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(54) **VACUUM CLEANER ASSEMBLY**

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Description

TECHNICAL FIELD

[0001] The present invention relates to a vacuum cleaner assembly comprising a rechargeable stick type vacuum cleaner and a charging dock.

BACKGROUND

[0002] Rechargeable stick type vacuum cleaners have become increasingly popular. Reasons for this might be that they are simple to use, require no power cord, and require little space when not in use. A rechargeable stick type vacuum cleaner is usually sold together with a charging dock in which the rechargeable stick type vacuum cleaner can be releasably positioned when not in use. The charging dock comprises a power cord configured to be connected to a power socket. The charging dock further comprises electrical contact units configured to abut against electrical contact units of the rechargeable stick type vacuum cleaner when the rechargeable stick type vacuum cleaner is positioned in the charging dock.

[0003] Vacuum cleaner assemblies comprising a rechargeable stick type vacuum cleaner and a charging dock are associated with some problems. One problem is to provide a rigid and safe positioning of the vacuum cleaner in the charging dock. A vacuum cleaner assembly comprising a rechargeable stick type vacuum cleaner and a charging dock usually comprises a mechanical fixating assembly configured to fixate the vacuum cleaner to the charging dock when the vacuum cleaner is positioned therein. Some fixating assemblies comprise protrusions at the vacuum cleaner and grooves at the charging dock, or vice versa, wherein the protrusions are configured to extend into the grooves when the vacuum cleaner is positioned in the charging dock. Therefore, a user must usually lift the vacuum cleaner relative the charging dock, and align the protrusions relative the grooves when positioning the vacuum cleaner in the charging dock. This procedure is burdensome and requires attention from the user to align the protrusions relative the grooves.

[0004] Likewise, when removing the vacuum cleaner from the charging dock, the user usually must lift the vacuum cleaner relative the charging dock in a certain direction, which is also burdensome and requires attention from the user to lift the vacuum cleaner in the correct direction. If the user lifts the vacuum cleaner in a direction differing from the correct direction, the charging dock will likely be displaced along a floor surface on which the charging dock is positioned, or will be lifted from the floor surface. The user will perceive both these situations negatively.

[0005] Document US2010242209 A discloses a vacuum cleaner assembly comprising a rechargeable stick type vacuum cleaner and a charging stand.

[0006] Document WO 2016/206732 A1 discloses vacuum cleaner system comprising a vacuum cleaner having a battery and a charger (20) (26) for wireless charging of the battery.

5 **[0007]** Document JP 2016 039860 A discloses a vacuum cleaner having a battery and a charging stand for charging the battery.

[0008] Document EP 3 195 778 A1 discloses a vacuum cleaner and a charging stand.

10 **[0009]** Document CN 105 534 412 A discloses another vacuum cleaner and a stand.

SUMMARY

15 **[0010]** It is an object of the present invention to overcome, or at least alleviate, at least some of the above-mentioned problems and drawbacks.

[0011] According to a first aspect of the invention, the object is achieved by a vacuum cleaner assembly comprising a rechargeable stick type vacuum cleaner and a charging dock. The vacuum cleaner comprises an elongated body. The vacuum cleaner is configured to be releasably positioned in the charging dock such that the elongated body extends along a first direction. The assembly further comprises a magnetic assembly configured to fixate a first portion of the vacuum cleaner to the charging dock, and a second fixating assembly configured to fixate a second portion of the vacuum cleaner to the charging dock. The second portion is arranged a distance from the first portion along the first direction.

20 **[0012]** As a result, a vacuum cleaner assembly is provided facilitating the positioning of the vacuum cleaner into the charging dock. Further, a vacuum cleaner assembly is provided being less dependent on the orientation direction of the vacuum cleaner when the vacuum cleaner is positioned in the charging dock. This because the assembly comprises the magnetic assembly configured to fixate the first portion of the vacuum cleaner to the charging dock, and the second fixating assembly configured to fixate the second portion of the vacuum cleaner to the charging dock. Thus, when positioning the vacuum cleaner in the charging dock, the user may simply grab the vacuum cleaner and position the second portion of the vacuum cleaner in the charging dock, and align the vacuum cleaner such that magnetic attracting members of the magnetic assembly are close to each other. The magnetic assembly will fixate the first portion of the vacuum cleaner to the charging dock, when the magnetic attracting members of the magnetic assembly are close to each other, such that the vacuum cleaner is positioned in the charging dock at a predetermined and safe position.

25 **[0013]** Since the second portion is arranged a distance from the first portion along the first direction, a rigid and safe fixation is provided of the vacuum cleaner to the charging dock. Further, the fact that the second portion is arranged a distance from the first portion along the first direction facilitates removal of the vacuum cleaner from

the charging dock. This because if a user wants to remove the vacuum cleaner from the charging dock, the user may simply grab the vacuum cleaner and apply a force onto the vacuum cleaner in a direction perpendicular to the first direction. As a result, a separation force between the magnetic attracting members of the magnetic assembly is obtained which causes a separation of the magnetic attracting members. When the magnetic attracting members are separated, the fixation of the first portion of the vacuum cleaner to the charging dock is released. Then the user may in a simple manner release the second portion of the vacuum cleaner from the charging dock to release the vacuum cleaner from the charging dock.

[0014] Accordingly, a vacuum cleaner assembly is provided which provides a rigid and safe positioning of the vacuum cleaner in the charging dock, while the positioning of the vacuum cleaner in the charging dock is facilitated, and the removal of the vacuum cleaner from the charging dock is facilitated.

[0015] Accordingly, a vacuum cleaner assembly is provided overcoming, or at least alleviating, at least some of the above-mentioned problems and drawbacks. As a result, the above-mentioned object is achieved.

[0016] Optionally, the distance is greater than 5%, 10%, or 15% of a length of the vacuum cleaner in the first direction. Thereby, a rigid and safe fixation of the vacuum cleaner to the charging dock is ensured. In addition, a facilitated removal of the vacuum cleaner from the charging dock is ensured.

[0017] Optionally, the charging dock is configured to be positioned on a floor surface, and wherein a plane comprising the first direction and the magnetic assembly is substantially perpendicular to the floor surface, when the charging dock is positioned on the floor surface. Thereby, a rigid and safe fixation is provided of the vacuum cleaner to the charging dock.

[0018] Optionally, the vacuum cleaner comprises at least one wheel, and wherein the second portion is a portion of the at least one wheel. Thereby, an assembly is provided where the user may, when positioning the vacuum cleaner in the charging dock, position the at least one wheel relative the charging dock, and then aligning the vacuum cleaner such that magnetic attracting members of the magnetic assembly are close to each other. The positioning of the at least one wheel relative the charging dock may for example be performed by rolling the at least one wheel over a portion of the charging dock. As a result, a safe and simple fixation of the vacuum cleaner to the charging dock is provided, and a vacuum cleaner assembly is provided which further facilitates the positioning of, as well as the removal of, the vacuum cleaner.

[0019] Optionally, the vacuum cleaner comprises a floor cleaning nozzle, and wherein the second portion is a portion of the floor cleaning nozzle. Thereby, an assembly is provided where the user may, when positioning the vacuum cleaner in the charging dock, position the

floor cleaning nozzle relative the charging dock, and then align the vacuum cleaner such that magnetic attracting members of the magnetic assembly are close to each other. As a result, a safe and simple fixation is provided of the vacuum cleaner to the charging dock, and a vacuum cleaner assembly is provided which further facilitates the positioning of the vacuum cleaner in the charging dock.

[0020] Optionally, the second fixating assembly comprises at least one protrusion. Thereby, a safe and simple fixation of the vacuum cleaner to the charging dock is provided.

[0021] Optionally, the second fixating assembly comprises a protrusion arranged at the charging dock, and wherein the protrusion is configured to abut against the floor cleaning nozzle when the vacuum cleaner is releasably positioned in the charging dock. Thereby, an assembly is provided where the user may, when positioning the vacuum cleaner in the charging dock, position the floor cleaning nozzle such that the protrusion is abutting against the floor cleaning nozzle, and then align the vacuum cleaner such that magnetic attracting members of the magnetic assembly are close to each other. As a result, a safe and simple fixation is provided of the vacuum cleaner to the charging dock, and a vacuum cleaner assembly is provided which further facilitates the positioning of the vacuum cleaner in the charging dock.

