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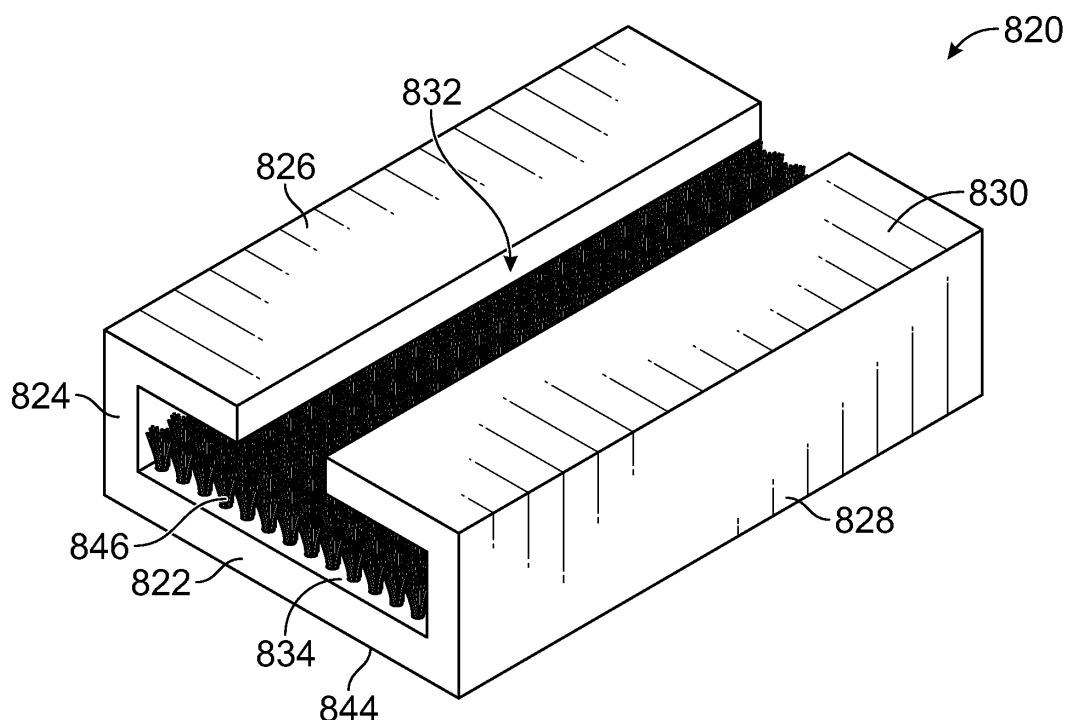
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(54) CLEANING BRUSH

(57) A cleaning brush includes a rigid bottom base wall portion, side wall portions extending from opposite sides of the bottom base wall portion, a first rigid top wall portion extending from an upper end of one side wall portion, and a second rigid top wall portion extending from an upper end of the other side wall portion. A slot is provided between facing ends of the top wall portions

which extends between first and second ends of the cleaning brush. A first set of first bristles extends from the bottom base wall portion, and second and third sets of bristles extend from the top wall portions. Free ends of the bristles may touch each other, be spaced from each other, or may extend past each other.

**FIG. 14**

Description

CROSS-REFERENCE TO RELATED APPLICATION(S)

[0001] This application is a continuation-in-part of United States Patent Application No. 18/181,990 filed March 10, 2023 and claims priority to United States provisional Application No. 63/580,569 filed September 5, 2023, United States provisional application No. 63/269,788 filed on March 23, 2022 and United States provisional application No. 63/356,305 filed on June 28, 2022, the contents of which are incorporated herein in its entirety.

FIELD OF THE DISCLOSURE

[0002] The present disclosure relates to a cleaning brush that is used to clean thin edge tools, such as tile, masonry and drywall tools.

BACKGROUND

[0003] During use, tools become caked with contaminants and must be cleaned. Contractors typically use a bucket of water and a towel or sponge to clean the tools or a brush having bristles on one side of the brush for cleaning the tools. Some tools have sharp edges which can cut the towel or sponge, and some tools are awkward and not easily cleaned.

[0004] A cleaning brush is provided herein which provides improvements to the existing prior art and which overcomes the disadvantages presented by the prior art. Other features and advantages will become apparent upon a reading of the attached specification, in combination with a study of the drawings.

SUMMARY

[0005] A cleaning brush in accordance with some example embodiments includes a rigid bottom base wall portion, side wall portions extending from opposite sides of the bottom base wall portion, a first rigid top wall portion extending from an upper end of one side wall portion, and a second rigid top wall portion extending from an upper end of the other side wall portion. A slot is provided between facing ends of the top wall portions which extends between first and second ends of the cleaning brush. A first set of first bristles extends from the bottom base wall portion, and second and third sets of bristles extend from the top wall portions. Free ends of the bristles may touch each other, be spaced from each other, or may extend past each other.

[0006] A cleaning brush in accordance with other example embodiments includes a first rigid portion having opposite first and second faces, a first set of first flexible bristles extending from the first face of the first base portion, a second rigid portion having opposite first and second faces, and a second set of second flexible bristles

extending from the first face of the second base portion. Free ends of the first bristles extend past free ends of the second bristles.

[0007] This Summary is provided merely for purposes of summarizing some example embodiments so as to provide a basic understanding of some aspects of the disclosure. Accordingly, it will be appreciated that the above described example embodiments are merely examples and should not be construed to narrow the scope or spirit of the disclosure in any way. Other embodiments, aspects, and advantages of various disclosed embodiments will become apparent from the following detailed description taken in conjunction with the accompanying drawings which illustrate, by way of example, the principles of the described embodiments.

BRIEF DESCRIPTION OF THE DRAWINGS

[0008] The organization and manner of the structure and operation of the disclosed embodiments, together with further objects and advantages thereof, may best be understood by reference to the following description, taken in connection with the accompanying drawings, which are not necessarily drawn to scale, wherein like reference numerals identify like elements in which:

FIG. 1 depicts a perspective view of a cleaning brush in accordance with a first embodiment of the disclosure;

FIG. 2 depicts a plan view of a base part of the cleaning brush, showing a plurality of bristles;

FIG. 3 depicts an end plan view of the cleaning brush; FIG. 4 depicts a side elevation view of the cleaning brush;

FIG. 5 depicts a perspective view of a cleaning brush in accordance with a second embodiment of the disclosure;

FIG. 6A depicts an end plan view of the cleaning brush of FIG. 5;

FIG. 6B depicts an end plan view of an alternative embodiment of the cleaning brush of FIG. 5;

FIG. 7 depicts a cross-sectional view of the cleaning brush of FIG. 5;

FIG. 8 depicts an enlarged view of area 8 in FIG. 7; FIG. 9 depicts another cross-sectional view of the cleaning brush of FIG. 5;

FIG. 10 depicts an enlarged view of area 10 in FIG. 9; FIG. 11 depicts a perspective view of a cleaning brush in accordance with a third embodiment of the disclosure;

FIG. 12 depicts a perspective view of a cleaning brush in accordance with a fourth embodiment of the disclosure;

FIG. 13 depicts an end plan view of the cleaning brush of FIG. 12;

FIG. 14 depicts a perspective view of a cleaning brush in accordance with a fifth embodiment of the disclosure;

FIG. 15 depicts an end elevation view of the cleaning brush of FIG. 14;

FIG. 16 depicts an end elevation view of a cleaning brush in accordance with a sixth embodiment of the disclosure; and

FIGS. 17 and 18 depict perspective view of tools that may be cleaned by the cleaning tool.

DETAILED DESCRIPTION

[0009] While the disclosure may be susceptible to embodiment in different forms, there is shown in the drawings, and herein will be described in detail, a specific embodiment with the understanding that the present disclosure is to be considered an exemplification of the principles of the disclosure, and is not intended to limit the disclosure to that as illustrated and described herein. Therefore, unless otherwise noted, features disclosed herein may be combined to form additional combinations not otherwise shown for brevity purposes. It will be further appreciated that in some embodiments, one or more elements illustrated by way of example in a drawing(s) may be eliminated and/or substituted with alternative elements within the scope of the disclosure.

[0010] FIGS. 1-4 illustrate a first embodiment of a cleaning brush 20 for use in cleaning tools. FIGS. 5-10 illustrate a second embodiment of a cleaning brush 320 for use in cleaning tool. FIG. 11 illustrates a third embodiment of a cleaning brush 520 for use in cleaning tools. FIGS. 12 and 13 illustrate a fourth embodiment of a cleaning brush 620 for use in cleaning tools. FIGS. 14 and 15 illustrate a fifth embodiment of a cleaning brush 820 for use in cleaning tools. FIG. 16 illustrates a sixth embodiment of a cleaning brush 920 for use in cleaning tools. The cleaning brush 20, 320, 520, 620, 820, 920 allows a user to efficiently clean the tools.

[0011] Examples of such types of tools are a trowel 1100 as shown in FIG. 17 and a grout float 1200 as shown in FIG. 18.

[0012] As shown in FIG. 17, the trowel 1100 typically includes a blade 1102 and a handle 1104. The blade 1102 is generally rectangular and a height of the blade 1102 is defined between upper and lower surfaces thereof. The handle 1104 may be centered on the upper surface of the blade 1102 to divide the blade 1102 into a right section and a left section (the terms "right" and "left" being determined by the orientation of the trowel 1100, the end of the trowel 1100 being to the right in FIG. 17 arbitrarily being designated the "front" of the trowel 1100). The handle 1104 has an end affixed to the upper surface of the blade 1102 and is generally L-shaped. The handle 1104 may be enclosed in a layer of resilient material. The metal used to form the blade 1102 is thin and has sharp edges that can cut through towels or sponges. A front edge 1106 of the trowel 1100 has serrated notches, one side edge 1108 of the trowel 1100 has serrated notches, and the other edges 1110, 1112 are straight. Alternatively, some trowels 1100 have

flat metal edges on all sides. As shown in FIG. 18, the grout float 1200 typically includes a blade 1202 and a handle 1204. The blade 1202 is generally rectangular and a height of the blade 1202 is defined between upper and lower surfaces thereof. The handle 1204 may be centered on the upper surface of the blade 1202 to divide the blade 1202 into a right section and a left section (the terms "right" and "left" being determined by the orientation of the grout float 1200, the end of the grout float 1200 being to the right in FIG. 18 arbitrarily being designated the "front" of the grout float 1200). The handle 1204 has opposite ends affixed to the upper surface of the blade 1202. The handle 1204 may be enclosed in a layer of resilient material. The lower edges of walls 1206, 1208, 1210, 1212 of the grout float 1200 are straight. The height of the blade 1202 of the grout float 1200 is greater than the height of the blade 1102 of the trowel 1100.

[0013] Attention is invited to the first embodiment of the cleaning brush 20 shown in FIGS. 1-4. The cleaning brush 20 of this embodiment provides a user with the ability to efficiently clean two different types of tools.

[0014] The cleaning brush 20 has a first rigid base part 22 having a first set 24 of flexible bristles 28 extending therefrom and a second set 30 of flexible bristles 32 extending therefrom, and a second rigid base part 122 having a first set 124 of flexible bristles 128 extending therefrom and a second set 130 of flexible bristles 132 extending therefrom. The base parts 22, 122 are coupled together, and the bristles 28, 128, 32, 132 are positioned between the base parts 22, 122.

[0015] Each base part 22, 122 has a body formed of a generally rectangular prism having a first end 34, 134, an opposite second end defined by a second wall surface 36, 136, and first and second side wall surfaces 38, 138, 40, 140 extending therebetween, and defining a first face 42, 142 and an opposite second face 44, 144. The first and second side wall surfaces 38, 138, 40, 140 are parallel to each other, but may have a central curvature therein to allow for easier gripping. The faces 42, 142, 44, 144 are parallel to each other. All corners between the walls may be chamfered or rounded to prevent sharp edges. Each base part 22, 122 further includes a coupler 46, 146 extending outwardly from the first face 42, 142, and a scraper 48, 148 extending forwardly from the first end 34, 134 and which may be integrally formed therewith. Each base part 22, 122 may be made of plastic, such as acrylonitrile butadiene styrene (ABS). Each face 44, 144 may have a plurality of elongated ribs 50, 150 (shown only on face 44) formed therein to assist the user with gripping the cleaning brush 20.

