(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) Publication number: **0 325 040 A1**

(12) EUROPEAN PATENT APPLICATION

(21) Application number: 88311775.6

(51) Int. Cl.[4]: **A47G 27/04 , A47G 27/02**

(22) Date of filing: **13.12.88**

(30) Priority: **20.01.88 US 146080**

(43) Date of publication of application:
26.07.89 Bulletin 89/30

(84) Designated Contracting States:
AT BE CH DE ES FR GB GR IT LI LU NL SE

(71) Applicant: **MILLIKEN RESEARCH CORPORATION**
Iron Ore Road P.O. Box 1927
Spartanburg South Carolina 29304(US)

(72) Inventor: **Kerr, Robert Charles**
328 E. McLinden Circle LaGrange
Troop County Georgia 30240(US)
Inventor: **Murray, John Hunter**
16 Longleaf Drive LaGrange
Troop County Georgia 30240(US)

(74) Representative: **Pacitti, Pierpaolo A.M.E. et al**
Murgitroyd and Company Mitchell House 333 Bath Street
Glasgow G2 4ER Scotland(GB)

(54) Two piece dust control mat.

(57) A two-piece dust control mat (10) having an upper pile fabric portion (12) and a lower rubber-like base portion (14). The under surface of the upper portion and the upper surface of the lower portion are treated to increase the friction resistance therebetween and in the preferred form the treatment consists of providing interlocking cleat members (22;24).

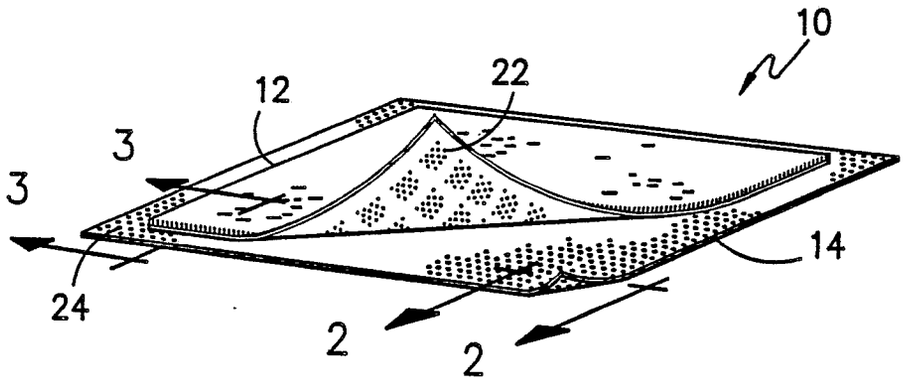

FIG. — 1 —

EP 0 325 040 A1

TWO PIECE DUST CONTROL MAT

This invention relates generally to rubber-backed dust control floor mats of the type which have a pile surface on one side and a rubber or rubber-like material on the other side. Mats of this type are generally used in access ways where people tend to brush or scrape their feet in order to prevent carrying of moisture and/or dirt, accumulated on their footwear, into other areas of the premises. Normally these mats are located in areas of high pedestrian traffic, such as doorways.

The rubber-backed dust control mat, historically, has been an integrated structure in which the rubber-like backing has been laminated and/or molded to the undersurface of the pile fabric to provide a unitary structure. This provides a strong mat with a long service life but has the disadvantage that the weight and volume of the rubber backing material requires a large washing capacity and at the same time exposes the rubber material to high heat every time the mat is washed and dried. This high heat has a deleterious effect on the rubber-like material over a period of time resulting in a shorter service life.

It is therefore an object of the invention to provide a two-piece dust control mat which reduces the required washing load for dust control mats and eliminates the drying of the foundation rubber-like backing material.

Other objects and advantages of the invention will become readily apparent as the specification proceeds to describe the invention with reference to the accompanying drawing, in which:

Figure 1 shows an interconnected two piece dust control mat;

Figure 2 is section view of the rubber-like backing strip used in Figure 1 and

Figure 3 is a sectional view taken on line 3-3 of Figure 1.

Looking now to the drawings and especially Figure 1 there is shown a dust control mat 10 consisting basically of a pile fabric 12 and a rubber-like base mat 14 on which the fabric 12 is placed. To prevent slippage between the mat 12 and the base 14 the upper surface of the base 14 and the lower surface of the mat 12 is treated to increase the friction resistance therebetween.

In the preferred form of the invention the pile fabric 12 consists of pile yarns 16 of cotton, nylon, etc. tufted through a woven or nonwoven substrate 18 of suitable material. To provide a friction resistant bottom a thin rubber-like material 20 is molded or otherwise secured to the bottom of the fabric 12 and has a plurality of cleats 22 formed therein in any suitable design to interlock with the cleats 24 on the upper surface of the rubber-like base mat 14. This material is about 50% less than that in the backing of a unitary mat.

