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(54) MOP

(57) A two-sided mop is defined by a plurality of strands. A head band is secured to a first end of the plurality of strands. A first tail band is secured to the first side of the mop and a second tail band is secured to the second side of the mop near the distal ends of the strands to maintain the strands in a spread condition during use.

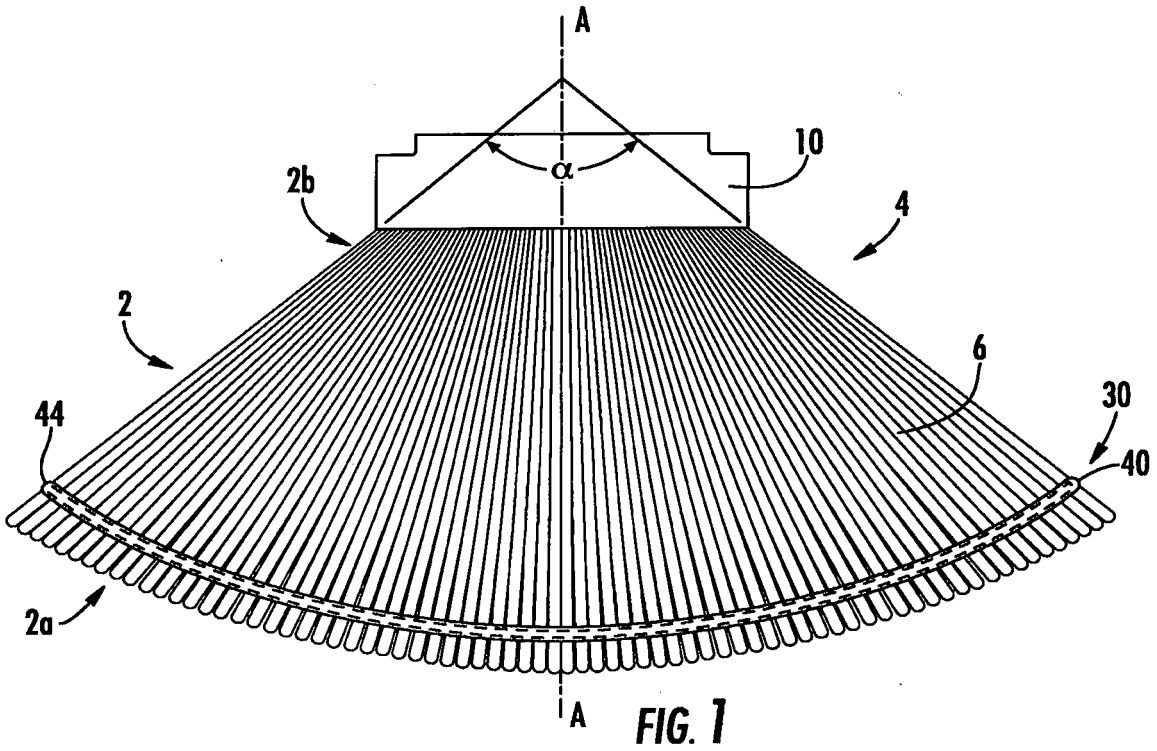


FIG. 1

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Description

[0001] This application claims benefit of priority under 35 U.S.C. § 119(e) to the filing date of U.S. Provisional Application No. 62/065,985, as filed on October 20, 2014, which is incorporated herein by reference in its entirety.

Background

[0002] The invention relates to mops and/or to tubular head band mounted wet mops and more particularly to wet mops such as the type of mop having a plurality of strands of material composed of material such as cotton, microfiber, polyester, rayon, nylon, synthetics, blends of such materials or other materials. The strands of material typically extend from a head band where the head band is supported on a mop handle frame. The mop may be manipulated such that the mop strands contact and spread over a floor or other surface being cleaned and are pushed and/or pulled to clean the floor or other surface.

Summary of the Invention

[0003] In some embodiments a mop comprises a plurality of strands forming a mop comprising a first side and a second side. A head band is secured to a first end of the plurality of strands. A first tail band is secured to the first side of the mop and a second tail band is secured to the second side of the mop.

