

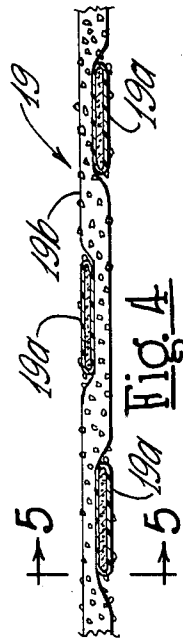
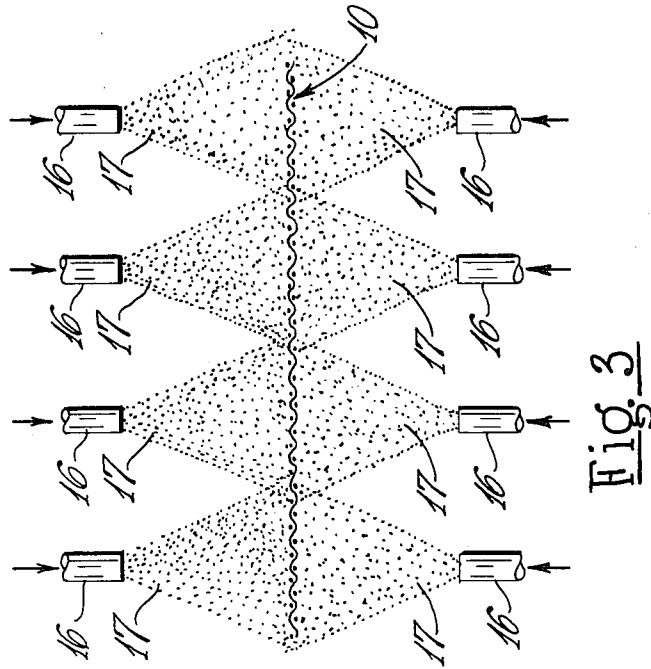
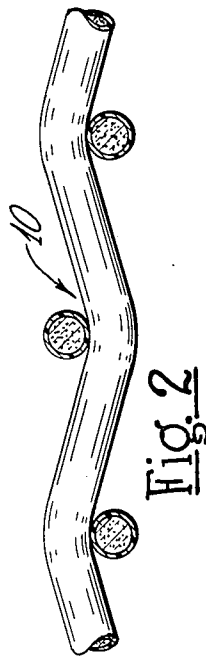
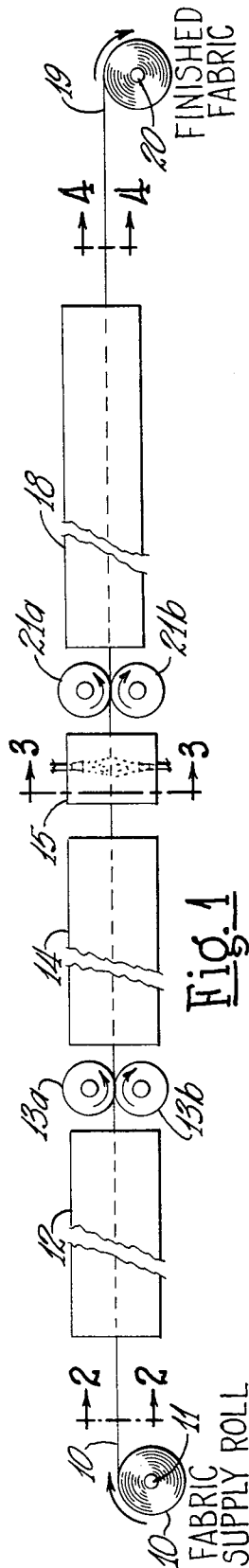
May 18, 1971

