



(43) International Publication Date
7 November 2013 (07.11.2013)

- (51) International Patent Classification:
A47L 13/16 (2006.01) *A47L 13/20* (2006.01)
- (21) International Application Number:
PCT/IB2013/053486
- (22) International Filing Date:
2 May 2013 (02.05.2013)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
PD2012A000135 4 May 2012 (04.05.2012) IT
- (71) Applicant (for all designated States except US): **T.T.S. S.R.L.** [IT/IT]; Viale dell'Artigianato No.12/14, I-35010 Santa Giustina in Colle PD (IT).
- (72) Inventor; and
- (71) Applicant (for US only): **ZORZO, Renato** [IT/IT]; Via Roncà 17, I-35010 Onara di Tombolo PD (IT).
- (74) Agent: **GIACON, Stefano**; Via Pontevigodarzere No. 68, I-35133 Padova PD (IT).
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT,

HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

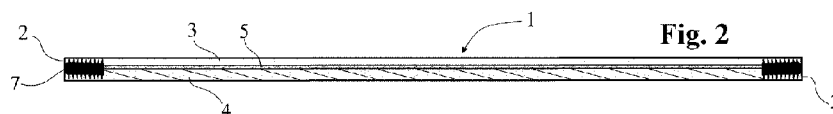
Declarations under Rule 4.17:

- as to the identity of the inventor (Rule 4.17(i))
- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))
- of inventorship (Rule 4.17(iv))

Published:

- without international search report and to be republished upon receipt of that report (Rule 48.2(g))

(54) Title: IMPROVED CLOTH FOR CLEANING



(57) Abstract: The invention relates to a cleaning cloth, and in particular a cleaning cloth with two active cleaning surfaces, which includes an element interposed between the above-mentioned surfaces for particular requirements.

Description

Title of Invention: IMPROVED CLOTH FOR CLEANING

Technical Field

- [1] The scope of application of the invention concerns a cloth for cleaning, in particular a cleaning cloth that has two active cleaning surfaces.

Background Art

- [2] It is well known that the cleaning sector can be divided into dry cleaning and wet cleaning.
- [3] Dry cleaning signifies cleaning that does not require any detergent or wetting of the cleaning cloth, because they collect the dry dirt.
- [4] This collection can be carried out with a normal cleaning broom, but increasingly a cloth is laid on the floor and held by a respective mop base.
- [5] In fact, the cleaning operations carried out using the collection of dirt with a normal broom has the drawback of raising a considerable part of the dirt as dust, which remains in the air for a long time, to later settle on the ground again, thereby thwarting the cleaning operations.
- [6] A different exigency is pursued, however, by wet cleaning, carried out nearly always using the direct or indirect wetting of the surface to be cleaned.
- [7] In any case, whether the floor is wet beforehand, or whether it is dampened by the wet cloth, the same cloth or a fresh one needs to collect the wet dirt.
- [8] Sometimes with the aid of detergents and specifically assigned cloths, the dirt is removed in a mechanical manner, with possible rubbing so that it can be dissolved and/or detached from the floor.
- [9] For this purpose, the adoption of microfiber cloths has proven particularly useful.
- [10] Furthermore, since an exact amount of water is required for soaking the cloth there are a whole range of methods and instruments capable of making the cloth absorb the right amount of liquid.
- [11] During this soaking, the amount of solution used is calibrated with the right percentage of detergent beforehand according to the amount of dirt that needs to be removed.
- [12] Very often, two stages of cleaning are required for a deep and thorough cleaning, which includes both dry and wet cleaning.
- [13] It is clear that the dry cleaning operations by sweeping with a dry cloth should precede the wet cleaning. In fact, if all the dry dirt that could be taken away were not done so beforehand, this would dissolve on the floor and would be distributed over the entire surface to be cleaned, negatively affecting the results.
- [14] Therefore, the operator has to be adequately equipped with both dry cleaning

devices, as well as with wet cleaning equipment.

