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(54) Sterilizing system including vacuum cleaner for bedding

Sterilisierungssystem mit Staubsauger für Bettwäsche

Système de stérilisation incluant un aspirateur pour literie

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Description

[0001] The present disclosure relates to a sterilizing system including a vacuum cleaner for bedding.

[0002] Vacuum cleaners use vacuum pressure generated by a motor installed therein, to suck air containing a dust such as dust, and remove the dust from the air.

[0003] Recently, vacuum cleaners for cleaning bedding are introduced. Such a vacuum cleaner for bedding includes a punching device for hitting bedding, as well as the components of a typical cleaner. Since a larger amount of mites or germs reside on bedding than on a typical floor, it is important to sterilize vacuum cleaners contacting bedding.

[0004] JP 2009 279229 (A) provides a handy vacuum cleaner that includes: a cleaner body; a holding base for fixing and holding the cleaner body, and an illumination means to attain rapid usage.

[0005] Embodiments provide a sterilizing system that can sterilize a vacuum cleaner for bedding.

[0006] In one embodiment, a sterilizing system for bedding, comprises: a vacuum cleaner (100) for cleaning a target; and a docking station (200) in which the vacuum cleaner (100) docks, the vacuum cleaner (100) further comprises: a sucking device for sucking dust from the target; and a punching member (135) for hitting the target, and the docking station (200) further comprises: a casing (210) defining an appearance thereof; and an ultraviolet generator (240) disposed in the casing (210) for sterilizing the docked vacuum cleaner (100).

[0007] The details of one or more embodiments are set forth in the accompanying drawings and the description below. Other features will be apparent from the description and drawings, and from the claims.

BRIEF DESCRIPTION OF THE DRAWINGS

[0008]

Fig. 1 is a perspective view illustrating a sterilizing system including a vacuum cleaner for bedding, according to a first embodiment.

Fig. 2 is a perspective view illustrating the vacuum cleaner according to the first embodiment.

Fig. 3 is a bottom view illustrating the vacuum cleaner according to the first embodiment.

Fig. 4 is a perspective view illustrating a station according to the first embodiment.

Fig. 5 is another perspective view illustrating the station according to the first embodiment.

Fig. 6 is an exploded perspective view illustrating the station according to the first embodiment.

Fig. 7 is a cross-sectional view illustrating a principal part of the station according to the first embodiment.

Fig. 8 is a block diagram illustrating the sterilizing system according to the first embodiment.

Fig. 9 is a perspective view illustrating a state where the vacuum cleaner is sterilized according to the first embodiment.

Fig. 10 is a perspective view illustrating a sterilizing system including a vacuum cleaner for bedding, according to a second embodiment.

Fig. 11 is a perspective view illustrating a sterilizing system including a vacuum cleaner for bedding, according to a third embodiment.

Fig. 12 is a perspective view illustrating a sterilizing system including a vacuum cleaner for bedding, according to a fourth embodiment.

DETAILED DESCRIPTION OF THE EMBODIMENTS

[0009] Reference will now be made in detail to the embodiments of the present disclosure, examples of which are illustrated in the accompanying drawings.

[0010] Fig. 1 is a perspective view illustrating a sterilizing system including a vacuum cleaner for bedding, according to a first embodiment. Fig. 2 is a perspective view illustrating the vacuum cleaner according to the first embodiment. Fig. 3 is a bottom view illustrating the vacuum cleaner according to the first embodiment. Fig. 4 is a perspective view illustrating a station according to the first embodiment. Fig. 5 is another perspective view illustrating the station according to the first embodiment. Fig. 6 is an exploded perspective view illustrating the station according to the first embodiment. Fig. 7 is a cross-sectional view illustrating a principal part of the station according to the first embodiment. Fig. 8 is a block diagram illustrating the sterilizing system according to the first embodiment.

[0011] Referring to Fig. 1, a sterilizing system according to the current embodiment includes a vacuum cleaner 100 for bedding, and a docking station 200. The vacuum cleaner 100 is used to substantially clean bedding or the like. The vacuum cleaner 100 docks into the docking station 200.

[0012] Referring to Figs. 2 and 3, an appearance of the vacuum cleaner 100 (hereinafter, referred to as a cleaner for convenience in description) is constituted by a cleaner casing 110. Various parts constituting the cleaner 100, such as a sucking device 120 (refer to Fig. 8) for sucking a dust, are disposed in the cleaner casing 110.

[0013] A nozzle part 130 is disposed at a side of the cleaner casing 110. The nozzle part 130 contacts a cleaning target such as bedding to suck a dust. The nozzle part 130 includes a sucking opening 131. The sucking opening 131 functions substantially as an inlet for sucking a dust. The sucking opening 131 is formed by partially cutting the bottom surface of the cleaner casing 110.

[0014] The nozzle part 130 is provided with a brush 133. The brush 133 guides a dust to the sucking opening 131, or removes a dust from a surface of a cleaning target. Substantially, the brush 133 is rotatably installed on the bottom surface of the cleaner casing 110.

[0015] The nozzle part 130 is provided with a punching member 135. A driving source 137 (refer to Fig. 8) dis-

posed in the cleaner casing 110 drives the punching member 135 to hit a cleaning target such as bedding. The punching member 135 is disposed at a side of the bottom surface of the cleaner casing 110, that is, at the front side of the sucking opening 131 in a moving direction of the cleaner 100.

[0016] The cleaner casing 110 is provided with a dust collecting part 140. Dust, sucked in the cleaner casing 110 through the sucking opening 131 by the sucking device 120, are collected in the dust collecting part 140. The dust collecting part 140 is removably installed on the cleaner casing 110. The dust collecting part 140 is vertically movable in the cleaner casing 110, and thus, can be removed upward from the cleaner casing 110.

[0017] The cleaner casing 110 is provided with a display part 150 and a handle 160. The display part 150 may display information about an operation of the cleaner 100. The handle 160 is held by a user who operates or moves the cleaner 100. The handle 160 may be provided with a manipulation part (not shown) receiving a signal for operating the cleaner 100. Alternatively, the display part 150 may be provided with the manipulation part.

[0018] A battery 170 (refer to Fig. 8) may be disposed in the cleaner casing 110. The battery 170 may be charged, e.g., when the cleaner 100 docks in the docking station 200. The battery 170 supplies power to various parts constituting the cleaner 100. Furthermore, regardless of the battery 170, a power cable (not shown) may be provided to the cleaner 100 to supply power.

[0019] A contact terminal 180 (refer to Fig. 8) may be disposed at a side of the cleaner casing 110. When the cleaner 100 docks into the docking station 200 to charge the battery 170, the contact terminal 180 contacts a charging terminal 221 to be described later.

[0020] When docking in the docking station 200, the cleaner 100 may be just stored therein, or be charged. Referring to Figs. 4 to 7, the docking station 200 includes a casing 210, a charging part 220, a docking sensing device 230, an ultraviolet generator 240, an ultraviolet guiding part 260, and a display part 270.

[0021] The casing 210 constitutes the appearance of the docking station 200. The casing 210 includes an upper casing 211, a lower casing 217, and a base 219. Substantially, the upper casing 211 constitutes the upper appearance of the docking station 200, and the lower casing 217 constitutes the lateral appearance of the docking station 200. The base 219 constitutes the bottom appearance of the docking station 200.