R. F. SHANNON
HIGH STRENGTH PLASTIC COATED FIBER YARN FABRIC
FOR STRUCTURAL REINFORCEMENT

3,579,409

Filed May 17, 1967

2 Sheets-Sheet 1



INVENTOR
RICHARD F. SHANNON
BY
Staelin & Overman
ATTORNEYS

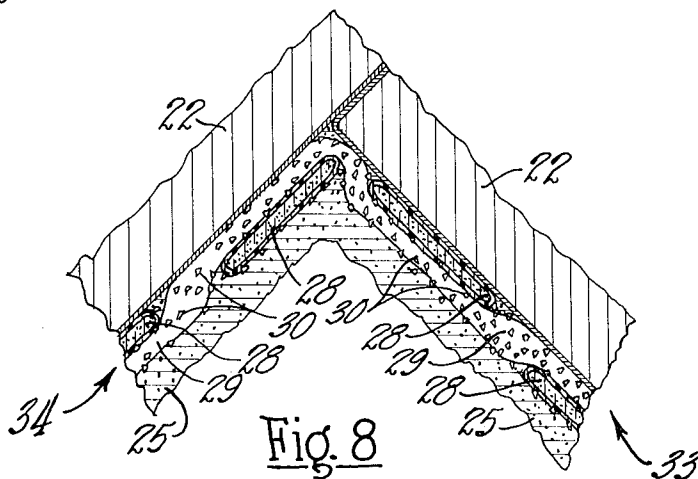
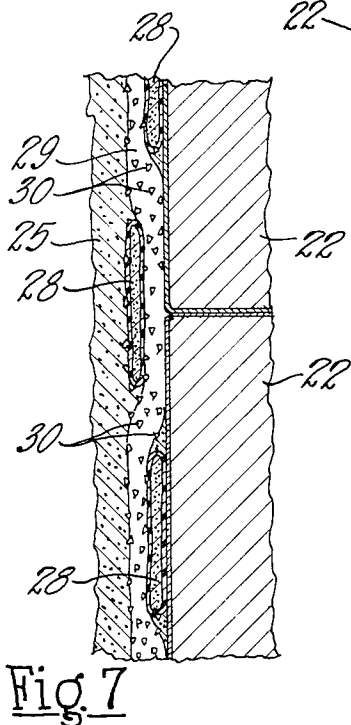
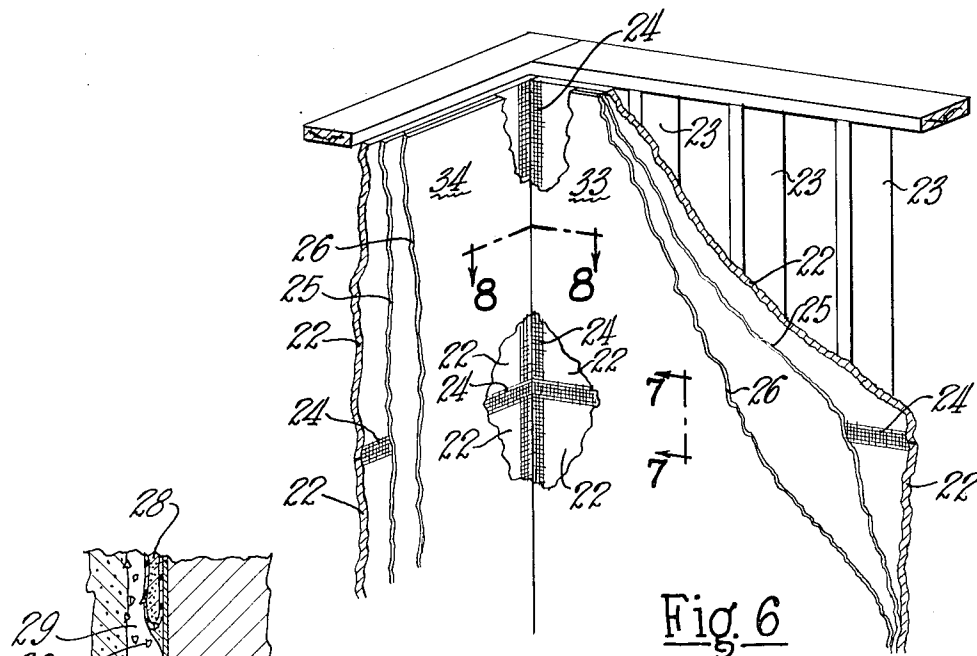
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BY
Staelin & Overman
ATTORNEYS

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HIGH STRENGTH PLASTIC COATED FIBER YARN FABRIC FOR STRUCTURAL REINFORCEMENT

Richard F. Shannon, Lancaster, Ohio, assignor to

Owens-Corning Fiberglas Corporation

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18 Claims

ABSTRACT OF THE DISCLOSURE

A flexible, extremely thin fabric particularly well-suited for the reinforcement of thin layers of plaster, mortar, cement, or like structural materials. The fabric is comprised of fabric yarns having barbed anti-slip surfaces firmly interfused in crosswise open-mesh relationship. Additionally, the fabric yarns respectively define a generally rectangular cross-sectional configuration in which the width across which the yarn is interfused is from approximately six to eighteen times greater than the yarn thickness. The method of producing the fabric involves heating an open-mesh fabric constructed from glass fiber yarns coated with a thermoplastic organic coating to a temperature sufficient to transform the thermoplastic coating to a heat-softened fusible condition. While the thermoplastic coating remains in a fusible condition, the fabric is compressed to flatten and interfuse the fabric yarns. Also, while the thermoplastic coating is in a heat-softened condition, finely-divided solid fragments of an inorganic material are randomly deposited or scattered on the surfaces of the fabric and embedded in the plastic coating to form a barbed anti-slip surface on the fabric.

In one general aspect, the present invention pertains to an open-mesh plastic coated glass fiber fabric or tape possessing physical and structural attributes highly desirable to the applied use of the fabric as structural reinforcement in such structural applications as plaster joints in plasterboard wall and ceiling constructions and the like. In other aspects, the present invention relates to the methods of fabricating such a fabric as well as the improved reinforced joint obtained by combining such a reinforcing with plaster, mortar, or the like, in a wall joint construction.

