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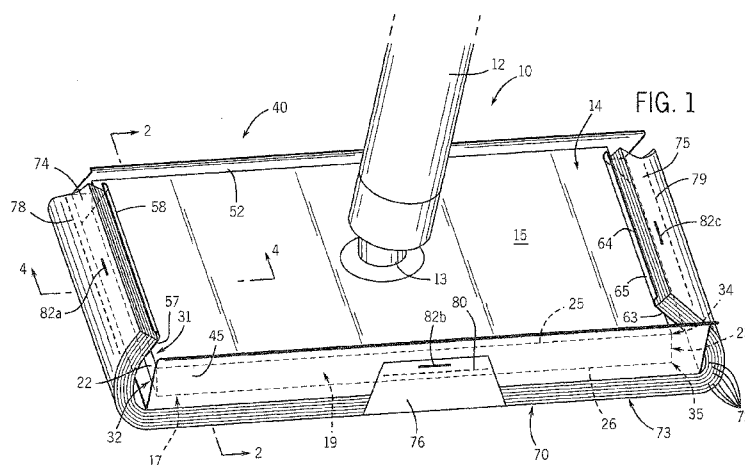
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(54) Title: ATTACHMENT WITH PEELABLE SHEETS FOR A CLEANING IMPLEMENT



(57) Abstract: An attachment for a cleaning implement having a support, such as a mop head, is disclosed. The attachment includes a base, a first wall extending away from a first end of the base, and a second wall extending away from a second end of the base. The second end of the base is opposite the first end of the base. At least a portion of the first wall is inclined toward a center of the base, and at least a portion of the second wall is inclined toward the center of the base. The attachment includes a stack of sheets wherein each sheet can be individually peeled from the stack of sheets. The attachment can be removably secured to the mop head by pressing the mop head onto the base.



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Attachment With Peelable Sheets For A Cleaning Implement

CROSS-REFERENCES TO RELATED APPLICATIONS

[0001] This application claims priority from U.S. Patent Application No. 61/669,542 filed July 9, 2012.

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STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH

[0002] Not Applicable.

BACKGROUND OF THE INVENTION

1. Field of the Invention

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[0003] This invention relates to an attachment for a cleaning implement having a support such as a mop head. The attachment can be removably secured to the support, and includes a stack of cleaning sheets. Each cleaning sheet can be individually peeled from the stack of sheets.

2. Description of the Related Art

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[0004] One type of available cleaning implement for cleaning hard surfaces such as floors includes a handle connected to a mop head that engages a disposable cleaning sheet. To clean a floor, a cleaning sheet can be secured to the mop head. The cleaning sheet is brought into contact with floor and moved along the floor surface in horizontal directions. Debris from the floor surface is entrained within cavities in the cleaning sheet. Finer particulate material can become entrapped in pores between the fibers of the cleaning sheet. After use, the cleaning sheet may be removed from the mop head for disposal or cleaning prior to reuse of the sheet.

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[0005] This type of cleaning implement is typically configured in a single size for wet mopping or dry mopping. Depending on whether wet mopping or dry mopping is desired, a user is required to own separate mops for wet mopping and dry mopping. Likewise, if different size mop heads are desired, a user is required to own mops of different sizes that can be used with different sizes of cleaning sheets.

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[0006] What is needed therefore is an attachment for a cleaning implement that allows a user to avoid purchasing separate cleaning implements for wet mopping and dry mopping and that allows a user to avoid purchasing separate cleaning implements for cleaning with different sizes of cleaning sheets.

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SUMMARY OF THE INVENTION

[0007] The foregoing needs can be met with a cleaning implement attachment according to the invention that provides a method to attach a stack of peelable cleaning sheets to a support of the cleaning implement. In one non-limiting example form, the support is a mop head. In another non-limiting example form, the support is a handle of a hand held cleaning implement.

[0008] Various mop heads that are in the marketplace can work with this universal attachment method. It is the utilization of either the common length and/or width of the available mop heads, plus the thickness of the mop head that facilitates securing the attachment to the mop heads. The attachment can be made from extruded or injection-molded plastic, or from folded-and-glued chipboard, or molded or cut dense foam material, or cut/converted dense foam materials. The unique profile of the attachment facilitates a mechanical one-piece over-center snap-fit retention. Simply pressing the mop head into the attachment is enough to secure the attachment to the mop head. It is the attachment upon which cleaning sheets are affixed; this eliminates any need for using the mop head itself to attach the stack of peelable sheets. The cleaning sheets can be fastened to the attachment in a number of ways that are friendly and cost-effective to manufacturing, e.g., staples, stitching, gluing, rivets, grommets, needle punching, double-sided tape, thermal welding, sonic welding, hook-loop fasteners, adhesives and mechanical clips (like a binder clip), or a molded-in feature (retention clip or button-cap which is a post-in-hole) to name a few non-limiting examples. The cleaning sheets can have perforations at their ends to facilitate tearing of one cleaning sheet to the next, whether the cleaning sheets are a stack of dry dusting non-wovens or film-fabric laminate stacks.

[0009] Therefore, in one aspect, the invention provides an attachment for a cleaning implement having a support. The attachment includes a base; a first wall extending away from a first end of the base, wherein at least a portion of the first wall is inclined so as to deviate inward toward a center of the base from a first vertical plane to the first end of the base; a second wall extending away from a second end of the base, wherein the second end of the base is opposite the first end of the base, and wherein at least a portion of the second wall is inclined so as to deviate inward

toward the center of the base from a second vertical plane to the second end of the base; and a stack of sheets. At least one of the sheets is releasably affixed to the attachment. The attachment can be removably secured to the support by engaging the first wall and the second wall with the support. In one form of the stack of sheets, each sheet can be individually peeled from the stack of sheets.

[0010] In one form of the attachment, the first wall terminates in a first end section that curves away from the center of the base, and the second wall terminates in a second end section that curves away from the center of the base.

[0011] In another form of the attachment, the first wall includes a first curved ridge that faces toward the center of the base, and the second wall includes a second curved ridge that faces toward the center of the base, and the first curved ridge and the second curved ridge are positioned above a top surface of the support when the attachment is secured to the support.

[0012] In another form of the attachment, the first wall has a greater length than the second wall.

[0013] In another form of the attachment, the first wall has a greater length than a leading edge of the support.

[0014] In another form of the attachment, the base is trapezoidal.

[0015] In another form of the attachment, the attachment includes a third wall extending away from a third end of the base, wherein at least a portion of the third wall is inclined so as to deviate inward toward the center of the base from a third vertical plane to the third end of the base; and a fourth wall extending away from a fourth end of the base; wherein the fourth end of the base is opposite the third end of the base, and wherein at least a portion of the fourth wall is inclined so as to deviate inward toward the center of the base from a fourth vertical plane to the fourth end of the base. At least one of the sheets is releasably affixed to the third wall and the fourth wall.

[0016] In another form of the attachment, the support engages the third wall and the fourth wall when the attachment is secured to the support.

[0017] In another form of the attachment, the third wall terminates in a third end section that curves away from the center of the base, and the fourth wall terminates in a fourth end section that curves away from the center of the base.

5 [0018] In another form of the attachment, the third wall includes a third curved ridge that faces toward the center of the base, and the fourth wall includes a fourth curved ridge that faces toward the center of the base, and the third curved ridge and the fourth curved ridge are positioned above a top surface of the support when the attachment is secured to the support.

10 [0019] In another form of the attachment, each of the sheets includes a main body and a pair of tabs, and the main body is separated from each of the tabs by a perforation.

[0020] In another form of the attachment, one of the tabs of each sheet is attached to the first wall, and the other of the tabs of each sheet is attached to the second wall.

15 [0021] In another form of the attachment, one of the tabs of each sheet is attached to the third wall, and the other of the tabs of each sheet is attached to the fourth wall.

[0022] In another form of the attachment, each sheet includes a fluid impermeable layer and a surface treatment layer.

20 [0023] In another form of the attachment, the attachment includes a third wall having an inner surface spaced inward from a third end of the base; and a fourth wall having an inner surface spaced inward from a fourth end of the base, and the support engages the inner surface of the third wall and the inner surface of the fourth wall when the attachment is secured to the support.

25 [0024] In another form of the attachment, the stack of sheets includes a tab connected to the stack of sheets. The tab includes a hole for receiving a hook such that the stack of sheets can be hung from the hook.

30 [0025] In another form of the attachment, the attachment includes a third wall extending away from a third end of the base, and a fourth wall extending away from a fourth end of the base wherein the fourth end of the base is opposite the third end of

the base. The support is trapezoidal, and the support engages the third wall and the fourth wall when the attachment is secured to the support.