[0022] The upper casing 211 is provided with a nest 212. The nest 212 is formed by downwardly recessing a portion of the upper casing 211. The cleaner 100 is accommodated in the nest 212. The front surface of the nest 212 is inclined downward at a preset angle.

[0023] The upper casing 211 is provided with a nest support 213. The nest support 213 supports the cleaner 100 accommodated in the nest 212. Substantially, the nest support 213 is formed by upwardly protruding a portion of the upper casing 211 at the rear side of the nest 212. The front surface of the nest support 213 supports a portion of the bottom surface of the cleaner 100. The front surface of the nest support 213 may be flush with the front surface of the nest 212.

[0024] The upper casing 211 is provided with an irradiation opening 214. The irradiation opening 214 is formed by cutting a portion of the upper casing 211 as the front surface of the nest 212.

[0025] The upper casing 211 is provided with a cable arrangement part 215. The cable arrangement part 215 is formed by downwardly recessing a portion of the upper casing 211. The cable arrangement part 215 is disposed behind the nest 212. Substantially, the nest support 213 separates the nest 212 from the cable arrangement part 215 in the back-and-forth direction of the sterilizing system. The power cable is accommodated in the cable arrangement part 215.

[0026] The lower casing 217 is fixed to the bottom of the upper casing 211. The base 219 is fixed to the bottom of the lower casing 217. Substantially, the upper casing 211, the lower casing 217, and the base 219 define the inner space of the casing 210.

[0027] The charging part 220 (refer to Fig. 8) is used to charge the battery 170 in the cleaner 100. The charging part 220 includes the charging terminal 221. When the cleaner 100 is accommodated in the nest 212, the charging terminal 221 contacts the contact terminal 180 to charge the battery 170.

[0028] The docking sensing device 230 senses whether the cleaner 100 docks in the docking station 200, substantially, is accommodated in the nest 212. The docking sensing device 230 includes at least one switch 231. The switch 231 is turned on/off according to whether the cleaner 100 is accommodated in the nest 212. For example, when the switch 231 is turned on by the cleaner 100, it may be determined that the cleaner 100 is accommodated in the nest 212. In addition, when the switch 231 is turned off, it may be determined that the cleaner 100 is removed from the nest 212.

[0029] The ultraviolet generator 240 is disposed in the casing 210. The ultraviolet generator 240 generates ultraviolet rays for sterilizing the cleaner 100 docking in the docking station 200, that is, accommodated in the nest 212. Substantially, ultraviolet rays generated from the ultraviolet generator 240 sterilize the bottom surface of the nozzle part 130, e.g., a bottom portion of the cleaner casing 110 near the sucking opening 131. Also, the ultraviolet rays generated from the ultraviolet generator 240 sterilize the brush 133 and the punching member 135. Only when the docking sensing device 230 senses that the cleaner 100 docks in the docking station 200, that is, when the docking sensing device 230 senses that the cleaner 100 is accommodated in the nest 212, the ultraviolet generator 240 generates ultraviolet rays.

[0030] The ultraviolet guiding part 260 guides ultraviolet rays generated from the ultraviolet generator 240, to the cleaner 100 accommodated in the nest 212. The ultraviolet guiding part 260 includes an irradiation guide

261 and an irradiation plate 263.

[0031] The irradiation guide 261 guides ultraviolet rays generated from the ultraviolet generator 240, to the irradiation plate 263.. The irradiation guide 261 has an approximately cone shape with both open surfaces and a tetragonal cross-section. That is, the cross section of the irradiation guide 261 at a downstream side through which ultraviolet rays are emitted to the irradiation plate 263 is smaller than that at an upstream side through which ultraviolet rays are introduced from the ultraviolet generator 240.

[0032] The irradiation plate 263 is disposed over the irradiation opening 214. The irradiation plate 263 emits ultraviolet rays guided by the irradiation guide 261, to the cleaner 100, substantially, to the bottom surface of the nozzle part 130. To this end, the irradiation plate 263 includes a plurality of irradiation holes 264.

[0033] Referring to Fig. 7, the irradiation holes 264 are inclined at a preset angle from both surfaces of the irradiation plate 263. Accordingly, ultraviolet rays are substantially prevented from being emitted upward through the irradiation holes 264, so that the ultraviolet rays can be maximally prevented from being emitted out of the nest 212. That is, the front surface of the nest 212 is inclined at a preset angle to stably accommodate the cleaner 100. Thus, if the irradiation holes 264 are perpendicular to both the surfaces of the irradiation plate 263, ultraviolet rays may be emitted upward through the irradiation holes 264, and thus, be emitted out of the nest 212. Accordingly, the ultraviolet rays emitted out of the nest 212 may be harmful to a user's health. However, according to the current embodiment, the irradiation holes 264 are inclined at a preset angle from both the surfaces of the irradiation plate 263 to emit ultraviolet rays horizontally or downward at a preset angle.

[0034] The display part 270 is exposed through a side of the casing 210, e.g., through a side of the upper casing 211. The display part 270 may display an operation state of the docking station 200, e.g., display whether a charging operation or an ultraviolet generating operation is performed.

[0035] Hereinafter, an operation of the sterilizing system according to the first embodiment will now be described with reference to the accompanying drawings.

[0036] Fig. 9 is a perspective view illustrating a state where the vacuum cleaner is sterilized according to the first embodiment.

[0037] First, when the cleaner 100 docks into the docking station 200, the cleaner 100 is sterilized. At this point, when the battery 170 is provided to the cleaner 100, the battery 170 is charged.

[0038] In more detail, the cleaner 100 is accommodated in the nest 212. Then, the bottom surface of the nozzle part 130 contacts the front surface of the irradiation plate 263. However, the bottom surface of the nozzle part 130 is intentionally spaced apart from the front surface of the irradiation plate 263 in Fig. 9 in order to clearly describe the operation of ultraviolet rays for sterilizing the cleaner 100. In addition, when the cleaner 100 is accommodated in the nest 212, the contact terminal 180 contacts the charging terminal 221.

[0039] When the cleaner 100 is accommodated in the nest 212, the docking sensing device 230 senses that the cleaner 100 is accommodated in the nest 212. Then, the cleaner 100 is sterilized, and the battery 170 is charged.

[0040] That is, when the ultraviolet generator 240 generates ultraviolet rays, the irradiation guide 261 guides the ultraviolet rays. The guided ultraviolet rays pass through the irradiation plate 263, substantially, through the irradiation holes 264, and sterilize the bottom surface of the nozzle part 130. At this point, the ultraviolet rays pass horizontally or obliquely downward through the irradiation holes 264. Accordingly, the ultraviolet rays passing through the irradiation holes 264 can be prevented from being emitted out of the nest 212.

[0041] Hereinafter, a vacuum cleanser for bedding according to second to fourth embodiments will be described in detail with reference to the accompanying drawings.

[0042] Fig. 10 is a perspective view illustrating a sterilizing system including a vacuum cleaner for bedding, according to the second embodiment. Fig. 11 is a perspective view illustrating a sterilizing system including a vacuum cleaner for bedding, according to the third embodiment. Fig. 12 is a perspective view illustrating a sterilizing system including a vacuum cleaner for bedding, according to the fourth embodiment. Like reference numerals denote like elements in the first to fourth embodiments, and a description of the same components as those of the first embodiment will be omitted in the second to fourth embodiments.

