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(54) **Cleaning container comprising a cloth wringer and cleaning device comprising said container**

(57) The invention is a container (2) for cleaning surfaces, comprising a bottom (2a) and a side surface (2b) that delimit a compartment (4) suited to collect a liquid and provided with an access opening (4a) with which a cloth wringer (5) is associated, the cloth wringer (5) comprising one counteracting element (6) and one moving element (7) opposite the counteracting element (6) and associated with the container (2) through guide means (8) in such a way as to assume one position away from the counteracting element (6) to allow a cloth to be interposed between the elements (6, 7) and one position close to the counteracting element (6) to allow the cloth to be wrung. The guide means (8) comprise two grooves (9) belonging to the side surface (2b) of the container (2) and opposing each other, each one of which slidingly houses a corresponding body (10) that projects from the moving element (7).

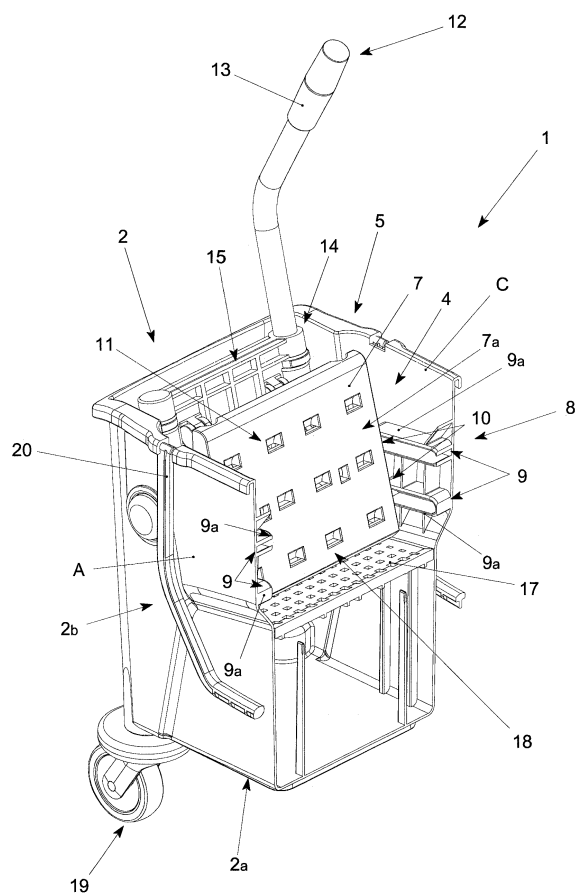


FIG. 2

Description

[0001] The present invention concerns a container particularly suitable for cleaning floors or other surfaces, as well as a cleaning device comprising the above mentioned container.

[0002] As is known, various types of cleaning buckets, especially those used for cleaning floors for professional and domestic purposes, are associated with cloth wringers.

[0003] Said cloth wringers generally comprise one pair of opposite surfaces between which the cloths to be wrung are interposed, said cloths being usually fixed to the end of a stick that is gripped by the cleaner during the cleaning operations.

[0004] The surfaces can be mutually moved in relation to each other and they can be controlled in such a way as to move them near each other in order to press the cloths.

[0005] The wringers of known type are positioned on the upper edge of a bucket which collects the squeezed liquid and with which a second bucket containing clean water is generally associated.

[0006] Such a cleaning device, comprising the two buckets mentioned above and the wringer positioned on one of them, offers the undoubted advantage of making the surface cleaning operations simpler and more comfortable, but also poses some drawbacks.

[0007] A first drawback is represented by the large number of parts that make up the wringer, whose cost thus substantially affects the cost of the device as a whole.

[0008] A further drawback lies in that the wringer is rather bulky if compared to the bucket, which makes the cleaning device difficult to store.

[0009] Another drawback posed by the cleaning devices of known type is represented by the instability of the wringer which, since it simply rests on the bucket edge, can move in relation to the latter, thus making the whole cleaning device rather uncomfortable to use.

[0010] In the attempt to eliminate the drawback described above, in some known embodiments the wringer is coupled to the upper edge of the bucket via removable connection means.

