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(54) STEAMING DEVICE COMPRISING A POLE ASSEMBLY AND A SUPPORT BASE

(57) The invention relates to a steaming device comprising a support base (102) having an upper portion (104). The upper portion delimits a hole (106). A pole assembly (108) is detachably mountable to the support base. The pole assembly and the support base are arranged such that the pole assembly extends through the hole and upstands from the support base when the pole assembly is mounted to the support base. The pole assembly comprises a pole (110) being hollow at least at a lower portion of the pole, and a cap (114) being arranged inside the lower portion of the pole. An interior surface of the cap (114) delimits a hollow portion of the cap. The steaming device further comprises a pole support element (118) fixed to the support base. The pole support element comprises a protruding element (122). The protruding element is receivable in the hollow portion and dimensioned so that the protruding element engages with the interior surface of the cap.

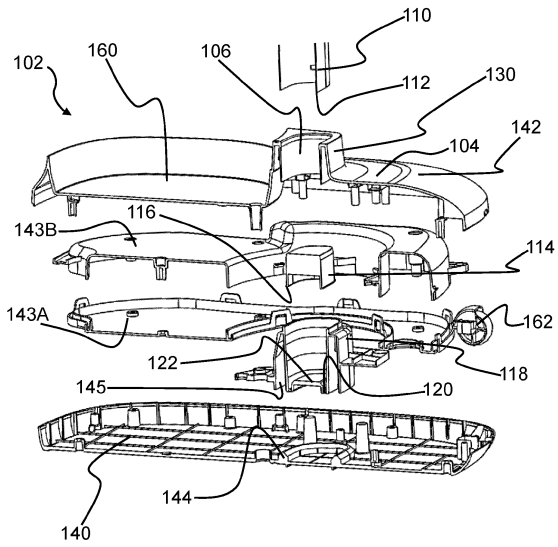

FIG.2

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Description

FIELD OF THE INVENTION

[0001] The invention relates to a steaming device comprising a pole assembly that is mountable to a support base.

[0002] The invention may be used in the field of garment care.

BACKGROUND OF THE INVENTION

[0003] Steaming devices are known to be used for ironing or steaming garments to remove creases through the use of heat and moisture from steam.

[0004] One type of steaming device is a so-called "all-in-one" steaming device that comprises a base unit, which base unit houses a water tank. A steamer head, which can be alternatively referred to as an ironing device or a handheld unit, is connected to the base unit by a flexible hose through which steam and/or water is delivered from the base unit to the steamer head. A steam generator is included in the base unit and/or the steamer head. The steamer head is provided with a treatment plate, also known as a soleplate, delimiting one or more steam vents through which steam is discharged onto a fabric being treated.

[0005] Steaming devices can include a support base, in other words a stand, to which a pole assembly is mounted. The support base assists to minimize the risk of the pole assembly toppling over during use. Such steaming devices can also include an ironing board for facilitating steaming and/or ironing of garments. Such an ironing board can be supported by the pole assembly mounted to the support base.

[0006] Storing and transporting steaming devices that include such a support base and pole assembly tend to require that the pole assembly is detachably mountable to the support base. The capability to supply the steaming device to the user with the pole assembly being detached from the support base can assist to minimize the size of packaging required for the steaming device, and can facilitate transportation of the steaming device.

[0007] Prior to use, the user can mount the pole assembly to the support base. However, the nature of the interface between the pole assembly and the support base that enables the pole assembly to be detachably mountable to the support base can result in instability of the mounted pole assembly, and thus instability of an ironing board being supported by the pole assembly and the support base.

[0008] For example, forces due to movement of the steamer head during ironing or steaming can be transmitted down the pole assembly to the support base. The effect of gaps at the interface between the pole assembly and the support base on movement of the pole assembly relative to the support base can be amplified by the length of the pole assembly. This, in turn, can cause the pole assembly to be perceived by the user as being wobbly. The user's confidence that the steaming device is safe to use can therefore risk being undermined.

OBJECT AND SUMMARY OF THE INVENTION

[0009] It is an object of the invention to propose a steaming device that avoids or mitigates one or more of the above-mentioned problems.

[0010] The invention is defined by the independent claims. The dependent claims define advantageous embodiments.

[0011] To this end, the steaming device according to the invention comprises:

a. a support base having an upper portion, the upper portion delimiting a hole,
b. a pole assembly being detachably mountable to the support base, the pole assembly and the support base being arranged such that the pole assembly extends through the hole and upstands from the support base when the pole assembly is mounted to the support base, wherein the pole assembly comprises:

i- a pole being hollow at least at a lower portion of the pole, and
ii- a cap being arranged inside the lower portion of the pole, an interior surface of the cap delimiting a hollow portion of the cap, and

c. a pole support element fixed to the support base, the pole support element comprising a protruding element, the protruding element being receivable in the hollow portion and dimensioned so that the protruding element engages with the interior surface of the cap.

[0012] The engagement of the protruding element with the interior surface of the cap can assist to ensure robust and stable mounting of the pole assembly to the support base, whilst still enabling facile detachment of the pole assembly from the support base.

[0013] In particular, the cap-protruding element arrangement can assist in terms of easing manufacturing tolerance-related requirements in respect of the pole of the pole assembly. Accordingly, various possibilities concerning the design of the pole can be implemented with no or minimal compromise in terms of robust and stable mounting of the pole assembly to the support base. For example, the pole can be made of a metallic material, e. g. aluminium, and/or the pole can have an elongate cross-sectional shape, such as a rectangular, rounded rectangular or elliptical.

[0014] The engagement of the protruding element with the interior surface of the cap can be regarded as at least partly defining an interference fit between the pole assembly and the pole support element.

[0015] In some embodiments, the lower portion of the

pole terminates at a bottom end of the pole, and the cap has a rim portion that protrudes from the bottom end of the pole. In such embodiments, the rim portion is receivable in a groove defined in the pole support element, which groove extends around the protruding element, when the protruding element is received in the hollow portion.

[0016] In such embodiments, the groove is preferably provided between the protruding element and an outer part of the pole support element that extends to reach, and is attached to, an upper shell and/or a lower shell of the support base.

[0017] In other words, a leg defined by the outer part of the pole support element can couple the protruding element to the upper shell and/or the lower shell.

[0018] In some embodiments, a first surface and a second surface of the pole support element face each other across the groove, and the rim portion is arranged to contact one or both of the first surface and the second surface when the rim portion is received in the groove.

[0019] Thus, the interference fit between the pole assembly and the pole support element can include the rim portion and surface(s) of the pole support element delimiting the groove being pressed against each other.

[0020] In other words, the rim portion, e.g. an annular rim portion, can be mounted tightly in the groove when the pole assembly is mounted to the support base.

[0021] In some embodiments, the protruding element comprises a plurality of crush ribs arranged around the protruding element, with the interior surface of the cap and the crush ribs being pressed against each other when the protruding element is received in the hollow portion.

[0022] The crush ribs interfering with the interior surface of the cap can assist to restrict movement of the pole assembly when the pole assembly is mounted to the support base.

[0023] For example, the crush ribs are distributed around a perimeter of the protruding element.

[0024] This distribution of the crush ribs can assist to minimize gaps at the interface between the pole assembly and the pole support element when the pole assembly is mounted to the support base.

[0025] In some embodiments, the upper portion of the support base comprises a mounting boss for supporting the pole, with the hole delimited by the upper portion of the support base extending through the mounting boss. The mounting boss can thus assist to increase the length over which the pole assembly is supportable by the support base.

[0026] In some embodiments, the steaming device comprises a pole fastening assembly for releasably fastening the pole assembly to the support base.

[0027] Securing the pole at a distance from the bottom end of the pole in this way, in addition to the bottom end being secured via the protruding element of the pole support being received in the hollow portion of the cap, can significantly improve the rigidity of the interface between the pole assembly and the support base.

[0028] In such embodiments, the pole fastening assembly preferably includes a pushing member coupled to the support base, and a cam lever pivotable between a locking position in which the cam lever exerts a force on the pushing member that causes the pushing member to push against the pole, and a releasing position in which the force is released.

