

March 15, 1932.

E. T. PHOENIX
EMBOSSED PILE FABRIC
Filed March 24, 1931

1,849,550

FIG. 1

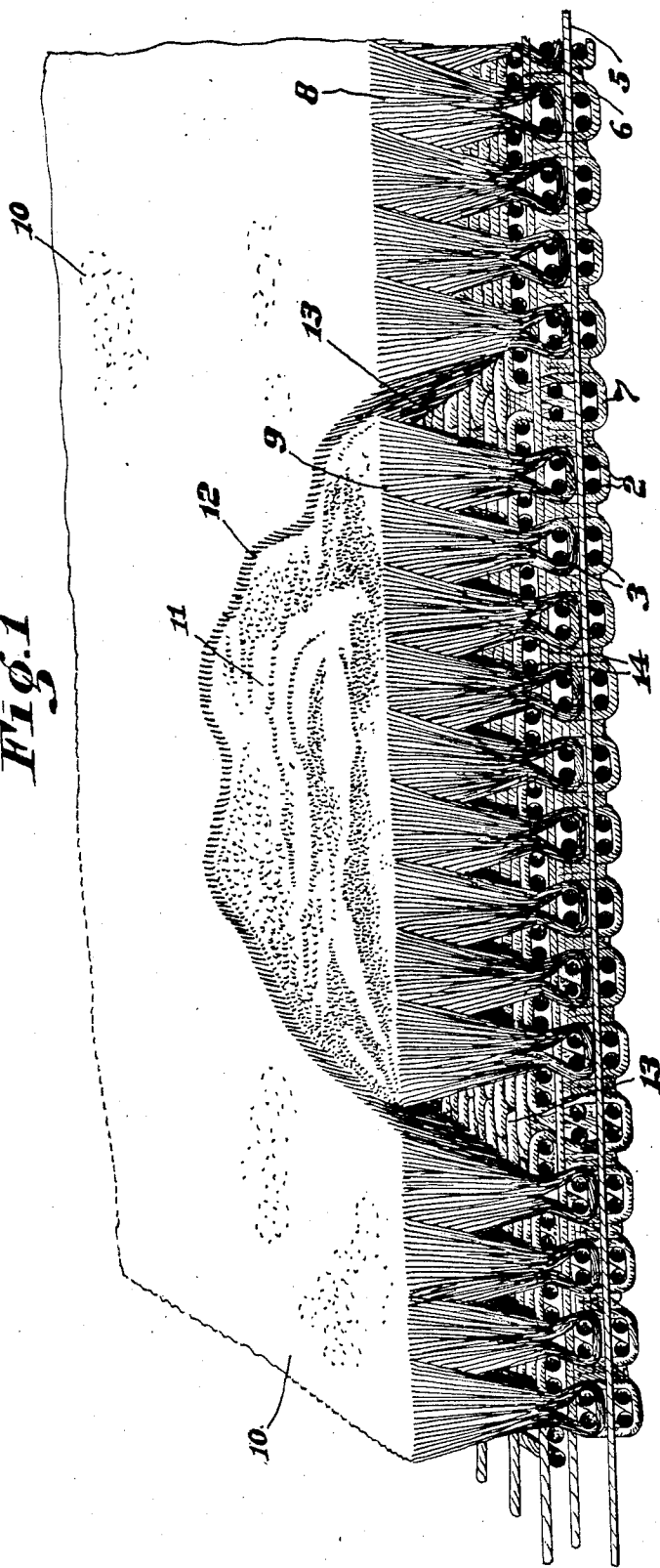
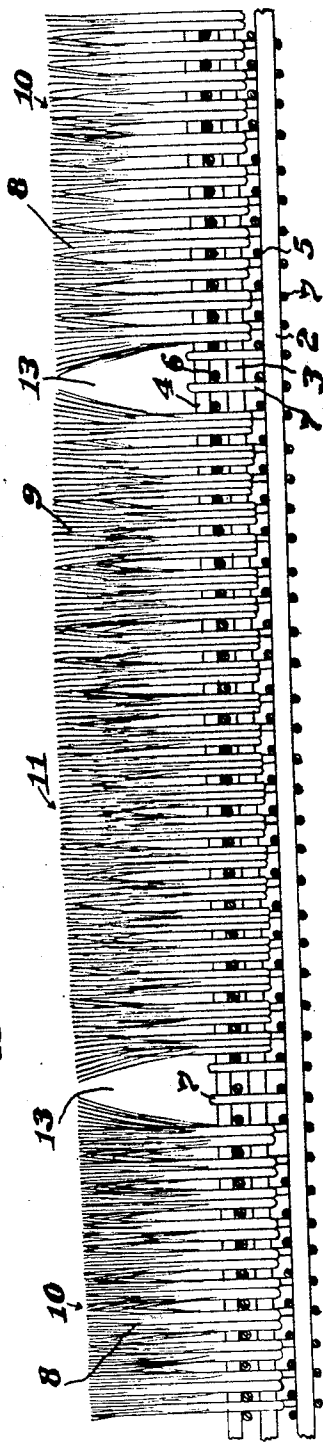


