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(71) Applicant: **Scot Young Research Limited**
Stourbridge
West Midlands DY9 8HG (GB)

(72) Inventor: **Young, Ronald Alexander Scot**
Stourbridge, West Midlands DY9 8HG (GB)

(74) Representative: **Murgitroyd & Company**
Murgitroyd House
165-169 Scotland Street
Glasgow G5 8PL (GB)

(54) MOP HEAD AND A METHOD OF MAKING THE SAME

(57) A head for a mop is described, the head comprising a plurality of elongate members of absorbent material, wherein the elongate members of absorbent material are bound by a header member, wherein a first portion and a second portion of the header member are fixed to one another, and further wherein a third portion of the header member intermediate the first portion and the second portion loops around the elongate members of absorbent material. A method of manufacturing a mop head and a method of attaching a mop head to a mop are also described.

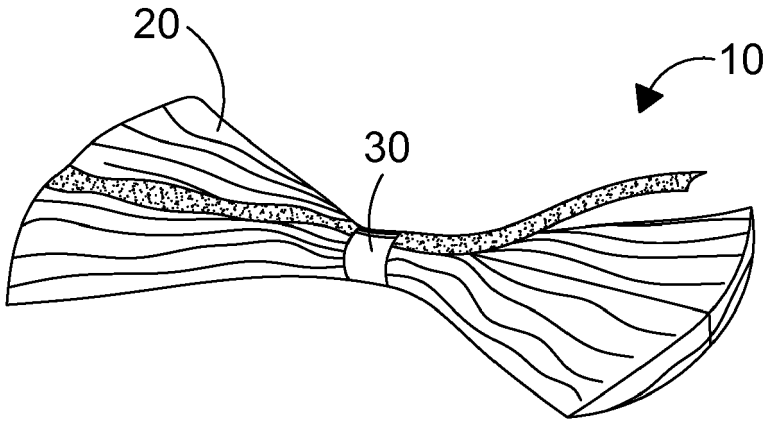

FIG. 1

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Description

FIELD OF THE INVENTION

[0001] The present invention relates to a mop head and a method of making the same.

Background of the Invention

[0002] Mops which removably retain mop materials are commonly used to clean floors in commercial, industrial, office and residential spaces. In particular, the mop head of the mop securely retains and holds the mop material, such that the absorbent mop material can be used by the user to clean the floor. Typically, the mop head comprises a mechanism for removably retaining the mop material and provides a portion to which the mop handle can be connected.

[0003] However, some problems exist with current mop heads. For example, mop heads often comprise complex mechanisms for securing together the strands of absorbent mop material. Such mechanisms must securely tie the material strands together, such that the material does not fall out during use. Not only can these material strands slip out from the forces they experience during use due to loose attachment of the mechanism, the accidental release of these mechanism during use can also occur, likewise resulting in material falling out the mop head. Secondly, these heads must connect easily to the mop handle, without being permanently fixed.

[0004] The efficient automation of tying mechanisms for securing the mop material together in a mop head is challenging and such automated processes fail to efficiently solve the aforementioned problems. Specifically, it is hard to control how tight the material strands are tied together in an automated process due to the variance of material types and variable quantity of material present in the mop head. Further, the securing mechanisms can accidently be released, untied or break during use as the automated process has not produced a secure enough fastening. Additionally, other cost added processes may be required, such as a pre-stitched or tied loop, which reduces efficiency and increases cost of the process.

[0005] Objects and aspects of the present invention seek to alleviate at least these problems with the prior art.

Summary of the Invention

[0006] According to a first aspect of the present invention, there is provided a head for a mop, the head comprising a plurality of elongate members of absorbent material, wherein the elongate members of absorbent material are bound by a header member, wherein a first portion and a second portion of the header member are fixed to one another, and further wherein a third portion of the header member intermediate the first portion and the second portion loops around the elongate members of absorbent material.

[0007] In this way, a mop head which can be more simply and/or more securely attached to a mop is provided.