[0022] Optionally, the second fixating assembly comprises at least one recess. Thereby, a safe and simple fixation of the vacuum cleaner to the charging dock is provided.

[0023] Optionally, the second fixating assembly comprises a recess arranged in the floor cleaning nozzle, and wherein the charging dock comprises a protrusion configured to extend into the recess when the vacuum cleaner is releasably positioned in the charging dock. Thereby, an assembly is provided where the user may, when positioning the vacuum cleaner in the charging dock, position the floor cleaning nozzle such that the protrusion extends into the recess, and then align the vacuum cleaner such that magnetic attracting members of the magnetic assembly are close to each other. As a result, a safe and simple fixation of the vacuum cleaner to the charging dock is provided, and a vacuum cleaner assembly is provided which further facilitates the positioning of the vacuum cleaner in the charging dock.

[0024] Optionally, the second fixating assembly comprises a second magnetic assembly. Thereby, an assembly is provided where the user may, when positioning the vacuum cleaner in the charging dock, position the vacuum cleaner relative the charging dock such that one of the first and second magnet assemblies engages, and then align the vacuum cleaner relative the charging dock such that the other one of the first and second magnet assemblies engages.

[0025] Thus, a vacuum cleaner assembly is provided which further facilitates the positioning of the vacuum cleaner in the charging dock. Further, an assembly is provided where the user may position the vacuum clea-

ner into the charging dock simply by displacing the vacuum cleaner in a direction perpendicular to the first direction. As a result, a still simpler positioning of the vacuum cleaner in the charging dock can be provided.

[0026] Further, an assembly is provided further facilitating removal of the vacuum cleaner from the charging dock. This because a user wanting to remove the vacuum cleaner from the charging dock may simply grab the vacuum cleaner and apply a force onto the vacuum cleaner in a direction perpendicular to the first direction. As a result, a separation force is obtained between magnetic attracting members of one of the first and second the magnetic assemblies which causes a separation of these magnetic attracting members. When these magnetic attracting members are separated, the fixation of one portion of the vacuum cleaner to the charging dock is released. Then the user may in a simple manner release the fixation force between the other one of the first and second the magnetic assemblies, for example by applying a force onto the vacuum cleaner in the first direction to release the vacuum cleaner from the charging dock.

[0027] Optionally, the charging dock is configured to be positioned on a floor surface, wherein the charging dock comprises a ramp portion, and wherein the ramp portion is adjacent to the floor surface when the charging dock is positioned on the floor surface. Thereby, an assembly is provided further facilitating the positioning of the vacuum cleaner into the charging dock. This because the user may, when positioning the vacuum cleaner in the charging dock, use the ramp to displace a portion of the vacuum cleaner into the charging dock. For example, the user may use the ramp to displace a wheel of the vacuum cleaner, and/or a floor cleaning nozzle of the vacuum cleaner, into the charging dock.

[0028] Optionally, the ramp portion comprises a ramp surface, and wherein an angle between the ramp surface and the floor surface is less than 20 degrees. Thereby, an assembly is provided further facilitating the positioning of the vacuum cleaner into the charging dock.

[0029] Optionally, the charging dock comprises first contact units and the vacuum cleaner comprises second contact units configured to abut against the first contact units, when the vacuum cleaner is releasably positioned in the charging dock, and wherein at least one of the first and second contacts units are displaceably arranged. Thereby, an assembly is provided further facilitating the positioning of the vacuum cleaner into the charging dock. Further, electrical contact is further ensured between contact units of the first contact units and contact units of the second contact units.

[0030] Optionally, the magnetic assembly is configured to fixate the first portion of the vacuum cleaner to the charging dock in a fixation direction, and wherein at least one of the first and second contacts units are displaceably arranged in a second direction being angled in relation to the fixation direction. Thereby, an assembly is provided further facilitating the positioning of the va-

cuum cleaner into the charging dock. This because when the vacuum cleaner is positioned in the charging dock such that magnetic attracting members of the magnetic assembly are close to each other, the attracting force between the magnetic attracting members will displace at least one of the first and second contacts units at an angle separated from the fixation direction. Thereby, the at least one of the first and second contacts units can be displaced with a greater force than the attracting force of the magnetic attracting members. As a result, the positioning of the vacuum cleaner into the charging dock is further facilitated.

[0031] Further, since at least one of the first and second contacts units are displaceably arranged in a second direction being angled in relation to the fixation direction, a more rigid and a safer fixation of the vacuum cleaner is provided. This because an abutting force between the at least one of the first and second contacts units and another contact unit will be angled in relation to the fixation direction, and will as a result thereof have a low impact on the attracting force, i.e. the fixation force, between the magnetic attracting members of the magnet assembly.

[0032] Optionally, an angle between the second direction and the fixation direction is within the interval 15 - 90 degrees. Thereby, an assembly is provided further facilitating the positioning of the vacuum cleaner into the charging dock, and ensuring a more rigid and a safer fixation of the vacuum cleaner in the charging dock.

[0033] Optionally, the fixation direction is substantially perpendicular to the first direction. As a result, a vacuum cleaner assembly is provided further facilitating the positioning of the vacuum cleaner into the charging dock. This because when positioning the vacuum cleaner in the charging dock, the user may simply displace the first portion of the vacuum cleaner in a direction perpendicular to the first direction to align the vacuum cleaner such that magnetic attracting members of the magnetic assembly are close to each other. The magnetic assembly will fixate the first portion of the vacuum cleaner to the charging dock when the magnetic attracting members of the magnetic assembly are close to each other such that the vacuum cleaner is positioned in the charging dock at a predetermined and safe position.

[0034] Further, since the fixation direction is substantially perpendicular to the first direction, a safe and rigid fixation of the vacuum cleaner is ensured.

[0035] Optionally, the charging dock is configured to be positioned on a floor surface, and wherein the fixation direction and the second direction are substantially parallel to the floor surface. Thereby, a safe and rigid fixation of the vacuum cleaner is ensured. Further, a vacuum cleaner assembly is provided further facilitating the positioning of the vacuum cleaner into the charging dock. This because when positioning the vacuum cleaner in the charging dock, the user may simply displace the first portion of the vacuum cleaner in a direction perpendicular to the first direction to align the vacuum cleaner such that

magnetic attracting members of the magnetic assembly are close to each other. The magnetic assembly will fixate the first portion of the vacuum cleaner to the charging dock when the magnetic attracting members of the magnetic assembly are close to each other such that the vacuum cleaner is positioned in the charging dock at a predetermined and safe position. Further, the attracting force between magnetic attracting members of the magnetic assembly may ensure electrical contact between contact units, and may ensure displacement of at least one contact unit.

[0036] Further, a vacuum cleaner assembly is provided further facilitating removal of the vacuum cleaner from the charging dock. This because a user wanting to remove the vacuum cleaner from the charging dock may simply grab the vacuum cleaner and apply a force onto the vacuum cleaner in a direction perpendicular to the first direction. As a result, a separation force between the magnetic attracting members of the magnetic assembly is obtained, which causes a separation of the magnetic attracting members. When the magnetic attracting members are separated, the fixation of the first portion of the vacuum cleaner to the charging dock is released. Then the user may in a simple manner release the second portion of the vacuum cleaner from the charging dock to release the vacuum cleaner from the charging dock.

[0037] Optionally, at least one of the first contact units, and the second contact units, are dome-shaped. Thereby, a vacuum cleaner assembly is provided being further less dependent on the orientation direction of the vacuum cleaner when the vacuum cleaner is positioned in the charging dock. In addition, displacement of at least one of the first and second contacts units may be facilitated during positioning of the vacuum cleaner into the charging dock.

[0038] Further features of, and advantages with, the present invention will become apparent when studying the appended claims and the following detailed description.

BRIEF DESCRIPTION OF THE DRAWINGS

[0039] Various aspects of the invention, including its particular features and advantages, will be readily understood from the example embodiments discussed in the following detailed description and the accompanying drawings, in which:

Fig. 1 illustrates a vacuum cleaner assembly, according to some embodiments,
 Fig. 2 illustrates a charging dock of the vacuum cleaner assembly, illustrated in Fig. 1,
 Fig. 3 illustrates a cross section of a ramp portion of the charging dock illustrated in Fig. 2,
 Fig. 4 illustrates the vacuum cleaner of the vacuum cleaner assembly, illustrated in Fig. 1, and
 Fig. 5 illustrates a cross section of a vacuum cleaner assembly, according to some further embodiments.