The base mat or strip 14 of rubber or other suitable material has cleats 24 on the upper surface thereof for reasons previously ser forth. The mat 14 also has cleats 28 on the bottom thereof in any suitable pattern which, like cleats 22, act as friction resistant elements to resist creeping to minimize movement of the carpets on the surface on which it is placed.

Currently, as mentioned above, the dust control mat 10 is made as a unit and is as such provided to rental laundries. The rental laundries rent the mats 10 to a user of a period basis of a week, month, etc. Then the rental laundry picks up the mat, replaces it with a clean mat and takes the soiled mat back for cleaning. Since the rubber-like backing material is fairly thick and heavy only a preselected number of mats can be washed and dried at one time. This process is slow due to the small number of mats that can be processed at one time and has a harsh, deleterious effect on the rubber-like material due to repeated washing and drying of same.

The herein-described mat 10 eliminates several of these disadvantages. The rental laundry now can place base mat 14 in situ at its customer's location and merely remove and replace the pile fabric 12. The cleats 22 on the bottom of pile fabric 12 allow it to be placed in a fixed position of the rubber-like base 14 by interengagement with the cleats 24 on the upper surface thereof. Thus, when the pile fabric 12 becomes soiled it can be removed from the base 14 and replaced by a clean pile fabric. Then, it is obvious that it is easier to wash and dry only the pile fabric 12 than the unitary dust control mat. Furthermore, the consumption of energy is less since there is less material to wash and dry. During the removal, replacement and washing of the pile fabric the base rubber-like material remains in situ at the customer's location with its lower cleats engaging the surface on which it has been placed.

As pointed out before, the lower surface of the pile fabric 12 and the upper surface of the base mat 14 are treated to increase the friction resistance so that one will not slide relative to another and remain in interengagement. In the preferred form of the invention this treatment involves the formation of cleats therein but other methods may be employed. For example, the undersurface of the fabric 12 could be coated with latex, foamed latex, a rubber/vinyl material, foamed rubber, hot melts, etc., while the rubber-like mat 14 surface could be

coated like above, embossed or textured to provide a cooperating surface. Other combinations are possible so long as the mating surfaces are treated to provide a releasable engaging connection between the pile fabric 12 and rubber-like base mat 14.

It can readily be seen that a dust control mat has been described which provides the efficiency of that which is currently being used but allows savings in replacement time, washing, reduction in energy cost and increases the service life of the rubber component of the mat resulting in reduced capital investment.

Although the preferred embodiment of the invention has been described, it is contemplated that many changes may be made without departing from the scope or spirit of the invention and it is desired that the claims be limited only by the claims.

Claims

1. The method of providing clean dust control mats comprising the steps of: laying down a rubber-like base mat having an upper friction resistant surface, providing a pile fabric with a friction resistant surface on the bottom thereof, placing the pile fabric into engagement with the rubber-like base mat by mating the friction resistant surface of the pile fabric and the base mat and removing the pile fabric from the base mat when it becomes soiled and replacing it with another pile fabric having a friction resistant surface which mates with the friction resistant surface of the base mat.

2. A dust control mat comprising: a rubber-like base mat material having its upper surface treated to have a higher coefficient of friction than an untreated surface and a pile fabric on top of and engaging the upper surface of said rubber-like base mat, said pile fabric having its under surface engaging the upper surface of said mat and being treated to increase its surface coefficient of friction to provide a nonsliding engagement between said pile fabric and said rubber-like base mat.

3. The mat of Claim 2 wherein said pile fabric is mounted centrally of said base mat and is of such a size that it does not extend outwardly to the edges of said base mat.

4. The mat of Claim 2 wherein said pile fabric includes a substrate with yarns tufted therein and extending upwardly away from the under surface thereof.

5. The mat of Claim 4 wherein the treated surface of said pile fabric is a thin layer of rubber-like material molded thereon.

6. The mat of Claim 5 wherein said thin layer of rubber-like material has a plurality of cleats connected thereto.

7. The mat of Claim 5 wherein said pile fabric is mounted centrally of said base mat and is of such a size that it does extend outwardly to the edge of said base mat.

8. The mat of Claim 7 wherein cleats are formed on the under surface of said rubber-like base mat to and in the prevention of slippage of said mat to provide skid resistance thereto.

9. The mat of Claim 2 wherein cleats are formed on the under surface of said rubber-like base mat to and in the prevention of slippage of said mat to provide skid resistance thereto.

10. A two piece dust control mat comprising: a rubber-like base mat having cleats on one surface projecting upwardly therefrom and a pile fabric located substantially centrally of said base mat and having cleats projecting downward therefrom mating with the cleats on said base mat.

11. The mat of Claim 10 wherein said base mat has cleats on the other side of said mat to provide skid resistance to said mat.

