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COMPOSITE GUMMED FABRIC.

APPLICATION FILED JULY 16, 1918.

1,323,022. Patented Nov. 25, 1919.

Fig. 1,

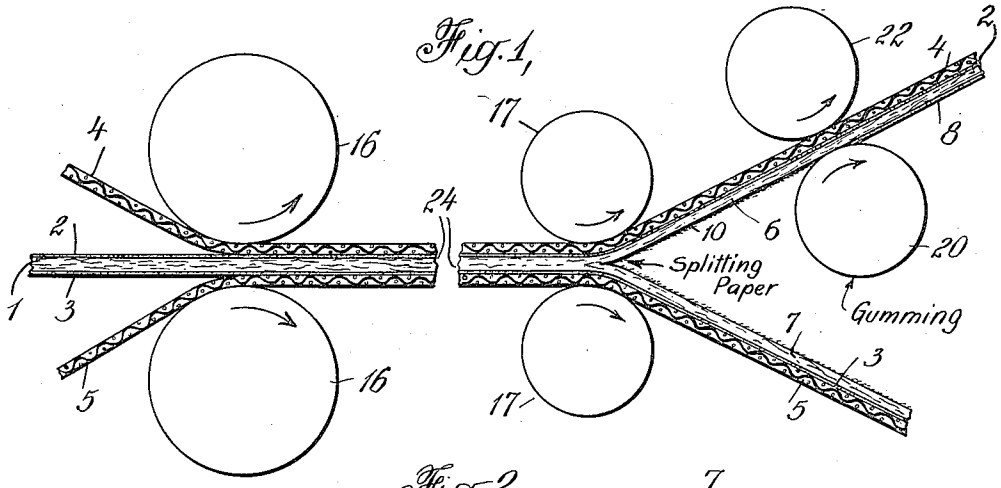


Fig. 2,



Fig. 3,



Fig. 4,

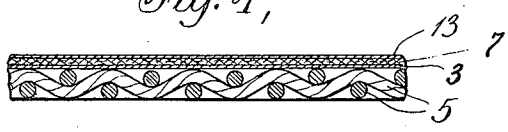
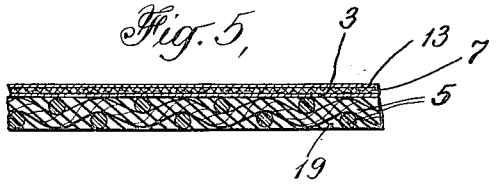


Fig. 5,



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COMPOSITE GUMMED FABRIC.

1,323,022. Specification of Letters Patent. Patented Nov. 25, 1919.

Application filed July 16, 1918. Serial No. 245,165.

To all whom it may concern:

Be it known that we, CHARLES H. CROWELL and GEORGE H. CROWELL, citizens of the United States, and residents of the borough of Brooklyn, county of Kings, city and State of New York, have made a certain new and useful Invention Relating to Composite Gummed Fabrics, of which the following is a specification, taken in connection with the accompanying drawing, which forms part of the same.

This invention relates especially to composite gummed fabrics which may be made by the processes disclosed and claimed in our co-pending application No. 222,331, filed March 14, 1918. In accordance therewith a web or sheet of suitable paper has applied to both sides thereof a gum or adhesive coating and preferably after drying the same and again rendering this coating adhesive light cloth or other backing fabric is quickly applied and attached to both sides so as to smoothly unite the same with the paper web and form a double composite fabric web or sheet which may then be dried. This double web may then be split by having the two cloth backing fabrics drawn or wound up in different directions, the adhesive uniting coatings retaining engagement with the adjacent side of the paper sheet or web so as to split this interposed paper web in two and leave a continuous and fairly uniform split thin sheet or web of paper adhesively united with each of the cloth backing fabrics. This splitting action also renders each of these paper sheets or webs of loose open texture containing projecting fibers or particles and when one or more attaching coatings of gum or other adhesive are applied to the exposed paper faces and forced into the same they may penetrate these paper sheets or webs sufficiently to more or less engage the adhesive uniting layer and also to considerably increase the strength of the web against further splitting. The backing fabric before or after the composite or double fabric web is split may be waterproofed and also colored, if desired, by applying thereto a waxy coloring coating more or less penetrating the backing fabrics.

