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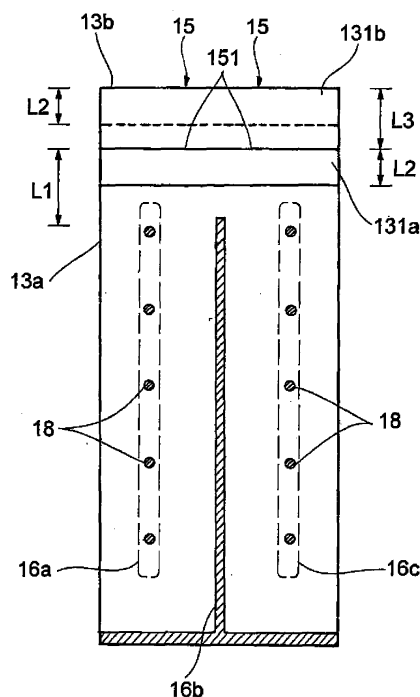
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(54) **CLEANING ARTICLE**

(57) A cleaning article 10 having a pair of flat tubular pockets 15 and attachable to a holder 20 by inserting the holder 20 into the pockets 15. The cleaning article 10 includes fiber layers 11a and 11b and fiber layers lie and 11d each formed of a fiber bundle on the upper and lower side, respectively, of the pockets 15. The pockets 15 are

formed by joining two oblong sheets 13a and 13b interposed between the upper and lower fiber layers 11b and lie by making joining zones extending in the longitudinal direction of the sheets 13a and 13b to define both longer sides of each pocket 15. The pockets 15 each have an unjoined region in an end portion on the side of their inlets 151.

**Fig.3**



## Description

### Technical Field

**[0001]** The present invention relates to a cleaning article, particularly a cleaning article having a holder-receiving pocket and a fiber layer on both the upper and lower sides of the pocket and adapted to be attached to a holder by inserting the holder into the pocket.

### Background Art

**[0002]** Cleaning articles having a holder-receiving pocket (hereinafter simply referred to as a pocket) and attachable to a holder by inserting the holder into the pocket are widely known. Cleaning articles having a fiber layer on both the upper and lower sides of the pocket so that both sides of the cleaning article may be usable for cleaning purposes are also known. Cleaning articles of this type are advantageous in that, after the fiber layer on one side is soiled, the fiber layer on the other side is then used. In cleaning tight spaces such as a gap between a piece of furniture and a wall, it is possible with this type of cleaning articles to clean both the furniture and wall simultaneously.

**[0003]** However, when a fiber layer is provided on both the upper and lower sides of the pocket, the fibers can cover the inlet opening of the pocket to interfere with inserting the holder into the pocket. When a fiber layer is provided on both sides, and only the fiber layer on one side is soiled, the cleaning article must be once detached from and re-attached to the holder to change the fiber layers.

Cleaning articles designed to facilitate inserting a holder therein have been proposed.

**[0004]** For example, the patent document 1 discloses a mop (cleaning article) and a mop holder. The holder has two insertion portions forked from the end of a handle. The mop has two spaces as pockets extending in parallel with each other. The inner size of each of the spaces is wider than the width of each insertion portion. Each insertion portion has projections. When the pair of insertion portions are inserted into the respective spaces, the projections slide with the inside of the spaces so that the pair of insertion portions are deformed inboard to narrow the gap therebetween.

**[0005]** The patent document 1: JP2003-265390A

**[0006]** According to the patent document 1, the pocket is provided with a region

where the insertion portion of a holder having entered the pocket can slide with ease, but there is no measure for helping the insertion portion enter through the inlet opening of the pocket of the cleaning article. When the insertion portion of a holder having entered the pocket is slid inside the pocket, a user or an operator usually does this operation while having the handle of the holder in one of his or her hands and the cleaning article in the other hand. In the cases where the cleaning article is

formed out of soft materials such as fibers, which means that the pocket is soft, it is not easy to insert stick-shaped insertion portion to the intended deepest position of the pocket. That is, the insertion portion of a holder can fail to reach the intended position in the pocket, and the cleaning article may be used in such a halfway-attached state.

### Disclosure of the Invention

**[0007]** The present invention provides a cleaning article having a flat tubular pocket and attachable to a holder by inserting the holder into the pocket. The cleaning article includes a fiber layer on both the upper and lower side of the pocket. The fiber layer includes a fiber bundle. The pocket is formed by joining the upper and lower fiber layers or two members interposed between the upper and lower fiber layers by making joining zones. The joining zones extend to define both longer sides of the pocket. The pocket has an unjoined region at an inlet-sided end portion thereof.

### Brief Description of the Drawing

#### **[0008]**

Fig. 1 is a perspective view of a cleaning article according to a first embodiment of the present invention.

Fig. 2 is an exploded perspective view of the cleaning article illustrated in Fig. 1.

Fig. 3 is a plan view illustrating substrate sheets of the cleaning article according to the first embodiment.