[0026] In another aspect, the invention provides a method for cleaning a hard surface. In the method, a cleaning implement having a support is used. The method also uses an attachment comprising (i) a base, (ii) a first wall extending away from a first end of the base, wherein at least a portion of the first wall is inclined so as to deviate inward toward a center of the base from a first vertical plane to the first end of the base, (iii) a second wall extending away from a second end of the base, wherein the second end of the base is opposite the first end of the base, and wherein at least a portion of the second wall is inclined so as to deviate inward toward the center of the base from a second vertical plane to the second end of the base, and (iv) a stack of sheets, wherein at least one of the sheets is releasably affixed to the attachment. The support is pressed against the first wall and the second wall so as to flex the first wall and the second wall outward from the center of the base. The first wall and the second wall are then allowed to flex inward toward the center of the base thereby engaging the support. The support is then moved over the hard surface with at least one of the sheets in contact with the hard surface.

[0027] In one version of the method, the sheet that was in contact with the hard surface is removed from the stack of sheets.

[0028] In another version of the method, the sheet that was in contact with the hard surface is removed from the stack of sheets, and the support is then moved over the hard surface with at least one of the remaining sheets in contact with the hard surface.

[0029] These and other features, aspects, and advantages of the present invention will become better understood upon consideration of the following detailed description and drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0030] Figure 1 is a perspective view of an attachment with peelable sheets according to one example embodiment of the invention, wherein the attachment is secured to a cleaning implement having a handle and a mop head.

[0031] Figure 2 is a cross-sectional view of the attachment and cleaning implement of Figure 1 taken along lines 2-2 of Figure 1.

[0032] Figure 3 is a cross-sectional view, similar to Figure 2, of the attachment of Figure 1 in the process of being secured to cleaning implement.

5 [0033] Figure 4 is a partial cross-sectional view of the attachment and cleaning implement of Figure 1 taken along lines 4-4 of Figure 1.

[0034] Figure 5 is a cross-sectional view, similar to Figure 2, of another attachment with peelable sheets according to another example embodiment of the invention.

10 [0035] Figure 6 is an exploded perspective view of an attachment with peelable sheets according to another example embodiment of the invention, wherein the attachment is secured to a cleaning implement having a handle and a trapezoidal mop head.

[0036] Figure 7 is a bottom view of the attachment of Figure 6.

15 [0037] Figure 8 is an exploded perspective view of the attachment of Figure 6, wherein the attachment is secured to a cleaning implement having a handle and a rectangular mop head.

[0038] Figure 9 is a bottom view of the attachment of Figure 8.

20 [0039] Figure 10 is a perspective view of an attachment with peelable sheets according to yet another example embodiment of the invention.

[0040] Figure 11 is a perspective view of an attachment according to still another example embodiment of the invention.

[0041] Like reference numerals will be used to refer to like parts from Figure to Figure in the following description of the drawings.

25 DETAILED DESCRIPTION OF THE INVENTION

[0042] Various embodiments of the invention will now be described with reference to the Figures. The embodiments are shown and described for the purposes of illustration and are not intended to limit the invention in any way. One non-limiting example embodiment of the invention described below provides an attachment for a
30 mop head wherein the attachment includes a stack of peelable cleaning sheets. However, more generally, the invention provides an attachment for a support of a

cleaning implement, wherein the support is adapted to receive the attachment with the stack of cleaning sheets. In an alternative non-limiting example embodiment, the support can be the handle of a hand held cleaning implement. Such a handle can take many forms, including a block of material.

5 **[0043]** Referring now to Figures 1-4, a cleaning implement 10 has a handle 12 and a joint 13 connecting the mop head 14 to the handle 12. The mop head 14 has a generally rectangular top surface 15 and a generally rectangular bottom surface 17. The top surface 15 and the bottom surface 17 are joined by a first side surface 19, a second side surface 20, a third side surface 22, and a fourth side surface 23. A first upper edge 25 is formed at a junction of the top surface 15 and the first side surface 19, and a first lower edge 26 is formed at a junction of the bottom surface 17 and the first side surface 19. A second upper edge 28 is formed at a junction of the top surface 15 and the second side surface 20, and a second lower edge 29 is formed at a junction of the bottom surface 17 and the second side surface 20. A third upper edge 31 is formed at a junction of the top surface 15 and the third side surface 22, and a third lower edge 32 is formed at a junction of the bottom surface 17 and the third side surface 22. A fourth upper edge 34 is formed at a junction of the top surface 15 and the fourth side surface 23, and a fourth lower edge 35 is formed at a junction of the bottom surface 17 and the fourth side surface 23. In an alternative embodiment of the mop head 14, the top surface 15 and the bottom surface 17 can meet at a single edge at each of the four sides of the mop head 14. In addition, any of the top surface 15, the first side surface 19, the second side surface 20, the third side surface 22, and the fourth side surface 23 can have a surface topography other than the flat surfaces shown in the example embodiment of Figures 1-4. In one non-limiting example orientation of the mop head 14 in use, the first upper edge 25 and the first lower edge 26 are leading edges, and the second upper edge 28 and the second lower edge 29 are trailing edges.

20 **[0044]** Still looking at Figures 1-4, an attachment 40 is shown. The attachment 40 is preferably molded from a polymeric material such as polyethylene or
25 polypropylene. The attachment 40 has a generally rectangular flat base 42.

[0045] In the attachment 40, a curved first lower corner 44 joins an upwardly extending first wall 45 to the base 42. The first wall 45 is inclined so as to deviate inward toward the center of the base 42 from a vertical plane V to the edge of the base 42. The first wall 45 is also inclined so as to deviate upward from the base 42. The first wall 45 terminates at its upper end in a first curved upper end section 46 that curves outward from the base 42 so as to create a first ridge 47 facing inward toward the center of the base 42. In one non-limiting example orientation of the mop head 14 in use, the first wall 45 is a leading wall.

[0046] In the attachment 40, a curved second lower corner 51 joins an upwardly extending second wall 52 to the base 42. The second wall 52 is inclined so as to deviate inward toward the center of the base 42 from a vertical plane V to the edge of the base 42. The second wall 52 is also inclined so as to deviate upward from the base 42. The second wall 52 terminates at its upper end in a second curved upper end section 53 that curves outward from the base 42 so as to create a second ridge 54 facing inward toward the center of the base 42. In one non-limiting example orientation of the mop head 14 in use, the second wall 52 is a trailing wall.

[0047] In the attachment 40, a curved third lower corner 56 joins an upwardly extending third wall 57 to the base 42. The third wall 57 is inclined so as to deviate inward toward the center of the base 42 from a vertical plane to the edge of the base 42. The third wall 57 is also inclined so as to deviate upward from the base 42. The third wall 57 terminates at its upper end in a third curved upper end section 58 that curves outward from the base 42 so as to create a third ridge 59 facing inward toward the center of the base 42.

[0048] In the attachment 40, a curved fourth lower corner (not shown) joins an upwardly extending fourth wall 63 to the base 42. The fourth wall 63 is inclined so as to deviate inward toward the center of the base 42 from a vertical plane to the edge of the base 42. The fourth wall 63 is also inclined so as to deviate upward from the base 42. The fourth wall 63 terminates at its upper end in a fourth curved upper end section 64 that curves outward from the base 42 so as to create a fourth ridge 65 facing inward toward the center of the base 42.

[0049] The first wall 45, the second wall 52, the third wall 57, and the fourth wall 63 of the base 42 can flex toward and away from the center of the base 42. This allows the attachment 40 to be secured to the mop head 14 of the cleaning implement 10 as explained below. In the non-limiting example embodiment of Figures 1-4, the first wall 45 and the second wall 52 are of equal length and the third wall 57 and the fourth wall 63 are of equal length, with the first wall 45 and the second wall 52 being longer than the third wall 57 and the fourth wall 63. However, the first wall 45 and the second wall 52 do not have to be of equal length, and the third wall 57 and the fourth wall 63 do not have to be of equal length.

[0050] The attachment 40 includes a stack 70 of cleaning sheets 72 arranged below the base 42. Each cleaning sheet 72 of the stack 70 has a generally rectangular main body 73, a generally trapezoidal first end flap 74, a generally trapezoidal second end flap 75, a generally trapezoidal first forward flap 76. In one embodiment of the cleaning sheet 72, a first line of perforations 78 forms a boundary between the main body 73 and the first end flap 74, a second line of perforations 79 forms a boundary between the main body 73 and the second end flap 75, and a third line of perforations 80 forms a boundary between the main body 73 and the first forward flap 76. Of course, the cleaning sheet 72 can be any suitable shape and need not be substantially rectangular. The cleaning sheet 72 is preferably similar or complimentary in shape to the base 42 of the attachment 40 and/or the mop head 14. Therefore, if the base 42 of the attachment 40 or the mop head 14 is generally rectangular, as shown in Figures 1-5, the main body 73 of each cleaning sheet 72 is also preferably generally rectangular. In addition, the size and shape of the first end flap 74, the second end flap 75, and the first forward flap 76 may be varied as needed to effectively attach the cleaning sheets 72 to the attachment 40.

Alternatively, the first end flap 74, the second end flap 75, and the first forward flap 76 may be omitted entirely such that each cleaning sheet 72 consists of only a main body 73.

[0051] The first line of perforations 78, the second line of perforations 79, and the third line of perforations 80 comprise a plurality of slits formed in a line. The perforations can be formed using a die which punches the slits of each perforation.

