Nov. 12, 1968 M. O. ORR 3,410,747

WATER RESISTANT FLOOR COVERING

Filed June 28. 1965

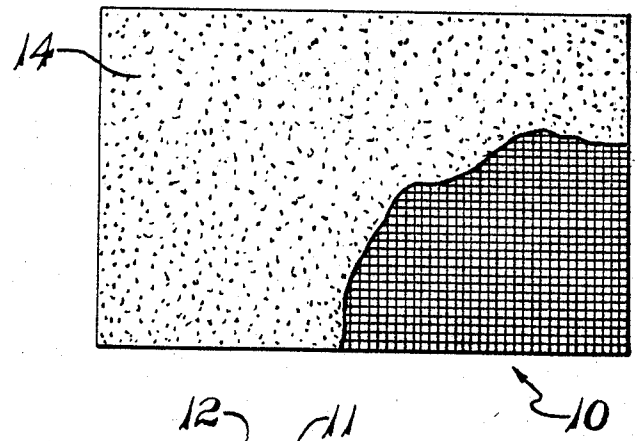


FIG. 1

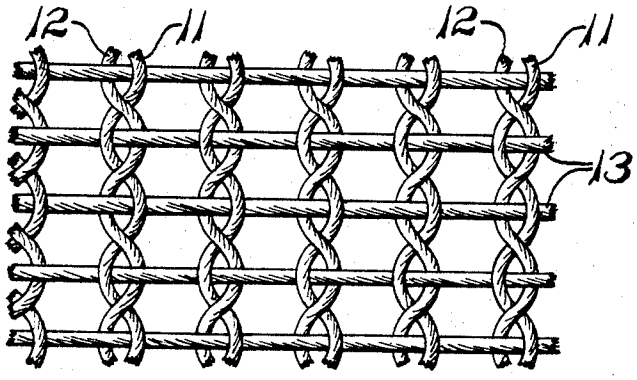


FIG. 2

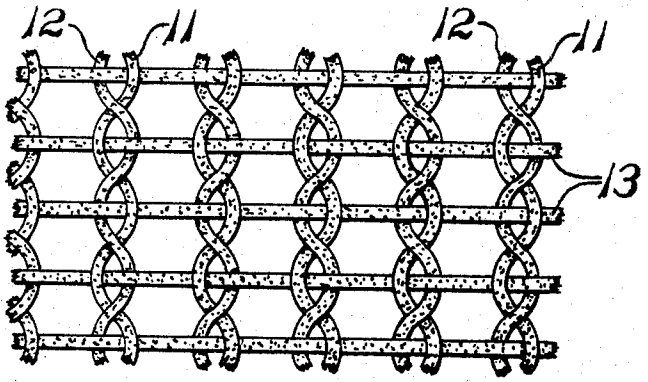


FIG. 3

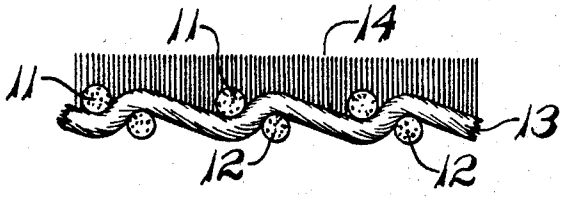


FIG. 4

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WATER RESISTANT FLOOR COVERING

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11 Claims. (Cl. 161—64)

This invention relates to a fabric and more particularly to an outdoor type of carpet or floor covering.

In the field of carpeting, it has long been recognized that it would be desirable to have a carpet suitable for outdoor use; however, the weather-resistant and other properties necessary to make such carpet economically feasible have heretofore made the manufacture impractical. The present invention fulfills this need.

The general purpose of this invention is to provide a fabric, usable as a floor or pavement covering that is suitable for outdoor use including use for patios, swimming pool decks, porches, breezeways, bathrooms, mudrooms and recreation rooms and other uses. Such fabric can be used for upholstering, curtains and for many other special purposes. Such carpet is capable of withstanding hard wear, unaffected by moisture, water or sand and is adaptable to have the feel underfoot of a good rug and be capable of being easily cleaned as well as facilitate the cleaning of the area covered by such carpet. In addition to the above features, such carpet is adapted to quantity production in every stage of its manufacture. Such carpet can be cut to any size without concern as to possible unraveling at the cut edge.

Briefly, the invention comprises a floor covering which is composed of a mesh type of base fabric material that is impregnated with a waterproof substance, which fabric material maintains its mesh type of construction to permit water, moisture and sand to drain or sift downwardly therethrough onto the supporting surface while presenting an upper nonslip surface with adaptations for a flock pile finish.