[0004] The head band may be configured to be mounted on a mop handle frame. The head band may define a loop configured to receive a clamping arm. The first tail band and the second tail band may be secured to the plurality of strands. The first tail band may be secured to the second tail band. The first tail band may comprise a first strip of material and the second tail band may comprise a second strip of material where the first strip of material and the second strip of material extend generally transversely to a longitudinal axis of the plurality of strands. The first tail band and the second tail band are used to maintain the plurality of strands in a spread condition. The first tail band and the second tail band may be sewn to the plurality of strands. The first tail band may be sewn to the second tail band. The first tail band and the second tail band may be disposed directly opposite to one another. The first tail band and the second tail band may be slightly offset from one another along a longitudinal axis of the mop. The first tail band and the second tail band may be wider than the head band. The first tail band and the second tail band may be formed of a single member. The first side of the mop and the second side of the mop may be identical.

[0005] In some embodiments, a mop comprises a plurality of strands forming a mop comprising a first side and a second side. A head band is secured to a first end of the plurality of strands. A first tail band is secured to the first side of the mop and a second tail band is secured to the second side of the mop. A mop handle frame comprising a handle is secured to the head band.

[0006] In some embodiments, a mop comprises a plurality of strands forming a mop comprising a first side and a second side. A head band is secured to a first ends of the plurality of strands, the first ends defining a first width. A first tail band is secured to the first side of the mop and a second tail band is secured to the second side of the mop, the first tail band and the second tail band define a second width, the second width being greater than the first width. The first tail band and the second tail band are secured to the plurality of strands by stitching.

[0007] According to an embodiment of the invention, a mop comprising: a plurality of strands forming a mop comprising a first side and a second side; a head band secured to a first end of the plurality of strands; a first tail band secured to the first side of the mop and a second tail band secured to the second side of the mop.

[0008] According to a preferred embodiment of the invention, the head band is configured to be mounted on a mop handle frame.

[0009] Preferably, the head band defines a loop configured to receive a clamping arm and/or the first tail band and the second tail band are secured to the plurality of strands.

[0010] Particularly, the first tail band is secured to the second tail.

[0011] According to a preferred embodiment of the invention, the first tail band comprises a first strip of material and the second tail band comprises a second strip of material, the first strip of material and the second strip of material extending generally transversely to a longitudinal axis of the plurality of strands.

[0012] Preferably, the first tail band and the second tail band maintain the plurality of strands in a spread condition and/or the first tail band and the second tail band are sewn to the plurality of strands.

[0013] According to a preferred embodiment of the invention, the first tail band is sewn to the second tail band and/or the first tail band and the second tail band are disposed directly opposite to one another.

[0014] According to a preferred embodiment of the invention, the first tail band and the second tail band are slightly offset from one another along a longitudinal axis of the mop.

[0015] Particularly, the first tail band and the second tail band are wider than the head band and/or the first tail band and the second tail band are formed of a single member.

[0016] According to a further embodiment of the invention that may be combined with above mentioned embodiment, a mop comprises: a plurality of strands forming a mop comprising a first side and a second side; a head band secured to a first end of the plurality of strands; a first tail band secured to the first side of the mop and a second tail band secured to the second side of the mop; a mop handle frame comprising a handle secured to the head band.

[0017] According to a further embodiment of the invention that may be combined with above mentioned embodiments, a mop comprises: a plurality of strands forming a mop comprising a first side and a second side; a head band secured to a first ends of the plurality of strands, the first ends defining a first width; a first tail band secured to the first side of the mop and a second tail band secured to the second side of the mop, the first tail band and the second tail band defining a second width, the second width being greater than the first width; the first tail band and the second tail band being secured to the plurality of strands by stitching.

[0018] According to a preferred embodiment of the invention, the first tail band is attached to the second tail band by stitching.

[0019] Preferably, the first tail band and the second tail band are disposed directly opposite to one another and/or the first side of the mop and the second side of the mop are identical.

Brief Description of the Drawings

[0020]

Fig. 1 is a plan view of an embodiment of a mop of the invention.

Fig. 2 is a side view of the mop of Fig. 1.

Fig. 3 is a plan view of the mop of Fig. 1 mounted in a mop handle frame.