DETAILED DESCRIPTION

[0040] Aspects of the present invention will now be described more fully. Like numbers refer to like elements throughout. Well-known functions or constructions will not necessarily be described in detail for brevity and/or clarity.

[0041] Fig. 1 illustrates a vacuum cleaner assembly 1, according to some embodiments. The vacuum cleaner assembly 1 comprises a rechargeable stick type vacuum cleaner 3 and a charging dock 5. For the reason of brevity and/or clarity, the rechargeable stick type vacuum cleaner 3 is in some places herein referred to as "the vacuum cleaner 3". The vacuum cleaner 3 comprises an elongated body 7, a handle portion 4 arranged at a first end 8.1 of the elongated body 3, and a floor cleaning nozzle 21 arranged at a second end 8.2 of the elongated body 3. The vacuum cleaner 3 further comprises a rechargeable battery, an electric motor, and an impeller. These components are not indicated in Fig. 1 for the reason of brevity and/or clarity. The electric motor is configured to drive the impeller using energy stored in the rechargeable battery, when a button at the handle portion 4 is pressed. The impeller is connected to the floor cleaning nozzle 21 and to a filter unit of the vacuum cleaner 3. The impeller is configured to pump air from the floor cleaning nozzle 21 through the filter unit in order to clean a surface, such as a floor surface 17. The rechargeable battery, the electric motor, the impeller, and the filter unit is arranged in the elongated body 7 between the handle portion 4 and the floor cleaning nozzle 21.

[0042] In Fig. 1, the vacuum cleaner 3 is releasably positioned in the charging dock 5 such that the elongated body 7 extends along a first direction d1. The assembly 1 comprises a magnetic assembly 9, 9' configured to fixate a first portion 11 of the vacuum cleaner 3 to the charging dock 5. The assembly 1 further comprises a second fixating assembly 13, 13' configured to fixate a second portion 15 of the vacuum cleaner 3 to the charging dock 5. As illustrated in Fig. 1, the second portion 15 is arranged a distance d from the first portion 11 along the first direction d1. According to the illustrated embodiments, the distance d is approximately 17% of a length L of the vacuum cleaner 3 in the first direction d1. The length L of the vacuum cleaner 3 in the first direction d1 may be defined as the distance between the first end 8.1 of the vacuum cleaner 3 and the second end 8.2 of the vacuum cleaner 3, i.e. the distance between an outermost part of the handle 4 in the first direction d1 and an outermost part of the floor cleaning nozzle 21 in a direction opposite to the first direction d1. According to further embodiments, the distance d may be greater than 5%, 7%, 10%, 12% or 15% of a length L of the vacuum cleaner 3 in the first direction d1. Further, the distance d may, according to some embodiments, be within the interval of 5% - 70%, 7% - 60%, 8% - 50%, 10% - 40%, 12% - 35%, or 15% - 30% of the length L of the vacuum cleaner 3 in the first direction d1. Since the second portion 15 is arranged a

distance d from the first portion 11 along the first direction $d1$, a safe and rigid fixation of the vacuum cleaner 1 in the charging dock 5 is provided, and the positioning of the vacuum cleaner 3 into the charging dock 5, as well as the removal of the vacuum cleaner 3 from the charging dock 5, is facilitated, as is further explained herein.

[0043] Fig. 2 illustrates the charging dock 5 of the vacuum cleaner assembly 1, illustrated in Fig. 1. The charging dock 5 comprises a base portion 18, an elongated portion 20, and a support portion 22. The base portion 18 of the charging dock 5 is configured to be positioned on a floor surface 17. The elongated portion 20 connects the support portion 22 to the base portion 18. The elongated portion 20 extends in a direction substantially coinciding with the first direction $d1$. The support portion 22 is configured to support the first portion 11 of the vacuum cleaner 3, illustrated in Fig. 1, as is further explained herein.

[0044] According to the embodiments illustrated in Fig. 2, the charging dock 5 comprises a ramp portion 29 arranged at the base portion 18. The ramp portion 29 is adjacent to the floor surface 17 when the charging dock 5 is positioned on the floor surface 17. The ramp portion 29 facilitates positioning of the vacuum cleaner 3, illustrated in Fig. 1, into the charging dock 5, illustrated in Fig. 2.

[0045] Fig. 3 illustrates a cross section of the ramp portion 29 illustrated in Fig. 2. As illustrated, the ramp portion 29 comprises a ramp surface 31. According to the illustrated embodiments, an angle $a1$ between the ramp surface 31 and the floor surface 17 is approximately 19 degrees. According to further embodiments, the angle $a1$ between the ramp surface 31 and the floor surface 17 may be within an interval of 12 - 20 degrees, 14 - 20 degrees, 16 - 20 degrees, 17 - 20 degrees, or 18 - 20 degrees. Due to the small angle $a1$ between the ramp surface 31 and the floor surface 17, the positioning of the vacuum cleaner 3 into the charging dock 5 is further facilitated.

[0046] Fig. 4 illustrates the vacuum cleaner 3 of the vacuum cleaner assembly 1, illustrated in Fig. 1. According to the illustrated embodiments, the vacuum cleaner 3 comprises wheels 19 arranged at the second end 8.2 of the vacuum cleaner 3. The floor cleaning nozzle 21 is hinged in relation to the elongated body 7 in an axis coinciding with a rotational axis of the wheels 19. Thus, during cleaning, a user may hold the handle portion 4 of the vacuum cleaner 3 and move the floor cleaning nozzle 21 along a floor surface 17. The wheels 19 support the elongated body 7, as well as a portion of the floor cleaning nozzle 21. Further, when positioning the vacuum cleaner 3 into the charging dock 5, illustrated in Fig. 2, the wheels 19 can roll over the floor surface 17 and up into the charging dock 5 over the ramp portion 29.

[0047] The charging dock 5 illustrated in Fig. 2 comprises a first magnetic attracting member 9 of the magnetic assembly 9, 9', illustrated in Fig. 1. The vacuum cleaner 3 illustrated in Fig. 4 comprises a second mag-

netic attracting member 9' of the magnetic assembly 9, 9', illustrated in Fig. 1. When the second magnetic attracting member 9', illustrated in Fig. 4, is close to the first magnetic attracting member 9, illustrated in Fig. 2, the second magnetic attracting member 9' will be pulled towards the first magnetic attracting member 9, illustrated in Fig. 2, in a fixation direction fd . As a result thereof, the first portion 11 of the vacuum cleaner 3, illustrated in Fig. 1, is fixated to the charging dock 5.

[0048] Further, according to the embodiments illustrated in Fig. 1, Fig. 2, and Fig. 4, the second fixating assembly 13, 13' comprises a second magnetic assembly 23, 23' configured to fixate the second portion 15 of the vacuum cleaner 3 to the charging dock 5. The charging dock 5 illustrated in Fig. 2 comprises a first magnetic attracting member 23 of the second magnetic assembly 23, 23'. The vacuum cleaner 3 illustrated in Fig. 4 comprises a second magnetic attracting member 23' of the second magnetic assembly 23, 23'. When the second magnetic attracting member 23', illustrated in Fig. 4, is close to the first magnetic attracting member 23, illustrated in Fig. 2, the second magnetic attracting member 23' will be pulled towards the first magnetic attracting member 23, illustrated in Fig. 2, in the fixation direction fd . As a result thereof, the second portion 15 of the vacuum cleaner 3, illustrated in Fig. 1, is fixated to the charging dock 5.

[0049] Further, according to the embodiments illustrated in Fig. 1, Fig. 2, and Fig. 4, the second fixating assembly 13, 13' further comprises a recess 25.1 arranged in the base portion 18 of the charging dock 5. A portion of a wheel 19 illustrated in Fig. 4 is configured to extend into the recess 25.1, illustrated in Fig. 2, when the vacuum cleaner 3 is in the charging dock 5. As a result, the second portion 15 of the vacuum cleaner 3 is further fixated to the charging dock 5, when the vacuum cleaner 3 is positioned therein.

[0050] In addition, according to the embodiments illustrated in Fig. 1, Fig. 2, and Fig. 4, the second fixating assembly 13, 13' further comprises a protrusion 27.1 arranged at the base portion 18, in close proximity to the recess 25.1. A portion of a wheel 19 illustrated in Fig. 4 is configured to abut against the protrusion 27.1, illustrated in Fig. 2. As a result, the second portion 15 of the vacuum cleaner 3 is further fixated to the charging dock 5, when the vacuum cleaner 3 is positioned therein.