Fig. 4 is a perspective view of a cleaning article with a shorter substrate sheet being pinched between fingers at its inlet-sided end.

Fig. 5 is a plan view illustrating substrate sheets of a cleaning article according to a second embodiment of the present invention.

Fig. 6 is a plane view illustrating substrate sheets of a cleaning article according to a third embodiment of the present invention.

### Detailed Description of the Invention

**[0009]** A first preferred embodiment of the cleaning article according to the present invention will be illustrated with reference to Figs. 1 through 4.

**[0010]** The cleaning article (hereinafter referred to as "mop") 10 of the first embodiment is oblong and flat as a whole as illustrated in Figs. 1 through 3. The mop 10 has a pair of flat tubular pockets 15. The mop 10 has fiber layers 11a and 11b and fiber layers 11c and 11d each formed of a fiber bundle; the former two on the upper side, and the latter two on the lower side of the pockets 15. The mop 10 is adapted to be attached to a holder 20 by inserting the holder 20 into the pair of pockets 15.

In the mop 10 of the first embodiment, the pair of pockets 15 are each formed by joining two oblong substrate sheets 13a and 13b interposed between the upper and lower fiber layers 11b and 11c at joints extending in the longitudinal direction of the pockets on both sides of each pocket while making inlets 151 for inserting a holder. The pockets 15 each have an unjoined region in the inlet-sided end portions 131a and 131b.

**[0011]** Going into detail on the mop 10 of the first embodiment, the two oblong rectangular substrate sheets 13a and 13b have their longitudinal directions coinciding with the longitudinal direction of the mop 10. The substrate sheets 13a and 13b are longer and narrower than the fiber layers 11a, 11b, 11c, and 11d.

**[0012]** Going into more detail on the mop 10 of the first embodiment, the pair of pockets 15 are formed by joining two substrate sheets 13a and 13b at three joining zones 16a 16b, and 16c spaced in the lateral direction of the sheets and extending in the longitudinal direction of the sheets as illustrated in Fig. 3.

**[0013]** The inlet-sided ends 151 of the two substrate sheets 13a and 13b are not even. As illustrated in Figs. 2 and 3, the two substrate sheets 13a and 13b have different lengths. They are joined together with their longitudinal ends opposite to the inlet-sided ends 151 being even. In this particular embodiment, the upper substrate sheet 13a is shorter.

**[0014]** In the mop 10 of the first embodiment, the pair of pockets 15 are formed to extend in the longitudinal direction of the substrate sheets 13a and 13b as illustrated in Fig. 3. While the mop 10 is in a packaged state, each of the pockets 15 is the substrate sheets 13a and 13b overlying and contacting each other. On inserting a holder 20 (described later) into the pockets 15, the substrate sheets 13a and 13b are separated apart to form flattened tubular spaces.

**[0015]** The tubular pockets 15 have their respective openings at one of the longitudinal ends of the sheets 13a and 13b, i.e., in end portions 131a and 131b of the sheets 13a and 13b, respectively. The openings are inlets 151 of the respective pockets 15. The holder 20 is insertable through the inlets 151 into the inside of the pockets 15. In carrying out cleaning, the mop 10 of the first embodiment is used with the holder 20 inserted into the paired pockets 15 as illustrated in Fig. 1.

**[0016]** In the mop 10 of the present embodiment, the joining zone 16b is located at the laterally central position of the paired pockets 15. The joining region 16b is a straight-linear heat seal extending in the longitudinal direction of the sheets 13a and 13b. The position of the joining zone 16b is on the laterally central position of the substrate sheets 13a and 13b.

**[0017]** The two joining zones 16a and 16c are located on each side of the joining zone 16b and indicated by the broken lines in Fig. 3. Each of the joining zones 16a and 16c consists of circular, heat-embossed bonds 18 aligned in the longitudinal direction of the sheets 13a and 13b at regular intervals. The sheets 13a and 13b are not

joined together in the areas between adjacent embossed bonds 18 in the joining zones 16a and 16c. Each of the joining zones 16a and 16c is equally away from the joining zone 16b in the lateral direction.

**[0018]** The two substrate sheets 13a and 13b are linearly joined by heat sealing along their longitudinal ends opposite to the inlet-sided ends as illustrated in Fig. 3. Therefore, each of the pockets 15 provides a bag-shaped space with its distal end closed to restrict passage of the distal end of the insertion portions 22 of the holder 20.

**[0019]** As stated above, the pair of pockets 15 are formed of the two substrate sheets 13a and 13b. The end portions 131 a and 131b of the respective sheets 13a and 13b are each folded over the outer side of the pockets 15 to make a turnback cuff having increased strength as illustrated in Figs. 2 and 3. The turnback cuff of each of the end portions 131a and 131b is bonded to the facing part of the sheet to increase the thickness than the other portion. The bonding is preferably effected by known fixing means such as heat sealing or adhesion with an adhesive. Each of the end portions 131 a and 131b may be folded back to a partial length as in this particular embodiment or may be folded into equal halves.

