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H. W. SCHNABEL

3,147,575

FLOOR PAD

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FIG. 1

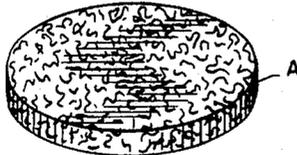


FIG. 2

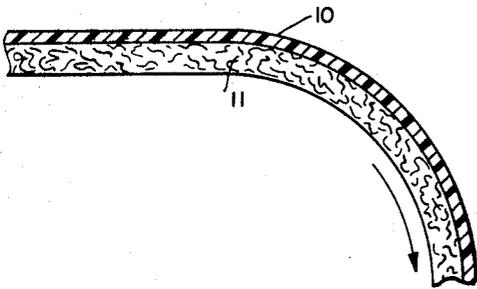


FIG. 3

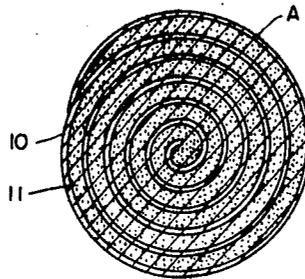
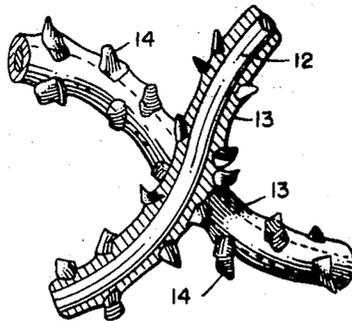


FIG. 4



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3,147,575
FLOOR PAD

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5 Claims. (Cl. 51-185)

This invention relates to a floor pad, and, more particularly, to an abrasive article or pad useful for cleaning wax-covered floors, etc., and to the method of forming.

In the use of abrasive pads, and particularly floor pads, as applied to waxed floors, it is found that the abrasive tends to powder the micro-crystalline waxes and the powder material interferes with effective cleaning. In order to have effective cleaning, it is important that some means be provided for brushing the powdered wax, dirt, etc., and to remove it during the cleaning operation.

A primary object, therefore, of the present invention is to provide a pad or abrasive structure which removes wax fragments and dirt during the operation of the abrasive carried by the pad. A further object is to provide effective means combined with an abrasive band or body for sweeping or brushing the dirt, powdered wax material, etc., and gathering such material so as to prevent its interference with the cutting action of the abrasive. A still further object is to provide a pad having scrubbing and stripping ability in combination with a brushing and collecting means. Other specific objects and advantages will appear as the specification proceeds.

The invention is illustrated, in an illustrative embodiment, by the accompanying drawing, in which—

FIG. 1 is a perspective view of a floor pad embodying my invention; FIG. 2, a broken sectional view, on an enlarged scale, of a portion of the pad in unwound position; FIG. 3, a top plan view of the pad; and FIG. 4, a greatly enlarged plan view of abrasive-coated fibers employed in the pad.

In one embodiment of my invention, a floor pad A is formed by providing an abrasive-equipped fiber layer 10 in combination with a rubberized fiber or hair layer 11. One or more layers of the abrasive-fiber material 10 is combined with one or more layers of the rubberized hair material 11 and the layers thus formed are wound upon themselves in a spiral fashion, as illustrated in FIG. 3, to form a roll. The roll may then be sliced to form the cylindrical thin floor pads A. In the specific illustration given, the band of united fibers 10 equipped with abrasive bits is laid upon a band of rubberized hair 11 and the two bands are rolled in jelly-roll fashion upon themselves to form the spiral roll shown best in FIG. 3. In the preferred practice, an elongated roll is formed in this manner and the roll is then sliced to provide the individual pads A.