[0051] According to some embodiments, the second fixating assembly 13, 13' may comprise only one of, or only two of, the second magnetic assembly 23, 23', the recess 25.1, and the protrusion 27.1, or may, as is the case according to the illustrated embodiments, comprise the second magnetic assembly 23, 23', the recess 25.1, as well as the protrusion 27.1.

[0052] As indicated in Fig. 2, the charging dock 5 comprises first contact units 33, 33' arranged at the supporting portion 22 of the charging dock 5. As indicated in Fig. 4, the vacuum cleaner 3 comprises second contact units 35, 35'. The second contact units 35, 35' are con-

figured to abut against the first contact units 33, 33', when the vacuum cleaner 3 is releasably positioned in the charging dock 5. The charging dock 5 is configured to charge the rechargeable battery of the vacuum cleaner 3, via the first and second contact units 33, 33', 35, 35'. According to the illustrated embodiments, the first contact units 33, 33' are each displaceably arranged in a second direction d2. For the reason of brevity and/or clarity, only one second direction d2 is indicated in Fig. 2. However, the contact unit 33' indicated with reference sign "33'" is also displaceably arranged in a second direction, corresponding to the second direction d2, as is further explained herein. Furthermore, the first contact units 33, 33' are each biased, e.g. spring biased, in a direction opposite to their respective second direction d2. **[0053]** As mentioned, the magnetic assembly 9, 9' is configured to fixate the first portion 11 of the vacuum cleaner 3 to the charging dock 5 in a fixation direction fd. The first contact units 33, 33' are each displaceably arranged in a second direction d2 being angled in relation to the fixation direction fd. In addition, the first contact units 33, 33' are each biased in a direction being angled in relation to a direction opposite the fixation direction fd. According to the illustrated embodiments, the angle a2 between the second direction d2 and the fixation direction fd is approximately 60 degrees. According to further embodiments, the angle a2 between the second direction d2 and the fixation direction fd may be within an interval of 15 - 90 degrees, 20 - 85 degrees, 30 - 80 degrees, 40 - 80 degrees, 45 - 75 degrees, 50 - 70 degrees, or 55 - 65 degrees. Since the first contact units 33, 33' each are displaceably arranged in a second direction d2 being angled in relation to the fixation direction fd, the attracting force between the magnetic attracting members 9, 9' of the magnetic assembly 9, 9' will displace the first contact units 33, 33' in directions d2 angled towards the fixation direction fd. Thereby, the first contact units 33, 33' can be displaced with a greater force than the attracting force between the magnetic attracting members 9, 9'. As a result, the positioning of the vacuum cleaner 3 into the charging dock 5 is further facilitated. As a further result, a more rigid and a safer fixation of the vacuum cleaner 3 is provided. This because an abutting force between the first and second contact units 33, 33', 35, 35' are angled in relation to the fixation direction fd, and will as a result thereof have a low impact on the fixation between the magnetic attracting members 9, 9' of the magnet assembly 9, 9'.

[0054] Further, according to the illustrated embodiments, the first contact units 33, 33' are dome-shaped. Thereby, the positioning of the vacuum cleaner 3 into the charging dock 5 is facilitated. Further, the displacement of the first contact units 33, 33' in the second direction d2 is facilitated. According to further embodiments, the second contact units 35, 35' of the vacuum cleaner 3, illustrated in Fig. 4, may be displaceably arranged and may be dome-shaped.

[0055] As indicated in Fig. 2, according to the illustrated

embodiments, the fixation direction fd is substantially perpendicular to the first direction d1. Further, the fixation direction fd and the second direction d2 are substantially parallel to the floor surface 17. A plane p comprising the first direction d1 and the first magnetic attracting member 9 of the magnetic assembly 9, 9' is substantially perpendicular to the floor surface 17, when the charging dock 5 is positioned on the floor surface 17. Since the plane p comprises the first direction d1, the contact unit 33 is also displaceably arranged in the second direction d2 at an angle a2 relative the plane p, and the contact unit 33' is displaceably arranged in a direction at an angle with the same size as the angle a2 relative the plane p, but on the opposite side of the plane p.

[0056] As mentioned, the plane p comprising the first direction d1 and the magnetic assembly 9, 9' is substantially perpendicular to the floor surface 17. According to some embodiments, a second plane comprising the first direction d1, which is perpendicular to the plane p1, may be angled in relation to the floor surface 17 at an angle being within the interval of 0 - 20 degrees, 0 - 15 degrees, 0 - 10 degrees, or 0 - 5 degrees.

[0057] Further, according to the embodiments illustrated in Fig. 1 and Fig. 2, the support portion 22 of the charging dock 5 comprises a first support profile 22.1 and a second support profile 22.2. The first and second support profiles 22.1, 22.2 each extends from the plane p and is each provided with a bent shape in relation to the plane p. As a result, the support structure 22 supports the first portion 11 of the vacuum cleaner 3, illustrated in Fig. 1, also in directions perpendicular to the plane p. According to the illustrated embodiments, the first support structure 22.1 comprises a contact unit 33 of the first contact units 33, 33', and the second support structure 22.2 comprises another contact unit 33' of the first contact units 33, 33'. A surface normal of the first support structure 22.1 at the position of the contact unit 33 is essentially opposite to the second direction d2. Likewise, a surface normal of the second support structure 22.2 at the position of the contact unit 33' is essentially opposite to the direction in which the contact unit 33' can be displaced. Further, according to the illustrated embodiments, the first magnetic attracting member 9 of the magnetic assembly 9, 9' is arranged at the support portion 22, between the first and second support profiles 22.1, 22.2. As a result, when the second magnetic attracting member 9' of the magnetic assembly 9, 9', illustrated in Fig. 4 is close to the first magnetic attracting member 9, illustrated in Fig. 2, the second magnetic attracting member 9 will be displaced towards the first magnetic member 9. Thereby, the first contact units 33, 33' will be displaced in an efficient manner. Further, the respective support structure 22.1, 22.2 will provide support of the first portion 11 of the vacuum cleaner 3, illustrated in Fig. 4.

[0058] One of the magnetic attracting members 9, 9' of the magnet assembly 9, 9' may comprise a magnet producing a magnetic field, and the other magnetic at-

tracting member 9, 9' of the magnet assembly 9, 9' may comprise a ferromagnetic material, such that an attracting force is obtained between the magnetic attracting members 9, 9' when they are close to each other. As an alternative, both magnetic attracting members 9, 9' of the magnet assembly 9, 9' may comprise a magnet producing a magnetic field. According to such embodiments, they are oriented such that an attracting force is obtained between the magnetic attracting members 9, 9' when they are close to each other. Likewise, one of the magnetic attracting members 23, 23' of the second magnet assembly 23, 23' may comprise a magnet producing a magnetic field, and the other magnetic attracting member 23, 23' of the second magnet assembly 23, 23' may comprise a ferromagnetic material, such that an attracting force is obtained between the magnetic attracting members 23, 23' when they are close to each other. As an alternative, both magnetic attracting members 23, 23' of the second magnet assembly 23, 23' may comprise a magnet producing a magnetic field. According to such embodiments, they are oriented such that an attracting force is obtained between the magnetic attracting members 23, 23' when they are close to each other.

[0059] Fig. 5 illustrates a cross section of a vacuum cleaner assembly 1, according to some further embodiments. According to these embodiments, the second fixating assembly 13, 13' comprises a first protrusion 27.1, a second protrusion 27.2, and a third protrusion 27.3, each arranged at the base portion 18 of the charging dock 5. Further, according to these embodiments, the second fixating assembly 13, 13' comprises a first recess 25.1 arranged in the base portion 18 of the charging dock 5, and a second recess 25.2 arranged in the floor cleaning nozzle 21.

[0060] A portion of the wheel 19 of the vacuum cleaner 3 is configured to extend into the first recess 25.1, and the first protrusion 27.1 is configured to abut against a portion of the wheel 19, when the vacuum cleaner 3 is positioned in the charging dock 5. Thus, according to these embodiments, as well as other embodiments described herein, the second portion 15 of the vacuum cleaner 5 may be a portion of the at least one wheel 19.

