein described are able to withstand the weather over relatively long periods of time and that the adhesive materials herein described will retain such papers against walls or other plane surfaces even when exposed to outdoor weather conditions.

It will be observed that the preparation of a pregummed hanging paper in the manner herein described involves the use of a plurality of amylaceous materials at least one of which has a low water absorptive capacity together with one or more amylaceous materials having a high water absorptive capacity. The expression "low water absorptive capacity" is used to describe amylaceous materials which will five fluid dispersions when heated with relatively small amounts of water, and the expression "high water absorptive capacity" is used to describe amylaceous materials which will give fluid dispersions when heated with water only when relatively large amounts of water are used.

A suitable low water absorptive capacity amylaceous material for the purpose of the present invention comprises a dextrinized modified or degraded starch which, when cooked in the proportions of 1 part of said amylaceous material to 5 parts of water to 190° F. and then cooled to 125° F. gives a viscosity reading within the range of about 6 seconds to about 650 seconds, the readings in question being the time for 100 revolutions of the viscosimeter cylinder using a 100 gram weight. This test is herein referred to as the low water absorptive capacity test. The Stormer viscosimeter used gave a reading of 5.6 seconds with water at 125° F. and a reading of 2.4 seconds running free with the viscosimeter

cup empty, these readings being the time required for 100 revolutions of the viscosimeter cylinder using a 100 gram weight. For example, the RH—4 dextrine of Example III when tested as above described gives a reading of about 600 seconds. A white corn dextrine about 12% soluble when similarly tested gives a reading of about 13.2 seconds, and a high soluble white corn dextrine, about 80% soluble, gives a reading of about 7 seconds. The chlorinated starches of the type mentioned in Examples I and II, which vary in solubility from about 0.5% to about 5% in water at 75° F., give a reading somewhere around 300 seconds. The invention is not limited to any particular type of amylaceous material and other materials besides those mentioned may be employed as the low water absorptive substance. Thus, thin boiling starches may be used, as, for instance, a starch known in the trade as "thin boiling 90". As is well known, thin boiling starches may be prepared by wet conversion with an acid, for example, conversion in the presence of ½% sulfuric acid at 125° F. for 18 to 20 hours followed by neutralization, washing and drying. The amylaceous materials of low water absorptive capacity employed in accordance with this invention preferably have a solubility less than about 30% in water at 75° F., the preferred range of solubilities being about 3% to about 12%.

The high water absorptive amylaceous materials cannot be accurately defined by the test given above because these materials are too viscous when heated with 5 parts of water to 1 part of amylaceous material. The high water absorptive amylaceous materials may be defined, however, for the purpose of this invention, as giving a reading of at least 60 seconds when heated with at least 7 parts of water per part of amylaceous material and tested in the manner previously described. That is to say, the test for high water absorptive capacity involves cooking the amylaceous material in proportions of 1 part of said material to 7 parts or more of water to 190° F., then cooling to 125° F., placing the resultant dispersion in a Stormer viscosimeter of the character already described, and determining the time required for 100 revolutions of the viscosimeter cylinder using a 100 gram weight. It will be understood that with some amylaceous materials a dispersion may be so viscous with 7 parts of water that more water is required in order to obtain a fluidity which will give a reading on a Stormer viscosimeter. Naturally, if the amylaceous material is so viscous that it does not give a reading with 7 parts of water per part of said material, it is a high water absorptive material as the term is used herein. Usually the proportions of water required to give a reading of at least 60 seconds with such materials will vary from about 7 parts to about 35 parts of water. Among the high water absorptive materials are Royal tapioca, which is a high grade cassava starch, potato starch and other substantially starchy materials. Royal tapioca when tested in the manner just described using 30 parts of water per part of starch give an average fluidity of about 118 seconds. These materials require at least 16 to 18 parts of water per part of starch in order to make them fluid as compared with much smaller quantities of water, say 5 parts or less per part of amylaceous material required to make the lower water absorptive amylaceous materials fluid. Corn starch may be employed, although it tends to give rather a short body in the adhesive. Thin boiling corn starch or other thin boiling starches having an absorptive capacity from about 8 to 10 parts of water per part of starch may also be employed. The unmodified or undegraded starches such as tapioca, potato and corn starches are normally substantially insoluble in water or do not have a solubility in water at 75° F. greater than about ½%.

The proportions of the ingredients will naturally vary somewhat depending upon particular substances employed. It is usually preferable that a starch or starch degradation product of low water absorptive capacity, say within the range of 1 part of starch to 2 to 3 parts of water, form the larger portion of the solids present in the adhesive composition and represent a major portion of the amylaceous materials present. The starch of high water absorptive capacity on the other hand preferably forms a minor portion of the adhesive composition and is usually less than the combined amount of gelatinizing agents.

