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(54) FLOOR CLEANING APPARATUS

(57) A floor cleaning apparatus 10 comprises a floor engaging head 11, an upstanding body 12 pivotally attached to the head 11 and an elongate detachable handle 14 extending from the body 12. The head comprises an aperture 23 adapted to engage a lower end of the handle 14 when the latter is detached from the body 12 and to support the handle 14 in a generally upright position alongside the body 12 when the apparatus 10 is not in use. When not in use, the handle 14 can be optionally detached from the body 12 and engaged with the aperture 23 on the head 11, where it is conveniently stored together with rest of the apparatus 10. In this manner, the risk of losing or damaging the handle 14 is avoided. An upper portion of the handle 14 may also engage the body 12 to help stabilise the stored handle 14.

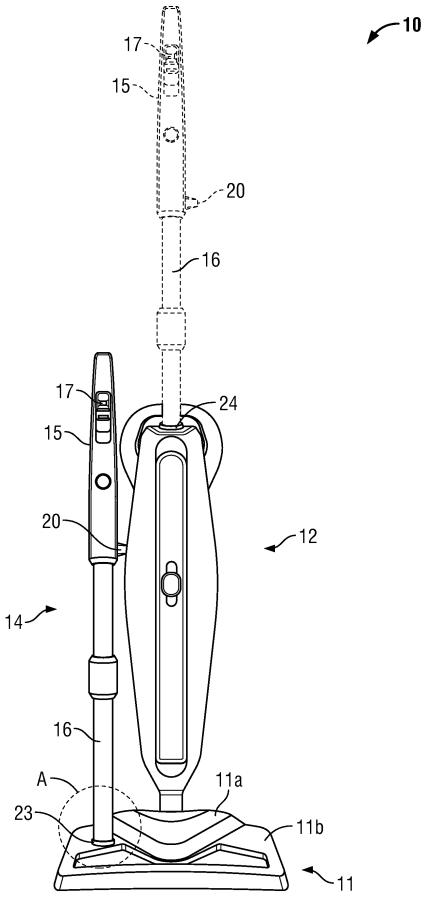

FIG. 1

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Description

[0001] This invention relates to a floor cleaning apparatus.

[0002] Conventional floor cleaning apparatus generally comprise a head portion, which is pivotally mounted to a body portion, the cleaner further comprising an elongate handle which extends from the body. In a vacuum cleaner, the body comprises a motor and fan unit which draws dirt and dust into the body via the head and further comprises means for separating and collecting the dirt and dust. In a steam cleaner, the body comprises a steam generator which applies steam to a floor surface via the head.

[0003] Floor cleaning apparatus are known which contain a handle permanently fixed to the body of the cleaner. In order to minimise user strain during operation, the handle usually extends upwardly and rearwardly from the body, such that the user may operate the cleaner from an ergonomic position. A disadvantage of such a device is that it may be bulky and difficult to store.

[0004] Floor cleaning apparatus having a detachable handle are known. One such apparatus is disclosed in US2003019072 and comprises a handle which can be removed from the body for compact storage or to allow the body part to be used for cleaning without the handle in-situ. A disadvantage of this arrangement is that the handle can become lost or damaged when removed.

[0005] We have now devised an improved floor cleaning apparatus which alleviates the above-mentioned problems.

[0006] In accordance with the present invention there is provided a floor cleaning apparatus comprising a floor engaging head, an upstanding body pivotally attached to the head and an elongate detachable handle extending from the body, wherein the head comprises a formation adapted to engage a lower end of the handle when the latter is detached from the body and to support the handle in a generally upright position alongside the body when the cleaner is not in use.

[0007] When the cleaner is not in use, the body can be pivoted relative to the head into an upright position where it is latched or otherwise retained for storage. If the storage space for apparatus is limited, the handle can be optionally detached from the body and engaged with the formation on the head, where it is conveniently stored together with rest of the apparatus. In this manner, the risk of losing or damaging the handle is avoided.

[0008] Preferably, the body and the head are arranged such that the apparatus is self-supporting when the head is stood on the floor.

[0009] Preferably the formation comprises a socket or an upstanding projection which is preferably disposed on an upper surface of the head.

[0010] Preferably the lower end of the handle slidingly engages with the formation.

[0011] Preferably the lower end of the handle frictionally engages with the formation.

