Feb. 16, 1954 T. HORWICH 2,669,527

FLOOR-COVERING CUSHION

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Fig. 1.

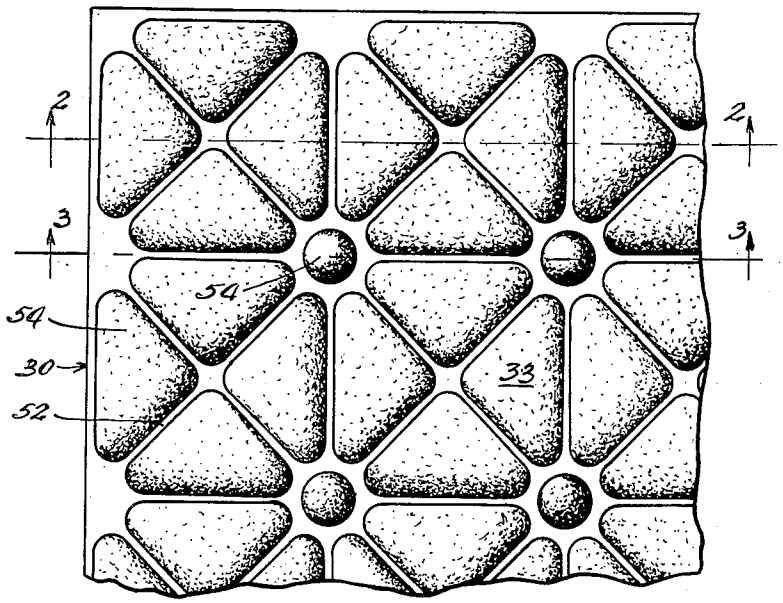


Fig. 2.

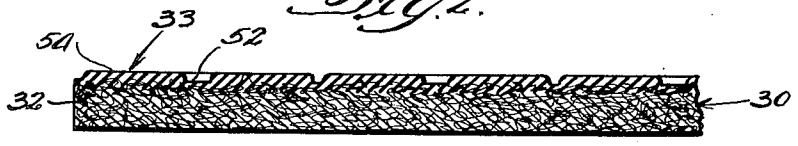
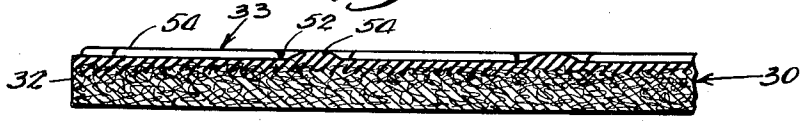


Fig. 3.



INVENTOR.
Theodore Horwich
BY.
Theiss, Olson & Mecklenburger
Attys.

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Fig. 4.

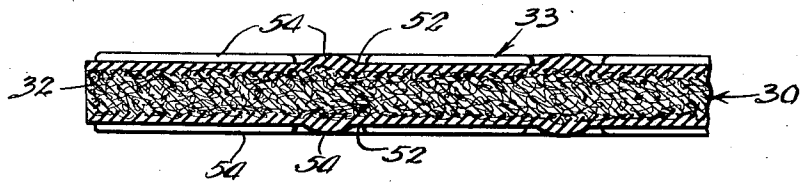
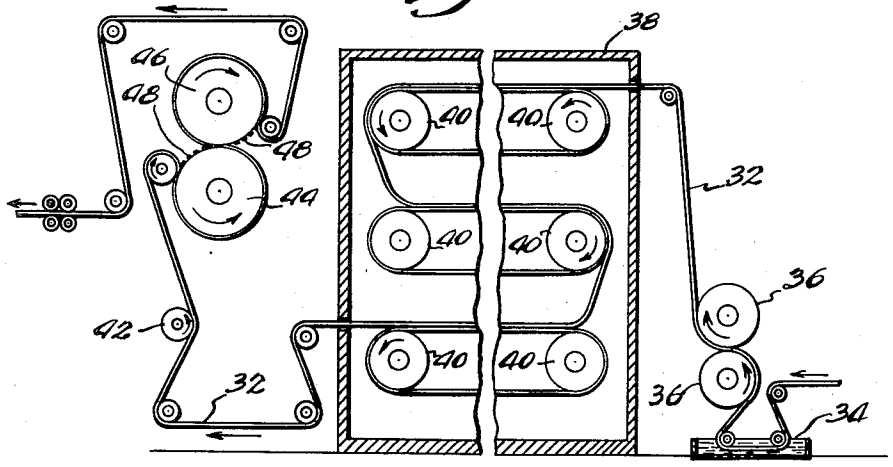


Fig. 5.