In view of the extremely high strengths, and particularly high tensile strengths, which are obtainable with glass fiber yarns coupled with the imperviousness of such yarns to moisture, alkali and acid attack when coated with a protective plastic coating, attempts have been made to embody the advantageous physical properties of such plastic coated glass fiber yarns into fabrics and tapes suitable for utilization as reinforcement in various structural applications.

Indicative of one such application is the use of plastic coated glass fiber yarn fabrics or tapes as reinforcement for plaster, mortar and the like in dry wall or plasterboard wall joint constructions. In such constructions, it is, of course, conventional practice to construct a wall or ceiling structure, or the like, by anchoring a plurality of prefabricated plasterboard or wallboard panels in adjacent side-by-side assembled relationship and thereafter cover at least the interior wall side of the joints between contiguous edges of the adjacent wallboards with an overlay of reinforcing tape which may be backed with adhesive or otherwise secured to the panels by staples or similar means. The utilization of an open-mesh tape such as an open-mesh fabric comprised of plastic coated glass fiber yarns permits the plaster or mortar, which is subsequently applied to the interior wall-side of the plasterboard panels, to flow into the openings in the mesh fabric while

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the plastic or mortar is in a fluid condition and thereby permit the open-mesh fabric or tape to be embedded within and internally reinforce the mortar or plaster. Once the wall has been finished by the completion of the application of mortar and plaster over the entirety of the interior wall-side of the wallboard assembly, it is extremely important that the reinforcing tape provide adequate strength to retain the wallboard panels in a dimensionally stable assembled relationship. Dimensional stability is, of course, necessary in order to preclude the wallboards from separating and thereby produce cracks in the plaster. Consequently, it is extremely important that the joint reinforcing tape possess sufficient tensile strength to withstand such tensile stresses as would be encountered during normal conditions of expansion and settling or shifting of the completed wallboard structure. Moreover, while providing such essential functions, it is, of course, extremely important from an appearance standpoint that the reinforcing tape, as well as the joint which it covers, should not be noticeable or visibly detectable following completion of the plaster application.

Recent technological innovations in the methods of construction of combination plaster and wallboard wall and ceiling structures, while affording significant economic advantages, particularly by way of reduced labor and material costs, have brought about a need for a joint reinforcing tape having properties which glass fiber tapes heretofore employed are not capable of providing. More particularly, specially designed quick-setting plaster and mortar compositions have been formulated which, in conjunction with specially designed wallboards having highly absorptive plaster receiving surfaces, greatly expedite the completely finished construction of combination plaster and wallboard wall and ceiling assemblies. For example, under ordinary temperature conditions (above 45° F.) and atmospheric conditions, it is not uncommon to apply paint or other decorative material over the plaster within a period of 24 hours after application of the finish plaster. In the vernacular of the plastering trade, such combination plaster and wallboard assemblies are commonly referred to as "thin coat" systems and are designed to utilize a plaster finish coat ordinarily not in excess of one-sixteenth of an inch average thickness and a plaster base coat or "mud coat" which is ordinarily from one-sixteenth to one-eighth of an inch average thickness. In many instances, the plaster base coat and the plaster finish coat are applied over the entire room facing surface of the wallboard; in other instances, the plaster base coat is applied only in the localized region of the wallboard joints and overlying the mesh reinforcement. In either instance, in keeping with the exceptionally thin character of the plaster finish and base coats in "thin coat" systems, a new type of reinforcement for reinforcing the wallboard joints is necessitated which is not only sufficiently thin that it will be visibly undetectable through the thin plaster coatings, but also is essentially impervious to the highly alkaline nature of such plaster and mortar compositions. Equally important, the reinforcement must be capable of providing a relatively high degree of flexibility and sufficient tensile strength to preclude separation of the wallboards in the region of the wallboard joints and cracking of the plaster in the region overlying such joints.

While various types of reinforcement have been developed for utilization as joint reinforcement for "thin coat" plaster and wallboard constructions, all of such reinforcements appear to be deficient with respect to one or more of the requisite properties or capabilities mentioned. Among the various forms of such reinforcing tapes which appear to be the least deficient are those which are constructed from fabrics of plastic coated glass fiber yarns in which the yarns are interwoven to form an open-mesh

