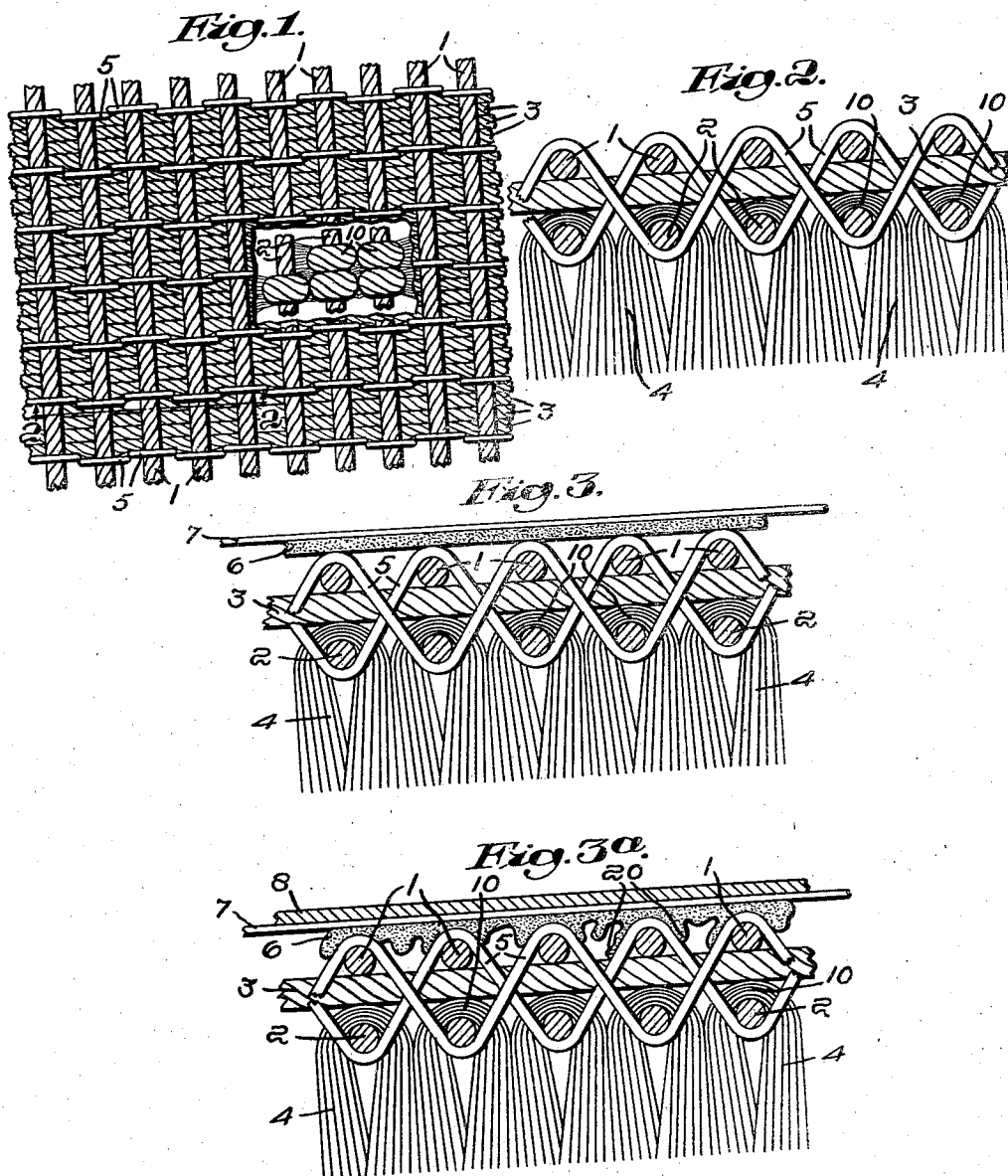


Oct. 8, 1946.

J. N. DOW ET AL
PILE FABRIC MANUFACTURE
Filed April 9, 1941

2,408,756

2 Sheets-Sheet 1



Inventors:

James N. Dow

Ara T. Dildjian

by *Richard C. Dildjian*
Attorney

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Fig. 3^b.