The folded area of the substrate sheet 13a forms the inlet-sided end edge of the sheet 13a. The same applies to the sheet 13b.

**[0020]** The turnback cuff of each of the end portions 131 a and 131 b of the two substrate sheets 13a and 13b preferably has a strength of 0.5 N/mm or more, more preferably 0.6 N/mm or more, per unit width as measured in a common tensile test at a tensile speed of 300 mm/min. A test piece was prepared by cutting the turnback cuff at 20 mm inside from the edge of the inlets 151 of the two substrate sheets 13a and 13b. There is no particular upper limit to the strength.

**[0021]** The two substrate sheets 13a and 13b have an unjoined region in their respective inlet-sided end portions 131a and 131b as illustrated in Figs. 3 and 4. More specifically, the two sheets 13a and 13b are not joined to each other in the vicinity of the inlets 151 by any of the joints of the joining zones 16a, 16b, and 16c. In the present invention, the end portion 131a of the substrate sheet 13a refers to a portion from the end edge to the inlet-sided ends of the joining zones 16a, 16b, and 16c. The same applies to the end portion 131b of the substrate sheet 13b.

**[0022]** Each of the inlet-sided end portions 131a and 131b is preferably used as a flap tab to be pinched in inserting a holder 20 into the pockets 15. The end portions 131a. and 131b each include a turnback cuff that makes the end portions stiffer and easier to pinch.

**[0023]** To go into still more detail of the mop 10 of the first embodiment, the four fiber layers 11a, 11b, 11c, and 11d are oriented fiber bundles having a prescribed thickness. The fiber bundles are substantially oriented in the lateral direction of the mop 10 as illustrated in Figs. 1 and 2.

The mop 10 further includes an oblong rectangular scrap-

ing sheet 12a between the adjacent fiber layers 11a and 11b. Similarly, the mop 10 has an oblong rectangular scraping sheet 12b between the adjacent fiber layers 11c and 11d. The two scraping sheets 12a and 12b are of the same shape and have their longitudinal direction coinciding with the longitudinal direction of the mop 10.

**[0024]** The fiber layers 11a, 11b, 11c, and 11d, the two oblong substrate sheets 13a and 13b, and the two scraping sheets 12a and 12b are stacked with the fiber orientation direction in the fiber layers 11a to 11d being in a substantially perpendicular relation to longitudinal direction of the scraping sheets 12a and 12b and the substrate sheets 13a and 13b. The fiber layers, substrate sheets, and scraping sheets are joined together along the longitudinal direction of the substrate sheets and the scraping sheets with aligned longitudinal centerlines. Joining is done along a straight linear joint 14 having a prescribed width. The linear joint 14 is formed on the aligned longitudinal centerlines of the fiber layers, substrate sheets, and scraping sheets by a known joining means, such as heat fusion bonding or adhesion with an adhesive. In the case where the fiber layers, substrate sheets, and scraping sheets are all made out of heat fusible material, the linear joint 14 is conveniently formed by fusion bonding. Formation of the linear joint 14 is preferably done simultaneously with formation of the joining zone 15b defining the pair of pockets 15.

**[0025]** It is preferred that the fiber layer 11b, the substrate sheets 13a and 13b, and the fiber layer 11c be joined together by fusion bonding at the embossed bonds 18 in the joining zones 16a and 16b to impart stiffness to the mop 10 while retaining the flexibility of the mop 10.

**[0026]** As illustrated in Fig. 2, the holder 20 includes a handle 21 and a pair of insertion portions 22 that are forked from one end of the handle 21. The handle 21 and the insertion portions 22 make a prescribed angle. The insertion portion 22 is a flat, strip-shaped plate. Being so shaped, the insertion portions 22 are endowed with flexibility to help the mop 10 conform to a curved or uneven surface of an object being cleaned and achieve increased efficiency of dust removal. The two insertion portions 22 each are adapted to be inserted into the respective pockets 15 formed by the two substrate sheets 13a and 13b.

**[0027]** It is preferred that the holder 20 have a hook etc. shorter than the insertion portions 22 provided between the insertion portions 22 and that the inlet-sided end portions 131a and 131b have an engaging means engageable with the holder 20 such as a slit. Such a configuration is preferred in that the hook etc. can be engaged with the end portions 131a and 131b to make the holder 20 less likely to come off the mop 10.