fabric. While plastic coated glass fiber yarn reinforcing fabrics, in which the yarns are interwoven to form an open-mesh structure, ordinarily possess requisite strength characteristics and are generally capable of providing the necessary imperviousness to moisture and alkali attack, the addition of sufficient plastic to provide an adequate protective coating tends to preclude the use of the resultant plastic coated fabric in many applications, such as in "thin wall" plaster systems. For example, plastic coated glass fiber yarn fabrics, of the type heretofore available, tend to be excessively thick and to provide insufficient anchorage between the plastic coating and the plaster matrix. As a consequence, it is not unusual for plastic coated glass fiber yarn fabrics to "telescope" through the finished plaster and hence be readily perceptible to view in the hardened finish plaster. Moreover, it is not uncommon for plastic coated glass fiber yarn fabrics, as a consequence of inadequate anchorage, to permit slippage between the plastic coating and the plaster, and thereby fail to satisfactorily resist the inception of cracks in the plaster. Alternative attempts to obviate excessive thickness and lack of adequate anchorage by elimination or by substantial reductions in the thickness thereof has ordinarily resulted in the formation of a reinforcing fabric which is too subject to degradation caused by moisture and alkali attack and which is too susceptible to physical damage and rupture during installation, such as when rubbed or scratched by a trowel or the like during the application of plaster or when bent or folded for use in the reinforcement of corner joints. Additionally, plastic coated glass fiber reinforcing tapes of the type heretofore utilized, in order to achieve the requisite strength requirements, are ordinarily interwoven to approximate a 20 x 20 mesh fabric. As a consequence of the relatively tight weave, insufficient penetration of the plaster into the mesh openings frequently occurs which in turn reduces the anchorage between the reinforcement and the plaster.

Accordingly, one of the prime objectives of the present invention is the provision of an open-mesh plastic coated glass fiber reinforcing material which is exceptionally well-suited for use as a joint reinforcing tape in a combination prefabricated wall board and plaster construction.

Another objective of the present invention is the provision of a reinforcing fabric which, in addition to having the foregoing characteristics, is also especially well-suited for use as a joint reinforcement in "thin coat" plaster systems.

Another object of the present invention is the provision of an open-mesh plastic coated glass fiber yarn fabric having fragmentary projections on the surfaces of the fabric yarns to enhance the anchoring effectiveness of the fabric when used as reinforcement within the matrix of a body of material.

A further objective of the present invention is the provision of an open-mesh fabric having a thickness ranging from about 0.004-0.010 inch in thickness and comprising an array of plastic coated glass fiber yarns integrally interfused in crosswise relationship.

A further objective of the present invention is the provision of an open-mesh fabric comprised of a plurality of plastic coated glass fiber yarns interfused in crosswise array and respectively having a generally rectangular cross-sectional configuration with a width to thickness ratio ranging from approximately 6:1 through 18:1.

A more particular objective of the present invention is to provide an open reinforcing tape for placement across joints, spaces, cracks and the like in prefabricated wallboard constructions prior to the application of overlays of plaster, mortar and the like, and which is characterized by being constructed from plastic coated glass fiber yarns arranged in crosswise relationship and interfused at the yarn crossovers, and further characterized by having the yarn surfaces provided with numerous fragmentary barbed projections emanating radially outward from the surfaces of the yarns.

Another more particular objective of the present invention is the provision of a reinforcing tape having the characteristics of the last-mentioned objective and which is sufficiently thin that it may be utilized as reinforcement for plaster coatings ranging from one-sixteenth to three-sixteenths of an inch in thickness without being visibly discernible from the finished side of the plaster coating.

A still further objective of the present invention is the provision of methods of accomplishing the fabrication of an open-mesh fabric having the characteristics of each of the foregoing objectives.

The specific nature of the present invention, as well as other objects and advantages thereof, will readily become apparent to those skilled in the art to which the present invention pertains from the following detailed description, considered in conjunction with the accompanying drawings on which, by way of example only, are depicted the preferred embodiments of this invention and whereon:

FIG. 1 depicts a schematic sectional view of one simplified form of apparatus for carrying out the method of the present invention on a production basis; and

FIG. 2 represents a greatly magnified cross-sectional view of a plastic coated glass fiber fabric taken along and in the direction of the reference sectional line 2-2 in FIG. 1 and prior to the initiation of the significant method steps of the invention; and

FIG. 3 is an enlarged partial sectional fragmentary view of the interior of one portion of the apparatus shown in FIG. 1, with the section being taken along and in the general direction of the reference sectional line 3-3 in FIG. 1; and

FIG. 4 is a greatly magnified cross-sectional view similar to FIG. 2, but taken along and in the direction of the reference sectional line 4-4 in FIG. 1, and showing the structure of the fabric after being processed in accordance with the method of this invention; and

FIG. 5 is a sectional view taken along and in the direction of the reference sectional line 5-5 in FIG. 4; and

FIG. 6 is a fragmentary perspective view of the interior wall surface of a finished prefabricated wallboard structure utilizing a joint reinforcing fabric produced in accordance with the principles of the present invention; and

FIG. 7 is a substantially enlarged sectional view taken along and in the direction of the sectional line 7-7 in FIG. 6; and

FIG. 8 is a sectional view taken along and in the direction of the sectional line 8-8 in FIG. 6.