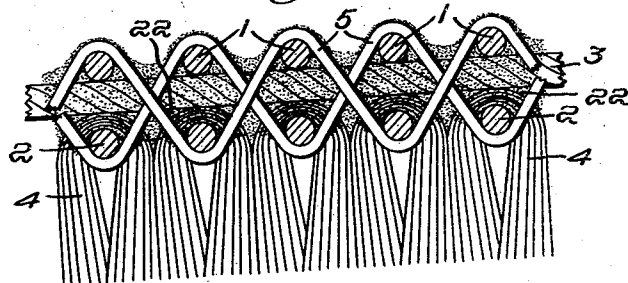


Fig. 4.

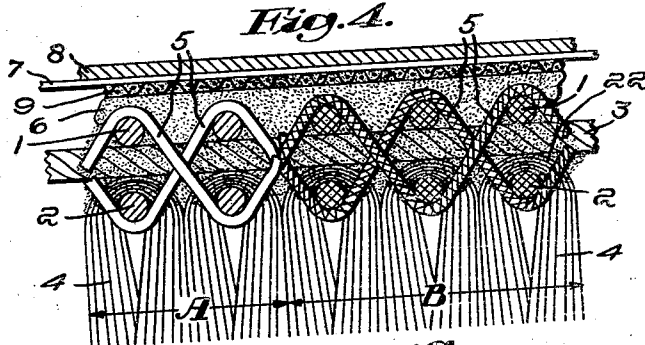


Fig. 4^a.

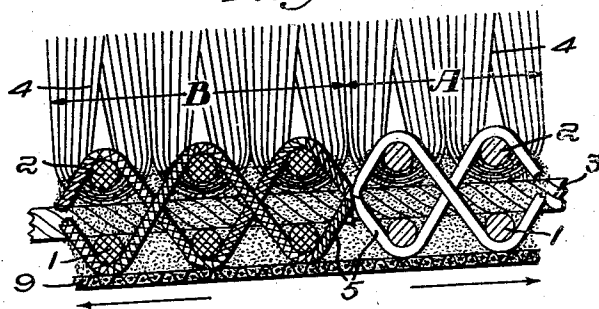
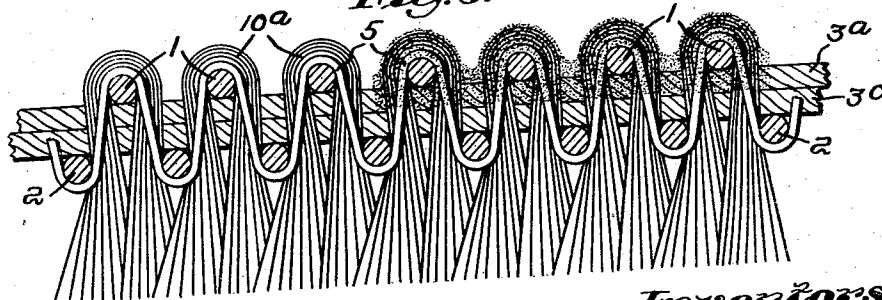


Fig. 5.



Inventors:
James N. Dow
Ara T. Dildilian
by *Richard W. [Signature]*
Attorney

UNITED STATES PATENT OFFICE

2,408,756

PILE FABRIC MANUFACTURE

James N. Dow, Longmeadow, Mass., and Ara T. Dildilian, Suffield, Conn., assignors to Bigelow-Sanford Carpet Co., Inc., Thompsonville, Conn., a corporation of Massachusetts

Application April 9, 1941, Serial No. 387,694

14 Claims. (Cl. 154—2)

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This invention relates to the use of adhesives in the manufacture of pile fabric floor coverings of large area made of assembled smaller pieces, and its object is to frayproof the cut edges of such fabrics and to secure such edges together by adhesive tape seaming in a manner which is especially adapted for use on the common commercial types of Axminster, Wilton, Brussels, tapestry or velvet pile fabric floor coverings available on the market.

