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(54) **A MOP AND A FLOOR TREATMENT DEVICE**

(57) A mop cloth (10) that has a cloth portion (11, 11a, 11b) manufactured from fabric, non-woven fabric, paper or some other flexible material, which is equipped with a thickened edge with which the mop cloth can be attached to a floor maintenance tool, such as a squeegee (30) or mop frame (40) such that the thickened edge of the mop cloth is threaded into the groove (50) located in the floor maintenance tool. To the cloth portion (11, 11a,

11b) of the mop cloth (10) there has been attached a separate edge portion (20) which is manufactured from flexible material such as plastic and which edge portion includes a fastening portion (21) shaped like a sheet for attaching the edge portion to the cloth portion and a thickened portion (22) that can be threaded into a groove (50) located in the floor maintenance tool, such as a squeegee (30) or mop frame (40).

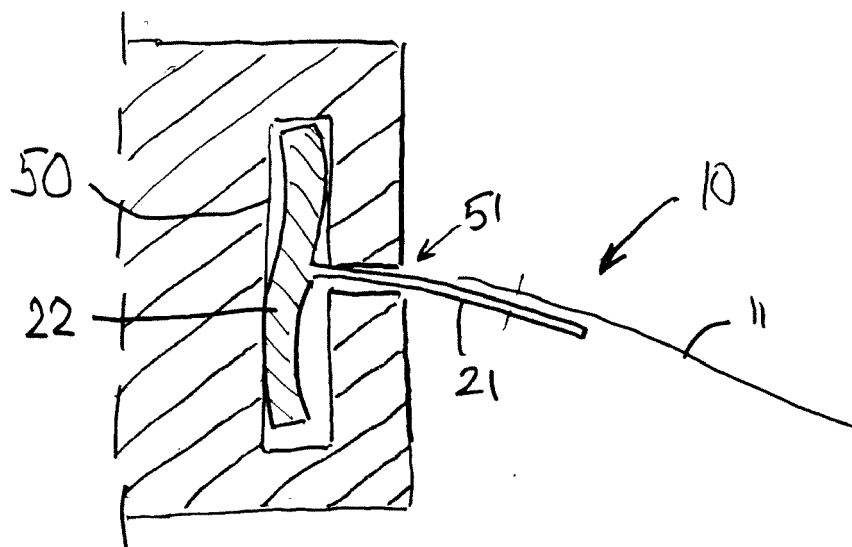


FIG. 12

Description

[0001] The object of the invention is a mop cloth according to the preamble to claim 1, which comprises a cloth portion manufactured from fabric, or some other flexible material and a thickened portion on the edge of the mop cloth. The object of the invention is also a floor maintenance tool which has a groove into which the thickened portion of the mop cloth's edge can be attached and the attachment of the mop cloth and floor maintenance tool.

[0002] The purpose of this invention is to achieve a new type of mop cloth that is characterised in what has been presented in the characteristics section of claim 1. The purpose of this invention is also to achieve a new type of floor maintenance tool and attachment between the mop cloth and floor maintenance tool. The floor maintenance tool is a squeegee, mop frame, flat mop or other floor maintenance tool.

[0003] The mop cloth can be attached to the squeegee, mop frame, flat mop or other floor maintenance tool using the thickened portion such that the thickened portion of the mop cloth is threaded into the groove located in the floor maintenance tool, which groove forms a channel that is open at least at one end. There is a narrow slit on the edge of the groove, through which the rest of the mop cloth exits the slit, remaining outside the groove. The size of the slit is slightly larger than the thickness of the edge portion of the mop cloth fastening portion.

[0004] In the following, the invention is described by an example with reference to the accompanying drawings, in which

LIST OF FIGURES

[0005]

- Figures 1-3 show cross sections of the mop cloths according to the invention.
- Figure 4 shows a top view of the mop cloth according to the invention.
- Figure 5 shows an end view of the floor squeegee according to the invention.
- Figure 6 shows a side view of the flat mop according to the invention.
- Figure 7 shows an end view of the flat mop according to the invention.
- Figures 8-10 illustrate different attachment solutions for the mop cloth.
- Figures 11-12 illustrate details of the attachment of the mop cloth.

DESCRIPTION OF THE FIGURES

[0006] The shape of the mop cloth's 10 edge portion 20 is presented in the cross-sectional views of figures 1-3. In figure 1, the cloth portion 11 of the mop cloth 10 has been sewn over the fastening portion 21 of the sep-

arate edge portion 20. In figure 2, the cloth portion 11 of the mop cloth 10 has been folded such that it extends to both sides of the fastening portion 21 of the edge portion 20, after which the cloth portion 11 has been sewn onto the fastening portion 21. In figure 3, cloth portions 11a and 11b have been attached to both sides of the fastening portion 21, which cloth portions have been sewn onto the fastening portion 21. This achieves a twofold mop cloth.