FIG. 2



INVENTOR
E. T. Phoenix
BY *Robt. D. Harris.*
ATTORNEY

UNITED STATES PATENT OFFICE

ERNEST T. PHOENIX, OF AMSTERDAM, NEW YORK, ASSIGNOR TO BIGELOW-SANFORD CARPET CO., INC., OF THOMPSONVILLE, CONNECTICUT, A CORPORATION OF MASSACHUSETTS

EMBOSSED PILE FABRIC

Application filed March 24, 1931. Serial No. 524,774.

This invention relates to pile fabrics such as carpets and rugs wherein the pile effect or surface is produced by pile forming yarn or threads secured to a backing of warp and weft threads.

In some oriental floor coverings, such for instance as Chinese rugs, an embossed effect is sometimes produced by slightly trimming the ground pile area which surrounds the figure or pattern after the fabric is woven and completed. This trimming operation is performed by hand and is subject to the inherent imperfections due to manual trimming and in such floor covering practically all of the "ground" pile is of the same height as the figure and yet produces an embossed effect.

One of the objects of the present invention is to provide a floor covering such as carpets and rugs and method of making the same with a pile surface formed of a ground pile area and a figure or pattern pile area and wherein one or more of the series of pile forming yarns or threads adjacent the figure or pattern pile area are omitted to form a space between the ground and figure or pattern pile area and thereby produce in the figure or pattern pile area a contrasting appearance resembling an embossed effect.

The pile forming yarns or threads are usually arranged in transverse rows and are secured to a backing fabric, and in accordance with the present invention each row where the figure or pattern and ground occur has omitted therefrom one or more pile forming yarns or threads to produce a space or separation between the ground forming pile and the figure or pattern forming pile, with the result that during the weaving operation the contrasting appearance or embossed effect is produced free from all imperfections of the hand trimming operation as heretofore practiced to some extent.

An enhancement of the embossed effect may be secured in some cases by forming the ground pile and the figure or pattern pile of different ply yarns, and where the figure pile is produced by a larger or heavier ply yarn than the ground pile, the embossed effect becomes pronounced and emphasized during wear, and especially is this the case where the

"pitch" or number of threads per inch remains constant.

The invention and novel features thereof will best be made clear from the following description and accompanying drawings of one embodiment thereof.

In the drawings:—

Fig. 1 is a perspective view of a pile fabric containing the present invention, the edge of the fabric being shown in longitudinal section; and

Fig. 2 is a cross section.

The fabric shown by the drawings is of the Axminster type wherein the pile forming areas are produced by pile forming yarns secured to a backing fabric, and while the backing fabric shown is illustrative of one character or construction thereof it is to be understood that the backing fabric may be of any desired character and comprise any usual combination of warp or weft threads for binding or supporting the pile forming yarn.

As shown in the present embodiment of the invention the backing fabric comprises the weft threads 2 at the back of the fabric, the intermediate weft threads 3 in the central portion of the fabric and the top or surface weft threads 4, but as hereinbefore stated this is merely illustrative of one character of backing fabric that may be employed and in the present instance of the invention the series of weft threads 2, 3 and 4 are arranged in pairs, signifying thereby that the weft threads have been introduced into the shed by needle mechanism.

Between the back weft threads 2 and the intermediate weft threads 3, the present illustration of the invention shows a stuffer 5 and likewise between the intermediate weft threads 3 and the surface weft threads 4 is another stuffer 6, the weft threads and stuffers being bound together by the warp threads 7. The backing fabric thus described may be of usual construction, however.

As shown in the present illustration of the invention the ground forming pile yarns 8 and the figure or pattern forming pile yarns 9 are bound or secured to the backing fabric by passing about two of the intermediate

weft threads 3, but as hereinbefore indicated the pile forming yarns constituting the ground and figure may be secured to the backing fabric in a variety of ways since such feature does not form an essential element of the present invention.

The ground pile area 10 and the figure pile area 11 have a defined separation about the contour of the figure as indicated at 12, and such separation of the two areas is produced by omitting adjacent the contour of the figure pile area 11 one or more of the ground forming pile yarns 8, as indicated at the space 13, the result being that the figure or pattern area 11 forms an embossed effect or appearance contrasting with the ground area 10. The contrasting appearance between the ground pile area and the figure pile area may be emphasized by forming the two areas of different colors, that is the ground pile area may be of one color and the figure pile area of a different color or colors.

As hereinbefore suggested the pile forming yarns are introduced into and secured to the backing fabric in transverse rows and in order that the space between the ground pile area and the figure pile area 10 and 11 respectively may be formed to bring out the embossed effect or appearance one or more of the pile forming yarns of each row where the ground and figure come together are omitted.