[0011] The above mentioned connection means, however, pose the drawback that they further increase the construction complexity of the device and consequently also its cost.

[0012] The object of the present invention is to overcome all the above-mentioned drawbacks that are typical of the cleaning devices of known type.

[0013] In particular, it is a first object of the invention to produce a wringer associated with a cleaning container that has a smaller number of components than the wringers associated with the containers of known type described above.

[0014] It is also the object of the invention to propose a cleaning container and device provided with a wringer,

whose overall dimensions are smaller than those of analogous devices of known type.

[0015] It is a further, yet not least important object of the invention to ensure that the wringer is stable during use.

[0016] The objects described above are achieved by a cleaning container carried out according to the main claim.

[0017] The same objects are achieved also by a cleaning device carried out according to claim 14.

[0018] Other details of the invention are described in the dependent claims.

[0019] Advantageously, the reduced number of components of the device of the invention reduces its cost compared to that of the devices of known type.

[0020] Still advantageously, the reduced overall dimensions of the device allow it to be stored in smaller spaces compared to analogous devices of known type.

[0021] A further advantage derives from the stability of the wringer, which makes the device that is the subject of the invention much more practical to use than the devices of known type.

[0022] Further, advantageously, a more stable wringer makes it possible to wring the cloth more effectively.

[0023] The said objects and advantages, and others which will be highlighted in greater detail below, are illustrated in the description of a preferred embodiment of the invention which is provided by way of non-limiting example with reference to the attached drawings, wherein:

- Figure 1 shows an axonometric view of the cleaning device that is the subject of the invention;
- Figure 2 shows an axonometric view of the device shown in Figure 1, cross-sectioned along plane II-II;
- Figure 3 shows a side view of a cross section of the device that is the subject of the invention;
- Figure 4 shows a side cross-sectional view of the device that is the subject of the invention, in a different operating position.

[0024] The cleaning device that is the subject of the invention, represented in Figure 1 where it is indicated as a whole by **1**, comprises a first container **2** provided with a bottom **2a** and a side surface **2b** that delimit a compartment **4** for collecting the squeezed liquid, provided with an upper access opening **4a**.

[0025] Preferably, but not necessarily, the first container **2** is provided with a substantially rectangular bottom **2a** and its side surface **2b** comprises four substantially plane walls **A, B, C, D**.

[0026] However, in different embodiments of the invention, the first container **2** may have any shape, on condition that it is provided with an access opening **4a**.

[0027] Preferably, but not necessarily, the device **1** also comprises a second container **3** suited to contain a washing liquid and associated with the first container **2**.

[0028] The two containers **2, 3** are preferably made in

a single piece, in order to advantageously limit the construction complexity and the cost of the device **1**, while at the same time making it more stable and compact.

[0029] The device **1** preferably but not necessarily comprises wheels **19** that allow it to be moved on the ground and handles **20** on the sides, said handles advantageously facilitating transport, in particular during the cleaning operations.

[0030] The first container **2** is associated with a wringer **5** for cloths, comprising a moving element **7** opposing a counteracting element **6**.

[0031] The moving element **7** is associated with the container via guide means **8**, clearly visible in the cross-sectional view of Figure 2, which allow it to be moved from a position away from the counteracting element **6**, shown in Figure 3, and a position close to the counteracting element **6**, shown in Figure 4, in order to wring the cloths interposed between the two elements **6**, **7**.

[0032] In particular, the cloths are wrung between two surfaces **6a**, **7a** facing each other and respectively belonging to the counteracting element **6** and the moving element **7**.

[0033] The above mentioned surfaces **6a**, **7a** are preferably plane and thus make the device that is the subject of the invention more practical to use.

[0034] In any case, in different embodiments of the invention the above mentioned surfaces **6a**, **7a** may have any shape different from the plane shape, for example they can be curved.

[0035] In any case, it is preferable for the two surfaces **6a**, **7a** to have matching shapes, in such a way as to improve the wringing effect.

[0036] The guide means **8** belong to the first container **2**, with which the moving element **7** is therefore directly associated.

