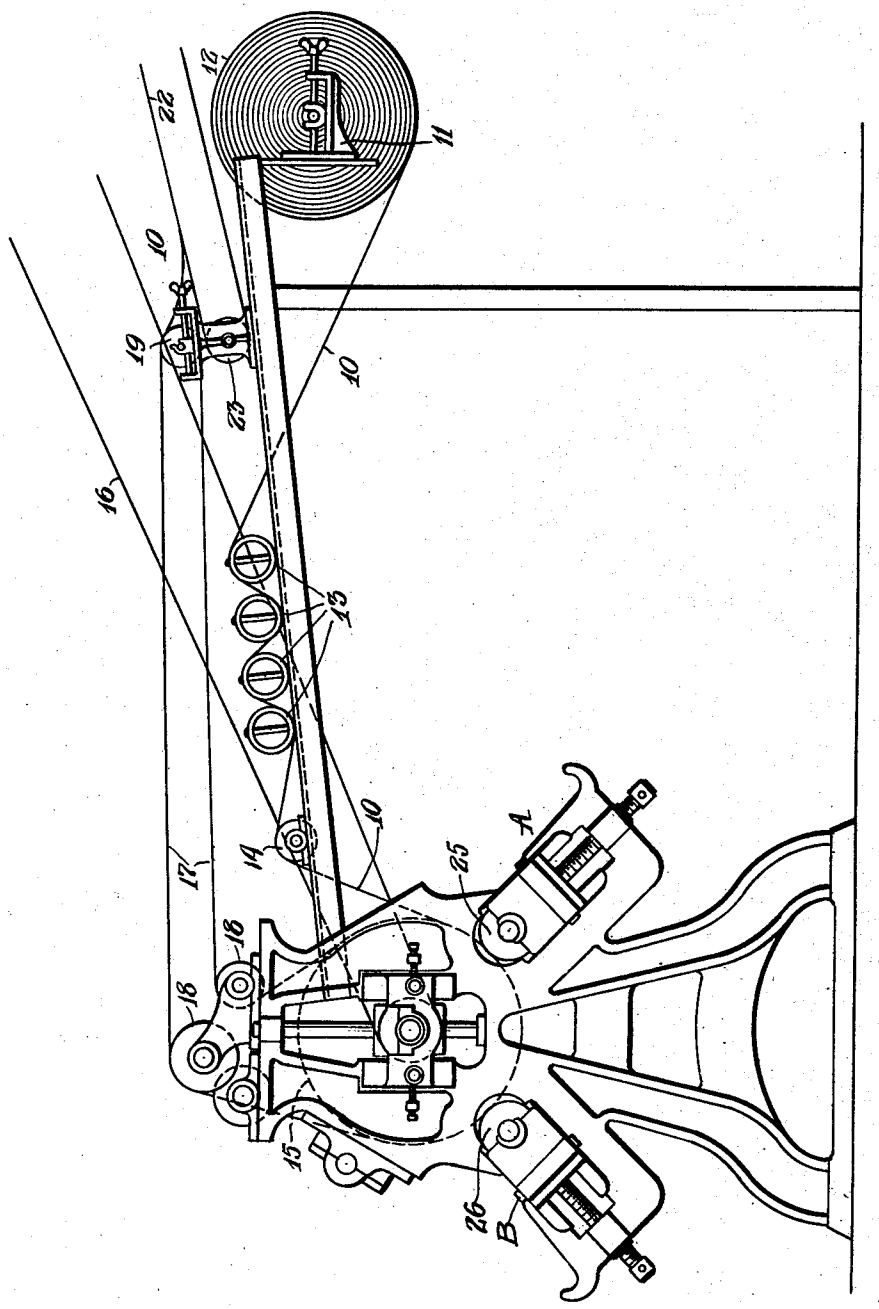
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MANUFACTURE OF WALL PAPER

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MANUFACTURE OF WALL PAPER

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This invention relates generally to wall papers and the like.

One object of the invention is to produce a material, either pigmented or unpigmented, which may be applied to a web of paper by machines now on the market to produce a wall paper which will not readily be affected by water after it is attached to a wall.

Another object of the invention is to produce a wall paper, either plain or patterned, which will be unaffected by water accidentally splashed on it and which may be washed without injury while in place on a wall, said product having many of the advantages of oilcloth and similar materials, with the added advantage that it may be produced at a low cost and may, therefore, be marketed at a correspondingly low price.

Still another object of the invention is to provide a method or process of making a washable wall paper which may readily be practiced with the aid of machines already on the market to produce either papers having a plain continuous protective coating or papers having substantially any desired pattern or design in various colors as well as the protective coating.

