Dec. 23, 1952 W. F. STAHL 2,622,998

RUG

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Fig. 1

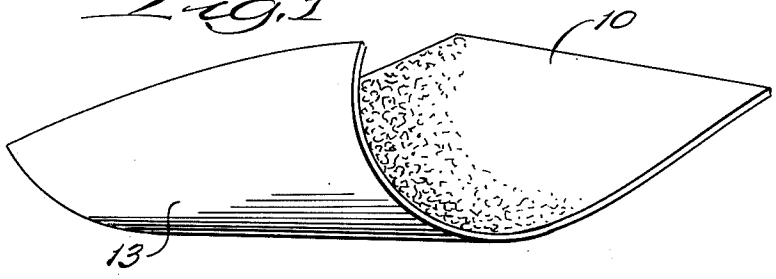


Fig. 2

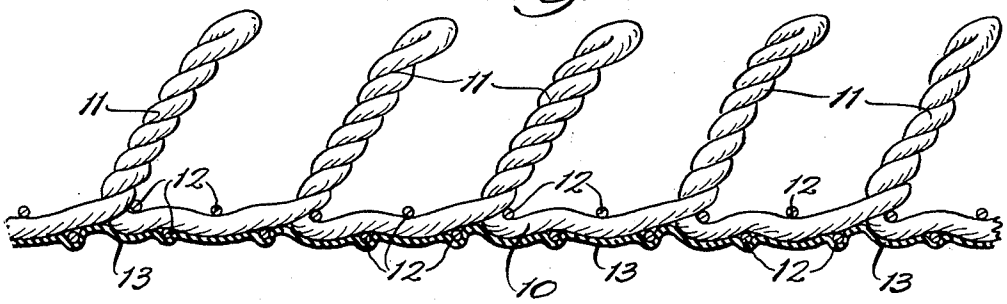
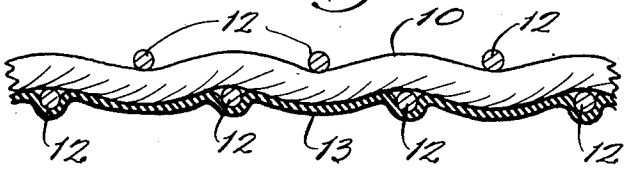


Fig. 3



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UNITED STATES PATENT OFFICE

2,622,998

RUG

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2 Claims. (Cl. 154—49)

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This invention relates to a rug, the method of forming thereof, and more particularly to a rug having the bottom surface thereof treated for the purposes herein set out. The invention is particularly useful in connection with a rug in which the upper body or pile is formed by soft bulky pile warp threads which are integrally formed with and extend upwardly from the fabric.

It has been the practice to treat rugs, and particularly scatter rugs and the like, with a resilient material applied to the bottom thereof so as to prevent slipping on polished floor surfaces. Since such rugs are light, they tend to slip readily on polished floors and present a hazard, unless the rugs are treated to prevent such slipping. A large number of plans to prevent such slipping have been presented. Resilient threads have been formed in the material. Latex and other resilient materials have been applied to the bottom of the rug in liquid form. The methods, however, are unsatisfactory. The application of resilient thread, such as rubber or composition material, is extremely difficult because of the tendency of the threads to cling to the fabric material and to tear portions of the thread in the rug-forming operation. Further, a portion of the threads extends to the upper part of the rug where they are undesired and serve no useful purpose. The spraying of the bottom of the rugs with latex has been the most common method, and this, while inexpensive, results in an unsatisfactory product because the liquid material tends to flow through interstices in the rug and to form heavy spot portions on the upper portion of the rug structure. Further, the latex is not uniform, but forms spotty portions, with the result that the rug has too much rubber at certain areas and too little at others.

In the formation of rugs in which the upper body or pile is formed by soft bulky pile warp threads, the need for a resilient reinforcing body is unusually present. The pile warp threads, which are usually twisted and form a bulky mass at the top of the rug, are easily caught by the heel or portions of the shoe and are drawn to unsightly lengths. To prevent this and to provide a sturdy rug, it is very important that means be provided in the rug which will permit yielding of the twisted tufts or warp threads, and then will draw them back into position.

An object of the present invention is to overcome the disadvantages above referred to and to provide a simple and effective process for preventing slipping of the rug, while at the same time providing a reinforcement for each of the twisted warp threads or loops extending above the structure. Yet another object is to provide a rug having a bottom portion surfaced with an extremely thin layer of resilient material so that normally only a portion of the resilient material engages the floor but, upon application of pressure, a large increased portion of the resilient material engages the floor and prevents slipping. Yet another object is to provide a rug having a uniform layer of resilient material tying the twisted loops of the rug or warp threads to the base structure whereby the loops are drawn quickly back into position after being drawn upwardly under tension. Other specific objects and advantages will appear as the specification proceeds.

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The invention is illustrated, in a preferred embodiment, by the accompanying drawing, in which—

Figure 1 is a perspective view of a sheet or film of resilient material which may be utilized in accordance with my invention; Fig. 2, a transverse sectional view of a rug treated in accordance with my invention; and Fig. 3, a greatly enlarged view of a portion of the base structure shown in Fig. 2.