[0061] Further, according to the illustrated embodiments, the third protrusion 27.3 of the charging dock 5 is configured to extend into the recess 25.2 arranged in the floor cleaning nozzle 21, when the vacuum cleaner 3 is positioned in the charging dock 5. In addition, the second protrusion 27.2 of the charging dock 5 is configured to abut against a front part of the floor cleaning nozzle 21, when the vacuum cleaner 3 is positioned in the charging dock 5. Due to these features, a further rigid and secure positioning of the vacuum cleaner 3 in the charging dock 5 is provided. Thus, according to these embodiments, as well as other embodiments described herein, the second portion 15 of the vacuum cleaner 5 may, as an alternative to the wheel 19, or in addition to the wheel 19, be a portion of the floor cleaning nozzle 21. According to some embodiments, one or more of the first

protrusion 27.1, the second protrusion 27.2 and the third protrusion 27.3 may be displaceably arranged in relation to the base portion 18 of the charging dock 5 to facilitate removal of the vacuum cleaner 3 from the charging dock 5, and/or to facilitate positioning of the vacuum cleaner 3 in the charging dock 5.

[0062] According to some embodiments, the second fixating assembly 13, 13' may comprise only one of, only two of, or only three of the first recess 25.1, the first protrusion 27.1, the second protrusion 27.2 and the second recess 25.2, and the third recess 25.3. Further, the second fixating assembly 13, 13' of the embodiments illustrated in Fig. 5, may comprise a second magnetic assembly 23, 23', as described with reference to the embodiments illustrated in Fig. 1, Fig. 2, and Fig. 4, as an alternative to, or in addition to, one or more of the first recess 25.1, the first protrusion 27.1, the second protrusion 27.2 and the second recess 25.2, and the third recess 25.3.

[0063] It is to be understood that the foregoing is illustrative of various example embodiments and that the invention is defined only by the appended claims. A person skilled in the art will realize that the example embodiments may be modified, and that different features of the example embodiments may be combined to create embodiments other than those described herein, without departing from the scope of the present invention, as defined by the appended claims.

[0064] As used herein, the term "comprising" or "comprises" is open-ended, and includes one or more stated features, elements, steps, components or functions but does not preclude the presence or addition of one or more other features, elements, steps, components, functions or groups thereof.

Claims

1. A vacuum cleaner assembly (1) comprising:

- a rechargeable stick type vacuum cleaner (3), and
- a charging dock (5),

wherein the vacuum cleaner (3) comprises an elongated body (7), and wherein the vacuum cleaner (3) is configured to be releasably positioned in the charging dock (5) such that the elongated body (7) extends along a first direction (d1), wherein the assembly (1) further comprises:

- a magnetic assembly (9, 9') configured to fixate a first portion (11) of the vacuum cleaner (3) to the charging dock (5),

characterised in that the assembly (1) further comprises:

- a second fixating assembly (13, 13') configured to fixate a second portion (15) of the vacuum cleaner (3) to the charging dock (5),

and wherein the second portion (15) is arranged a distance (d) from the first portion (11) along the first direction (d1).

2. The assembly (1) according to claim 1, wherein the distance (d) is greater than 5%, 10%, or 15% of a length (L) of the vacuum cleaner (3) in the first direction (d1).
3. The assembly (1) according to claim 1 or 2, wherein the charging dock (5) is configured to be positioned on a floor surface (17), and wherein a plane (p) comprising the first direction (d1) and the magnetic assembly (9, 9') is substantially perpendicular to the floor surface (17), when the charging dock (5) is positioned on the floor surface (17).
4. The assembly (1) according to any one of the preceding claims, wherein the vacuum cleaner (3) comprises at least one wheel (19), and wherein the second portion (15) is a portion of the at least one wheel (19).
5. The assembly (1) according to any one of the preceding claims, wherein the vacuum cleaner (3) comprises a floor cleaning nozzle (21), and wherein the second portion (15) is a portion of the floor cleaning nozzle (21).
6. The assembly (1) according to any one of the preceding claims, wherein the second fixating assembly (13, 13') comprises at least one protrusion (27.1, 27.2, 27.3).
7. The assembly (1) according to claim 5 and 6, wherein the second fixating assembly (13, 13') comprises a protrusion (27.2, 27.3) arranged at the charging dock (5), and wherein the protrusion (27.2, 27.3) is configured to abut against the floor cleaning nozzle (21) when the vacuum cleaner (3) is releasably positioned in the charging dock (5).
8. The assembly (1) according to any one of the preceding claims, wherein the second fixating assembly (13, 13') comprises at least one recess (25.1, 25.2).
9. The assembly (1) according to claim 7 and 8, wherein the second fixating assembly (13, 13') comprises a recess (25.2) arranged in the floor cleaning nozzle (21), and wherein the charging dock (5) comprises a protrusion (27.3) configured to extend into the recess

(25.2) when the vacuum cleaner (3) is releasably positioned in the charging dock (5).

10. The assembly (1) according to any one of the preceding claims, wherein the second fixating assembly (13, 13') comprises a second magnetic assembly (23, 23').
11. The assembly (1) according to any one of the preceding claims, wherein the charging dock (5) is configured to be positioned on a floor surface (17), wherein the charging dock (5) comprises a ramp portion (29), and wherein the ramp portion (29) is adjacent to the floor surface (17) when the charging dock (5) is positioned on the floor surface (17).
12. The assembly (1) according to claim 11, wherein the ramp portion (29) comprises a ramp surface (31), and wherein an angle (a1) between the ramp surface (31) and the floor surface (17) is less than 20 degrees.
13. The assembly (1) according to any one of the preceding claims, wherein the charging dock (5) comprises first contact units (33, 33') and the vacuum cleaner (3) comprises second contact units (35, 35') configured to abut against the first contact units (33, 33'), when the vacuum cleaner (3) is releasably positioned in the charging dock (5), and wherein at least one of the first and second contacts units (33, 33', 35, 35') are displaceably arranged.
14. The assembly (1) according to claim 13, wherein the magnetic assembly (9, 9') is configured to fixate the first portion (11) of the vacuum cleaner (3) to the charging dock (5) in a fixation direction (fd), and wherein at least one of the first and second contacts units (33, 33', 35, 35') are displaceably arranged in a second direction (d2) being angled in relation to the fixation direction (fd).
15. The assembly (1) according to claim 14, wherein an angle (a2) between the second direction (d2) and the fixation direction (fd) is within the interval 15 - 90 degrees.
16. The assembly (1) according to claim 14 or 15, wherein the fixation direction (fd) is substantially perpendicular to the first direction (d1).
17. The assembly (1) according to any one of the claims 14 - 16, wherein the charging dock (5) is configured to be positioned on a floor surface (17), and wherein the fixation direction (fd) and the second direction (d2) are substantially parallel to the floor surface (17).
18. The assembly (1) according to any one of the claims

13 - 17, wherein at least one of the first contact units (33, 33') and the second contact units (35, 35') are dome-shaped.

Patentansprüche

1. Staubsaugerbaugruppe (1), umfassend:

- einen wiederaufladbaren Stabstaubsauger (3) und
 - eine Ladestation (5),
 wobei der Staubsauger (3) einen länglichen Körper (7) umfasst und wobei der Staubsauger (3) dazu ausgestaltet ist, lösbar in der Ladestation (5) positioniert zu sein, so dass sich der längliche Körper (7) entlang einer ersten Richtung (d1) erstreckt,
 wobei die Baugruppe (1) ferner Folgendes umfasst:

- eine magnetische Baugruppe (9, 9'), die dazu ausgestaltet ist, einen ersten Abschnitt (11) des Staubsaugers (3) an der Ladestation (5) zu befestigen, **dadurch gekennzeichnet, dass** die Baugruppe (1) ferner Folgendes umfasst:
 - eine zweite Befestigungsbaugruppe (13, 13'), die dazu ausgestaltet ist, einen zweiten Abschnitt (15) des Staubsaugers (3) an der Ladestation (5) zu befestigen,

und wobei der zweite Abschnitt (15) in einem Abstand (d) von dem ersten Abschnitt (11) entlang der ersten Richtung (d1) angeordnet ist.

2. Baugruppe (1) nach Anspruch 1, wobei der Abstand (d) größer als 5%, 10%, oder 15 % einer Länge (L) des Staubsaugers (3) in der ersten Richtung (d1) ist.