Briefly, the practice of the present invention involves selecting an open-mesh glass fiber fabric comprised of plastic coated glass fiber yarns and with the plastic coating being of a type which is capable of being heat-softened and refused. The fabric is then exposed to the influence of heat at the proper time-temperature relationship to transform the plastic coating into a heat-softened, fusible condition. While the plastic coating is in a fusible condition, the fabric is compressed sufficiently to flatten the individual fill yarns and warp yarns and to cause the plastic coatings thereon to interfuse the yarns together. Also, while the plastic coating is in a heat-softened condition, minute fragments or particles of grit, stone or other rigid, finely-divided particles of solid matter are deposited over the fabric surfaces and partially embedded into the plastic coating. Thereafter, the plastic coating is permitted to solidify. The resultant fabric, in addition to being extremely thin, is characterized by having an integrated open-mesh structure composed of flattened fill yarns and warp yarns having barbed surface projections and by being interfused at each location of crossover of the fill yarns and warp yarns. As a composite result of these complementary characteristics, the resultant fabric possesses structural features which, as will be subsequently explained, render the fabric extremely well-suited for

structural applications such as those previously referred to.

In keeping with these briefly described procedures, FIG. 1 schematically depicts conventional apparatus such as may be suitably employed for the practice of such procedures on a production basis. As illustrated, a roll of plastic coated glass fiber fabric 10, selected to possess certain desired properties which will be subsequently described, is carried upon a rotatably mounted pay-off spindle 11 from which a continuous horizontally disposed stretch of fabric is drawn through a heating oven 12 wherein the fabric is exposed to temperatures in a predetermined temperature range suitable for transforming the plastic coating on the fabric yarn to a heat-softened, fusible condition.

Following emergence from the heating oven 12, the heat-softened plastic coated fabric is directed between adjustably interspaceable compression rollers 13a and 13b which compress the fabric from a thickness ordinarily ranging from about 0.015 to 0.025 inch to a thickness within the optimum range of from 0.004 to 0.010 inch. Thereafter, the fabric is drawn through a heat conditioning oven 14 which, depending upon the extent of cooling which occurs during the compression procedures, is maintained at a temperature sufficient to either retain the surface of the plastic coating in a heat-softened condition or to return the surface of the plastic coating to such condition. After which, the fabric is drawn through a grit application chamber 15 wherein tiny fragments, grit or particles of stone or other similar solid inorganic rock-like mineral material are extensively deposited or entrained upon the surfaces of the heat-softened plastic coating. As best shown in FIG. 3, the fragmentary material, or grit, may be applied by conventional pneumatic grit spray nozzles 16 which direct a light pressure application of the fragmentary material 17 uniformly onto all of the plastic coated glass fiber yarn surfaces. The entrained fragments or particles of solid matter are then carried by the fabric through a second set of compression rollers 21a and 21b which function to partially embed or impress the particulate or fragmented solid matter into the heat-softened plastic coating without necessarily further compressing yarn fibers. The plastic coating is then thoroughly solidified and hardened by passing the fabric through a cooling zone provided in the air cooled cooling chamber 18. Thereafter, the processing completed, the finished fabric or reinforcing fabric 19 may be suitably rolled upon a rotating finish roll spindle 20, or, although not illustrated, the reinforcing fabric 19 may be split lengthwise into narrow tapes of desired widths before being wound upon finish roll spindles.

As best observed by comparison between FIGS. 2 and 4, fabric 19 is composed of warp yarns 19a and fill yarns 19b which have been flattened and reshaped from their essentially circular cross-sectional configuration shown in FIG. 2 to a generally rectangular cross-sectional configuration in which the width of each of the respective yarns is from six to eighteen times greater than the thickness thereof. No less significant, at each location of crossover of the flattened warp yarns and fill yarns, there is a substantial area of interfusion of the plastic coatings on the respective warp yarns and fill yarns.

Although many commercially available plastic coated glass fiber yarn fabrics are suitable for use as a starting fabric 10, certain criteria should be followed in the selection of the fabric. Initially, in order to provide the desired width and area of interfusion in the resultant reinforcing fabric 19, it is preferable that the starting fabric 10 be composed of plastic coated fill yarns and warp yarns having a nominal thickness ranging from 0.015 to 0.025 inch. Similarly, in order to provide adequate interfusion, the plastic coating should constitute not less than about 15 percent of the total weight of the fabric yarn. On the other hand, in order to insure that adequate strength is present, the plastic coating should not exceed about 70 percent of

the total weight of the fabric yarn. In most instances, a more preferable optimum balance is attained by selecting a fabric having a plastic coating constituting between about 25 and 45 percent weight of the total weight of the yarn. The glass portion of the yarn may be composed of either continuous filament yarns or staple fiber yarns. However, for purposes of obtaining maximum strength and flexibility with minimum thickness, it is preferred that continuous filament glass fiber yarn fabrics be utilized. Moreover, for use as a structural reinforcing material for plaster, mortar and the like, it is preferred that the fabric possess a relatively open-mesh structure in order to insure sufficient infiltration of the plaster, or the like, into the openings in the fabric. In this respect, it is accordingly preferred that the fabric have between eight and fourteen warp yarns per lineal inch and between eight and fourteen fill yarns per lineal inch.

