

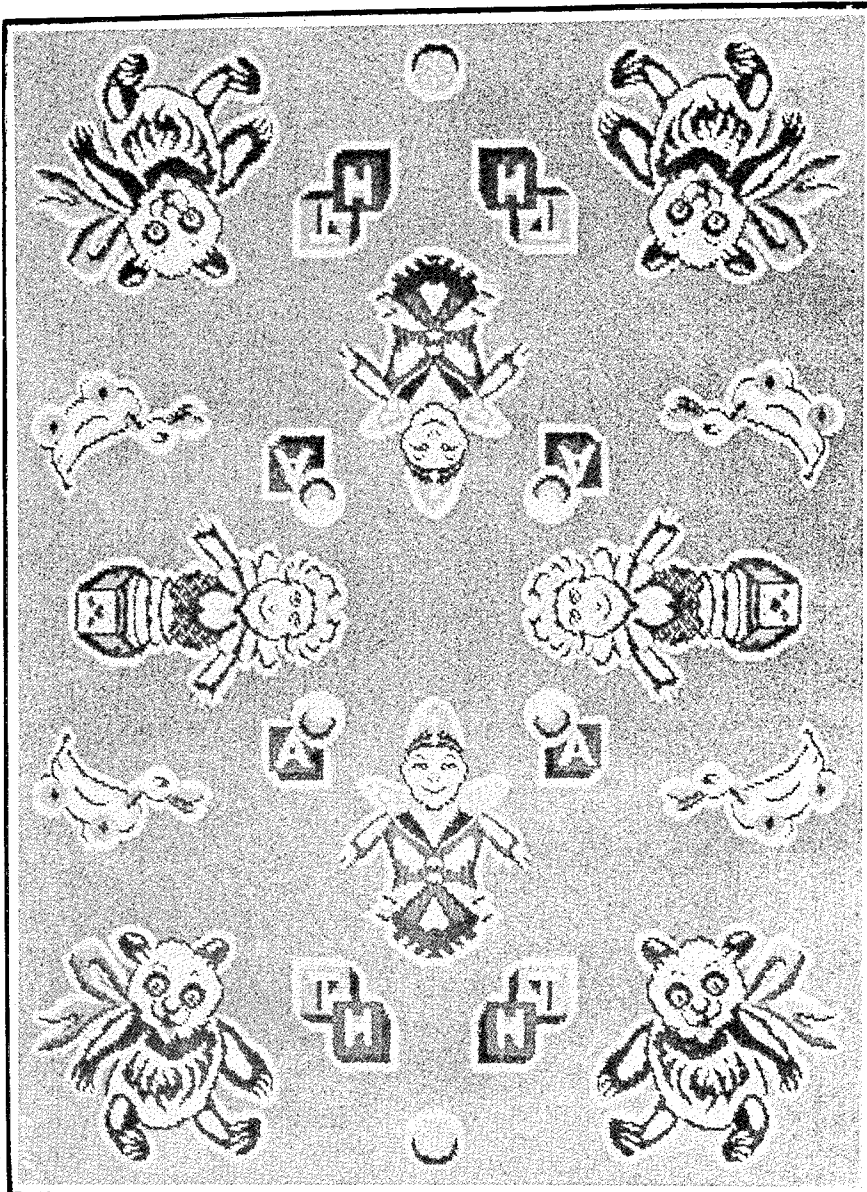
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LUMINOUS PILE FABRIC FLOOR COVERING

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LUMINOUS PILE FABRIC FLOOR COVERING

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1 Claim. (Cl. 2—278)

This invention relates to a textile fabric floor covering produced by weaving or other known methods and embodying a special kind of spun yarn having the property of phosphorescence and arranged in the pile surface of the fabric so as to provide design effects and, in some instances, to provide instruction, entertainment, and guidance.

The term "phosphorescent" refers to the continuous emission of light from a substance without any apparent rise in temperature produced after exposure to heat, light, or other radiant energy.

A novel spun textile, phosphorescent yarn as used in the pile surface of this floor covering is fully disclosed in my copending patent application Serial No. 484,568, filed January 27, 1955, and entitled "Phosphorescent Yarn." While complete details of this novel yarn and of the process of making the same are set forth in said prior application, it will be briefly noted that such yarn, which may be single or plied, is prepared by impregnating the yarn fibers with any one of several phosphorescent materials in particle form contained in a solution with a light-transmitting binder that acts to surround the particles for protection against abrasion. The spun yarn may be made of any one of the available animal, vegetable or artificial type fibers, or any desired blend thereof. In a preferred embodiment, wool fibers are impregnated with a solution of zinc sulphide containing phosphorescent pigment, casein binder, and polyvinyl acetate. A range of phosphorescent pigment colors is available.