The first line of perforations 78, the second line of perforations 79, and the third line of perforations 80 are formed in such a way as to allow a user to easily separate the main body 73 of each cleaning sheet 72 from the first end flap 74, the second end flap 75 and the first forward flap 76, but to prevent the sheets 72 from becoming detached unintentionally.

[0052] In one example embodiment, all of the sheets 72 are affixed at each end of and one side of the attachment 40 via mechanical fasteners, such as staples 82a, 82b, 82c. As shown in Figure 1, a staple 82a affixes the first end flaps 74 of the sheets 72 to the third wall 57, a staple 82b affixes the first flaps 76 of the sheets 72 to the first wall 45, and a staple 82c affixes the second end flaps 75 of the sheets 72 to the fourth wall 63. Alternatively, an innermost sheet may be affixed to the first wall 45, the third wall 57, and the fourth wall 63 by way of staples or adhesive, and each of the remaining sheets of the stack 70 (i.e., the sheets not including the innermost sheet) may be adhered, for example with adhesive, to the flap of the next adjacent sheet 72 to form the stack 70. Alternatively, an innermost sheet may be affixed to the first wall 45, the third wall 57, and the fourth wall 63 by way of staples or adhesive, and each of the remaining sheets of the stack 70 (i.e., the sheets not including the innermost sheet) may be adhered, for example by sonic welding or heat sealing, to the flap of the next adjacent sheet 72 to form the stack 70.

[0053] The sheets 72 can be removed from the stack 70 by tearing each sheet along the first line of perforations 78, the second line of perforations 79, and the third line of perforations 80. In an alternative embodiment, the first line of perforations 78, the second line of perforations 79, and the third line of perforations 80 are not present in the sheets 72 and each of the sheets 72 can be torn off the staples 82a, 82b, 82c to remove a sheet 72 from the stack 70. If the sheets 72 are adhered by adhesive, sonic welding or heat sealing, it is possible to tear each of the sheets 72 off to remove a sheet 72 from the stack 70.

[0054] In the embodiment of Figures 1-4, the first end flap 74, the second end flap 75 and the first forward flap 76 are used to secure the stack 70 of cleaning sheets 72 to the attachment 40. However, the stack 70 of cleaning sheets 72 can be secured to the attachment 40 by way of opposed flaps only affixed to the first wall 45 and the

second wall 52, or only affixed to the third wall 57 and the fourth wall 63, or affixed to all of the first wall 45, the second wall 52, the third wall 57, and the fourth wall 63. If opposed flaps of the stack 70 of cleaning sheets 72 are only affixed to the first wall 45 and the second wall 52, edge wicking of liquids would be minimized if wet mopping.

[0055] The cleaning sheets 72 can comprise, for example, materials such as those described in PCT Patent Application Publication No. WO 02/00819. The cleaning sheet material may be either woven or nonwoven, and may be non-absorbent for use as a dust cleaning material, or absorbent for use with a wet cleaning agent. The cleaning sheet material may be of any suitable thickness. The cleaning sheet material can also provide a treating function. For example, the cleaning sheets 72 can be impregnated with a cleaning fluid and/or polish to treat a floor. Furthermore, various sections of the cleaning sheets 72 can comprise different types of material.

[0056] The cleaning sheets 72 can include two or more layers of the same or different material. For example, the cleaning sheets 72 can comprise a first layer and a liquid-impenetrable backing layer. The first layer of each of the cleaning sheets 72 is arranged in the stack 70 so as to contact the surface that is to be cleaned, and the backing layer of each of the cleaning sheets 72 is arranged in the stack 70 to be furthest from the surface that is to be cleaned. The liquid-impenetrable backing layer prevents dirt and fluid from penetrating to adjacent cleaning sheets 72 in the stack 70. One or more middle layers can also be positioned between the first layer and the backing layer. The use of a liquid-impenetrable backing layer in each of the cleaning sheets 72 also allows for a stack 70 of cleaning sheets 72 in which dry sheets are alternated with sheets impregnated with a liquid cleaning fluid. The liquid-impenetrable backing layer of each of the cleaning sheets 72 prevents the cleaning fluid from the impregnated sheets from penetrating to adjacent dry cleaning sheets 72 in the stack 70.

[0057] One example embodiment of the cleaning sheets 72 comprises a nonwoven, fibrous, synthetic material, such as polyethylene, polypropylene, nylon, or polyester. The cleaning sheets 72 may effectively be made of synthetic fibers,

natural fibers, or a combination thereof, and may be either woven or nonwoven depending on the desired characteristics of the cleaning sheets 72. If a liquid-impenetrable backing layer is used in a multilayer sheet, the backing layer can comprise a thin sheet or film of plastic, such as a polyolefin (e.g., polyethylene) or various other known polymeric materials.

[0058] Having described the components of one example embodiment of an attachment with peelable cleaning sheets for a cleaning implement as shown in Figures 1-4, an example use of a cleaning implement including the attachment 40 can be further described. When the mop head 14 of the cleaning implement 10 is a wet mopping cleaning implement and a user desires to use a dry mopping implement, an attachment 40 having dry cleaning sheets 72 can eliminate the need to purchase an additional dry mopping cleaning implement. Likewise, when the mop head 14 of the cleaning implement 10 is a dry mopping cleaning implement and a user desires to use a wet mopping implement, an attachment 40 with liquid impregnated cleaning sheets 72 can eliminate the need to purchase an additional wet mopping cleaning implement.

[0059] Looking at Figure 3, a user positions attachment 40 on the floor with the stack 70 of cleaning sheets 72 contacting the floor so that the inner surface 43 of the base 42 of the attachment 40 opposite the stack 70 of cleaning sheets 72 faces up. The first side surface 19, the second side surface 20, the third side surface 22 and the fourth side surface 23 of the mop head 14 are generally aligned with the first ridge 47, the second ridge 54, the third ridge 59, and the fourth ridge 65 of the attachment 40, and the mop head 14 is moved downward in direction D as shown in Figure 3. The first lower edge 26 and the second lower edge 29 then contact the first ridge 47 and the second ridge 54 respectively so as to flex the first wall 45 and the second wall 52 outwardly in directions S1 and S2 in Figure 3. Similarly, the third lower edge 32 and the fourth lower edge 35 contact the third ridge 59 and the fourth ridge 65 respectively so as to flex the third wall 57 and the fourth wall 63 outwardly.

[0060] With continued movement in direction D as shown in Figure 3, the first upper edge 25, the second upper edge 28, the third upper edge 31 and the fourth upper edge 34 of the mop head 14 will be positioned below the first ridge 47, the

second ridge 54, the third ridge 59 and the fourth ridge 65 respectively such that the first wall 45 and the second wall 52 flex inwardly in directions opposite to directions S1 and S2 in Figure 3 and the third wall 57 and the fourth wall 63 flex inwardly in a similar fashion. This causes the attachment 40 to engage the mop head 14 as shown in Figure 2 with the first upper edge 25, the second upper edge 28, the third upper edge 31 and the fourth upper edge 34 of the mop head 14 engaging the inner surfaces of the first wall 45, the second wall 52, the third wall 57 and the fourth wall 63 respectively below the first ridge 47, the second ridge 54, the third ridge 59 and the fourth ridge 65 of the attachment 40.

[0061] It can be appreciated that perfectly aligning the first side surface 19, the second side surface 20, the third side surface 22 and the fourth side surface 23 of the mop head 14 with the first ridge 47, the second ridge 54, the third ridge 59, and the fourth ridge 65 of the attachment 40 may be difficult. However, the first curved upper end section 46 of the first wall 45, the second curved upper end section 53 of the second wall 52, the third curved upper end section 58 of the third wall 57, and the fourth curved upper end section 64 of the fourth wall 63 guide the first lower edge 26, the second lower edge 29, the third lower edge 32 and the fourth lower edge 35 of the mop head 14 into contact with the first ridge 47, the second ridge 54, the third ridge 59 and the fourth ridge 65 of the attachment 40 respectively. While the first side surface 19, the second side surface 20, the third side surface 22 and the fourth side surface 23 of the mop head 14 have been described as playing a role in retention of the attachment 40 on the mop head 14, only a minimum of two opposed surfaces (the first side surface 19 and the second side surface 20, or the third side surface 22 and the fourth side surface 23) are required.

[0062] To remove the mop head 14 from the attachment 40, the user holds down the attachment 40 and pulls up on the mop head 14 by way of handle 12 in a direction opposite to direction D in Figure 3. This causes the first wall 45 and the second wall 52 to flex outwardly in directions S1 and S2 in Figure 3 and the third wall 57 and the fourth wall 63 to flex outwardly in a similar fashion. The mop head 14 can then be pulled away from the attachment 40.

