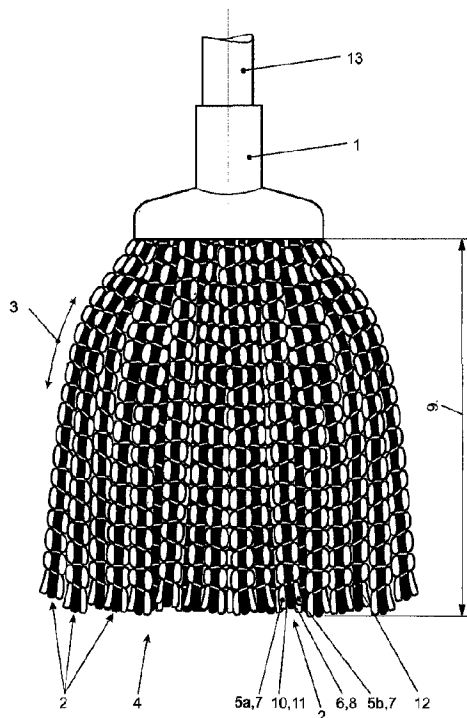




(86) Date de dépôt PCT/PCT Filing Date: 2018/01/11
 (87) Date publication PCT/PCT Publication Date: 2019/11/12
 (45) Date de délivrance/Issue Date: 2022/10/11
 (85) Entrée phase nationale/National Entry: 2019/10/22
 (86) N° demande PCT/PCT Application No.: EP 2018/050610
 (87) N° publication PCT/PCT Publication No.: 2018/210458
 (30) Priorité/Priority: 2017/05/19 (DE10 2017 004 809.6)

(51) Cl.Int./Int.Cl. *A47L 13/255* (2006.01)
 (72) Inventeurs/Inventors:
 THYSON, DIANA, DE;
 KHOM, MICHAL, CZ
 (73) Propriétaire/Owner:
 CARL FREUDENBERG KG, DE
 (74) Agent: BORDEN LADNER GERVAIS LLP

(54) Titre : TETE DE BALAI A FRANCHES ET BALAI A FRANGES QUI COMPREND LA TETE DE BALAI A FRANCHES
 (54) Title: MOP HEAD, AND MOP COMPRISING THE MOP HEAD



(57) **Abrégé/Abstract:**

A mop head is provided, wherein at least one fringe comprises at least two strands with a first strand and a second strand, wherein the strands directly contact and rest against one another, wherein each strand has the same length as a result of the manufacturing process, wherein when water and/or heat is applied during normal use of the mop head, the strands have differing shrinkage properties in the longitudinal direction as a result of material properties and wherein the strands are fixed to each other by means of at least one fixing means in the longitudinal direction in such a manner that the strands are kept at the same length during normal use of the mop head.

ABSTRACT

A mop head is provided, wherein at least one fringe comprises at least two strands with a first strand and a second strand, 5 wherein the strands directly contact and rest against one another, wherein each strand has the same length as a result of the manufacturing process, wherein when water and/or heat is applied during normal use of the mop head, the strands have differing shrinkage properties in the longitudinal direction as 10 a result of material properties and wherein the strands are fixed to each other by means of at least one fixing means in the longitudinal direction in such a manner that the strands are kept at the same length during normal use of the mop head.

difference in the appearance of the mop head in the manufactured state and when it is being used as intended under the influence of water and/or heat.

5 To achieve the object, a mop head is provided, comprising a support body and textile fringes which extend in the longitudinal direction, wherein the fringes are each secured on the support body at the one end in the longitudinal direction and comprise an opposite end in at
10 the other end the longitudinal direction, wherein at least one fringe includes at least two strands with a first strand and a second strand, wherein the strands touch one another in a directly abutting manner, wherein each strand comprises the same length as a result of manufacturing
15 processes, wherein the strands comprise shrink characteristics in the longitudinal direction which, because of the materials used, deviate from one another under the effect of water and/or heat when the mop head is used as intended and wherein the strands are fixed together
20 by at least one fixing in the longitudinal direction in such a manner that the strands are kept at the same length when the mop head is used in the manner intended.

In addition, to achieve the object a mop is provided which
25 includes the previously described mop head, the mop head being connected to a handle.