**[0028]** In the above-described mop 10 of the present invention, the length L1 (see Fig. 3) of the unjoined region of the inlet-sided end portions 131a and 131b of the respective substrate sheets 13a and 13b measured in the longitudinal direction of the mop 10 is decided in relation to the position of the inlet-sided end of the fiber layers and ease of inserting the holder 20, i.e., the distance

between 16b and 16a or 16c. From the standpoint of ease of inserting the holder 20, the length L1 is preferably about 1 to 10 mm when that distance is relatively large to provide loose pockets 15, or about 3 to 30 mm when that distance is relatively small to provide tight pockets 15. In the case where the unjoined region of the end portions 131a and 131b partly overlaps the fiber layers, the length L11 of the part of the unjoined region covered by the fiber layers) is preferably up to 20 mm, more preferably up to 10 mm, while the length L12 of the part of the unjoined region sticking out from the end of the fiber layers is preferably 1 to 30 mm, more preferably 2 to 20 mm. The sum of the lengths L11 and L12 gives the length L1. The term "length L1 of the unjoined region" as used herein refers to the length from the inlet-sided end edge of the substrate sheet 13a to the inlet-sided ends of the joining zones 16a, 16b, and 16c as illustrated in Fig. 3. In referring to the length L1, the dimension of the turnback cuff of the sheet 13a in the end portion 131a is left out of consideration.

**[0029]** The length L2 (see Fig. 3) of the turnback cuff (the region folded over the outer side of the pockets 15) of the end portion 131a and that of the end portion 131b do not have to be the same. Specifically, the length L2 is preferably 3 to 30 mm, more preferably 3 to 15 mm, from the same standpoint described above.

The length L3 (see Fig. 3), the distance between the inlet-sided end edges of the substrate sheets 13a and 13b measured in the longitudinal direction of the sheets is preferably 0 to 10 mm, more preferably 1 to 5 mm.

**[0030]** Each of the inlet-sided end portions 131a and 131b is preferably used as a flap tab to be pinched in attaching the mop 10 to the holder 20. For instance, a user or an operator grasps the handle 21 of the holder 20 in one of his or her hands and pinches the end portion 131a of the upper substrate sheet 13a between fingers of the other hand as illustrated in Fig. 4. Whereupon the end portions 131a and 131b of the substrate sheets 13a and 13b are separated away from each other to open the pair of inlets 151. With the paired inlets 151 open, the forked insertion portions 22 of the holder 20 are easily inserted into the respective inlets 151.

**[0031]** While pinching the end portion 131a with one hand, the user or operator then inserts the holder 20 inside the pockets 15 with the other hand. Since the mop 10 with its end portion 131a pinched has the opposite end hanging by its own weight, the tubular spaces in the pockets 15 extend in their longitudinal direction with their thickness expanded. As a result, the insertion portions 22 of the holder 20 proceed smoothly in the tubular spaces of the pockets 15 without catching on the inner wall of the pockets 15 and successfully reach the opposite ends of the pockets 15.

**[0032]** The members constituting the mop 10 of the present embodiment will be described. Materials that can be used to make the substrate sheets 13a and 13b include fibrous sheets used in conventional cleaning articles such as nonwovens and plastic films commonly used

as wrapping material. Air-through nonwovens containing a heat-fusible component, spun-bonded nonwovens, and plastic films are particularly preferred.

The fibers constituting the fiber layers 11 a to lid preferably have a length of 30 to 150 mm, more preferably 50 to 120 mm, in view of dust trapping capabilities. In the present embodiment, fibers having such a length are used in the form of a fiber bundle (tow). It is preferred that the tow be sufficiently split with a known tow opening device beforehand.

**[0033]** According to the first embodiment of the mop 10, the inlet-sided end portions 131a and 131b of the substrate sheets 13a and 13b are each folded back and superposed on each other with their end edges uneven. Therefore, the mop 10 of the first embodiment is designed to help insert the holder therein.

**[0034]** The fiber layer 11d that is the undermost fiber layer with respect to the upward angled holder 20, particularly the distal end portion of the fiber layer 11d opposite to the holder 20 can be the first to get soiled as a result of cleaning. When the fiber layer 11d gets soiled, it is recommended that a user once removes the holder 20 from the mop 10, turns the mop 10 upside down to bring the unsoiled fiber layer 11a undermost, and again fits the holder 20 into the mop 10. Since the mop 10 of the first embodiment features ease of inserting the holder 20 into the pockets 15, the operation of turning over the mop 10 is easily done.

**[0035]** The mop 10 incorporating the second to fourth embodiments of the present invention are now illustrated with reference to Figs. 5 and 6. The description on the first embodiment applies to the second to fourth embodiments described hereunder unless otherwise specified. Members common to both Figs. 1 to 4 and Figs. 5 and 6 are given the same numerical and/or alphabetical designations.

**[0036]** In the second preferred embodiment of the mop 10 according to the present invention, the pair of pockets 15 are formed by joining two substrate sheets 13a and 13b. As illustrated in Fig. 5, the inlet-sided end portions 131a and 131b of the substrate sheets 13a and 13b are both wider than the other portion of the sheets and are therefore easy to pinch.

The wider end portions 131a and 131b each extend outward from the longitudinal ends of the fiber layers. In the second embodiment, each of the two end portions 131a and 131b is not folded back.