[0016] The coupler 46, 146 is provided at the midpoint of the base parts 22, 122 and extends parallel to a centerline of the base parts 22, 122. The coupler 46, 146 is spaced from each side wall surface 38, 138, 40, 140 such that a first bristle area 52, 152 is defined on one side of the coupler 46, 146 and a second bristle area 54, 154 is defined on the other side of the coupler 46, 146. The coupler 46, 146 may extend along a portion of the

base parts 22, 122 as shown, or may extend along the entire length of the base parts 22, 122. The coupler 46, 146 defines a height between the first face 42, 142 of the base part 22, 122 and an outward end 56, 156 of the coupler 46, 146. The coupler 46, 146 has a first longitudinally extending side wall 58, 158 which is proximate to the first bristle area 52, 152, and a second longitudinally extending side wall 60, 160 which is proximate to the second bristle area 54, 154. Each side wall 58, 158, 60, 160 is planar.

[0017] The scraper 48, 148 extends between the side wall surfaces 38, 138, 40, 140 and is generally triangular in cross-section. The scraper 48, 148 has a first wall 62, 162 which extends at an angle A from the first face 42, 142, and a second wall 64, 164 which extends at an angle B from the first face 42, 142; the walls 62, 162, 64, 164 form an outward edge 66, 166 that is perpendicular to the centerline of the base part 22, 122. The second wall 64, 164 may be formed by a plurality of spaced apart ribs. Angle B is measured from a line parallel to the first face 42, 142. As shown, angle A is greater than angle B. The scraper 48, 148 further has a first side wall 68, 168 extending at angle C from the first side wall surface 38, 138, and a second side wall 70, 170 extending at the same angle C from the second side wall 40, 140. Side walls 68, 168, 70, 170 angle inward toward each other and toward a centerline of the base parts 22, 122. In an embodiment, each side wall 68, 168, 70, 170 angles at an angle C of 30 degrees. This prevents the scraper 48, 148 from forming sharp corners along the sides.

[0018] The first set 24, 124 of bristles 28, 128 is formed by spaced apart groups of hairs and may be laid out in offsetting columns and rows provided in the first bristle area 52, 152. The first row is proximate to the first side wall surface 38, 138, and a row is proximate to the side wall 58, 158 of the coupler 46, 146. If the coupler 46, 146 does not extend the full length of the base parts 22, 122, one or more groups of hairs may be provided between the end of the coupler 46, 146 and the first end 34, 134 of the base part 22, 122 and between the end of the coupler 46, 146 and the second wall surface 36, 136. The second set 30, 130 of bristles 32, 132 is formed by groups of hairs laid out in offsetting columns and rows and provided in the second bristle area 54, 154. The first row is proximate to the second side wall 40, 140, and a row is proximate to the side wall 60, 160 of the coupler 46, 146. If the coupler 46, 146 does not extend the full length of the base part 22, 122, one or more groups of hairs may be provided between the end of the coupler 46, 146 and the first end 34, 134 of the base part 22, 122 and between the end of the coupler 46, 146 and the second wall surface 36, 136.

[0019] The bristles 28, 128 in the first sets 24, 124 have different properties than the bristles 32, 132 in the second sets 30, 130. The bristles 28, 128 in the first sets 24, 124 may be longer than the bristles 32, 132 in the second sets 30, 130. The bristles 28, 128 in the first sets 24, 124 may be harder than, or softer than, the bristles 32, 132 in the second sets 30, 130. One of the sets of bristles may have

the same height as, or may have substantially the same height as, the coupler 46, 146, and the other sets of bristles may have a height which is less the coupler 46, 146. Alternatively, the sets of bristles may have the same hardness and/or may have the same height.

[0020] The couplers 46, 146 are coupled together such that their outward ends 56, 156 abut against each other. The outward ends 56, 156 may be adhesively secured to each other to secure the base parts 22, 122 to form a one-piece unit, or fasteners may be provided through the couplers 46, 146 to secure the base parts 22, 122 to each other to form a one-piece unit. Alternatively, one coupler 46, 146 may have recesses and the other coupler 46, 146 has fingers which snap fit into the recesses to secure the base parts 22, 122 together. The second wall surface 36 of the first base part 22 generally aligns with an inner end of the scraper 148 of the second base part 122; the second wall surface 136 of the second base part 122 generally aligns with an inner end of the scraper 48 of the first base part 22. Other suitable means for coupling the couplers 46, 146 are within the scope of the present disclosure.

[0021] The bristles 28 in the first set 24 of the first base part 22 face the bristles 128 in the first set 124 of the second base part 122; the bristles 32 in the second set 30 of the first base part 22 face the bristles 132 in the second set 30, 130 of the second base part 12. Free ends of the bristles 28, 128 in the first sets 24, 124 may touch each other, or may be spaced there apart as shown such that a small gap 72 (1mm for example) is provided therebetween. The bristles 32 in the second set 30 of the first base part 22 are spaced from the bristles 132 in the second set 130 of the second base part 122 such that a gap 74 is provided therebetween. The gap 74 is substantially larger than the gap 72 (gap 72 may be eliminated).

[0022] In use, a user inserts a thin tool between the bristles 28, 128 in the first sets 24, 124, the cleaning brush 20 and the thin tool are moved relative to each other, and the bristles 28, 128 on each side of the thin tool will agitate and remove contaminants on the thin tool. Since bristles 28, 128 are provided on both sides of the thin tool, the thin tool is quickly cleaned. An example of such a thin tool is illustrated in FIG. 14 as a trowel 1100, although use of the cleaning brush 20 is not limited to such a tool. In use, a user inserts a thicker tool between the bristles 32, 132 in the second sets 30, 130, the cleaning brush 20 and the thicker tool are moved relative to each other, and the bristles 32, 132 on each side of the thicker tool will agitate and remove contaminants on the thicker tool. Since bristles 32, 132 are provided on both sides of the thicker tool, the thicker tool is quickly cleaned. An example of such a thicker tool is illustrated in FIG. 15 as a grout float 1200, although use of the cleaning brush 20 is not limited to such a tool.

[0023] In use, the tile installer inserts the thin metal blade 1102 of the trowel 1100 between the bristles 28, 128 in the first sets 24, 124. The cleaning brush 20 and blade 1102 are moved relative to each other and the

bristles 28, 128 on each side of the blade 1102 will agitate and remove the adhesives, and any other compounds like cementitious mortar that typically adhere to the blade 1102. Since bristles 28, 128 are provided on both sides of the trowel 1100, the trowel 1100 is quickly cleaned. Edge 1106, 1108, 1110 or 1112 of the trowel 1100 engages with the side walls 58, 158 of the coupler 46, 146 which prevents the passage of the trowel 1100 into the gap 74. Alternatively, in use, the tile installer inserts the thicker blade 1202 of the grout float 1200 into the gap 74 between the bristles 32, 132 the second sets 30, 130. The cleaning brush 20 and blade 1202 are moved relative to each other and the bristles 32, 132 on each side of the blade 1202 will agitate and remove the adhesives, and any other compounds like cementitious mortar that typically adhere to the blade 1202. Since bristles 32, 132 are provided on both sides of the grout float 1200, the grout float 1200 is quickly cleaned. The walls 1206, 908, 910 or 912 of the grout float 1200 engage with the side walls 60, 160 of the coupler 46, 146 which prevents the passage of the grout float 1200 between the bristles 28, 128 in the first sets 24, 124. Prior to inserting the tool 1100, 1200 between the bristles 28, 128 or bristles 32, 132, the tile installer can engage the edge 66, 166 of one (or both in succession) of the scrapers 48, 148 against the flat surfaces of the blades 1102, 902 to remove excess material thereon.

[0024] Either base part 22, 122, or both base parts 22, 122, can have a handle (not shown) provided thereon.

[0025] Attention is invited to the second embodiment of the cleaning brush 320 shown in FIGS. 5-10. The cleaning brush 320 of this embodiment provides a user with the ability to efficiently clean two tools, which may be the same type of tool or different types of tools.

[0026] The cleaning brush 320 has a first rigid base part 322 having a set of flexible bristles 328 extending therefrom, and a second rigid base part 422 having a set of flexible bristles 428 extending therefrom. The base parts 322, 422 are coupled together, and the bristles 328, 428 are positioned between the base parts 322, 422. The set of bristles 328 is formed by spaced apart groups of hairs laid out in offsetting columns and rows. The set of bristles 428 is formed by spaced apart groups of hairs and may be laid out in offsetting columns and rows. Each bristle 328, 428 has the same height. The coupler acts as a divider to divide the sets of bristles.

[0027] The base part 322 is identically formed to that of base part 22 except for the differences noted herein; therefore, the specifics are not repeated, and the same components are denoted by the same reference number, but in the three hundreds. The base part 422 is identically formed to that of base part 122 except for the differences noted herein; therefore, the specifics are not repeated, and the same components are denoted by the same reference number, but in the four hundreds.

[0028] The coupler 46, 146 of the first embodiment is provided by coupler 376 in this embodiment. It is to be understood that the coupler 46, 146 of the first embodiment can be provided in this embodiment, and the cou-

pler 376 can be provided in the first embodiment. The coupler 376 is provided at the midpoint of the base parts 322, 422 and extends parallel to centerlines of the base parts 322, 422. The coupler 376 secures the base parts 322, 422 together. The coupler 376 is spaced from each side wall surface 338, 438, 340, 440 such that a first bristle area is defined on one side of the coupler 376 on each base part 322, 422, and a second bristle area is defined on the other side of the coupler 376 on each base part 322, 422. The coupler 376 may extend along a portion of the base parts 322, 422 as shown, or may extend along the entire length of the base parts 322, 422. As shown in this embodiment in FIG. 7, the coupler 376 is provided by a projection 378, 478 that extends from the respective base part 322, 422 and an elongated tube 380. The projections 378, 478 have barbs which snap into openings in the tube 380, see FIGS. 9 and 10. The tube 380 has a first longitudinally extending side wall surface 382 which is proximate to the first bristle area, and a second longitudinally extending side wall surface 384 which is proximate to the second bristle area. Each side wall surface 382, 384 is planar. Other forms of the coupler 376 may be provided.

[0029] A row of bristles 328, 428 is proximate to the first side wall 338, 438, a row is proximate to the side wall surface 382 of the coupler 376, a row is proximate to the side wall surface 384 of the coupler 376, and a row is proximate to the second side wall 340, 440. If the coupler 376 does not extend the full length of the base parts 322, 422, one or more groups of hairs may be provided between the ends of the coupler 376 and the ends of the base parts 322, 422. The bristles 328, 428 are the same length. The bristles 328, 428 may have the same hardness. The bristles 328 extending from the first base part 322 face the bristles 428 extending from the second base part 422. Free ends of the bristles 328, 428 may touch each other, or may be spaced there apart as shown such that a small gap (1mm for example) is provided therebetween.

[0030] In use, the tile installer inserts the tool, which may be metal blade 1102 of the trowel 1100, between the bristles 328, 428. The brush 320 and blade 1102 are moved relative to each other and the bristles 328, 428 on each side of the blade 1102 will agitate and remove the contaminants, such as adhesives, and any other compounds like cementitious mortar that typically adhere to the blade 1102. Since bristles 328, 428 are provided on both sides of the tool, the tool is quickly cleaned. The edge of the tools, such as edge 1106, 1108, 1110 or 1112 of the trowel 1100, engages with the side wall surfaces 382 or 384 (depending upon which side the tool is inserted into the cleaning brush 320) and the coupler 376 prevents the passage of the tool into the bristle area on the other side of the coupler 376. Prior to inserting the tool between the bristles 328, 428, the user can engage the edge 366, 466 of one (or both in succession) of the scrapers 348, 448 against the flat surfaces of the tool to remove excess material thereon.

[0031] Either base part 322, 422, or both base parts 322, 422, can have a handle (not shown) provided thereon.

[0032] Attention is invited to the third embodiment of the cleaning brush 520 shown in FIG. 11. The cleaning brush 520 of this embodiment provides a user with the ability to efficiently clean two tools, which may be the same type of tool or different types of tools.