[0008] Preferably, the first portion is a located at a first end of the header member. Preferably, the second portion is a located at a second end of the header member.

[0009] Preferably, the header member comprises a generally circular cross section. Alternatively, the header member comprises an elliptical or oval cross section.

[0010] Preferably, the header member is a ring. Preferably, the header member is a band, more preferably a circular band.

[0011] Preferably, the header member loops around the longitudinal axis of the elongate members of absorbent material. More preferably, the header member bisects the longitudinal axis of the elongate members of absorbent material. Still more preferably, the header member bisects the longitudinal axis of the elongate members of absorbent material in half.

[0012] Preferably, the first portion is fixed to the second portion via an ultrasonic weld. Alternatively, the first portion is fixed to the second portion via a heat weld. Preferably, the first portion is fixed to the second portion via a permanent or semi-permanent weld. Alternatively, the first portion is fixed to the second portion via an adhesive.

[0013] Preferably, the ultrasonic weld has a thickness between 6mm and 0.5mm. More preferably the ultrasonic weld has a thickness between 5mm and 1mm. Most preferably, the ultrasonic weld has a thickness of 3mm.

[0014] Preferably, the header member comprises plastic. More preferably the header member comprises a thermosetting plastic.

[0015] Preferably, the header member is formed of a single plastic strip. Preferably, the header member has a width between 50mm and 20mm. More preferably, the header member has a width of around 30mm. Preferably, the header member has a thickness of between 200 and 50 microns, more preferably between 150 and 75 microns. Most preferably, the header member has a thickness of around 100 microns.

[0016] Preferably, the header member is inextensible. Preferably, the header member is rigid. Preferably the header member is a resilient material.

[0017] Preferably, the third portion of the header member defines a tube. More preferably, the third portion of the header member defines a tube with a generally circular cross section.

[0018] According to a second aspect of the present invention, there is provided a method of manufacturing the mop head as previously described, comprising the steps of providing a plurality of elongate members of absorbent material, looping a header member around the elongate members of absorbent material, and fixing the header member to itself.

[0019] In this way, there is provided a method of manufacturing a mop head with the previously described advantages.

[0020] Preferably, the step of fixing the header member

to itself comprises the step of ultrasonically bonding a first portion of the header member to a second portion of the header member. Alternatively, the step of fixing the header member to itself comprises the step of heat welding a first portion of the header member to a second portion of the header member. Alternatively, the step of fixing the header member to itself comprises fixing a first portion of the header member to a second portion of the header member via a permanent or semi-permanent weld.

[0021] Alternatively, the step of fixing the header member to itself comprises fixing a first portion of the header member to a second portion of the header member via an adhesive.

[0022] According to a third aspect of the present invention, there is provided a method of attaching the mop head as previously described to a mop, the method comprising providing a mop with a handle and a mop head retaining member, inserting the mop head retaining member through the loop defined by the third portion of the header member to retain the mop head on the mop.

[0023] Preferably, the method comprises the further step of aligning the mop head retaining member such that its longitudinal axis is substantially parallel with the longitudinal axis of the elongate members of absorbent material as they pass through the loop.

Detailed Description

[0024] An embodiment of the present invention will now be described by way of example only and with reference to the accompanying drawings, in which:

Figure 1 is a perspective view of a mop head in accordance with the present invention;

Figure 2 is a detailed side-on view of the mop head of Figure 1;

Figure 3 is a plan view of the header member of the mop head of Figure 1;

Figure 4 is a flow chart of a method of manufacturing the mop head of Figure 1; and

Figure 5 is a flow chart of a method of attaching the mop head of Figure 1 to a mop.

[0025] Figures 1 to 3 depict a mop head 10 in accordance with the present invention. The mop head 10 comprises a plurality of elongate members of absorbent material 20 and a header member 30. In use the mop head 10 retains the elongate members of absorbent material 20 for cleaning surfaces, such as floors, by looping and securing a header member 30 around the elongate members of material 20.