The urea may be used without the alkali metal acetate or the alkali metal acetate without the urea, but the combination of both appears to give results which are more than merely additive. Urea and sodium acetate both have the property of increasing the fluidity of aqueous amylaceous dispersions. Furthermore, the combination of both together apparently tends to prevent curling of the paper. Urea is practically neutral in aqueous solution and sodium acetate in water ordinarily has a pH from 7 to 8 so that neither compound is injurious to the paper. Urea and/or sodium acetate may be replaced at least in part by other substances which are not injurious to the paper and which have a solubilizing or dispersing action on starch and starch degradation products, as, for example, water soluble analogues and homologues of urea, including thiourea, other alkali metal acetates such as potassium acetate, resorcinol, chloral hydrate, sodium salicylate, calcium chloride, zinc chloride, magnesium chloride, water soluble thiocyanates, including potassium thiocyanate, sodium thiocyanate and ammonium thiocyanate, and water soluble nitrates, including sodium nitrate, potassium nitrate, ammonium nitrate and guanidine nitrate. Some compounds such as those of phenolic nature, however, sometimes suffer from the disadvantage that they tend to turn dark. The compound or compounds chosen should preferably be normally solid at ordinary temperatures since the presence of a liquid compound might tend to make the paper stick together when rolled. It is also preferable that the compound chosen be such that the pH value of the adhesive under the conditions used can be within the range of about 5 to about 9. Bleaching agents may be added, for example, sodium bisulfite or sodium hydrosulfite. Filters may also be used to give body to the adhesive composition.

If either the urea or sodium acetate is omitted, the proportion of the ingredient retained is preferably correspondingly increased. In addition to its advantages in preventing curling of the paper, sodium acetate also produces a clear film and tends to prevent crystallization of urea in the film so that the final appearance of the paper is such that the adhesive is not readily visible to the casual observer.

The amount of solubilizing or dispersing agent should preferably be such that the composition will spread evenly and uniformly upon the addition of about 1 to about 4 parts of water per part of blended solid ingredients. The presence of

too much urea is to be avoided because of a tendency to make the composition hydroscopic. This tendency is less marked with sodium acetate. Generally speaking, the amount of starch having a high water absorptive capacity is preferably within the range of about 5% to about 30% of the total solids and about 5% to about 50% of the amount of starch having a low water absorptive capacity. The minimum amount of sodium acetate is preferably about 5% and the maximum about 30% of the total solids. The minimum amount of urea is preferably about 5% and the maximum about 40% of the total solids. The total amount of urea and sodium acetate is preferably not greater than about 45% of the total solids. As illustrated in the examples, the amount of urea and sodium acetate or other solubilizing or dispersing agent for amylaceous substances may be relatively large as compared with the amount of amylaceous substance of high water absorptive capacity.

In some instances it may be desirable to add an acid, preferably in amounts just sufficient to neutralize any ammonia which may be formed. For this purpose very small quantities of acid are required, being in the neighborhood of around 2% or less. Acids which are normally solid at ordinary temperatures are preferred, for example, citric acid, tartaric acid, malic acid, boric acid and the like.

The sodium acetate employed may be granular or powdered sodium acetate, either 60%, 90% or anhydrous, the first mentioned being preferred. Sodium diacetate having available acetic acid of from 33% to 35% may also be used.

The mixing of the various ingredients of the adhesive compositions and the temperature of heating may vary, but ordinarily it will be sufficient to heat the mixtures within the range of about 140° F. to about 180° F. until a uniform homogeneous dispersion is obtained.

Further variations may be made in the composition of the adhesive depending upon the type of paper to which it is to be applied. It is sometimes desirable to use a different adhesive formula for a highly sized paper than for a paper containing little or no sizing. Thus, for a highly sized billboard or poster paper it might be desirable to use a larger amount of the amylaceous material having a high water absorptive capacity and a smaller amount of the amylceous material having a low water absorptive capacity together with a larger quantity of a water soluble urea or other substance exercising a similar action.

As previously indicated, the method of applying the adhesive compositions to wall-paper may vary rather widely, and any convenient methods of surface coating may be used, including well known methods utilizing doctor blades and well known expedients such as reverse curling of the paper. The type of wall-paper and the amount of adhesive added thereto will naturally vary. Good results may be obtained by the use of 2 grams or less of adhesive per square foot of wall-paper. Relatively heavy papers, for example, on the order of 12 ounce papers, are preferred.

The expression "water soluble urea" as employed herein is intended to include and cover urea and its water soluble analogues and homologues, including thiourea, monomethyl urea, monoethyl urea, dimethyl urea and higher water soluble homologues or analogues which have the property of increasing the fluidity of aqueous amylaceous dispersions.