[0033] The cleaning brush 520 is identical to the cleaning brush 320 shown in FIGS. 5-10, and only the differences are described. The scraper 448 is now provided at the end 436 of the base part 422 and the opposite ends of the base parts 322, 422 are closed off by a secondary coupler formed of a wall 586, such that the base parts 322, 422 and the wall 586 form a C-shape. This provides a convenient area for a user to hold the cleaning brush 520 without touching the bristles 328, 332, 428, 432. While the cleaning brush 520 is shown with bristles 328 and 428, the sets 24, 30, 124, 130 of flexible bristles 28, 32, 128, 132 as described in the first embodiment can instead be provided. Either base part 322, 422, or both base parts 322, 422, can have a handle (not shown) provided thereon.

[0034] Attention is invited to the fourth embodiment of the cleaning brush 620 shown in FIGS. 12 and 13. The cleaning brush 620 of this embodiment provides a user with the ability to efficiently clean two different types of tools.

[0035] The cleaning brush 620 has a first rigid base part 622 having flexible bristles 628 extending therefrom, and a second rigid base part 722 having flexible bristles 728 extending therefrom. The base parts 622, 722 are coupled together by a coupler formed by a wall 686, and the bristles 628, 728 are positioned between the base parts 622, 722.

[0036] Each base part 622, 722 has a body formed of a generally rectangular prism having a first end surface 34, 134, an opposite second end surface 36, 136, and first and second sides 638, 738, 740, 740 extending therebetween, and defining a first face 642, 742 and an opposite second face 644, 744. The faces 642, 742, 644, 744 are parallel to each other, and faces 642, 742 face each other. All corners between the walls may be chamfered or rounded to prevent sharp edges. Each base part 622, 722 may be made of plastic, such as acrylonitrile butadiene styrene (ABS). Each face 644, 744 may have a plurality of elongated ribs (now shown) formed therein to assist the user with gripping the cleaning brush 620.

[0037] The wall 686 extends between the sides 640, 740 such that the base parts 622, 722 and the wall 686 form a C-shape. This provides a convenient area for a user to hold the cleaning brush 620 without touching the bristles 628, 728.

[0038] The bristles 628, 728 may be formed by spaced apart groups of hairs and may be laid out in offsetting columns and rows. The bristles 628 face the bristles 728. Free ends of the bristles 628, 728 may touch each other, or may be spaced there apart as shown such that a small

gap 72 (1mm for example) is provided therebetween, or a larger gap (greater than 1 mm for example) is provided therebetween.

[0039] Each base part 622, 722 further includes a scraper 648, 748 extending outwardly from the sides 638, 738 and which may be integrally formed therewith. The scraper 648, 748 may be identically formed to scrapers 48, 148, except that the scraper 648, 748 extends between the end wall surfaces 634, 636, 734, 736.

[0040] Either base part 622, 722, or both base parts 622, 722, can have a handle 788 provided thereon which extends from the face 644, 744.

[0041] In use, a user inserts a thin tool between the bristles 628, 728 and the cleaning brush 620 and the thin tool are moved relative to each other, and the bristles 628, 128 on each side of the thin tool will agitate and remove contaminants on the thin tool. Since bristles 628, 728 are provided on both sides of the thin tool, the thin tool is quickly cleaned. An example of such a thin tool is illustrated in FIG. 14 as a trowel 1100, although use of the cleaning brush 620 is not limited to such a tool.

[0042] Attention is invited to the fifth embodiment of the cleaning brush 820 shown in FIGS. 14 and 15.

[0043] The cleaning brush 820 includes a rigid bottom base wall portion 822 formed of a generally rectangular prism having opposite first and second ends and opposite first and second sides, a rigid first side wall portion 824 extending from the first side of the bottom base wall portion 822, a rigid second top wall portion 826 extending from an upper end of the first side wall portion 824, a rigid third side wall portion 828 extending from the second, opposite side of the bottom base wall portion 822, and a rigid fourth top wall portion 830 extending from an upper end of the third side wall portion 828. The first side wall portion 824 extends along the entire length of the bottom base wall portion 822, and the second top wall portion 826 extends along the entire length of the first side wall portion 824. The third side wall portion 828 extends along the entire length of the bottom base wall portion 822, and the fourth top wall portion 830 extends along the entire length of the third side wall portion 828. The first side wall portion 826 is perpendicular to the bottom base wall portion 822, and the second top wall portion 826 is perpendicular to the first side wall portion 826. The third side wall portion 828 is perpendicular to the bottom base wall portion 822 and parallel to the first side wall portion 824, and the fourth top wall portion 830 is perpendicular to the third side wall portion 828 and parallel to, and aligned with, the second top wall portion 826. All corners between the wall portions 822, 824, 826, 828, 830 may be chamfered or rounded to prevent sharp edges. A slot 832 is provided between facing ends of the second top wall portion 826 and the fourth top wall portion 830 and extends from a first end of the cleaning brush 820 which aligns with the first end of the bottom base wall 822 and a second end of the cleaning brush 820 which aligns with the second end of the bottom base wall 822. The bottom base wall portion 822 forms a bottom wall of the cleaning

brush 920, the top wall portions 826, 830 form a top wall of the cleaning brush 920, and the side wall portions 824, 828 form couplers between the bottom wall formed by the bottom base wall portion 822 and the top wall formed by the top wall portions 826, 830. The opposite first and second ends of the cleaning brush 820 are open. The wall portions 822, 824, 826, 828, 830 may be made of plastic, such as acrylonitrile butadiene styrene (ABS).

[0044] The bottom base wall portion 822 defines a first face 834 and an opposite second face 836. The first and second faces 834, 836 are parallel to each other, but the second face 836 may have a central curvature therein to allow for easier gripping. The top wall portion 826 defines a first face 838 and an opposite second face 840. The first and second faces 838, 840 are parallel to each other, but the second face 840 may have a central curvature therein to allow for easier gripping. The top wall portion 830 defines a first face 842 and an opposite second face 844. The first and second faces 842, 844 are parallel to each other, but the second face 844 may have a central curvature therein to allow for easier gripping. The first faces 834, 838 face each other, and the first faces 834, 842 face each other.

[0045] A first set of flexible first bristles 846, which may be formed by spaced apart groups of hairs, extend from the first face 834 of the bottom base wall portion 822. The first set of flexible first bristles 846 extend between the side wall portions 824, 828 and preferably extend between the opposite ends of the bottom base wall portion 822. A second set of flexible second bristles 848, which may be formed by spaced apart groups of hairs, extend from the first face 838 of the second top wall portion 826 and face the bristles 846 thereunder. The second set of flexible first bristles 848 extend between the side wall portion 824 and the slot 832 and preferably extend between the opposite ends of the side wall portion 824. A third set of flexible third bristles 850, which may be formed by spaced apart groups of hairs, extend from the fourth top wall portion 830 and face the bristles 846 thereunder. The third set of flexible first bristles 850 extend between the side wall portion 828 and the slot 832 and preferably extend between the opposite ends of the side wall portion 828. The first side wall portion 824 and the third side wall portion 828 do not have bristles extending therefrom.

[0046] In an embodiment, the first bristles 846 are lined up in rows and columns, the second bristles 848 are lined up in rows and columns, and the third bristles 850 are lined up in rows and columns. In an embodiment, the rows and columns of the first and second bristles 846, 848 align with each other, and the rows and columns of the first and third bristles 846, 850 align with each other. Free ends of the first and second bristles 846, 848 may touch each other, or may be spaced there apart as shown such that a small gap (1mm for example) is provided therebetween, or a larger gap (greater than 1 mm for example) is provided therebetween. Free ends of the first and third bristles 846, 850 may touch each other, or may be spaced there apart as shown such that a small gap

(1mm for example) is provided therebetween, or a larger gap (greater than 1 mm for example) is provided therebetween. The bristles 846 which align with the slot 832 preferably do not enter into the slot 832, but in an embodiment, the bristles 846 which align with the slot 832 enter into the slot 832.

[0047] The wall portions 822, 824, 826, 828, 830 are integrally formed and generally form a pair of C-shapes. This provides a convenient area for a user to hold the cleaning brush 820 without touching the bristles 846, 848, 850. A scraper like that of the other embodiments, can be provided on the bottom base wall portion 822 at one of the ends thereof. The bottom base wall portion 822 can have a handle (not shown) provided thereon which extends from the bottom surface.

[0048] In use, a user inserts a tool, such as tool 1100, 1200, between the bristles 846, 848, 850, and the cleaning brush 20 and the tool 1100, 1200 are moved relative to each other. The handle 1104, 1204 of the tool 1100, 1200 can pass through the slot 832. The bristles 846, 848, 850 on each side of the tool 1100, 1200 will agitate and remove contaminants on the tool 1100, 1200. Since bristles 846, 848, 850 are provided on both sides of the tool 1100, 1200, the tool 1100, 1200 is quickly cleaned. Prior to inserting the tool 1100, 1200 between the bristles 846, 848, 850, the tile installer can engage the edge of the scraper against the flat surfaces of the blades to remove excess material thereon.

[0049] Attention is invited to the sixth embodiment of the cleaning brush 920 shown in FIG. 16. This embodiment has first and second rigid base parts 922, 1022 which are identically formed to the first and second rigid base parts 22, 122 of the first embodiment shown in FIG. 1; therefore the specifics are not repeated and the same components are denoted by the same reference numbers but in the eight hundreds and nine hundreds.

[0050] The first rigid base part 922 has flexible bristles 928 extending therefrom, and the second rigid base part 1022 has flexible bristles 1028 extending therefrom. The bristles 928, 1028 may be formed by spaced apart groups of hairs, and are positioned between the base parts 922, 1022. The bristles 928 are laid out in rows and columns and the bristles 1028 are laid out in rows and columns. In each row, the bristles 928 alternate with bristles 1028, and overlap each other in the vertical direction. The bristles 928, 1028 may touch each other, or may be spaced there apart as shown such that a small gaps (1mm for example) are provided therebetween.

[0051] In use, a user inserts a tool, such as tool 1100, 1200, between the bristles 928, 1028, and the cleaning brush 920 and the tool 1100, 1200 are moved relative to each other. The bristles 928, 1028 on each side of the tool 1100, 1200 will agitate and remove contaminants on the tool 1100, 1200. Since bristles 928, 1028 are provided on both sides of the tool 1100, 1200, the tool 1100, 1200 is quickly cleaned. Prior to inserting the tool 1100, 1200 between the bristles 928, 1028, the tile installer can engage the edge of one (or both in succession) of the

scrapers against the flat surfaces of the blades 1102, 1202 to remove excess material thereon.

[0052] While the alternating and vertically overlapping bristles are shown in FIG. 16 with regard to the first embodiment, the alternating and vertically overlapping bristles can be provided in any of the embodiments since the bristles always face each other.

[0053] While a trowel 1100 and a grout float 1200 are shown and described herein, the cleaning brush is not limited to cleaning only these types of tools.

[0054] Various aspects and preferred embodiments of the present invention are provided in the following numbered clauses.

[0055] Clause 1. A cleaning brush comprising: a rigid bottom base wall portion having opposite first and second ends, opposite first and second sides, and opposite first and second faces; a rigid first side wall portion extending from the first side of the bottom base wall portion; a rigid second top wall portion extending from an upper end of the first side wall portion, the second top wall portion having opposite first and second faces, the first face of the second top wall portion facing the first face of the bottom base wall portion; a rigid third side wall portion extending from the second, opposite side of the bottom base wall portion; a rigid second top wall portion extending from an upper end of the third side wall portion the fourth top wall portion having opposite first and second faces, the first face of the fourth top wall portion facing the first face of the bottom base wall portion, wherein a slot is formed between facing ends of the second top wall portion and the fourth top wall portion which extends from a first end of the cleaning brush to a second end of the cleaning brush; a first set of first bristles extending from the first face of the bottom base wall portion; a second set of second bristles extending from the first face of the second top wall portion; and a third set of third bristles extending from the first face of the second top wall portion.

[0056] Clause 2. The cleaning brush of clause 1, wherein the first side wall portion is perpendicular to the bottom base wall portion, the second top wall portion is perpendicular to the first side wall portion, the third side wall portion is perpendicular to the bottom base wall portion and parallel to the first side wall portion, and the fourth top wall portion is perpendicular to the third side wall portion and parallel to, and aligned with, the second top wall portion.