In the accompanying drawing showing in a somewhat diagrammatic way illustrative embodiments of this invention,

Figure 1 is a diagrammatic view showing the process of making this material which is shown on an enlarged scale.

Fig. 2 is a diagrammatic enlarged view of the split fabric.

Fig. 3 is a similar view after an attaching coating has been applied thereto.

Fig. 4 is a similar view showing still further attaching material applied to the paper web; and

Fig. 5 is a similar view showing the composite fabric after a waxy coating has been applied to the backing cloth fabric.

The paper which may advantageously be in the form of a continuous web or fairly long sheet 1 may, as indicated in Fig. 1, have a uniting coating of suitable gum or adhesive 2, 3 applied to both sides of the same and this may of course be effected in any suitable or desired way. It is desirable after gumming to dry this web of gummed paper which may be a fairly thin grade of strong Kraft paper of, say, 25 to 40 pounds weight or so, although, of course, any other grade of paper may be used which has sufficient body or stiffness to prevent undesirable wrinkling or kinking during this process. The gummed paper web is then preferably rendered adhesive on both sides and quickly forced into engagement with webs of any suitable backing cloth or fabric 4, 5, which may be forcibly and adhesively united thereto as by the cloth pressing or uniting rolls 16. In this way the cloth while still dry and substantially unshrunk by the action of moisture may be pressed into firm contact with the uniting coating of adhesive on the paper web and secured thereto throughout its entire extent and the double composite fabric web 24 may of course be dried in any suitable way and at the same time kept in its extended and unwrinkled condition. In this way the lateral shrinkage of the grades of cloth generally used for this purpose, such as light plain cloths or gray goods is largely prevented and a double composite fabric web having a finished width of 37 to 38 inches can be produced from plain cloths about 38½ inches wide as compared with the usual trimmed width of 34 inches where such goods are dyed and finished in the usual way.

The dried double composite fabric web 24 may be split or divided into two composite webs or sheets as by winding or drawing

the two outside layers of backing fabric 4, 5, in different directions so that the paper web 1 is split into two layers 6, 7 each adhesively secured to the corresponding backing fabric. With ordinary Kraft paper, for instance, this splitting can be effected in quite a uniform and satisfactory manner, especially since the inner portions of the paper sheet or web seem to be relatively soft and weak as compared to the outer portions which have been more thoroughly compressed during the paper making processes and which are also held together somewhat more strongly by the permeation of the adhesive uniting coatings 2, 3, which have been applied thereto during the preliminary steps of this manufacturing process. If desired the double composite web may be gripped between suitable feed rolls 17 and drawn apart by pairs of splitting rolls, such as 20, 22, into which the projecting fabric ends may be introduced after splitting the interposed web of paper by hand, for example. In this way the paper web is continuously split or divided as the double composite web is fed forward and a continuous and quite uniform thin sheet or web of paper 6, 7 remains united to each of the backing fabrics 4, 5.