- [15] To speed up these operations, the operator therefore prefers to have not only cloths suited to cleaning, but also retention bases, spare storage, collection and disposal sacks one specifically for dry cleaning and one for wet cleaning.
- [16] It follows that the twofold supply and equipment is a considerable investment and takes up more space during transport and storage.
- [17] Another consequence of the decision to adopt a clear distinction between the types of cleaning and the consequent twofold supply and use of equipment, reflects also on productivity.
- [18] In fact, the operator is forced at each change of the type of cleaning to return to the work station, which is very often a cleaning trolley parked not far from the cleaning place, in order to change the cloth and tools, and then return to the place where he was before the cleaning operations were interrupted, to restart with the new type of cleaning.
- [19] It should be said that sometimes, in order to avoid these interruptions, operators carry out the cleaning just the same, not taking into account the above-mentioned distinction between the two types of cleaning, because they are in a hurry to finish, but at the same time compromising the quality of the end result.
- [20] Moreover, often another cleaning situation arise, namely where it is necessary to dry the floor that has just been wet immediately. For example, areas open to the public or places where people are continually passing through.
- [21] Therefore, in these situations the floor needs to be immediately dried after it has been washed, so as not to compromise the washing that has just been carried out, but also to prevent people slipping on the wet floor and hurting themselves.
- [22] For these reasons, the operator should therefore have a range of chains, signs, indicators and stands that cordon off the wet areas so that temporarily the public cannot pass through.
- [23] These barriers and signalling devices have to be continually shifted after the floor has dried, and put on the next floor to wash or which has just been washed.
- [24] When it is not possible to use these barriers or signs, because too many people are moving around, the operator always has to wash just a small part, which then needs to be dried immediately.
- [25] The times for the above-mentioned operations, which require a continual change of equipment and above all moving around, heavily influence productivity in a negative way.
- [26] To get around this difficulty, very often the operator has to modify, also in an unjustifiable and irrational way, the sequence of work, to clean the above-mentioned places when there are few people around.

[27] In the past, there was an attempt at a solution to try to provide the operator simultaneously with two cloths, one dry and one wet.

[28] This solution proposed a cloth that was the same size as two standard cloths, with the first half kept dry against a first surface of a base, and a second half, kept damp with detergent against a second surface of the same base, where said base can be worked on both sides.

[29] This proprietary solution was very costly, however, since it required a special base that could engage said special cloths, which proved to be extremely cumbersome.

[30] Moreover, said cloth with a double extension could not be treated differently on each side, for example just wetting one half, but had to be treated as a single cloth.

[31] Moreover, the dimensions, the attachment devices and many other aspects heavily negatively affected this solution so that it was not widely used.

Disclosure of Invention

Technical Problem

[32] For all the reasons mentioned above, there is need for a new cleaning cloth with a different configuration that can overcome and resolve one or more of the drawbacks mentioned above.

[33] Another object of this invention is to make available a cleaning cloth that is similar to and can be used like other current cloths it replaces.

[34] A further object of this invention is to make available a cleaning cloth that can be used on a normal base, replacing the traditional cleaning cloths.

[35] An even further object of this invention is to make available a cleaning cloth that can be easily made and that is inexpensive.

[36] A still further object of this invention is to make available a cleaning cloth that can be used for dry cleaning or brushing, as well as for wet cleaning without the drawbacks mentioned above.

[37] Another object of this invention is to make available a cleaning cloth where the dry cleaning phase is not influenced by the wet cleaning and vice-versa.

[38] An additional object of this invention is to make available a cleaning cloth that can easily be wet beforehand.

[39] A further object of this invention is to make available a cleaning cloth that provides a quick change of cleaning mode from sweeping or drying to washing and vice-versa.

[40] An even further object of this invention is to make available a cleaning cloth that provides greater work autonomy than a traditional cloth.

Solution to Problem

Technical Solution

[41] One or more of the above-mentioned objects achieved by a cleaning cloth that has

one of more of the characteristics set out in the attached claims.

- [42] In particular, the object of the invention consists of a cleaning cloth comprising a first surface for cleaning to which at least part of the perimeter or edge a second cleaning surface is solidly joined in a symmetrical way, and comprising, between said first and second surface, an impermeable or semi-impermeable laminar element held to at least said part of the perimeter or edge.