[0057] Clause 3. The cleaning brush of clause 1, wherein the first side wall portion extends along an entire length of the bottom base wall portion, the second top wall portion extends along an entire length of the first side wall portion, the third side wall portion extends along an entire length of the bottom base wall portion, and the fourth top wall portion extends along an entire length of the third side wall portion.

[0058] Clause 4. The cleaning brush of clause 3, wherein the first side wall portion is perpendicular to the bottom base wall portion, the second top wall portion

is perpendicular to the first side wall portion, the third side wall portion is perpendicular to the bottom base wall portion and parallel to the first side wall portion, and the fourth top wall portion is perpendicular to the third side wall portion and parallel to, and aligned with, the second top wall portion.

[0059] Clause 5. The cleaning brush of any preceding clause, wherein the wall portions are formed of plastic.

[0060] Clause 6. The cleaning brush of any preceding clause, wherein the wall portions are formed of acrylonitrile butadiene styrene.

[0061] Clause 7. The cleaning brush of any preceding clause, wherein the bottom base wall portion is formed of a generally rectangular prism.

[0062] Clause 8. The cleaning brush of any preceding clause, wherein the wall portions are integrally formed.

[0063] Clause 9. The cleaning brush of any preceding clause, wherein each set of flexible bristles are formed by spaced apart groups of hairs.

[0064] Clause 10. The cleaning brush of any preceding clause, wherein the first set of flexible first bristles extend between the side wall portions, the second set of flexible second bristles extend between the first side wall portion and the slot, and the third set of flexible third bristles extend between the fourth side wall portion and the slot.

[0065] Clause 11. The cleaning brush of any preceding clause, wherein the first and third side wall portions do not have bristles extending therefrom.

[0066] Clause 12. The cleaning brush of any preceding clause, wherein the first set of flexible first bristles extend between the opposite ends of the bottom base wall portion, the second set of flexible second bristles extend between opposite ends of the first side wall portion, and the third set of flexible third bristles extend between opposite ends of the second side wall portion.

[0067] Clause 13. The cleaning brush of any preceding clause, wherein each set of bristles are lined up in rows and columns.

[0068] Clause 14. The cleaning brush of any preceding clause, wherein free ends of the first and second bristles touch each other, and free ends of the first and third bristles touch each other.

[0069] Clause 15. The cleaning brush of any of clauses 1 to 13, wherein free ends of the first and second bristles are spaced apart from each other, and free ends of the first and third bristles are spaced apart from each other.

[0070] Clause 16. The cleaning brush of any preceding clause, wherein the first bristles are spaced from the slot.

[0071] Clause 17. The cleaning brush of any preceding clause, wherein free ends of the first bristles extend past free ends of the second bristles, and free ends of the first bristles extend past free ends of the third bristles.

[0072] Clause 18. A cleaning brush comprising: a first rigid portion having opposite first and second faces; a first set of first flexible bristles extending from the first face of the first base portion; a second rigid portion having opposite first and second faces; and a second set of second flexible bristles extending from the first face of the second

base portion, wherein free ends of the first bristles extend past free ends of the second bristles.

[0073] Clause 19. The cleaning brush of clause 18, further comprising at least one coupler for coupling the first and second portions together.

[0074] Clause 20. The cleaning brush of clause 18, further comprising a pair of couplers for coupling the first and second portions together.

[0075] Many modifications and other embodiments of the disclosure set forth herein will come to mind to one skilled in the art to which these disclosed embodiments pertain having the benefit of the teachings presented in the foregoing descriptions and the associated drawings. Therefore, it is to be understood that the disclosure is not to be limited to the specific embodiments disclosed herein and that modifications and other embodiments are intended to be included within the scope of the disclosure. Moreover, although the foregoing descriptions and the associated drawings describe example embodiments in the context of certain example combinations of elements and/or functions, it should be appreciated that different combinations of elements and/or functions may be provided by alternative embodiments without departing from the scope of the disclosure. In this regard, for example, different combinations of elements and/or functions than those explicitly described above are also contemplated within the scope of the disclosure. Although specific terms are employed herein, they are used in a generic and descriptive sense only and not for purposes of limitation.

[0076] While a particular embodiment is illustrated in and described with respect to the drawings, it is envisioned that those skilled in the art may devise various modifications without departing from the spirit and scope of the appended claims. It will therefore be appreciated that the scope of the disclosure and the appended claims is not limited to the specific embodiments illustrated in and discussed with respect to the drawings and that modifications and other embodiments are intended to be included within the scope of the disclosure and appended drawings. Moreover, although the foregoing descriptions and the associated drawings describe example embodiments in the context of certain example combinations of elements and/or functions, it should be appreciated that different combinations of elements and/or functions may be provided by alternative embodiments without departing from the scope of the disclosure and the appended claims.

Claims

1. A cleaning brush comprising:

a rigid bottom base wall portion having opposite first and second ends, opposite first and second sides, and opposite first and second faces;
a rigid first side wall portion extending from the

first side of the bottom base wall portion;

a rigid second top wall portion extending from an upper end of the first side wall portion, the second top wall portion having opposite first and second faces, the first face of the second top wall portion facing the first face of the bottom base wall portion;

a rigid third side wall portion extending from the second, opposite side of the bottom base wall portion;

a rigid second top wall portion extending from an upper end of the third side wall portion the fourth top wall portion having opposite first and second faces, the first face of the fourth top wall portion facing the first face of the bottom base wall portion,

wherein a slot is formed between facing ends of the second top wall portion and the fourth top wall portion which extends from a first end of the cleaning brush to a second end of the cleaning brush;

a first set of first bristles extending from the first face of the bottom base wall portion;

a second set of second bristles extending from the first face of the second top wall portion; and

a third set of third bristles extending from the first face of the second top wall portion.

2. The cleaning brush of claim 1, wherein the first side wall portion is perpendicular to the bottom base wall portion, the second top wall portion is perpendicular to the first side wall portion, the third side wall portion is perpendicular to the bottom base wall portion and parallel to the first side wall portion, and the fourth top wall portion is perpendicular to the third side wall portion and parallel to, and aligned with, the second top wall portion.

3. The cleaning brush of claim 1 or 2, wherein the first side wall portion extends along an entire length of the bottom base wall portion, the second top wall portion extends along an entire length of the first side wall portion, the third side wall portion extends along an entire length of the bottom base wall portion, and the fourth top wall portion extends along an entire length of the third side wall portion.

4. The cleaning brush of any preceding claim, wherein the wall portions are formed of plastic, optionally acrylonitrile butadiene styrene.

5. The cleaning brush of any preceding claim, wherein the bottom base wall portion is formed of a generally rectangular prism.

6. The cleaning brush of any preceding claim, wherein the wall portions are integrally formed.

7. The cleaning brush of any preceding claim, wherein each set of flexible bristles are formed by spaced apart groups of hairs.

8. The cleaning brush of any preceding claim, wherein the first set of flexible first bristles extend between the side wall portions, the second set of flexible second bristles extend between the first side wall portion and the slot, and the third set of flexible third bristles extend between the fourth side wall portion and the slot. 5
10

9. The cleaning brush of any preceding claim, wherein the first and third side wall portions do not have bristles extending therefrom. 15

10. The cleaning brush of any preceding claim, wherein the first set of flexible first bristles extend between the opposite ends of the bottom base wall portion, the second set of flexible second bristles extend between opposite ends of the first side wall portion, and the third set of flexible third bristles extend between opposite ends of the second side wall portion. 20
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11. The cleaning brush of any preceding claim, wherein each set of bristles are lined up in rows and columns.

12. The cleaning brush of any preceding claim, wherein: (i) free ends of the first and second bristles touch each other, and free ends of the first and third bristles touch each other; or (ii) free ends of the first and second bristles are spaced apart from each other, and free ends of the first and third bristles are spaced apart from each other. 30
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13. The cleaning brush of any preceding claim, wherein: (i) the first bristles are spaced from the slot; and/or (ii) free ends of the first bristles extend past free ends of the second bristles, and free ends of the first bristles extend past free ends of the third bristles. 40

14. A cleaning brush comprising:
 - a first rigid portion having opposite first and second faces; 45
 - a first set of first flexible bristles extending from the first face of the first base portion;
 - a second rigid portion having opposite first and second faces; and 50
 - a second set of second flexible bristles extending from the first face of the second base portion, wherein free ends of the first bristles extend past free ends of the second bristles. 55

15. The cleaning brush of claim 14, further comprising at least one coupler, optionally a pair of couplers, for coupling the first and second portions together.