[0007] Figure 4 is a top view of the mop cloth 10 according to the invention. Figure 4 shows that a separate edge portion 20, which has a fastening portion 21 and a thickened portion 22, has been sewn onto the mop cloth.

[0008] Figure 5 shows a floor squeegee 30 according to the invention, which has a groove 50 according to the invention for the thickened portion 22 of the edge portion 20 of the mop cloth 10 according to the invention. Similarly, figure 6 shows a flat mop 41 according to the invention, which has a groove 50 according to the invention for the thickened portion 22 of the edge portion 20 of the mop cloth 10 according to the invention. In figure 6, the mop cloth 10 has been turned under the flat mop 41 and in figure 7, the flat mop 41 has been turned in an upright position, enabling the use of the squeegee portion 31.

[0009] According to the invention, the mop cloth 10 has a cloth portion 11 and an edge portion 20, which have been attached to one another. The mop cloth 10 can be a cloth that can be used several times, which is washed after use, or a disposable cloth. The disposable mop cloth 10 is customarily made of paper or easy-to-maintain synthetic fabric. When the mop cloth 10 is used several times, the cloth portion 11 of the mop cloth 10 is manufactured from thin or thick fabric. The mop cloth 11 can also be formed such that it has two or more layers of fabric on top of one another.

[0010] According to the invention, the edge portion 20 of the mop cloth 10 is formed by the fastening portion 21 and the thickened portion 22. The edge portion 20 has been manufactured from sufficiently strong but still flexible thermoplastic, other plastic or other flexible material. The fastening portion 21 of the edge portion 20 is a thin sheet, whose edge has a thickened portion 22 that can be fitted into the groove 50 of the floor maintenance tool 30, 40. In the mop cloth 10 the fastening portion 21 of the edge portion 20 is attached to the cloth portion 11 by sewing, gluing or in some other manner.

[0011] Thereby, the edge portion 20 of the mop cloth 10 can be attached to the cloth portion 11 such that the cloth portion 11 is sewn on top of the fastening portion 21 of the edge portion 20.

[0012] The edge portion 20 of the mop cloth 10 can be attached to the cloth portion 11 also such that the edge of the cloth portion 11 is folded and turned onto each side of the fastening portion 21 of the edge portion 20 and that the cloth portion 11 is sewn onto the edge portion 20 so that the fastening portion 21 remains between the folds of the cloth portion 11.

[0013] An alternative course of action is for mop cloth fabrics 11a, 11b to be sewn onto each side of the edge

portion's 20 fastening portion 21, in which case the mop cloth's 10 edge portion 20 is attached to two cloth portions 11a, 11b.

[0014] Thereby, separate cloth portions 11a, 11b have been sewn onto each side of the fastening portion 21 of the edge portion 20, in which case the fastening portion 21 remains between the separate cloth portions 11a, 11b that form a twofold mop cloth and a twofold mop cloth 10 is thus conveniently achieved.

[0015] The mop cloth 10 is attached to the floor maintenance tool 30, 40 such that the thickened portion 22 of the mop cloth 10 fastening portion 21 is threaded into the groove 50 located on the floor maintenance tool 30, 40 through its open end. The mop cloth 10 comes out of the groove 50 through a narrow slit 51 which keeps the mop cloth 10 in place. After use, the mop cloth 10 can be removed from the floor maintenance tool 30, 40 by pulling the mop cloth 10 in the direction of the groove 50 such that the edge thickening 22 comes out of the floor maintenance tool's 30, 40 groove 50. During use of the mop cloth 10 the thickened portion 22 remains in the groove 50 because it cannot get out of the narrow slit 51 on the edge of the groove 50.

[0016] According to the invention, the thickened portion 22 of the edge portion 20 of the mop cloth 10 has been designed such that it fits well into the groove 50 of the floor maintenance tool 30, 40. When the thickened portion and the groove have been formed to fit one another, the mop cloth 10 will stay well in the groove 50. When the mop cloth 10 needs to be removed from the floor maintenance tool 30, 40, it can be pulled out in the direction of the groove 50. Thereby, the thickened portion 22 of the mop cloth 10 slides easily away in the groove 50 because the cross-section of the thickened portion 22 is smaller than the cross-section of the groove 50.