[0029] Such a pole fastening assembly, which can be alternatively termed a "cam lock", can assist to minimize or prevent movement of the pole assembly when the pole assembly is mounted to the support base.

[0030] The force on the pushing member can cause the pole to be squeezed between the pushing member and surface(s) of the upper portion of the support base that delimit(s) the hole.

[0031] When the cam lever is in the releasing position, the pole assembly can be detached from the support base, in particular by causing the protruding element to be removed from the hollow portion of the cap. The latter can be achieved by, for instance, pulling the pole with sufficient force away from the support base.

[0032] In embodiments in which the upper portion of the support base comprises the mounting boss, the pushing member is preferably arranged such that, when the cam lever is positioned to exert the force on the pushing member that causes the pushing member to push against the pole, the pole is squeezed between the pushing member and an inner surface of the mounting boss.

[0033] The cam lock can thus assist to minimize or avoid gap(s) between the pole and the mounting boss, and thereby reduce wobbling of the pole assembly when the pole assembly is mounted to the support base.

[0034] In some embodiments, the support base comprises a lower shell and an upper shell attached to the lower shell, with the upper shell comprising the upper portion of the support base that delimits the hole. In such embodiments, a space is defined between the lower shell and the upper shell, and at least part of the pole support element is arranged within the space.

[0035] Preferably, the pole support element is attached to the lower shell and/or to the upper shell. The pole support element can be attached, e.g. rigidly coupled, to the lower shell and/or to the upper shell in any suitable manner. For example, one or more fasteners, e.g. screw(s), can be used to attach the pole support element to the lower shell and/or to the upper shell.

[0036] Such fastener(s), e.g. screw(s), can assist to minimize or prevent movement of the pole support element within the support base.

[0037] In some embodiments, the lower shell comprises a mounting structure arranged around and adapted to press against the pole support element. This can help to minimize movement of the pole support element in the support base.

[0038] In some embodiments, the mounting structure comprises, e.g. is defined by, an annular protrusion provided on the lower shell. Such an annular protrusion preferably extends into an annular cavity provided in the pole

support element.

[0039] In some embodiments, the pole has a cross-sectional shape selected from the following: rectangular, rounded rectangular, square, rounded square, elliptical, or circular.

[0040] The secure mounting of the pole assembly via the cap-protruding element arrangement can mean that various different possibilities are available in terms of the shape of the pole. For example, the cap-protruding element arrangement can assist to suppress wobbling of the pole that is as a consequence of the pole having an elongate cross-sectional shape, such as rectangular, rounded rectangular or elliptical.

[0041] Alternatively or additionally, the pole can be made of a metallic material, in other words a metal alloy or a metal. For example, the pole is made of aluminium. Such an aluminium pole benefits from being relatively strong but also lightweight.

[0042] The secure mounting of the pole assembly via the cap-protruding element arrangement can assist to mitigate manufacturing tolerances-related issues associated with the pole being made of a metallic material, such as aluminium.

[0043] In some embodiments, the cap is made of one or more selected from a plastic material, such as an engineering thermoplastic, and a metallic material, in other words a metal alloy or a metal, e.g. aluminium.

[0044] For example, the cap is made of a moulded plastic material, such as a moulded engineering thermoplastic. In an alternative non-limiting example, the cap is made of die cast aluminium.

[0045] In some embodiments, the pole assembly is a telescopic pole assembly that comprises the pole and an upper pole, with the upper pole being slidable out of and into an upper end of the pole to enable extension and collapsing of the telescopic pole assembly.

[0046] The effect of any gaps at the interface between such a telescopic pole assembly and the support base on stability can be amplified by extension of the telescopic pole assembly. Thus, there is a greater risk of the extended pole assembly being perceived as being wobbly during ironing or steaming using the steaming device. The robust and stable mounting of the pole assembly to the support base via the cap-protruding element arrangement can therefore be particularly beneficial when the pole assembly is such a telescopic pole assembly.

[0047] In some embodiments, the steaming device comprises an ironing board, with the ironing board being supportable by the pole assembly and the support base.

[0048] In embodiments in which the pole assembly is a telescopic pole assembly, extension and collapsing of the telescopic pole assembly can enable height adjustment of the ironing board.

[0049] In at least some embodiments, the steaming device comprises a base unit comprising a water tank, a steamer head having a treatment plate delimiting at least one steam vent, and a hose cord connecting the base unit to the steamer head.

[0050] In such embodiments, the support base is preferably arranged to support the base unit. Thus, the base unit can be supported by the support base to which the pole assembly is detachably mountable.

[0051] Detailed explanations and other aspects of the invention will be given below.

BRIEF DESCRIPTION OF THE DRAWINGS

[0052] Particular aspects of the invention will now be explained with reference to the embodiments described hereinafter and considered in connection with the accompanying drawings, in which identical parts or sub-steps are designated in the same manner:

Fig. 1 depicts a steaming device according to an example,
Fig.2 provides an exploded view of a support base of the steaming device,
Figs.3A and 3B provide views of a cap that is included in a pole assembly, which pole assembly is mountable to the support base,
Fig.4 provides a plan view of a pole support element of the support base, and
Figs.5A to 5F provide various views of the pole assembly mounted to the support base.

DETAILED DESCRIPTION OF THE INVENTION

[0053] Fig.1 depicts a steaming device 100 according to an example. The steaming device 100 comprises a support base 102. A pole assembly 108 is detachably mountable to the support base 102.

[0054] The capability to supply the pole assembly 108 detached from the support base 102 can assist to minimize the size of packaging required for transporting the steaming device 100 and can facilitate transportation of the steaming device 100. Being able to detach the pole assembly 108 from the support base 102 can also assist a user wishing to stow the steaming device 100 in a storage area after use.

[0055] Referring to Fig.2, an upper portion 104 of the support base 102 delimits a hole 106. The pole assembly 108 and the support base 102 are arranged such that the pole assembly 108 extends through the hole 106 and upstands from the support base 102 when the pole assembly 108 is mounted to the support base 102.

[0056] The pole assembly 108, for example specifically the pole 110 included in the pole assembly 108, preferably contacts surface(s) of the upper portion 104 that delimit the hole 106.

[0057] Such contact can assist to reduce wobbling of the pole assembly 108 when the pole assembly 108 is mounted to the support base 102.

[0058] In some embodiments, the pole 110 is dimensioned to fit the hole 106 such that the surface(s) delimiting the hole 106 assist(s) to restrict movement of the pole 110 when the pole assembly 108 is mounted to the

support base 102.

[0059] More generally, the pole 110 is hollow at least at a lower portion of the pole 110, and a cap 114 is received inside the lower portion of the pole 110 when the pole assembly 108 is assembled.

[0060] The cap 114 can assist to ensure robust and stable mounting of the pole assembly 108 to the support base 102, as explained in more detail herein below.

[0061] The steaming device 100 further includes a pole support element 118. The pole support element 118, when fixed to the support base 102, assists in mounting the pole assembly 108 to the support base 102.

[0062] The pole 110 can have any suitable shape. In some embodiments, the pole 110 has a cross-sectional shape selected from the following: rectangular, rounded rectangular, square, rounded square, elliptical, or circular.

[0063] In some embodiments, the pole 110 has an elongate cross-sectional shape, such as rectangular, rounded rectangular or elliptical.

[0064] In such embodiments, deformation along the sides of the pole 110, corresponding to the longer dimension of the elongate cross-sectional shape, can potentially be significant, and can increase the risk of wobbling of the pole 110 when mounted to the support base 102. However, the manner of mounting the pole assembly 108 to the support base 102, as explained herein below, can assist to alleviate potential instability issues associated with the cross-sectional shape of the pole 110.

[0065] The pole 110 can be formed of any suitable material. In some embodiments, the pole 110 is made of a metallic material. For example, the pole 110 is made of aluminium. Such an aluminium pole 110 benefits from being relatively strong but also lightweight.