3. Baugruppe (1) nach Anspruch 1 oder 2, wobei die Ladestation (5) dazu ausgestaltet ist, auf einer Fußbodenfläche (17) positioniert zu werden, und wobei eine Ebene (p), die die erste Richtung (d1) und die magnetische Baugruppe (9, 9') umfasst, im Wesentlichen senkrecht zu der Fußbodenfläche (17) verläuft, wenn die Ladestation (5) auf der Fußbodenfläche (17) positioniert ist.

4. Baugruppe (1) nach einem der vorhergehenden Ansprüche, wobei der Staubsauger (3) mindestens ein Rad (19) umfasst und wobei der zweite Abschnitt (15) ein Abschnitt des mindestens einen Rads (19) ist.

5. Baugruppe (1) nach einem der vorhergehenden Ansprüche, wobei der Staubsauger (3) eine Fußbodenreinigungsdüse (21) umfasst und wobei der zweite

Abschnitt (15) ein Abschnitt der Fußbodenreinigungsdüse (21) ist.

6. Baugruppe (1) nach einem der vorhergehenden Ansprüche, wobei die zweite Befestigungsbaugruppe (13, 13') mindestens einen Vorsprung (27.1, 27.2, 27.3) umfasst.

7. Baugruppe (1) nach Anspruch 5 und 6, wobei die zweite Befestigungsbaugruppe (13, 13') einen Vorsprung (27.2, 27.3) umfasst, der an der Ladestation (5) angeordnet ist, und wobei der Vorsprung (27.2, 27.3) dazu ausgestaltet ist, an der Fußbodenreinigungsdüse (21) anzuliegen, wenn der Staubsauger (3) lösbar in der Ladestation (5) positioniert ist.

8. Baugruppe (1) nach einem der vorhergehenden Ansprüche, wobei die zweite Befestigungsbaugruppe (13, 13') mindestens eine Aussparung (25.1, 25.2) umfasst.

9. Baugruppe (1) nach Anspruch 7 und 8, wobei die zweite Befestigungsbaugruppe (13, 13') eine Aussparung (25.2) umfasst, die in der Fußbodenreinigungsdüse (21) angeordnet ist, und wobei die Ladestation (5) einen Vorsprung (27.3) umfasst, der dazu ausgestaltet ist, sich in die Aussparung (25.2) zu erstrecken, wenn der Staubsauger (3) lösbar in der Ladestation (5) positioniert ist.

10. Baugruppe (1) nach einem der vorhergehenden Ansprüche, wobei die zweite Befestigungsbaugruppe (13, 13') eine zweite magnetische Baugruppe (23, 23') umfasst.

11. Baugruppe (1) nach einem der vorhergehenden Ansprüche, wobei die Ladestation (5) dazu ausgestaltet ist, auf einer Fußbodenfläche (17) positioniert zu werden, wobei die Ladestation (5) einen Rampenabschnitt (29) umfasst und wobei der Rampenabschnitt (29) der Fußbodenfläche (17) benachbart ist, wenn die Ladestation (5) auf der Fußbodenfläche (17) positioniert ist.

12. Baugruppe (1) nach Anspruch 11, wobei der Rampenabschnitt (29) eine Rampenfläche (31) umfasst und wobei ein Winkel (a1) zwischen der Rampenfläche (31) und der Fußbodenfläche (17) weniger als 20 Grad beträgt.

13. Baugruppe (1) nach einem der vorhergehenden Ansprüche, wobei die Ladestation (5) erste Kontakteinheiten (33, 33') umfasst und der Staubsauger (3) zweite Kontakteinheiten (35, 35') umfasst, die dazu ausgestaltet sind, an den ersten Kontakteinheiten (33, 33') anzuliegen, wenn der Staubsauger (3) lösbar in der Ladestation (5) positioniert ist, und wobei die ersten Kontakteinheiten (33, 33') und/oder die

zweiten Kontakteinheiten (35, 35') verschiebbar angeordnet sind.

14. Baugruppe (1) nach Anspruch 13, wobei die magnetische Baugruppe (9, 9') dazu ausgestaltet ist, den ersten Abschnitt (11) des Staubsaugers (3) in einer Befestigungsrichtung (fd) an der Ladestation (5) zu befestigen, und wobei die ersten Kontakteinheiten (33, 33') und/oder die zweiten Kontakteinheiten (35, 35') in einer zweiten Richtung (d2), die bezüglich der Befestigungsrichtung (fd) abgewinkelt ist, verschiebbar angeordnet sind. 5 10
15. Baugruppe (1) nach Anspruch 14, wobei ein Winkel (a2) zwischen der zweiten Richtung (d2) und der Befestigungsrichtung (fd) innerhalb des Intervalls von 15 - 90 Grad liegt. 15
16. Baugruppe (1) nach Anspruch 14 oder 15, wobei die Befestigungsrichtung (fd) im Wesentlichen senkrecht zu der ersten Richtung (d1) verläuft. 20
17. Baugruppe (1) nach einem der Ansprüche 14 - 16, wobei die Ladestation (5) zur Positionierung auf einer Fußbodenfläche (17) ausgestaltet ist, und wobei die Befestigungsrichtung (fd) und die zweite Richtung (d2) im Wesentlichen parallel zu der Fußbodenfläche (17) verlaufen. 25
18. Baugruppe (1) nach einem der Ansprüche 13 - 17, wobei die ersten Kontakteinheiten (33, 33') und/oder die zweiten Kontakteinheiten (35, 35') kuppelförmig sind. 30

Revendications

1. Ensemble aspirateur (1) comprenant :

- un aspirateur de type balai rechargeable (3), et 40
 - un socle de charge (5),
- l'aspirateur (3) comprenant un corps allongé (7), et l'aspirateur (3) étant conçu pour être placé de manière libérable dans le socle de charge (5) de telle sorte que le corps allongé (7) s'étende le long d'une première direction (d1), 45
- l'ensemble (1) comprenant en outre :

- un ensemble magnétique (9, 9') conçu pour fixer une première partie (11) de l'aspirateur (3) au socle de charge (5), **caractérisé en ce que** l'ensemble (1) comprend en outre : 50
- un second ensemble de fixation (13, 13') conçu pour fixer une seconde partie (15) de l'aspirateur (3) au socle de charge (5), 55

et la seconde partie (15) étant située à une

certaine distance (d) de la première partie (11) le long de la première direction (d1).

2. Ensemble (1) selon la revendication 1, dans lequel la distance (d) est supérieure à 5 %, 10 % ou 15 % d'une longueur (L) de l'aspirateur (3) dans la première direction (d1).
3. Ensemble (1) selon la revendication 1 ou 2, dans lequel le socle de charge (5) est conçu pour être placé sur une surface de sol (17), et dans lequel un plan (p) comprenant la première direction (d1) et l'ensemble magnétique (9, 9') est sensiblement perpendiculaire à la surface de sol (17), lorsque le socle de charge (5) est placé sur la surface de sol (17).
4. Ensemble (1) selon l'une quelconque des revendications précédentes, dans lequel l'aspirateur (3) comprend au moins une roue (19), et dans lequel la seconde partie (15) est une partie de l'au moins une roue (19).
5. Ensemble (1) selon l'une quelconque des revendications précédentes, dans lequel l'aspirateur (3) comprend une tête de nettoyage de sol (21), et dans lequel la seconde partie (15) est une partie de la tête de nettoyage de sol (21).
6. Ensemble (1) selon l'une quelconque des revendications précédentes, dans lequel le second ensemble de fixation (13, 13') comprend au moins une saillie (27.1, 27.2, 27.3).
7. Ensemble (1) selon les revendications 5 et 6, dans lequel le second ensemble de fixation (13, 13') comprend une saillie (27.2, 27.3) située sur le socle de charge (5), et dans lequel la saillie (27.2, 27.3) est conçue pour venir en appui contre la tête de nettoyage de sol (21) lorsque l'aspirateur (3) est placé de manière libérable dans le socle de charge (5). 35
8. Ensemble (1) selon l'une quelconque des revendications précédentes, dans lequel le second ensemble de fixation (13, 13') comprend au moins un renforcement (25.1, 25.2).
9. Ensemble (1) selon les revendications 7 et 8, dans lequel le second ensemble de fixation (13, 13') comprend un renforcement (25.2) situé dans la tête de nettoyage de sol (21), et dans lequel le socle de charge (5) comprend une saillie (27.3) conçue pour s'étendre dans le renforcement (25.2) lorsque l'aspirateur (3) est placé de manière libérable dans le socle de charge (5).
10. Ensemble (1) selon l'une quelconque des revendications précédentes, dans lequel le second ensemble de fixation (13, 13') comprend un second

ensemble magnétique (23, 23').

contact (35, 35') sont en forme de dômes.