[0063] Turning now to Figure 5, another example attachment 140 can be made from folded-and-glued chipboard. The attachment 140 has a generally rectangular flat base 142. A curved first lower corner 144 joins an upwardly extending first wall 145 to the base 142. The first wall 145 is inclined so as to deviate inward toward the center of the base 142 from a vertical plane to the edge of the base 142. The first wall 145 terminates at its upper end in a first curved upper end section 146 that curves outward from the base 142 so as to create a first ridge 147 facing inward toward the center of the base 142. In one non-limiting example orientation of the mop head 14 in use, the first wall 145 is a leading wall. A curved second lower corner 151 joins an upwardly extending second wall 152 to the base 142. The second wall 152 is inclined so as to deviate inward toward the center of the base 142 from a vertical plane to the edge of the base 142. The second wall 152 terminates at its upper end in a second curved upper end section 153 that curves outward from the base 142 so as to create a second ridge 154 facing inward toward the center of the base 142. In one non-limiting example orientation of the mop head 14 in use, the second wall 152 is a trailing wall.

[0064] Still looking at Figure 5, a user positions attachment 140 on the floor with the stack 70 of cleaning sheets 72 contacting the floor so that the inner surface 143 of the base 142 of the attachment 140 opposite the stack 70 of cleaning sheets 72 faces up. The first lower edge 26 and the second lower edge 29 of the mop head 14 then contact the first ridge 147 and the second ridge 154 respectively so as to flex the first wall 145 and the second wall 152 outwardly (see directions S1 and S2 in Figure 3). With continued movement (see direction D as shown in Figure 3), the first upper edge 25 and the second upper edge 28 of the mop head 14 will be positioned below the first ridge 147 and the second ridge 154 respectively such that the first wall 145 and the second wall 152 flex inwardly. This causes the attachment 140 to engage the mop head 14 as shown in Figure 5 with the first upper edge 125 and the second upper edge 128 engaging the inner surfaces of the first wall 145 and the second wall 52 of the attachment 140. To remove the mop head 14 from the attachment 140, the user holds down the attachment 140 and pulls up on the mop head 14 by way of handle 12 in a direction (opposite to direction D in Figure 3). This

causes the first wall 145 and the second wall 152 to flex outwardly. The mop head 14 can then be pulled away from the attachment 140.

[0065] Referring now to Figures 6 and 7, there is shown another embodiment of an attachment 240 including a stack 270 of cleaning sheets 272. In Figure 6, there is shown a cleaning implement 210 that has a handle 212 and a universal joint 213 connecting a mop head 214 to the handle 212. The mop head 214 has a generally trapezoidal top surface 215 and a generally trapezoidal bottom surface 217. The top surface 215 and the bottom surface 217 are joined by a first side surface 219, a second side surface 220, a third side surface 222, and a fourth side surface 223. In one non-limiting example orientation of the mop head 214 in use, the first side surface 219 defines a leading edge, and the second side surface 220 defines a trailing edge. In one non-limiting example form, the first side surface 219 has a length of about fifteen inches and the distance from the first side surface 219 to the second side surface 220 is about 4.5 inches.

[0066] The attachment 240 includes a base 242, a first wall 245, a second wall 252, a third wall 257 and a fourth wall 263. The base 242 has a trapezoidal shape, and the first wall 245 is longer than the second wall 252. The third wall 257 has a first inner surface 258 that is generally parallel to a left edge 244 of the base 242. The fourth wall 263 has a first inner surface 264 that is generally parallel to a right edge 245 of the base 242. The attachment 240 has a leading surface 246 and a trailing surface 247.

[0067] The stack 270 of cleaning sheets 272 can comprise the same materials as the stack 70 of cleaning sheets 72 described above. In one example embodiment, all of the sheets 272 are affixed at the first wall 245 and the second wall 252 of the attachment 240 via mechanical fasteners, such as staples 282 that secure flaps 276, 277 of the sheets 272 to the first wall 245 and the second wall 252 respectively. The sheets 272 can be removed from the stack 270 by tearing each sheet along lines of perforations as in removing a sheet 72 from the stack 70 described above. It should be noted in Figure 1 the left and right edges of the sheets 72 are wrapped and stapled, whereas just the leading and trailing edges of the sheets 272 are stapled in Figure 6. Also, in Figures 2 and 3, the sheets 72 wrap upward at the opposed left

and right edges, whereas in Figure 6 the sheets 72 do not turn upward, as edge protection can be provided via an edge sealant. Thus, there are at least two ways for providing sheet edge-protection.

5 **[0068]** The attachment 240 can be secured to the mop head 214 by movement of the mop head 214 in direction D shown in Figure 6. The third side surface 222 of the mop head 214 engages the first inner surface 258 of the third wall 257 of the attachment 240 via a bayonet snap. Likewise, the fourth side surface 223 of the mop head 214 engages the first inner surface 264 of the fourth wall 263 of the attachment 240 via a bayonet snap. The attachment 240 can be injection-molded out of a single
10 piece of polymeric material, such as polyethylene or polypropylene.

15 **[0069]** Referring now to Figures 8 and 9, there is shown a cleaning implement 310 that has a handle 312 and a universal joint 313 connecting a mop head 314 to the handle 312. The mop head 314 has a generally rectangular top surface 315 and a generally rectangular bottom surface 317. The top surface 315 and the bottom
20 surface 317 are joined by a first side surface 319, a second side surface 320, a third side surface 322, and a fourth side surface 323. In one non-limiting example orientation of the mop head 314 in use, the first side surface 319 defines a leading edge, and the second side surface 320 defines a trailing edge. In one non-limiting example form, the first side surface 319 has a length of about ten inches and the
25 distance from the first side surface 319 to the second side surface 320 is about 4.5 inches.

30 **[0070]** The attachment 240 can be secured to the mop head 314 in the manner described with reference to Figure 3 above. By movement of the mop head 314 in direction E shown in Figure 8, the attachment 240 engages the mop head 314 with the first side surface 319 of the mop head 314 engaging the first wall 245 of the attachment 240, and the second wall 252 of the mop head 314 engaging the second wall 252 of the attachment 240.

35 **[0071]** It can be appreciated from Figures 8 and 9 that both the left edge 244 of the base 242 and the right edge 245 of the base 242 of the attachment 240 are spaced outward from the third side surface 322 and fourth side surface 323 of the mop head 314. By providing the attachment 240 with the peelable sheets having a

body of the same size as the base 242, the attachment 240 creates a larger cleaning sheet surface than would be provided by the mop head 314 alone. In addition, the longer leading surface 246 creates a longer leading edge of the cleaning sheet which provides for an increased mopping area.

5 **[0072]** Comparing the attachment 240 of Figures 6-9 to the attachment 40 of Figures 1-4, it can be seen that the attachment 240 uses leading wall and trailing wall retention whereas the attachment 40 uses leading wall, trailing wall, edge wall and edge wall retention.

10 **[0073]** Referring now to Figure 10, there is shown an attachment 440 that can be secured to the bottom surface 17 of the mop head 14, or the bottom surface 217 of the mop head 214, or the bottom surface 317 of the mop head 314, or the bottom surface of attachment 540 that is described below. The attachment 440 includes a stack 470 of cleaning sheets 472 that can comprise the same materials as the stack 70 of cleaning sheets 72 described above. In one non-limiting example form, an
15 outer layer 473 of the attachment 440 can be constructed to form a first part of a hook and loop attachment system (such as that commonly sold under the name Velcro™). The bottom surface 17 of the mop head 14, or the bottom surface 217 of the mop head 214, or the bottom surface 317 of the mop head 314, or the bottom surface of attachment 540 can form the second part of the hook and loop attachment
20 system. The attachment 440 includes a pivoting tab 474 with a hole 475 that allows the attachment 440 to be hung from a hook. The outer layer 473 of the attachment 440 may include information graphics such as directions for use of the attachment 440. The graphics can also be provided on each sheet 472 providing graphics between each sheet layer.

25 **[0074]** The stack 470 provides easy-to-peel-away dusting/mopping cleaning sheets 472 that are removed individually. This keeps a supply of cleaning sheets 472 at hand for the consumer, thus reducing cleaning steps. The outer layer 473 forming a first part of a hook and loop attachment system provides an easy to attach/detach stack 470, that is, a quick one-step interface with the mop head
30 forming the second part of a hook and loop attachment system. The cleaning sheets 472 can gather/collect debris as the sheet material is engineered for excellent dry

pick-up. The cleaning sheets 472 are wettable, i.e., the outer layer of each sheet can get wet while the other layers stay dry. The cleaning sheets 472 are gentle as they comprise a soft material that cleans without scratching the floor. An edge sealant can provide stack protection by keeping the entire stack 470, including the edges, from getting dirty during use. The cleaning sheets 472 are environmentally responsible in that the material disposal/creation strategy creates a less wasteful product (post consumer content, compostable, biodegradable, etc.) The attachment 440 is hangable for easy storage.