[0066] Difficulties can nonetheless be encountered with such an aluminium pole 110, particularly in ensuring that manufacturing tolerances are consistently accurate. For example, a bottom end 112 of the pole 110, at which the lower portion of the pole 110 terminates, may not easily fit into a groove 120 defined in the pole support element 118. This can compromise mounting of the pole 110 to the support base 102. However, the manner of mounting the pole assembly 108 to the support base 102, as explained herein below, can assist to alleviate such material-related pole 110 instability issues.

[0067] In view of the above-described technical challenges, the pole support element 118 comprises a protruding element 122. In at least some embodiments, such as that shown in Fig.2, the protruding element 122 upwardly protrudes in the direction of extension of the pole assembly 108 when the pole assembly 108 is mounted to the support base 102.

[0068] With reference to Figs.2, 3A and 3B, an interior surface 124 of the cap 114 delimits a hollow portion 126 of the cap 114, and the protruding element 122 is receivable in the hollow portion 126 and dimensioned so that the protruding element 122 engages the interior surface 124 of the cap 114.

[0069] The engagement of the protruding element 122 with the interior surface 124 of the cap 114 can assist to ensure robust and stable mounting of the pole assembly 108 to the support base 102.

[0070] In particular, the cap-protruding element arrangement 114, 122 can assist in terms of easing manufacturing tolerance-related requirements in respect of the pole 110 of the pole assembly 108. Accordingly, various possibilities concerning the design of the pole 110 can be implemented with no or minimal compromise in terms of robust and stable mounting of the pole assembly 108 to the support base 102. For example, the pole 110 can be made of a metallic material, e.g. aluminium, and/or the pole 110 can have an elongate cross-sectional shape, such as rectangular, rounded rectangular or elliptical.

[0071] The engagement of the protruding element 122 with the interior surface 124 of the cap 114 can be regarded as at least partly defining an interference fit between the pole assembly 108 and the pole support element 118.

[0072] In other words, the interference fit between the pole assembly 108 and the pole support element 118 can include the interior surface 124 of the cap 114 and the protruding element 122 being pressed against each other.

[0073] In order to detach the pole assembly 108 from the support base 102, the protruding element 122 can be removed from the hollow portion 126 of the cap 114, for example by pulling the pole 110 with sufficient force away from the support base 102, e.g. following release of a pole fastening assembly 132 as described herein below. Thus, the pole 110, together with the cap 114, can be detached from the support base 102.

[0074] The cap 114 can be made of any suitable material. In some embodiments, the cap 114 is made of one or more selected from a plastic material, such as an engineering thermoplastic, and a metallic material, such as aluminium.

[0075] For example, the cap 114 is made of a moulded plastic material, such as a moulded engineering thermoplastic. In an alternative non-limiting example, the cap 114 is made of die cast aluminium.

[0076] In some embodiments, such as shown in Figs. 3A and 3B, the cap 114 includes one or more fastening members 125, such as one or more snap-fit fastening members 125, for securing the cap 114 inside the lower portion of the pole 110.

[0077] For example, the fastening member(s) 125 include resiliently mounted protruding catch(es) that are each receivable in a recess or aperture defined in the lower portion of the pole 110 in order to secure the cap 114 to the lower portion of the pole 110.

[0078] As an alternative or in addition to the fastening member(s) 125, an exterior surface 127 of the cap 114 can contact, and thus frictionally engage with, an inner surface of the lower portion of the pole 110.

[0079] In some embodiments, and as shown in Fig.3A,

the cap 114 comprises an internal reinforcement member 129. The internal reinforcement member 129 can assist to enhance the structural integrity of the cap 114.

[0080] The internal reinforcement member 129 can have any suitable form/shape. In some embodiments, such as that shown in Fig.3A, the internal reinforcement member 129 comprises, e.g. is defined by, a grid mounted within the cap 114.

[0081] In some embodiments, and as best shown in Fig.4, the protruding element 122 comprises a plurality of crush ribs 128 arranged around the protruding element 122. In such embodiments, the interior surface 124 of the cap 114 and the crush ribs 128 are pressed against each other when the protruding element 122 is received in the hollow portion 126.

[0082] Thus, the engagement of the protruding element 122 with the interior surface 124 of the cap 114 can include, e.g. be defined by, engagement of the crush ribs 128 of the protruding element 122 with the interior surface 124 of the cap 114.

[0083] The crush ribs 128 interfering with the interior surface 124 of the cap 114 can assist to restrict movement of the pole assembly 108 when the pole assembly 108 is mounted to the support base 102.

[0084] As shown in Fig.4, the crush ribs 128 are preferably distributed around a perimeter of the protruding element 122. This distribution of the crush ribs 128 can assist to minimize gaps at the interface between the pole assembly 108 and the pole support element 118 when the pole assembly 108 is mounted to the support base 102.

[0085] More generally, and referring to Figs.3A and 4, the hollow portion 126 preferably has a cross-sectional shape that complements a profile of the protruding element 122.

[0086] Thus, the protruding element 122 can fit snuggly inside the hollow portion 126, with concomitant enhancement of stability of mounting of the pole assembly 108 to the support base 102.

[0087] In some embodiments, such as shown in Figs. 1, 2, 5A, 5B and 5E, the upper portion 104 of the support base 102 comprises a mounting boss 130 for supporting the pole 110. The mounting boss 130 upwardly projects in the direction of extension of the pole assembly 108 from the support base 102 when the pole assembly 108 is mounted to the support base 102, as best shown in Figs.2, 5A and 5B.

[0088] In such embodiments, the hole 106 through which the pole assembly 108 passes when the pole assembly 108 is mounted to the support base 102 extends through the mounting boss 130. The mounting boss 130 can thus assist to increase the length over which the pole assembly 108 is supportable by the support base 102.

[0089] The pole assembly 108, for example specifically the pole 110 included in the pole assembly 108, preferably contacts inner surface(s) 138 of the mounting boss 130 that delimit(s) the hole 106. An example of this is best shown in Fig.5F.

[0090] In such embodiments, the mounting boss 130 assists to increase the length over which the pole assembly 108 contacts the support base 102. This, in turn, can enhance the stability of the pole assembly 108 when the pole assembly 108 is mounted to the support base 102.

[0091] The arrows 131 in Fig.5A point to areas of tight contact between the pole 110 and the inner surface(s) 138 of the mounting boss 130 that delimit(s) the hole 106.

[0092] In some embodiments, and as best shown in Figs.5E and 5F, the steaming device 100 comprises a pole fastening assembly 132 for releasably fastening the pole 110 to the support base 102.

[0093] Securing the pole 110 at a distance from the bottom end of the pole 110 in this way, in addition to the bottom end being secured via the protruding element 122 of the pole support element 118 being received in the hollow portion 126 of the cap 114, can significantly improve the rigidity of the interface between the pole assembly 108 and the support base 102.

[0094] In such embodiments, the pole fastening assembly 132 preferably includes a pushing member 134 coupled to the support base 102, and a cam lever 136 pivotable between a locking position, as shown in Figs. 5E and 5F, in which the cam lever 136 exerts a force on the pushing member 134 that causes the pushing member 134 to push against the pole 110, and a releasing position in which the force is released.

[0095] Such a pole fastening assembly 132, which can be alternatively termed a "cam lock", can assist to minimize or prevent movement of the pole assembly 108 when the pole assembly 108 is mounted to the support base 102.

[0096] The force on the pushing member 134 can cause the pole 110 to be squeezed between the pushing member 134 and surface(s) of the upper portion 104 of the support base 102 that delimit(s) the hole 106.

[0097] When the cam lever 136 is in the releasing position, the pole assembly 108 can be detached from the support base 102, in particular by causing the protruding element 122 to be removed from the hollow portion 126 of the cap 114, as previously described.

[0098] In embodiments in which the upper portion 104 of the support base 102 comprises the mounting boss 130, the pushing member 134 is preferably arranged such that, when the cam lever 136 is positioned to exert the force on the pushing member 134 that causes the pushing member 134 to push against the pole 110, the pole 110 is squeezed between the pushing member 134 and the inner surface(s) 138 of the mounting boss 130.

[0099] The cam lock can thus assist to minimize or avoid gap(s) between the pole 110 and the mounting boss 130, and thereby reduce wobbling of the pole assembly 108 when the pole assembly 108 is mounted to the support base 102.