[0037] Consequently, any undesired movement of the wringer **5** in relation to the first container **2** are avoided, thus achieving the object to make it more stable than the wringers of known type, which rest on the edges of the container.

[0038] Furthermore, the integration of the guide means **8** in the first container **2** eliminates the need for further supporting structures for the moving element **7**, thus reducing the complexity of the device **1** compared to the devices of known type.

[0039] Preferably, the moving element **7** and the counteracting element **6** are mostly or completely arranged inside the compartment **4** defined by the first container **2**, in such a way as to limit the overall dimensions of the device **1** compared to the analogous devices of known type, thus achieving another object of the invention.

[0040] In particular, the counteracting element **6** is permanently housed in a seat **21** belonging to the side wall **B** of the first container **2**, preferably at the level of its lower edge and of its upper area, as can be partially observed in Figure 3.

[0041] Advantageously, since the counteracting element **6** is directly associated with the first container **2**, no

external structures are necessary to support it, which further simplifies the device **1**.

[0042] In construction variants of the invention, the counteracting element **6** can be arranged in a way different from that shown in Figure 3 and, in particular, it can be spaced from its side surface **2a**, for example when it is necessary to allow the liquid to be squeezed out of both sides of the cloth.

[0043] In further construction variants of the invention not represented herein, the counteracting element **6** may belong to the first container **2**, for example it may be incorporated in the wall **B**.

[0044] As regards the guide means **8**, they are clearly visible in Figure 2, where a cross-sectional view of the container **2** shows its internal part.

[0045] It can be noticed that the guide means **8** comprise two pairs of grooves **9** belonging to corresponding opposite side walls **A**, **C** of the first container **2** that are adjacent to the wall **B** comprising the counteracting element **6**.

[0046] The grooves **9** are preferably but not necessarily defined by profiles **9a** projecting towards the inside of the first container **2**.

[0047] The moving element **7** comprises projecting bodies **10**, preferably but not necessarily with cylindrical cross section, which slide in the above mentioned grooves **9**.

[0048] The grooves **9** and the projecting bodies **10** define, for the moving element **7**, a sliding direction incident on the counteracting element **6**.

[0049] The use of the grooves **9** and of the corresponding projecting bodies **10** to guide the moving element **7** makes it possible to improve the effectiveness of the wringing operation compared to the known wringers in which the moving element is hinged to the container.

[0050] In fact, during the wringing operation, the moving element **7** can assume positions that are more or less inclined in relation to the counteracting element **6**, in such a way as to adapt to the configuration of the cloths to be wrung and obtain the result described above.

[0051] Obviously, in construction variants of the invention not represented herein, the number and arrangement of the grooves **9** can be different from those illustrated, provided that they define for the moving element **7** a position away from and a position close to the counteracting element **6**.

[0052] However, in the preferred embodiment of the invention illustrated herein, the presence of two pairs of grooves **9** advantageously ensures that the moving element **7** is guided with precision.

[0053] Obviously, in further construction variants not represented herein, the moving element **7** can be associated with the side walls by means of other guide means equivalent to the grooves **9** and the projecting bodies **10**.

[0054] Preferably, as can be seen in the figures, the guide grooves **9** are closed at the ends, in such a way as to define stop surfaces for the projecting bodies **10** of the moving element **7**, said stop surfaces corresponding

to said positions away from and close to the counteracting element **6**.

[0055] Advantageously, said stop surfaces make it possible to arrange the moving element **7** with a preset inclination at the level of each one of the above mentioned stop surfaces.

[0056] In particular, in the close position illustrated in Figure 4, the moving element **7** is arranged parallel to and against the counteracting element **6**, in order to advantageously obtain the maximum wringing effect.

[0057] Vice versa, when the moving element **7** is positioned away from the counteracting element **6**, it is preferably arranged in a "V" configuration with respect to the counteracting element **6**, in order to advantageously facilitate the insertion of the cloths to be wrung between the two elements **6**, **7**, as shown in Figure 3.

[0058] The moving element **7** is preferably provided with a plurality of through holes **11** that, advantageously, favour the elimination of the liquid squeezed out of the cloth.