[0026] In this embodiment, the plurality of elongate members of absorbent material 20 are of uniform member length and are arranged side by side in a bundle, such that the header member 30 can be looped around the elongate members of absorbent material 20 as shown, at a pinch point located at a central point along the uniform member length.

[0027] The header member 30 bisects the longitudinal axis of the elongate members of absorbent material 20, at a central point along the member length. The header member 30 is fixed in tension at this pinch point, such that the elongate members of absorbent material 20 are held firmly together.

[0028] As shown in figure 1, the header member 30 is looped around and bonded to itself, securing the elongate members of absorbent material 20 together.

[0029] The header member 30 comprises a plastic ring with circular cross section. The header member 30 is inextensible, such that it's length does not increase when under tension. The header member 30 sits in tension, binding the elongate members of material 20 tightly together, as shown.

[0030] The tension in the header member 30 is such that a force greater than 5.8N applied longitudinally to an elongate member of material 20 is required for it to pass out from within the header member 30 and be removed from the mop head 10.

[0031] Figure 2 depicts a side-on view of the mop head 10, detailing further the composition of the header member 30 when bonded.

[0032] The header member 30 comprises three portions. A first portion 40 is located at a first end of the header member 30. A second portion 50 is located at a second end of the header member 30. A third portion 60 is intermediate to the first portion 40 and the second portion 50.

[0033] The first portion 40 and second portion 50 are fixed to one another, with the third portion 60 looping around the elongate members of absorbent material 20. In this embodiment, the first portion 40 and second portion 50 are affixed via an ultrasonic weld. Alternatively, a heat weld or other bonding technique may be used.

[0034] The first portion 40 is fixed to the second portion 50 via an ultrasonic weld. The first portion 40 comprises an overlap tab 70 and an ultrasonic weld width 80. The overlap tab 70 and ultrasonic weld width 80 are adjacent, the ultrasonic weld width 80 sitting between the overlap tab 70 and the third portion 60 of the header member 30.

[0035] The overlap tab 70 and ultrasonic weld width 80 span the width of the header member 30, and have constant length across the span.

[0036] The overlap tab 70 has a length of 8mm. The ultrasonic weld width 80 has a length of 3mm.

[0037] The header member 30 has a thickness of 100 microns.

[0038] The third portion 60 of the header member 30 provides a method for attaching the mop head 10 to a mop. The mop head 10 can be removably retained from a mop by inserting a mop head retaining member of a mop handle (not shown) through the loop defined by the third portion 60 of the header member 30 on the mop

head 10.

[0039] The alignment of mop head retaining member is such that its longitudinal axis is substantially parallel with the longitudinal axis of the elongate members of absorbent material 20 as they pass through the loop. During use, this alignment is maintained.

[0040] Figure 3 depicts a plan view of the header member 30 of the mop head 10, wherein the header member has not been fixed to itself.

[0041] The header member 30 is rectangular with constant cross section. The length of the header member 30 is controlled by the dimensions of the plurality of elongate members of absorbent material 20. The width of the header member 30 is 30mm.

[0042] As shown in Figure 4, the method of manufacturing the mop head 1000 comprises three steps; providing a plurality of elongate members of absorbent material 1010, looping a header member around these elongate members 1020 and fixing the header member to itself 1030.

[0043] The first step 1010 is achieved wherein a plurality of elongate members of absorbent material 20 are provided from an existing automated mop manufacturing machine.

[0044] The second step 1020 is achieved wherein a header member 30 is wrapped around the elongate members of absorbent material 20. The activation of this process is time or sensor controlled. Tension is applied automatically to the header member 30 to bind the plurality of elongate members of absorbent material 20 together. This tension is controlled by adjustable tension settings on the machine.

[0045] Following the second step 1020, the third step 1030 is achieved wherein the first portion 40 and second portion 50 of the header member 30 are ultrasonically welded together.