[0043] Referring to Fig. 10, a docking sensing device 230 according to the second embodiment includes a touch sensor 232. The touch sensor 232 is disposed at a side of a docking station 200, substantially, at a side of a nest 212. The touch sensor 232 is turned on/off by contacting a cleaner 100 accommodated in the nest 212. Whether the cleaner 100 is accommodated in the nest 212 may be determined according to an on/off operation of the touch sensor 232.

[0044] Referring to Fig. 11, a docking sensing device 233 according to the third embodiment includes a light generating part 233 for generating light, and a photo sensor 234 for sensing the light generated from the light generating part 233. The light generating part 233 and the photo sensor 234 are installed within a nest 212, substantially in opposite positions. The light generating part 233 and the photo sensor 234 are disposed in a moving path of a cleaner 100 accommodated in the nest 212. The photo sensor 234 selectively senses light generated from the light generating part 233 according to whether the cleaner 100 is accommodated in the nest 212, so as to determine whether the cleaner 100 is accommodated in the nest 212. In more detail, when the cleaner 100 is not accommodated in the nest 212, the photo sensor 234

cannot sense light generated from the light generating part 233. Accordingly, it is determined that the cleaner 100 is not accommodated in the nest 212. When the cleaner 100 is accommodated in the nest 212, the cleaner 100 prevents the photo sensor 234 from sensing light generated from the light generating part 233. Accordingly, it is determined that the cleaner 100 is accommodated in the nest 212.

[0045] Referring to Fig. 12, a sterilizing system according to the fourth embodiment includes a magnet 190 forming a magnetic field, and a hall sensor 280 sensing the magnetic field from the magnet 190. The magnet 190 and the hall sensor 280 are provided to a cleaner 100 and a docking station 200, respectively. For example, the magnet 190 is disposed at a side of the cleaner 100, and the hall sensor 280 is disposed at a side of the docking station 200, that is, at a side of a nest 212. When the hall sensor 280 senses the magnetic field from the magnet 190, it may be determined that the cleaner 100 is accommodated in the nest 212. On the contrary, when the hall sensor 280 does not sense the magnetic field from the magnet 190, it may be determined that the cleaner 100 is not accommodated in the nest 212.

[0046] According to the embodiments, a sterilizing system including a vacuum cleaner for bedding uses ultraviolet rays to sterilize the vacuum cleaner. Thus, the vacuum cleaner can be used in a more sanitary state.

[0047] In addition, the ultraviolet rays are guided to be converged only on the vacuum cleaner. Thus, the vacuum cleaner can be sterilized more safely.

Claims

1. A sterilizing system for bedding, comprising:

a vacuum cleaner (100) for cleaning a target; and a docking station (200) in which the vacuum cleaner (100) docks,
the vacuum cleaner (100) further comprises:

a sucking device for sucking dust from the target; and
a punching member (135) for hitting the target, and

the docking station (200) further comprises:

a casing (210) defining an appearance thereof; and
an ultraviolet generator (240) disposed in the casing (210) for sterilizing the docked vacuum cleaner (100).

2. The sterilizing system according to claim 1, wherein the vacuum cleaner (100) further comprises a nozzle part (130) including a sucking opening (131) for sucking dust, and ultraviolet rays generated from the ultraviolet generator (240) to sterilize the nozzle part (130).

3. The sterilizing system according to claim 1 or 2, wherein the nozzle part (130) further comprises:

the punching member (135) ; and
a brush (133) adjacent to the sucking opening (131) and rotatably installed on a bottom surface of the nozzle part (130).

4. The sterilizing system according to any one of claims 1 to 3, wherein the docking station (200) further comprises an ultraviolet guiding part (260) for guiding ultraviolet rays generated from the ultraviolet generator, to the vacuum cleaner (100) .

5. The sterilizing system according to claim 4, wherein the ultraviolet guiding part (260) comprises:

an irradiation guide (261) for guiding ultraviolet rays generated from the ultraviolet generator; and
an irradiation plate (263) comprising irradiation holes (264) for emitting the ultraviolet rays guided by the irradiation guide (261) to the vacuum cleaner (100).

6. The sterilizing system according to claim 5, wherein the irradiation plate (263) is obliquely installed at a preset angle on the casing, and
the irradiation holes (264) are obliquely formed at a preset angle from the irradiation plate (263) such that ultraviolet rays are emitted horizontally or obliquely downward to horizon at a preset angle.

7. The sterilizing system according to any one of claims 1 to 6, further comprising a docking sensing device (190)(230)(280) that determines whether the vacuum cleaner (100) docks in the docking station (200), wherein the ultraviolet generator (240) generates ultraviolet rays only when the docking sensing device (190)(230)(280) senses that the vacuum cleaner (100) docks in the docking station (200).

8. The sterilizing system according to claim 7, wherein the docking sensing device (190)(230)(280) comprises one of a switch (231) that is turned on/off by the vacuum cleaner (100) docking in the docking station (200), a touch switch (232) that is turned on/off by a touch of the vacuum cleaner (100) docking in the docking station (200), and a hall sensor (280) sensing a magnetic field from a magnet (190) provided to the vacuum cleaner (100) .

9. The sterilizing system according to claim 7, wherein the docking sensing device (230) comprises:

a light generating part (233) for generating light; and
a photo sensor (234) for sensing the light generated from the light generating part, and
wherein the light generating part (233) and the photo sensor (234) are disposed in a path of the vacuum cleaner (100) docking in the docking station (200).

10. The sterilizing system according to claim 7, wherein the vacuum cleaner (100) further comprises a battery (170) for supplying power for operating the punching member (135) and the sucking device, and
the docking station (200) further comprises a charging part (220) for charging the battery (180) only when the docking sensing device senses that the vacuum cleaner (100) docks in the docking station (200).

11. The sterilizing system according to any one of claims 1 to 10, wherein the casing (210) is provided with a nest (212) that is formed by downwardly recessing a portion of a top surface of the casing, and
the vacuum cleaner (100) is accommodated in the nest (212).

12. The sterilizing system according to claim 11, wherein a front surface of the nest (212) is inclined downward at a preset angle.

13. The sterilizing system according to claim 12, wherein the casing (210) is provided with a nest support (213) supporting a portion of a bottom surface of the vacuum cleaner (100) accommodated in the nest (212), and
the front surface of the nest (212) and a front surface of the nest support (213) are inclined downward to horizon at the same angle.

14. The sterilizing system according to claim 13, wherein the casing (210) is provided with a cable storage (215) separated from the nest (212) and storing a power cable for supplying power to the vacuum cleaner (100).

15. The sterilizing system according to claim 14, wherein the nest (212) is separated from the cable storage (215) by the nest support (213).

Patentansprüche

1. Sterilisiersystem für Bettwäsche, das aufweist:

einen Staubsauger (100) zum Reinigen eines Ziels; und eine Andockstation (200), in der der Staubsauger (100) andockt,
wobei der Staubsauger (100) ferner aufweist:

eine Saugvorrichtung zum Saugen von Staub vom Ziel; und
ein Schlagelement (135) zum Schlagen des Ziels, und

wobei die Andockstation (200) ferner aufweist:

ein Gehäuse (210), das deren äußere Erscheinung definiert; und
einen Ultravioletterzeuger (240), der im Gehäuse (210) zum Sterilisieren des angedockten Staubsaugers (100) angeordnet ist.

2. Sterilisiersystem nach Anspruch 1, wobei der Staubsauger (100) ferner einen Düsenteil (130), der eine Saugöffnung (131) zum Saugen von Staub aufweist, und Ultraviolettstrahlen aufweist, die vom Ultravioletterzeuger (240) erzeugt werden, um den Düsenteil (130) zu sterilisieren.