[0012] Preferably the formation comprises a cross-sectional shape which is complementary to the cross-sectional shape of the lower end of the handle.

[0013] Preferably, an upper portion of handle is adapted to engage the body when the lower end of the handle is engaged with said formation. This helps to stabilise the position of the handle when stored.

[0014] The head may comprise a first portion which is pivotally connected to the body and a second portion detachably fitted to the first portion, each head portion providing different cleaning functions respectively.

[0015] Preferably, the formation is provided on the second portion, although it may be provided on the first portion.

[0016] The apparatus may be a steam cleaner, a vacuum cleaner or a combination of the two.

[0017] An embodiment of the present invention will now described by way of an example only and with reference to the accompanying drawings, in which:

Figure 1 is a front view of a steam cleaner in accordance with the present invention, showing the handle thereof in both its use and stored positions;

Figure 2 is a front perspective view of an upper end of the handle of the cleaner of Figure 1;

Figure 3 is a perspective side view illustrating how the handle and body of the cleaner of Figure 1 interengage; and

Figure 4 is an enlarged view of the area circled A in Figure 1 illustrating how the handle is attached to the head of the cleaner of Figure 1.

[0018] Referring to the drawings, there is shown a steam cleaner 10 in accordance with the present invention, the cleaner 10 comprising a transversely extending head 11 being pivotally mounted to an upstanding elongate body 12. The body 12 comprises a water tank 13 and a steam generator (not shown). In use, an elongate upstanding handle 14 is detachably coupled to a socket 24 formed in the upper end of the body 12.

[0019] The head 11 comprises a first portion 11a, which is generally triangular in shape and is provided with bristles on its underside for cleaning the floor. The first portion 11 a is pivotally connected to the body 12 and a conduit extends therebetween for conveying steam from the steam generator to the underside of the first head portion 11 a.

[0020] The head 11 further comprises a second portion 11 b which is detachably mounted to the underside of the first portion and comprises an absorbent pad on the underside thereof. In use, when the second head portion 11b is in-situ, floor cleaning is effected by steam and contact of the pad with the floor surface. Conversely, when the second head portion 11 b is removed, floor cleaning is effected by steam and contact of the bristles

of the first head portion 11 a with the floor surface.

[0021] A power cable (not shown) extends from the body 12. A pair of axially-spaced L-shaped formations e. g. 19 are disposed on the handle 14. When not in use, the cable can be wrapped around the formations for storage. The handle 14 comprises an ergonomic moulded plastics handgrip 15 mounted at the upper end of an elongate tubular shaft 16. The handgrip 15 may comprise a switch 17 for operating one or more functions of the cleaner. The switch 17 is electrically connected to a terminal (not shown) at the lower end of the handle shaft 16 which electrically couples to a corresponding terminal (not shown) disposed inside the socket 24 when the handle 14 is coupled thereto. The handgrip 15 further comprises a trigger 18 for actuating a water pump (not shown) in the body 12 which pumps water to the steam generator so that steam is generated and delivered to the head 11. In one embodiment, the trigger 18 may operate an electrical switch which is connected to the body 12 in the same manner as the switch 17. In a second embodiment, the trigger 18 may actuate a mechanical linkage (not shown) such as an internal rod which extends downwardly along the handle shaft 16 to the lower end thereof. In use, when the trigger 18 is actuated the lower end of the rod extends out of the shaft 16 and actuates an electrical switch (not shown) disposed inside the socket 24: this arrangement is advantageous in a low cost version of the cleaner which does not have any electrical components in the handle 14.

[0022] The handgrip 15 comprises a formation 20 which projects radially outwardly from the left hand side thereof and which comprises a stem and T-shaped head. The right hand side of the body 12 comprises an aperture 21 which is dimensioned to receive the T-shaped head of the formation 20. A slot 22 extends downwardly from the bottom end of the aperture 21, the slot having a width which is slightly greater than the stem of the formation 20.

[0023] When not in use, the handle 14 can be detached from the upper portion of the body 12. The bottom end of the handle 14 is then partly inserted into the aperture 23 on the head 11 whilst simultaneously inserting the T-shaped head of the formation 20 into the aperture 21 on the body 12. Further insertion of the handle into the aperture 23 on the head 11 causes the formation 20 to move downwardly such that its T-shaped head becomes constrained in the body 12 behind the slot 22.