[0017] Even though the thickened portion 22 of the mop cloth 10 is loosely in the groove 50 during the use of the floor maintenance tool 30, 40, it remains in place well because the mop cloth 10 is moved in the transverse direction of the groove 50 during the use of the floor maintenance tool 30, 40. Thus, the thickened portion 22 of the mop cloth 10 fitted into the groove 50 cannot push its way into the slit 51 of the groove 50.

[0018] Problems have been identified in the use of some mop cloths 10 equipped with a thickened edge 22, which can make it difficult to use the mop cloth 10. The thickened edge 22 formed from the turned fabric is too soft and the thickened edge 22 with a round cross-section tends to penetrate into the slit 51 of the groove 50. When the thickened edge 22 has partially penetrated into the slit 51 of the groove 50, the mop cloth 10 no longer slides in the direction of the groove 50 and the mop cloth 10 is difficult to remove from the groove 50.

[0019] According to the invention, the thickened portion 22 of the mop cloth 10 is part of the edge portion 20 manufactured from flexible and durable thermoplastic that is attached to the cloth portion 11. The thickened portion 22 and fastening portion 21 belonging to the edge

portion 20 of the mop cloth 10 according to the invention have been manufactured from thermoplastic in one piece.

[0020] The thickened portion 22 of the mop cloth 10 is on the edge of the thin sheet-like edge portion 20 and significantly thicker than the thin, sheet-like fastening portion 21 that is also part of the edge portion 20. The thickened portion 22 can have a cross-section that is square, polygonal, oval, semi-circular in shape or a combination of these shapes.

[0021] The thickened portion 22 of the edge portion 20 can also be a narrow sheet-like part that is essentially perpendicular to the sheet-like fastening portion 21 so that the thickened portion 22 and fastening portion 21 together form a piece whose cross-section is essentially T-shaped. In this case, the thickened portion 22 is placed in the groove 50 of the floor maintenance tool 30, 40 and the thin, sheet-like flexible fastening portion 21 of the mop cloth 10 comes out of the slit 51 of the groove 50.

[0022] Most advantageously, the T-shaped thickened portion 22 of the edge portion 20 of the mop cloth 10 has a slightly smaller cross-section than the cross-section of the groove 50 of the floor maintenance tool 30, 40, in which case the thickened portion 22 slides well in the large groove 50 when the mop cloth 10 is set in place in the floor maintenance tool's 30, 40 groove 50 or removed from it.

[0023] The thickened portion 22 of the mop cloth 10 edge portion 20 can be made shorter at one or both ends than the fastening portion 21 on the edge portion 20. Thereby, threading the thickened portion 22 into the groove 50 of the floor maintenance tool 30, 40 become easier.

[0024] According to the invention, keeping the mop cloth 10 in the groove 50 of the floor maintenance tool 30, 40 during use can be ensured also by forming the groove 50 of the floor maintenance tool 30, 40 to match the thickened portion 22 of the mop cloth 10 edge portion 20. When in the mop cloth 10 the thickened portion 22 and fastening portion 21 of the edge portion 20 form a piece that has a T-shaped cross-section, the groove 50 of the floor maintenance tool 30, 40 and its narrow slit 51 form a pattern with a T-shaped cross-section. Thus, the shapes of the cross-sections of the thickened portion 22 and the groove 50 essentially correspond with one another and the thin sheet-like flexible fastening portion 21 comes out of the slit 51 of the groove 50.

[0025] If the mop cloth's 10 thickened portion 22 has a cross-section that is square, polygonal, oval, semi-circular in shape or a combination of these shapes, the groove 50 of the floor maintenance tool 30, 40 is formed such that it corresponds with the shape of the thickened portion 22 of the mop cloth 10. Naturally, the groove 50 of the floor maintenance tool 30, 40 will be made slightly larger than the thickened portion 22 of the mop cloth 10, in which case the thickened portion 22 has room to move in the groove 50 of the floor maintenance tool 30, 40 when the mop cloth 10 is set in place or removed.

[0026] According to the invention, keeping the mop cloth 10 in the groove 50 of the floor maintenance tool 30, 40 during use can be ensured also by manufacturing the edge portion 20 of the mop cloth 10 and its thickened portion 22 and fastening portion 21 from thermoplastic, which is slightly sticky. When the floor maintenance tool 30, 40 is used, it usually happens in such a way that the floor maintenance tool 30, 40 is essentially moved perpendicular to the groove 50. In this case, the thickened portion 22 and fastening portion 21 of the mop cloth's 10 edge portion 20 are able to move slightly in the groove 50 of the floor maintenance tool 30, 40 such that the edges of the thickened portion 22 turn and are pressed against the walls of the groove 50. This causes the thickened portion 22 manufactured from sticky material to lock in place in the groove 50 and to not accidentally exit the groove 50 during the use of the floor maintenance tool 30, 40.