3. Sterilisiersystem nach Anspruch 1 oder 2, wobei der Düsenteil (130) ferner aufweist:

das Schlagelement (135); und
eine Bürste (133), die zur Saugöffnung (131) benachbart und drehbar an einer Unterseite des Düsenteils (130) angebracht ist.

4. Sterilisiersystem nach einem der Ansprüche 1 bis 3, wobei die Andockstation (200) ferner einen Ultraviolettleitungsteil (260) zum Leiten von Ultraviolettstrahlen, die durch den Ultravioletterzeuger erzeugt werden, zum Staubsauger (100) aufweist.

5. Sterilisiersystem nach Anspruch 4, wobei der Ultraviolettleitungsteil (260) aufweist:

eine Bestrahlungsleitung (261) zum Leiten von Ultraviolettstrahlen, die durch den Ultravioletterzeuger erzeugt werden; und
eine Bestrahlungsplatte (263), die Bestrahlungslöcher (264) zum Emittieren der durch die Bestrahlungsleitung (261) geleiteten Ultraviolettstrahlen zum Staubsauger (100).

6. Sterilisiersystem nach Anspruch 5, wobei die Bestrahlungsplatte (263) unter einem voreingestellten Winkel schräg am Gehäuse angebracht ist, und
die Bestrahlungslöcher (264) unter einem voreingestellten Winkel von der Bestrahlungsplatte (263) ausgebildet sind, so dass Ultraviolettstrahlen horizontal oder zur Horizontalen schräg nach unten unter einem voreingestellten Winkel emittiert werden.

7. Sterilisiersystem nach einem der Ansprüche 1 bis 6, das ferner eine Andockabtastvorrichtung (190)(230)(280) aufweist, die feststellt, ob der

Staubsauger (100) in der Andockstation (200) angedockt ist,
wobei der Ultravioletterzeuger (240) Ultraviolettstrahlen nur dann erzeugt, wenn die Andockabtastvorrichtung (190)(230)(280) abtastet, dass der Staubsauger (100) in der Andockstation (200) angedockt ist.

8. Sterilisiersystem nach Anspruch 7, wobei die Andockabtastvorrichtung (190)(230)(280) einen Schalter (231), der durch den Staubsauger (100) ein-/ausgeschaltet wird, der in der Andockstation (200) angedockt wird, oder einen Berührungsschalter (232), der durch eine Berührung des Staubsaugers (100) ein-/ausgeschaltet wird, der in der Andockstation (200) angedockt wird, oder einen Hallsensor (280) aufweist, der ein Magnetfeld eines Magnets (190) abtastet, der am Staubsauger (100) vorgesehen ist.

9. Sterilisiersystem nach Anspruch 7, wobei die Andockabtastvorrichtung (230) aufweist:

einen Lichterzeugungsteil (233) zum Erzeugen von Licht; und
einen Fotosensor (234) zum Abtasten des vom Lichterzeugungsteil erzeugten Lichts, und
wobei der Lichterzeugungsteil (233) und der Fotosensor (234) in einem Weg des Staubsaugers (100) angeordnet sind, der in der Andockstation (200) angedockt wird.

10. Sterilisiersystem nach Anspruch 7, wobei der Staubsauger (100) ferner eine Batterie (170) zum Liefern von Strom zum Betreiben des Schlagelements (135) und der Saugvorrichtung aufweist, und
die Andockstation (200) ferner einen Ladeteil (220) aufweist, um die Batterie (180) nur dann zu laden, wenn die Andockabtastvorrichtung abtastet, dass der Staubsauger (100) in der Andockstation (200) angedockt ist.

11. Sterilisiersystem nach einem der Ansprüche 1 bis 10, wobei das Gehäuse (210) mit einer Aufnahme (212) versehen ist, die ausgebildet ist, indem ein Abschnitt einer Oberseite des Gehäuses nach unten vertieft ist, und
der Staubsauger (100) in der Aufnahme (212) untergebracht wird.

12. Sterilisiersystem nach Anspruch 11, wobei eine Vorderseite der Aufnahme (212) unter einem voreingestellten Winkel nach unten geneigt ist.

13. Sterilisiersystem nach Anspruch 12, wobei das Gehäuse (210) mit einer Aufnahmehalterung (213) versehen ist, die einen Abschnitt einer Unterseite des Staubsaugers (100) hält, der in der Aufnahme (212) untergebracht ist, und die Vorderseite der Aufnahme (212) und eine Vorderseite der Aufnahmehalterung (213) zur Horizontalen unter demselben Winkel nach unten geneigt sind.

14. Sterilisiersystem nach Anspruch 13, wobei das Gehäuse (210) mit einer Kabelaufbewahrung (215) versehen ist, die von der Aufnahme (212) getrennt ist und ein Stromkabel zur Lieferung von Strom an den Staubsauger (100) aufbewahrt.

15. Sterilisiersystem nach Anspruch 14, wobei die Aufnahme (212) durch die Aufnahmehalterung (213) von der Kabelaufbewahrung (215) getrennt ist.

Revendications

1. Système de stérilisation de literie, comprenant :

un aspirateur (100) pour le nettoyage d'une cible ; et une station d'accueil (200) dans laquelle l'aspirateur (100) prend place, l'aspirateur (100) comprenant en outre :

un dispositif d'aspiration pour l'aspiration de poussières de la cible ; et
un élément de percussion (135) pour battre la cible,

la station d'accueil (200) comprenant en outre :

un boîtier (210) définissant l'aspect extérieur de celle-ci ; et
un générateur d'ultra-violets (240) disposé dans le boîtier (210) pour stériliser l'aspirateur (100) placé dans la station d'accueil.

2. Système de stérilisation selon la revendication 1, où l'aspirateur (100) comprend en outre une partie de suceur (130) présentant une ouverture d'aspiration (131) pour aspirer les poussières, et
un rayonnement ultraviolet généré par le générateur d'ultra-violets (240) pour stériliser la partie de suceur (130).

3. Système de stérilisation selon la revendication 1 ou la revendication 2, où la partie de suceur (130) comprend en outre :

l'élément de percussion (135) ; et
une brosse (133) adjacente à l'ouverture d'aspiration (131) et montée de manière rotative sur une surface inférieure de la partie de suceur (130).

4. Système de stérilisation selon l'une des revendications 1 à 3, où la station d'accueil (200) comprend

en outre une partie de guidage d'ultraviolets (260) pour guider vers l'aspirateur (100) le rayonnement ultraviolet généré par le générateur d'ultra-violets.

5. Système de stérilisation selon la revendication 4, où la partie de guidage d'ultraviolets (260) comprend :

un guidage de rayonnement (261) pour guider le rayonnement ultraviolet généré par le générateur d'ultra-violets ; et
une plaque de rayonnement (263) présentant des orifices de rayonnement (264) pour transmettre à l'aspirateur (100) le rayonnement ultraviolet guidé par le guidage de rayonnement (261).

6. Système de stérilisation selon la revendication 5, où la plaque de rayonnement (263) est montée obliquement suivant un angle défini sur le boîtier, et où les orifices de rayonnement (264) sont formés obliquement suivant un angle défini avec la plaque de rayonnement (263), de manière à transmettre le rayonnement ultraviolet horizontalement ou obliquement vers le bas suivant un angle défini avec l'horizontale.