The plastic coating composition utilized as an envelope or covering upon the fibrous glass strands should be one which is impervious to moisture penetration and which is also capable of withstanding constant exposure to ordinary conditions of alkalinity or acidity. For ordinary purposes, the plastic coating should be capable of withstanding exposure to environments having a pH range from about 3 to 11. Moreover, the plastic coating should be a thermoplastic composition which is capable of being heat-softened and refused with a like body of thermoplastic material at temperatures not in excess of about 450° F.

The preparation of plastic coated glass fibers of the type considered to be particularly useful in the present invention may be prepared in accordance with the methods and apparatus disclosed in U.S. Pat. No. 2,910,383. The plastic coated glass fiber yarns may then be woven or otherwise arranged in fabric form by procedures conventionally employed in the textile industry. For example, plastic coating was applied to the yarns prior to fabrication of the fabric by apparatus and methods of application such as is shown and described in U.S. Pat. No. 2,910,383 and was applied in the form of a polyvinyl chloride plastisol composition prepared from the following constituents:

Constituent:	Parts by weight
Polyvinyl chloride resin (plastisol grade) -----	100.0
Primary plasticizers—	
Butyl isodecyl phthalate -----	6.0
Tri-(2-ethyl hexyl) phosphate -----	10.5
n-Octyl n-decyl adipate -----	10.5
Alkyl epoxy stearate -----	5.0
n-Octyl n-decyl phthalate -----	15.0
Secondary plasticizers—hydrocarbon petroleum fraction (high aromatic content) -----	3.0
Additional ingredients—	
Barium-cadmium laurate (stabilizer) ---	3.0
Aliphatic hydrocarbon diluent -----	7.0

Preparation of the plastisol was accomplished by initially mixing together, in a Ross mixer, 75 parts by weight of polyvinyl chloride resin, two-thirds of the primary plasticizers, the 3 parts of the barium-cadmium laurate stabilizer, and the 3 parts of secondary plasticizer. As noted, the secondary plasticizer is a hydrocarbon petroleum fraction having a high aromatic content, a molecular weight of 26%, a specific gravity of 0.8899 at 25° C., an open cut flash point of 135° C., an initial boiling point of 508° F., an A.S.T.M. color of 1, S.U.S. viscosities of 56 at 100° F. and 35 at 210° F., a pour point of 60° F., an A.P.I. gravity of 27.5, a C.O.C. flash point of 270° F., and an aniline point of 112° F.

The remaining 25 parts of polyvinyl chloride resin were added in two equal increments. One was added after the initial resin was completely wetted out (approximately two minutes), and the second increment was added after the first increment was completely wetted out. After the resin has been completely wetted out, the mixture was mixed for 20 minutes and at all times during the mixing

cycle the temperature of the mix was kept below 100° F., by means of cooling coils in the Ross mixer.

The remaining portions of the primary plasticizers were then separately blended and mixed for 15 minutes and followed by the addition of the 7 parts of hydrocarbon diluent together with 2 minutes of additional mixing. The diluent is an aliphatic hydrocarbon having an A.P.I. gravity of 45.5, an initial boiling point of 320° F., a flash point (T.C.C.) of 105° F., and an aniline point of 112° F.

The main batch and the second batch were then blended together and deaerated and in such condition were applied by the apparatus and procedures described in U.S. Pat. No. 2,910,383.

The resultant plastic coated glass fiber yarn possessed an average yarn diameter of approximately 0.0085 inch, which was then woven by conventional textile procedures into open-mesh fabric form to produce a fabric having 8 warp yarns per inch and 10 fill yarns per inch and possessing an average fabric thickness of 0.017 inch.

Thereafter, in accordance with the procedures and concepts of the present invention, the fabric was heated in a heating oven, operating at a temperature of between 320 and 330° F., for approximately 90 seconds to transform the plastic coating from a solid to a heat-softened fusible state. Thereafter, while the plastic coating on the fabric yarns remained in a heat-softened fusible condition, the respective fill yarns and warp yarns were compressed together and reshaped from a generally circular cross-sectional configuration to a generally rectangular cross-sectional configuration in which the width was approximately 0.0209 inch and the thickness was approximately 0.0025 inch. Hence, the respective yarns possessed a cross-sectional width to thickness ratio of approximately 8.3:1.

Next, the fabric was reheated to heat-soften the surface of the plastic coating to a fusible condition following the same heat-softening procedures initially employed. After again attaining a heat-softened fusible condition, silica particles having an average particle size sufficiently small to pass through a 200-mesh sieve or screen were entrained extensively on the fabric surfaces and embedded into the plastic coating. After which, the plastic coating was solidified to complete the processing.