[0027] The T shape of the thickened portion 22 and fastening portion of the mop cloth 10 is advantageous because it is easy to bend to fit a small space in a washing machine, allowing many cloths to fit in the washing machine. A known circular cross-section of a thickened portion 22 is less advantageous for the attachment of a mop cloth and also stiffer and more difficult to place in a washing machine.

[0028] It is also possible to attach to the T-shaped-cross-section edge portion 20 of the mop cloth 10 according to the invention one or more disposable cloth portions 11 manufactured from paper or non-woven fabric. It is possible also in this case to attach the cloth portion 11 to the fastening portion 21 of the edge portion 20 by sewing or gluing.

[0029] However, sewing the mop cloth 10 to the fastening portion 21 of the edge portion 20 creates a row of holes in the thin fastening portion 21 manufactured from thermoplastic, which may weaken the durability of the fastening portion 21. According to the invention, the structure of the edge portion 20 fastening portion 21 is reinforced such that a reinforcing layer or reinforcing fabric is placed inside the edge portion 20. The reinforcing layer can be strong synthetic fabric and it is placed inside the edge portion 20 during manufacture. Thus, the edge portion 20 advantageously has a reinforcing layer in both the thickened portion 22 and the fastening portion 21.

[0030] What is essential in the mop cloth 10 according to the invention is that, according to the invention, a durable and flexible mop cloth 10 is achieved, which is easy to wash. The thickened portion 22 and fastening portion 21 of the edge portion 20 of the mop cloth 10 are durable and flexible when manufactured from thermoplastic. The flexible mop cloths 10 take up little room so that it is easy to place a large number of them in a washing machine.

[0031] According to the invention, the floor maintenance tool is a squeegee 30, mop frame 40, flat mop 41 or some other floor maintenance tool and its groove 50 can have a square, polygonal, oval, semi-circular cross-section or a combination of these shapes. However,

when the thickened portion 22 and fastening portion 21 of the separate edge portion 20 of the mop cloth 10 form an essentially T-shaped-pattern cross-section it is advantageous for the floor maintenance tool 30, 40 to have a correspondingly shaped groove 50 for the thickened portion 22 and a suitable slit 51 for the fastening portion 21 of the mop cloth 10 edge portion 20, which correspondingly form an essentially T-shaped-pattern cross-section. Thereby, the mop cloth remains well in place when using the floor maintenance tool, but it is, however, easy to remove after use because the thickened portion 22 and fastening portion 21 of the mop cloth 10 have been, however, dimensioned to be slightly smaller than the groove 50 and slit 51 of the floor maintenance tool 30, 40.

[0032] The fastening method for the mop cloth 10 according to the invention is advantageous in a floor squeegee 30 in which the groove 50 forming an essentially T-shaped pattern has been placed on the side of the squeegee 30. In this case, the rubber on the squeegee portion 31 of the floor squeegee 30 can be used for drying when the mop cloth 10 is not turned under the rubber of the squeegee portion 31. However, the mop cloth can be turned under the rubber of the squeegee portion, in which case the squeegee is used as a mop.

[0033] The fastening method for the mop cloth 10 according to the invention is advantageous also in a mop frame 40 or flat mop 41 in which the groove 50 and the slit 51 forming an essentially T-shaped pattern have been placed on one edge of the mop frame 40. If the mop frame 40 can be turned fully around, both sides of the mop cloth 10 can be used as a mop such that, using the mop frame 40, different sides of the mop cloth 40 are pressed against the floor in turns. However, if the structure of the mop frame 40 is such that the joint of the shaft is located in the middle of the sheet-like flat mop 41, the flat mop 41 forming the mop frame 40 cannot be turned fully around. In this case, the flat mop 41 can be used, for example, to wash the floor so that the sheet-like flat mop 41 is horizontal and the mop cloth attached to its other edge has been turned under the flat mop 41. When, after this, the floor needs to be dried, the sheet-like flat mop 41 is turned upright and the rubber of the squeegee portion on the opposite edge of the groove is used to dry the floor.