7. Système de stérilisation selon l'une des revendications 1 à 6, comprenant en outre un dispositif de détection d'accueil (190) (230) (280) déterminant si l'aspirateur (100) est placé dans la station d'accueil (200), le générateur d'ultra-violets (240) ne générant un rayonnement ultraviolet que si le dispositif de détection d'accueil (190) (230) (280) détecte que l'aspirateur (100) est placé dans la station d'accueil (200).

8. Système de stérilisation selon la revendication 7, où le dispositif de détection d'accueil (190) (230) (280) comprend soit un interrupteur (231) activé ou désactivé par l'aspirateur (100) placé dans la station d'accueil (200), soit un interrupteur tactile (232) activé ou désactivé par contact de l'aspirateur (100) placé dans la station d'accueil (200), soit un capteur Hall (280) détectant un champ magnétique d'un aimant (190) dont est pourvu l'aspirateur (100).

9. Système de stérilisation selon la revendication 7, où le dispositif de détection d'accueil (230) comprend :

une partie de génération de lumière (233) pour générer une lumière ; et
un photodétecteur (234) pour détecter la lumière générée par la partie de génération de lumière, et
où la partie de génération de lumière (233) et le photodétecteur (234) sont disposés sur un chemin de l'aspirateur (100) placé dans la station d'accueil (200).

10. Système de stérilisation selon la revendication 7, où l'aspirateur (100) comprend en outre une batterie (170) d'alimentation en courant pour l'actionnement de l'élément de percussion (135) et du dispositif d'aspiration, et où
la station d'accueil (200) comprend en outre une partie de charge (220) pour la charge de la batterie (180), seulement si le dispositif de détection d'accueil détecte que l'aspirateur (100) est placé dans la station d'accueil (200).

11. Système de stérilisation selon l'une des revendications 1 à 10, où le boîtier (210) est pourvu d'un logement (212) formé par enfoncement d'une partie d'une surface supérieure du boîtier, et où
l'aspirateur (100) est mis en place dans le logement (212).

12. Système de stérilisation selon la revendication 11, où une surface avant du logement (212) est inclinée vers le bas suivant un angle défini.

13. Système de stérilisation selon la revendication 12, où le boîtier (210) est pourvu d'un support (213) de logement supportant une partie d'une surface inférieure de l'aspirateur (100) mis en place dans le logement (212), et où
la surface avant du logement (212) et une surface avant du support (213) de logement sont inclinées vers le bas suivant le même angle avec l'horizontale.

14. Système de stérilisation selon la revendication 13, où le boîtier (210) est pourvu d'un compartiment à câble (215) séparé du logement (212) et recevant un câble électrique pour l'alimentation en courant de l'aspirateur (100).

15. Système de stérilisation selon la revendication 14, où le logement (212) est séparé du compartiment à câble (215) par le support (213) de logement.