Fig. 4 is a schematic view of the strands of the mop of the invention.

Fig. 5 is a schematic view similar to Fig. 4 useful in explaining the operation of a mop.

Fig. 6 is a plan view of a mop useful in explaining the operation of a mop.

Fig. 7 is a schematic view similar to Fig. 4 of an alternate embodiment of the mop of the invention.

Fig. 8 is a schematic view similar to Fig. 7 of another alternate embodiment of the mop of the invention.

Detailed Description of Embodiments of the Invention

[0021] Referring for example to Fig. 1, 2 and 3 the mop 4 of the invention comprises a plurality of strands 2 that form a two-sided mop where both the top side 6 and the bottom side 8 of the mop may be used as cleaning surfaces. The strands 2 are typically formed as elongated loops made of relatively flexible, water absorbent material. Any suitable material may be used to form the strands 2. The material of the strands may be composed of a variety of structures and/or materials such as, but not limited to, yarns, woven or non-woven textiles, felted materials, extruded materials, microfibers and/or other structures, and/or materials such as cotton, microfiber, polyester, rayon, nylon, synthetics, blends of such materials or other materials. The first, proximate ends 2b of the strands 2 are gathered in and secured to a head band 10. The head band 10 may comprise a relatively stiff fabric material made of nylon or other similar material. The strands 2 typically extend from the head band 10 where the head band 10 may be supported on a mop handle frame 12 such that motion may be imparted to the mop by the elongated mop handle 14 such that the second, distal ends 2a of the strands 2 spread over the floor or other surface being cleaned. The proximal ends 2b of strands 2 are gathered in the head band having a first relatively narrower width where the distal ends 2a of the strands spread to a width that is significantly wider than the width of the head band 10 and the gathered proximal ends. The greater the spread of the distal ends 2a of the strands of the mop, the larger the area of the floor or other surface that may be covered by the mop during each mop stroke. Thus, maintaining the spread of the strands during use of the mop greatly improves the efficacy of the mop during use.

[0022] In some embodiments the strands 2 are supported in the head band 10 such that the head band 10 or the head band 10 and the proximal ends 2b of the strands 2 overlap themselves to create a closed, generally tubular loop 20 or cavity in the head band 10. The closed loop 20 may be engaged by a clamping device of the mop handle frame 12 such that the mop 4 may be secured to the mop handle 14. Typically, the frame 12 comprises a clamping arm 22 or other similar device that is inserted into the closed loop 20 to secure the mop 4 to the mop handle frame 12. The mop handle frame 12 may comprise a locking mechanism, such as a movable jaw 24, to lock the mop 2 to the clamping arm 22. The jaw 24 may be moved by a screw or other device 26 to move the jaw 24 towards and away from the clamping arm 22. A retaining member 28 may be used to close the open end of the clamping arm 22. Embodiments of a mop and mop handle frame are shown and described in U.S. Patent No. 8,585,154, titled "Tubular Headband Mounted Wet Mop", issued to Williams et al. on November 19, 2013 which is incorporated by reference herein in its entirety; U.S. Patent Application No. 13/850,983, titled "Tubular Headband Mounted Wet Mop", filed March 26, 2013 which is incorporated by reference herein in its entirety; and U.S. Patent Application No. 14/053,424, titled "Tubular Headband Mounted Wet Mop", filed October 14, 2013 which is incorporated by reference herein in its entirety.

[0023] A tail band structure 30 is provided between the head band 10 and the distal ends 2a of the strands 2 typically nearer to the free, distal ends 2a to secure the strands 2 together to maintain the spread of the strands during use. The tail band structure 30 comprises at least one strip of material such as an extruded, felted or woven

textile or fabric. The strip of fabric is positioned generally transversely to the longitudinal axis of the strands 2 and is connected to the strands 2 with the strands in the spread condition. The "spread" condition is used herein to mean that the distal ends 2a of the strands 2 remote from the head band 10 are spaced from one another as compared to the proximal ends 2b of the strands that are bunched and attached to the head band such that the strands 2 form a fan shape, as shown for example in Figs. 1 and 3, with the strands 2 extending at a large angle relative to the longitudinal axis A-A of the mop toward either side such that the strands spread over a large area that increases from the proximal ends 2b to the distal ends 2a. The angle of spread of the mop may be described as angle α which is the angle formed by the lateral sides of the mop in the spread condition. To form the tail band structure 30 the strip of material is sewn to the strands 2 to fix the position of the strands 2 relative to the strip of material in the spread condition.