LIST OF REFERENCE NUMBERS

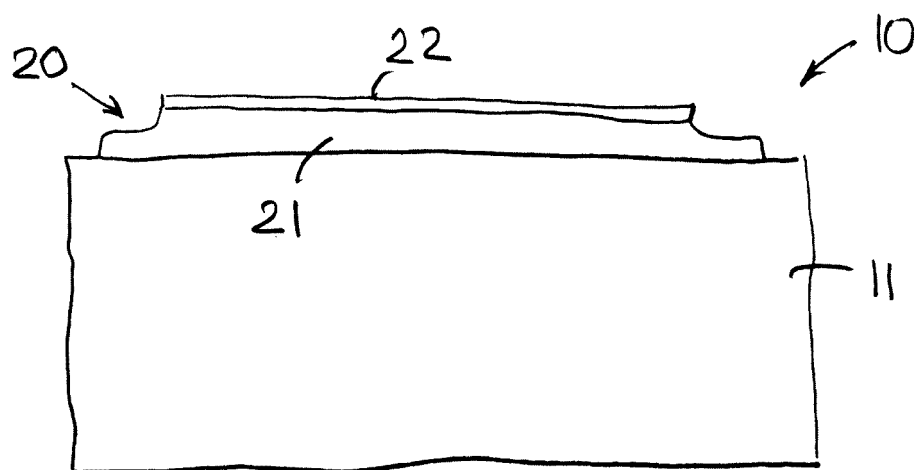
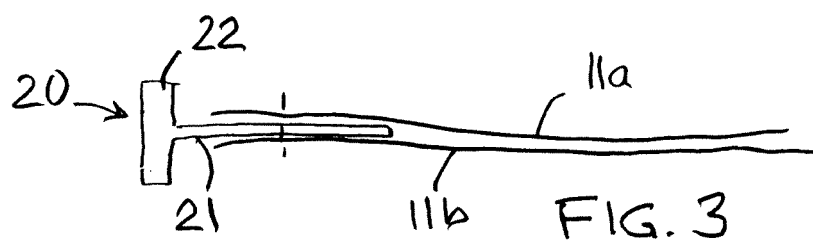
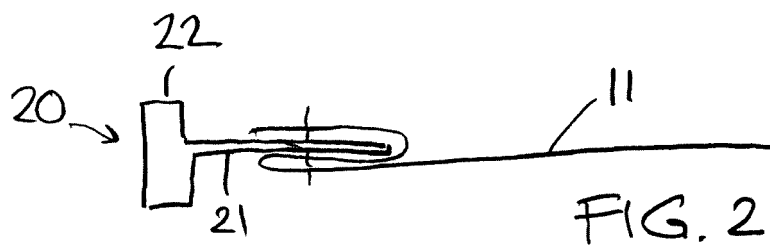
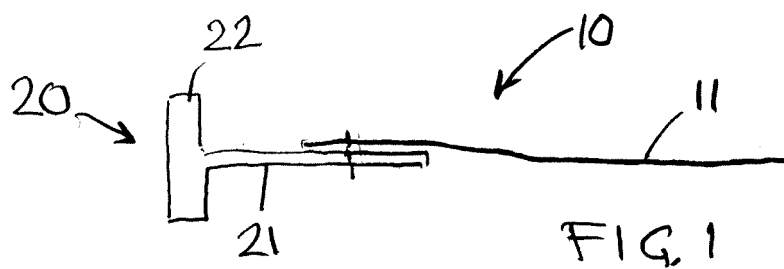
[0034]