INVENTOR.
Theodore Horwich.
BY.
Theis, Olson & Mecklenburg.
Attys.

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FLOOR-COVERING CUSHION

Theodore Horwich, Chicago, Ill., assignor to General Felt Products Co., Chicago, Ill., a corporation of Illinois

Application February 6, 1952, Serial No. 270,234

2 Claims. (Cl. 117—10)

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This invention relates to floor-covering cushions and more particularly to embossed and non-stretchable carpet underlays having a resilient base, such as felt, and having one or both surfaces coated with a resilient sealing layer or compound and provided with an embossed pattern or surface configuration. This invention also relates to a method of making the foregoing cushion.

Heretofore the standard pattern or configuration applied to the resilient coating or layer of the rug underlay comprised a plurality of indentations and unindented portions wherein the indentations covered a substantially larger surface area of the pattern than the unindented portions. Thus the unindented portions or the raised areas of the pattern, which portions or areas were the only ones stepped on when walking over the surface of the underlay, were small in total area in comparison with the total area of the entire pattern. Since the indentations of the pattern became press-hardened, and therefore less resilient, in the process of manufacture, the portions of the pattern having the greater resiliency were necessarily confined to the unindented portions thereof whose surface area was small in comparison to the area of the entire pattern. This resulted in an underlay of lesser over-all resiliency than was usually desired.

It is an object of this invention therefore to provide a floor-covering cushion and method for making the same wherein the more resilient portions of the embossed pattern are substantially larger in area than the lesser resilient portions of the pattern.

It is a further object of this invention to provide a floor-covering cushion and method for making the same wherein the finished cushion will be relatively thick over a substantial portion thereof and wherein said thickness can be obtained from a relatively small quantity of material without sacrificing the desired resilient characteristics of the finished product.

It is a further object of this invention to provide a floor-covering cushion and method for making the same wherein it is unnecessary to materially harden the product in the process of embossing the surface pattern.

It is a still further object of this invention to provide a floor-covering cushion which can be economically manufactured and which will eliminate to a great degree the problem of waste material or "seconds".

Further objects and advantages of this invention will become apparent from the following description taken in connection with the accompanying drawings and appended claims.

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In carrying out this invention in one form, there is provided a surface-covering cushion comprising a resilient base and a resilient layer adhesively secured to at least one surface of said base, said layer comprising portions of relatively lesser and greater resiliency, the areas of said greater resilient portions being substantially larger than the areas of said lesser resilient portions.

In accordance with a further embodiment of this invention there is provided a surface-covering cushion wherein the resilient layer is adhesively secured to both surfaces of the resilient base.

According to a still further embodiment of this invention there is provided a method of manufacturing a surface-covering cushion which comprises adhesively securing a resilient layer to at least one surface of a resilient base and applying a pattern to said layer, said pattern defining portions of relatively lesser and greater resiliency, the areas of said greater resilient portions being substantially larger than the areas of said lesser resilient portions.

For a more complete understanding of this invention, reference will be made to the accompanying drawings, wherein

Figure 1 is a fragmentary plan view of a surface-covering cushion formed in accordance with one embodiment of this invention;

Fig. 2 is a sectional view taken along line 2—2 of Fig. 1;

Fig. 3 is a sectional view taken along line 3—3 of Fig. 1;

Fig. 4 is a sectional view of a modified form of the invention showing the surface pattern on both surfaces of the cushion; and

Fig. 5 is a diagrammatic view of apparatus for forming the surface-covering cushion.

One embodiment of this invention is described in Figs. 1–3. The cushion **30** consists of a base **32** formed of felt which may consist of jute or hair fibers garneted and needled to make a felt product of a desired density. As will be hereinafter described, one surface of the bass **32** or both surfaces, as seen in Fig. 4, are coated with a cured sealing compound **33**, so that only the fibers of the base adjacent the coated surface thereof are impregnated with the compound **33** and thus substantially retaining the resilience of the base **32**. The compound **33** may be rubber latex, either natural or synthetic, or any rubbery

dispersion. "Neoprene," made by the Du Pont Company of Wilmington, Deleware, is one suitable compound.