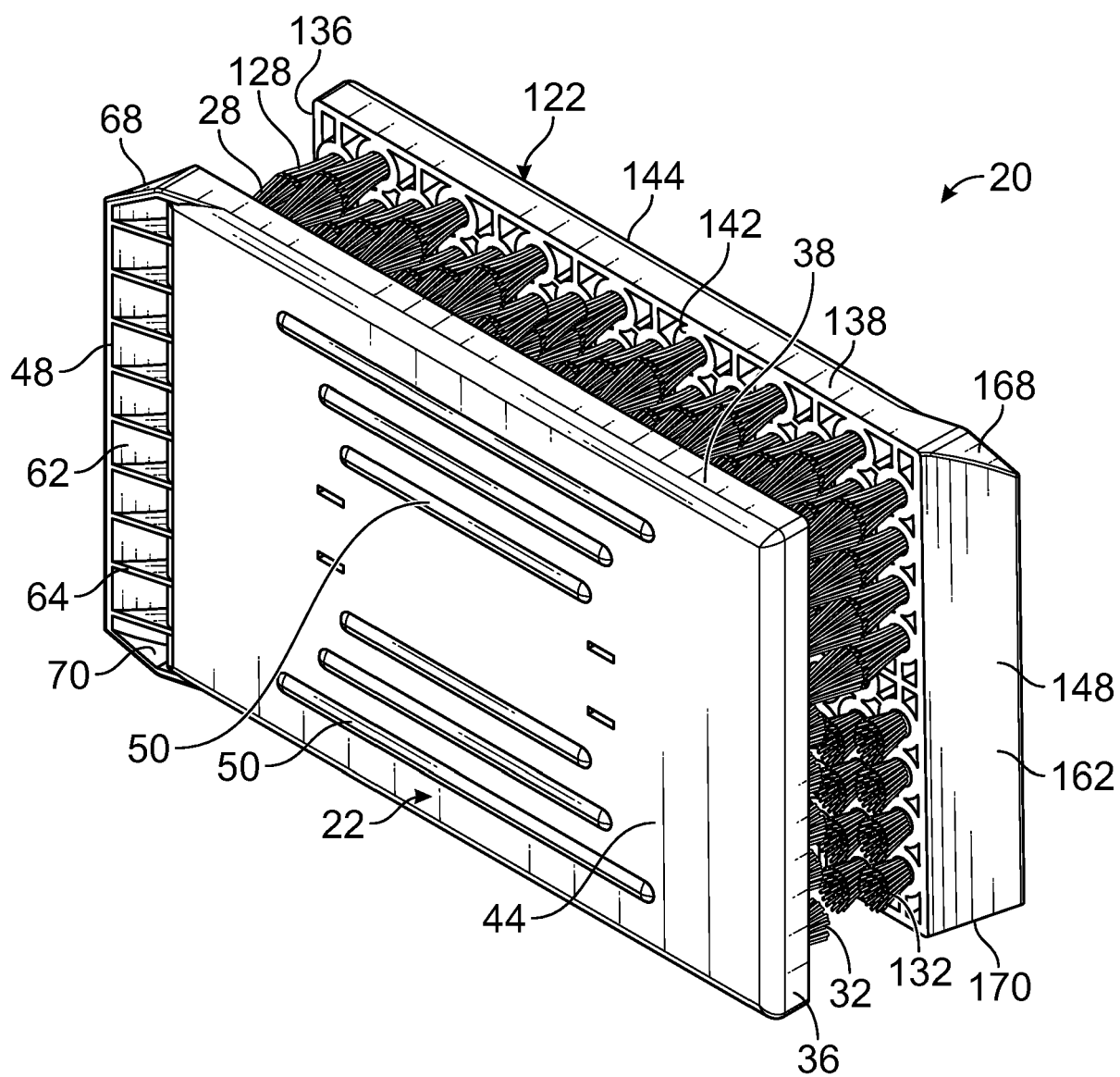


FIG. 1

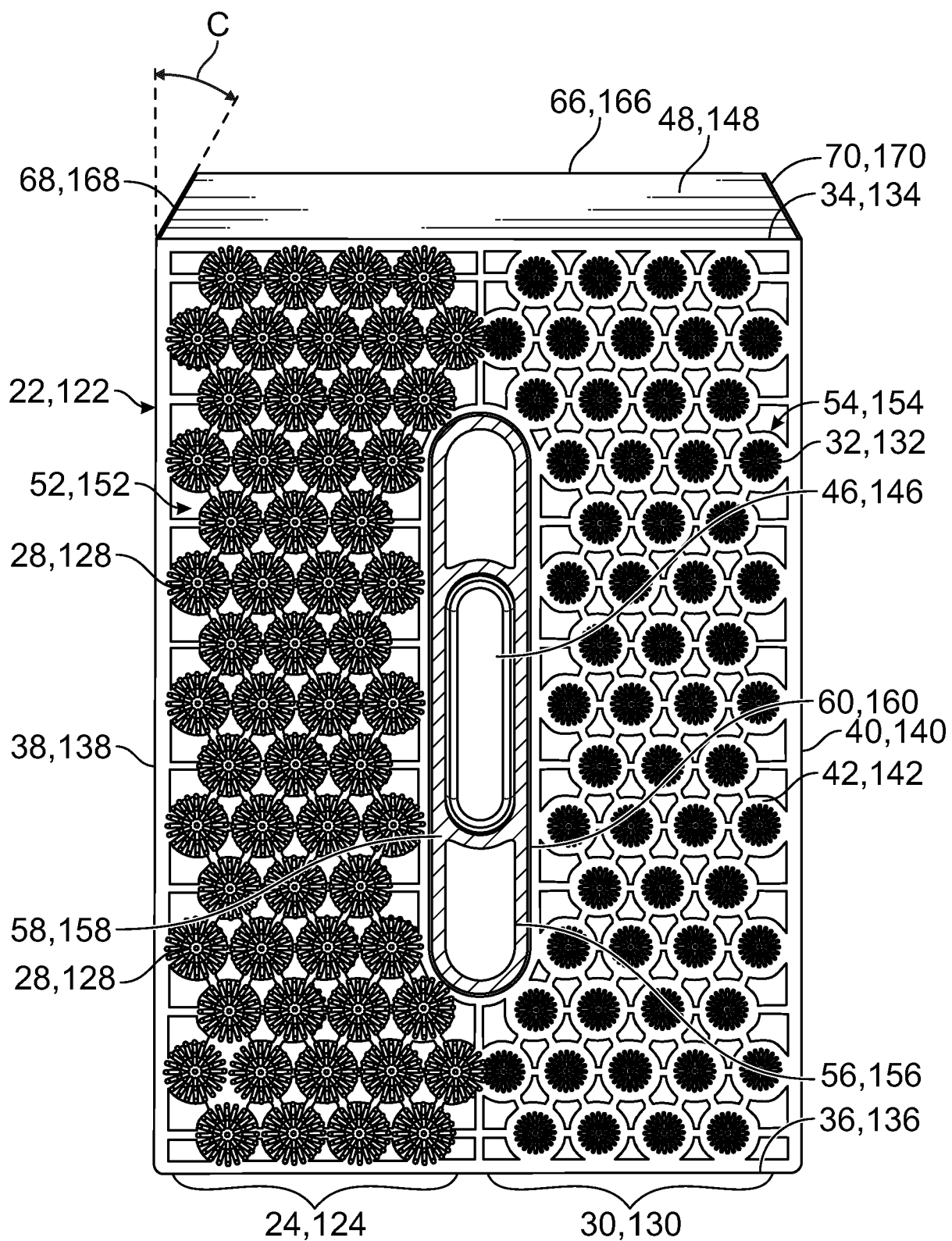


FIG. 2

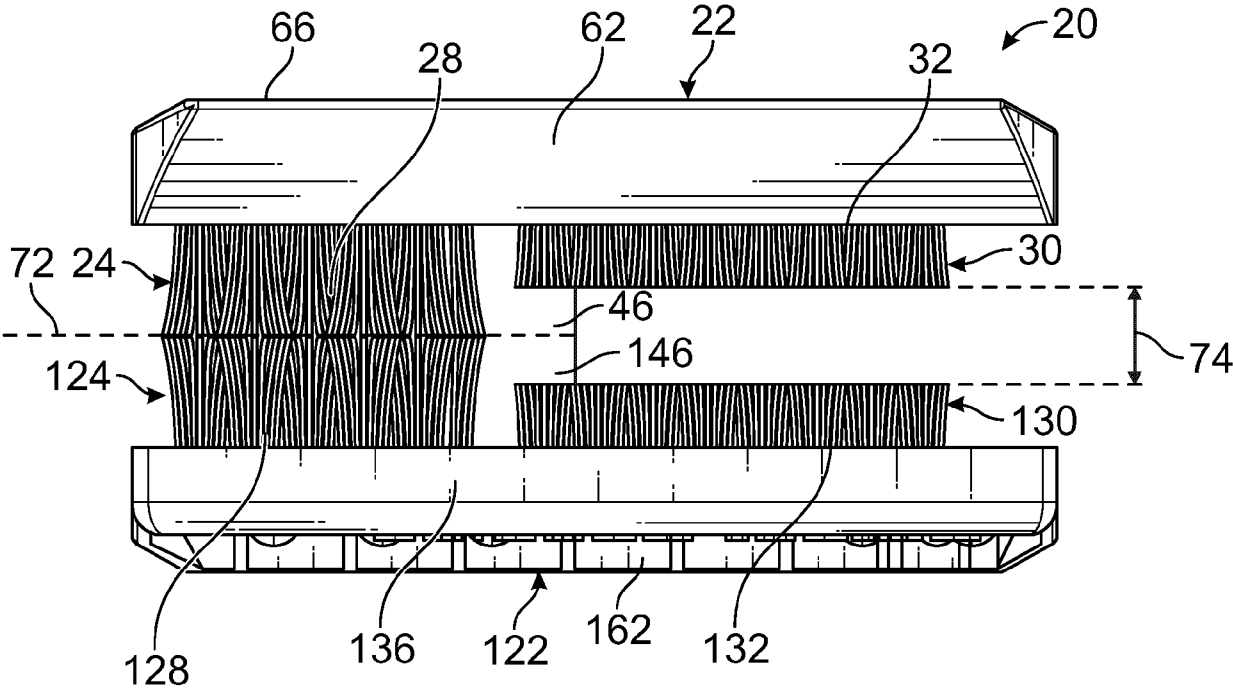


FIG. 3

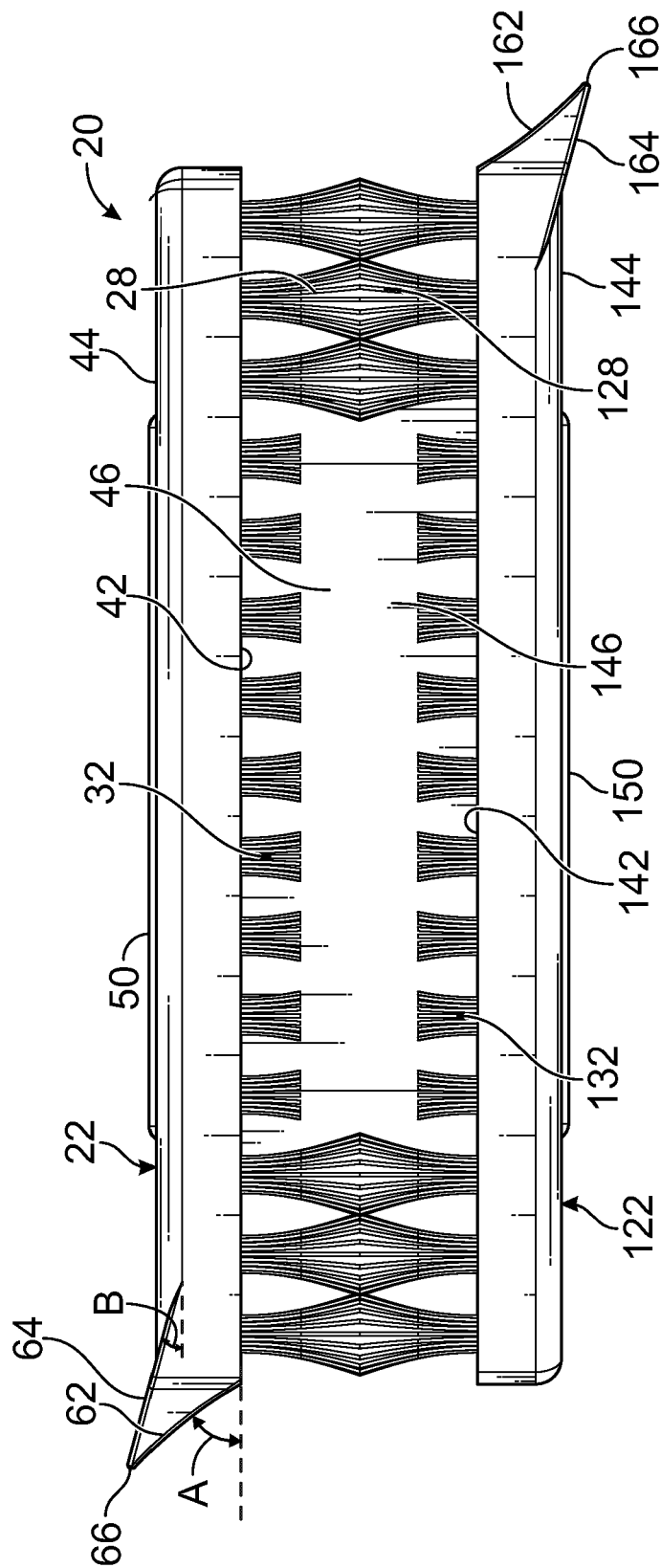


FIG. 4

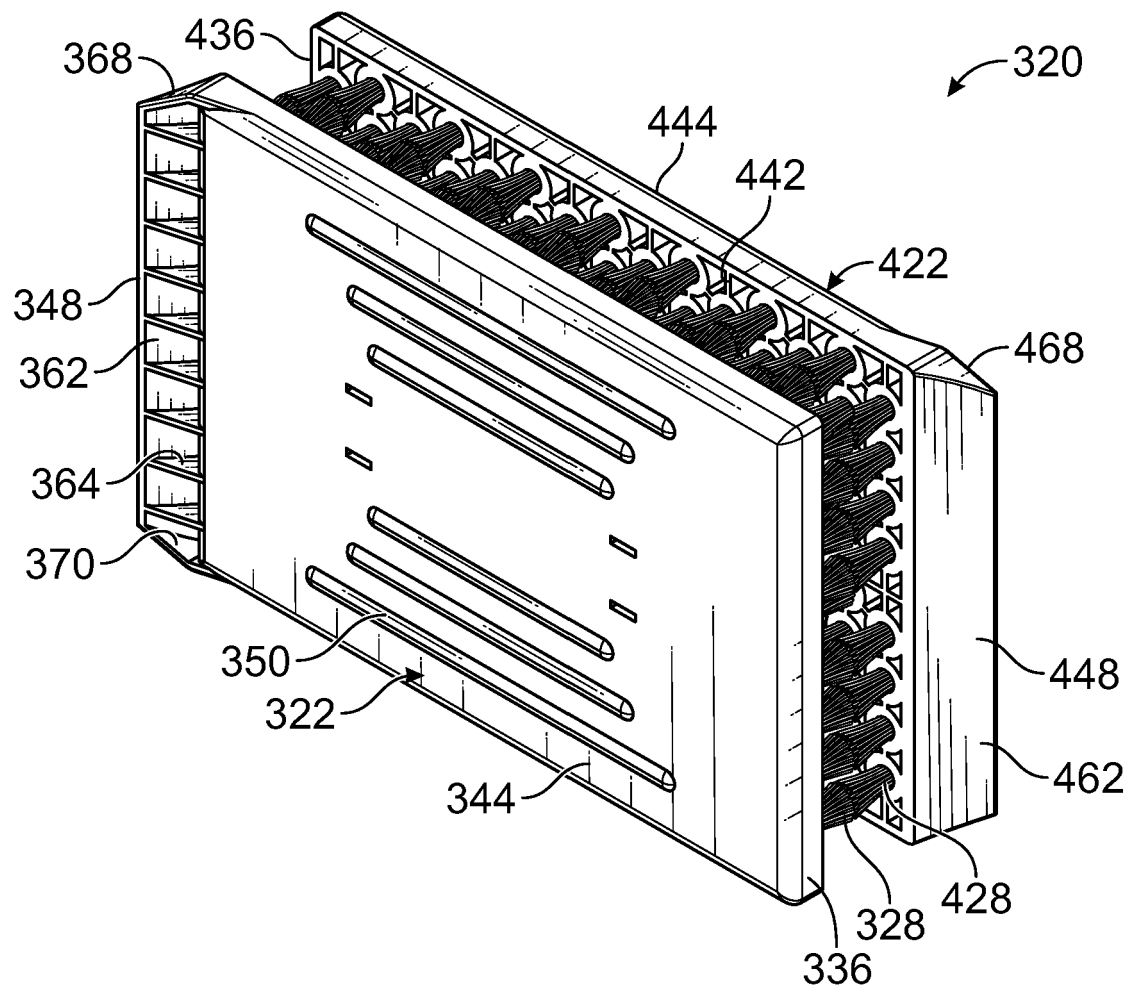


FIG. 5