One of these split composite webs is shown on a somewhat larger scale in Fig. 2 and as there diagrammatically indicated the splitting leaves projecting fibers or particles 10 and the split web of paper 7 also has a loose or open texture on its exposed side. One or more adhesive or gum attaching coatings may be applied to this paper surface, and for example such a coating may be applied to the exposed surface of this paper sheet or web as by the gumming roll 20 indicated in Fig. 1 so that this adhesive solution more or less penetrates the paper web or layer and forms when dried an adhesive attaching coating 11 on the paper which also increases its cohesion considerably. One or more additional adhesive coatings or layers may be applied to the paper, and in some cases the gum or other adhesive may penetrate the paper substantially to the adhesive uniting coating 3 which joins it with the backing fabric 5 as is indicated in a diagrammatic way in Fig. 4 by the shading of this paper layer 7 from the somewhat thicker attaching coating 13 thereon. Such a strong gum coating, for example, may sufficiently permeate or impregnate the fibers of this paper sheet or web to unite its figures much more strongly and greatly minimize or prevent the subsequent splitting of this paper web which is an important advantage when the composite gummed fabric in tape or other form is used to seal boxes or cartons or unite the wrappers of packages for shipping purposes. Composite gummed fabric or tape of this description in which the paper sheet or web has been split and then thoroughly permeated or impregnated by the adhesive attaching coating applied thereto may have several times as great strength against splitting or tearing off a package or carton to which it has been adhesively attached as compared to a composite gummed fabric formed without splitting by directly applying the gum adhesive coating to the exposed side of the unsplit paper sheet or web.

If desired, the backing fabric 5 may be waterproofed and simultaneously colored with suitable colored waxy material, such as a waxy composition consisting largely or entirely of hot paraffin in which suitable anilin or other dye has been incorporated and this material may be applied to the backing fabric before or after the double composite fabric web has been split so that the backing fabric under these conditions would be more or less permeated by the waxy waterproofing material 19 which may also color the backing fabric as indicated in Fig. 5. The composite cloth paper gummed fabric webs may, of course, be slit into gummed tapes of any desired width and may be wound up into rolls of suitable diameter for shipment and use.

This invention has been described in connection with a number of illustrative embodiments, forms, proportions, materials, conditions and orders of steps and apparatus and parts for carrying out the same, to the details of which disclosure the invention is not of course to be limited, since what is claimed as new and what is desired to be secured by Letters Patent is set forth in the appended claims.

We claim:

1. The composite gummed fabric tape comprising a cloth backing fabric of light gray goods smoothly united by an adhesive uniting coating to one side of a split open texture web Kraft paper and a gum adhesive attaching coating applied to the exposed surface of said split paper web and permeating and uniting the fibers thereof and engaging said adhesive uniting coating to strengthen said paper web against subsequent splitting and simultaneously render the paper face of said composite fabric adhesive.

2. The composite gummed fabric tape comprising a cloth backing fabric smoothly united by an adhesive uniting coating to one side of a split web of Kraft paper and a gum adhesive attaching coating applied to the exposed surface of said split paper web and penetrating and uniting the fibers thereof and engaging said adhesive uniting coating to strengthen said paper web against subsequent splitting and simultaneously render the paper face of said composite fabric adhesive.

3. The composite gummed fabric tape

comprising a backing fabric united by an adhesive uniting coating to one side of a split web of paper and a gum adhesive attaching coating applied to the exposed surface of said split paper web and penetrating and uniting the fibers thereof and engaging said adhesive uniting coating to strengthen said paper web against subsequent splitting and simultaneously render the paper face of said composite fabric adhesive.

4. The composite gummed fabric comprising a cloth backing fabric adhesively united to one side of a split web of paper and a gum adhesive attaching coating applied to the exposed surface of said split paper web and penetrating and uniting the fibers thereof to strengthen the same against splitting and simultaneously render the paper face of said composite fabric adhesive.

5. The composite adhesive fabric comprising a backing fabric adhesively united to one side of a split web of paper and an adhesive attaching coating applied to the exposed surface of said split paper web and uniting the fibers thereof to strengthen the same and simultaneously render such face of said composite fabric adhesive.

6. The composite gummed tape comprising a light waterproofed cloth backing fabric adhesively and smoothly united to one side of a split web of Kraft paper and a gum adhesive attaching coating applied to the exposed surface of said split paper web and penetrating and uniting the fibers thereof to strengthen the same and simultaneously render the paper face of said composite fabric adhesive.

7. The composite gummed fabric comprising a cloth backing fabric united to one side of a split web of paper and a gum adhesive attaching coating applied to the exposed surface of said split paper web to strengthen the same and simultaneously render the paper face of said composite fabric adhesive.

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