[0046] This process is repeated to provide an automated method for manufacturing a mop head 1000.

[0047] As shown in Figure 5, a method of manufacturing a mop head onto a mop comprises three steps 2000; providing a mop head 2010, providing a mop with a mop retaining member 2020 and inserting the mop retaining member through the mop head 2030.

[0048] The first step 2010 is achieved when a mop head 10 is provided.

[0049] The second step 2020 is achieved when a mop with a handle and a mop head retaining member is provided.

[0050] The third step 2030 is achieved wherein a mop head retaining member is inserted through a loop defined by a third portion 60 of the header member 30 to removably retain the mop head 10 on the mop.

[0051] Further to the third step 2030, the mop head retaining member can be aligned such that the longitudinal axis is substantially parallel with the longitudinal axis of the elongate members of absorbent material as they pass through the loop.

Claims

1. A head for a mop, said head comprising a plurality of elongate members of absorbent material,
wherein the elongate members of absorbent material are bound by a header member,
wherein a first portion and a second portion of said header member are fixed to one another,
and further wherein a third portion of said header member intermediate said first portion and said second portion loops around said elongate members of absorbent material.

2. The head of claim 1, wherein said first portion is a located at a first end of said header member.

3. The head of claim 1 or 2, wherein said second portion is a located at a second end of said header member.

4. The head of any one preceding claim, wherein said header member comprises a generally circular cross section.

5. The head of any one preceding claim, wherein said header member is a ring.

6. The head of any one preceding claim, wherein said header member loops around the longitudinal axis of the elongate members of absorbent material.

7. The head of any claim 6, wherein said header member bisects the longitudinal axis of the elongate members of absorbent material.

8. The head of claim 7, wherein said header member bisects the longitudinal axis of the elongate members of absorbent material in half.

9. The head of any one preceding claim, wherein said first portion is fixed to said second portion via an ultrasonic weld.

10. The head of any one preceding claim, wherein said header member is inextensible.

11. The head of any one preceding claim, wherein said third portion of said header member defines a tube.

12. A method of manufacturing the mop head of any one preceding claim, comprising the steps of:

providing a plurality of elongate members of absorbent material,
looping a header member around the elongate members of absorbent material, and
fixing said header member to itself.

13. The method of Claim 12, wherein the step of fixing

said header member to itself comprises the step of ultrasonically bonding a first portion of said header member to a second portion of said header member.

14. A method of attaching the mop head of any one of claims 1 to 11 to a mop comprising:

providing the mop head of any one of claims 1 to 11,
providing a mop with a handle and a mop head retaining member,
inserting the mop head retaining member through the loop defined by the third portion of said header member to retain said mop head on said mop.

15. The method of claim 14, further comprising the step of aligning the mop head retaining member such that its longitudinal axis is substantially parallel with the longitudinal axis of the elongate members of absorbent material as they pass through the loop.