11. Ensemble (1) selon l'une quelconque des revendications précédentes, dans lequel le socle de charge (5) est conçu pour être placé sur une surface de sol (17), dans lequel le socle de charge (5) comprend une partie formant rampe (29), et dans lequel la partie formant rampe (29) est adjacente à la surface de sol (17) lorsque le socle de charge (5) est placé sur la surface de sol (17). 5 10
12. Ensemble (1) selon la revendication 11, dans lequel la partie formant rampe (29) comprend une surface de rampe (31), et dans lequel un angle (α_1) entre la surface de rampe (31) et la surface de sol (17) est inférieur à 20 degrés. 15
13. Ensemble (1) selon l'une quelconque des revendications précédentes, dans lequel le socle de charge (5) comprend des premières unités de contact (33, 33') et l'aspirateur (3) comprend des secondes unités de contact (35, 35') conçues pour venir en appui contre les premières unités de contact (33, 33'), lorsque l'aspirateur (3) est placé de manière libérable dans le socle de charge (5), et dans lequel les premières et/ou les secondes unités de contact (33, 33', 35, 35') sont installées de façon à être déplaçables. 20 25
14. Ensemble (1) selon la revendication 13, dans lequel l'ensemble magnétique (9, 9') est conçu pour fixer la première partie (11) de l'aspirateur (3) au socle de charge (5) dans une direction de fixation (f_d), et dans lequel les premières et/ou les secondes unités de contact (33, 33', 35, 35') sont installées de façon à être déplaçables dans une seconde direction (d_2) qui s'étend à un certain angle relativement à la direction de fixation (f_d). 30 35
15. Ensemble (1) selon la revendication 14, dans lequel un angle (α_2) entre la seconde direction (d_2) et la direction de fixation (f_d) est compris entre 15 et 90 degrés. 40
16. Ensemble (1) selon la revendication 14 ou 15, dans lequel la direction de fixation (f_d) est sensiblement perpendiculaire à la première direction (d_1). 45
17. Ensemble (1) selon l'une quelconque des revendications 14 à 16, dans lequel le socle de charge (5) est conçu pour être placé sur une surface de sol (17), et dans lequel la direction de fixation (f_d) et la seconde direction (d_2) sont sensiblement parallèles à la surface de sol (17). 50 55
18. Ensemble (1) selon l'une quelconque des revendications 13 à 17, dans lequel les premières unités de contact (33, 33') et/ou les secondes unités de

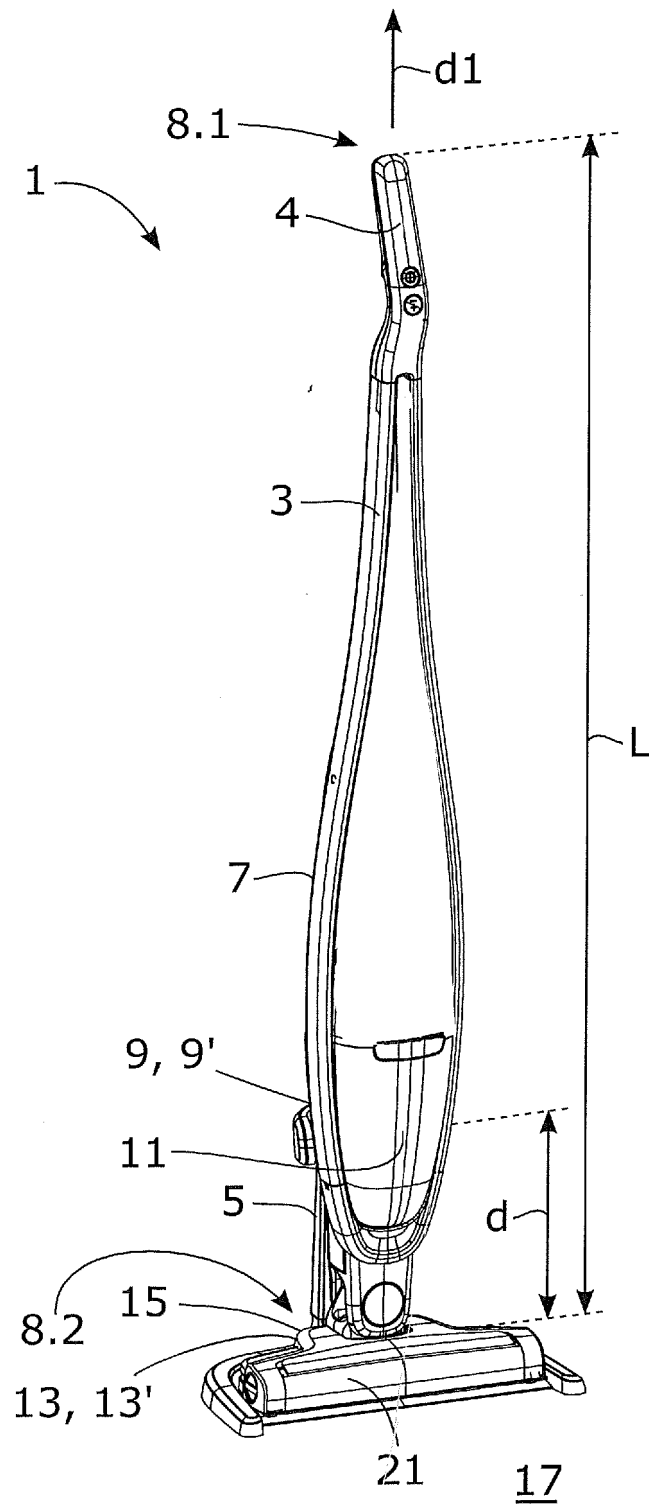
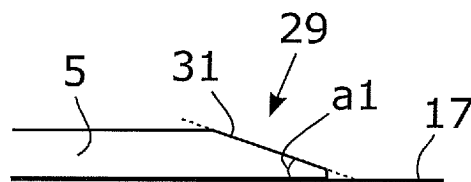
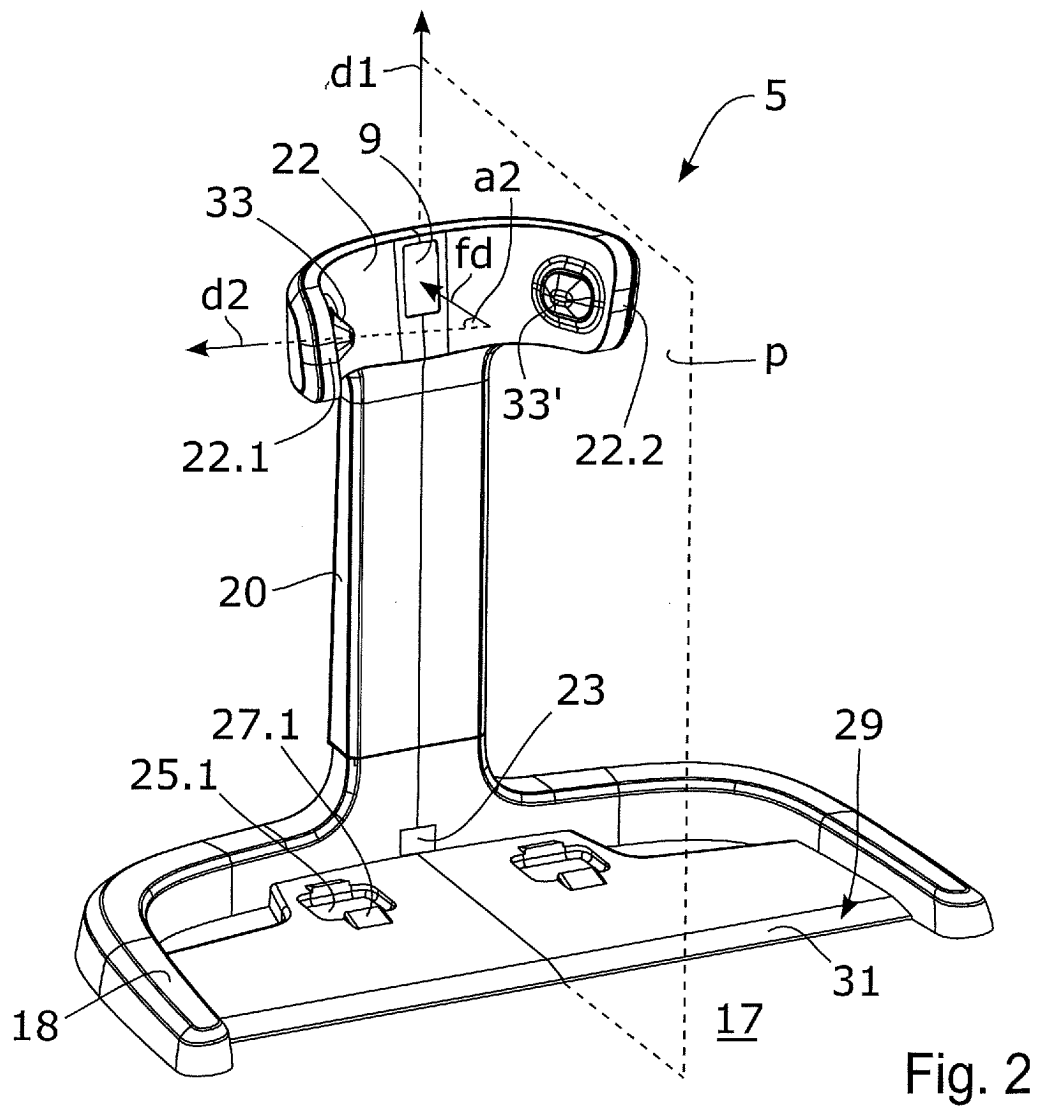