[0075] The stack 470 of cleaning sheets 472 is attached to the mop head 14, 214, 314, or the bottom surface of attachment 540, and individual sheets 472 can be removed without removing the whole stack 470. The stack 470 of floor cleaning sheets 472 can be used for dry and wet cleaning. The stack 470 is attached to the mop head 14, 214, 314, or the bottom surface of attachment 540, and remains on the mop head 14, 214, 314 until all cleaning sheets 472 are used. After each use, the consumer can remove the cleaning sheet 472 without removing the stack 470 from the mop head 14, 214, 314, or the bottom surface of attachment 540. The cleaning sheets 472 can be made of a non-woven material with a laminate on the back of each cleaning sheet 472 to be used as a moisture barrier. This prevents the cleaning sheets 472 that are not being used from getting wet. In one non-limiting form, each stack 470 contains between 10 and 20 cleaning sheets 472.

[0076] The front and trailing edges (long sides) of the peel stack 470 will be bonded together. Each sheet 472 may be perforated so the user can peel off each sheet 472. The perforations may likely be 0.25" to 0.5" from the end of the bonded edges on both sides of the stack 470. The front and trailing bonded edges of the stack 470 may be to the front and trailing sides of the attachment 540. This will allow for use on multiple mops. This also lifts the bonded edges of the stack 470 off the floor so they do not interfere with cleaning.

[0077] Referring now to Figure 11, there is shown another embodiment of an attachment 540 that may include the stack 470 of cleaning sheets 472 (not shown in Figure 11). The stack 470 of cleaning sheets 472 may be attached to the bottom surface 541 of attachment 540 by gluing or any other suitable method such as

staples, stitching, rivets, double-sided tape, thermal welding, sonic welding, hook-loop fasteners, adhesives and mechanical clips. The attachment 540 includes a base 542, a first wall 545 and a second wall 552. The base 542 has a trapezoidal shape, and the first wall 545 is longer than the second wall 552.

5 **[0078]** In one non-limiting example orientation, the attachment 540 has a leading edge 561, a trailing edge 562, and side edges 563, 564. In one non-limiting example form, the leading edge 561 has a length of about fifteen inches and the distance from the trailing edge 562 to the trailing edge 562 is about 4.5 inches.

10 **[0079]** The attachment 540 can be secured to a mop head by movement of a mop head in direction D as shown in Figure 6. A front side surface of the mop head engages the first wall 545 of the attachment 540. Likewise, the opposed rear side surface of the mop head engages the second wall 552. The attachment 540 can be injection-molded out of a single piece of polymeric material, such as polyethylene or polypropylene.

15 **[0080]** Although the present invention has been described in detail with reference to certain embodiments, one skilled in the art will appreciate that the present invention can be practiced by other than the described embodiments, which have been presented for purposes of illustration and not of limitation. Therefore, the scope of the invention should not be limited to the description of the embodiments
20 contained herein.

INDUSTRIAL APPLICABILITY

[0081] The present invention provides a cleaning implement attachment that provides a method to attach a stack of peelable sheets to the mop head of a cleaning implement.

25 **[0082]** All documents cited in the Detailed Description of the Invention are, in relevant part, incorporated herein by reference; the citation of any document is not to be construed as an admission that it is prior art with respect to the present invention.

CLAIMS

What is claimed is:

1. An attachment for a cleaning implement having a support, the attachment comprising:
 - a base;
 - a first wall extending away from a first end of the base, at least a portion of the first wall being inclined so as to deviate inward toward a center of the base from a first vertical plane to the first end of the base;
 - a second wall extending away from a second end of the base, the second end of the base being opposite the first end of the base, at least a portion of the second wall being inclined so as to deviate inward toward the center of the base from a second vertical plane to the second end of the base; and
 - a stack of sheets, at least one of the sheets being releasably affixed to the attachment,wherein the attachment can be removably secured to the support by engaging the first wall and the second wall with the support.
2. The attachment of claim 1 wherein:
 - the first wall terminates in a first end section that curves away from the center of the base, and
 - the second wall terminates in a second end section that curves away from the center of the base.

3. The attachment of claim 1 wherein:
the first wall includes a first curved ridge that faces toward the center of the base, and
the second wall includes a second curved ridge that faces toward the center of the base, and
the first curved ridge and the second curved ridge are positioned above a top surface of the support when the attachment is secured to the support.
4. The attachment of claim 1 wherein:
the first wall has a greater length than the second wall.
5. The attachment of claim 1 wherein:
the first wall has a greater length than a leading edge of the support.
6. The attachment of claim 1 wherein:
the base is trapezoidal.
7. The attachment of claim 1 further comprising:
a third wall extending away from a third end of the base, at least a portion of the third wall being inclined so as to deviate inward toward the center of the base from a third vertical plane to the third end of the base; and
a fourth wall extending away from a fourth end of the base, the fourth end of the base being opposite the third end of the base, at least a portion of the fourth wall being inclined so as to deviate inward toward the center of the base from a fourth vertical plane to the fourth end of the base,
wherein at least one of the sheets is releasably affixed to the third wall and the fourth wall.
8. The attachment of claim 7 wherein:
the support engages the third wall and the fourth wall when the attachment is secured to the support.

9. The attachment of claim 7 wherein:
the third wall terminates in a third end section that curves away from the center of the base, and
the fourth wall terminates in a fourth end section that curves away from the center of the base.

10. The attachment of claim 7 wherein:
the third wall includes a third curved ridge that faces toward the center of the base, and
the fourth wall includes a fourth curved ridge that faces toward the center of the base, and
the third curved ridge and the fourth curved ridge are positioned above a top surface of the support when the attachment is secured to the support.

11. The attachment of claim 7 wherein:
each of the sheets includes a main body and a pair of tabs, the main body being separated from each of the tabs by a perforation.

12. The attachment of claim 11 wherein:
one of the tabs of each sheet is attached to the first wall, and
the other of the tabs of each sheet is attached to the second wall.

13. The attachment of claim 11 wherein:
one of the tabs of each sheet is attached to the third wall, and
the other of the tabs of each sheet is attached to the fourth wall.

14. The attachment of claim 1 wherein:
each sheet includes a fluid impermeable layer and a surface treatment layer.

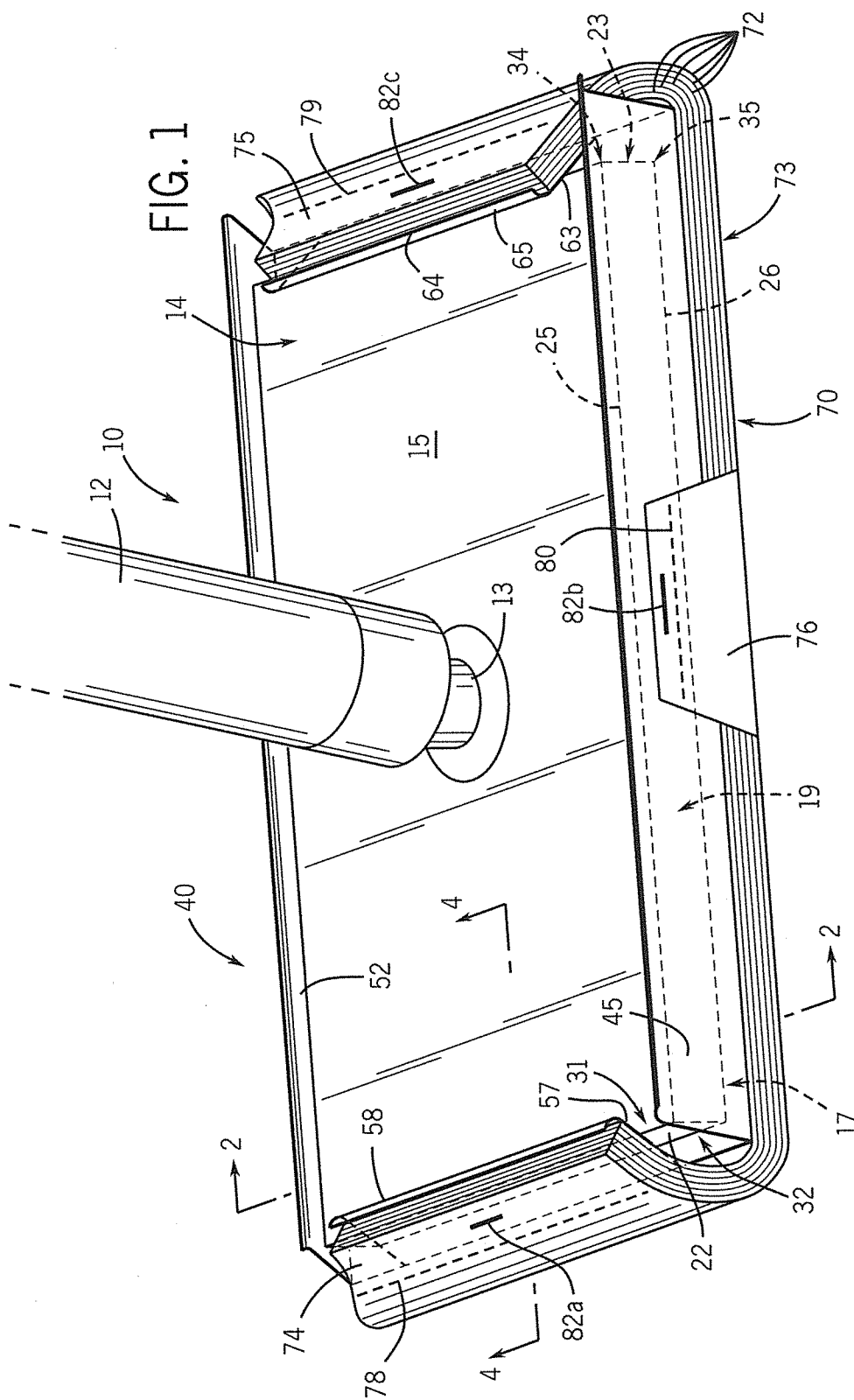
15. The attachment of claim 1 further comprising:
a third wall having an inner surface spaced inward from a third end of the base; and
a fourth wall having an inner surface spaced inward from a fourth end of the base
the support engages the inner surface of the third wall and the inner surface of the fourth wall when the attachment is secured to the support.