[0059] The first container **2** also comprises a holed grid **17**, visible in Figures 3 and 4 and partially in Figure 2, which, advantageously, supports the cloth during wringing, thus making this last operation more practical.

[0060] The grid **17** is arranged inside the first container **2**, under the moving element **7** and the counteracting element **6**, with which it delimits a wringing area **18** that houses the cloth to be wrung.

[0061] Obviously, construction variants of the invention may not be provided with the above mentioned grid **17**.

[0062] The invention also comprises means **12** for manoeuvring the moving element **7** between the position away from and the position close to the counteracting element **6**, said manoeuvring means **12** preferably comprising an operating lever **13** that is operatively connected to the moving element **7** via articulation means **14**.

[0063] Preferably but not necessarily the lever **13** is arranged on one side of the first container **2**, in such a way as to avoid interfering with the handle with which the cleaning cloths are generally associated.

[0064] As regards the articulation means **14**, they preferably comprise a supporting body **15** for the lever **13**, hinged to the first container **2**, to which two rods **16** articulated at a first end **16a** are rotatably connected.

[0065] Each rod **16** has a second end **16b** rotatably connected to the moving element **7**, so that when the operating lever **13** is rotated, the moving element **7** is moved accordingly.

[0066] Advantageously, the presence of two of the above mentioned rods **16**, parallel to each other, ensures a precise movement of the moving element **7** which, furthermore, is thrust more effectively against the counteracting element **6** in order to obtain the maximum wringing effect.

[0067] It is clear, however, that construction variants of the invention may comprise only one rod or more than two rods **16**, as desired by the manufacturer.

[0068] The operating lever **12** is preferably curved, so that it offers a more ergonomic configuration and advantageously makes it possible to obtain minimum overall dimensions of the device when the moving element **7** is in the position close to the counteracting surface **6**, as shown in Figure 4.

[0069] Furthermore, the lever **13** is preferably associated with elastic means, not illustrated in the figures, which ensure its return to the position away from the counteracting element **6** and which advantageously make the device more practical to use.

[0070] According to other embodiments of the invention, not represented herein, the cleaning device **1** may comprise any number of containers **2**, **3**, in particular one container only, on condition that it is/they are provided with a wringer **5** carried out as described above.

[0071] In practice, the cleaner wets the cloth, if necessary by soaking it into the second container **3**, if provided, and then interposes it between the moving element **7** and the counteracting element **6**, preferably resting it on the holed grid **17**.

[0072] Successively, the cleaner lowers the lever **13**, as shown in Figure 4, thus shifting the moving element **7** towards the counteracting element **6** in order to wring the cloth and thus eliminate the excess liquid.

[0073] The water squeezed out of the cloth flows through the spaces between the moving element **7** and the grid **17**, as well as through the holes of the two elements **7**, **17**, thus accumulating on the bottom of the first container **2** that can be emptied at the end of the cleaning operations.

[0074] Advantageously, since the counteracting element **6** and the moving element **7** are directly associated with the first container **2**, it is possible to exert a greater squeezing force than in the known devices with the wringer applied to the container, where in fact it is necessary to limit the squeezing force in order to prevent any movement of the wringer in relation to the container itself.

[0075] At the end of the wringing operation, the cleaner releases the lever **13** that, thanks to the elastic means with which it is associated, moves upward and brings the moving element **7** to the position away from the counteracting element **6**, as shown in Figure 3.

[0076] The above shows that the cleaning device and the container of the invention achieve all the set objects.

[0077] In particular, thanks to the fact that they incorporate the cloth wringer, their structure is simpler than that of the equivalent known devices with the wringer applied externally.

[0078] Furthermore, since the invention allows the wringer to be provided inside the first container, it also achieves the object to reduce the overall dimensions of the cleaning device and of the container compared to the known art.

[0079] Finally, since the wringer belongs to the first container, during use it is more stable than the wringers of known type that are applied to the upper edges of the container.

[0080] On implementation, the container and the cleaning device that are the subjects of the invention may undergo changes that, though not illustrated or described in the drawings, shall nonetheless be covered by the present patent, provided that they come within the scope of the claims that follow.