An object of this invention is to provide a novel outdoor pavement covering or rug.

It is a further object of this invention to provide a floor or pavement covering that is useful and practical for patios and swimming pool decks.

Another object of this invention is to provide a carpet suitable for outdoor use that is easy to clean and permit easy cleaning of the area covered.

Another object of the invention is to provide a floor or pavement covering that is of open mesh construction that is useful for outdoor and indoor use.

Another object of this invention is to provide an outdoor type of carpet which has a pile type of finish over a mesh type of base that permits the passage of water and sand therethrough, yet has the appearance of a plush carpet surface.

A further object of this invention is to provide a floor covering that can be cut at the site of use without requiring the binding of edges.

Still another object of this invention is to provide an outdoor carpet that is wear and mildew resistant as well as resistant to deterioration by the elements.

A further object of this invention is to provide an outdoor carpet that is characterized by superior durability and by outstanding resistance to outdoor weather.

These and other objectives achieved by this invention will become apparent as this description proceeds in connection with the accompanying drawings, in which:

FIG. 1 is a plan view of the carpet showing a portion with flock and another portion without flock.

FIG. 2 is a magnified plan view of one textile fabric employed in the invention.

FIG. 3 is a magnified view similar to FIG. 2 of the

fabric material impregnated with a waterproofing substance such as vinyl plastisol or vinyl polymer plastisol.

FIG. 4 is a cross-sectional view on an enlarged scale of a woven fabric having a pile material cemented thereto to provide an open mesh carpet.

Referring now to the drawings, wherein like reference characters designate like or corresponding parts throughout the several views, there is shown in FIG. 1 a mesh type of fabric material **10** such as a leno weave fabric. It is to be understood that other types of mesh type material may be used. Such mesh type fabric material may be made from any suitable material (natural or synthetic) produced by weaving, knitting or by some non-woven fabric manufactuirng process.

Such leno weave fabric employed may be varied in construction; however, such fabric is essentially an open type of weave presenting a plurality of spaced openings.

In such fabric material **10**, the continuous filament warp threads **11** and **12** are woven in locked transverse relationship to the filler threads **13** to provide a leno mesh type open weave. The single filler thread **13** runs in a transverse direction with the two warp threads **11** and **12** crossing above and below such filler thread **13** throughout the length thereof to lock or steady it.

After such fabric material **10** comes from the loom or from a knitting or some non-woven fabric manufacturing process, the mesh type material is impregnated with a waterproofing material such as a vinyl plastisol, natural or synthetic latices, or a plastic as depicted in FIG. 3.

Such impregnation acts to waterproof the fabric material, renders it mildew resistant and generally resistant to the deteriorating effects of the elements. In addition, such fabric material lies flat and permits cutting into desired shapes without concern as to the unraveling of the edges. The completed fabric material permits its use at swimming pool sites, on patios and breezeways. To clean the area covered by such impregnated fabric material, it is only necessary to run a wet mop over the top surface and thence use a vacuum type cleaner over the mesh fabric wherein the vacuum effectively sucks up the particles of matter that has sifted or fallen through the open mesh material onto the surface covered. Additionally, the mesh type of impregnated fabric does not trap water but effects a better dispersion of water, facilitating a more rapid evaporation as compared to water on bare pavement or on closely woven fabrics. Such mesh type of floor covering can be used on damp patios or on borders of a swimming pool.

A further step in the product variation is the application of a flock material **14** to the upper surface of the impregnated material to present a pile carpet appearance. After impregnation of the fabric as discussed above, the upper surface portion of the fabric material leaving such material of open mesh construction is coated with an adhesive or cementitious material. Any suitable adhesive may be used such as acrylic latices, modified natural or synthetic rubber latices or solvent solutions of natural or synthetic rubber or plastic compounds. A coating of flock **14** is then applied onto such upper open mesh surface. In obtaining a suede effect, as with cotton flock, or with ground flock, the random lay is immaterial; however, to obtain a plush velvety effect, the fibers are made to stand on end substantially upright and parallel to each other. Such effect is obtained by holding the fabric material taut and rapidly beating, rubbing or vibrating the material as by a rapidly rotating polygonal steel bar. Any conventional flocking method may be used. The flock fibers are caused to stand on end and become firmly embedded and anchored in the adhesive in that condition, producing a plush effect. Although FIG. 4 depicts the flock fibers as all extending vertically upwardly, the invention also encompasses flock adhered to the woven

fabric other than as depicted, yet presenting a continuous flocked surface having the appearance of a plush carpet while permitting sand or water to pass through the flock and on through the open mesh construction of the backing. Such flock fibers would extend over and substantially cover the interstices in the mesh to provide such plush appearance since such flock would have a random lay, however, such flock would not interfere with the open mesh construction and its facility to pass water and sand therethrough. The coating of the upper surface of the fabric material with an adhesive covers only the top surface portion of the fabric strands and does not cover the openings since such coating is for the purpose of adhering the flock to the open mesh constructed fabric material.