In the illustrated embodiment of the invention the ground pile area 10 is made of a two ply yarn as indicated in Fig. 2 while in the figure or pattern pile area the yarn is of three ply and the setting is arranged so as to leave out one or more ends of the ground pile area directly adjacent to the figure pile area to be produced. This may not always be necessary as an embodiment of the invention since the pile forming yarns of both the ground and figure may be of the same ply. The use of a three ply yarn in the figure and a two ply yarn in the ground with the same pitch or number of threads per inch retained throughout, and the obvious crowding of the heavier yarns in the figure, has a tendency to make that portion of the pile yarn constituting the figure stand erect and during use the embossed effect will be emphasized by reason of the ground pile area being more sensitive to the tread.

As hereinbefore indicated the pile forming yarns may be introduced and secured to the backing fabric by any of the methods now understood, as for instance, in the production of an Axminster fabric tube frames may be employed for delivering the pile yarn material to the warps, or nippers or grippers may be employed as now well understood for weaving such Axminster fabric either face up or face down, or the fabric may be woven on a Jacquard loom wherein all the frames are "alive" with separate grids for lifting the

fabric and pile forming threads or the pile may be variously produced by any of the mechanisms now well understood in the art, the essentials of the invention being that between the figure forming pile yarn and the ground forming pile yarn a space be provided by omission of some of the yarns, preferably of the ground adjacent to the periphery of the figure, thereby bringing out and emphasizing the contrasting appearance or embossed effect. If desired the fabric may be sheared as usual, and by a subsequent washing operation the pile areas are softened and cause the ground pile area to fall or flatten somewhat directly adjacent to the outline of the figure whereby a still further emphasis of the embossed effect may be produced.

What is claimed is:—

1. As an article of manufacture, a woven fabric comprising a backing of warp and weft threads, and a pile surface formed of a ground pile area and figure or pattern pile area wherein one or more of the series of pile threads forming the ground pile area about the figure or pattern pile area are omitted to form a space between the two areas and produce in the figure or pattern pile area an effect of increased contrast.

2. As an article of manufacture, a woven fabric comprising a backing of interwoven warp and weft threads and a pile surface formed of a ground pile area and a figure pile area, one at least of the pile forming threads throughout the union of the pile ground area and figure pile area being omitted to form a space between the two areas and produce a contrasting or embossed appearance in the figure pile area.

3. As an article of manufacture, a woven fabric comprising a backing of warp and weft thread and a pile surface formed of yarn secured to and extending from the backing to produce a figure pile area and a ground pile area of different color, one series at least of the pile forming yarn about the figure pile area being omitted during weaving to cause a separation between the figure pile and ground pile to produce a contrast of appearance between the figure pile area and the ground pile area.

4. As an article of manufacture, a woven fabric having a backing of warp and weft threads, and a pile surface, comprising, a ground pile area and a figure pile area, said two pile areas being formed of different ply yarns and a number of pile forming yarns about the outline of the figure pile area being omitted during weaving to produce in the figure pile area an embossed effect or appearance.

5. As an article of manufacture, a woven fabric having a backing of warp and weft threads, and a pile surface which comprises a ground pile area formed of a two ply yarn,

and a figure pile area formed of a three ply yarn, and one of the series of the ground two ply yarn adjacent the figure pile area being omitted to produce an embossed effect in the figure pile area.

6. As an article of manufacture, a woven fabric having a backing of warp and weft threads, and a pile surface, comprising, a ground pile area and a figure pile area, said two pile areas being formed of different ply yarn and woven with the same pitch, and a number of pile forming yarn adjacent the outline of the figure pile area being omitted to produce in the figure pile area an embossed effect.

7. The method of producing a figured pile fabric having an embossed appearance, which consists in weaving a backing fabric, securing transverse rows of ground and figure producing pile forming yarn to the backing fabric and omitting from each of said rows during weaving one or more of the pile forming yarn about the contour of the figure to form a space between the ground pile and figure pile and produce a contrast of appearance between the figure pile area and the ground pile area.

8. The method of producing a figured pile fabric having an embossed appearance, which consists in weaving a backing fabric, introducing successive rows of pile forming yarn to the backing fabric for the production of the pile ground and pile figure, and omitting from each row of pile forming yarn during weaving, a ground forming pile yarn at a point next to the contour of the pile figure to form a space between the ground pile and figure and produce a contrasting appearance between the figure pile area and the ground pile area.

9. As an article of manufacture, a woven pile fabric comprising a backing of warp and weft threads, a ground pile area formed of pile yarn of one color or combination of colors, and a figure pile area formed of different color or combination of colors, one or more of the series of pile forming yarn about the figure pile area being omitted during weaving to form a space about the figure pile area and produce a contrast of appearance between the figure pile area and the ground pile area.

In testimony whereof, I have signed my name to this specification.

ERNEST T. PHOENIX.