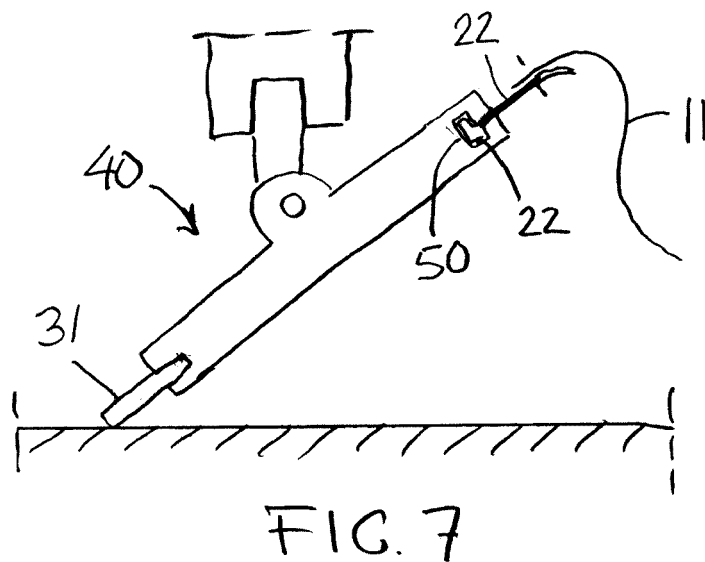
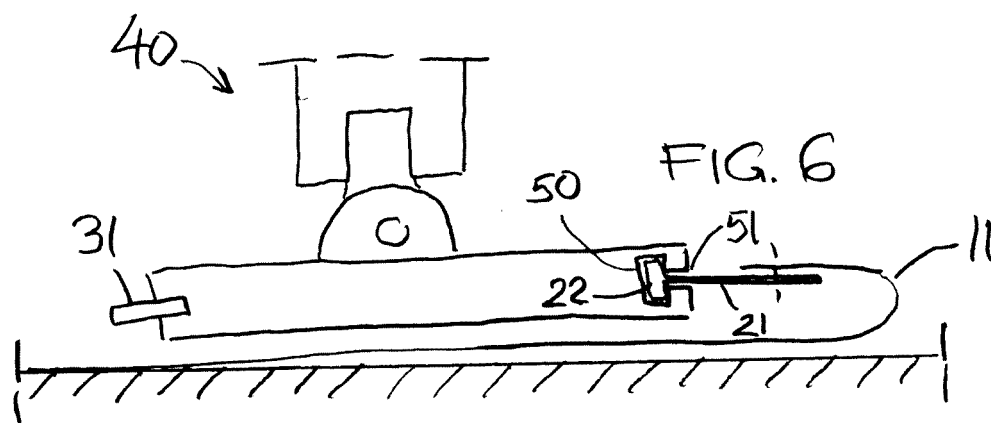
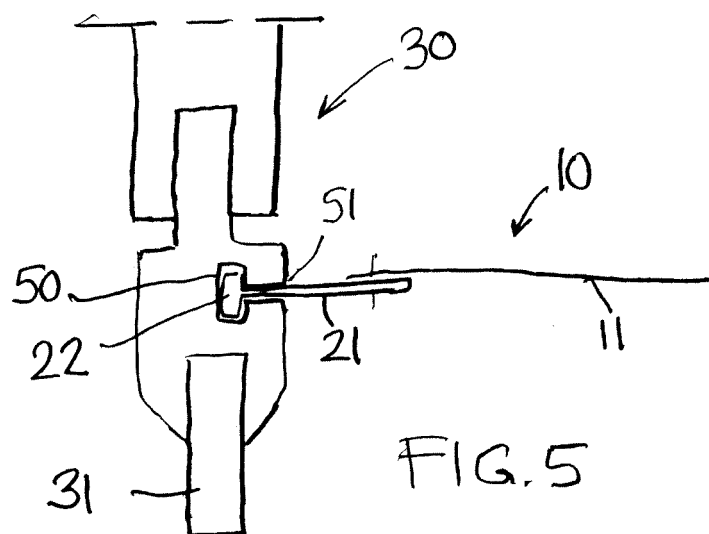
10	Mop cloth
11	Cloth portion
11a	Cloth portion
11b	Cloth portion
20	Edge portion
21	Fastening portion
22	Thickened portion
30	Squeegee
31	Squeegee portion