[0024] In traditional mops the tail band comprises a strip of material 100 secured to one side of the mop as shown in the schematic end view of the strands of Fig. 5. It has been determined that during use of a mop, a tail band provided on one side of the mop does not adequately maintain the strands 2 in a spread condition. Referring to Figs. 5 and 6, as the mop is pulled over a floor or other surface, in the direction of arrow A, the distal ends of the strands tend to move toward the center of the mop in the direction of arrows B where the strands layer on top of one another and the spread of the mop is reduced. The friction on the mop from the engagement with the floor or other surface pulls the strands toward the center line of the mop. It has been determined that the reduction of spread is caused, at least in part, by the strands layering on top of one another as shown in Fig. 5. The spread is reduced until the strands gather together and counteract the forces on the mop.

[0025] It has been determined that the spread of the mop may be better maintained by providing two tail bands 40 and 42 where the first tail band 40 is formed on a first side 6 of the mop and a second tail band 42 disposed on the opposite side 8 of the mop from a first tail band 40. Both tail bands 40, 42 may be sewn to the strands 2 using stitching 44 while the strands 2 are in the spread condition. As explained above the strands 2 are attached to the head band 10 in a gathered configuration having a first width while the tail bands are secured near the distal ends of the strands when the strands are in the spread, flat, non-overlapping condition such that the width of the tail bands 40, 42 is significantly greater that the width of the head band 10. It has been determined that using a second tail band on the opposite side of the mop from a first tail band improves the spread by approximately 30%. In one embodiment, the upper tail band 40, attached to the top side 6 of the mop, and the lower tail band 42, attached to the bottom side 8 of the mop, are disposed directly opposite to one another such that the two tail bands 40 and 42 form a sandwich trapping the strands 2 between the two tail bands. The tail bands 40 and 42 may be sewn to the strands in a single operation such that the same stitching 44 attaches both tail bands to the strands 2. The stitching 44 may also attach the tail bands 40 and 42 to one another. The terms "upper" and "lower" and "top" and "bottom" are used herein to facilitate explanation of the invention as shown in the drawings. In actual use the mop 4 is used as a two-sided mop such that both sides 6 and 8 of the mop may be used to clean a surface where each side of the mop may constitute the top or bottom of the mop and each tail band 40 and 42 may constitute the upper tail band or the lower tail band. Fig. 4 is a schematic view showing the distal ends 2a of the strands 2 sandwiched between the upper tail band 40 and the lower tail band 42 in an ideal arrangement where the strands 2 are disposed in a uniform layer across the mop and the spread of the mop is maximized. It is to be understood that in an actual mop the strands comprise a large number of relatively flexible looped or cut members where each strand may not align in a perfectly straight line as shown in Fig. 4; however, the use of two tail bands maintain the position of the strands in a spread condition where the strands are disposed in a relatively uniform layer where overlapping of the strands is minimized.

[0026] The tail bands 40, 42 may comprise any suitable material such as cotton, microfiber, polyester, rayon, nylon, synthetics, blends of such materials or other materials. In one embodiment the tail bands 40, 42 may be made of a relatively non-absorbent material such as polyester such that the tail bands do not absorb water or other liquids during use. The lack of absorbency maintains the relative stiffness of the tail bands 40, 42 during use such that the spread of the strands 2 may be better maintained. In some embodiments the tail bands 40 and 42 may be identical in size, shape and relative locations on the mop such that both sides 6 and 8 of the mop are identical; however, one of the tail bands 40 and 42 may be relatively larger, smaller or made of different material than the other tail band. Moreover, while the tail bands 40 and 42, in one preferred embodiment, are disposed directly opposite one another at the same location relative to the head band 10, in some embodiments the tail bands 40 and 42 may be slightly offset from one another along the longitudinal axis A-A of the mop. For example, a relatively wider tail band may be used on one side of the mop and a relatively narrower tail band may be used on the opposite side of the mop where the tail bands are offset from one another along the longitudinal axis but the tail bands still sandwich the strands. In some embodiments the tail bands may be completely offset from one another but relatively closely spaced from one another along the longitudinal axis of the mop. Moreover, while the upper and lower tail bands 40, 42 have been described as separate members secured to the top and bottom sides of the mop, in some embodiments, the upper and lower tail bands 40, 42 may be formed of a single member 50 that wraps around one lateral edge of the