While the foregoing is illustrative of one preferred embodiment, various other types of thermoplastic coatings which per se or with suitable plasticizers can be resoftened and reshaped after initial solidification are also suitable so long as they are capable of bonding effectively to the glass fibers in the yarn and so long as they are capable of being softened and resoftened sufficiently to accommodate reshaping at temperatures which do not appreciably affect the characteristics of the glass fiber components of the yarn.

The finely-divided solid fragments which are utilized to form the barbed surface projections on the plastic coated fabric yarns, as a consequence of only having salient significance in functioning to provide a barbed surface and to anchor the reinforcement within the plaster matrix, may be of most any composition so long as the rigid particulate material is essentially not appreciably affected by the processing steps or apparatus employed in the formation of the reinforcement. Of course, the particulate material should also be essentially unaffected by exposure to the ordinary conditions and environment accompanying intended or ordinary structural use of the reinforcing fabric. Certain preferable materials, among others, include such rock-like materials as flint, gypsum, quartz, sand, talc and the like. However, such materials as powdered or granulated thermo-setting plastic resins, or the like, may similarly be employed. While the particle size may vary considerably depending upon the particular intended usage of the reinforcing fabric, the particle size should be sufficiently small to avoid imparting excessive bulk or thickness to the finished reinforcing fabric or tape. Where the reinforcement is intended for use in "thin wall" plaster systems, the average particle size of the solid fragments

should preferably be such that the particles are at least capable of passing through a 100 mesh sieve or screen. In many instances, an average particle size such that the particles are capable of passing through a 200 mesh sieve or screen will be even more preferable.

Illustrative of one preferred form of use of a reinforcing fabric fabricated in accordance with the methods and procedures of this invention, there is perspective depicted in FIG. 6 a fragmentary view of a plastered interior wall surface utilizing a prefabricated wallboard structure. As shown, the prefabricated wallboards 22 are assembled in edgewise abutting relationship and mounted on wall studs 23. Affixed to the marginal edge surfaces of the wallboards 22 and overlying the joint between adjacent edge surfaces thereof, there is a joint reinforcing tape 24 which has been fabricated as an open-mesh plastic coated glass fiber fabric in accordance with the methods and procedures of this invention. Superimposed over the interior facing wall side of the wallboards 22 and the reinforcing tape 24, there is a "mud coat" or plaster base coat 25 and overlying the base coat there is a plaster finish coat 26.

As will be best observed in FIG. 7, the reinforcing tape 24, being of an open-mesh structure, permits the plaster base coat 25 to be received into the mesh openings of the reinforcing tape 24 so that after solidification of the base coat the reinforcing tape is embedded in the hardened plaster. When thus embedded, the reinforcing tape 24 effectually reinforces the plaster and restrains the wallboards 22 against separation which would produce cracking in the plaster. Moreover, the interfused character of the warp yarns 28 and the fill yarns 29 together with the projecting surface fragments or barbs 30 preclude slippage of the fill yarns and/or warp yarns within the plaster matrix. At the same time, as will best be observed in FIG. 8, the fabric, by virtue of its extreme thinness and by virtue of the flexible nature of the plastic coating on the glass fibers, is capable of being easily shaped without damage to conform to the angle of confluence in the corners between adjacent room walls 33 and 34.

While the foregoing is descriptive of one preferred manner of structural usage of a reinforcing fabric produced by the methods and procedures of this invention, it will be appreciated that the present invention provides an exceptionally thin, high strength, open-mesh barbed surface fabric suitable for employment in numerous other instances in which a high strength structural reinforcing fabric or reinforcing tape is necessitated or desired. Also, while the foregoing description of a preferred mode of practice of this invention makes specific reference to the selection and processing of a woven plastic coated glass fiber fabric, it is to be clearly emphasized that an open-mesh plastic coated scrim fabric is also suitable for the practice of this invention. Irrespective of whether the initially selected fabric is of woven or of scrim type, the processing by the present invention produces a resultant reinforcing fabric or reinforcing tape which is extremely thin and flexible and is particularly well-suited for numerous structural reinforcement usages, including particularly such usages as reinforcement for thin layers of plaster, mortar, cement, or like structural materials. Either a woven or scrim open-mesh initially selected fabric also is productive of a reinforcing fabric, or reinforcing tape, having characteristics especially tailored for utilization as a plaster reinforcing tape in prefabricated wallboard joint constructions including those employing "thin coat" plaster applications or systems.

Although the present invention, in its various aspects, has been described in substantial detail, it will, of course, be understood that, without departing from the principles of this invention, various details thereof, including details of construction may be modified throughout a wide range of equivalents and various details concerning procedural and manipulative steps may be performed in conjunction with various different forms of apparatus or in fact without the use of any particular apparatus whatso-

ever. It is, therefore, not the purpose to limit the patent granted hereon otherwise than as necessitated by the scope of the appended claims.