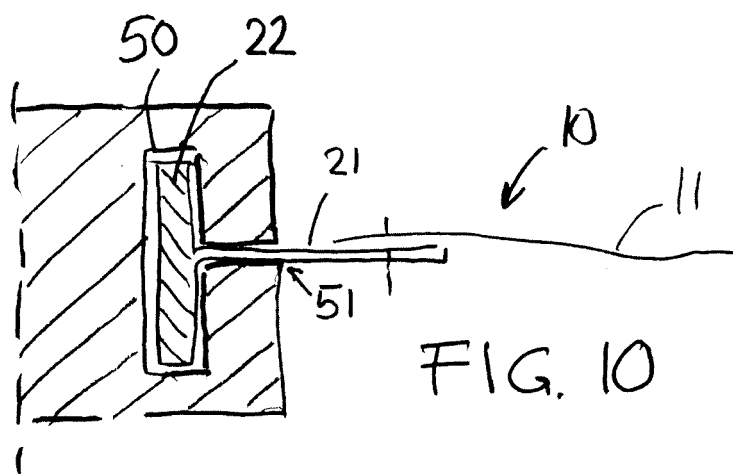
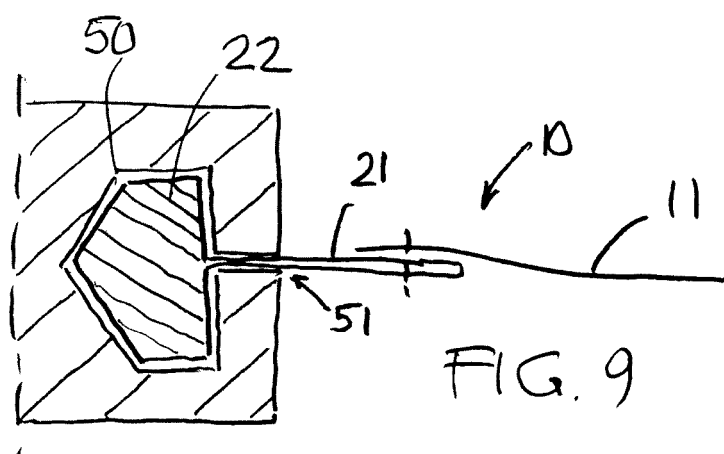
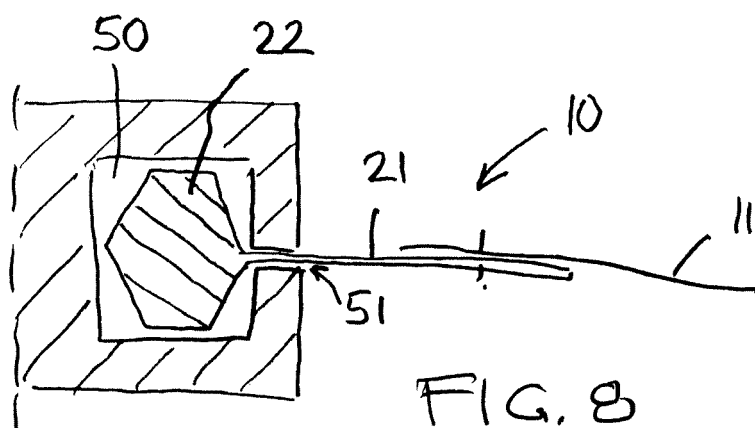
- 40 Mop frame
- 41 Flat mop
- 50 Groove
- 51 Slit

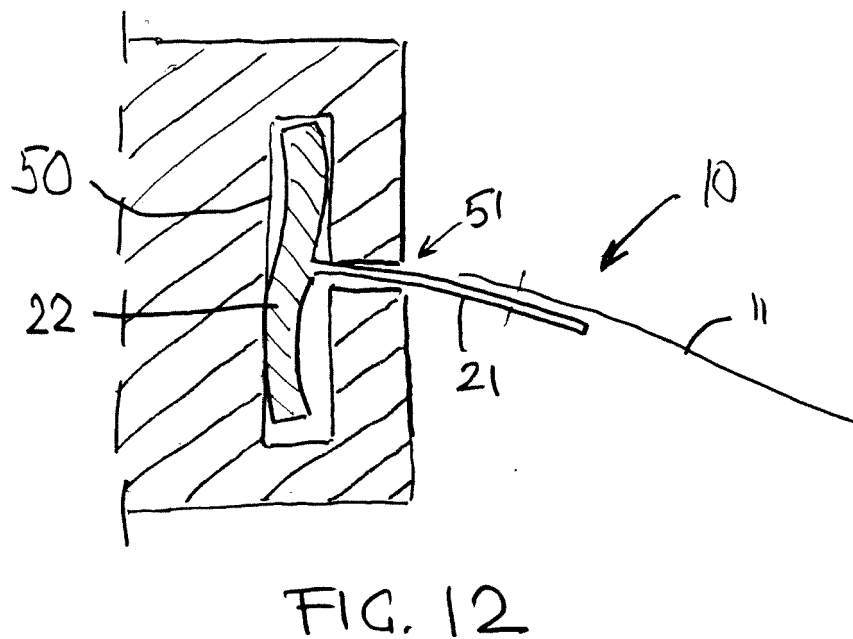
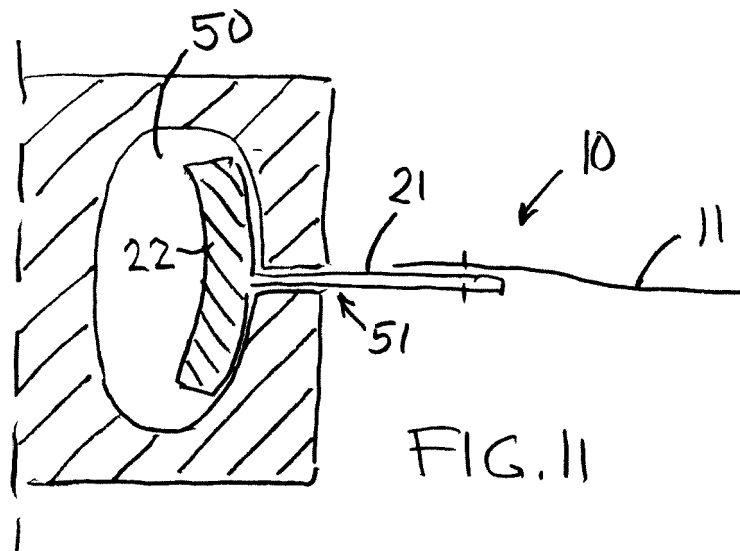
Claims

