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H. ARENSEN

3,328,065

DOOR STOP

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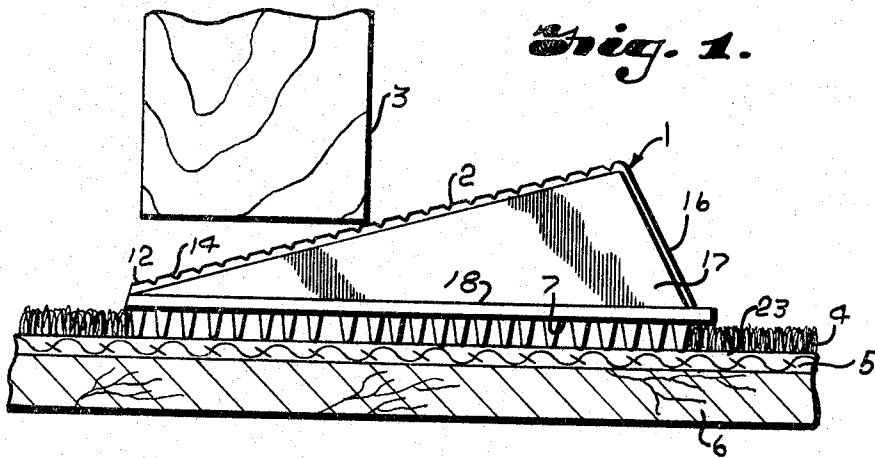


Fig. 2.

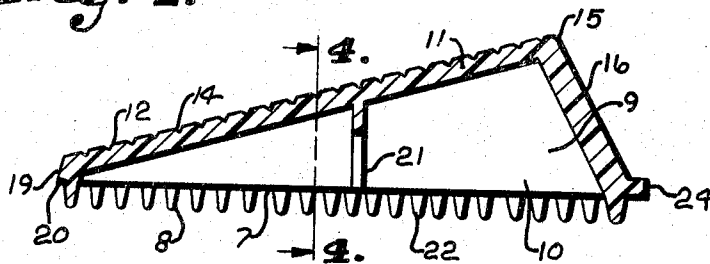


Fig. 3.

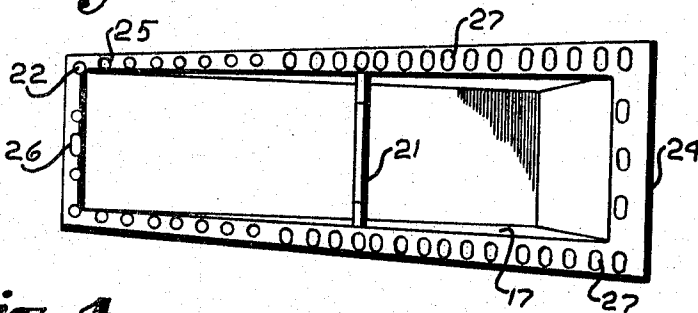
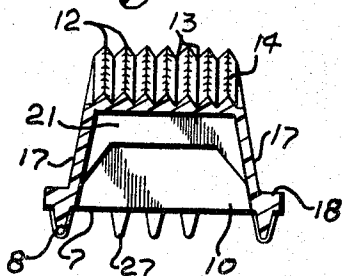


Fig. 4.



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1

3,328,065
DOOR STOP

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ABSTRACT OF THE DISCLOSURE

This invention is in an abutment member for use on pile surfaced floor covering such as carpets, rugs, or the like whereby when positioned thereon to be engaged by a door or other article movable thereover the abutment member forms a stop for such movable door or article, the abutment member having a hollow interior for lightness in weight and conservation of material. The abutment member has lower surfaces provided with a plurality of downwardly extending rigid projections which are adapted to divide and pass between fibers of the pile surface and bear with load transferring engagement upon the weave or woven backing of the floor covering and when so positioned present an upwardly inclined upper surface adapted to be engaged by a door or the like whereby the force therefrom exerted on the inclined surfaces transmitted through the projections to the backing of the floor covering, the projections providing the support for the abutment also eliminates the forming of large depressed area of pile fibers and damage to the fibers by forces that would be exerted by a door acting upon a conventional door stop having the flat bottom surface engaged with the pile fibers.