The use of adhesives for these purposes has presented problems which, so far as we are aware, have not been answered despite extensive efforts by others in this field and in other unrelated fields such as in flat fabric adhesive impregnation with thermoplastics. The problems here essentially are that the adhesive of the tape, which should be thermoplastic to avoid the hours of drying time involved in the use of solvents, must not be susceptible to a cold flow that will let the seam yield and part even when the floor covering is laid under tension. The tape must, of course, be so strongly adhered to the rug or carpet backing that it will hold during long periods of service, to which end the tape adhesive and the adhesive previously applied to the backing for frayproofing must bond firmly and permanently. This requires that the frayproofing adhesive also be thermoplastic so that it is softened by the heat used in applying the thermoplastic tape.

Where the floor covering is of the usual sort, having the loops of the pile tufts concealed within a densely woven backing structure, the use, for frayproofing, of adhesives that liquefy chiefly by heat rather than by solvent is also decidedly advantageous because it avoids the arduous task of evaporating large quantities of solvent from within the dense backing structure which the adhesive must permeate to reach and secure the tuft loops. But the use of thermoplastics presents a difficult problem of achieving the degree of penetration needed. When the usual Axminster, Wilton, Brussels, tapestry or velvet floor covering is viewed from the back the pile tuft loops are entirely invisible and the backing fabric which conceals them and which the adhesive must penetrate to reach and secure them is tightly compacted and seems impenetrable. The use of pressures of the sort commonly employed to effect impregnation of flat fabrics with thermoplastics cannot be used on a pile fabric backing because the pile is resilient and would yield and be crushed before any substantial pressure could be applied. Furthermore, even if penetration of adhesive

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through the backing could thus be effected, its flow must be stopped before the adhesive reaches and impregnates and thus stiffens the upstanding portion of pile tufts.

The object of our invention is to solve these problems. We have done so by the provision of the adhesives and treatments herein disclosed for frayproofing and tape seaming by which the backing of the floor covering can be impregnated in the desired limited amount regardless of its construction so that the subsequently cut edges are effectively frayproofed and a pair of such edges when abutted are joined in an adhesive seam that is strong and enduring.

In the drawings:

Fig. 1 is a plan view, as seen from the back, of a pile fabric floor covering of commercial velvet weave prior to frayproofing, partly broken away to show the pile loops that are concealed beneath the backing fabric.

Fig. 2 is a vertical section along the line 2—2 of Fig. 1.

Figs. 3, 3a and 3b are progressive vertical sections showing the manner in which we impregnate the fabric of Figs. 1 and 2 with adhesive indicating the application of adhesive in film form and showing the manner in which the adhesive is caused to melt and seep through the backing to and around the pile loops, but not far enough to reach and impregnate and thus stiffen the upstanding portion of the pile tufts.

Fig. 4 is a vertical section showing two strips of fabric treated as above, designated A and B, which have been cut and assembled with cut edges abutting and with adhesive tape superimposed. The application of heat has resoftened the backing impregnating adhesive and softened the tape adhesive, causing them to bond together.

Fig. 4a shows the finished seamed fabrics, right side up, with arrows indicating the direction of tension on the seam when the floor covering is subsequently installed wall to wall in a room.

Fig. 5 shows a modification of the fabric wherein the pile loops are carried through the backing fabric, a part of the surface of the backing being uncoated and the remainder coated.

Referring to the drawings, the fabric of Figs. 1 and 2 is composed of warps 3 and 5, wefts 1 and 2, and pile tufts 4 looped about wefts 2. The warps and wefts form a backing fabric within which are concealed the loops 10 of the pile tufts. For effective frayproofing these component parts must be secured together. The pile loops must be secured to the wefts and preferably also to the warps which they contact.

The adhesive which we employ for frayproofing has as its chief ingredient a thermoplastic binding agent, preferably certain resins to be described, which not only secures the component parts of the fabric against fraying when cut, but which also unites effectively with the adhesive of the tape later to be applied and is softened by the heat employed in applying the tape.

When the fabric is of the sort above described the adhesive also includes, compounded with the binding agents, certain ingredients which we shall refer to as plasticizers and liquefiers. The primary function of the plasticizers is to impart permanent flexibility to the binding agents and avoid brittleness and stiffness after application. Secondly the plasticizers impart added fluidity to the agent at the elevated temperature of application, but we have found that this added fluidity is not sufficient to give the desired penetration on most grades of pile fabric. If a higher ratio of plasticizer were used to give the binding agent the desired fluidity during application, the agent would be permanently soft and the bonding poor. Accordingly, to obtain the needed high fluidity without undue softness in the adhesive after it has cooled we also incorporate into the compound a volatile solvent which we shall refer to as a liquefier. The liquefier almost completely evaporates under the heat of application leaving the resultant adhesive with substantially its normal strength.