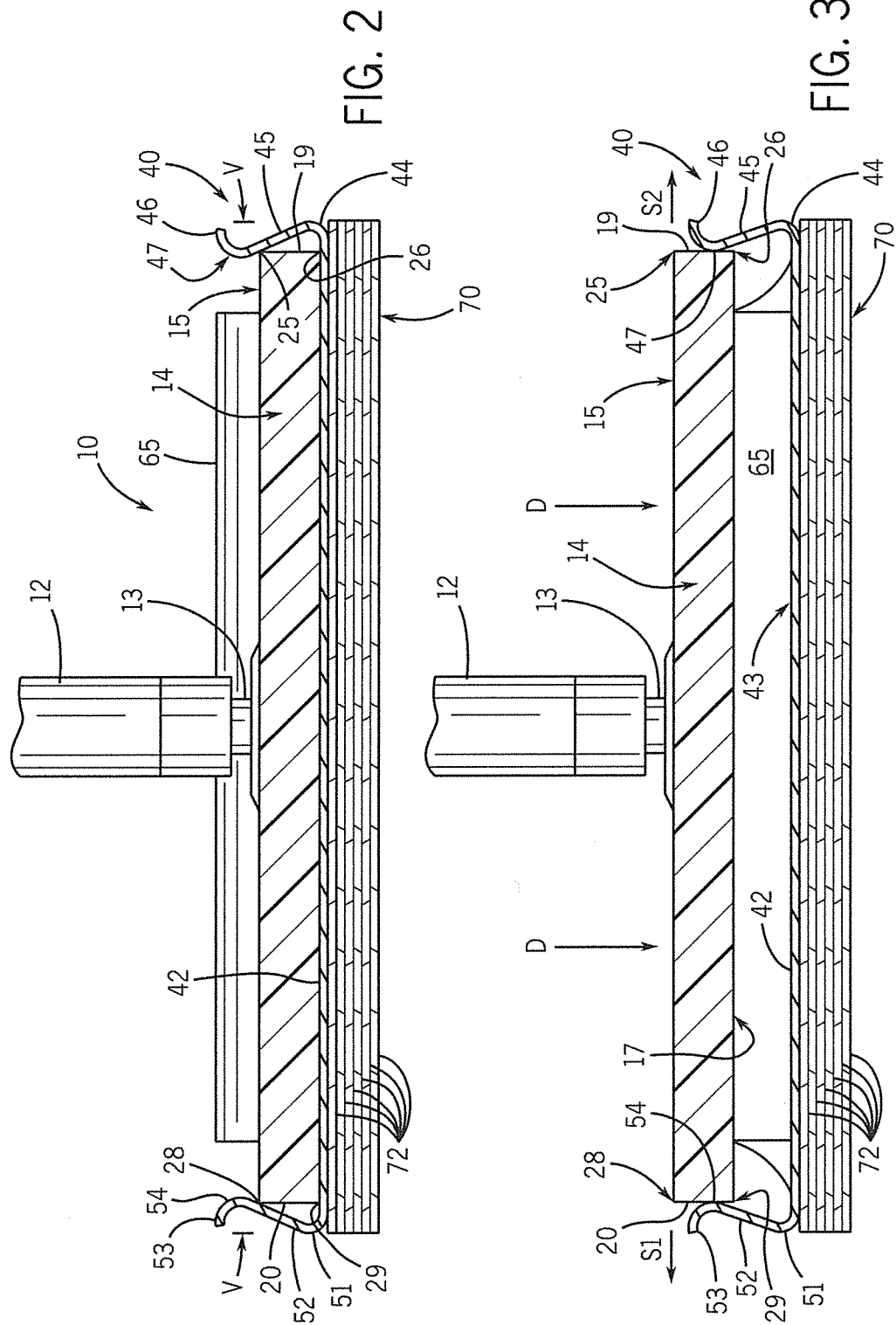
16. The attachment of claim 1 further comprising:
a tab connected to the stack of sheets, the tab including a hole for receiving a hook.

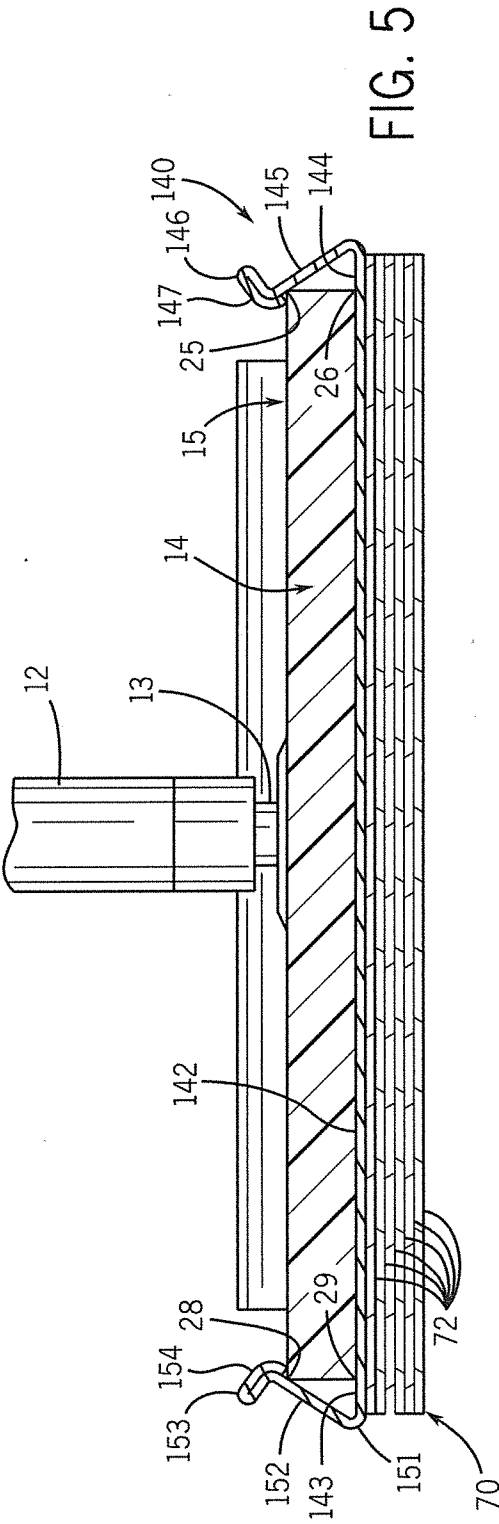
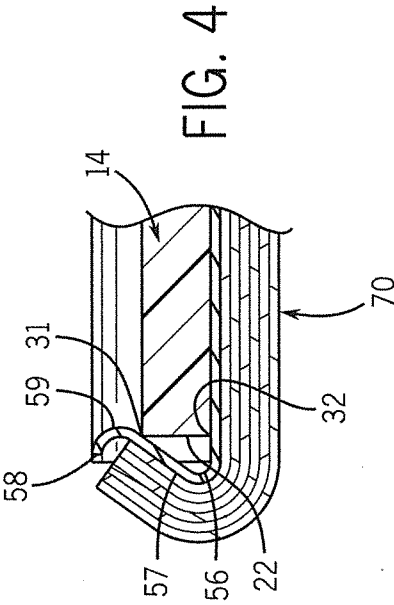
17. The attachment of claim 1 further comprising:
a third wall extending away from a third end of the base; and
a fourth wall extending away from a fourth end of the base, the fourth end of the base being opposite the third end of the base,
wherein the support is trapezoidal, and
wherein the support engages the third wall and the fourth wall when the attachment is secured to the support.