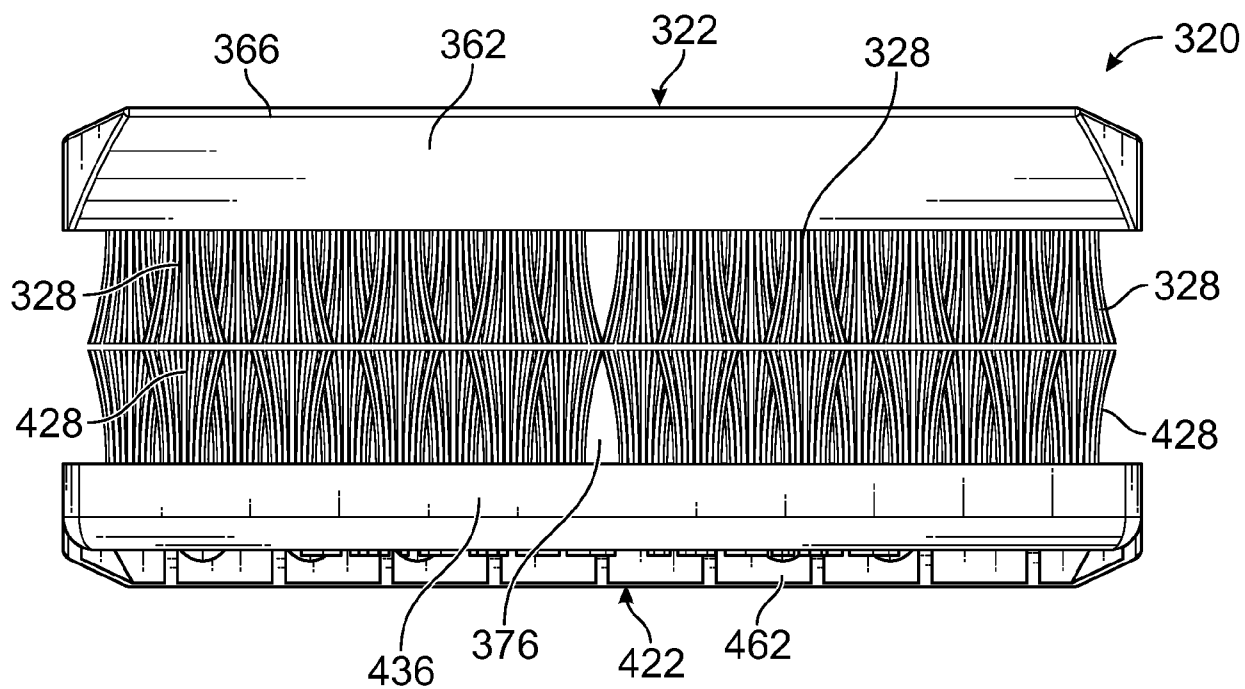


FIG. 6A

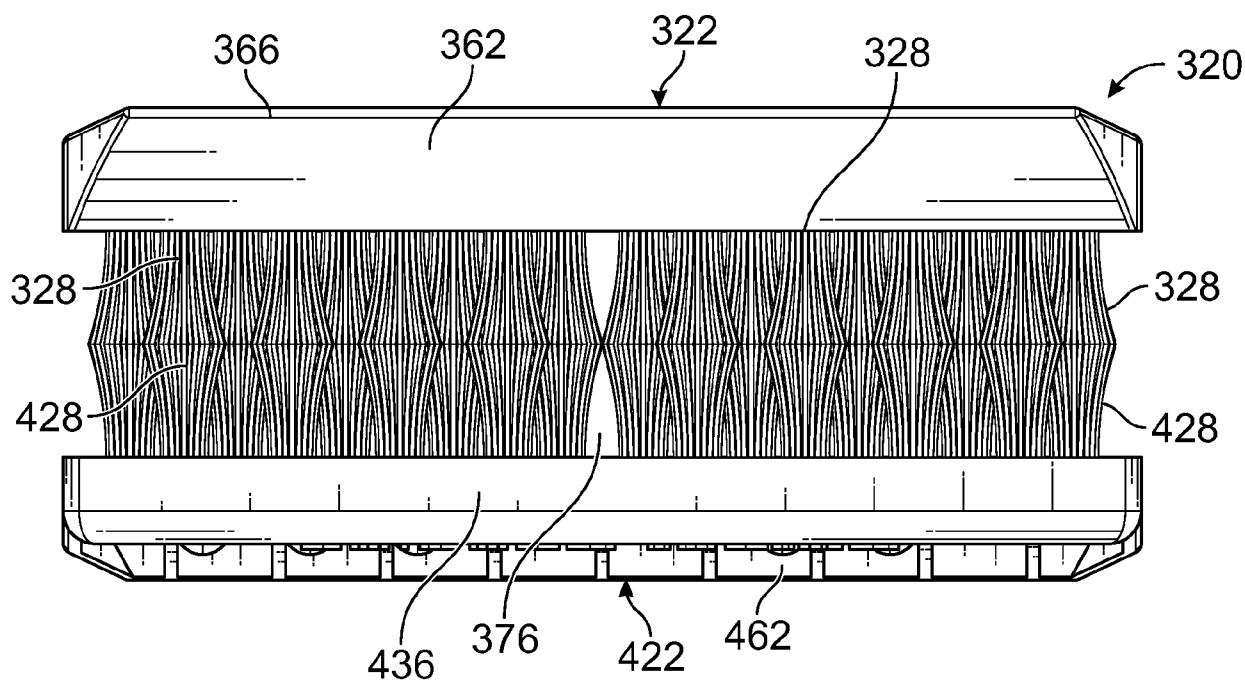


FIG. 6B

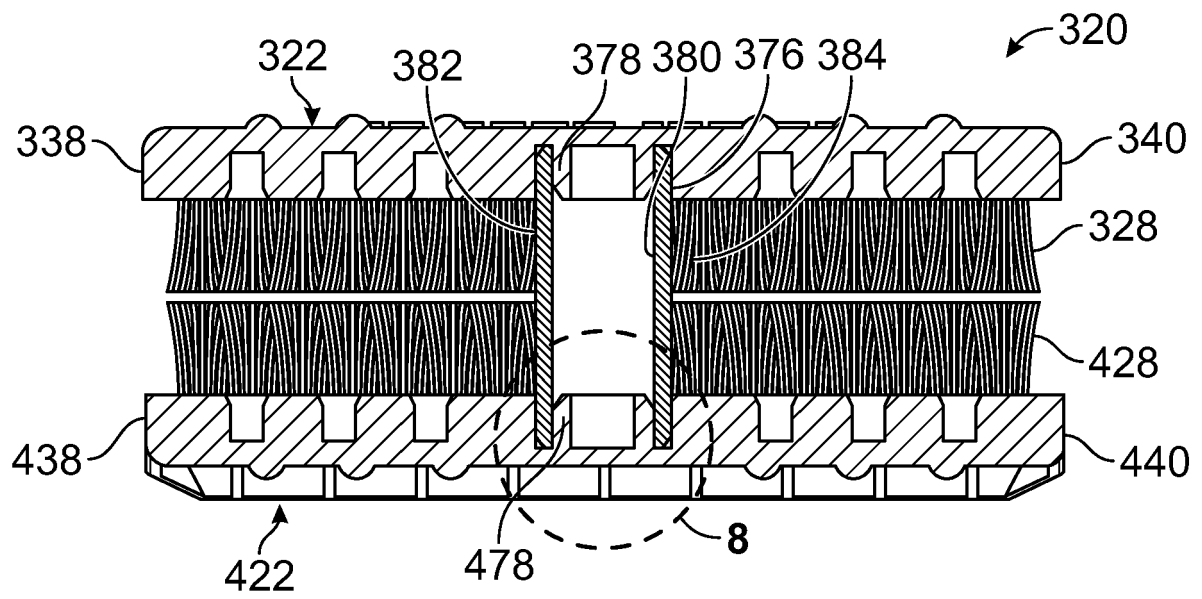


FIG. 7

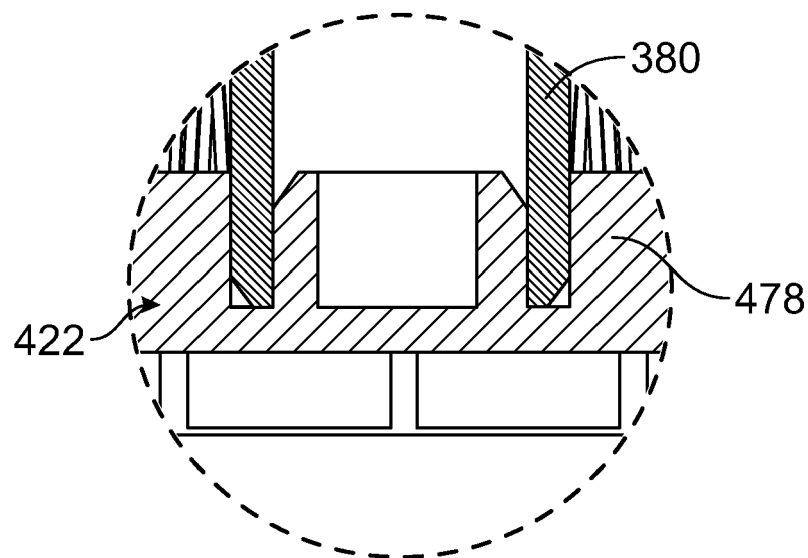


FIG. 8

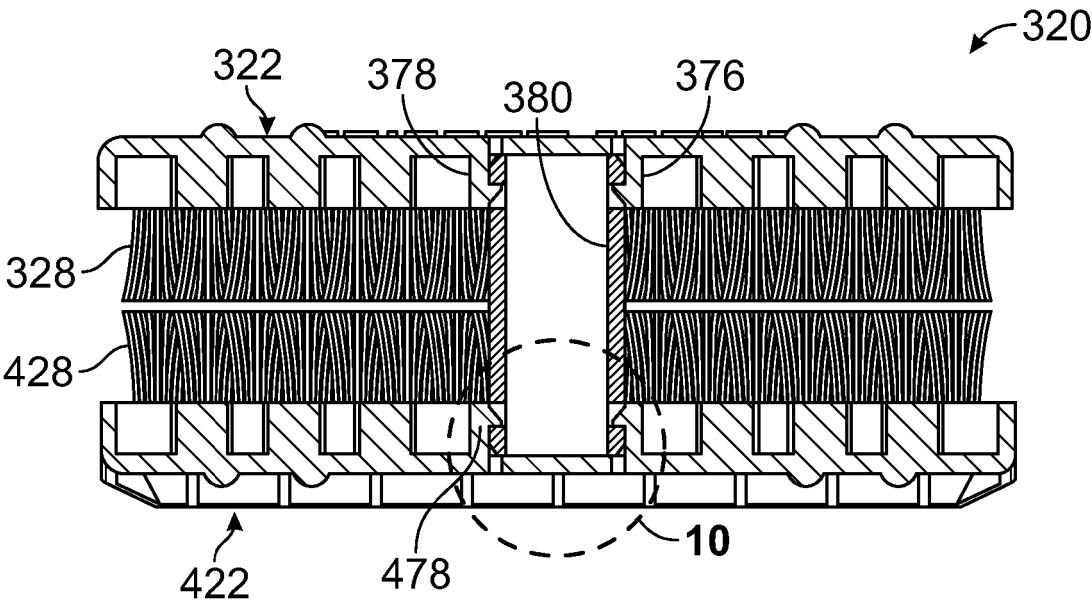


FIG. 9

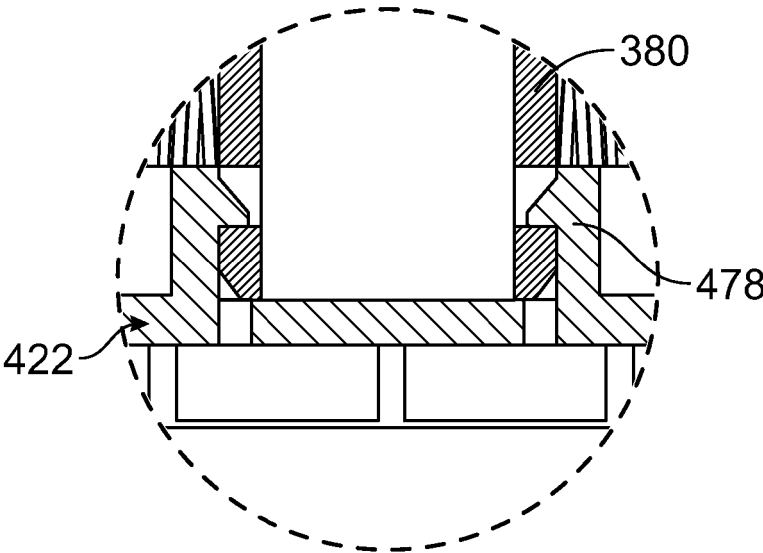