Advantageous Effects of Invention

Advantageous Effects

- [43] Beneficially, with the adoption of a first and second cleaning surface, a cloth is obtained where there is a specific material for each surface of the cloth to carry out a particular function.
- [44] A further advantage consists of the fact that the wetting of a surface does not affect the dry state of the opposite surface, because said laminar element between them is impermeable.
- [45] Another advantage consists of the fact that the wetting of a first surface with a first liquid does not affect the wetting of a second surface that is opposite to the first with a second liquid.
- [46] A further advantage of this invention consists of the fact that there is a complete compartmentalisation between the opposed surfaces.
- [47] Another advantage lies in the fact that there are no holes in the laminar partition element due to the passage of the sewing thread, because the joint is created through sealing and/or bonding.
- [48] This method of joining the two, sealing and/or bonding, between the laminar partition element to the outer surfaces, might be useful that it is of the continuous type without interruptions, creating an airtight compartmentalisation between the two sides of the cloth with the adoption of a waterproof laminar element, or else with spaced stitching, maintaining a flexibility comparable to that of sewn cloths.
- [49] Beneficially, the joint is not made along the edge but at least partly inside the surrounding perimeter, limiting the free extensions between the sealing points, and rendering the cloth more robust.
- [50] In the eventuality that the above-mentioned compound cloth requires one or more coupling devices, like for example tabs or blades or the like, for being engaged by the retaining base, for the solid union of the cloth to the relative base during cleaning, beneficially said coupling elements are one or more elements that protrude from the joint edge, without having to join another element to the cloth with the functions of coupling to the mop base.
- [51] Another advantage lies in the fact that the cleaning cloth is flat and continuous, and

suitable for being wet only on one surface, while the opposite surface is kept dry.

[52] Another type of benefit comes from the possibility of inserting between the laminar element and a cleaning surface, preferably the cleaning surface that is to be wet, a layer of absorbent material, capable of absorbing and releasing a certain amount of liquid, acting as a water or detergent storage, to facilitate and prolong the cleaning operations.

[53] An even further advantage comes from the use as a laminar element of a semi-permeable filter or osmotic membrane that can retain the dirt on one surface and have the water or detergent pass to the opposite surface.

[54] With this application, the semi-permeable filter or osmotic membrane acts as a filter, but allowing the passage of water, increases the work autonomy and allows further cleaning operations to be carried out, after having collected the excess dirty water from the floor with a rinse, carried out with the other cleaning surface, wet or dampened with a clean liquid.

Brief Description of Drawings

Description of Drawings

[55] The technical characteristics of the cleaning cloth of this invention, for the above-mentioned objects, can clearly be found in the content of the claims below, and the benefits will be more clearly evident in the detailed description that follows, made with reference to the attached drawings that represent an embodiment that is purely by way of example and not in any way limited, where:

[56] fig. 1 shows perspective view of a cleaning cloth according to the invention, composed of a double surface, joined along a longitudinal edge by stitching.

[57] fig. 2 shows a sectional view of the cleaning cloth according to the invention where the overlapping of the cleaning surfaces with an interposed laminar element, all the perimeter edges joined by sealing and/or bonding.

[58] fig. 3 shows a sectional view of an alternative embodiment of the object, where there is an absorbent element for storing and keeping the cleaning liquid and all the perimeter edges are joined by means of sealing and/or bonding.

[59] fig. 4 shows the object of the invention with external coupling tabs that are part of only one surface layer that make up the cloth.

Best Mode for Carrying out the Invention

Best Mode

[60] With reference to the diagrams, the cleaning cloth 1, the object of the invention, has a dimension in a plan view similar to a traditional cleaning cloth.

[61] The edges 2 of this compound cleaning cloth 1 can be either stitched, using stitching 8, but much more beneficially are joined by means of sealing 7 and/or bonding, both in a continual manner as well as by spaced stitches.