In this connection, it is advantageous that the strands, which are used in a fringe, are easily adaptable to the
30 respective conditions of the application. Thus, it is possible, for example, to design one of the strands such that it may absorb or output a comparatively large amount of cleaning liquid, that said strand therefore comprises substantially sponge-like performance characteristics. At
35 least one further strand, which comprises performance

characteristics which deviate from this, can be used in the same fringe. The deviating performance characteristics can consist in that the second strand has more abrasive performance characteristics and consists of a textile material which in practice neither absorbs nor outputs the cleaning liquid. One and the same fringe is consequently realized in a multifunctional manner and is, for example, well suited first of all to moisten the surface to be cleaned, then to remove contaminants abrasively from the surface to be cleaned and then, once the mop head has been rinsed and wrung out, to absorb the moisture again from the previously cleaned surface.

Different textile materials in a fringe frequently have shrink characteristics in the longitudinal direction which, under the influence of water and/or heat, deviate from one another due to the material-specific properties. Thus, for example when the mop head is used as intended, it is possible for the second strand to shrink more strongly, with reference to the first strand, in the longitudinal direction under the influence of water and/or heat. As a result, the quality of the cleaning result would be impaired.

In addition, it would be a disadvantage that the mop head would look less aesthetically pleasing as a result of the varying degrees of shrinkage of the strands.

In order to exclude the previously named disadvantages, it is consequently provided according to the invention to balance out said varying degrees of shrinkage of the strands as a result of the strands of the fringe being fixed together in the longitudinal direction by means of the fixing in such a manner that the strands are kept at the same length when the mop head is used in the manner

intended. As a result, the strands of the fringe always
comprise the same length even under the influence of water
and/or heat. The fringe consequently comprises matching
performance characteristics over its entire length from the
5 support body to the opposite end. Both strands are
effective, therefore, even in the region of the opposite
end of the fringe, and the mop head, even when it is being
used as intended, also comprises an appearance which does
not differ in practice from the appearance in the
10 manufactured state.

The fixing can be realized as a retaining thread system.
The retaining thread system can include at least one
retaining thread, which is realized, for example, as a
retaining mesh.

15 The fixing does not modify its length, irrespective of the
influence of water and/or heat.

The fixing causes the strand, which has a larger degree of
shrinkage under the influence of water and/or heat when the
mop head is used as intended, to compress the adjacent
20 strand with the relatively smaller degree of shrinkage in
a corresponding manner. As a result of the compression of
the strand with the relatively smaller degree of shrinkage,
this then comprises for the most part a more voluminous
shape which contributes toward a further improvement in the
25 cleaning result.

Length differences between strands adjacent to one another
from normally to up to 40% can be easily balanced out by
the fixing.

30

All textile fringes of a mop head can be realized as
described previously.

According to another design, it can be advantageous for
35 only the textile fringes arranged on the surface of the mop

head to be realized as described previously. Textile fringes, which are designed in a manner deviating from this, can be provided within a bell-shaped mop head. As a result, the mop head can be adapted in an even better manner to the
5 respective conditions of the application depending on how the mop, provided with the mop head, is guided over the surface to be cleaned by the user.

The fringes on the circumferentially outer surface of the mop head have different performance characteristics to the
10 inner fringes.

According to an advantageous design, it can be provided that the fixing of the fringe is formed by at least one retaining thread system which extends substantially
15 transversally to the longitudinal direction.

The retaining thread system can include at least one retaining thread, which is realized, for example, as a retaining mesh.

As a result of the retaining thread system extending
20 transversely to the longitudinal direction, there is an interlocking effect, active in the longitudinal direction, between the strands arranged adjacent to one another. A relative displacement of the strands adjacent to one another, which would result in strands of different
25 lengths, is excluded as a result. The fringe is constricted in the region of the retaining thread system, as a result of which, when viewed in the longitudinal direction, a relatively more voluminous shape of the fringe is produced on both sides of the constriction. When the mop head is
30 used as intended, the strand with the relatively smaller degree of shrinkage becomes more voluminous as a result of its compression and the cleaning result is improved.

The retaining thread system can be formed by a retaining
35 mesh of twine. The retaining mesh is designed, in this case,

such that it ensures reliable fixing of the strands fixed together even when the mop head is used over a long service life.

5 The retaining thread system can surround the fringe circumferentially in the longitudinal direction on at least one point of its extent. In order to reduce the mechanical load of the retaining thread system, it is, however, sensible to provide multiple points in the longitudinal
10 direction of the fringe which are surrounded circumferentially by the retaining thread system. The mechanical load of the retaining thread system is generated as a result of the strand with a relatively larger degree of shrinkage compressing the strand with a relatively
15 smaller degree of shrinkage and the retaining thread system having to fix the strand with the relatively smaller amount of shrinkage nevertheless to the strand with the relatively larger amount of shrinkage in the region of the retaining thread system. A relative movement between the strands in
20 the region of the retaining thread system is excluded.