FIG. 10

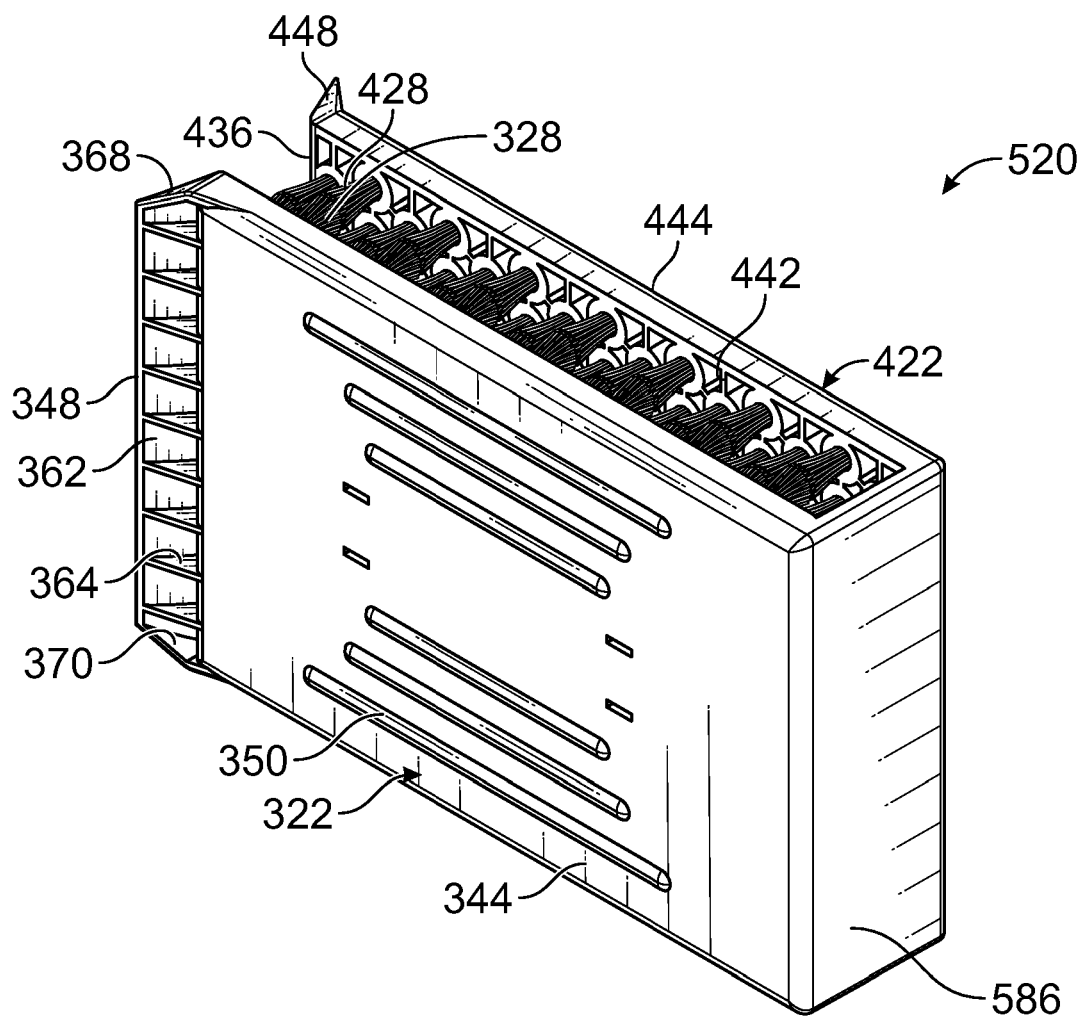


FIG. 11

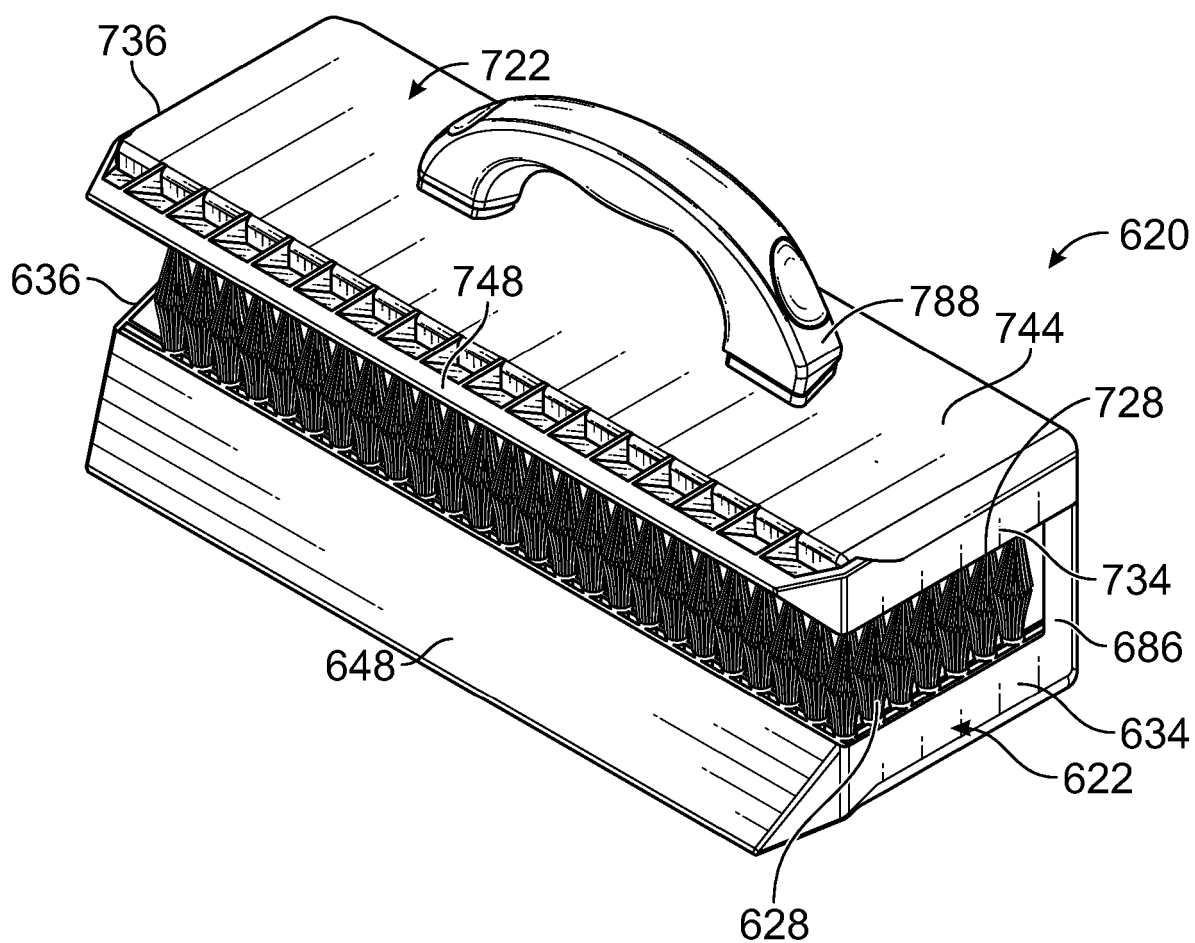


FIG. 12

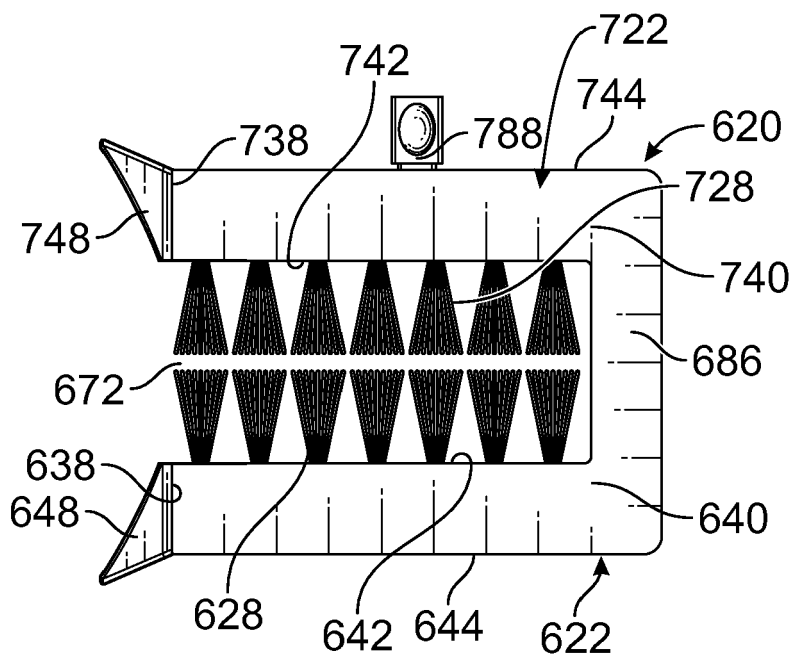


FIG. 13

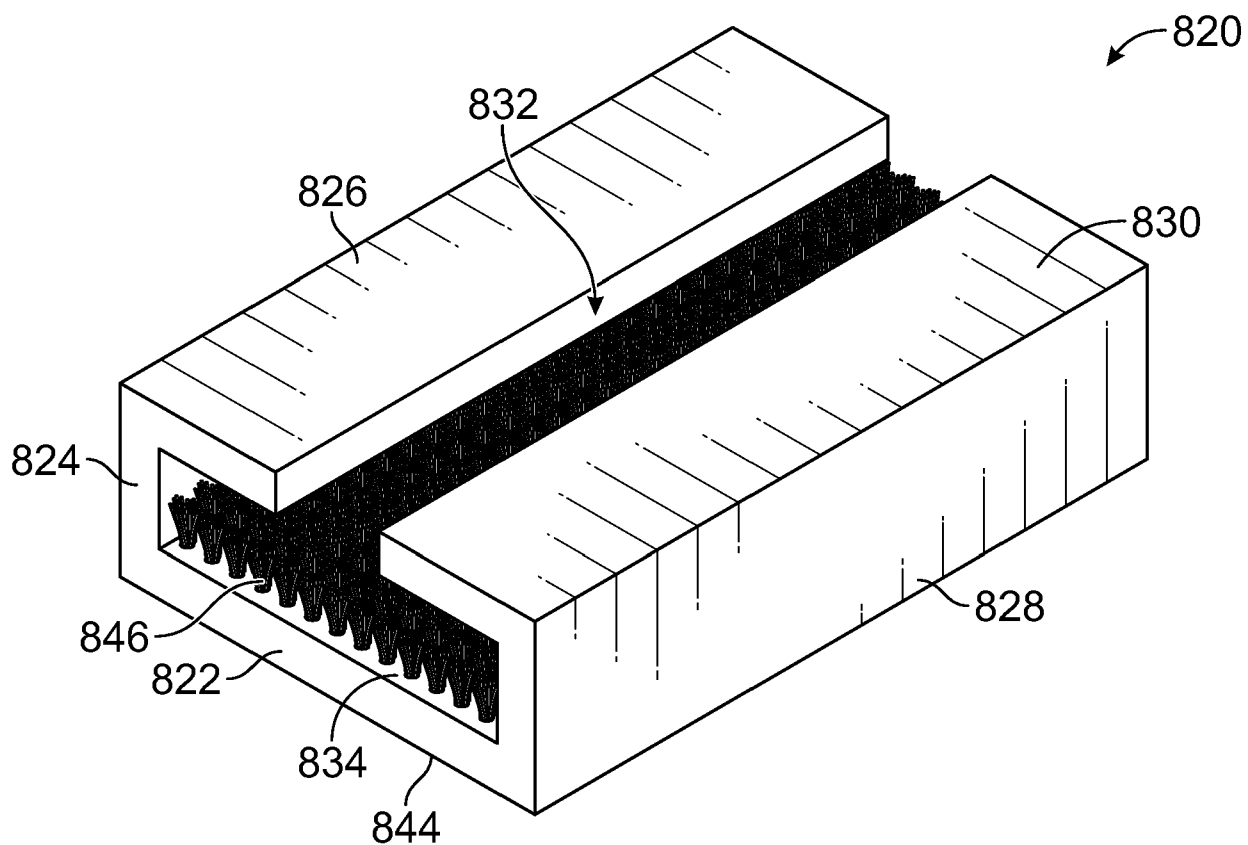


FIG. 14

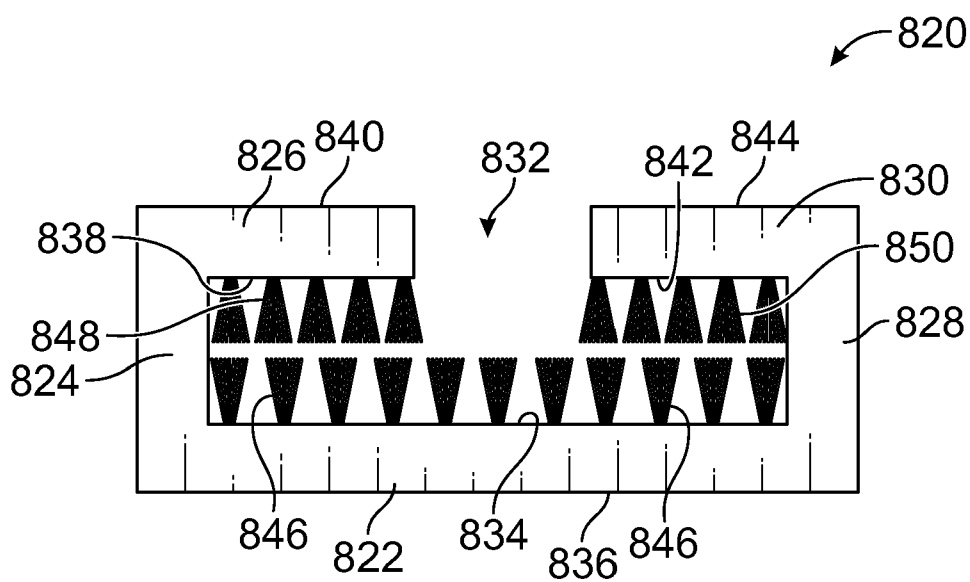