This invention makes possible for the first time the preparation of commercially practicable pregummed hanging papers which upon being moistened have the desired slip characteristics for application to walls and other plane surfaces. The character of the adhesive on the wall-paper or other hanging papers in accordance with this invention is such that it does not tend to become tacky and cause the paper to stick together when it is in rolled form. Furthermore, the adhesively coated wall-paper herein described does not tend to crack, check or curl. The amount of water present initially in the adhesive when it is applied to the paper is such that it does not tend to destroy the paper. Moreover, the adhesive is weakly acid, substantially neutral or mildly alkaline, and the ingredients thereof do not tend to injure the paper or the wall to which the paper is applied. The adhesive, furthermore, does not tend to lose its adhesive characteristics over long periods of time, that is to say, the adhesive retains its remoistening adhesive properties when a dried coating thereof is remoistened with water.

It will be understood that variations may be made in the composition of the adhesive and in the paper or other base material to which it is applied without departing from the invention, and that in carrying out the invention, other variations, modifications and equivalents may be employed.

Having thus described the invention, what I claim as new and desire to secure by Letters Patent of the United States is:

1. A pregummed wall-paper having a dried coating of adhesive thereon formed from a plurality of amylaceous substances, one of said substances being a substantially undegraded starch, substantially insoluble in water at 75° F. and the other of said amylaceous substances being a degraded amylaceous material having a fluidity from 6 seconds to 650 seconds, as determined by the low water absorptive capacity test herein described, and a solubility in water at 75° F. less than about 30%, the undegraded amylaceous substance being present in amounts within the range of about 5% to about 30% by weight of the total solids in said adhesive and in amounts corresponding to about 5% to about 50% by weight of the degraded amylaceous substance, said amylaceous substances being intimately dispersed with sodium acetate and urea, the total amount of urea and sodium acetate being not more than about 45% of the total solids, the minimum and maximum amounts of sodium acetate being 5% and 30%, respectively, and the minimum and maximum amounts of urea being about 5% and 40%, respectively on the basis of the total solids, said adhesive also containing a small amount of sulfonated oil on the basis of the normally solid ingredients.

2. A pregummed hanging paper having a dried coating of adhesive thereon formed from a plurality of amylaceous substances of varying water absorptive capacities including an undegraded amylaceous substance having a high water absorptive capacity with a fluidity characteristic of at least 60 seconds, as determined by the high water absorptive capacity test herein described, and an amylaceous substance having a low water absorptive capacity with a fluidity within the range of about 6 to about 650 seconds, as determined by the low water absorptive capacity test herein described, intimately associated with urea and sodium acetate, the amounts of urea being within the range of 5% to 40% and the amounts of sodium acetate being within the range of about

5% to about 30% with the total amount of urea and sodium acetate not greater than about 45% of the total solids.

3. A pregummed hanging paper having a dried coating of adhesive thereon formed from a plurality of amylaceous substances of varying water absorptive capacities including an amylaceous substance having a high water absorptive capacity with a fluidity characteristic of at least 60 seconds, as determined by the high water absorptive capacity test herein described, and an amylaceous substance having a low water absorptive capacity having a fluidity of 6 to 650 seconds when dispersed in water, as determined by the low water absorptive capacity test herein described, the amylaceous substance of high water absorptive capacity being substantially insoluble in water at 75° F. and the amylaceous substance of low water absorptive capacity being soluble in water to an extent less than about 30%, the amount of said amylaceous substance of high water absorptive capacity being less than the amount of amylaceous substance of low water absorptive capacity and said amylaceous substances being associated with a water soluble urea and an alkali metal acetate, the minimum and maximum amounts of the urea being about 5% and about 40%, respectively, and the minimum and maximum amounts of alkali metal acetate being about 5% and about 30%, respectively, of the total solids, said ingredients being present in such proportions that said adhesive coating when moistened possesses re-tack properties and slip characteristics permitting said paper to slide while the adhesive is still wet after it is first applied to a surface.

4. A pregummed hanging paper having a dried coating of adhesive thereon comprising a plurality of amylaceous substances of varying water absorptive capacities including an amylaceous substance having a high water absorptive capacity with a fluidity characteristic of at least 60 seconds, as determined by the high water absorptive capacity test herein described, and an amylaceous substance having a low water absorptive capacity with a fluidity of 6 to 650 seconds, as determined by the low water absorptive capacity test herein described, the amylaceous substance of high water absorptive capacity being substantially insoluble in water at 75° F. and the amylaceous substance of low water absorptive capacity having a low solubility not greater than about 30% in water at 75° F., said amylaceous substances being intimately associated with urea in amounts within the range of about 5% to about 40% of the total solids and a normally solid acid in amounts less than about 2% of the total solids, said ingredients being present in such proportions that said adhesive coating when moistened possesses re-tack properties and slip characteristics permitting said paper to slide while the adhesive is still wet after it is first applied to a surface.