The thermoplastic adhesive must attain sufficient fluidity at the application temperature to give the desired penetration into the dense backing fabric weave under application conditions, such as temperature, pressure and dwell, which are specifically adapted for the treatment of pile fabrics. These conditions are as follows:

The backing of the usual pile fabric floor covering will withstand temperatures as high as 200° C., for a short period of time, such as 5 minutes, without charring, and lower temperatures can be withstood for longer periods. The pressure used and the duration of its application must be limited to avoid crushing of the pile. Although the amount of crushing under a given applied pressure will vary with different characteristics of the rug construction, such as the length, density, quality and type of pile, the average grade of velvet carpeting will withstand, for such 5 minute dwell, a pressure of 2 pounds per square inch.

To expedite fabric impregnation with adhesive it is desirable to use as short a dwell of temperature and pressure as possible, for which reason we preferably employ such maximum permissible temperature and pressure.

The adhesive which we employ should have sufficient fluidity under the above conditions of temperature, pressure and dwell to seep downwardly through the dense structure of the backing fabric to reach and embed the pile loops in adhesive. During such impregnation the liquefier will evaporate. Thereafter the adhesive is cooled and becomes set and the carpeting will be effectively frayproofed, that is to say, when the fabric is cut in any direction the backing yarns and the pile loops will resist fraying under ordinary conditions of handling incident to the seaming or other uses of cut pile fabrics in accordance with the present invention.

Extensive experiments have indicated that to be effective for this purpose the adhesive should have a softening point of between 85° C. and 140° C. (preferably about 100° C., for an average

velvet pile fabric floor covering), determined in accordance with "Tentative method of test for softening point—Ball and tapered ring apparatus," A. S. T. M. designation: E28-39T. Where, in the appended claims, the term "softening point" is used it means the softening point as determined in accordance with this method of test.

We have found a number of adhesive compositions that will satisfy these requirements. For example, we may employ the following ingredients in parts by weight:

	Parts
Polyvinyl acetate (Vinylite AYAF) _____	10
Dibutyl phthalate _____	1
Diacetone alcohol (4-hydroxy-4-methyl-2-pentanone) _____	1.8

The polyvinyl acetate constitutes the binding agent; the dibutyl phthalate is a plasticizer. The diacetone alcohol is the liquefier.

To compound these materials, we proceed as follows:

The ingredients are cold mixed and worked in a Werner Pfeiderer mixer at about 70° C. The compound may be subsequently milled and calendered.

Our novel adhesive compounded as above described may be applied in any suitable manner such as holt melt or film form. We prefer the latter and for ease in applying we calender the materials, preferably during their compounding, onto a carrier material such as Holland cloth or Cellophane having a surface which is substantially non-absorbent to the adhesive and readily yields the adhesive when cooled to room temperature. By using such a carrier material we obviate soiling of the heating agent, preferably an iron.

The iron which we employ may be a small hand iron desirably weighing around 2 pounds per square inch. The thickness of the backing fabric averages $\frac{1}{16}$ of an inch and for such thickness the adhesive film should be approximately $\frac{3}{100}$ of an inch thick to reach and embed the pile loops.

As shown in Fig. 3, the carrier 7 coated with adhesive 6 is applied, adhesive side down, and the iron 8 (Fig. 3a) at the temperature above indicated laid on top of it. As the heat softens the adhesive and liquefies it, it begins seeping into the backing, as shown at 20. The high fluidity of the adhesive, enabling it to penetrate the densely woven backing is, in our preferred treatment, attributable to the presence of diacetone alcohol. This is a solvent for the binding agent and the plasticizer so that at room temperature the compound is soft because of it. Under the heat of the iron this softness increases to the point of very high fluidity or thinness so that the compound penetrates into the densely woven backing and reaches the bases of the pile loops, as shown at 22 in Fig. 3b. During the application there is constant evaporation of the solvent, insofar as permitted by its escape downwardly through the pile. Such escape performs the useful function of wetting out the backing to facilitate the downward impregnating movement of the plastic which follows it. As the adhesive gets hotter more of the liquefier evaporates, so that the fluidity of the adhesive, when it reaches the pile loops, becomes insufficient to cause it to flow down the pile and soil it. The comparative coolness of the pile cooperates with the loss of liquefier to prevent such excessive penetration.