Preferred embodiments of the novel product and the novel steps and materials involved in producing the novel product are hereinafter described in detail and the features of novelty pointed out in claims appended hereto.

The drawing accompanying and forming a part of this application shows conventionally an apparatus suitable for use in turning out one form of the novel product. The apparatus may, however, be varied as hereinafter explained according to the results to be accomplished.

The novel material employed may be varied for different results and may be compounded in various ways. All of the ingredients might be assembled and mixed at one operation, but it has been found that better results are obtained if certain of the ingredients are separately mixed with certain of the others and the mixture added to the mixtures of other ingredients. In this way the relative proportion of groups of the ingredients may be better controlled, as well as variations made in the composition of each group according to the nature, the results or appearance of the paper desired.

In order to simplify the explanation of the invention, the various ideas involved will be explained in connection with the production of a patterned wall paper suitable for use in papering a bath room or kitchen; but it is to be understood that the paper resulting from the invention may be used wherever the paper must be frequently cleaned.

In preparing the waterproofing material for application to the paper an inert base such as a white clay, chalk or talc is ground with rubber gum or elemi, or some resinous gum which is substantially insoluble in water, and a light solvent comprising five-sixths naphtha and one-sixth benzol thoroughly mixed with the ground materials. Thirty-five per cent of the inert clay (or equivalent) base and 25% of the rubber or other gum with about 40% of the solvent give about the best results. After these ingredients have been suitably prepared, the mixture may be stored in suitable air tight containers for use as later explained.

Another ingredient is a metal salt such as is suitable for use where a waterproof surface is desired. In the form of the invention now being described, this salt is preferably barium sulphate. Better results are obtained if some zinc sulphide is added. Highly satisfactory results may be obtained by using 70% by weight of the barium sulphate and 30% by weight of zinc sulphide ground together and mixed with about 10% by weight of high grade linseed oil and 10% by weight of high grade turpentine or a very light distillate of wood tar. After any desired quantity of these ingredients have been thoroughly ground and mixed the mixture may be stored for use later as described further on.

Where a pigment or coloring matter is to be employed such as what are known on the market as medium yellow, lemon yellow or brown umber, it is better to first incorporate the pigment in a vehicle which will assist in the distribution of the color element throughout the mass. A suitable vehicle is made up

of 35% rosin or the like ground or dissolved in 65% heavy solvent naphtha, to which the coloring element is added and the whole thoroughly ground or mixed together. A supply of this colored preparation may be prepared and kept on hand ready for use.

When preparing a batch of the water-proofing material approximately 20% of the preparation above described containing the clay or similar base, 40% of the mixture containing the metal salt or salts and about 10% of the color vehicle and color are placed in a suitable mixing apparatus with about 30% of naphtha or similar solvent and the whole reduced to a thoroughly homogenous condition, having the same composition in all of its parts. The mixture is then ready for application to a web of paper and when properly applied and dried will result in rendering the paper substantially impervious to water. It is preferable to prepare only so much of the whole mixture as is likely to be used within a limited time, although fairly good results are obtained where a large batch of the completed material is made up and stored for use.

It is obvious, of course, that the proportions of the ingredients may be varied in compounding each group of ingredients and that in combining the groups in the final mixing a similar variation is possible. For example, using different proportions of the clay base mixture will, within certain limits, speed up or retard the drying, and the depth of the color may be varied by changing the amount of the coloring matter when adding it to its vehicle or a smaller quantity of the vehicles and coloring matter may be used when adding it in the final mix, although there is some advantage in having the rosin contained in the vehicle present in about 1% of the final mix.

In its simplest form the invention contemplates a single continuous coat on one surface of the paper, which is then dried, the result being a paper which is substantially water proof after being affixed in the usual way to a wall.

In the form which is generally considered the most desirable, however, the paper has a design or pattern similar to that found in many of the ordinary wall papers. The simplest and most economical way of producing such patterned papers is to use the same material for applying both the protective over all coating and the pattern and applying the pattern and the coating one after the other. This gives what may be termed a double thickness of the water proofing material at the points where the pattern is applied, thereby making the pattern or design quite pronounced, particularly if any of considerable quantity of coloring pigment or the like has been employed. Where greater intensity of color in the pattern is desired, the amount of pigment in the material used for the coating may be reduced or the amount in the pattern material increased, or different colors may be employed for the pattern and for the coat.