FIG. 15

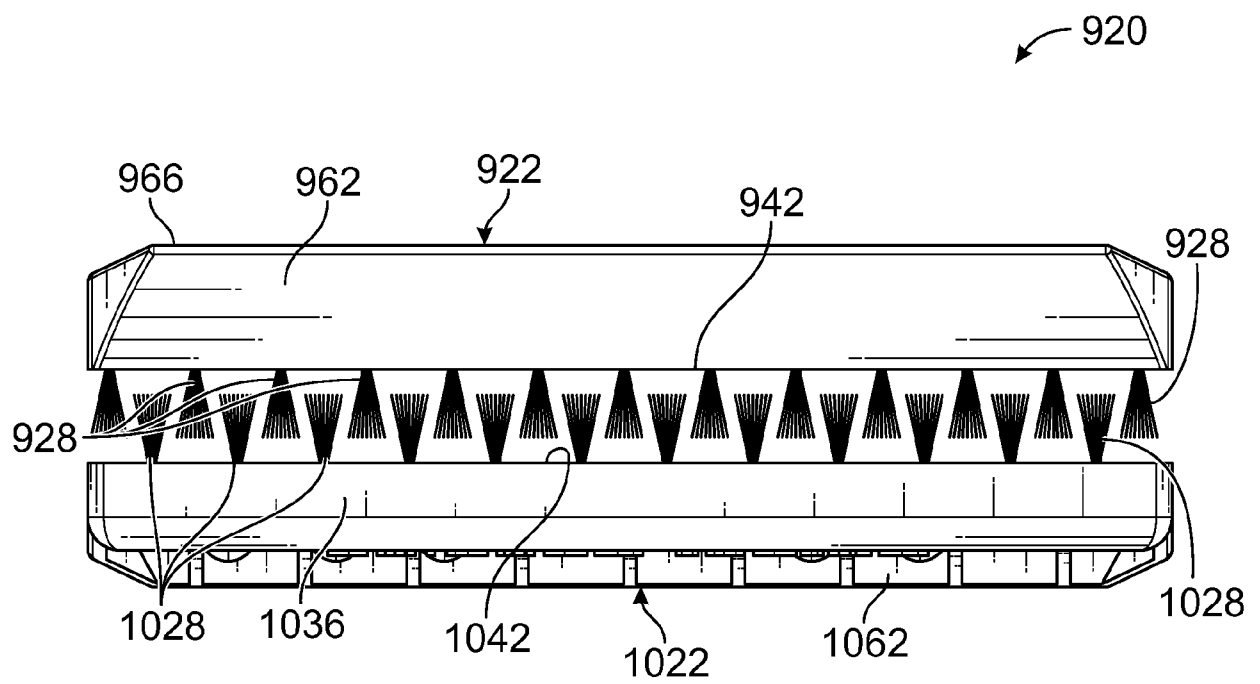


FIG. 16

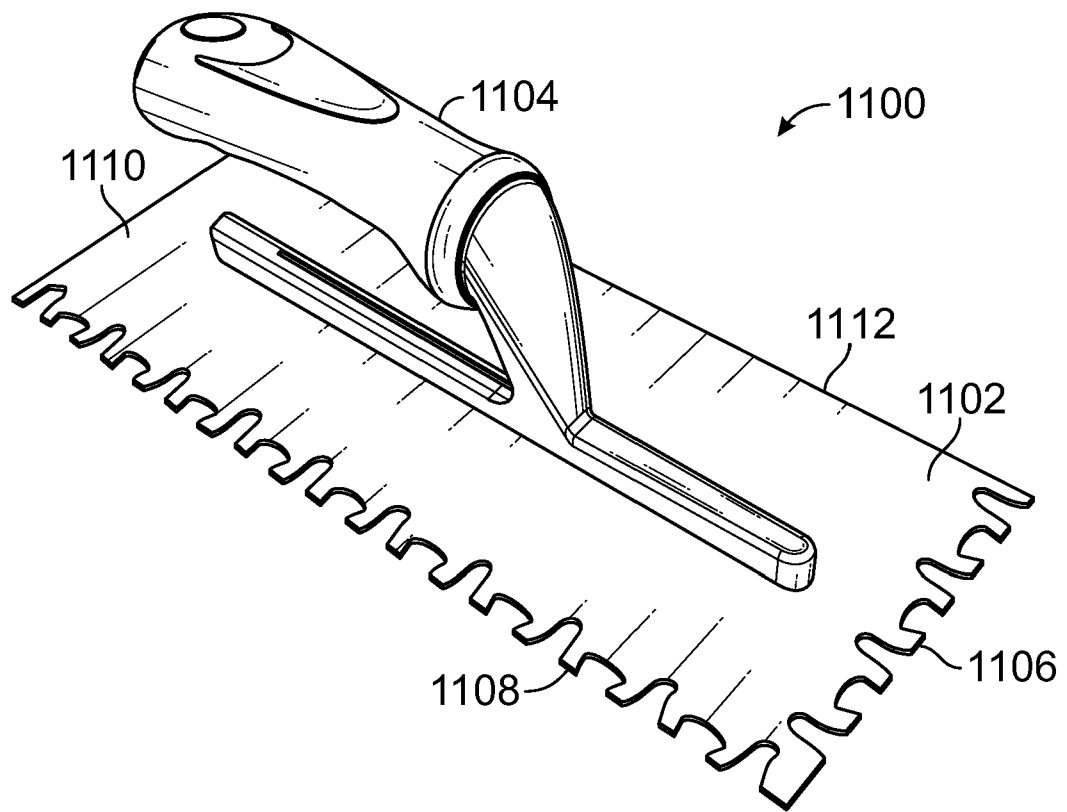


FIG. 17

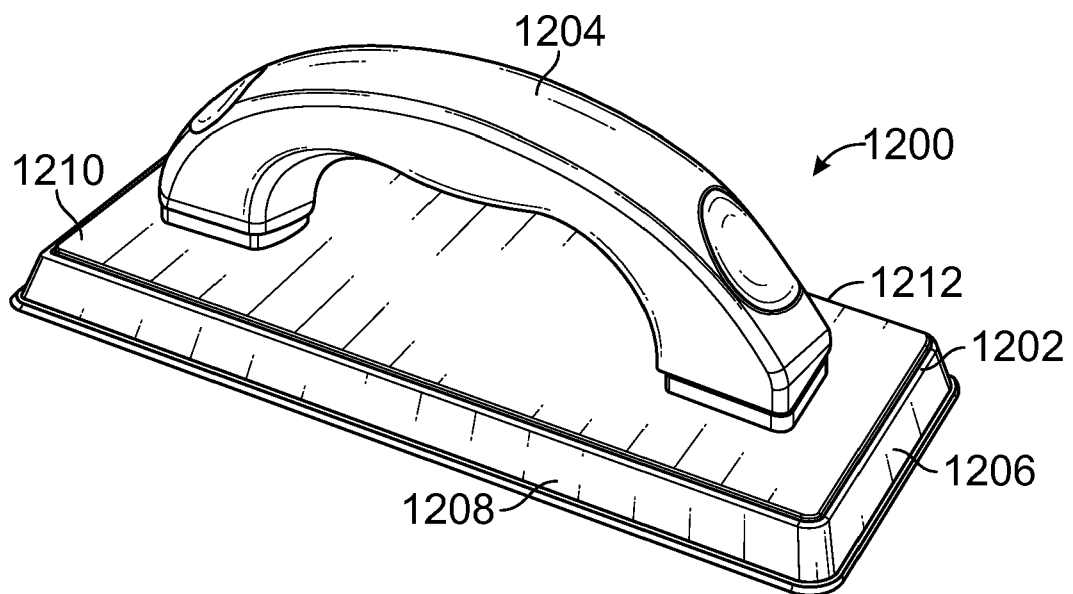


FIG. 18

REFERENCES CITED IN THE DESCRIPTION

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