[0081] Where technical features mentioned in any claim are followed by reference signs, those reference signs have been included for the sole purpose of increasing the intelligibility of the claims and accordingly such reference signs do not have any limiting effect on the interpretation of each element identified by way of example by such reference signs.

Claims

1. Container (2) for cleaning surfaces, comprising a bottom (2a) and a side surface (2b) that delimit a compartment (4) suited to collect a liquid and provided with an access opening (4a) with which a cloth wringer (5) is associated, said cloth wringer (5) comprising at least one counteracting element (6) and at least one moving element (7) opposite said counteracting element (6) and associated with said container (2) through guide means (8) in such a way as to assume at least one position away from said counteracting element (6) to allow a cloth to be interposed between said elements (6, 7) and at least one position close to said counteracting element (6) to allow said cloth to be wrung, **characterized in that** said guide means (8) comprise at least two grooves (9) belonging to said side surface (2b) of said container (2) and opposing each other, and wherein each one of said grooves slidably houses a corresponding body (10) that projects from said moving element (7).
2. Container (2) according to claim 1, **characterized in that** said moving element (7) and said counteracting element (6) are arranged inside said compartment (4).
3. Container (2) according to claim 2, **characterized in that** said counteracting element (6) is associated with the side surface (2b) of said container (2).
4. Container (2) according to claim 2, **characterized in that** said counteracting element (6) belongs to said container (2).
5. Container (2) according to any one of the preceding claims, **characterized in that** it comprises two pairs of said grooves (9) opposing each other.
6. Container (2) according to any one of the preceding claims, **characterized in that** said moving element (7) is provided with a plurality of through holes (11).
7. Container (2) according to any one of the preceding claims, **characterized in that** said counteracting element (6) and said moving element (7) mutually face each other at the level of corresponding surfaces (6a, 7a).
8. Container (2) according to claim 7, **characterized in that** said mutually facing surfaces (6a, 7a) of said counteracting element (6) and of said moving element (7) have matching shapes.
9. Container (2) according to any one of the preceding claims, **characterized in that** said moving element (7) is associated with manoeuvring means (12) suited to arrange it in one of said positions away from or close to the counteracting element (6).
10. Container (2) according to claim 9, **characterized in that** said manoeuvring means (12) comprise at least one operating lever (13) operatively connected to said moving element (7) through articulation means (14).
11. Container (2) according to claim 10, **characterized in that** said articulation means (14) comprise a supporting body (15) for said lever (13), said body being rotatably connected to said container (2), and at least one articulated rod (16) provided with a first end (16a) rotatably connected to said supporting body (15) and a second end (16b) rotatably connected to said moving element (7).
12. Container (2) according to any one of the preceding claims, **characterized in that** it comprises a holed grid (17) arranged inside said container (2) under said counteracting element (6) and said moving element (7) in order to delimit a wringing area (18) suited to house said cloth to be wrung.
13. Cleaning device (1) comprising at least one first container (2) provided with a bottom (2a) and a side surface (2b) that delimit a compartment (4) suited to collect a liquid and provided with an access opening (4a) with which a cloth wringer (5) is associated, said cloth wringer (5) comprising at least one counteracting element (6) and at least one moving element (7) opposite said counteracting element (6) and associated with said first container (2) through guide means (8) in such a way as to assume at least one position away from said counteracting element (6) to allow a cloth to be interposed between said elements (6, 7) and at least one position close to said counteracting element (6) to allow said cloth to be wrung, **characterized in that** said guide means (8) comprise at least two grooves (9) belonging to said side surface (2b) of said first container (2) and opposing each other, and wherein each one of said grooves slidably

houses a corresponding body (10) that projects from said moving element (7).