Fig. 1



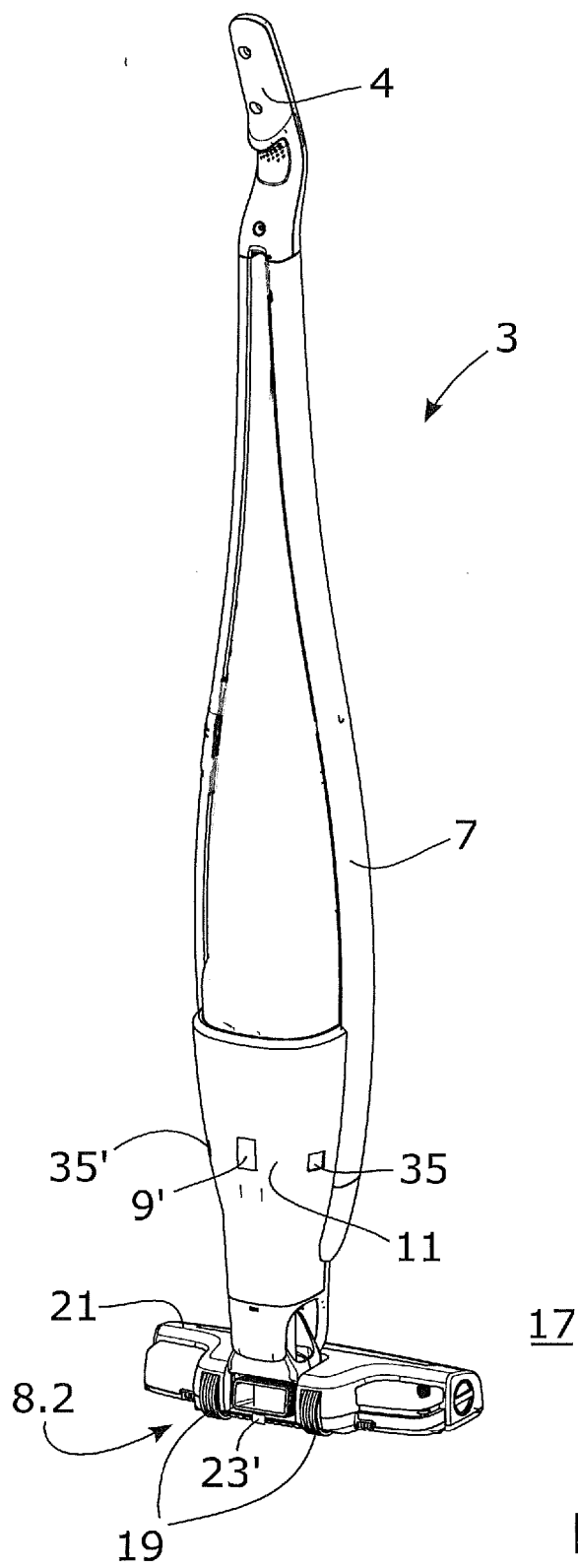


Fig. 4

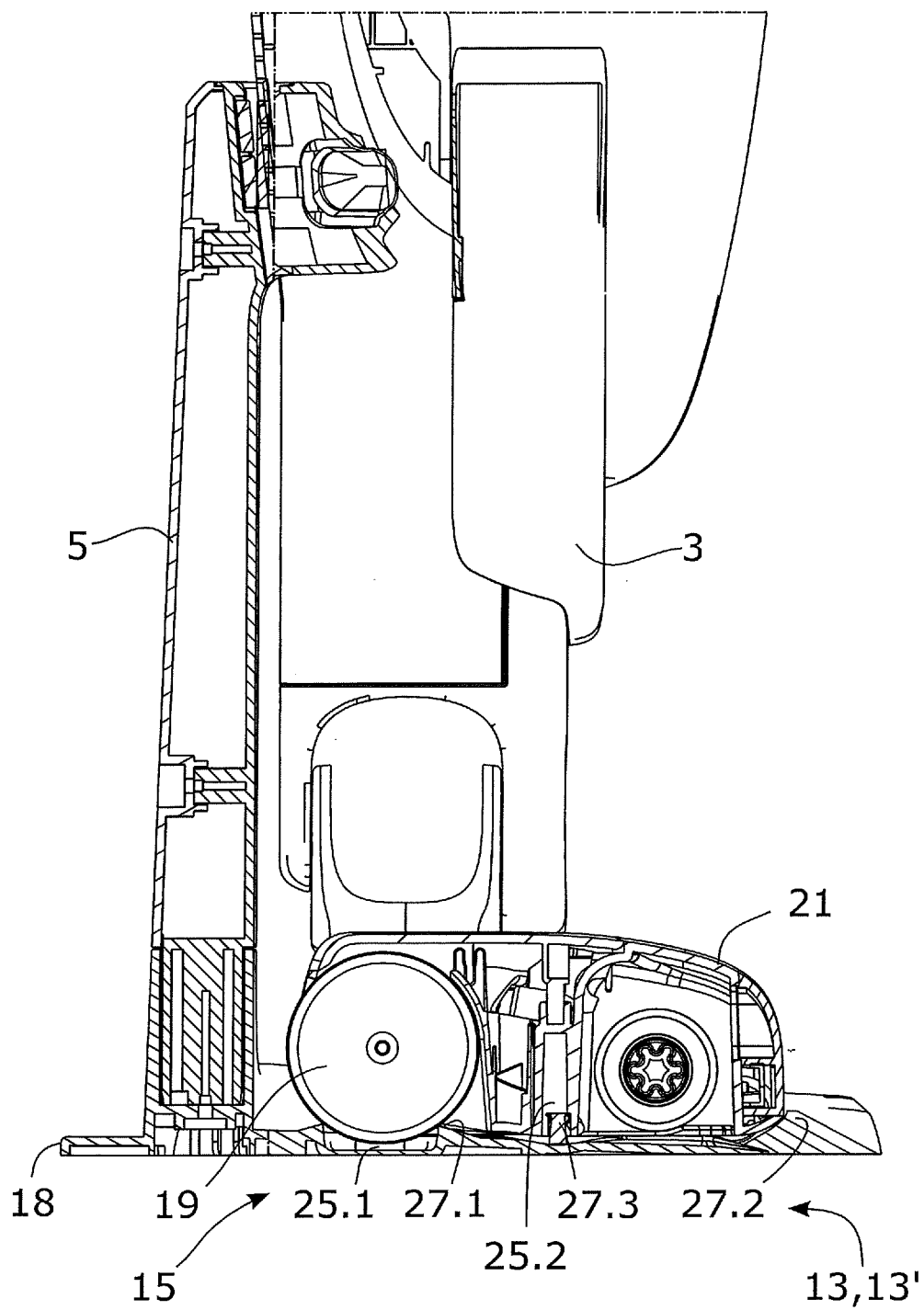


Fig. 5

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