Upon removal of the heat source the adhesive

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is allowed to cool for a short time, after which the carrier 7 may be removed as shown in Fig. 3b and the fabric may immediately be cut and handled without danger of fraying. For some purposes, such as where the cut has been made to shape the fabric to fit oddly-shaped floor areas, the fabric may be installed and used without further treatment, although for better appearance some sort of edge binding or trimming may be employed.

In addition to the composition above specifically described we have found a number of other compositions that will satisfy the requirements of our invention and undoubtedly still further materials will occur to those familiar with the principles of our invention. Thus, as a binding agent, we may employ, in place of the polyvinyl acetate other types of thermoplastics such as polyvinyl chloride, polyvinyl acetals, polyvinylidene chloride, mixtures or copolymers of these thermoplastics.

As a substitute for the dibutyl phthalate other known plasticizers may be employed such as tricresyl phosphate, butyl ricinoleate, dibutoxy ethyl phthalate, etc.

As a primary liquefier we may use in place of the diacetone alcohol other materials which are good solvents for the ingredients of the plastic, especially for the thermoplastic resin. Its boiling range should be such that there will not be a great spread between the initial boiling point and the end point.

The vapor pressure of the solvent must not be so high that it will evaporate appreciably from the compound during mixing, calendering and storing under normal atmospheric conditions. Yet the vapor pressure must not be so low as to prevent the evaporation of solvent from the film under the application conditions. We have found that best results are obtained with solvents having a vapor pressure between 0.5 and 8.0 mm. Hg at 30° C. and an initial boiling point above 135° C. and an end point below 200° C.

The following is a list of solvents of commercial grade which might be used for the purpose.

	Boiling range		Vapor pressure mm. Hg at 30° C.
	Initial	End point	
	° C.	° C.	
Cellosolve acetate.....	145	166	3
Diisobutyl ketone.....	164	199	4
Isopropyl acetate.....	149	187	5
Diacetone alcohol.....	153	160	2
Methyl-n-hexyl ketone.....	169	173	3
Butyl Cellosolve.....	163	172	0.9
Butyl Cellosolve acetate.....	188	192	Less than 1

Naturally the odor, the toxicity and the inflammability of the solvents must be taken into consideration depending on the workroom conditions.

In Fig. 5 of the drawings we have shown a special type of fabric, available on the market, which may be similar to that shown in Figs. 1 to 4 except that it is woven, in accordance with well-known practices, to cause the pile loops to protrude through the backing fabric to appear on its exposed surface. When frayproofing such a fabric the need for the high fluidity of the adhesives above mentioned is, of course, obviated but otherwise our invention is as applicable to this type of fabric as to the conventional weave. Thus, we employ adhesives which are thermoplastic to frayproof such fabrics and on tapes to secure cut pieces together, such that a

good bond is obtained both for frayproofing and tape adhesion and cold flow is minimized. For frayproofing we preferably employ thermoplastic binding agents of the same nature as those employed for ordinary weaves, although those adhesives may, if desired, be applied to such readily accessible loops by the use of solutions or emulsion of solutions rather than heat softened films.

The adhesive with which the rug is frayproofed in accordance with the foregoing treatments is particularly well adapted to bond with certain tape adhesives, now to be described, by which several pieces of frayproofed and cut fabric may be seamed together at their abutting edges.

The tape adhesive preferably consists of a thermoplastic resin which not only bonds with the frayproofing adhesive, particularly when the latter is also reheated during the application of the tape, but which, after application and cooling, is susceptible to a minimum of cold flow so that the seam does not part under tension. Our experiments have shown that at room temperatures up to 50° C. a seam made with this tape should have a tensile strength sufficient to withstand a pull in the direction of the arrows in Fig. 4a of at least 100 pounds per linear inch of seam and a cold flow insufficient to permit parting of the seam more than $\frac{1}{8}$ of an inch between the abutting edges of the carpeting at the seam under a sustained load of 25 pounds per inch of seam.