[0100] The pushing member 134 can be made of any suitable material. In some embodiments, the pushing member 134 is made of a plastic material, such as an engineering thermoplastic.

[0101] When the pushing member 134 is made of a plastic material, it can take the form of a plastic block that is movable by the cam lever 136 against the pole 110.

[0102] As shown in Figs.5E and 5F, a pivot coupling 137 couples the cam lever 136 to the support base 102 and enables pivoting of the cam lever 136 between the locking position and the releasing position.

[0103] In some embodiments, and referring to Figs.2, 5A and 5B, the support base 102 comprises a lower shell 140 and an upper shell 142 attached to the lower shell 140, with the upper shell 142 comprising the upper portion 104 of the support base 102 that delimits the hole 106. In such embodiments, a space is defined between the lower shell 140 and the upper shell 142, and at least part of the pole support element 118 is arranged within the space.

[0104] In some embodiments, such as shown in Fig.2, the support base 102 comprises a ballast housing 143A, 143B that contains ballast, for example cement, for weighing down the support base 102.

[0105] Such ballast assists to lower the centre of gravity of the steaming device 100, and thus assists to make the steaming device 100 more stable.

[0106] The ballast housing 143A, 143B preferably comprises a lower ballast housing portion 143A and an upper ballast housing portion 143B, with the ballast being housed between the lower ballast housing portion 143A and the upper ballast housing portion 143B.

[0107] In some embodiments, at least part of the ballast housing 143A, 143B is arranged within the space defined between the lower shell 140 and the upper shell 142.

[0108] Preferably, the pole support element 118 is attached to the lower shell 140 and/or to the upper shell 142.

[0109] The pole support element 118 can be attached, e.g. rigidly coupled, to the lower shell 140 and/or to the upper shell 142 in any suitable manner. For example, one or more fasteners, e.g. screw(s), can be used to attach the pole support element 118 to the lower shell 140 and/or to the upper shell 142.

[0110] Such fastener(s), e.g. screw(s), can assist to minimize or prevent movement of the pole support element 118 within the support base 102.

[0111] Alternatively or additionally, the lower shell 140 preferably comprises a mounting structure 144 arranged around and adapted to press against the pole support element 118.

[0112] In some embodiments, and as best shown in Figs.2, 5A, 5B and 5C, the mounting structure 144 comprises, e.g. is defined by, an annular protrusion provided on the lower shell 140.

[0113] Such an annular protrusion preferably extends into an annular cavity 145 provided in the pole support element 118. This can help to minimize movement of the pole support element 118 within the support base 102.

[0114] The arrows 147A in Figs.5A and 5C point to areas of tight contact between mounting structure 144 and the pole support element 118.

[0115] It is noted that the arrows 147B in Fig.5A point to areas of contact between the mounting structure 144 and the pole support element 118 that may be less critical for minimizing wobbling of the pole assembly 108 when mounted to the support base 102, due to the tight contacts pointed to by the arrows 131 and 147A.

[0116] In some embodiments, and as best shown in Figs.3A, 3B and 5A to 5F, the cap 114 has a rim portion 116 that protrudes from the bottom end 112 of the pole 110, and the rim portion 116 is receivable in the groove 120 defined in the pole support element 118.

[0117] Referring to Fig.2, the groove 120 extends around the protruding element 122. Thus, the rim portion 116 is receivable in the groove 120 when the protruding element 122 is received in the hollow portion 126 of the cap 114.

[0118] In such embodiments, the groove 120 is preferably provided between the protruding element 122 and an outer part 149 of the pole support element 118 that extends to reach, and is attached to, the upper shell 142 and/or the lower shell 140.

[0119] In other words, a leg defined by the outer part 149 of the pole support element 118 can couple the protruding element 122 to the upper shell 142 and/or the lower shell 140.

[0120] In some embodiments, and as shown in Fig.5D, a first surface S1 and a second surface S2 of the pole support element 118 face each other across the groove 120, and the rim portion 116 is arranged to contact one or both of the first surface S1 and the second surface S2 when the rim portion 116 is received in the groove 120.

[0121] Thus, the interference fit between the pole assembly 108 and the pole support element 118 can include the rim portion 116 and surface(s) S1, S2 of the pole support element 118 delimiting the groove 120 being pressed against each other.

[0122] In other words, the rim portion 116, e.g. an annular rim portion 116, can be mounted tightly in the groove 120 when the pole assembly 108 is mounted to the support base 102.

[0123] Referring to the non-limiting example shown in the Figures, the first surface S1 is a surface of the outer part 149 of the pole support element 118 that faces the protruding element 122, and the second surface S2 is a surface of the protruding element 122 that faces the surface of the outer part 149.

[0124] In a non-limiting illustrative example, the cap 114 is made of plastic material and is arranged in the lower portion of the pole 110 which is made of aluminium, with the rim portion 116 that protrudes from the bottom end 112 of the aluminium pole 110 fitting tightly inside the groove 120 defined in the pole support element 118.

[0125] In some embodiments, and referring again to Fig.1, the pole assembly 108 is a telescopic pole assembly 108 that comprises the pole 110 and an upper pole 146, with the upper pole 146 being slidable out of and into an upper end of the pole 110 to enable extension

and collapsing of the telescopic pole assembly 108.

[0126] The effect of any gaps at the interface between such a telescopic pole assembly 108 and the support base 102, e.g. at the hole 106, on stability can be amplified by extension of the telescopic pole assembly 108. Thus, there is a greater risk of the extended pole assembly 108 being perceived as being wobbly during ironing or steaming using the steaming device 100. The robust and stable mounting of the pole assembly 108 to the support base 102 via the cap-protruding element arrangement 114, 122 can therefore be particularly beneficial when the pole assembly 108 is such a telescopic pole assembly 108.

[0127] In some embodiments, and referring again to Fig. 1, the steaming device 100 comprises an ironing board 148, with the ironing board 148 being supportable by the pole assembly 108 and the support base 102. Thus, the ironing board 148 can provided to the user along with the support base 102 and the pole assembly 108.

[0128] In embodiments in which the pole assembly 108 is a telescopic pole assembly 108, extension and collapsing of the telescopic pole assembly 108 can enable height adjustment of the ironing board 148.

[0129] As an alternative or in addition to being telescopic, the pole assembly 108 can be configured to enable tilting of the ironing board 148, for example between a vertical orientation and a horizontal orientation, as shown in Fig. 1.

[0130] The vertical orientation of the ironing board 148 can be utilized for steaming hanging garments, e.g. garments hanging from a hanger, and the horizontal orientation of the ironing board 148 can be used for ironing garments.

[0131] In at least some embodiments, and with continued reference to Fig. 1, the steaming device 100 comprises a base unit 150 comprising a water tank, a steamer head 152 having a treatment plate delimiting at least one steam vent, and a hose cord 154 connecting the base unit 150 to the steamer head 152.

[0132] The steaming device 100 shown in Fig.1 can be regarded as a stand garment steamer 100.

[0133] In some embodiments, the base unit 150 comprises a steam generator (not visible) and the steamer head 152 comprises a steam chamber arranged to reheat the steam and/or vaporise heated water received from the steam generator, prior to the steam exiting the steamer head 152 via the at least one steam vent.

[0134] In alternative embodiments, the steamer head 152 comprises a steam chamber arranged to generate steam from water supplied, e.g. pumped, thereto from the water tank included in the base unit 150.

[0135] In some embodiments, such as that shown in Fig. 1, the steaming device 100 includes a cradle 156 on which the steamer head 152 is dockable when the steamer head 152 is not being moved by the user. The cradle 156 is preferably attachable to the ironing board 148 via a support arm 158.

[0136] In some embodiments, the support base 102 is arranged to support the base unit 150. Thus, the base unit 150 can be supported by the support base 102 to which the pole assembly 108 is detachably mountable.

[0137] In such embodiments, and referring to Figs.2 and 5B, the support base 102 preferably includes a recessed area 160 in which the base unit 150 is receivable in order to be supported by the support base 102.