In the practice of my invention, any form of rug may be constructed. In the specific illustration given, I provide a rug having a base formed of ground warp and weft threads interwoven together and in which soft pile warp threads 10 are incorporated and formed with twisted loops 11, as shown more clearly in Fig. 2. The weft threads 12 tightly engage the pile warp threads 10 so as to lock the loops 11 in position. The structure of the rug is old and is described in detail in Walliser Patent No. 2,371,199.

The rug structure described, as well as other light rugs, present a hazard because of the tendency of the rugs to slip. At the same time, it is desired that the rug be not so heavily provided with a resilient material as to make it difficult to push the rug along the floor. Latex-treated rugs tend to have heavy spots which hold the rug so tightly to the floor that it cannot be pushed along when the position of the rug is to be changed, as when polishing the floor, etc.

Furthermore, in the form of rug illustrated, the twisted loops 11 require effective means for holding it constantly in position against tensile strain which may be placed upon it.

I have found that the above problem is solved effectively by the application of the resilient ma-

terial in the form of a thin sheet 13 to the bottom of the rug and while in situ applying heat so as to allow the sheet to follow the contour of the bottom of the rug and to cement itself to the threads along the bottom of the base rug structure, as shown best in Figs. 2 and 3.

The sheet 13 may be secured to the bottom of the rug either by inverting the rug and laying the sheet upon the top thereof while heat is applied or by applying heat while the sheet is pressed up against the bottom of the rug and lies on the underside thereof. When the sheet is placed upon the bottom of the rug after the rug has been inverted, it is found that the application of heat causes the sheet to flow easily into the crevices and valleys of the rug, as shown best in Fig. 2, and to attach itself to the thread portions of the base firmly as shown. Particularly is the sheet firmly secured to the soft bulky warp threads 10 so that the sheet itself forms an extensive body, tending to secure each of the twisted loops 11 against removal from the base. The strain exerted upon a single loop 11 is thus taken by the sheet 13 and distributed over a wide area on the underside of the base, with the result that when the particular loop is released, it is drawn quickly back into its original position in the base structure.

The sheet 13 may be formed of rubber or any other suitable heat-responsive or thermoplastic resilient material. Pliofilm and a large variety of other rubber substitutes, which are heat-responsive, may be utilized.

Any suitable means for applying heat may be employed. Heated platens may be applied directly to the film 13 when the same is resting upon the bottom of the inverted rug. I have found that unusually satisfactory results are obtained when the film 13 is subjected to the action of high frequency radio waves. Apparatus of a general type suitable for this purpose is shown in Fred V. Collins' application, Serial No. 651,642, now Patent No. 2,504,500, for Tube Forming Apparatus and Method. It will be understood that any suitable means for the application of heat may be used.

The finished product, as shown more clearly in Figs. 2 and 3, provides a film which may be continuous or discontinuous over the bottom of the rug and which follows the undulations in the bottom of the rug. The merit of this structure is that there is presented to the floor, when the rug is not stepped upon, only a portion of the bottom of the rug, and thus the rug can be slid along the floor without difficulty in changing its position, etc. When, however, the rug is stepped upon and pressure thus applied, the bottom of the rug straightens out and a much greater proportion of the resilient film surface thereof is brought directly against the floor, thus making it substantially impossible for the rug to slip. Furthermore, in the rug structure formed, the resilient material 13 is confined to the bottom portion of the base of the rug and does not extend to the top portion of the rug. Hence, there is no collection of rubber or other resilient material above the base portion and all of the material is maintained in the area where it is of utility. Uniformity of the resilient material over the bottom of the rug is obtained, and the spotty formation heretofore encountered is removed. Furthermore, the new method insures that each of the twisted loops 11 is tied to the film on the bottom of the rug and is protected against being torn from the base structure.

While in the foregoing description, I have set forth certain details as illustrative of the new structure and method of forming the same, it will be understood that such details may be varied widely by those skilled in the art without departing from the spirit of my invention.

I claim:

1. A rug comprising a base formed of ground warp and weft threads, pile warp threads interwoven with said base threads and extending along the bottom of the base and through the base and forming spaced loops extending above the base, and a thin sheet of resilient material of uniform thickness extending over the bottom of the base and bonded to said pile warp threads and to said ground warp and weft threads to resiliently anchor said loops within said base, said thin resilient upper surface only adhering to said rug and having its lower surface free.

2. A rug comprising a base formed of ground warp and weft threads, pile warp threads interwoven with said base threads and extending along the bottom of the base and through the base and forming spaced loops extending above the base, and a thin sheet of resilient thermoplastic material of uniform thickness engaging the elongated portion of the pile warp threads extending between the spaced loops and along the bottom of said base and penetrating and secured to said pile warp threads and to said ground warp and weft threads of said base, said thin resilient upper surface only adhering to said rug and having its lower surface free.

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