strands 2 to cover both sides of the mop and form the upper and lower tail bands 40 and 42 as shown in Fig. 7. In some embodiments the upper and lower tail bands may be formed of a single member 60 formed as a loop that wraps around both lateral edges of the strands 2 to cover both sides of the mop and form the upper and lower tail bands 40 and 42 as shown in Fig. 8. In other embodiments the upper and lower tail bands may be formed of more than two separate elements that together form the upper and lower tail bands. While the tail bands are preferably secured to the strands by stitching, the tail bands may be secured to the strands by adhesive or other connection mechanism.

[0027] Various embodiments of the invention have been described and illustrated. However, the description and illustrations are by way of example only. Other embodiments and implementations are possible within the scope of the invention and will be apparent to those of ordinary skill in the art. Therefore, the invention is not limited to the specific details of the representative embodiments, and illustrated examples in this description. Accordingly, the invention is not to be restricted except as necessitated by the accompanying claims and their equivalents.

List of reference numerals

[0028]

2	strands
2a	distal ends of the strands
2b	proximate ends of the strands
4	mop
6	top side
8	bottom side
10	head band
12	mop handle frame
14	mop handle
20	tubular loop / cavity
22	clamping arm
24	movable jaw
26	screw
28	retaining member
30	tail band structure
40, 42	tail bands
44	stitching
50, 60	single member
100	strip of material
A-A	longitudinal axis

Claims

1. A mop (4) comprising:

a plurality of strands (2) forming a mop (4) comprising a first side (6) and a second side (8);
a head band (10) secured to a first end of the plurality of strands (2);
a first tail band (40) secured to the first side (6) of the mop (4) and a second tail band (42) secured to the second side (8) of the mop (4).

2. The mop (4) of claim 1 wherein the head band (10) is configured to be mounted on a mop handle frame (12) and/or the head band (10) defines a loop configured to receive a clamping arm (22).

3. The mop (4) of one of the preceding claims wherein the first tail band (40) and the second tail band (42) are secured to the plurality of strands (2).

4. The mop (4) of one of the preceding claims wherein the first tail band (40) is secured to the second tail band (42).

5. The mop (4) of one of the preceding claims wherein the first tail band (40) comprises a first strip of material and the second tail band (42) comprises a second strip of material, the first strip of material and the second strip of material extending generally transversely to a longitudinal axis (A) of the plurality of strands (2).

6. The mop (4) of one of the preceding claims wherein the first tail band (40) and the second tail band (42) maintain the plurality of strands (2) in a spread condition and/or wherein the first tail band (40) and the second tail band (42) are sewn to the plurality of strands (2).

7. The mop (4) of one of the preceding claims wherein the first tail band (40) is sewn to the second tail band (42) and/or wherein the first tail band (40) and the second tail band (42) are disposed directly opposite to one another.

8. The mop (4) of one of the preceding claims wherein the first tail band (40) and the second tail band (42) are slightly offset from one another along a longitudinal axis (A) of the mop and/or wherein the first tail band (40) and the second tail band (42) are wider than the head band (10).

9. The mop (4) of one of the preceding claims wherein the first tail band (40) and the second tail band (42) are formed of a single member (50, 60).

10. A mop (4), particularly according to one of the preceding claims, comprising:

a plurality of strands (2) forming a mop (4) comprising a first side (6) and a second side (8);
a head band (10) secured to a first end of the plurality of strands (2);
a first tail band (40) secured to the first side (6)

of the mop (4) and a second tail band (42) secured to the second side (8) of the mop (4);
a mop handle frame (21) comprising a handle (14) secured to the head band (10).