It is common practice to place stop members with wedge-shaped feet on floor surfaces in the path of movement of a door and presenting an inclined face toward the door to be engaged thereby so that said inclined face will resist further movement of the door. Also, wedge-shaped members made of rubber or other resilient material have been used as door stops, and such stops have smooth bottom faces positioned on a smooth floor to resist sliding movement of the wedge-shaped member on such floors. However, when such members have been used on pile surface floor covering and the like, engagement by the door will cause said member to move over the surface and not hold the door or the wedge-shaped member must be held and the door wedged upwardly thereon with such great force as to cause the pile fibers to be matted down or crushed so that when the door stop is moved there are unsightly depressions or spots visible that detract from the appearance. Also, the engagement of the flat bottom surface of the wedge-shaped members with the fibers of the floor covering may exert a lateral force on the pile fibers, tending to weaken or break same, resulting in damage to the covering.

The principal objects of the present invention are to provide an abutment member adapted to be positioned on pile surface floor covering and be engaged by a door or other article movable thereover to form a stop therefor that eliminates the forming of large depressed areas of pile fibers and damage to the fibers by forces exerted by the article or door; to provide such an abutment member with a plurality of spaced floor covering engaging portions depending therefrom and an upwardly inclined upper surface adapted to be engaged by a door or the like whereby the force therefrom exerted on the inclined surface is transmitted through the pile covering engaging portions to the backing of the pile surface floor covering; to provide such a structure where-

2

in the abutment member has a hollow interior opening at the bottom and defined by downwardly facing marginal portions with a plurality of downwardly extending rigid projections on such undersurface which are adapted to divide and pass between the fibers of the pile surface and bear with load-transferring engagement upon the weave or woven backing of the floor covering; to provide such a structure wherein the projections are substantially the height of the pile surface whereby the walls of the wedge-shaped body are supported above the top of the pile surface; and to provide a door stop or the like forming an abutment member for doors or articles movable over pile surface floor coverings that is economical to manufacture, durable in use, providing adequate load distribution with a minimum of depression and wear of pile fibers of pile surfaced floor coverings.

Other objects and advantages of this invention will become apparent from the following description taken in connection with the accompanying drawings wherein are set forth by way of illustration and example certain embodiments of this invention.

FIG. 1 is a side elevation of an abutment member positioned under a door and resting on a pile-surfaced floor covering.

FIG. 2 is a longitudinal sectional view through the abutment member taken on the line 2-2, FIG. 3.

FIG. 3 is a bottom view of the abutment member.

FIG. 4 is a transverse sectional view through the abutment member taken on the line 4-4, FIG. 2.

Referring more in detail to the drawings:

The abutment member, as illustrated in the drawings, comprises a body member 1 having an upper inclined surface 2 adapted to be engaged by an article such as a door 3 movable above a pile surface of a floor covering 5 covering a floor 6. The body member has a bottom surface 7 provided with a plurality of spaced rigid depending projections 8. In the illustrated structure, the abutment member is preferably moldable as one piece of substantially rigid material such as high impact styrene, polyethylene or the like. For lightness in weight and economy of manufacture, it is preferred that the structure be substantially hollow, having an interior cavity 9 open at the bottom as at 10.

The structure illustrated has a long inclined top front wall 11 preferably on an angle of approximately 20 degrees with the horizontal and having the upper surface 2 thereon. It is preferred that the surface 2 be of a relatively non-skid type provided with grooves or serrations which, in the illustrated structure, consists of alternate ridges 12 and grooves 13 extending longitudinally of the body with each of the ridges having a plurality of spaced transverse grooves 14 as illustrated. At the uppermost end 15 of the inclined wall 11, it merges with a downwardly sloping rear wall 16. The sides of the cavity are closed by opposed side walls 17 that are connected to the wall 11 and rear wall 16. It is preferred that the side walls 17 be inclined slightly whereby they diverge downwardly and the side walls 17 and rear wall 16 merge at their lower portions in an outwardly extending peripheral bottom flange 18 which presents the bottom surface 7 from which the projections 8 depend. Also, at the forward end 19 the wall 11 terminates in a bottom surface portion 20 that is part of the bottom surface 7. For adding rigidity and strength, it is preferred that a suitable rib 21 extend transversely midway between the ends of the body and connecting the side walls 17 and the inclined wall 11.