For certain effects it may be desirable to apply different elements of the design one after the other and in super-imposed relations and the continuous coating may be applied over the pattern instead of being applied first. Softer and more desirable effects are obtained in applying the elements of the design before the coating is allowed to dry, although when some feature of the design is to stand out in sharp lines the previous applications of the water proofing material are allowed to dry before the particular feature is applied.

The water proofing material may be applied in any suitable way, but the mixture previously described is peculiarly adapted for application to the paper by means of any of a number of well known forms of multi-color presses. The apparatus shown in the drawing comprises what is known as a two-color press, but as before indicated, the drawing is a conventional showing only and any of a number of machines now available on the market may be employed according to the effect wanted. For example, if the completed paper is to be of such a nature as to require it, a four or five color press may be used. However, the apparatus shown in the drawing is sufficient to illustrate how any of such machines may be used in carrying out the idea.

The apparatus in the drawing comprises a suitable support 11 for a roll 12 of paper. From the roll 12 the paper 10 passes under and over the rolls 13 and 14 thence around a rotating drum 15 which is driven by a belt 16. A conveyor belt or blanket 17 around the face of the drum extends around guide rolls 18 and a roll 19 which is so mounted as to permit adjusting it to different positions to regulate the tension on the blanket 17. A second conveyor belt or blanket 22 runs around a roll 23 placed beneath the roll 19, said blanket serving as part of the mechanism for carrying the paper off to drying racks of any desired form.

In using the apparatus described, a supply of the completed mixture or compound is placed in the usual fonts of the devices A and B forming standard parts of the press. The roller 25 of the device A is what is known as a "pad roller," that is one having its face substantially composed of comparatively small indentations in closely adjacent relationship. Co-operating with the face of the pad roller is the usual doctor rod or blade (not shown). When the press is in operation the pad roller 25 has its identations filled with the water proofing material, the excess being removed in the well-known way by the doctor rod or blade, and as the surface of

the roll 25 comes in contact with the paper 10 passing around the drum 15 and blanket 17 the water-proofing material is transferred from the pad roller to the surface of the paper. This, supplemented by a slight flow of the material forms substantially a continuous coating on the paper. The device B may be the same in every respect as the device A and simply apply a second continuous coat to the paper when a particularly heavy coat is desired, but is ordinarily used to apply the design. When it is used for the latter purpose the roller 26 is the usual copper roller having the pattern engraved in its surface. Water proofing material from the font is applied to the roll and the excess is removed by a doctor blade or rod, leaving the material only in the engraved recesses of the design. As the surface of the roll 26 comes in contact with the paper 10 the material contained in the engraved recesses is deposited upon the material applied by the pad rollers 25 before the latter material has had a chance to dry. The slight flow of the material results in softening the appearance of the pattern or design. If the pattern or design is to stand out in sharp outline, it is necessary to allow the material applied by the pad roller to dry before the design is applied.

It is obvious, of course, that the roller 25 may be engraved and used to apply the pattern and the roller 26 constructed to serve as a pad roller, thereby applying the continuous coating over the design with a corresponding difference in the appearance of the product.

It is also obvious that in the case of more complicated designs the device B may be repeated as often as necessary to apply the different elements of the design successively, there being numerous machines on the market having as many as ten of the devices B arranged around the periphery of a main drum such as 15.

After the coating and pattern or the coating only have been applied, the transfer blankets 16 and 22 carry the finished web off to the usual racks where the web is hung and dried in any suitable way. The composition of the water proofing material is such that the drying will be completed in a comparatively short period of time after the web has gone through the press.

By the use of the material and process described, a wall paper highly resistant to water is produced and, moreover, the paper may be given substantially any pattern or design which will appeal to the purchasing public. The value of the product for general use is apparent, but it is particularly valuable for use in bath rooms and kitchens.

While the invention has been described in considerable detail, it is not the desire to be limited to such details except insofar as they may be included in the claims which follow.

What is claimed is:

1. The process of making a washable, patterned wall paper, which consists in applying a coating of water-proofing material to a web of paper, over printing a pattern on said coat with water-proofing material before the coating is allowed to dry, and then drying the web.

2. The process of making a washable, patterned wall paper, which consists in applying a coating of water-proofing material to a web of paper, over-printing a design on said coating with a water-proofing material the same as before, but having coloring matter added, and then drying the web.

3. The process of making a washable wall paper which consists in applying a coating of tinted water-proofing material to a web of paper, successively applying the elements of a design in tinted water-proof materials to the coated paper before the coating and preceding applications of the design are allowed to dry, and then drying the finished web.

In testimony whereof I hereto affix my signature.

JACOB J. JANEWAY.