14. Device (1) according to claim 13), **characterized in that** it comprises a second container (3) associated with said first container (2) to contain a washing liquid. 5
15. Device (1) according to claim 14), **characterized in that** it comprises wheels (19) suited to move it on the ground. 10

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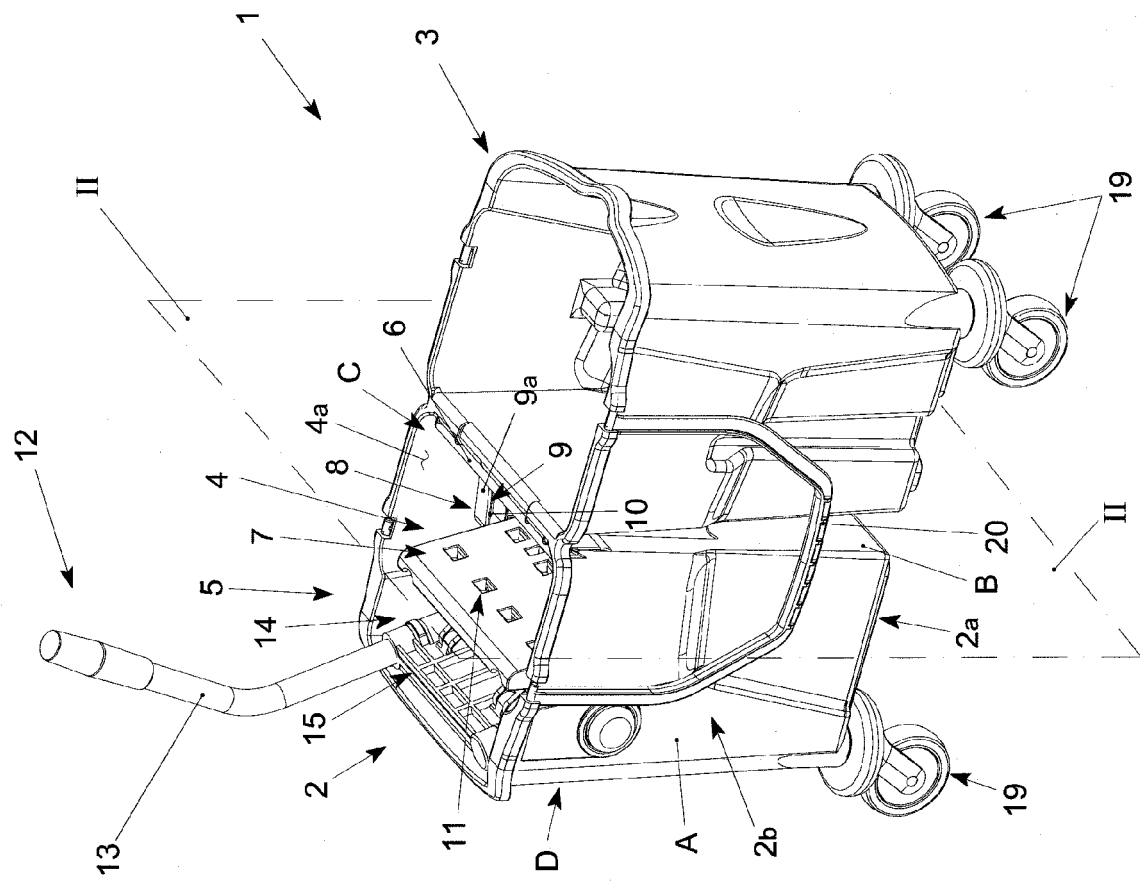