**[0037]** The end portions 131a and 131b each have a constant, increased width from their respective inlet-sided end edges to a prescribed length in the longitudinal direction of the mop 10. The two end portions 131a and 131b preferably have the same width. In order to help pinch and not to interfere with a cleaning operation, the end portions 131a and 131b are wider than the other portion preferably by 2 to 20 mm. For the same purposes, the length L4 (see Fig. 5) of the wider region of the shorter substrate sheet 13a is preferably 0.3 to 2 cm.

**[0038]** The two substrate sheets 13a and 13b are not

joined to each other in the end portions 131a and 131b by any of the joints of the joining zones 16a, 16b, and 16c. According to the second embodiment of the mop 10, the end portions 131a and 131b of the substrate sheets 13a and 13b are widened to facilitate pinching to produce the same effects as by the first embodiment.

**[0039]** In the third preferred embodiment of the mop 10 according to the present invention, the pair of pockets 15 are formed by joining the two substrate sheets 13a and 13b made out of heat fusible fibers. As illustrated in Fig. 6, each of the inlet-sided end portions 131a and 131b of the two substrate sheets 13a and 13b is fused along the end edge to provide a cohesive, film-like portion that has an enhanced strength and is therefore easier to pinch.

**[0040]** The wide end portions 131a and 131b each extend outward from the longitudinal ends of the fiber layers. In the third embodiment, each of the end portions 131a and 131b is not folded back.

The cohesive film-like portion of each of the end portions 131a and 131b is the result of heat-fusing an inlet-sided end edge portion of prescribed length as measured from the edge inward. The prescribed length L5 (see Fig. 6) in the sheet 13a and that in the sheet 13b are preferably the same. Specifically, the length L5 is preferably 1 to 30 mm to facilitate pinching and not to interfere with a cleaning operation.

**[0041]** The two substrate sheets 13a and 13b are not joined to each other in the end portions 131a and 131b by any of the joints of the joining zones 16a, 16b, and 16c.

**[0042]** The cohesive film-like portion of each of the end portions 131a and 131b of the substrate sheets 13a and 13b preferably has a strength of 0.35 N/mm or more, more preferably 0.38 N/mm or more, per unit width as measured in a common tensile test on a test piece measuring 80 mm length and 50 mm width at a gauge length of 50 mm and a tensile speed of 300 mm/min. The test piece is cut out of a region within 20 mm from the inlet-sided edge of the sheet 13a or 13b.

**[0043]** Materials that can be used to make the substrate sheets 13a and 13b used in the third embodiment of the mop 10 include fibrous sheets for use in conventional cleaning articles such as nonwovens made of heat fusible fibers and plastic films commonly used as wrapping material. Preferred examples of the heat fusible fibers that can be used to make the fibrous sheets include polyethylene, polypropylene, polyethylene terephthalate, and conjugate fibers prepared therefrom. These materials recited are also preferred materials of the plastic films referred to above.

**[0044]** According to the third embodiment of the mop 10, the two substrate sheets 13a and 13b have their inlet-sided end edge portions converted into a cohesive film-like portion that has an increased strength and is easier to pinch thereby to produce the same effects as by the first embodiment.

**[0045]** In the fourth preferred embodiment of the mop

10 according to the present invention, the pair of pockets 15 are formed by joining two substrate sheets 13a and 13b. The two substrate sheets 13a and 13b each have another sheet 3 of strip-shape bonded to the edge portion of the inlet-sided end portions 131a and 131b. As a result, the edge portion of each of the end portions 131a and 131b has an increased strength and is thereby easier to pinch.

**[0046]** The wide end portions 131a and 131b each extend outward from the longitudinal end edge of the fiber layers. In the fourth embodiment, each of the end portions 131a and 131b is not folded back.

The strip sheets 3 bonded to the sheets 13a and 13b preferably have the same shape. Specifically, the length of each of the strip sheets 3 is preferably the same as the width of the substrate sheets 13a and 13b, and the width of the strip sheet 3 is preferably 2 to 30mm to facilitate pinching and not to interfere with a cleaning operation.

**[0047]** The strip sheet 3 is bonded to each of the substrate sheets 13a and 13b with one of its longer side edge even with the inlet-sided end edge of the substrate sheet. The two substrate sheets 13a and 13b are not joined to each other in the end portions 131a and 131b by any of the joints of the joining zones 16a, 16b, and 16c.

**[0048]** The edge portion of each of the end portions 131a and 131b of the substrate sheets 13a and 13b where the strip sheet 3 is bonded preferably has a strength of 0.5 N/mm or more, more preferably 0.6 N/mm or more, per unit width as measured in a common tensile test at a tensile speed of 300 mm/min. A test piece was prepared by cutting the edge portion having the strip sheet 3 at 20 mm inside from the edge of the inlets 151 of the two substrate sheets 13a and 13b.

**[0049]** According to the fourth embodiment of the mop 10, the two substrate sheets 13a and 13b each have their inlet-sided end portions 131a and 131b reinforced with a strip sheet 3. The reinforced portions have increased stiffness and are easier to pinch thereby to produce the same effects as by the first embodiment.