Fig. 1

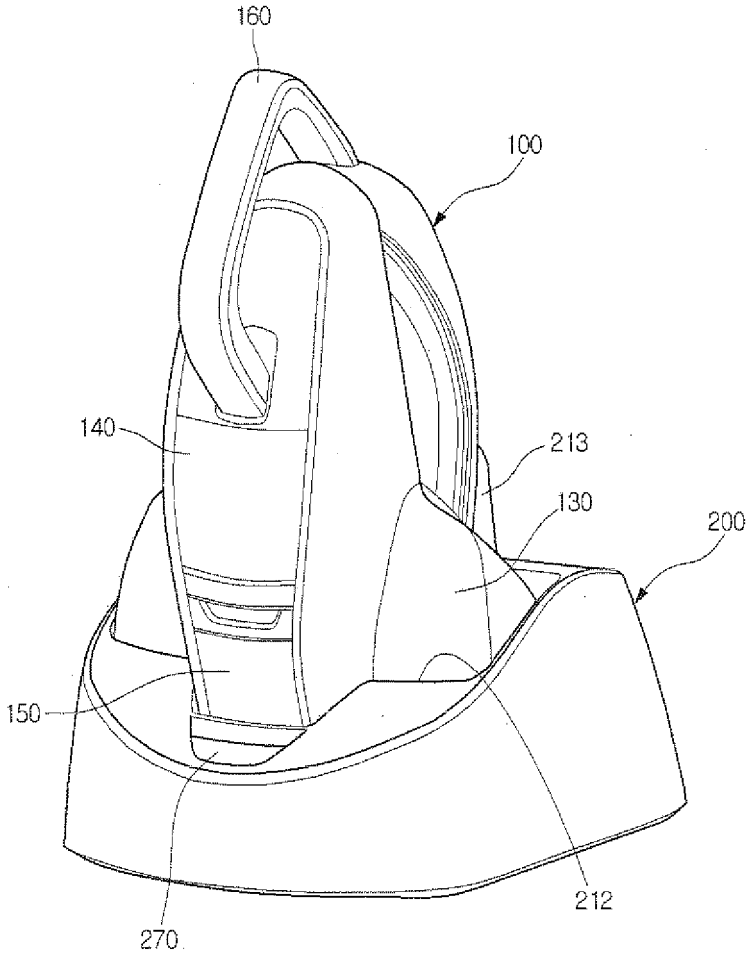


Fig. 2

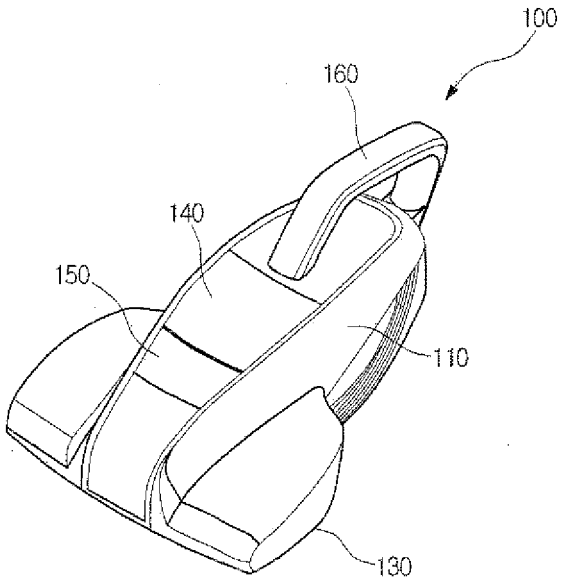


Fig. 3

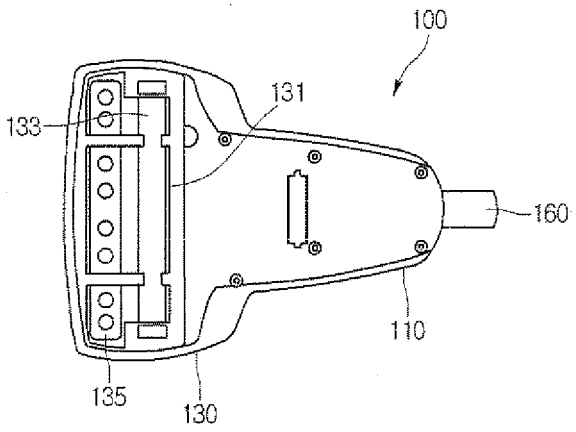


Fig. 4

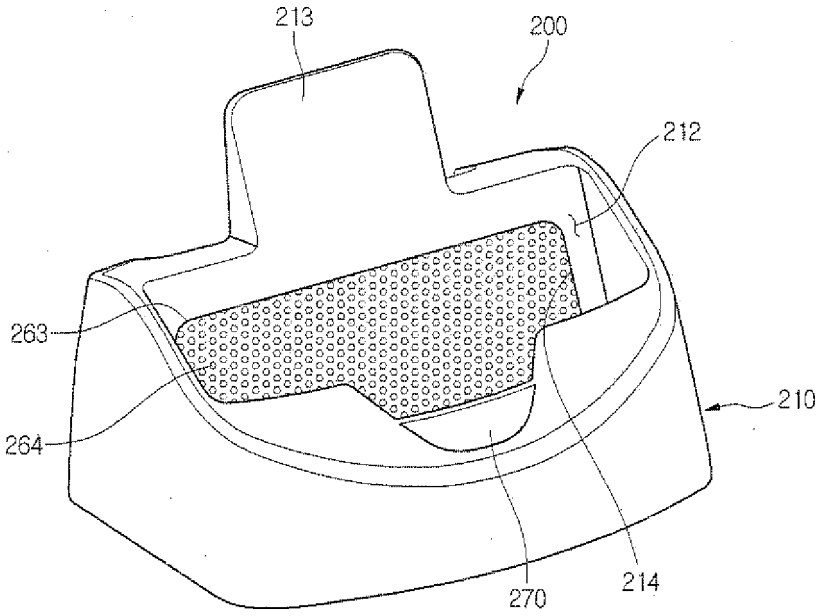


Fig. 5

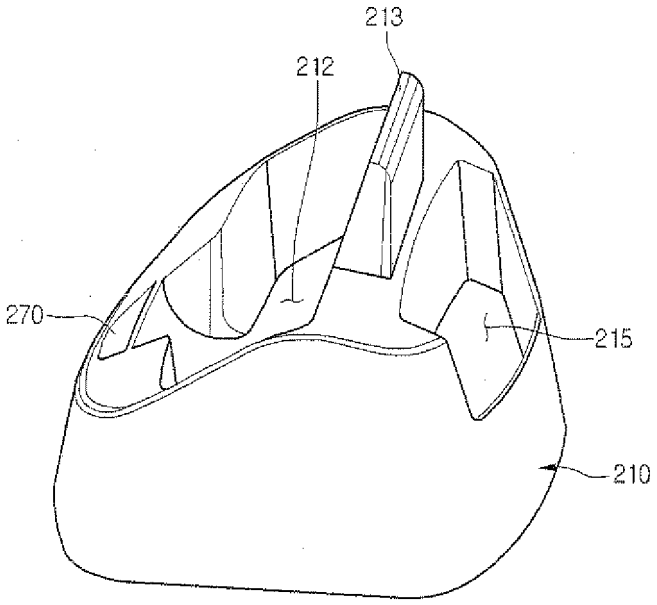


Fig. 6

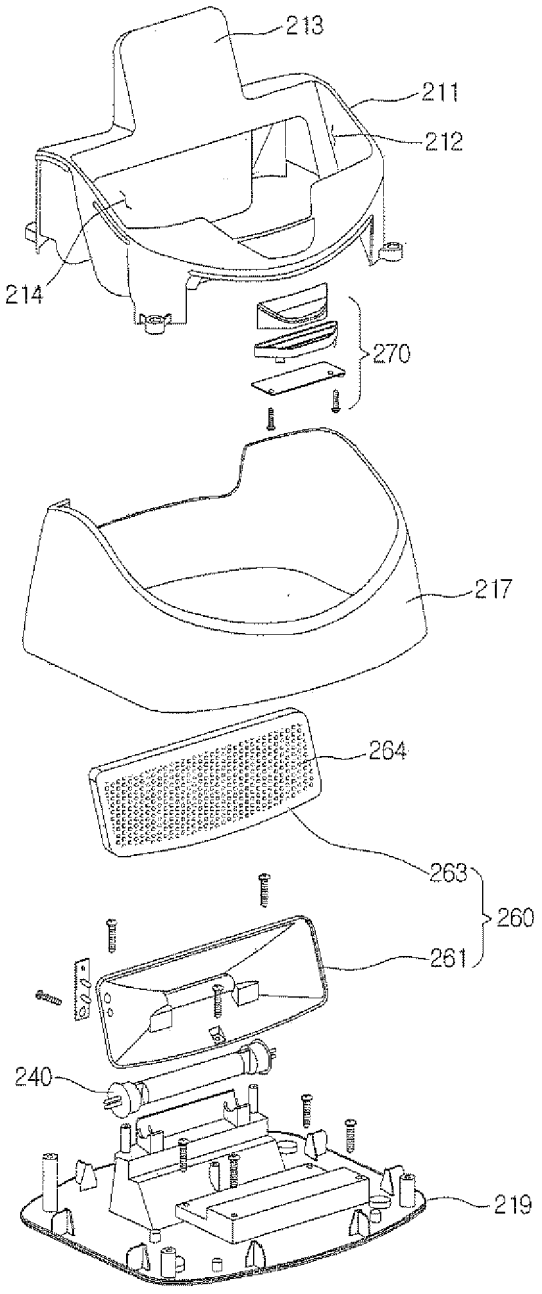


Fig. 7

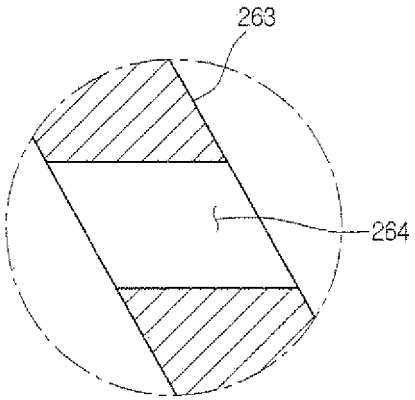


Fig. 8

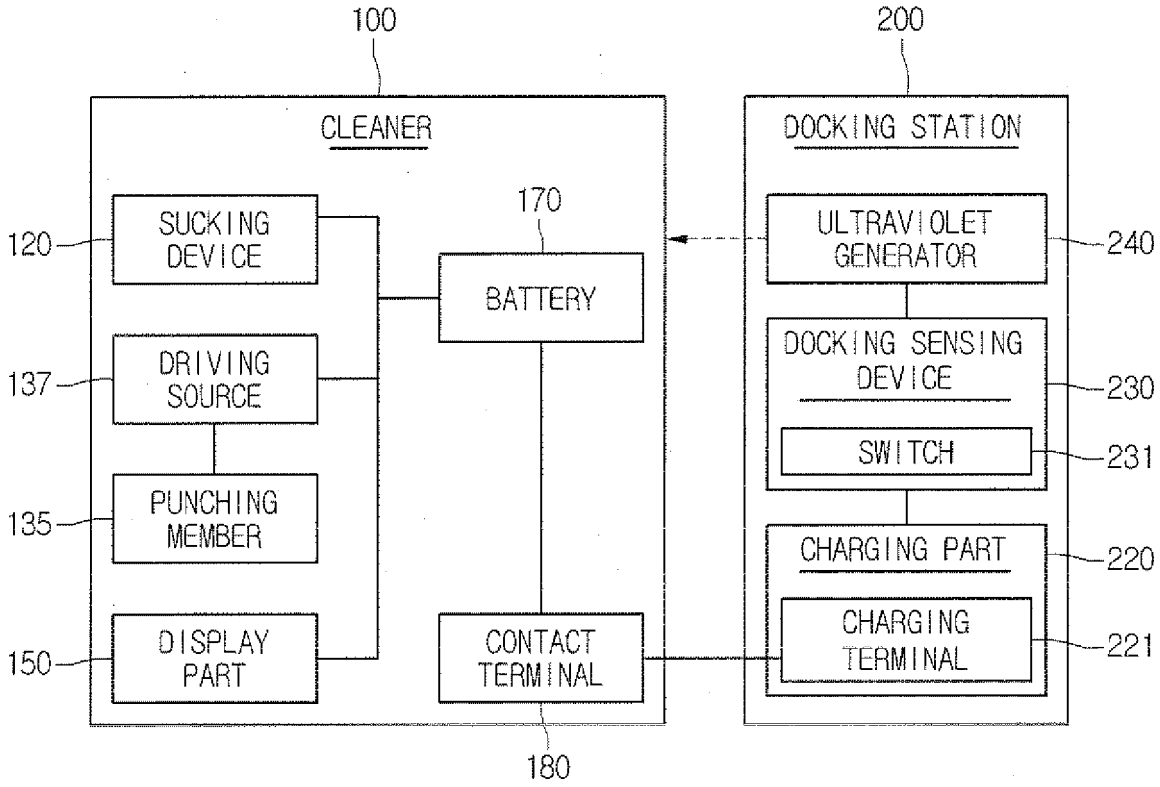

100
200
CLEANER
DOCKING STATION
170
120
SUCKING DEVICE
BATTERY
ULTRAVIOLET GENERATOR
240
137