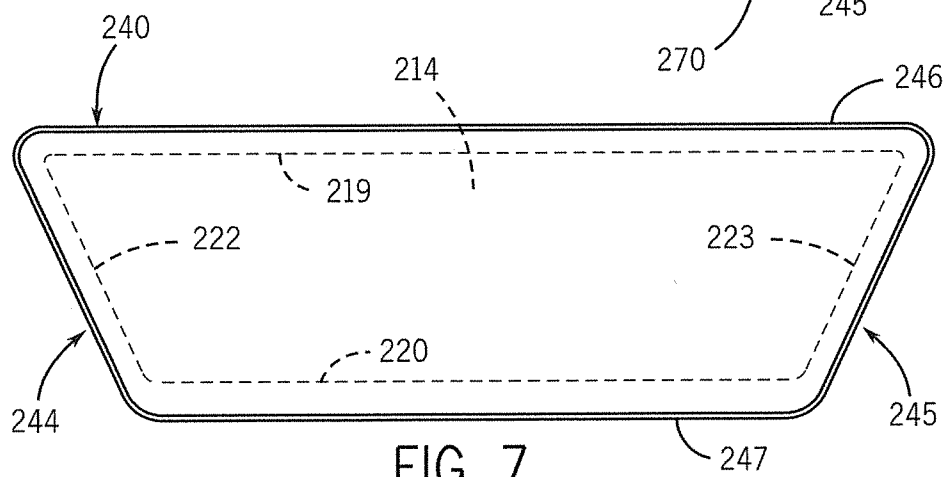
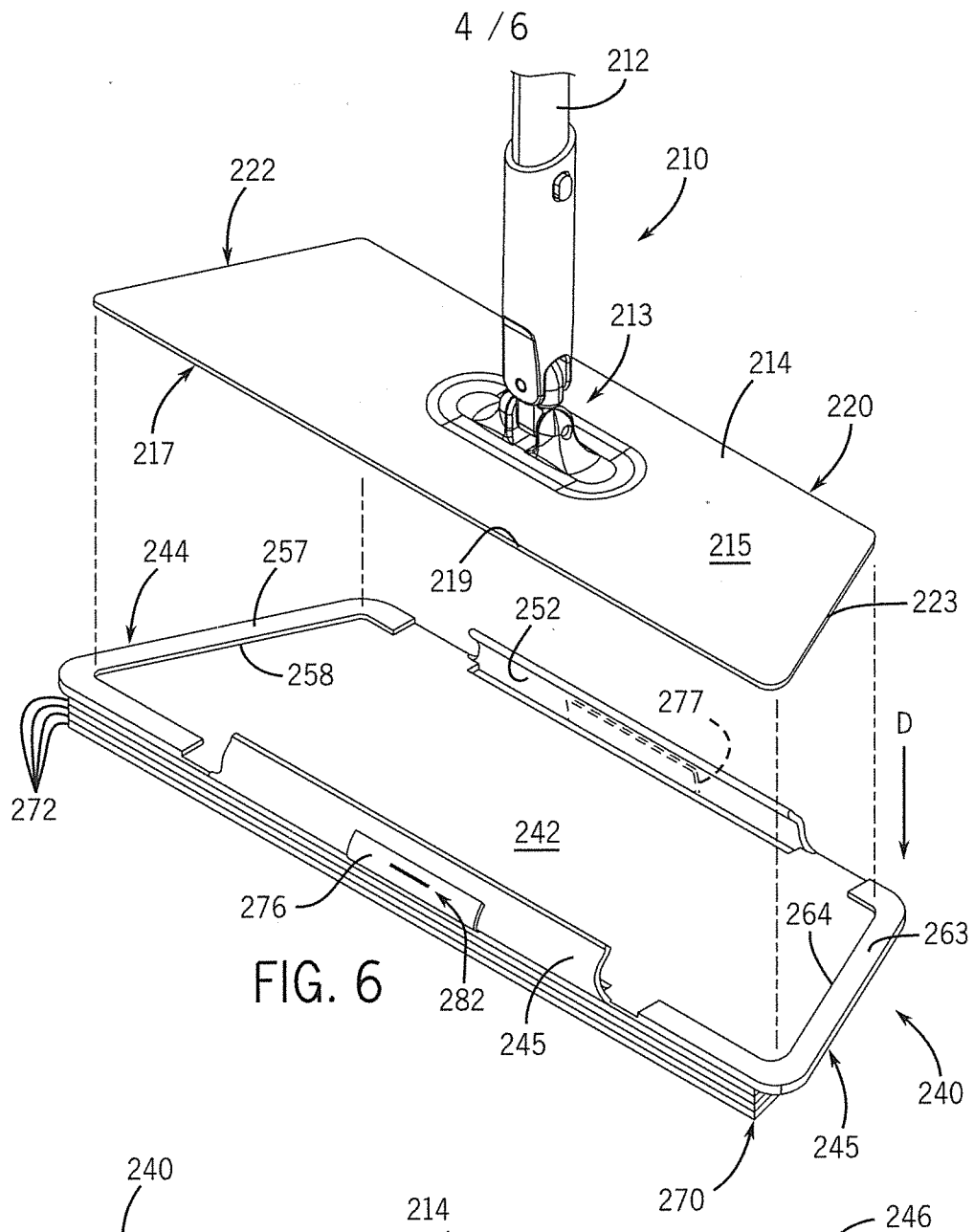
18. A method for cleaning a hard surface, the method comprising:
- (a) providing a cleaning implement having a support;
 - (b) providing an attachment comprising (i) a base, (ii) a first wall extending away from a first end of the base, at least a portion of the first wall being inclined so as to deviate inward toward a center of the base from a first vertical plane to the first end of the base, (iii) a second wall extending away from a second end of the base, the second end of the base being opposite the first end of the base, at least a portion of the second wall being inclined so as to deviate inward toward the center of the base from a second vertical plane to the second end of the base, and (iv) a stack of sheets, at least one of the sheets being releasably affixed to the attachment;
 - (c) pressing the support against the first wall and the second wall so as to flex the first wall and the second wall outward from the center of the base;
 - (d) allowing the first wall and the second wall to flex inward toward the center of the base thereby engaging the support; and
 - (e) moving the support over the hard surface with at least one of the sheets in contact with the hard surface.
19. The method of claim 18 further comprising:
- (f) removing the sheet was in contact with the hard surface in step (e) from the stack of sheets.
20. The method of claim 19 further comprising:
- (g) repeating steps (e) and (f).

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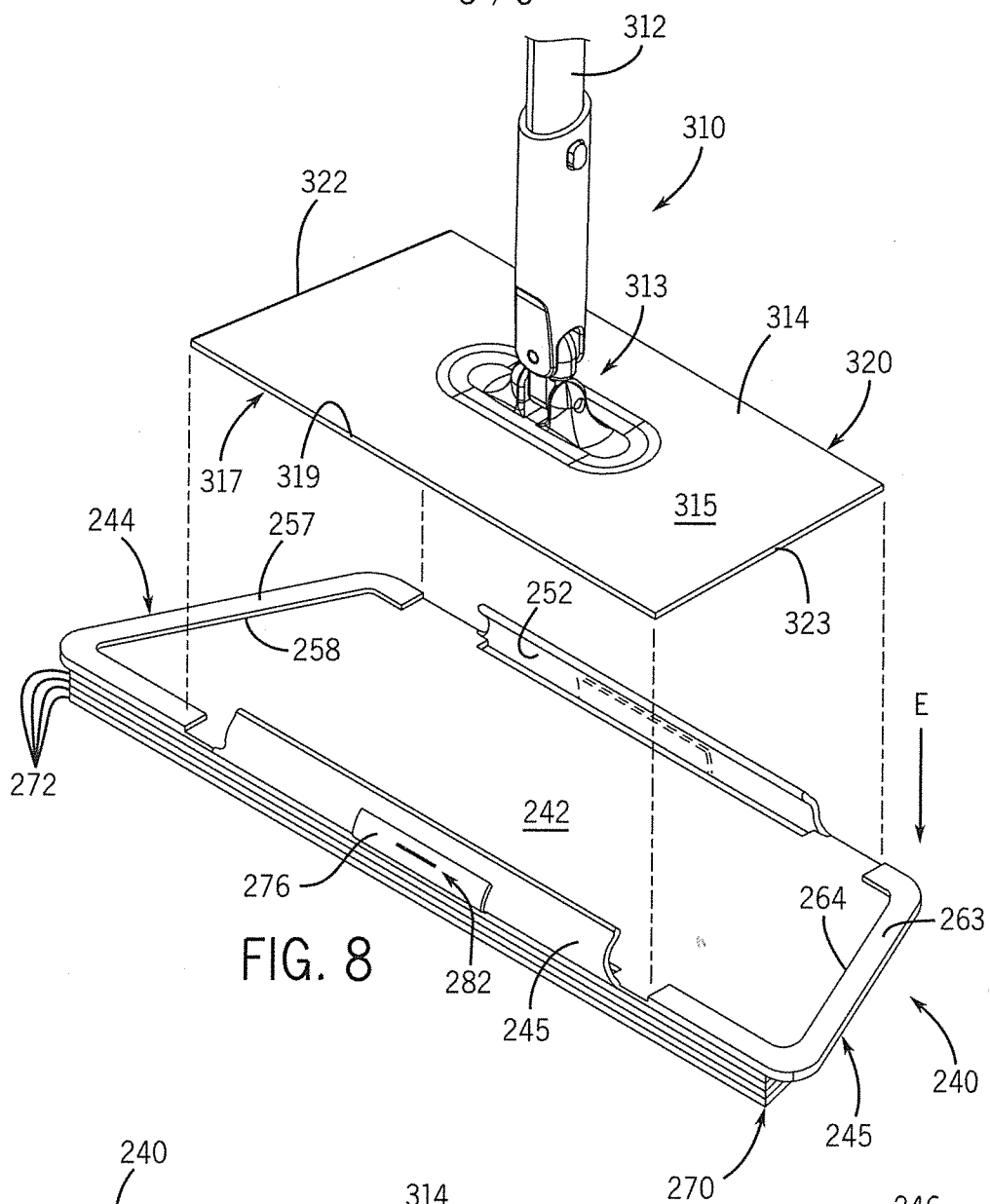