As a preferred example of our tape adhesive we employ the following materials in parts by weight:

	Parts
Copolymer vinyl chloracetate (Vinylite VYNS).....	10
Tricresyl phosphate.....	2.3
Slaked lime.....	0.1

To compound the above ingredients the tricresyl phosphate is first heated to a temperature of about 105° C. after which the vinyl resin and the stabilizer are added and worked in with a kneading action. After cooling, the resultant compound can be worked with heated rolls and calendered onto the tape cloth in much the same way as smoked rubber.

The following is a further tape adhesive that we have found effective:

	Parts
Copolymer vinyl chloracetate (Vinylite VYNS).....	73
Di-2-ethylhexoate of triethylene glycol.....	20
Lead stearate.....	2

The fabric of which the tape is made is preferably of an open leno weave type for maximum strength. To inhibit the flow of thermoplastic adhesive through the open meshes of the tape and onto the heat applying device used to apply the coated tape to the carpeting we preferably superimpose temporarily over the tape a lining material such as a highly glazed Holland cloth or Cellophane, but we may coat the tape itself with a material which will bridge over the tape interstices. In the latter case, the bridging material must be flexible and, if thermoplastic, must have a high softening point so that it is stable for a few minutes at the application temperature, 210° C., or thereabouts. For this purpose we have effectively employed nitrocellulose lacquers, cellulose acetate, or the like.

After the open weave tape has been treated with any of the foregoing bridging compounds, if such are used, it is coated with the thermo-

plastic adhesive which may be compounded as above. For this purpose the thermoplastic may be spread onto the tape while it is still in the molten state in which it was prepared but the thermoplastic is preferably allowed to cool after it has been prepared and is calendered either directly onto the tape or first into sheets and then onto the tape. This calendering is effected by passing the tape and thermoplastic film together over or between heated rolls.

The tape is applied by an iron 8 preferably of the weight and at the temperature employed as above described with reference to Fig. 3.

In the foregoing description we have set forth specific data as to adhesive ingredients, temperatures, pressures, dwells and the like which we have found, from extensive experiment, to provide the best results for typical pile fabrics of the sorts above indicated. These details are, however, merely exemplary and may be varied to suit different weaves and different requirements of the individual rug manufacturer. Our invention is not to be limited to such details except as the appended claims require.

This application is a continuation in part of our prior application Serial No. 140,696, filed May 4, 1937, allowed October 10, 1940, and abandoned subsequently to the filing of the present application.

We claim:

1. The method of manufacturing a pile fabric of extensive area from assembled smaller pieces of fabric which consists in fray proofing the fabric by embedding the tufts of the pile loops in a thermoplastic adhesive having a softening point of between 85° C. and 140° C. and composed chiefly of vinyl resin, cutting the pile fabric so fray proofed, assembling a plurality of pieces of the fabric so cut with their cut edges in abutting relation, and securing the abutting edges together with a tape carrying a thermoplastic adhesive composed chiefly of a copolymer of vinyl acetate and vinyl chloride.

2. The method of manufacturing a pile fabric of extensive area from assembled smaller pieces of fabric which consists in fray proofing the fabric by applying to its backing a thermoplastic adhesive having a softening point of between 85° C. and 140° C. and composed chiefly of vinyl resin and including a volatile liquefier and applying heat to the adhesive to soften it and volatilize the liquefier, thereby impregnating the fabric backing and embedding the pile loops in adhesive, cutting the pile fabric so fray proofed, assembling a plurality of pieces so cut with their cut edges in abutting relation and securing the abutting edges together with a tape carrying a thermoplastic adhesive composed chiefly of a copolymer of vinyl acetate and vinyl chloride.