[0024] The cleaner can then be stored in its upright position, the cleaner being self-supporting when the head is stood on the floor. The handle 14 is conveniently stored alongside the body 12 in an upright position and the formation 20 helps to stabilise the upper end of the handle 14 against the body 12.

[0025] In order to assist with the removal of the handle 14 from the aperture 23, the user may actuate the trigger 18 of the second embodiment, so as to displace the internal rod downwardly against the bottom of the aperture 23 and thereby urge the handle 14 upwardly.

[0026] A catch (not shown) may be provided for locking the handle 14 in-situ in the aperture when the cleaner is not in use. In the case of the second embodiment hereinbefore described, the catch may be released by actuating the trigger 18 on the handle. A catch may also lock the handle 14 to the body 12 when the cleaner is in use.

[0027] It will be appreciated that the invention provides a simple yet effective way of storing a detachable handle on a steam or other type of floor cleaning apparatus.

Claims

1. A floor cleaning apparatus comprising a floor engaging head, an upstanding body pivotally attached to the head and an elongate detachable handle extending from the body, wherein the head comprises a formation adapted to engage a lower end of the handle when the latter is detached from the body and to support the handle in a generally upright position alongside the body when the cleaner is not in use.

2. A floor cleaning apparatus as claimed in claim 1, wherein the body and the head are arranged such that the apparatus is self-supporting when the head is stood on the floor.

3. A floor cleaning apparatus as claimed in claim 1 or 2, wherein the formation comprises a socket.

4. A floor cleaning apparatus as claimed in claim 1 or 2, wherein the formation comprises an upstanding projection.

5. A floor cleaning apparatus as claimed in any preceding claim, wherein the formation is disposed on an upper surface of the head.

6. A floor cleaning apparatus as claimed in any preceding claim, wherein the lower end of the handle slidingly engages with the formation.

7. A floor cleaning apparatus as claimed in any preceding claim, wherein the lower end of the handle frictionally engages with the formation.

8. A floor cleaning apparatus as claimed in any preceding claim, wherein the formation comprises a cross-sectional shape which is complementary to the cross-sectional shape of the lower end of the handle.

9. A floor cleaning apparatus as claimed in any preceding claim, wherein an upper portion of handle is adapted to engage the body when the lower end of the handle is engaged with said formation.

10. A floor cleaning apparatus as claimed in any preceding claim, wherein the head comprises a first portion, which is pivotally connected to the body, and a sec-

ond portion detachably fitted to the first portion, each head portion providing different cleaning functions respectively.

11. A floor cleaning apparatus as claimed in claim 10, wherein the formation is provided on the second portion.

12. A floor cleaning apparatus as claimed in claim 10, wherein the formation is provided on the first portion.

13. A floor cleaning apparatus as claimed in any preceding claim, comprising a catch for locking the handle to the formation when the handle is detached from the body.

14. A floor cleaning apparatus as claimed in claim 13, wherein the handle comprises an actuator for actuating a function of the cleaner, said actuator being arranged to operate the catch.

15. A floor cleaning apparatus as claimed in any of claims 1 to 13, wherein the handle comprises an actuator for actuating a function of the cleaner, said actuator being arranged to abut said formation to displace the handle out of engagement with the formation.