FIG. 1

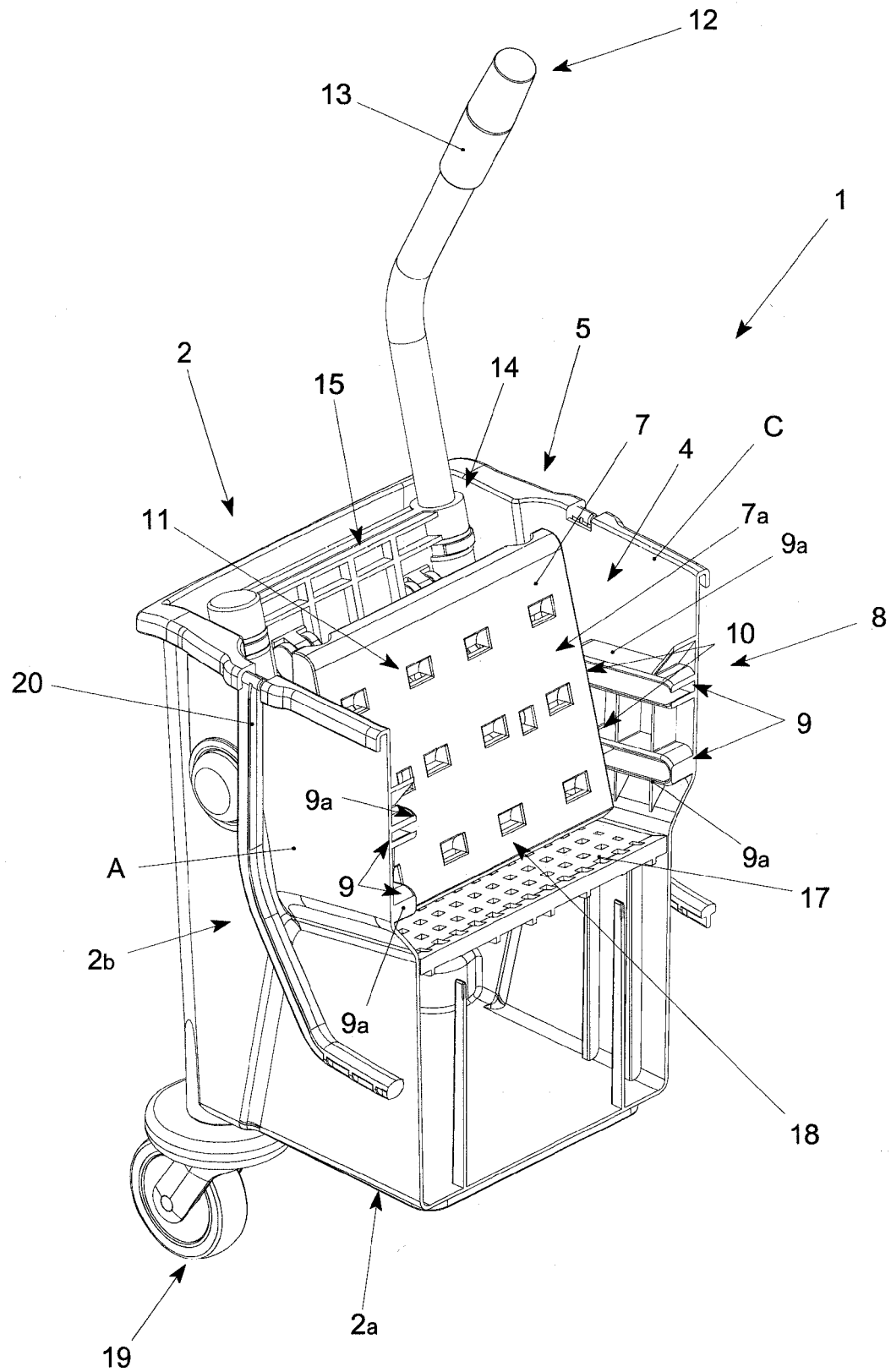


FIG. 2

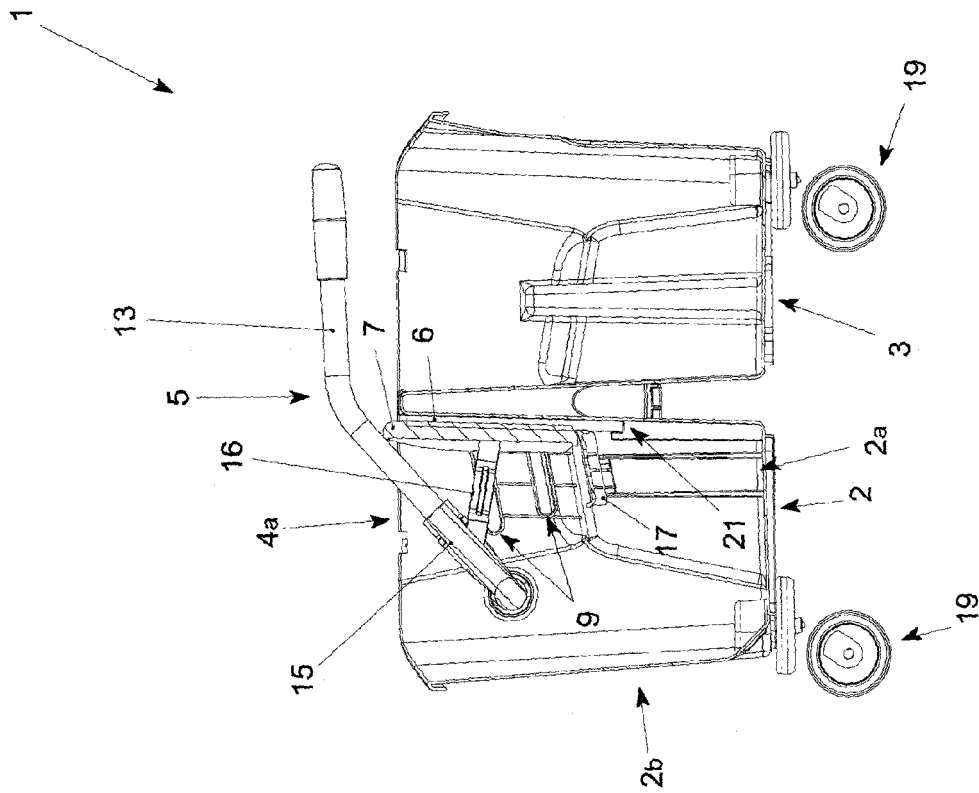