The abrasive-equipped fiber band 10 may be formed in any suitable manner. I prefer to form such a band in the manner described in my copending application, Serial No. 154,703, filed November 24, 1961. As indicated in said application, short nylon fibers 12 are coated with an elastomeric material 13 such as natural rubber, butadiene-styrene dispersions, neoprene rubber dispersions, polyvinyl chloride, vinyl latex, and other elastomers or binders. To the elastomeric coating 13 is applied spaced

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abrasive bits of material or granules 14, such as, for example, silicon carbide, aluminum oxide, garnet, flint, emery, and pumice, in varying grit sizes. The fibers of nylon, or the like, preferably in lengths of about 1½" to 2", are united in a band by the elastomer coating, or by any suitable coating, and the abrasive grains are applied to the fibers. The band or web is then processed to bond the fibers together and to firmly unite the abrasive granules to the fibers, and for this purpose temperatures in the range of about 250-325° F. may be employed for a period up to about ten minutes, depending upon the binder material used.

The rubberized fiber layer 11 may be formed in any suitable manner, the fibers being united by latex or elastomers including natural rubber and synthetic rubber materials, or the like. I prefer to employ animal hairs which are united by rubber bonding material and which form a resilient, porous pad capable of collapsing and moving during the floor cleaning operation for sweeping and absorbing dirt and wax particles.

In the preferred practice, the floor pad A is secured upon the rotating head of a floor scrubbing machine and the pad is rotated upon its face against the wax-covered floor. With the convolutions formed as shown best in FIG. 3, the abrasive band tends to channel the powdered wax and dust toward the absorbent rubberized hair layer 11 and the hair layer 11, through its spiral convolutions, tends to sweep into its fiber spaces the removed wax and dirt particles and to sweep them away out of contact with the floor, thus allowing the cutting abrasive particles to continue their effective removal of dirt, etc., without hindrance. Thus, in the cleaning operation there is relative movement of the abrasive grains in their cutting action due to the elastomeric sheath 13 and relative movement of the rubberized individual hair or other fibers so that dirt and other particles can be constantly removed in a sweeping action and absorbed in the layer 11.

While, in the foregoing specification, I have set forth a specific structure and a method of forming the same in considerable detail for the purpose of illustrating embodiments of the invention, it will be understood that such detail or details may be varied widely by those skilled in the art without departing from the spirit of the invention.

I claim:

1. A floor pad adapted to be rotated against a surface to cut the surface with one portion of the pad, forming powder fragments, and with another portion of the pad to sweep and absorb said fragments, comprising a fiber band having an edge portion provided with abrasive granules, the band being in spiral form and the band portions being spaced from each other, and a non-cutting, porous, fibrous band extending between said cutting band portions to form the spiral counterpart thereof and to provide a pad surface in the shape of a helix.

2. The structure of claim 1 in which said non-cutting band is formed by rubberized hair.

3. A floor pad adapted to be rotated against a surface to cut the surface with one portion of the pad, forming powder fragments, and with another portion of the pad to sweep and absorb said fragments, comprising an unwoven porous band of fibers in the form of hair bonded with rubber, and a cutting band formed of short fibers bonded together and provided with abrasive granules, said cutting band and said band of rubberized hair being

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wound upon themselves in juxtaposition with the rubberized hair layer extending between said cutting band.

4. The structure of claim 3 in which said short fibers of the cutting band are nylon fibers sheathed in elastomer coatings by which the abrasive granules are anchored to the short fibers.

5. A floor pad adapted to be rotated against a waxed floor surface to cut the surface with one portion of the pad, forming powder fragments, and with another portion of the pad to sweep and absorb said fragments, comprising a fiber band having an edge portion provided with abrasive granules, the band being in spiral form with the portions thereof spaced from each other, and a non-

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cutting, unwoven, fibrous band wider than said cutting band and extending between said cutting band portions to form the spiral counterpart thereof and to provide a pad surface in the shape of a helix.

References Cited in the file of this patent

UNITED STATES PATENTS

1,636,196	Robbins -----	July 19, 1927
2,284,738	Hurst -----	June 2, 1942
2,958,593	Hoover et al. -----	Nov. 1, 1960
3,016,294	Haywood -----	Jan. 9, 1962
3,020,139	Camp et al. -----	Feb. 6, 1962