1. A mop cloth (10) that has a cloth portion (11, 11a, 11b) manufactured from fabric, non-woven fabric, paper or some other flexible material, which is equipped with a thickened edge (22) with which the mop cloth (10) can be attached to a squeegee (30), mop frame (40), flat mop (41) or some other floor maintenance tool such that the thickened edge (22) of the mop cloth (10) is threaded into the groove (50) located in the floor maintenance tool (30, 40, 41), **characterised in that** there has been attached to the mop cloth's (10) cloth portion (11, 11a, 11b) an edge portion (20) which is manufactured from flexible and durable thermoplastic or some other flexible material and which edge portion (20) includes a flexible fastening portion (21) in the shape of a thin sheet for attaching the edge portion to the cloth portion (11, 11a, 11b) and a thickened portion (22), which can be threaded in the floor maintenance tool into the groove (50) formed in the squeegee (30), mop frame (40), flat mop (41) or other floor maintenance tool.
2. A mop cloth (10) according to claim 1, **characterised in that** the thickened portion (22) of the edge portion (20) of the mop cloth (10) is square, polygonal, oval, semi-circular in cross-section or a combination of these shapes, and the fastening portion (21) is a thin and flexible sheet.
3. A mop cloth (10) according to either one of claims 1 or 2, **characterised in that** the thickened portion (22) of the edge portion (20) of the mop cloth (10) and the thin sheet-like fastening portion (21) together form a piece whose cross-section is essentially T-shaped.
4. A mop cloth (10) according to any one of claims 1, 2 or 3, **characterised in that** the thickened portion (22) of the edge portion (20) of the mop cloth (10) is a narrow sheet-like part that is perpendicular to the fastening portion (21) so that the thickened portion (22) and fastening portion (21) together form a piece whose cross-section is essentially T-shaped.
5. A mop cloth (10) according to any one of claims 1-4, **characterised in that** the mop cloth's 10 edge portion (20) which has an essentially T-shaped cross-section has been attached to the cloth portion (11) such that the cloth portion (11) has been sewn over the edge portion (20) fastening portion (21) or the edge of the cloth portion (11) has been folded and turned onto both sides of the edge portion (20) fastening portion (21) and sewn to the edge portion such that the fastening portion remains between the folds of the cloth portion.
6. A mop cloth (10) according to any one of claims 1-5, **characterised in that** the essentially T-shaped-cross-section edge portion (20) of the mop cloth (10) has been attached to two cloth portions (11a, 11b) such that separate cloth portions (11a, 11b) have been sewn onto each side of the edge portion's fastening portion (21), in which case the fastening portion (21) remains between the separate cloth portions (11a, 11b) forming a twofold mop cloth.
7. A mop cloth (10) according to any one of claims 1-8, **characterised in that** a disposable mop cloth (10) is formed such that one or more paper or non-woven fabric cloth portions (11) are attached to the fastening portion (21) of the edge portion (20) which has an essentially T-shaped cross-section either by sewing or gluing.
8. A floor maintenance tool that is a squeegee (30), mop frame (40) or flat mop (41) to which the mop cloth (10) can be attached such that the thickened edge (22) of the mop cloth (10) is attached to a groove (50) formed in the floor maintenance tool (30, 40, 41) **characterised in that** the groove (50) formed in the floor maintenance tool (30, 40, 41) has a cross-section the shape of the cross-section of the groove (50) of the floor maintenance tool (30, 40, 41) such as a squeegee (30) or mop frame (40) has been formed to be compatible with the thickened portion (22) of the mop cloth's (10) separate edge portion (20).
9. A floor maintenance tool (30, 40) according to claim 8, **characterised in that** the cross-section of the groove (50) of the floor maintenance tool (30, 40) corresponds with the essentially T-shaped cross-section of the mop cloth (10) edge portion (20) and the slit (51) in the floor maintenance tool groove essentially corresponds with the thickness of the fastening portion (21) of the mop cloth (10) edge portion (20).











EUROPEAN SEARCH REPORT

Application Number
EP 19 39 6001

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The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (IPC)
			A47L
Place of search		Date of completion of the search	Examiner
Munich		13 September 2019	Eckenschwiller, A
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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EPO FORM 1503 03.82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 19 39 6001

5 This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
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