5. A pregummed hanging paper having a dried coating of adhesive thereon comprising as normally solid ingredients about 5% to about 30% of a substantially insoluble starch having a relatively high water absorptive capacity with a fluidity characteristic of at least 60 seconds, as determined by the high water absorptive capacity test herein described, a major proportion of amylaceous substance having a lower water absorptive capacity and a solubility in water at 75° F. not substantially greater than 30% and a fluidity of 6 to 650 seconds, as determined by the low water absorptive capacity test herein described, intimately dispersed with urea and sodium acetate in amounts sufficient to give a spreadable composition when heated with about 2 to 3 parts of water per part of solids, said ingredients being present in such proportions that said adhesive coating when moistened possesses re-tack properties and slip characteristics permitting said paper to slide while the adhesive is still wet after it is first applied to a surface.

6. A pregummed hanging paper having a dried coating of adhesive thereon comprising, a plurality of amylaceous substances, at least one of which has a high absorptive capacity with a fluidity characteristic of at least 60 seconds, as determined by the high water absorptive capacity test herein described, and another which has a low water absorptive capacity with a fluidity within the range of about 6 to about 650 seconds, as determined by the low water absorptive capacity test herein described, intimately dispersed with a substantially neutral normally solid compound of such character that it will not injure the paper and having a solubilizing action on amylaceous substances, and an alkali metal acetate, said ingredients being present in such proportions that said adhesive coating when moistened possesses re-tack properties and slip characteristics permitting said paper to slide while the adhesive is still wet after it is first applied to a surface.

7. A pregummed hanging paper having a dried coating of adhesive thereon formed from a plurality of amylaceous substances of varying water absorptive capacities including at least one amylaceous substance having high water absorptive capacity with a fluidity characteristic of at least 60 seconds, as determined by the high water absorptive capacity test herein described, and at least one amylaceous substance having a low water absorptive capacity with a fluidity from 6 to 650 seconds, as determined by the low water absorptive capacity test herein described, intimately associated with at least one normally solid compound of such character that it will not injure the paper and having the property of increasing the fluidity of aqueous amylaceous compositions, the proportions of said substances being such as to produce an adhesive coating which after being dried, is capable of being remoistened and possesses re-tack properties and slip characteristics permitting the paper to be moved after paper containing the adhesive has been moistened and first applied to a plane surface while the adhesive is still wet.

8. A pregummed hanging material comprising a flexible sheet material having thereon a dried coating of an adhesive formed from a plurality of amylaceous substances including at least one amylaceous substance having a high water absorptive capacity with a fluidity characteristic of 60 seconds or more, as determined by the high water absorptive capacity test herein described, and at least one other amylaceous substance having a fluidity somewhere within the range of 6 to 650 seconds, as determined by the low water absorptive capacity test herein described, intimately dispersed and associated with at least one plasticizing agent which is non-injurious to the base material and has the property of increasing the fluidity of aqueous amylaceous compositions, said adhesive having a pH within the range from about 5 to about 9 and said ingredients being present in such proportions that said adhesive coating when moistened possesses re-tack prop-

erties and slip characteristics permitting said material to slide while the adhesive is still wet after it is first applied to a surface.

9. A pregummed hanging material comprising a flexible sheet material having thereon a dried coating of an adhesive formed from a plurality of amylaceous substances including at least one amylaceous substance having a high water absorptive capacity with a fluidity characteristic of 60 seconds or more, as determined by the high water absorptive capacity test herein described, and at least one other amylaceous substance having a fluidity somewhere within the range of 6 to 650 seconds, as determined by the low water absorptive capacity test herein described, intimately dispersed and associated with at least one plasticizing agent which is non-injurious to the base material and has the property of increasing the fluidity of aqueous amylaceous compositions, said ingredients being present in such proportions that said adhesive coating when moistened possesses re-tack properties and slip characteristics permitting said material to slid while the adhesive is still wet after it is first applied to a surface.

HANS F. BAUER.

CERTIFICATE OF CORRECTION.

Patent No. 2,183,532. December 19, 1939.

HANS F. BAUER.

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 2, second column, line 54, for the word "five" read give; page 3, second column, line 60, for "Filters" read Fillers; page 4, first column, line 2, for "hydroscopic" read hygroscopic; page 5, second column, line 14, claim 6, before "absorptive" insert water; page 6, second column, line 10, claim 9, for "slid" read slide; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 30th day of January, A. D. 1940.

Henry Van Arsdale,
Acting Commissioner of Patents.

(Seal)