[0138] For example, the recessed area 160 has a shape that complements an exterior profile of the base unit 150.

[0139] Such a complementarily shaped recessed area 160 can assist to prevent the base unit 150 from being accidentally knocked over during use of the steaming device 100.

[0140] In some embodiments, such as shown in Fig.2, the support base 102 comprises one or more wheels 162 to assist with manoeuvring of the support base 102, e.g. across a floor.

[0141] The wheel(s) 162 can be rotatably mounted in any suitable manner. The wheel(s) are preferably rotatably mounted to the ballast housing 143A, 143B, for instance to the lower ballast housing portion 143A.

[0142] The above embodiments as described are only illustrative, and not intended to limit the technique approaches of the present invention. Although the present invention is described in details referring to the preferable embodiments, those skilled in the art will understand that the technique approaches of the present invention can be modified or equally displaced without departing from the protective scope of the claims of the present invention. In particular, although the invention has been described based on a steaming device, it can be applied to any type of device, e.g. household device, having a pole assembly that is detachably mountable to a support base. In the claims, the word "comprising" does not exclude other elements or steps, and the indefinite article "a" or "an" does not exclude a plurality. Any reference signs in the claims should not be construed as limiting the scope.

Claims

1. A steaming device (100) comprising:

a. a support base (102) having an upper portion (104), the upper portion delimiting a hole (106),
b. a pole assembly (108) being detachably mountable to the support base, the pole assembly and the support base being arranged such that the pole assembly extends through the hole and upstands from the support base when the pole assembly is mounted to the support base, wherein the pole assembly comprises:

i- a pole (110) being hollow at least at a lower portion of the pole, and
ii- a cap (114) being arranged inside the low-

er portion of the pole, an interior surface (124) of the cap delimiting a hollow portion (126) of the cap, and

c. a pole support element (118) fixed to the support base, the pole support element comprising a protruding element (122), the protruding element being receivable in the hollow portion and dimensioned so that the protruding element engages with the interior surface of the cap.

2. The steaming device (100) according to claim 1, wherein:

- the lower portion of the pole (110) terminates at a bottom end (112) of the pole,
- the cap (114) has a rim portion (116) that protrudes from the bottom end of the pole,
- a groove (120) is defined in the pole support element (118), the groove extending around the protruding element (122), and
- the rim portion is receivable in the groove when the protruding element is received in the hollow portion (126).

3. The steaming device (100) according to claim 2, wherein:

- a first surface (S1) and a second surface (S2) of the pole support element (118) face each other across the groove (120), and
- the rim portion (116) is arranged to contact one or both of the first surface and the second surface when the rim portion is received in the groove.

4. The steaming device (100) according to any one of claims 1 to 3, wherein the protruding element (122) comprises a plurality of crush ribs (128) arranged around the protruding element, the interior surface (124) of the cap (114) and the crush ribs being pressed against each other when the protruding element (122) is received in the hollow portion (126).

5. The steaming device (100) according to any one of claims 1 to 4, wherein the upper portion (104) of the support base (102) comprises a mounting boss (130) for supporting the pole (110), the hole (106) extending through the mounting boss.

6. The steaming device (100) according to any one of claims 1 to 5, comprising a pole fastening assembly (132) including:

- a pushing member (134) coupled to the support base (102), and
- a cam lever (136) pivotable between a locking position in which the cam lever exerts a force on the pushing member that causes the pushing member to push against the pole (110), and a releasing position in which said force is released.

7. The steaming device (100) according to claim 6 when dependent from claim 5, wherein the pushing member (134) is arranged such that, when the cam lever (136) is positioned to exert said force, the pole (110) is squeezed between the pushing member and an inner surface (138) of the mounting boss (130).

8. The steaming device (100) according to any one of claims 1 to 7, wherein:

- the support base (102) comprises a lower shell (140) and an upper shell (142) attached to the lower shell,
- the upper shell comprises said upper portion (104) of the support base,
- a space is defined between the lower shell and the upper shell, and
- at least part of the pole support element (118) is arranged within said space.

9. The steaming device (100) according to claim 8, wherein the pole support element (118) is attached to the lower shell (140) and/or to the upper shell (142).

10. The steaming device (100) according to claim 8 or claim 9, wherein the lower shell (140) comprises a mounting structure (144) arranged around and adapted to press against the pole support element (118).

11. The steaming device (100) according to any one of claims 1 to 10, wherein the pole (110) has a cross-sectional shape selected from the following:

- rectangular,
- rounded rectangular
- square,
- rounded square,
- elliptical, or
- circular.

12. The steaming device (100) according to any one of claims 1 to 11, wherein the pole (110) is made of a metallic material.

13. The steaming device (100) according to any one of claims 1 to 12, wherein the pole assembly (108) is a telescopic pole assembly that comprises the pole (110) and an upper pole (146), the upper pole being slidable out of and into an upper end of the pole to enable extension and collapsing of the telescopic pole assembly.

14. The steaming device (100) according to any one of claims 1 to 13, comprising an ironing board (148), the ironing board being supportable by the pole assembly (108) and the support base (102).

15. The steaming device (100) according to any one of claims 1 to 14, comprising:

- a base unit (150) comprising a water tank,
- a steamer head (152) having a treatment plate delimiting at least one steam vent, and
- a hose cord (154) connecting the base unit to the steamer head; optionally wherein the support base (102) is arranged to support the base unit.