One of the principal uses for pile fabrics incorporating such phosphorescent yarn is in children's rooms or nurseries where the pleasing effect of a glow of low intensity will provide a desirable substitute for brighter electric lights and be conducive to sleep, and to the dissipation of any nighttime fears.

It will also be appreciated that carpet and rugs embodying this particular phosphorescent spun yarn can be used for a number of other useful purposes in theatres, hospitals, and the like.

The details of the pile fabric floor covering of this invention and a number of the uses and advantages thereof will be more fully understood from the following detailed description when taken in conjunction with the accompanying drawing, which consists of a plan view of a nursery rug having numerous ornamental figures and designs formed by the special yarn embodying the phosphorescent material.

When the electric lights are turned off in the ordinary well-illuminated nursery, the child may turn his gaze toward the ornamental and phosphorescently displayed features of his rug and enjoy the comfort of viewing familiar objects and pictures. The phosphorescent property of the yarn used in the illustrated rug is such that the various figures and designs are all plainly visible in the otherwise dark room. The charging of the phosphorescent material that will be produced by normal exposure to daylight and electric light during the course of the day and early eve-

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ning is such that it will continue to glow with substantial intensity for a given time, dependent upon the particular phosphorescent material used in the impregnation of the yarn fibers. The fascinating display in the dark of brightly colored pandas, clowns, ducks, blocks, other toys, Mother Goose figures, and the like, will mildly entertain the child until sleep overcomes him. This desirable routine proceeds without the presence of grownups or any conversation between parent and child tending to stimulate wakefulness rather than to encourage sleep.

It will also be understood that the novel yarns used for the purposes mentioned herein are entirely harmless and free from allergy-producing ingredients. In those instances where a child may be allergic to wool the pile yarns will be of other materials such as rayon, nylon, or cotton, by way of example.

Elaborating on the other suggested uses of textile floor coverings of this nature, it will be appreciated that there are numerous applications in hospitals and industrial plants where directive lighting of the kind provided can be used to guide patients and nurses, or laboratory workers, as the case may be, and in numerous other ways for the prevention of accidents. For example, a two-tone stair carpet having a dark center and a narrow phosphorescent band in a lighter color along each edge will provide edges which clearly delineate the stairs in the dark.

Although skein-dyed phosphorescent yarn impregnated with the materials set forth above is satisfactory for loop yarn use in pile fabrics, stock dyed yarns have been found best for cut pile fabrics or areas because of the more homogeneous impregnation, or dispersion.

In plied yarns the amount of impregnated phosphorescent pigment may be different in the several plies.

In the embodiment of this invention as illustrated in the drawing, the rug is of conventional Axminster weave, only the pile yarn appearing whitish on the drawing is spun from wool fibers, that have been impregnated by use of a liquid mixture for imparting phosphorescent property to the yarn fibers, and comprising zinc sulphide with phosphorescent base pigment, "Decerosol OT," and a light-transmitting binder solution of casein, water, borax, "Dowicide" G, and polyvinyl acetate emulsion. The "Decerosol OT" is 25% aqueous, and comprises an ester of sulfo-dicarboxylic acid set forth in U. S. Patent No. 2,028,091. Other impregnants are specified in my said application Serial No. 484,568. It is to be noted that "Dowicide" G is a sodium salt of pentachlorophenol.

The pile yarn covering the face may be loop tufts, or pile tufts, or any combination thereof, and varying in height if desired.

In accordance with the teachings of this invention there has thus been provided a pile fabric floor covering comprising phosphorescent yarn having the phosphorescent pigment dispersed therein and protected from abrasion by enclosure in the light-transmitting binder composition. Further protection of the pigments in part of the phosphorescent pile yarn may be obtained by making pattern or design areas of such yarn of substantially less height than adjacent unimpregnated or less impregnated pile yarn.

It will be understood by those skilled in this art that the invention herein disclosed may be varied in numerous ways in adapting it to different uses and purposes without departing from the inventive principles and scope of the appended claim.

Having thus described my invention, what I claim as novel and desire to secure by Letters Patent of the United States is:

A textile fabric floor covering comprising a design defining covered face formed by tufts of pile yarn of greater and lesser heights, only the pile tufts of lesser height being impregnated with zinc sulphide containing phosphorescent

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base pigment, casein binder, and light transmitting synthetic resin comprising polyvinyl acetate, whereby the design will be visible in darkness and protected against wear.

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