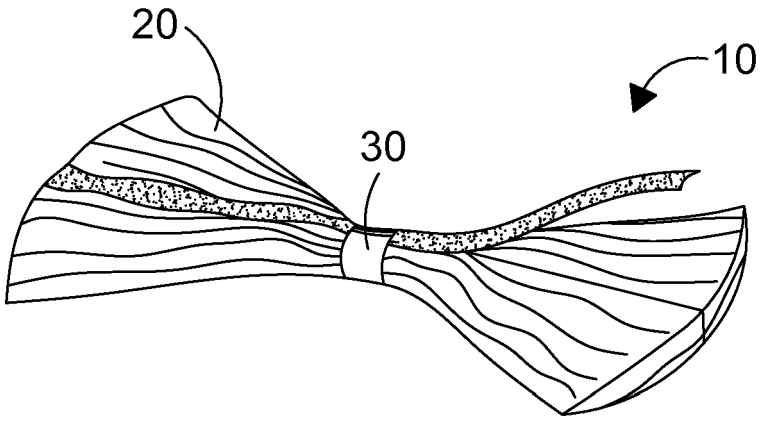

FIG. 1

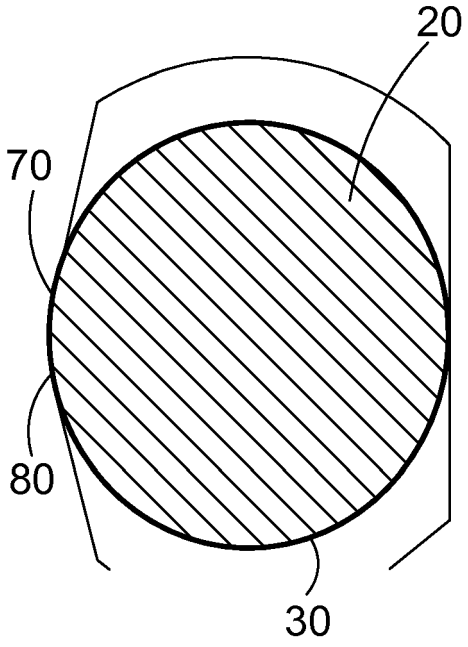

FIG. 2

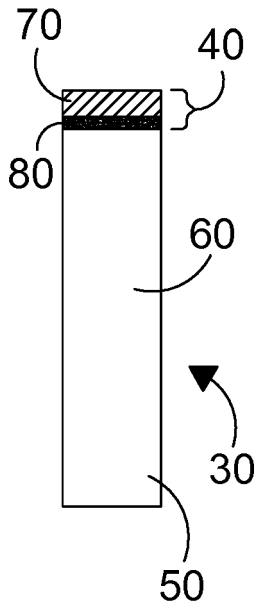

FIG. 3

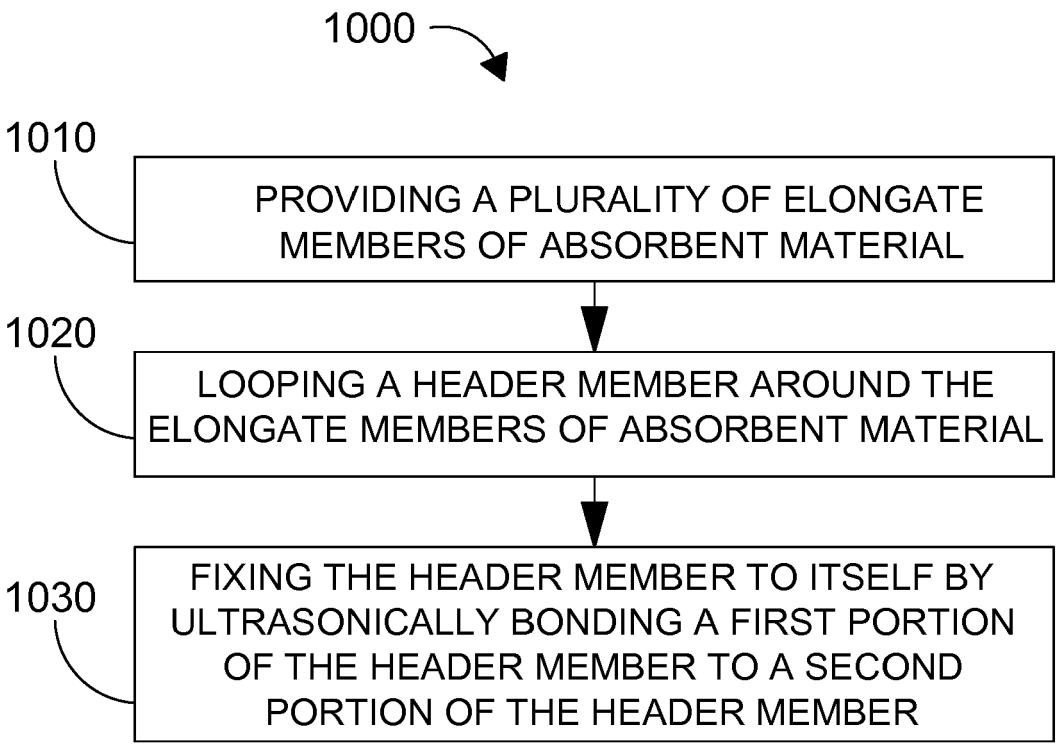
1000
1010
PROVIDING A PLURALITY OF ELONGATE MEMBERS OF ABSORBENT MATERIAL
1020
LOOPING A HEADER MEMBER AROUND THE ELONGATE MEMBERS OF ABSORBENT MATERIAL
1030
FIXING THE HEADER MEMBER TO ITSELF BY ULTRASONICALLY BONDING A FIRST PORTION OF THE HEADER MEMBER TO A SECOND PORTION OF THE HEADER MEMBER