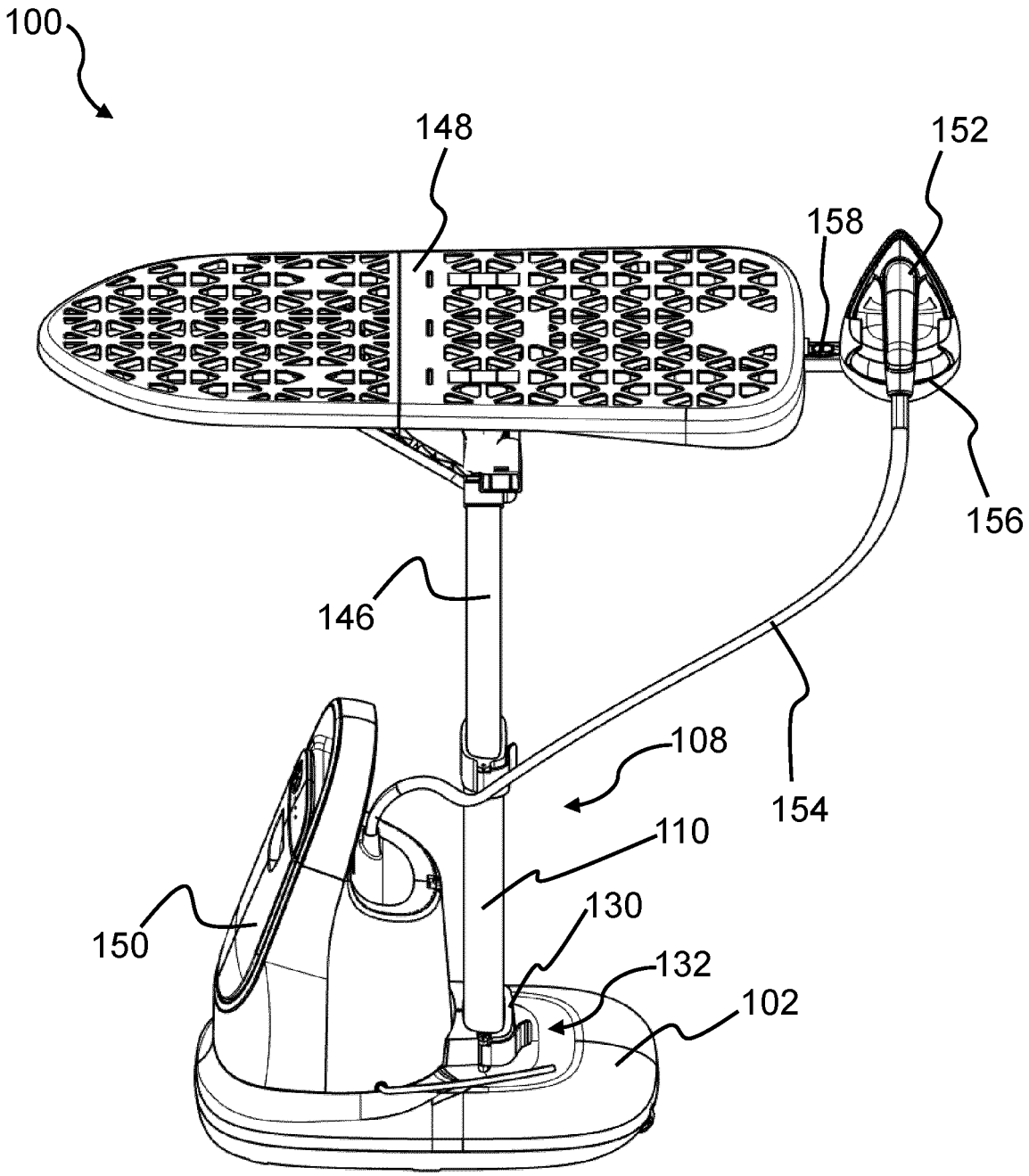

FIG.1

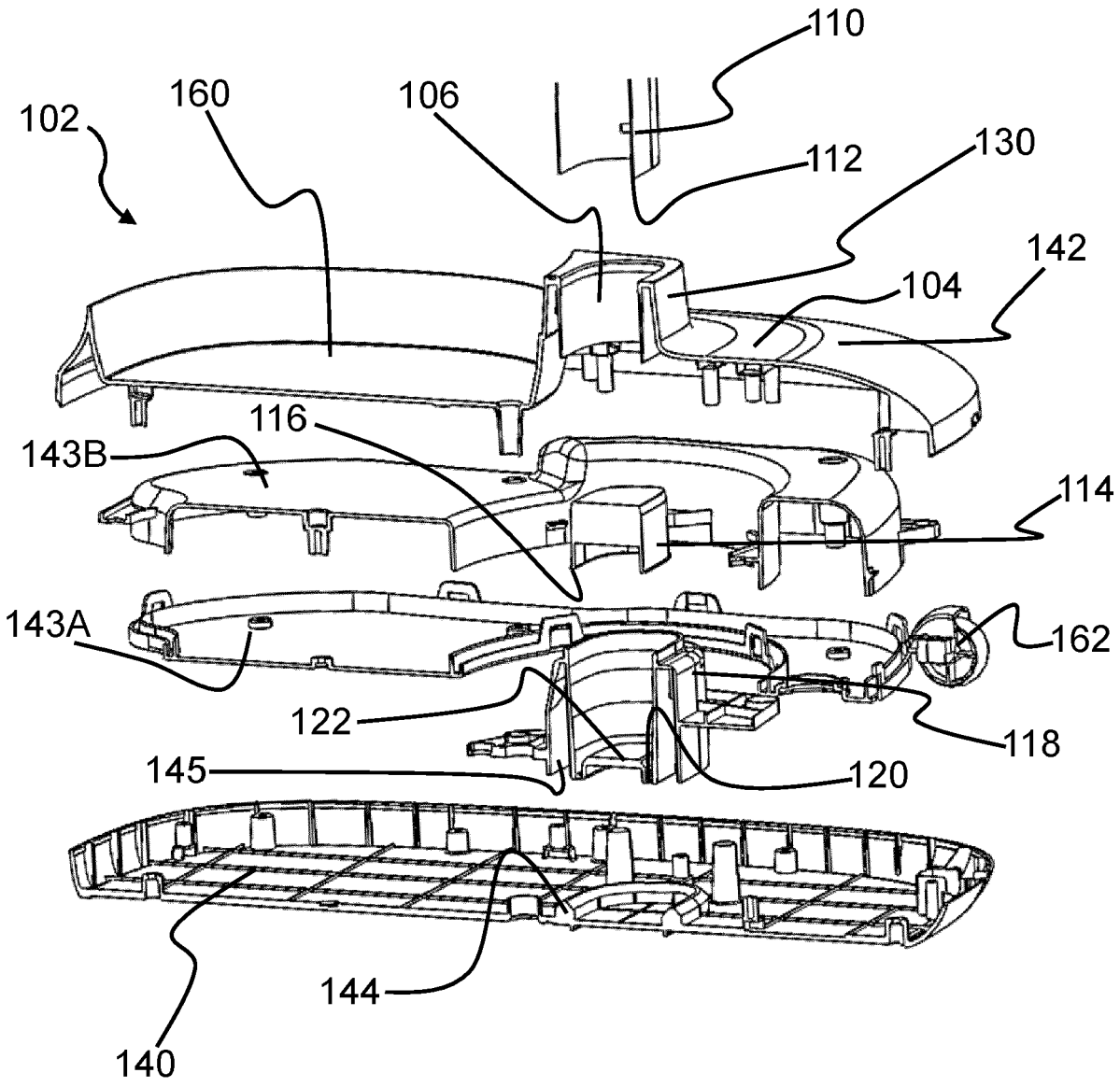
110
160
106
102
112
130
142
104
116
143B
114
143A
162
122
118
145
120
144
140