The flock may be adhered to the impregnated backing without the necessity of using an adhesive by using a plastisol that has sufficient adhesive quality to hold the flock in position to present a surface that has a carpet appearance yet maintains the mesh construction that permits the passageway of water and sand therethrough onto the supporting surface.

In addition to flocking, the fabric material may be given a decorative and pattern effect by veil or spatter spraying, printing or embossing. Such decorative application provides an aesthetic effect, yet the carpet is durable and is easily cleaned as described above. A sponge type of foam may also be applied to the impregnated mesh type of fabric material effecting a novel type of carpet. A blowing agent may be used in the impregnating material to obtain a spongy type of open mesh floor covering.

Many other uses are available for such open mesh pile fabric. One such use is for upholstery in auto seat covers permitting the movement of air therethrough providing a breathable upholstery.

What is claimed is:

1. A floor covering comprising a mesh type of fabric material having a plurality of spaced openings presenting an open construction, and said fabric material being impregnated with a waterproofing material rendering the fabric impervious to water.

2. A floor covering comprising an open mesh type of fabric material having a plurality of spaced openings, said fabric material being impregnated with a synthetic organic polymer retaining said open mesh construction rendering said floor covering resistant to water damage.

3. A floor covering as set forth in claim **2** wherein said fabric material has an adhesive applied thereto while maintaining said open construction and pile embedded in said adhesive presenting a carpet surface appearance yet maintaining said open mesh construction.

4. An outdoor carpet comprising an open mesh type of leno weave fabric presenting an upper and lower surface with such fabric being impregnated with a vinyl polymer plastisol rendering such fabric mildew resistant and said fabric having a sponge material adhered to one of said surfaces.

5. A floor covering comprising an open mesh type of leno weave fabric, said fabric being impregnated with a vinyl polymer plastisol having a small percentage of blowing agent therein to provide a spongy type of open mesh carpet.

6. A floor covering comprising an open mesh type of leno weave fabric, said fabric being impregnated with a vinyl polymer plastisol having a blowing agent therein and a pile material adhered to such impregnated fabric presenting a plush carpet surface with said fabric retaining said open mesh construction.

7. A rug comprising a layer of filaments forming a pile cemented to a porous open mesh constructed backing, said backing being made of fabric which is impregnated with a water-repellent substance rendering such rug resistant to mildew and wear.

8. An integrated floor covering comprising a fabric of open weave construction, said fabric being impregnated with a waterproofing substance and having flock cemented to the upper surface portions of said impregnated fabric presenting a plush carpet surface while retaining such open mesh weave construction.

9. A fabric material comprising a loosely woven fabric, said fabric being impregnated with a vinyl polymer plastisol to provide a backing of open mesh construction, and pile threads adhered to said fabric to present an uninterrupted pile type surface without closing off the open mesh construction.

10. A composite floor covering comprising a pile material laid in parallel non-contiguous relation upon the surface of a textile backing and cemented thereto, said backing material having a plurality of spaced openings to facilitate the passage of water, air and sand therethrough, and said backing being impregnated with a synthetic organic polymer to render said backing material impervious to water.

11. A floor covering comprising a fabric of open weave construction, the fibers of said fabric impregnated with and ensheathed with a vinyl chloride polymer composition by applying a vinyl polymer plastisol onto said fabric and heating the plastisol to effect congealing thereof, and having flock cemented to said impregnated fibers to present a plush carpet surface while retaining said open mesh construction.

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UNITED STATES PATENT OFFICE

CERTIFICATE OF CORRECTION

Patent No. 3,410,747 November 12, 1968

Marcus O. Orr

It is certified that error appears in the above identified patent and that said Letters Patent are hereby corrected as shown below:

Column 2, line 14, "manufactuirng" should read -- manufacturing --; line 53, cancel "leaving such". line 54, cancel "material of open mesh construction"; line 54, after "material" insert -- leaving such material of open mesh construction --.

Signed and sealed this 10th day of March 1970.

(SEAL)
Attest:

Edward M. Fletcher, Jr.
Attesting Officer

WILLIAM E. SCHUYLER, JR.
Commissioner of Patents