3. The method of manufacturing a pile fabric of extensive area from assembled smaller pieces of fabric which consists in fray proofing the fabric by applying to its backing an adhesive having a softening point of between 85° C. and 140° C. and including a thermoplastic binding agent and a liquefier composed of a solvent for said agent, and said solvent having a low vapor pressure at room temperature and being readily evaporatable at elevated temperatures below the softening point of said adhesive, and heating the adhesive to liquefy the adhesive and to evaporate at least the major portion of said solvent to impregnate the fabric and embed the pile loops in adhesive, cutting the pile fabric so fray proofed, assembling a plurality of pieces so cut with their

cut edges in abutting relation and securing the abutting edges together by applying over the abutting edges a tape carrying a thermoplastic adhesive, applying heat to the tape and to the fabric to soften the adhesive of the tape and to resoften the adhesive with which the backing is impregnated, whereby to cause the adhesives to bond together.

4. The method of manufacturing a pile fabric of extensive area from assembled smaller pieces of fabric which consists in fray proofing the fabric by applying to its backing a solidified film of adhesive including a thermoplastic binding agent and a liquefier constituted as a solvent for said agent, the said adhesive having a softening point of between 85° C. and 140° C., said solvent having a low vapor pressure at room temperature and being readily evaporatable at elevated temperatures below the softening point of said adhesive, applying heat to said film to impregnate the fabric therewith, cutting the pile fabric so fray proofed, assembling a plurality of the pieces so fray proofed and cut with their cut edges in abutting relation and securing the abutting edges together by applying over the abutting edges a tape carrying a thermoplastic adhesive, applying heat to the tape and fabric to soften said tape adhesive and to resoften the adhesive with which said backing is impregnated to bond the said adhesives together.

5. The method of manufacturing a pile fabric of extensive area from assembled smaller pieces of fabric constructed with loops of pile tufts exposed on the backing surface, which consists in fray proofing the fabric by coating said exposed tuft loops with an emulsion of a thermoplastic adhesive having a softening point of between 85° C. and 140° C. and composed chiefly of vinyl resin, cutting the pile fabric so fray proofed, assembling a plurality of the pieces of fabric so fray proofed and cut with their cut edges in abutting relation and securing the abutting edges together by applying over the abutting edges a tape carrying a thermoplastic adhesive constituted chiefly of a copolymer of vinyl acetate and vinyl chloride and applying heat to soften the adhesives on the tape and on said exposed pile loops to cause the said adhesives to bond together.

6. The method of manufacturing a pile fabric of comparatively extensive area from assembled smaller pieces of fabric which consists in fray proofing the fabric by embedding the tufts of the pile loops in a thermoplastic adhesive having a softening point of between 85° C. and 140° C. and composed chiefly of vinyl resin, cutting the pile fabric so fray proofed, assembling a plurality of the pieces so cut with their cut edges in abutting relation and securing the abutting edges together with a tape made of a coarse, open mesh material coated with a thermoplastic adhesive containing a substantial quantity of a copolymer of vinyl acetate and vinyl chloride.

7. As an article of manufacture a plurality of pieces of pile fabric having abutting cut edges fray proofed by an adhesive having a softening point of between 85° C. and 140° C. and composed chiefly of vinyl resin, said pieces being seamed together by a tape secured over the abutting edges by an adhesive composed chiefly of a copolymer of vinyl acetate and vinyl chloride.

8. The method of manufacturing a pile fabric of extensive area from assembled smaller pieces of pile fabric at least some of which have pile tuft loops concealed in a densely woven backing fabric, which consists in disposing pieces of fab-

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ric with their backs uppermost, applying to the exposed backs of the woven backing fabrics thermoplastic adhesive films in solidified condition and containing a liquefier to increase the fluidity of said films when heated, heating the adhesive under pressure to render it sufficiently fluid to seep into the fabrics from their backs downward to and around said pile loops and to cause a portion at least of said liquefier to evaporate, solidifying the adhesive by allowing it to cool to bind the pile loops against fraying when cut, cutting said pieces, assembling some of said cut pieces with at least some of their cut edges in abutting relation, applying a tape carrying an adhesive, composed chiefly of thermoplastic resin, to the backs of the fabric overlying their abutting edges and heating said tape to cause the same to adhere to said fabrics.