FIG. 4

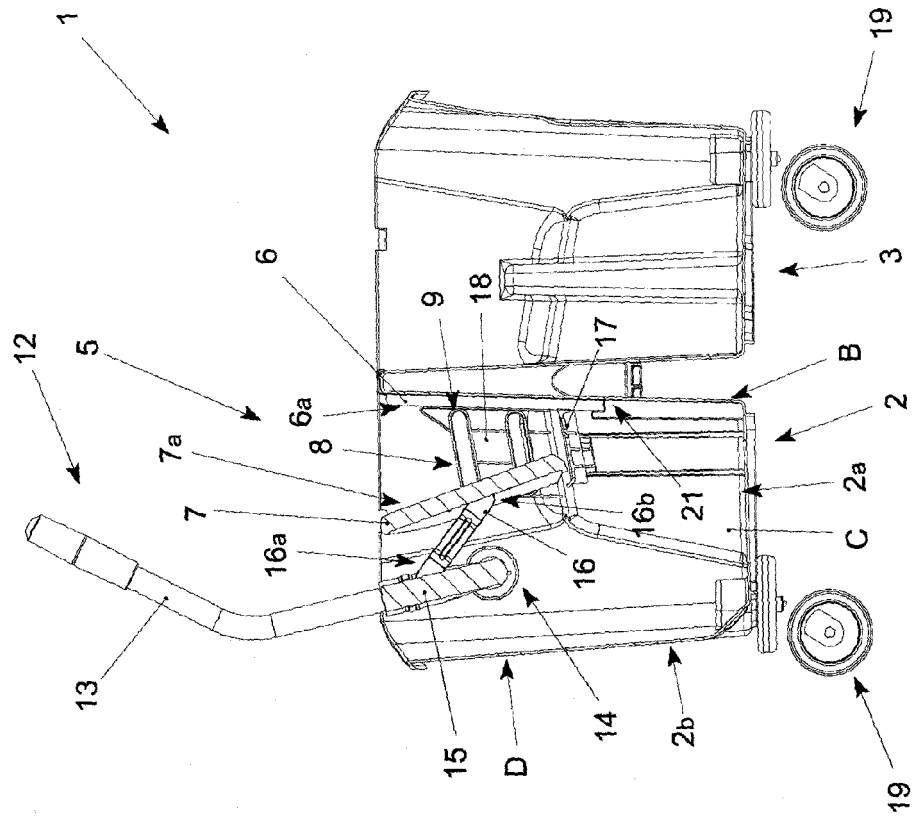


FIG. 3