FIG. 4

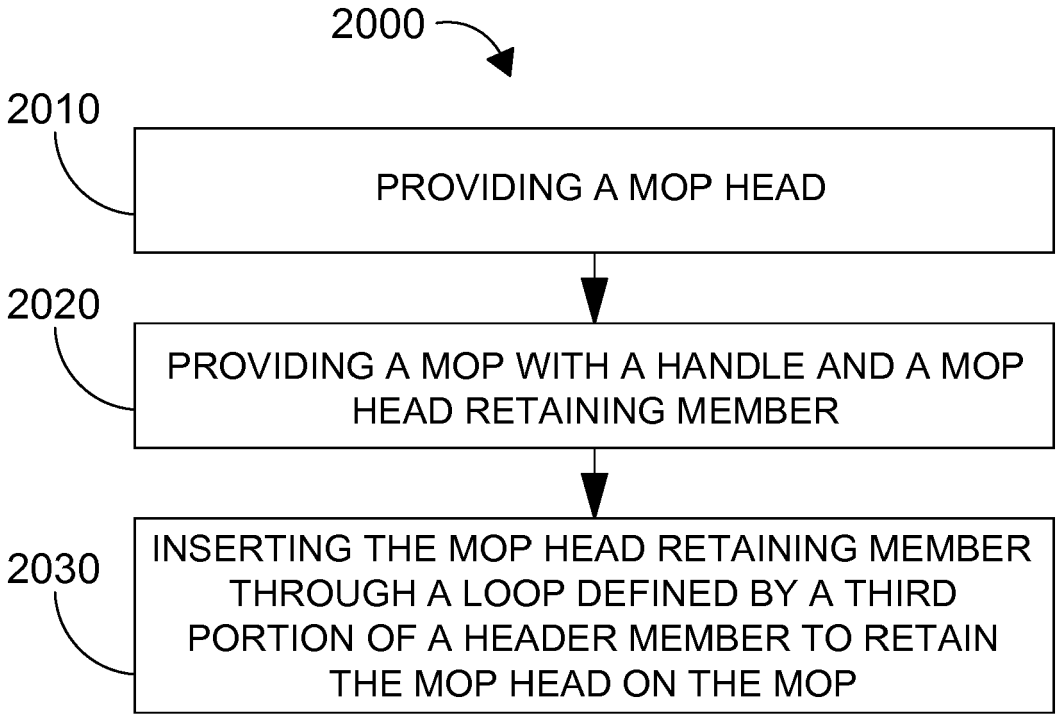
2000
2010
PROVIDING A MOP HEAD
2020
PROVIDING A MOP WITH A HANDLE AND A MOP HEAD RETAINING MEMBER
2030
INSERTING THE MOP HEAD RETAINING MEMBER THROUGH A LOOP DEFINED BY A THIRD PORTION OF A HEADER MEMBER TO RETAIN THE MOP HEAD ON THE MOP

FIG. 5

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EUROPEAN SEARCH REPORT

Application Number
EP 19 20 0916

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	26 March 2020	Trimarchi, Roberto

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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