DRIVING SOURCE
DOCKING SENSING DEVICE
230
SWITCH
231
135
PUNCHING MEMBER
CHARGING PART
220
150
DISPLAY PART
CONTACT TERMINAL
CHARGING TERMINAL
221
180

Fig. 9

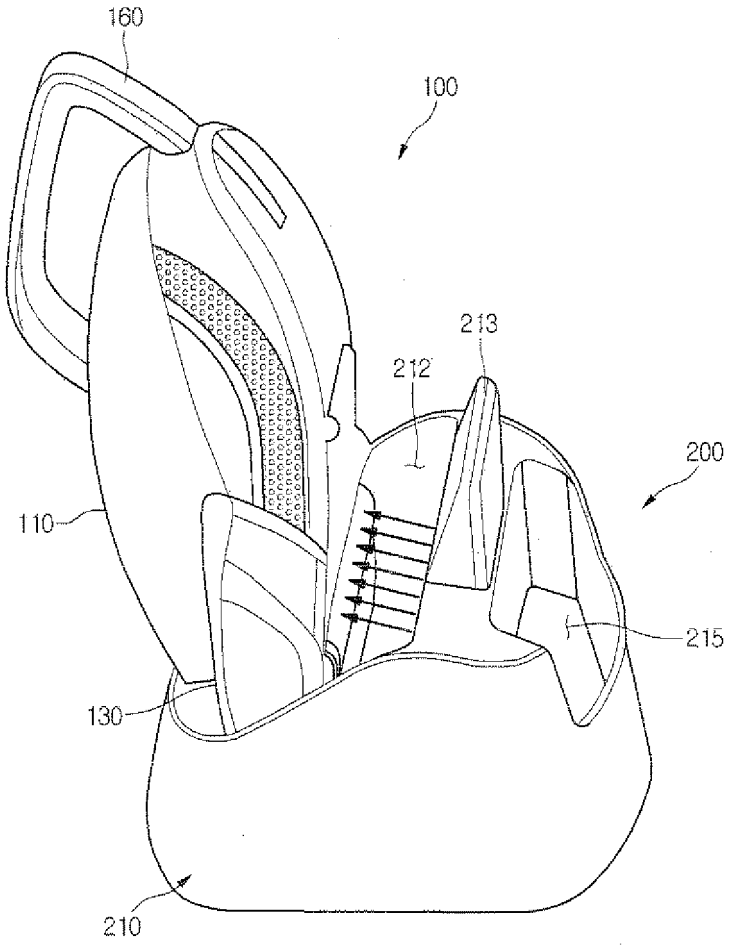


Fig. 10

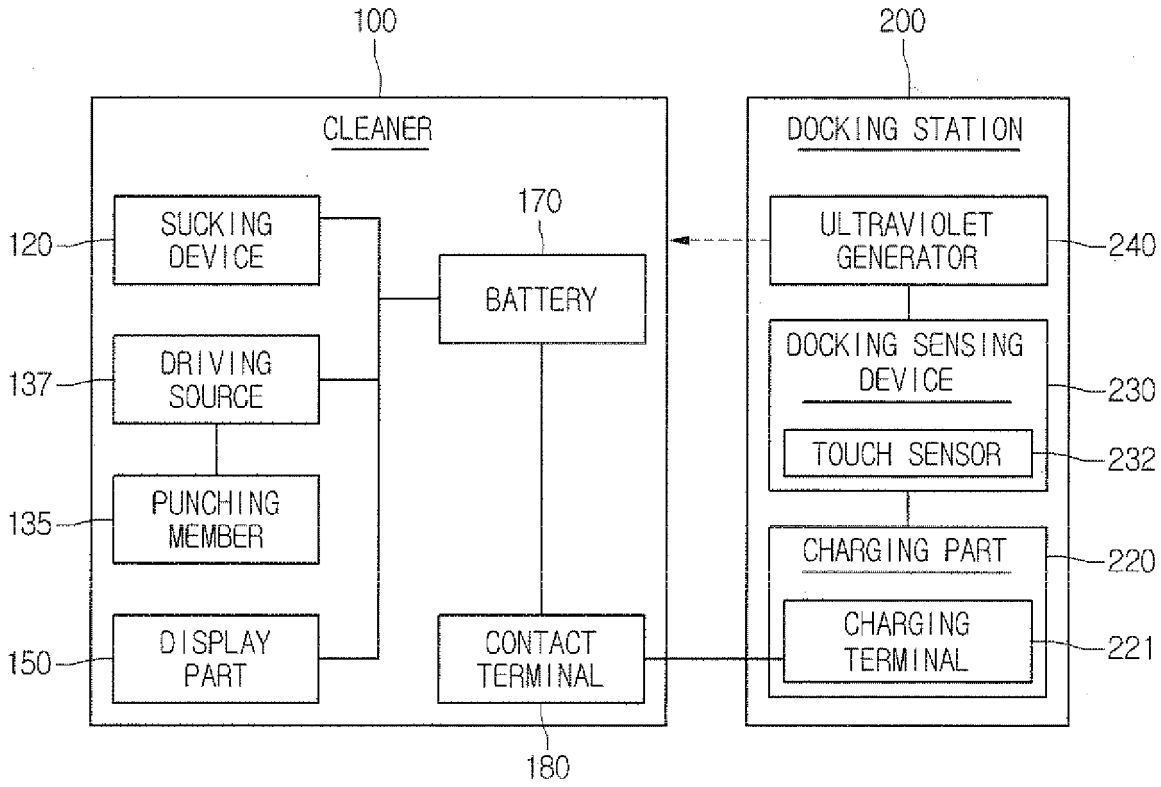

100
200
CLEANER
DOCKING STATION
170
120
SUCKING DEVICE
BATTERY
ULTRAVIOLET GENERATOR
240
137
DRIVING SOURCE
DOCKING SENSING DEVICE
230
TOUCH SENSOR
232
135
PUNCHING MEMBER
CHARGING PART
220
150
DISPLAY PART
CONTACT TERMINAL
CHARGING TERMINAL
221
180