In the manufacture of the cushion the felt base **32** is first passed through a die bath **34**, Fig. 5, whence it passes to surplus squeezing rollers **36** and a drying oven **38** containing a plurality of drying rollers **40**. There the felt base **32** is dried and moved on to a pair of rollers **42** where the sealing compound **33** is applied to both surfaces of the base.

Coating of the felt base **32** may be accomplished by any of various well-known methods such as spray coating or roll coating, the latter being shown in Fig. 5, or by a combination of the two methods.

After the compound **33** has been applied, the felt base **32** is passed between curing and embossing compression rollers **44** and **46**. As shown in Fig. 5, the embossing rollers are hollow in form and have their outer surfaces provided with a pair of cylindrical dies **48** whereby the surface pattern shown in Fig. 1 is embossed on both coated surfaces of the base **32**. The rollers **44** and **46** are provided with internal heating means, not shown, for curing the compound **33** simultaneously with the embossing of the cushion. The heating requirement of the rollers **44** and **46** will depend upon the type of compound and felt base used. Air may be blown through the rollers to aid in drying and curing the compound. In any event, apparatus should be used to effect complete curing of the compound on the base.

It should be noted that the apparatus shown in Fig. 5 may be modified, if it is desired, to apply the coating and embossment to only one surface of the felt base as shown in Figures 1–3. This may be accomplished, for example, by the elimination of one of the rollers **42** and by the elimination of one of the dies **48**.

Referring to Figs. 1–4, it will be noted that the central portion of the base **32** of the cushion is not penetrated by the coatings **33** on the surface of the cushion. Nevertheless the coatings **33** have sufficient thickness to be self-identifiable as a coherent resilient layer having integrally included therein the fibers lying on the surfaces only of the fiber base. The projections of the die or dies **48** project from the periphery of each roller a distance such that only the coating compound **33** on the surface of the base **32** is densified and cured thereby stiffening said compound and at the same time leaving the felt base comparatively unchanged and therefore substantially as resilient as before the coating and embossing operation.

It will also be observed, referring to Fig. 1, that the depressed or indented portions **52** of the pattern embossed on the coating **33** are substantially smaller in over-all area than the unindented portions **54**, and that the embossed pattern is applied to substantially the entire surface of the cushion. Thus the areas of the indented

portions **52**, which are necessarily hardened to a certain degree when formed, thereby reducing their resiliency, are substantially small in comparison with the unindented areas **54** which have a substantially greater degree of resiliency. As the unindented portions **54** are those which will normally be tread upon, the desired resilient qualities of the rug cushion are obtained.

While several embodiments are described above it will be understood, of course, that the invention is not to be limited thereto since many modifications may be made and it is contemplated, therefore, by the appended claims, to cover any such modifications as fall within the true spirit and scope of this invention.

I claim:

1. A floor-covering cushion comprising a loosely matted felted fiber resilient base having an outer surface thereof impregnated with a resilient material, said material comprising a configuration formed of a plurality of indented portions and a plurality of unindented portions, both said indented and unindented portions lying solely in a surface of said cushion, said indented portions being substantially narrow and said unindented portions being of substantially larger surface area than said indented portions, and said resilient material being cured as a continuous film of a resilient rubber composition having sufficient thickness to be self-identifiable as a coherent rubbery layer having integrally included therein the fibers lying on the surface only of said fiber base whereby said surface will retain its configuration having enhanced cushioning effect.

2. A floor-covering cushion comprising a loosely matted felted fiber resilient base having an outer surface thereof impregnated with a resilient material, said material comprising a configuration formed of a plurality of indented portions and a plurality of unindented portions, both said indented and unindented portions lying solely in a surface of said cushion, and said indented portions being interconnected and distributed over said surface and said unindented portions being of substantially larger surface area than said indented portions, said resilient material being cured as a continuous film of a resilient rubber composition having sufficient thickness to be self-identifiable as a coherent rubbery layer having integrally included therein the fibers lying on the surface only of said fiber base whereby said surface will retain its configuration having enhanced cushioning effect.

THEODORE HORWICH.

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