I claim:

1. In a plastic coated glass fiber mesh construction tape comprising an interspaced collateral array of plastic coated glass fiber warp yarns and an interspaced collateral array of plastic coated glass fiber fill yarns interfused in crosswise relationship to define an open-mesh construction, the improvement wherein the plastic coating on said fill yarns and said warp yarns is a flexible thermoplastic material and wherein said warp yarns and said fill yarns individually define a substantially flat, rectangular cross-sectional configuration characterized by a width to thickness ratio ranging from 6:1 to 18:1.

2. A construction tape in accordance with claim 1, wherein said warp yarns and said fill yarns are composed of 30 to 85 percent by weight of glass fibers and with the balance of the composition being essentially a fused polyvinyl chloride thermoplast.

3. A construction tape in accordance with claim 1, wherein said plastic coating constitutes 25 to 45 percent by weight of said plastic coated warp yarns and fill yarns.

4. A construction tape in accordance with claim 1, wherein said plastic coating consists essentially of a fused polyvinyl chloride thermoplast.

5. A construction tape in accordance with claim 1, wherein said warp yarns are interspaced in collateral array to provide from 8 to 14 warp yarns per lineal inch.

6. A construction tape in accordance with claim 1, wherein said fill yarns are regularly interspaced in collateral array to provide from 8 to 14 fill yarns per lineal inch.

7. A construction tape in accordance with claim 1, including a multiplicity of finely-divided rigid fragments of a solid material embedded in and projecting from said plastic coating on said warp yarns and said fill yarns which form barbed surfaces on said construction tape.

8. A construction tape in accordance with claim 7, wherein said warp yarns and said fill yarns, exclusive of said rigid fragments of solid material, are composed of 30 to 85 percent by weight of glass fibers and wherein the balance of the composition of said warp yarns and said fill yarns is essentially a fused polyvinyl chloride thermoplast.

9. A construction tape in accordance with claim 7, wherein said rigid fragments of solid materials possess an average particle size sufficiently small to permit passage thereof through a 200 mesh sieve.

10. A construction tape in accordance with claim 7, wherein said plastic coating, exclusive of said rigid fragments of solid material, constitutes 25 to 45 percent by weight of said plastic coated warp yarns and fill yarns and is composed essentially of a fused polyvinyl chloride thermoplast.

11. A construction tape in accordance with claim 7, wherein said rigid fragments of solid material have an average particle size sufficiently small to pass through a 100 mesh sieve.

12. A construction tape in accordance with claim 11, wherein said rigid fragments of solid material are selected from the group of solid materials consisting of flint, gypsum, talc and silica.

13. A flexible open-mesh fabric comprising a collateral array of interspaced warp yarns disposed in crosswise contacting relationship with a collateral array of interspaced fill yarns, said warp yarns and said fill yarns each

having a glass fiber core enclosed within a flexible thermoplastic coating extending coextensively with said core, each of said warp yarns and said fill yarns being shaped to define a substantially flat, rectangular cross-sectional configuration in which the width to thickness ratio ranges from 6:1 to 18:1, said thermoplastic coating on each of said fill yarns and said warp yarns being integrally interfused at each location of crosswise contact of said warp yarns and said fill yarns through an interfused area essentially coextensive with the width of each of said warp yarns and fill yarns.

14. In a prefabricated wallboard assembly comprised of a planar array of prefabricated panels held in adjoining edgewise relationship and having juxtaposed edge surfaces defining a peripheral joint between adjacent panels, a joint reinforcing tape spanning said peripheral joint and secured to opposite marginal edges of said adjacent panels, a layer of plastic adhered to said panels and said joint reinforcing tape across said peripheral joint, the improvement wherein said joint reinforcing tape comprises a plastic coated glass fiber mesh construction defined by an interspaced collateral array of flexible, thermoplastic coated glass fiber warp yarns and an interspaced collateral array of flexible, thermoplastic coated glass fiber fill yarns interfused in crosswise relationship, said warp yarns and said fill yarns individually defining a substantially flat, rectangular cross-sectional configuration characterized by a width to thickness ratio ranging from 6:1 to 18:1, and said fill yarns and said warp yarns being embedded in said layer of plaster and having a multiplicity of finely-divided fragments of solid material embedded in the plastic coated portion thereof and projecting laterally outward into said layer of plaster.

15. The improvement as defined in claim 14, wherein said solid material is selected from the group of materials consisting of flint, gypsum, talc and silica.

16. The improvement as defined in claim 14, wherein said warp yarns and said fill yarns are each interspaced to provide an open-mesh arrangement comprising from 8 to 14 yarns per lineal inch.

17. The improvement as defined in claim 14, wherein said thermoplastic coating on said glass fiber warp yarns and fill yarns exclusive of said solid material constitutes 25 to 45 percent by weight of said warp yarns and said fill yarns.

18. The improvement as defined in claim 17, wherein said thermoplastic material consists essentially of a fused polyvinyl chloride thermoplast.

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ROBERT F. BURNETT, Primary Examiner

R. L. MAY, Assistant Examiner

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