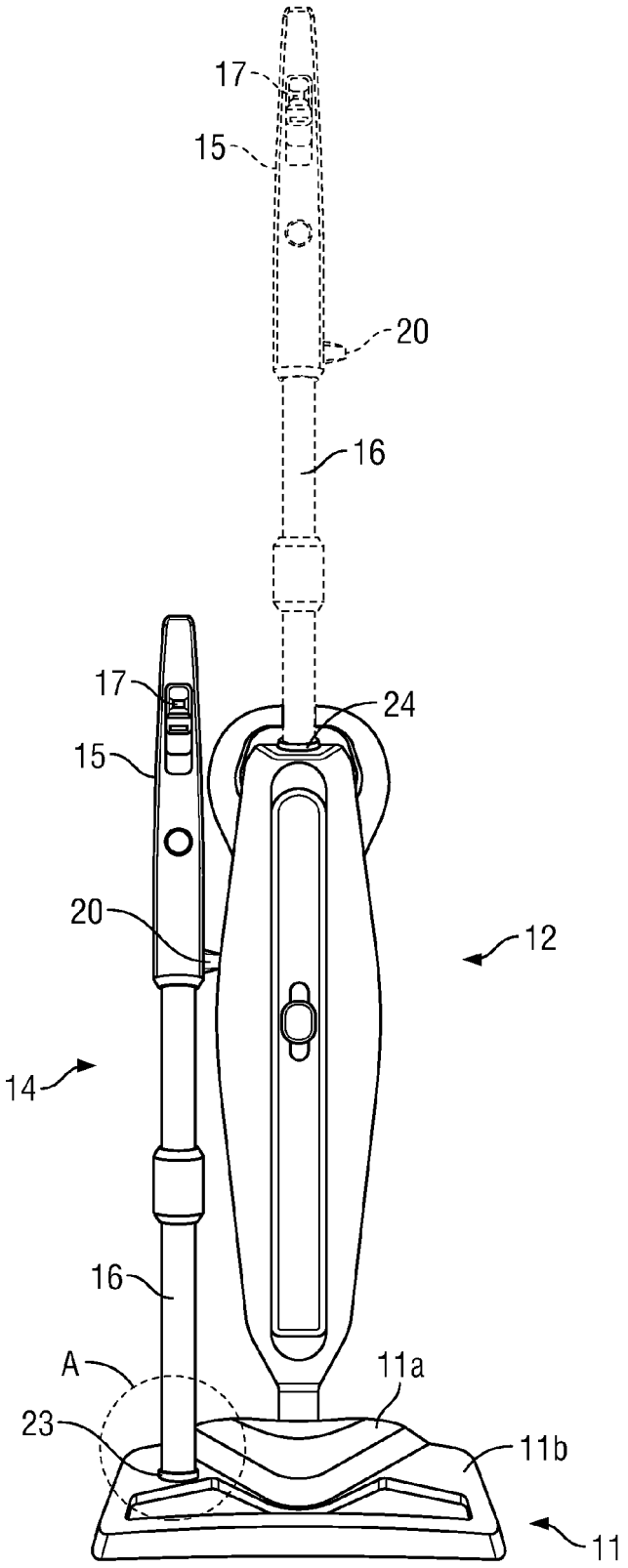

FIG. 1

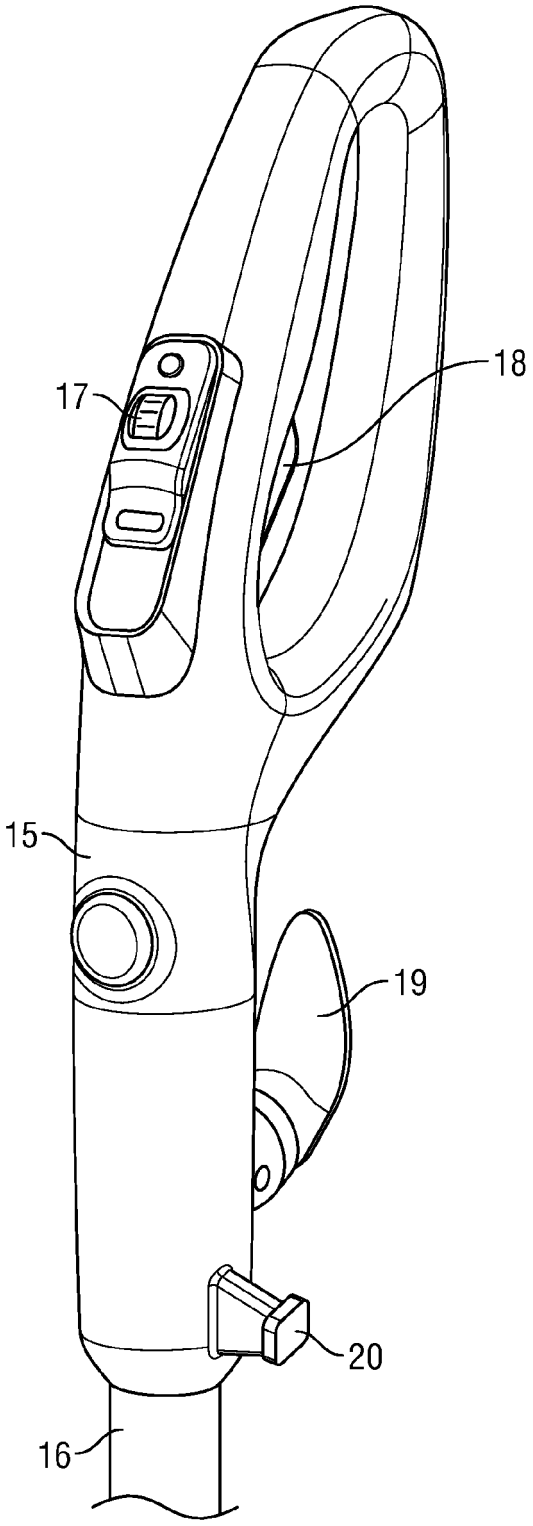

FIG. 2

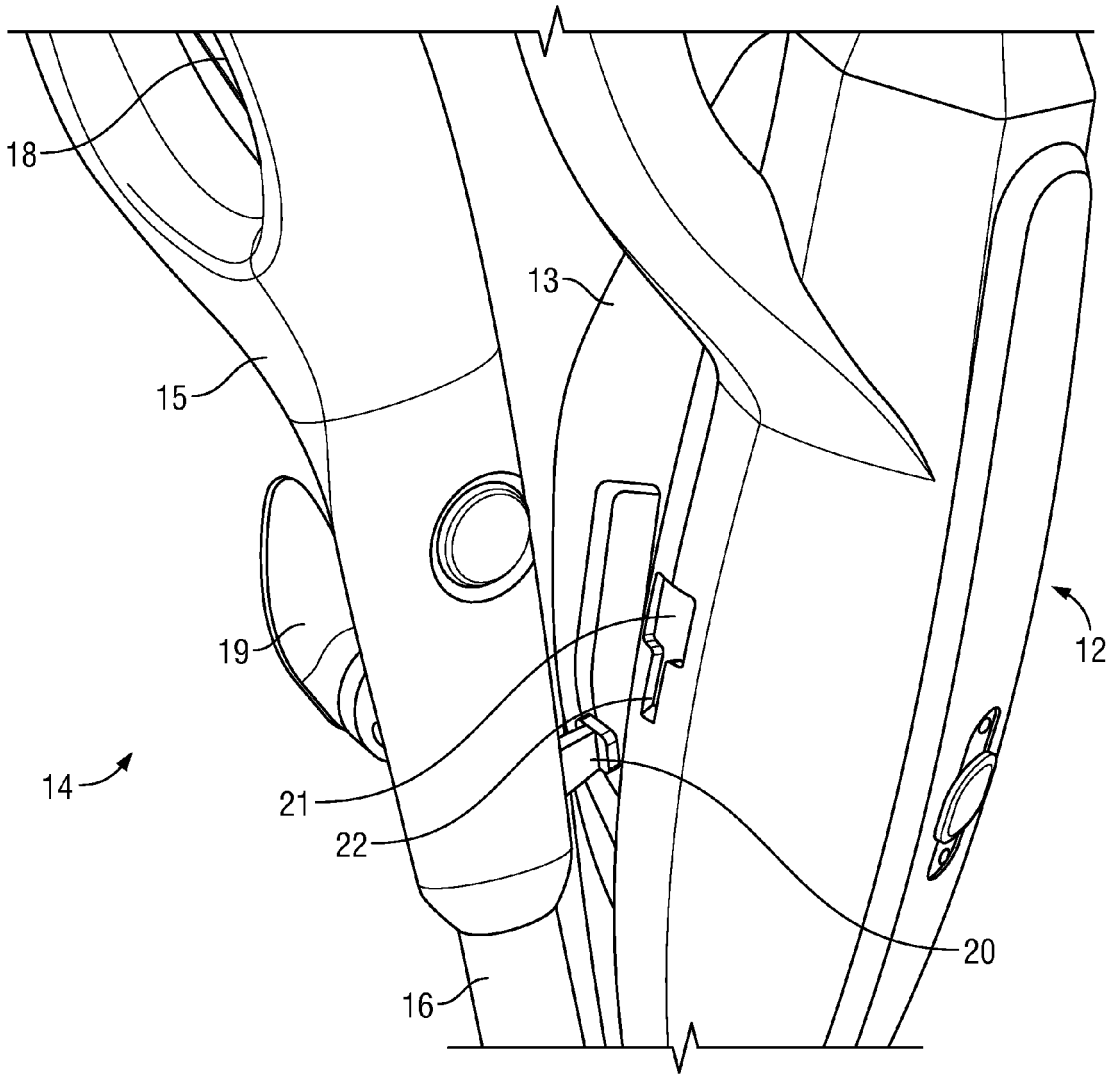

FIG. 3

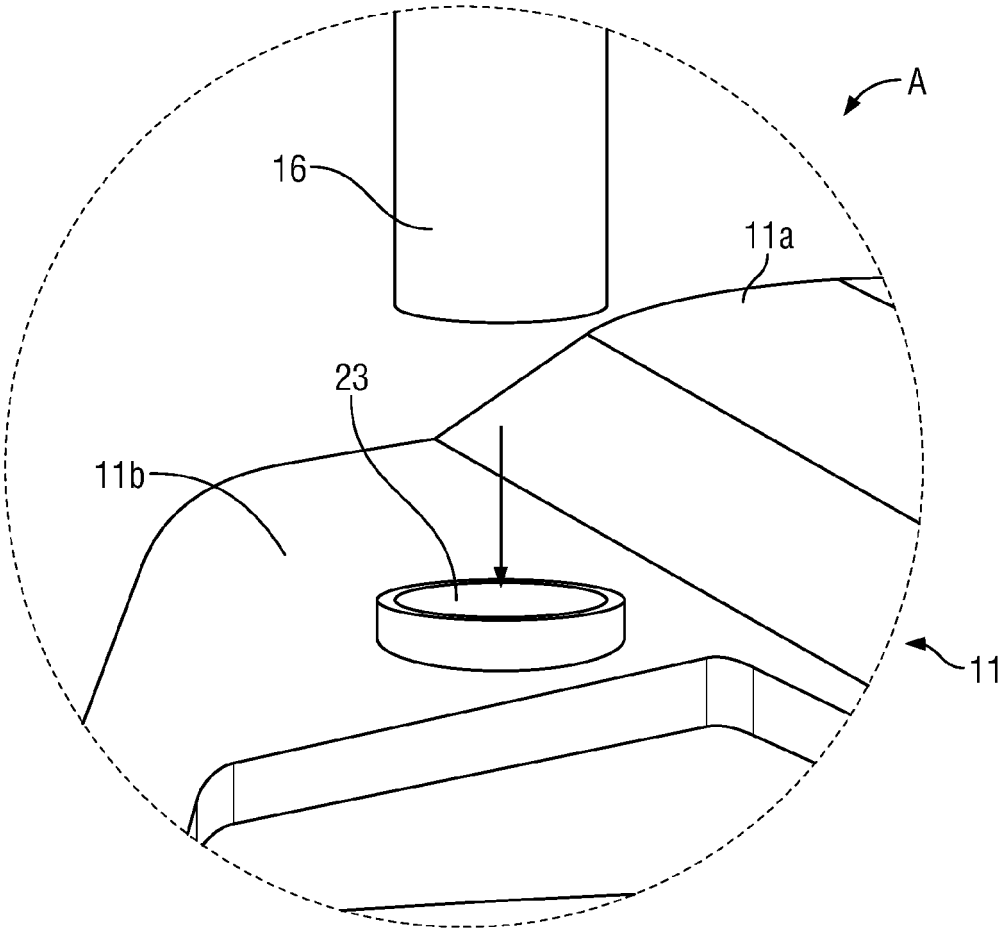

FIG. 4

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EUROPEAN SEARCH REPORT

Application Number
EP 15 19 1519

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A	US 2013/091659 A1 (BOSSES MARK D [US] ET AL) 18 April 2013 (2013-04-18) * paragraph [0020] *	1-15	INV. A47L5/28 A47L9/00 A47L9/02
A	US 4 766 638 A (MCDOWELL DAVID E [US]) 30 August 1988 (1988-08-30) * column 3, lines 1-18 * * column 4, lines 53-59 *	1-15	A47L9/32
A	JP 2001 087187 A (SHARP KK) 3 April 2001 (2001-04-03) * abstract *	1-15	
A	JP S64 32829 A (TOKYO ELECTRIC CO LTD) 2 February 1989 (1989-02-02) * figures *	1-15	

TECHNICAL FIELDS SEARCHED (IPC)

A47L

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	24 February 2016	Eckenschwiller, A

CATEGORY OF CITED DOCUMENTS

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ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 15 19 1519

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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24-02-2016

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

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