**[0050]** The present invention is not limited to the foregoing embodiments, and various changes and modifications can be made therein without departing from the spirit and scope thereof.

For instance, the pockets of the mop may be formed of the upper and lower fiber layers. For example, it is also a preferred embodiment that two adjacent fiber layers are joined to form tubular pockets. In that case, the inlet-sided end portions of the two fiber layers remain unjoined. In each of the foregoing embodiments, the pair of pockets may be replaced with a single pocket.

**[0051]** While in the foregoing embodiments the two substrate sheets are longer than the fiber layers, they may have the same length as the fiber layers.

**[0052]** Particulars of one embodiment that have been omitted to avoid redundancy can appropriately be complemented by the corresponding description of other embodiments.

Particulars characteristic of one embodiment can apply to other embodiments appropriately.

The mop of the present invention may have the fibers of every fiber layer fuzzed. In that case, the mop assumes a cylindrical shape as a whole, providing an increased area of the tips of the fiber layers to exhibit enhanced dust trapping effects.

**[0053]** The mop 10 of the present invention preferably has one or more fiber layers on each of the upper and lower substrate sheets. The fibers forming each fiber layer are preferably oriented in the direction perpendicular to the longitudinal direction of the substrate sheets. The fibers forming the fiber layers are preferably fuzzed so that the mop takes on a cylindrical shape as a whole.

**[0054]** The cleaning article according to the present invention is used usually in a dry state to clean furniture such as tables, desks, and drawers, appliances such as TV sets, VCRs, and refrigerators, and like objects. It is also useful to clean hard-to-reach areas such as corners of rooms and tight spaces between a wall and a piece of a furniture.

#### Industrial Applicability

**[0055]** The present invention provides a cleaning article having a pocket into which a holder is easily inserted.

#### Claims

1. A cleaning article having a flat tubular pocket and attachable to a holder by inserting the holder into the pocket and comprising a fiber layer on both the upper and lower sides of the pocket, the pocket being formed by joining the upper and lower fiber layers or two members interposed between the upper and lower fiber layers by making joining zones extending to define both longer sides of the pocket, and the pocket having an unjoined region in an inlet-sided end portion thereof.
2. The cleaning article according to claim 1, wherein the pocket is formed by joining two oblong sheets interposed between the upper and lower fiber layers, the two sheets having an unjoined region in their inlet-sided end portions.
3. The cleaning article according to claim 2, wherein the two sheets are superposed on each other with their inlet-sided end edges uneven.
4. The cleaning article according to claim 2 or 3, the end portion of each of the sheets is folded back over the outer side of the pocket to have increased strength.
5. The cleaning article according to claim 2 or 3, where-

in the end portion of each of the sheets is wider than the other portion of the sheet.

6. The cleaning article according to claim 2 or 3, wherein each of the sheets is made of heat fusible fibers, and the end portion thereof is fused to form a cohesive film-like portion having increased strength. 5
7. The cleaning article according to claim 2 or 3, wherein the end portion of the sheet has another sheet of strip shape bonded thereto to have increased strength. 10
8. The cleaning article according to any one of claims 1 to 7, the inlet-sided end portion of the pocket has an engaging means engageable with the holder. 15