FIG. 8

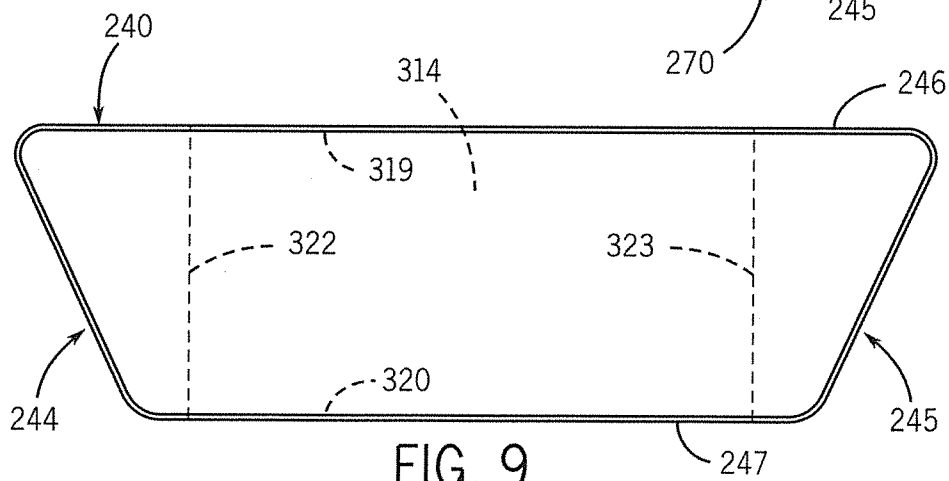
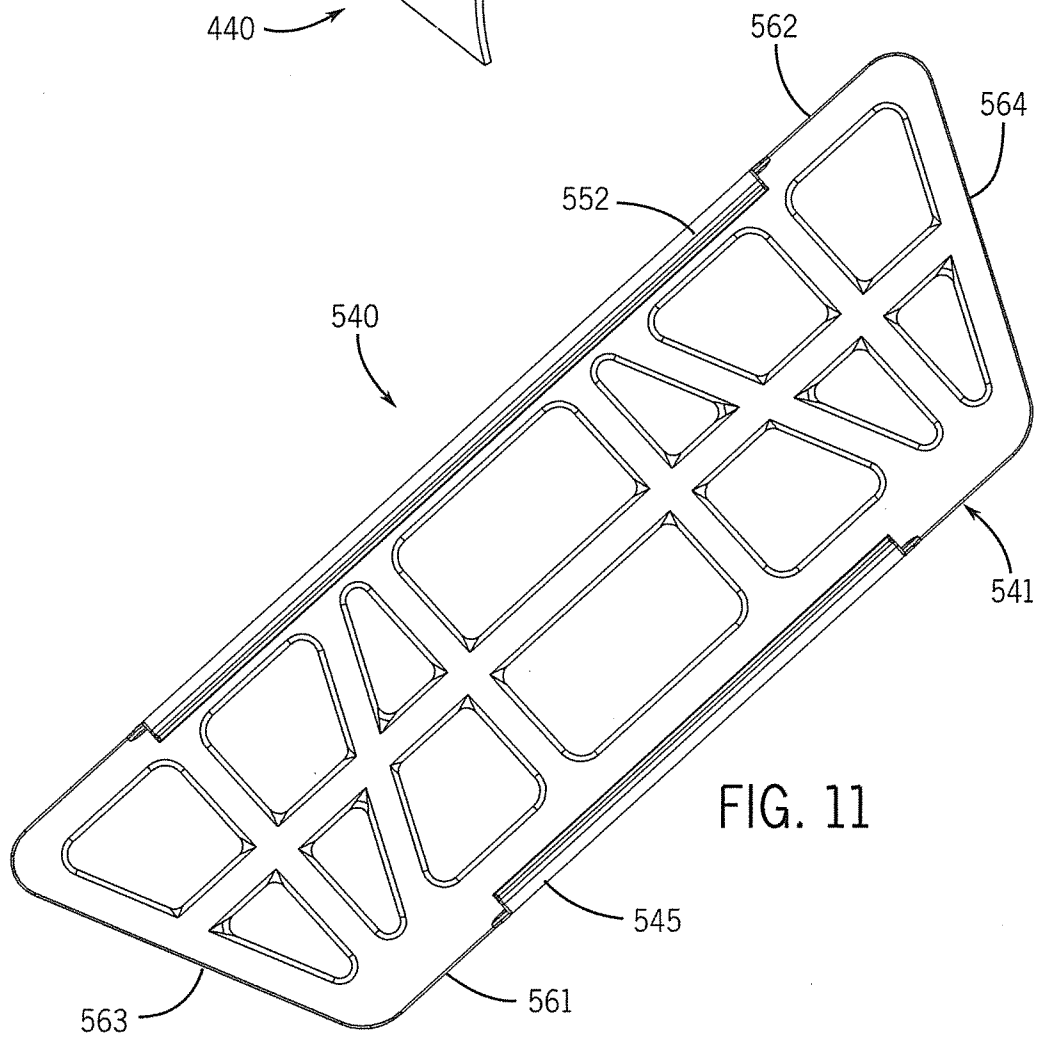
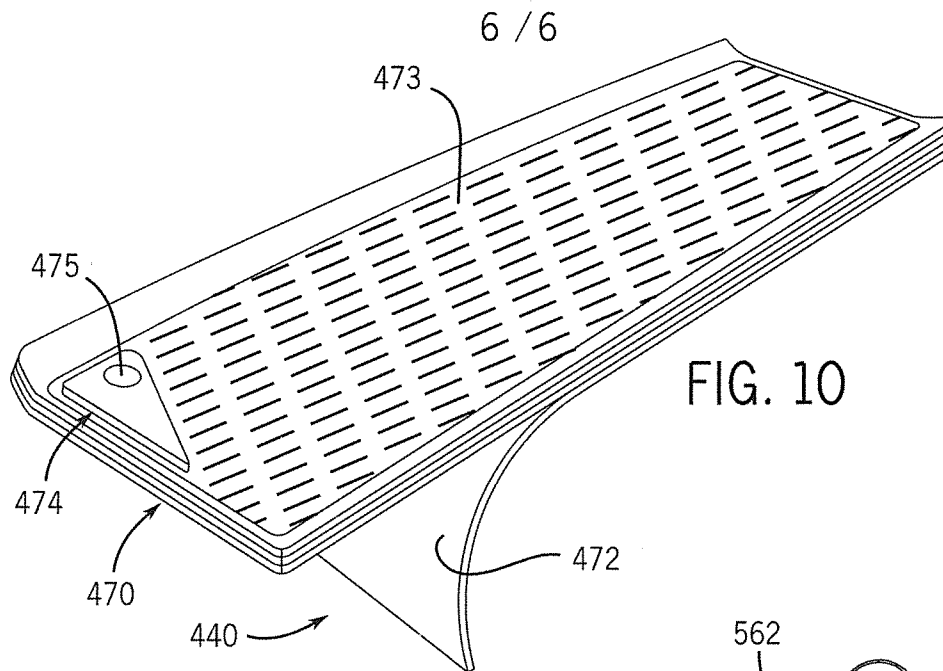


FIG. 9



INTERNATIONAL SEARCH REPORT

International application No
PCT/US2013/049651

A. CLASSIFICATION OF SUBJECT MATTER
INV. A47L13/24
ADD.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
A47L

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EP0-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5 319 822 A (SHAW RAYMOND R [US]) 14 June 1994 (1994-06-14) figures 13-16 -----	1-20
A	US 2004/141798 A1 (GARABEDIAN ARAM [US] ET AL GARABEDIAN JR ARAM [US] ET AL) 22 July 2004 (2004-07-22) figures 5, 6a-6c -----	1-20
A	DE 196 14 380 A1 (FREUDENBERG CARL FA [DE]) 16 October 1997 (1997-10-16) figures 9-12 -----	1-20
A	US 5 230 596 A (MORAD FRED I [US]) 27 July 1993 (1993-07-27) figures 1,2 ----- -/-	1-20



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents :

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"&" document member of the same patent family

Date of the actual completion of the international search

29 November 2013

Date of mailing of the international search report

10/12/2013

Name and mailing address of the ISA/

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INTERNATIONAL SEARCH REPORT

International application No

PCT/US2013/049651

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 7 930 791 B1 (MORAD FRED I [US]) 26 April 2011 (2011-04-26) figures 2,3 -----	1-20
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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

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