Varying degrees of shrinkage of the strands can be balanced out particularly well as a result of the retaining thread system surrounding the fringe circumferentially in the
25 longitudinal direction from the support body to the opposite end. For example, it is possible for the retaining thread system to surround the fringe, when viewed in the longitudinal direction, in an even and circumferential manner, particularly preferred in a substantially screw-
30 thread-shaped manner.

According to an advantageous design, it can be provided that the retaining thread system includes retaining threads, for example retaining meshes, which, when viewed
35 in the longitudinal direction of the fringe, are each at a

width relative to one another which corresponds, for instance, to the thickness of the fringe. As a result, the various strands are fixed to one another reliably in the longitudinal direction, on the one hand, and, on the other
5 hand, such a fringe comprises a sufficient amount of cleaning surface in order to be able to clean a surface to be cleaned quickly and thoroughly.

For domestic applications, it has proved to be advantageous
10 when the retaining thread system is at a regular distance. Between the support body and the opposite end, the strands, when viewed in the longitudinal direction, are fixed together, for example, approximately every centimeter in order, in this way, to fix the strands together reliably,
15 to balance out the different degrees of shrinkage of the strands and to obtain the aesthetically pleasing appearance of the mop head under all operating conditions.

The strands can be arranged parallel to one another in the
20 longitudinal direction. The fringe then comprises a substantially rectangular cross section and precisely defined regions with different performance characteristics. Deviating from this, the strands can surround one another in a helical manner.

25 The fringe then comprises a substantially round cross section, the regions with different performance characteristics, when viewed in the wiping direction, are realized merging into one another.

30 According to a particularly advantageous design, it can be provided that the strands are arranged parallel to one another in the longitudinal direction, that the fringe comprises at least three strands, two strands being realized in a matching manner, including matching first
35 threads and comprising the same degree of shrinkage when

the mop head is used as intended and one strand thereof being realized deviating therefrom, including second threads and comprising a greater or smaller degree of shrinkage in the longitudinal direction when the mop head
5 is used as intended and that the strand, which includes the second threads, is arranged between the strands with the matching first threads and is fixed between them in the longitudinal direction by means of the fixing.

It is advantageous, in this connection, that the mutual
10 supporting effect of the strands with different degrees of shrinkage is particularly good. There is additionally a pleasing appearance of the mop head/of the mop as a result of the symmetry. It is also possible to use three strands, each with different materials.

15

The second threads can absorb or output less cleaning liquid when the mop head is used as intended and/or can comprise less abrasive performance characteristics than the first threads. The mop head, as a result, is also well suited to
20 cleaning more heavily contaminated surfaces.

The previously described mop head can be connected to a handle and, as a result, forms a mop which comprises the previously described, advantageous characteristics.

25

Brief description of the drawing

Exemplary embodiments of the mop head according to the invention and of the mop according to the invention are
30 described in more detail below by way of figures 1 and 2, in which:

figure 1 shows a schematic representation of a perspective
view of the mop head according to the invention,

35

figure 2 shows a schematic representation of a fringe as is used in the mop head corresponding to figure 1.

5 Realization of the invention

Figure 1 shows a bell-shaped mop head which together with the handle 13 forms a mop.

The mop head includes a support body 1 produced from a
10 polymer material. The textile fringes 2, which are each fixed on the support body 1, extend in the shape of a bell to their opposite end 4 in the longitudinal direction 3. The opposite end 4 is realized as a free end in the exemplary embodiment shown here but can also be realized in
15 loop-shaped manner.

The fringes 2 form the circumferentially outer surface of the mop head; further fringes, which are realized in a deviating manner, for example in homogeneous materials, are
20 arranged in the interior of the mop head, that is to say, under the fringes 2.

In the exemplary embodiment shown, the fringes 2 include three strands 5a, 5b, 6, two of the strands 5a, 5b being
25 realized in a matching manner. The strands 5a, 5b consequently comprise matching first threads 7 which are well suited for absorbing or outputting cleaning liquid.

The second strand 6, which includes the second threads 8, is realized in a manner deviating therefrom, the second
30 threads 8, compared to the first threads 7, absorbing or outputting less cleaning liquid and comprising more abrasive performance characteristics.