- [62] The cleaning cloth 1 of the invention externally, therefore, looks like a cleaning cloth with two active cleaning surfaces 3, 4, one for each of the two sides.
- [63] Eventually, each surface 3, 4 has a specific function, like for example washing and drying, or else sweeping and washing.
- [64] Between the two outer cleaning surfaces, there is an interposed laminar element 5.
- [65] Said interposed laminar element 5 can be impermeable, creating an airtight compartmentalisation between the two sides of the cloth, or else semi-impermeable, like a filter passing clean water but retaining dirt.
- [66] In the eventuality that it is an impermeable interposed laminar element, it is beneficially held fast along the perimeter edges 3, creating a total compartmentalisation between the two sides, and preventing the liquid wetting one surface passing through to the opposite surface.
- [67] For this reason, if complete compartmentalisation is required between the two opposite surfaces, the sealing 7 and/or bonding of the edges is the best solution.
- [68] In the eventuality that this requirement is not critical and/or that the materials used are not compatible with sealing and/or bonding, it is possible to proceed with simple stitching 8, tolerating a minimum passage of liquid through the holes of the stitching from one side to the other side.
- [69] A cloth 1, which can easily be obtained with the above-mentioned methods, is particularly useful and effective in combination with a mop base that allows both surfaces to be used, eventually without detaching and rotating to then re-attach the above-mentioned cleaning cloth 1 with a double active surface.
- [70] This joint is beneficially obtained using sealing 7, which stiffens the edges 2, preventing the weft near the ends of the surfaces 3, 4 from unravelling because of wear or deterioration.
- [71] These stiffened edges 2 can beneficially be used in combination with a mop base that can engage the cloth 1 along its longitudinal edge.
- [72] With this stiffened edge profile, joining the cloth 1 to the base is made easier, providing an easy and smooth insertion of said stiffened edge inside the gripping mouth of the mop base.
- [73] Eventually it is possible that at least one layer 3, 4, 5 of the surfaces that make up the cloth 1 of the invention extends externally beyond the joint edge 2 to create one or more tabs 9 or another coupling device, suited to being retained by the base to which the cloth is joined.
- [74] Furthermore, a considerable increase in autonomy and productivity is a result of the positioning of an absorbent element 6 between said interposed laminar element 5 and an outer surface, which can act as a sponge or pad, having the role of retaining the water or detergent, releasing the absorbed liquid a little at a time depending on the

pressure exercised on it by the base.

[75] Said absorbent element 6 beneficially extends as a laminar element adjacent to the inner side of the active cleaning surface, the one that will be wet.

[76] The store of liquid accumulated by this absorbing element 6 therefore allows work autonomy to be increased, maintaining the cloth 1 sufficiently damp for an lengthy and prolonged cleaning operation, with the regulated release of the absorbed liquid, without these prolonged operations requiring the cloth 1 to be excessively dampened with the risk of dripping and the excessive release of liquid, especially in the initial phases of the cleaning operations.

Claims

- [Claim 1] Improved cloth for cleaning, comprising a first surface (3) for cleaning that is solidly connected to at least part of the edge of a second cleaning surface (4) in a basically symmetrical manner, and characterised by the fact that in between said first (3) and said second surface (4) there is an impermeable or semi-impermeable laminar partition element (5) held fast on said part of the perimeter
- [Claim 2] Improved cloth for cleaning according to claim 1, characterised by the fact that said first (3) and said second surface (4) are specific for the particular cleaning function to be carried out.
- [Claim 3] Improved cloth for cleaning according to one or more of the previous claims, characterised by the fact that the solid connection between the first (3), second surface (4) and the laminar partition element (5) is carried out all along the perimeter edges (2).
- [Claim 4] Improved cloth for cleaning according to one or more of the previous claims, characterised by the fact that said solid connection is achieved through sealing (7) and/or bonding.
- [Claim 5] Improved cloth for cleaning according to one or more of the previous claims, characterised by the fact that said solid connection is continuous or at intervalled points.
- [Claim 6] Improved cloth for cleaning according to one or more of the previous claims, characterised by the fact that said solid connection is not only along the perimeter edge (2) but also at least partially, within the perimeter of the profile.
- [Claim 7] Improved cloth for cleaning according to one or more of the previous claims, characterised by the fact that it has one or more tabs (9) or coupling elements or another device for coupling to the base, which protrudes from the edge of the joint.
- [Claim 8] Improved cloth for cleaning according to one or more of the previous claims, characterised by the fact that between the laminar partition element (5) and a cleaning surface (3, 4), preferably the cleaning surface to be wet, there is one or more layers of an absorbent material (6), which can absorb and release a certain amount of liquid, acting as a water or detergent store.
- [Claim 9] Improved cloth for cleaning according to one or more of the

previous claims, characterised by the fact that said laminar partition element (5) is a semi-permeable filter or an osmotic membrane.

[Fig. 1]