FIG.2

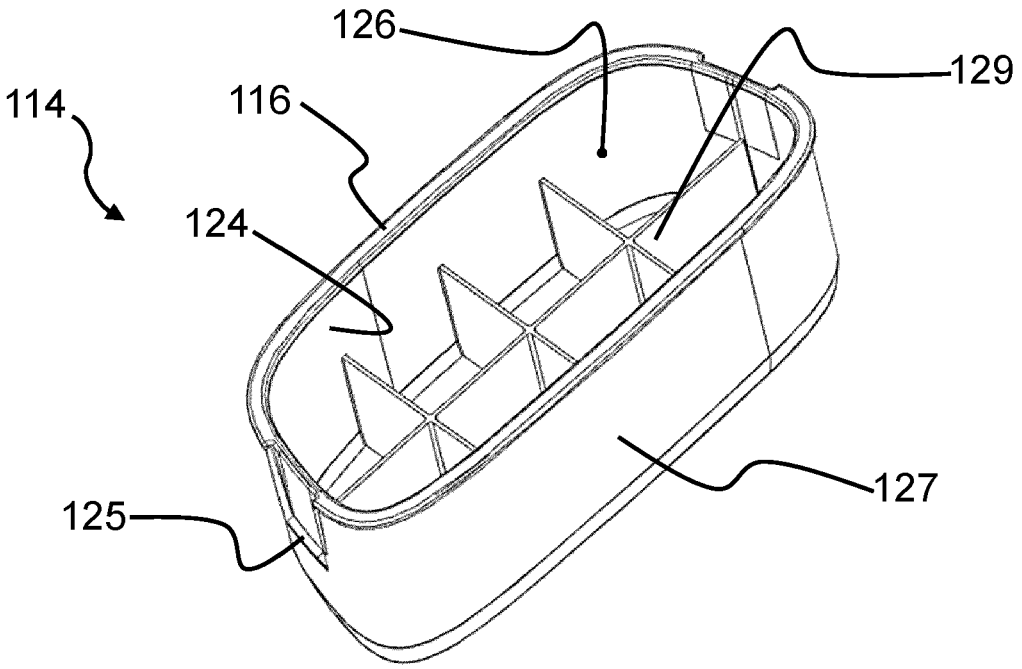

FIG.3A

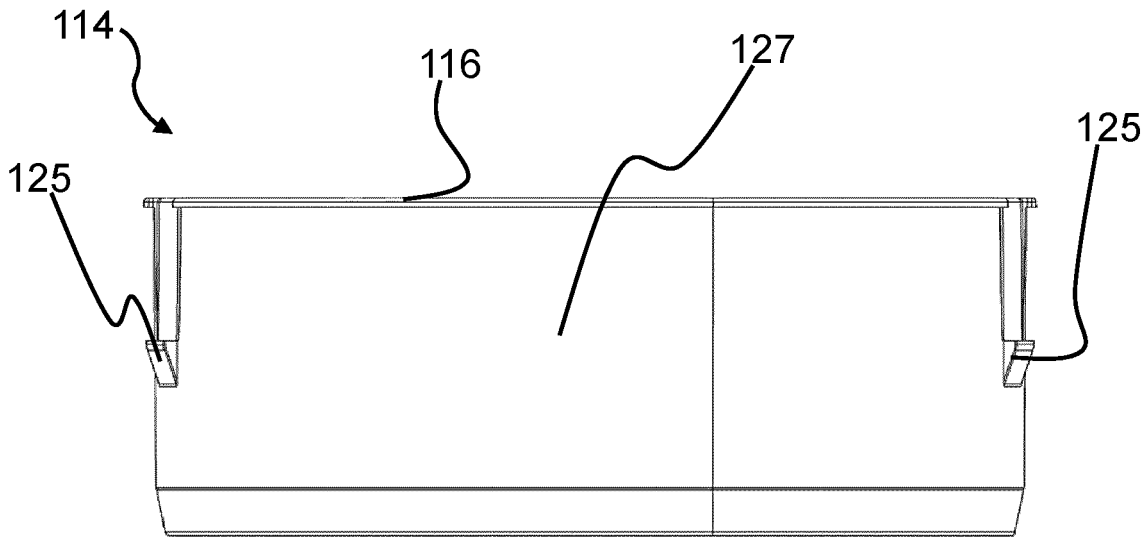

FIG.3B

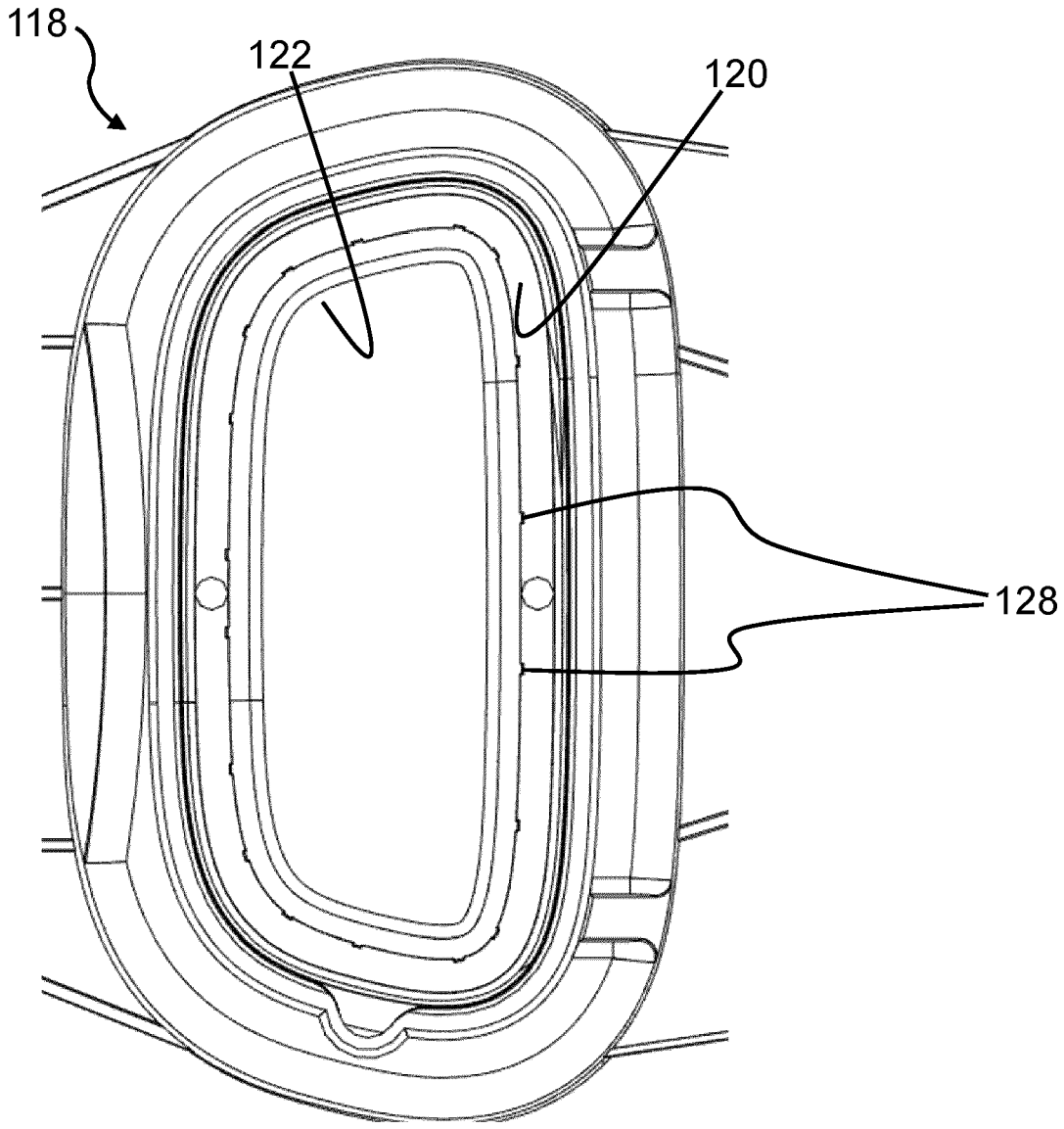

FIG.4

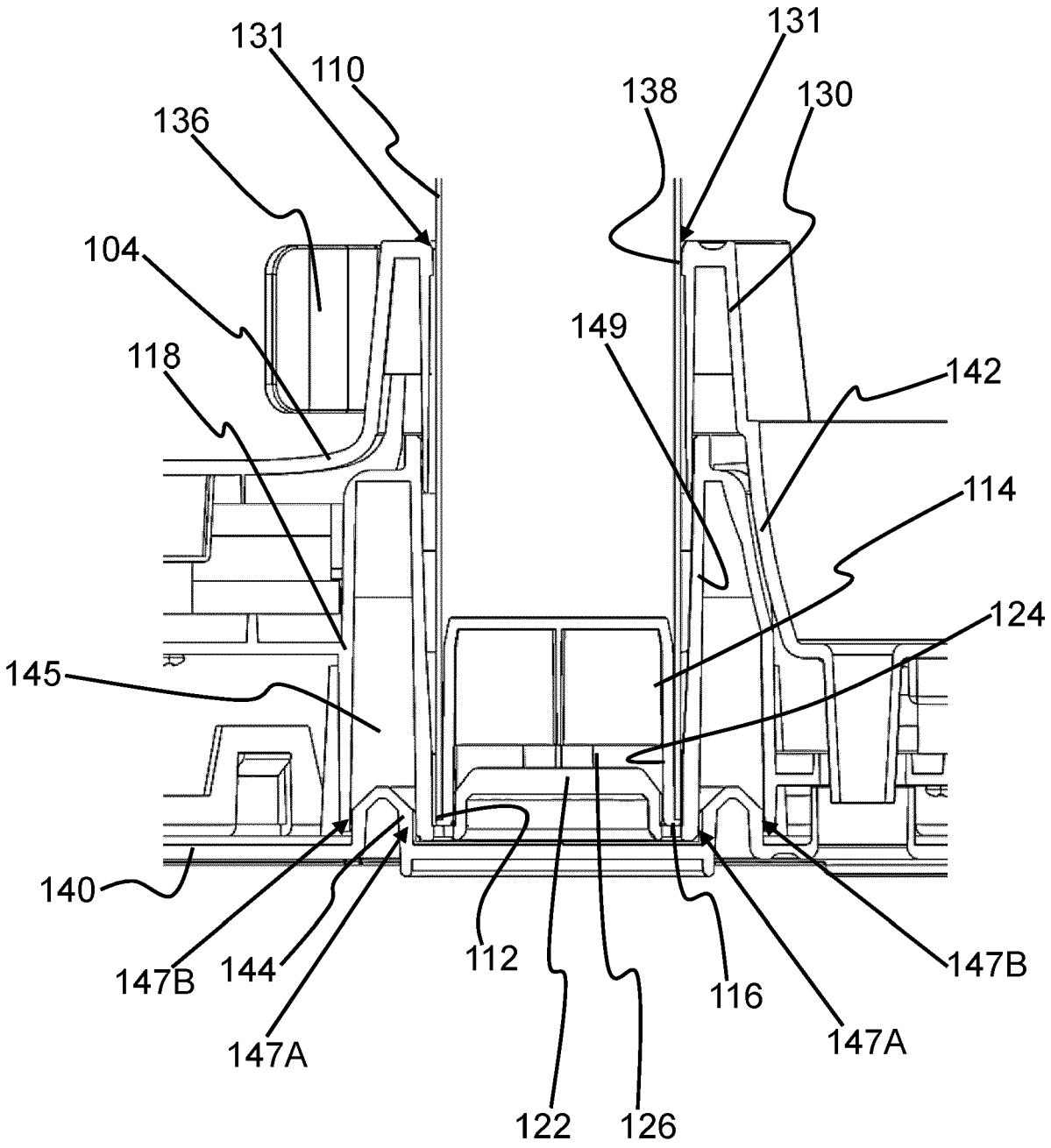
131
110
136
104
118
145
140
147B
144
147A
112
122
126
131
138
130
149
142
114
124
116
147A
147B