It is preferred that the projections 8 have a suitable length that semi-spherical or rounded tips 22 engage the upper face of the woven backing 23 of the floor covering 5 and support the body member 1 wherein the

3

underface 7 is slightly above the pile surface 4. The tips 22 of the projections must be small enough to divide and pass between the pile fibers without tending to tuck the fibers beneath the pile surface and the tips must not be so small or pointed that they will harmfully penetrate the woven backing 23 under the force resulting from the article 3 engaging the surface 2. Also, the spacing of the projections is such that they prevent the pile fibers from becoming wedged between the projections and being pressed below the pile surface.

It is preferred that the width of the flange 18 extending outwardly from the side and rear walls be progressively increasing from the forward end 19 to the rear end 24 with the rearward width of the surface being substantially the same as the width at the lower end of the rear wall 16, as illustrated in FIG. 3. It is also preferred that the projections 8 vary in shape as, for example, the projections 25 on the forward third of the bottom surface are preferably circular in cross-section and taper downwardly to the respective rounded end 22 whereby said projections are generally base up cones. One projection 26 at the forward end is also tapered but is of greater width and substantially corresponding to the projections 27 in the rear two-thirds of the bottom surface wherein the projections are tapered but generally oval in cross-section and have their greatest width extending transversely of the body. The tips 22 of all of the projections preferably lie substantially in a common plane so that the bottom surface 7 of the body will be substantially horizontal or parallel with the floor surface. It is also preferred that the inclined surface 2 be in the nature of 1-inch in width and that the projections have a spacing of approximately $\frac{3}{16}$ -inch.

In using an abutment member constructed substantially as illustrated and described, the body member 1 is placed with the projections downwardly on a pile surface floor covering 5 in the path of movement of a door or article 3 with the inclined surface 2 generally facing the direction from which the door or article will move. The body member is then pressed downwardly whereby the projections 8 part and extend between the pile fibers and engage the woven backing 23. The door or article 3 is then swung or moved whereby it engages the inclined surface 2 and is forced thereagainst to apply pressure to hold the body member 1 downwardly and maintain the engagement of the rounded ends 22 of the projections 8 with the woven backing 23. The projections support the load with the body member above the pile surface 4, and there are suitable elongated bearing areas in the projections 27, together with the points of the projections 25 engaging the woven backing of the floor covering to resist any sliding either longitudinally or transversely relative to the body member whereby

4

the abutment member forms an effective stop for the door or article 3.

It is to be understood that while I have illustrated and described one form of my invention, it is not to be limited to the specific form or arrangement of parts herein described and shown except insofar as such limitations are included in the claims.

What I claim and desire to secure by Letters Patent is:

1. A door stop adapted to be interposed between a door bottom edge and a floor covering having a woven backing with a pile fiber surface to limit movement of said door in one direction comprising,
 - (a) an elongate body portion with an inclined top front wall terminating in a downwardly extending rear wall and opposed side walls connected to the top front and rear wall, said top front wall having a forward end,
 - (b) said side and rear walls being of increased width at lower portions thereof,
 - (c) said side walls and rear wall and the forward end of the top front wall having coplanar bottom surfaces,
 - (d) and a plurality of spaced rounded tipped rigid projections depending from said bottom surfaces of each of said walls and adapted to separate and pass between the pile fibers of the floor covering and engage the woven backing to support the body member above the pile fibers of the floor covering and transmit forces to the woven backing in response to engagement of a door with said inclined top front surface.
2. A door stop as set forth in claim 1 wherein said stop is a one-piece molded member, and the bottom surfaces are progressively wider from front to rear of the body, said projection tapering downwardly from said bottom surfaces with the projections depending from the bottom surfaces of the rear wall and adjacent portions of the side walls being generally oval in cross section with the greatest width thereof transversely relative to said side walls.

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