11. A mop (4), particularly according to one of the preceding claims, comprising:

a plurality of strands (2) forming a mop (4) comprising a first side (6) and a second side (8);
a head band (10) secured to a first ends of the plurality of strands (2), the first ends defining a first width; a first tail band (40) secured to the first side (6) of the mop (4) and a second tail band (42) secured to the second side (8) of the mop (4), the first tail band (40) and the second tail band (42) defining a second width, the second width being greater than the first width;
the first tail band (40) and the second tail band (42) being secured to the plurality of strands (2) by stitching.

12. The mop (4) of claim 10 or 11 wherein the first tail band (40) is attached to the second tail band (42) by stitching.

13. The mop (4) of claim 10, 11 or 12 wherein the first tail band (40) and the second tail band (42) are disposed directly opposite to one another.

14. The mop (4) of one of the preceding claims 10 to 13 wherein the first side (6) of the mop (4) and the second side (8) of the mop (4) are identical.

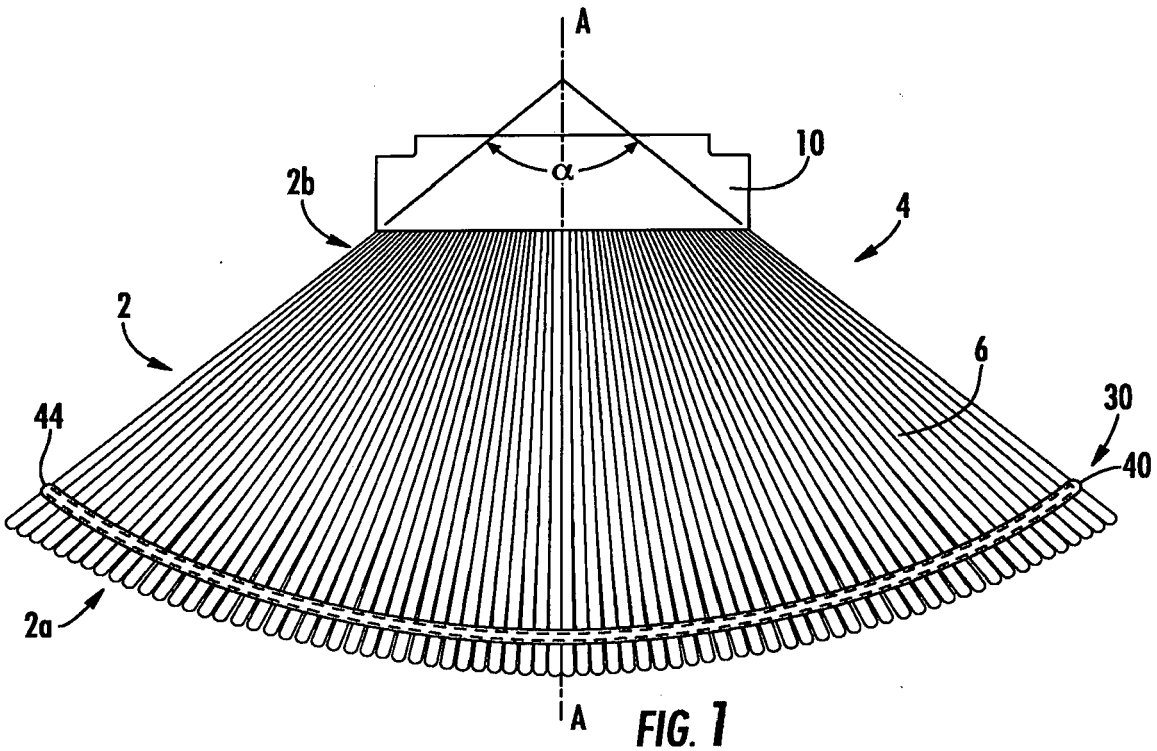


FIG. 1

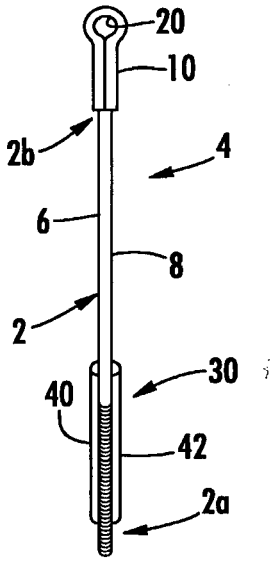


FIG. 2

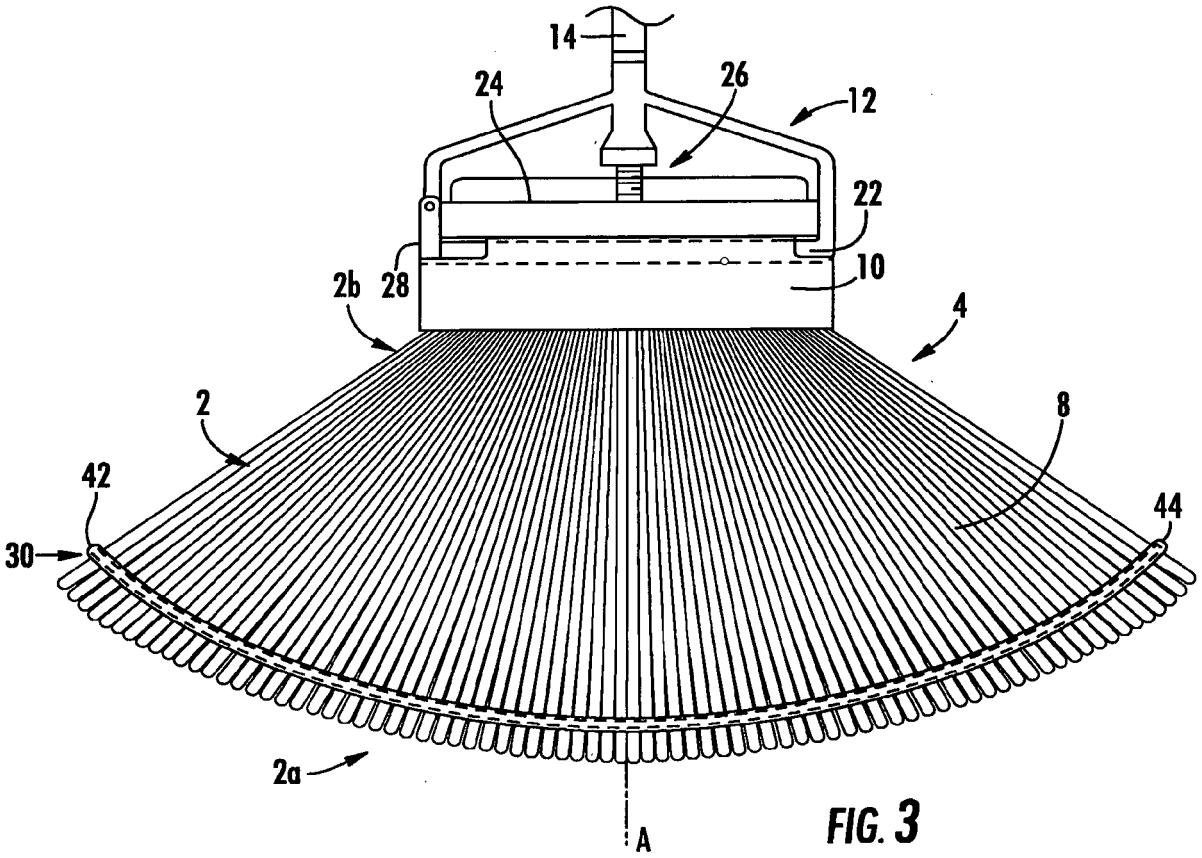


FIG. 3

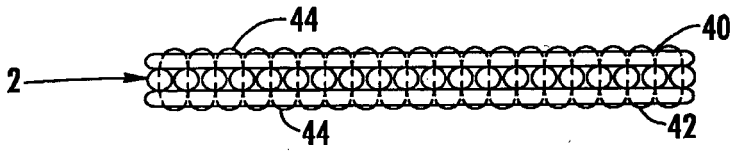


FIG. 4

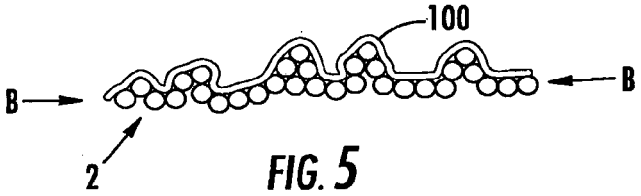


FIG. 5

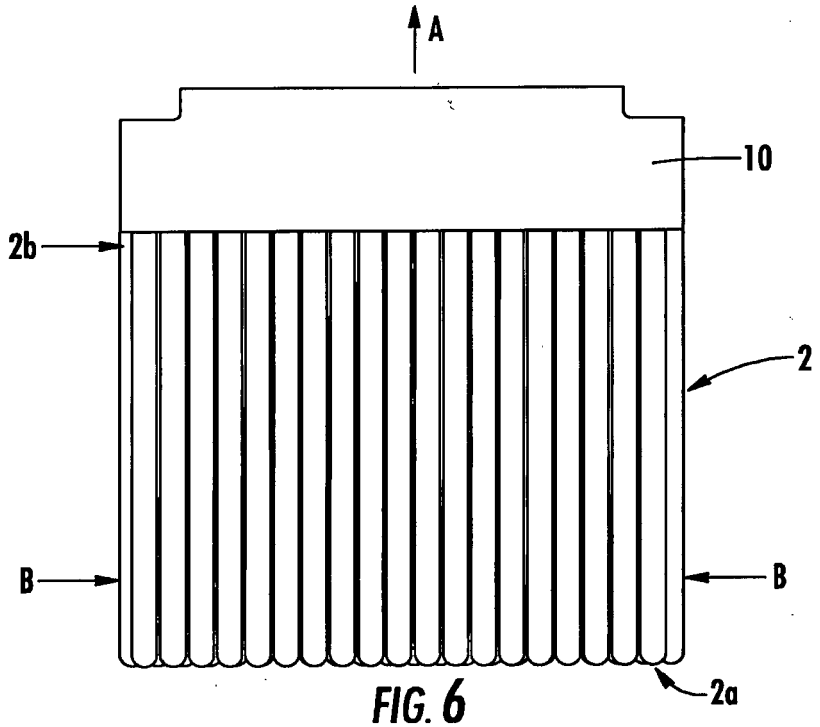


FIG. 6

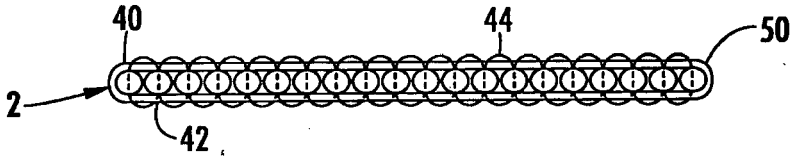


FIG. 7

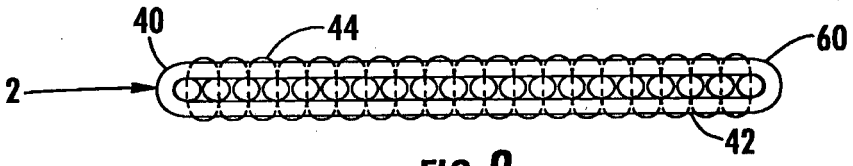


FIG. 8

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EUROPEAN SEARCH REPORT

Application Number
EP 15 00 2999

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 8 756 745 B1 (FEENY JOHN [US] ET AL) 24 June 2014 (2014-06-24) * figures 1,2 *	1-14	INV. A47L13/252
X	US 2012/056466 A1 (WILLIAMS TODD ALLEN [US] ET AL) 8 March 2012 (2012-03-08) * figures 1-4 *	1-14	

TECHNICAL FIELDS SEARCHED (IPC)

A47L

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	17 February 2016	Trimarchi, Roberto

CATEGORY OF CITED DOCUMENTS

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17-02-2016

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 8756745 B1	24-06-2014	NONE	
US 2012056466 A1	08-03-2012	NONE	

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

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Patent documents cited in the description

- US 62065985 A **[0001]**
- US 8585154 B **[0022]**
- US 85098313 A **[0022]**
- US 05342413 A **[0022]**