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Fig.1

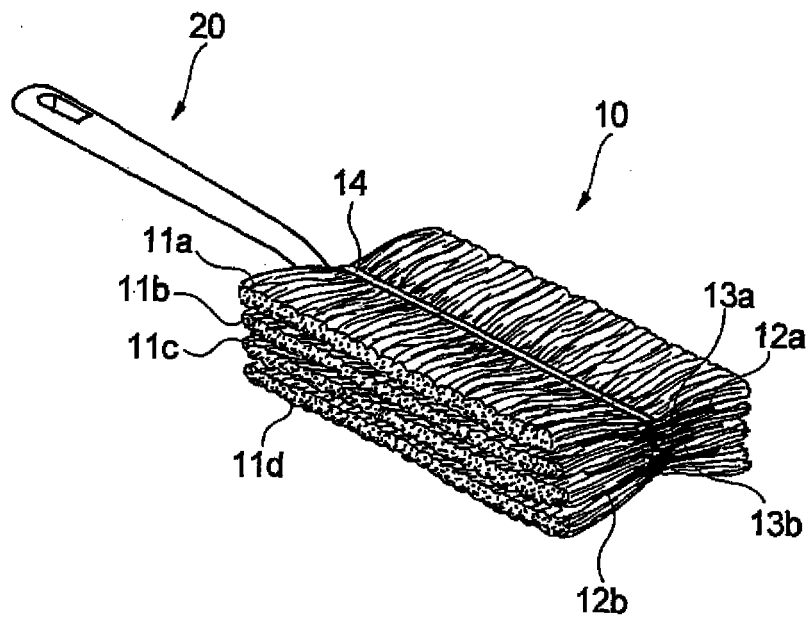


Fig.2

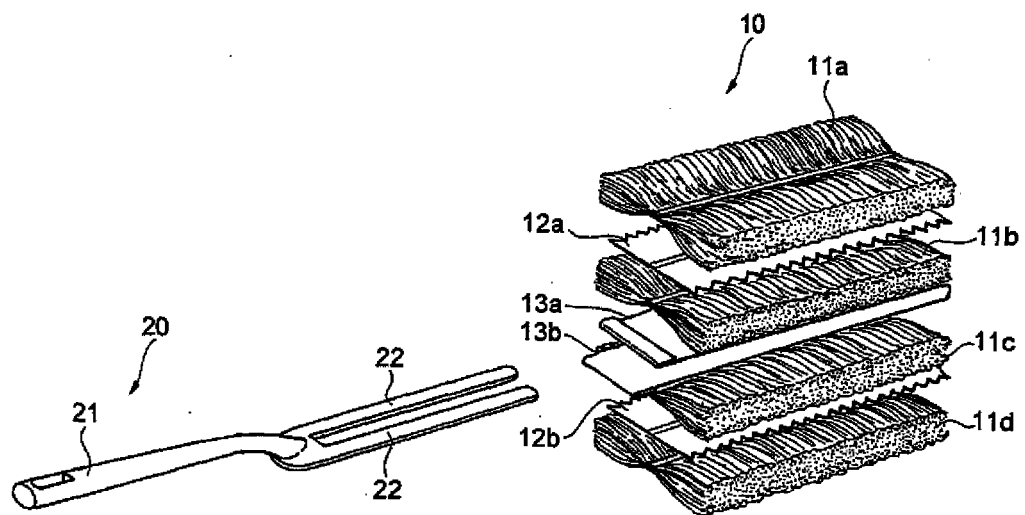




Fig.3

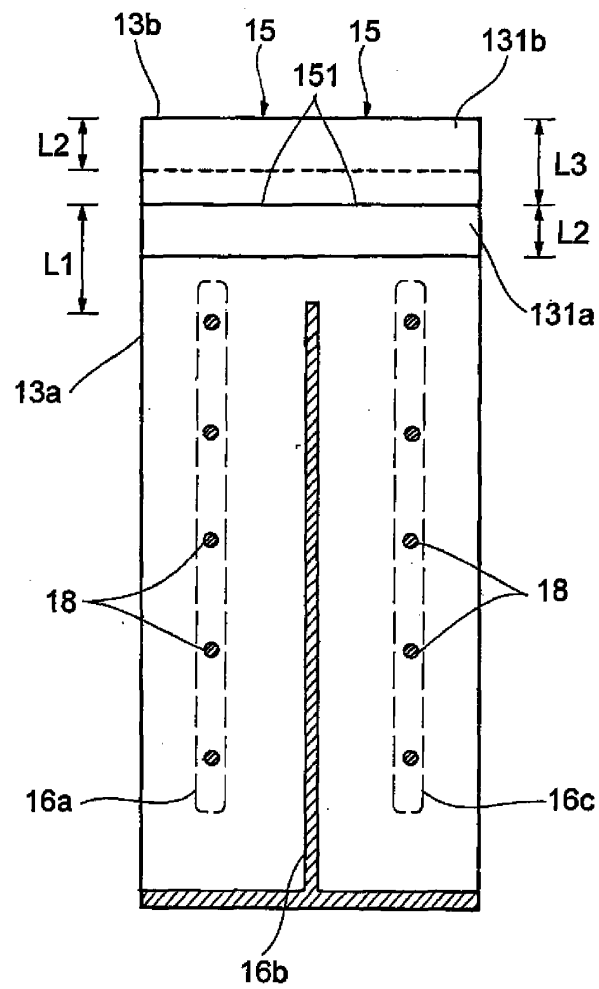


Fig.4

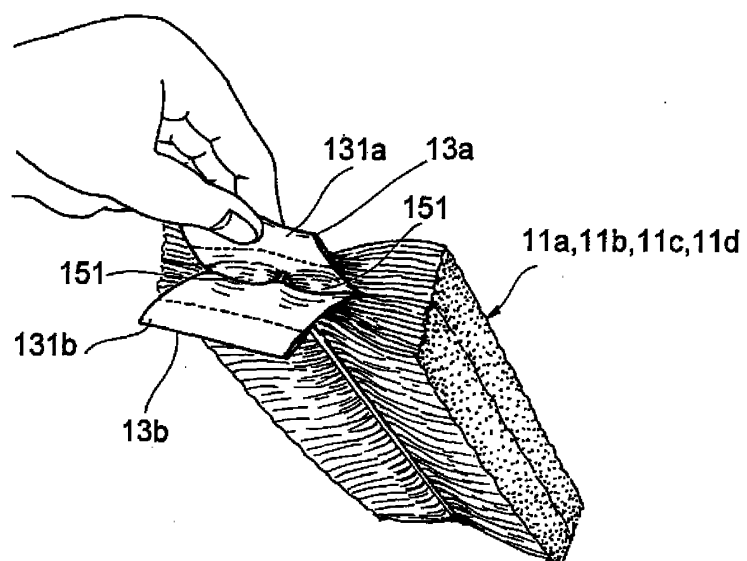


Fig.5

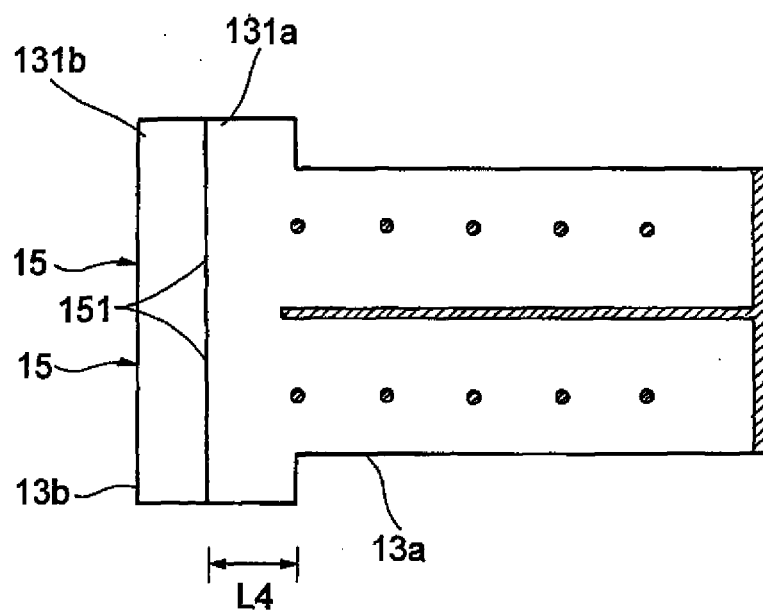
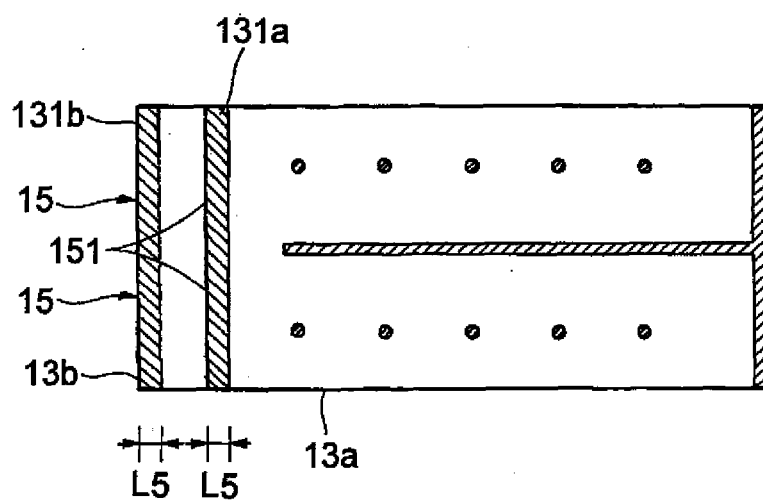


Fig.6



## INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP2006/320051

## A. CLASSIFICATION OF SUBJECT MATTER

A47L13/20(2006.01) i, A47L13/16(2006.01) i, A47L13/255(2006.01) i

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

A47L13/20, A47L13/16, A47L13/255

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

|                           |           |                            |           |
|---------------------------|-----------|----------------------------|-----------|
| Jitsuyo Shinan Koho       | 1922-1996 | Jitsuyo Shinan Toroku Koho | 1996-2006 |
| Kokai Jitsuyo Shinan Koho | 1971-2006 | Toroku Jitsuyo Shinan Koho | 1994-2006 |

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category* | Citation of document, with indication, where appropriate, of the relevant passages                                                                                                   | Relevant to claim No. |
|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|
| X<br>Y    | JP 2005-137931 A (Uni-Charm Corp.),<br>02 June, 2005 (02.06.05),<br>Page 5, line 40 to page 13, line 40; Figs. 1 to 8<br>& US 2002/0148061 A1 & EP 1523921 A2<br>& WO 2002/003847 A2 | 1-3, 8<br>4           |
| Y         | JP 2005-261731 A (THE YAMAZAKI CORP.),<br>29 September, 2005 (29.09.05),<br>Page 5, line 22 to page 7, line 36; Figs. 1 to 9<br>(Family: none)                                       | 4                     |

☐ Further documents are listed in the continuation of Box C.☐ See patent family annex.

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"&amp;" document member of the same patent family

Date of the actual completion of the international search  
13 December, 2006 (13.12.06)Date of mailing of the international search report  
26 December, 2006 (26.12.06)Name and mailing address of the ISA/  
Japanese Patent Office

Authorized officer

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Telephone No.

**REFERENCES CITED IN THE DESCRIPTION**

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**Patent documents cited in the description**

- JP 2003265390 A [0005]