Fig. 11

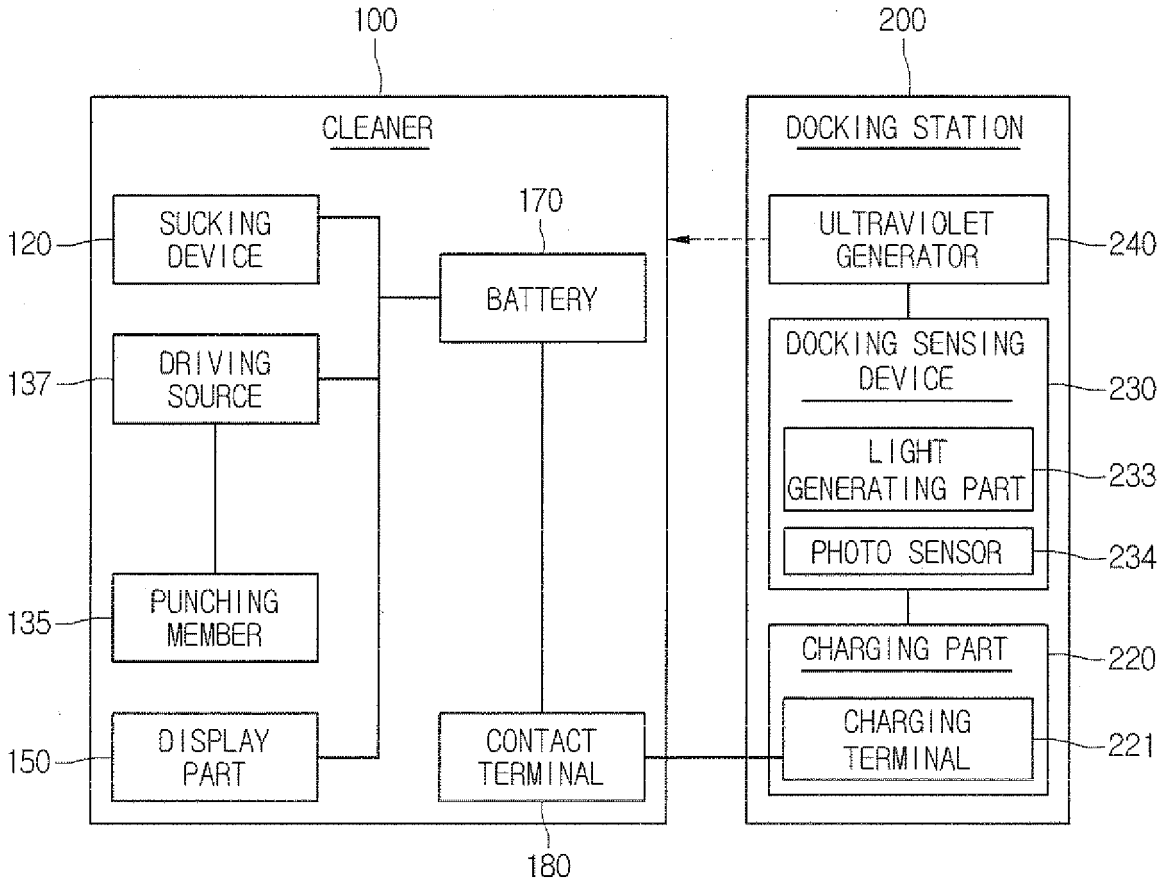
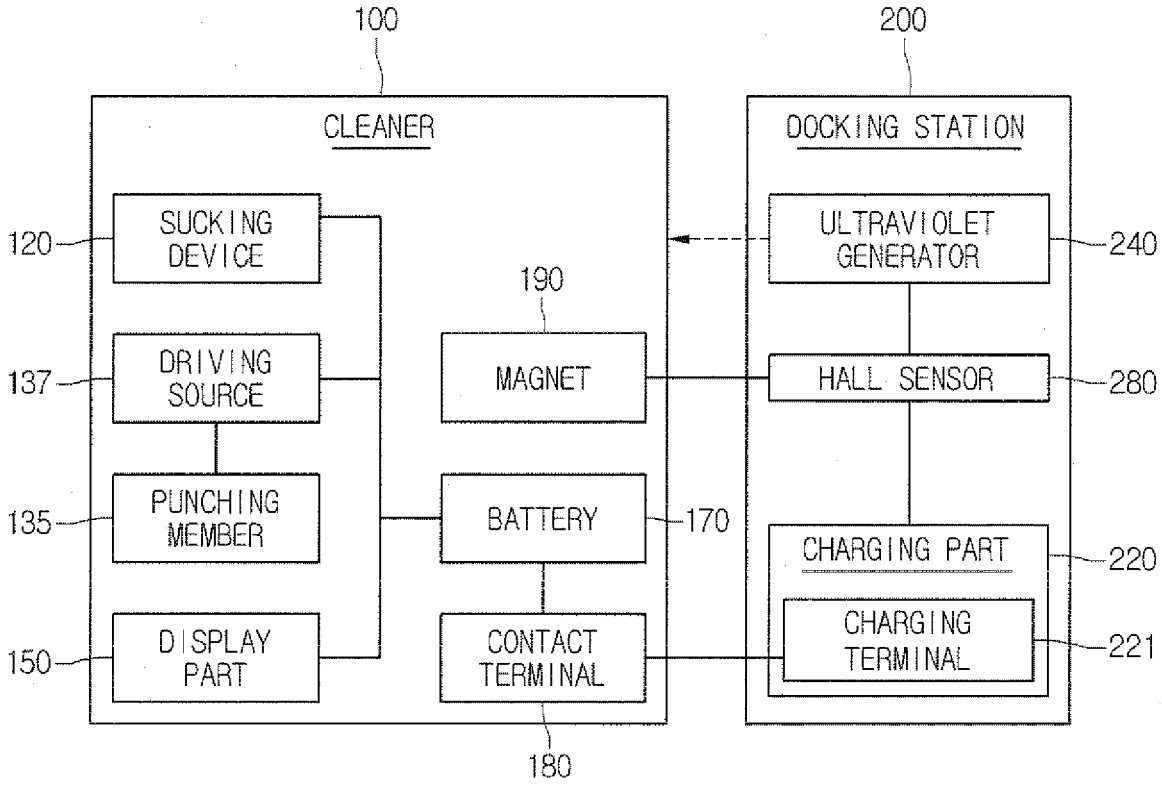

100
200
CLEANER
DOCKING STATION
170
120
SUCKING DEVICE
BATTERY
ULTRAVIOLET GENERATOR
240
137
DRIVING SOURCE
DOCKING SENSING DEVICE
230
LIGHT GENERATING PART
233
PHOTO SENSOR
234
135
PUNCHING MEMBER
CHARGING PART
220
150
DISPLAY PART
CONTACT TERMINAL
CHARGING TERMINAL
221
180

Fig. 12


100
200
CLEANER
DOCKING STATION
SUCKING DEVICE
120
DRIVING SOURCE
137
PUNCHING MEMBER
135
DISPLAY PART
150
190
MAGNET
BATTERY
170
CONTACT TERMINAL
180
ULTRAVIOLET GENERATOR
240
HALL SENSOR
280
CHARGING PART
220
CHARGING TERMINAL
221

REFERENCES CITED IN THE DESCRIPTION

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