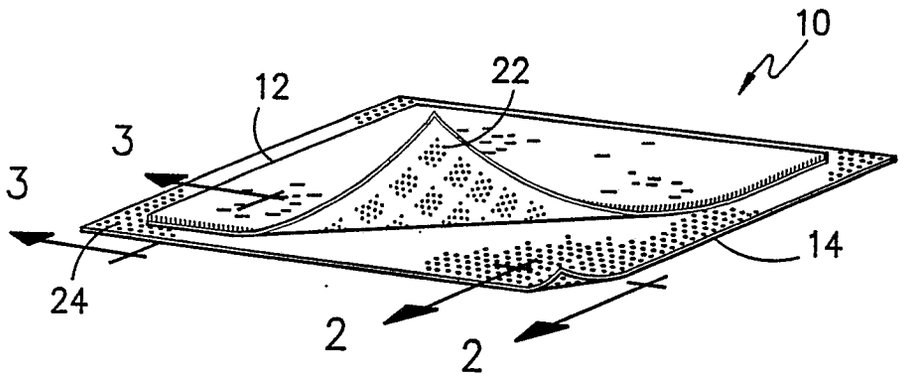

FIG. — 1 —

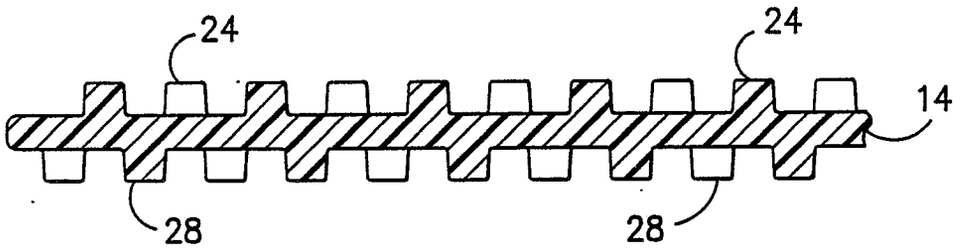

FIG. — 2 —

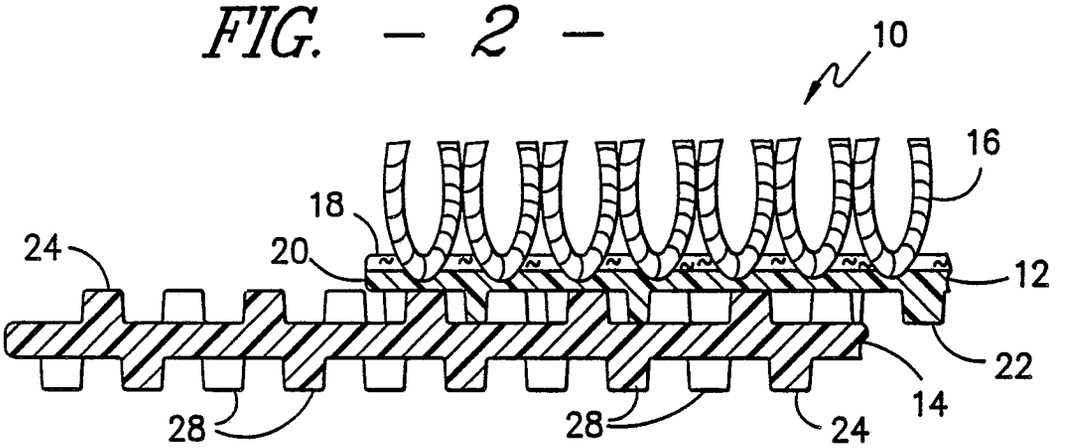

FIG. — 3 —

European Patent Office

EUROPEAN SEARCH REPORT

Application Number

EP 88 31 1775

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.4)
X	DE-A-2601712 (HEINRICH BECK)	1	A47G27/04
A	* page 6, line 2 - line 9 *	2-5, 10	A47G27/02
X	DE-C-427909 (KOSSACK)	2	
A	* the whole document *	7-11	
Y	FR-A-981094 (HALLGREN)	2, 10	
A	* claim 5; figures 2, 4, 5 *	6, 8, 9, 11	
Y	US-A-4479280 (YAMAZAKI ET AL.)	2, 10	
A	* figure 5 *	1, 3-5	
A	DE-U-8620256 (TASIBEL) * claims 1, 2; figures 1, 2 *	2, 4-6, 8-11	
A	US-A-2763587 (MASLAND)		
A	US-A-2065450 (GORDON)		

TECHNICAL FIELDS SEARCHED (Int. Cl.4)

A47G

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	10 APRIL 1989	BEUGELING G.L.H.

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
Y : particularly relevant if combined with another document of the same category
A : technological background
O : non-written disclosure
P : intermediate document

T : theory or principle underlying the invention
E : earlier patent document, but published on, or after the filing date
D : document cited in the application
L : document cited for other reasons

& : member of the same patent family, corresponding document

EPO FORM 1503 03.82 (P0401)