9. The method of manufacturing a pile fabric of extensive area from assembled smaller pieces of pile fabric at least some of which have pile tuft loops concealed in a densely woven backing fabric, which consists in disposing pieces of fabric with their backs uppermost, applying to the exposed backs of the woven backing fabrics thermoplastic adhesive films, composed chiefly of vinyl resin, in solidified condition, heating the adhesive under pressure to render it sufficiently fluid to seep into the fabrics from their backs downward to and around said pile loops, solidifying the adhesive by allowing it to cool to bind the pile loops against fraying when cut, cutting said pieces, assembling some of said cut pieces with at least some of their cut edges in abutting relation, applying a tape carrying a thermoplastic adhesive to the backs of the fabric overlying their abutting edges and heating said tape to cause the same to adhere to said fabrics.

10. The method of manufacturing a pile fabric of extensive area from assembled smaller pieces of pile fabric at least some of which have pile tuft loops concealed in a densely woven backing fabric, which consists in disposing pieces of fabric with their backs uppermost, applying to the exposed backs of the woven backing fabrics thermoplastic adhesive films, composed chiefly of vinyl resin, in solidified condition and containing a plasticizer and a liquefier having a low vapor pressure at room temperatures and readily evaporatable at elevated temperatures below the softening point of said adhesive to increase the fluidity of said films when heated, heating the adhesive under pressure to render it sufficiently fluid to seep into the fabrics from their backs downward to and around said pile loops and to cause a portion at least of said liquefier to evaporate, solidifying the adhesive by allowing it to cool to bind the pile loops against fraying when cut, cutting said pieces, assembling some of said cut pieces with at least some of their cut edges in abutting relation, applying a tape carrying an adhesive, composed chiefly of a thermoplastic resin, to the backs of the fabric overlying their abutting edges and heating said tape to cause the same to adhere to said fabrics.

11. The method of manufacturing a pile fabric of extensive area from assembled smaller pieces

of pile fabric at least some of which have pile tuft loops concealed in a densely woven backing fabric, which consists in disposing pieces of fabric with their backs uppermost, applying to the exposed backs of the woven backing fabrics thermoplastic adhesive films, having a softening point of between 85° C. and 140° C. and composed chiefly of vinyl resin, in solidified condition and containing a plasticizer and a liquefier having a low vapor pressure at room temperatures and readily evaporatable at elevated temperatures below the softening point of said adhesive to increase the fluidity of said films when heated, heating the adhesive under pressure to render it sufficiently fluid to seep into the fabrics from their backs downward to and around said pile loops and to cause a portion at least of said liquefier to evaporate, solidifying the adhesive by allowing it to cool to bind the pile loops against fraying when cut, cutting said pieces, assembling some of said cut pieces with at least some of their cut edges in abutting relation, applying a tape carrying an adhesive, composed chiefly of a copolymer of vinyl acetate and vinyl chloride to the backs of the fabric overlying their abutting edges and heating said tape to cause the same to adhere to said fabrics.

12. As an article of manufacture, a plurality of pieces of pile fabric having pile tuft loops concealed in a densely woven backing fabric and having abutting cut edges frayproofed by an adhesive, composed chiefly of vinyl resin, in engagement with the pile loops, said pieces being seamed together by tapes secured over the backs of their abutting edges by an adhesive composed chiefly of a copolymer of vinyl acetate and vinyl chloride.

13. As an article of manufacture, a plurality of pieces of pile fabric having abutting cut edges frayproofed by an adhesive composed chiefly of vinyl resin and seamed together by a tape secured over the abutting edges by an adhesive composed chiefly of a copolymer of vinyl acetate and vinyl chloride, said adhesives being combined to form a unitary bond between said pieces and said tape.

14. The method of manufacturing a pile fabric of extensive area from assembled smaller pieces of pile fabric at least some of which have pile tuft loops concealed in a densely woven backing fabric, which consists in disposing pieces of fabric with their backs uppermost, applying to the exposed backs of the woven backing fabrics a thermoplastic adhesive having a softening point of between 85° C. and 140° C. and composed chiefly of vinyl resin, in sufficiently fluid condition to seep into the fabrics from their backs downward to and around said pile loops, solidifying the adhesive to bind the pile loops against fraying when cut, cutting said pieces, assembling some of said cut pieces with at least some of their cut edges in abutting relation, applying a tape carrying a thermoplastic adhesive to the backs of the fabric overlying their abutting edges and heating said tape to cause the same to adhere to said fabrics.

JAMES N. DOW.
ARA T. DILDILIAN.