As a result of the different materials from which the first threads 7 and the second threads 8 are made, the degree of
35 shrinkage of said threads under the effect of water and/or

heat differs from one another because of the materials used. Under the previously described conditions, the degree of shrinkage of the second threads 8 is greater than the degree of shrinkage of the first threads 7. As a result, the degree
5 of shrinkage of the second strand 6 under the influence of water and/or heat when the mop head is used as intended is greater than that of the strands 5a, 5b because of the materials used.

10 The fixing 10 is formed by a retaining thread system and fixes the strands 5a, 5b, 6 together in the longitudinal direction 3. The achievement of said interlocking effect on each of the respectively adjacent strands 5a, 6; 6, 5b is that, when the mop head is used as intended, the strands
15 5a, 5b, 6 are always of an identical length 9, as a result the fringes 2, from the support body 1 to their opposite end 4 in the longitudinal direction 3, clean well in a matching manner and comprise an appearance which is always the same.

20

The fixing 10 is formed by the retaining mesh 11, the retaining mesh 11 being at a substantially identical distance from the support body 1 to the opposite end 4 of the fringes 2. The retaining mesh 11 extends substantially
25 transversely to the longitudinal direction 3 of the fringes 2 so that, as a result, the strands 5a, 5b, 6 interlock mechanically together in the longitudinal direction 3 and they are always fixed relative to one another in the position shown here.

30 The points 12 at which the fringes 2 are constricted by the retaining mesh 11 extend, when viewed in the longitudinal direction 3, substantially uniformly from the support body 1 to the opposite end 4.

Generally speaking, it is possible for at least one fringe of the mop head to comprise, for example, only two strands or more than three strands. If a double grouping is used, the two strands can be arranged in such a manner that they
5 surround each other in a helical manner.

For domestic applications, it has proved to be advantageous when the retaining mesh 11 comprises a mesh width of approximately 1 cm. The strands 5a, 5b, 6, when viewed in
10 the longitudinal direction 13, are therefore fixed together approximately every centimeter between the support body 1 and the opposite end 4 in order, in this way, to balance out the different degrees of shrinkage of the strands 5a, 5b, 6 and to obtain the aesthetically pleasing appearance
15 of the mop head.

CLAIMS:

1. A mop head, comprising:

a support body; and

5 a plurality of textile fringes extending from the support body in a longitudinal direction, each of the textile fringes being secured at a first end on the support body and having an opposite end in the longitudinal direction, at least one fringe comprising at least three
10 strands including a first strand, a second strand, and a third strand, the strands making contact with one another by directly abutting one another, each strand having a same length,

wherein during use of the mop head, the strands are
15 configured to exhibit shrinkage behaviors in the longitudinal direction deviating from one another under action of water and/or heat,

wherein the strands are fixed to one another in the longitudinal direction by at least one fixing such that the
20 strands are held at a same length during the use of the mop head,

wherein the first strand and the second strand comprise first threads having a first shrinkage, and the third strand comprises second threads having a second
25 shrinkage that is greater or lesser in the longitudinal direction than the first shrinkage.

2. The mop head according to claim 1, wherein the at least one fixing comprises at least one retaining mesh which
30 extends substantially transversely to the longitudinal direction.

3. The mop head according to claim 2, wherein the at least one retaining mesh circumferentially surrounds the fringe in the longitudinal direction in at least one location of an extension thereof.

4. The mop head according to claim 3, wherein the retaining mesh circumferentially surrounds the fringe in the longitudinal direction from the support body to the opposite end.

5. The mop head according to claim 3, wherein the retaining mesh uniformly and circumferentially surrounds the fringe, as viewed in the longitudinal direction.

6. The mop head according to claim 3, wherein the retaining mesh surrounds the fringe from the support body to the opposite end in a substantially helical manner.

7. The mop head according to any one of claims 1 to 6, wherein the strands are arranged parallel to one another in the longitudinal direction, and

wherein the third strand is disposed between the first strand and the second strand and is fixed relative to the first strand and the second strand by the at least one fixing in the longitudinal direction.

8. The mop head according to any one of claims 1 to 7, wherein the second threads are configured to absorb or release less cleaning liquid during the use, and/or have more abrasive usage properties than the first threads.

9. A mop, comprising:
a mop head according to any one of claims 1 to 8; and
a handle connected to the mop head.

5

Fig. 1