FIG.5A

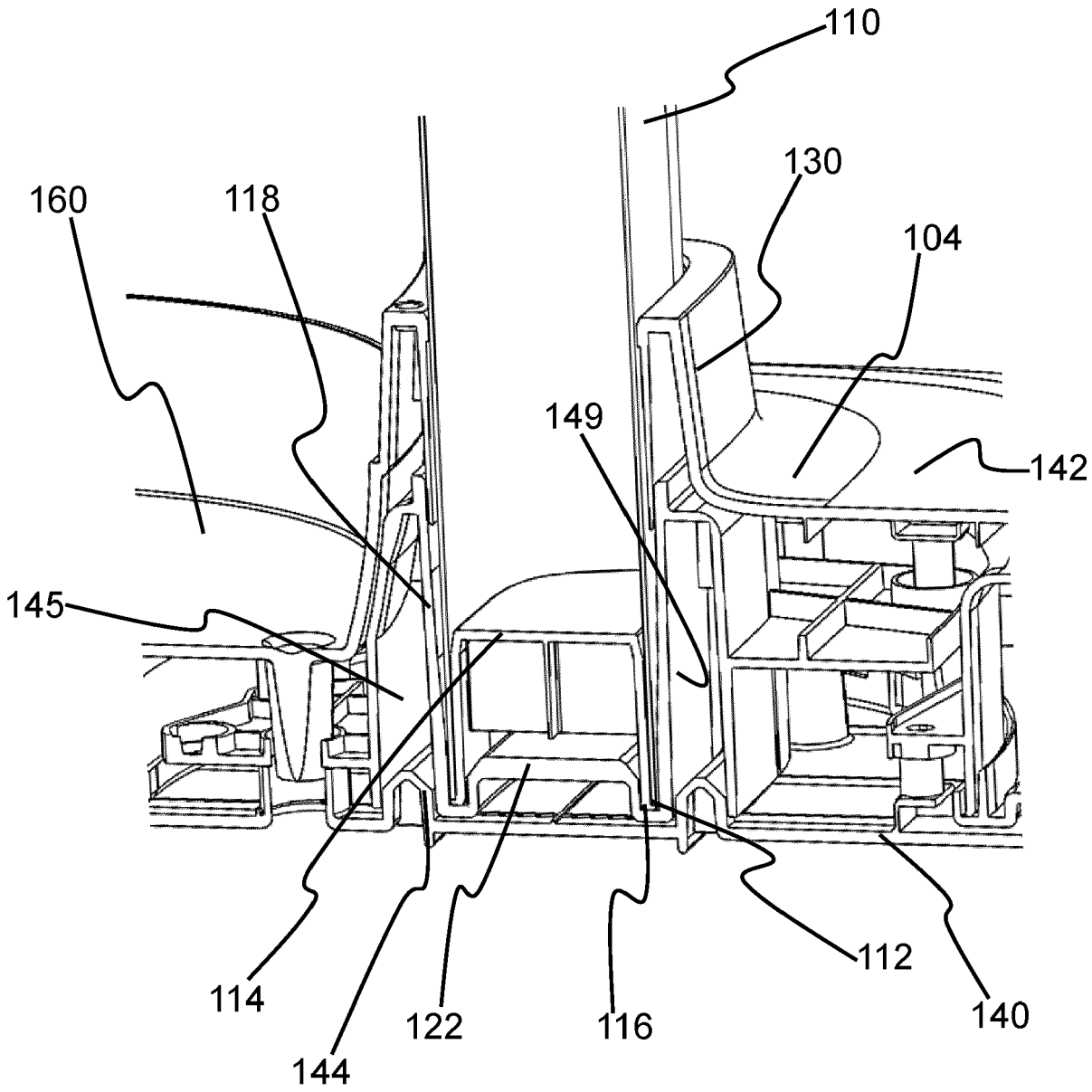

FIG.5B

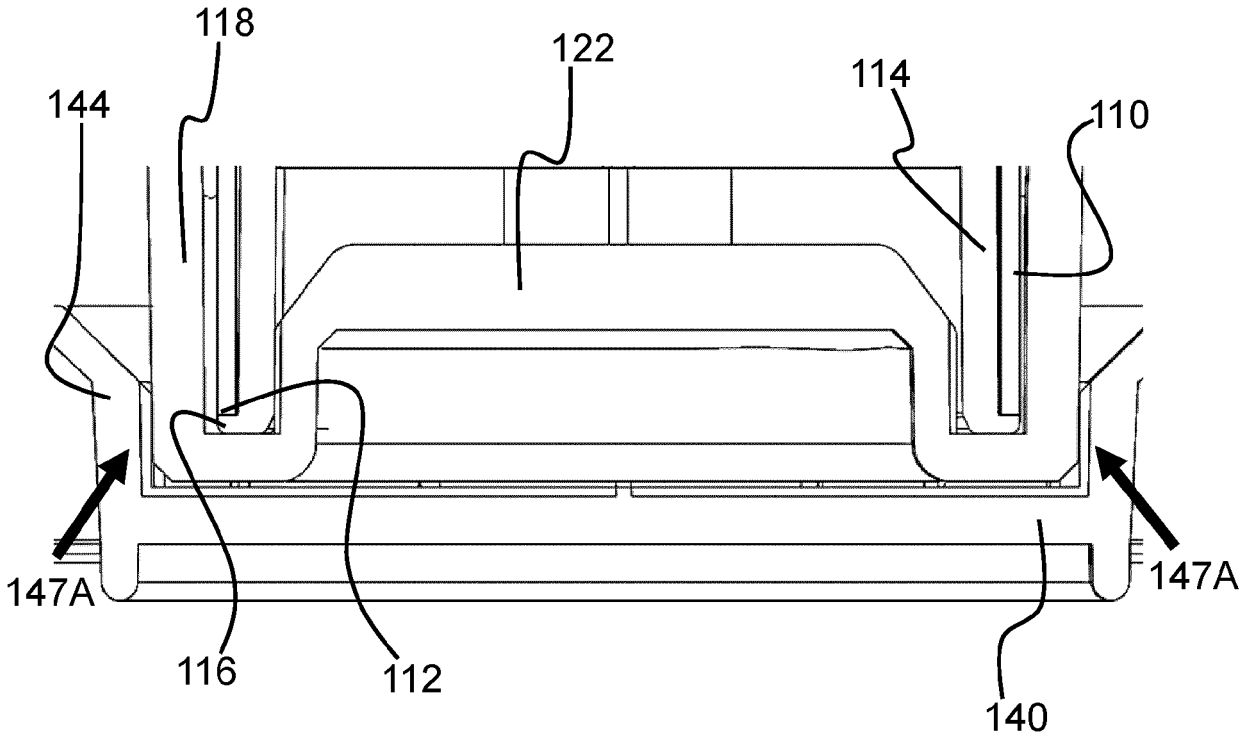
118
122
114
110
144
147A
147A
116
112
140

FIG.5C

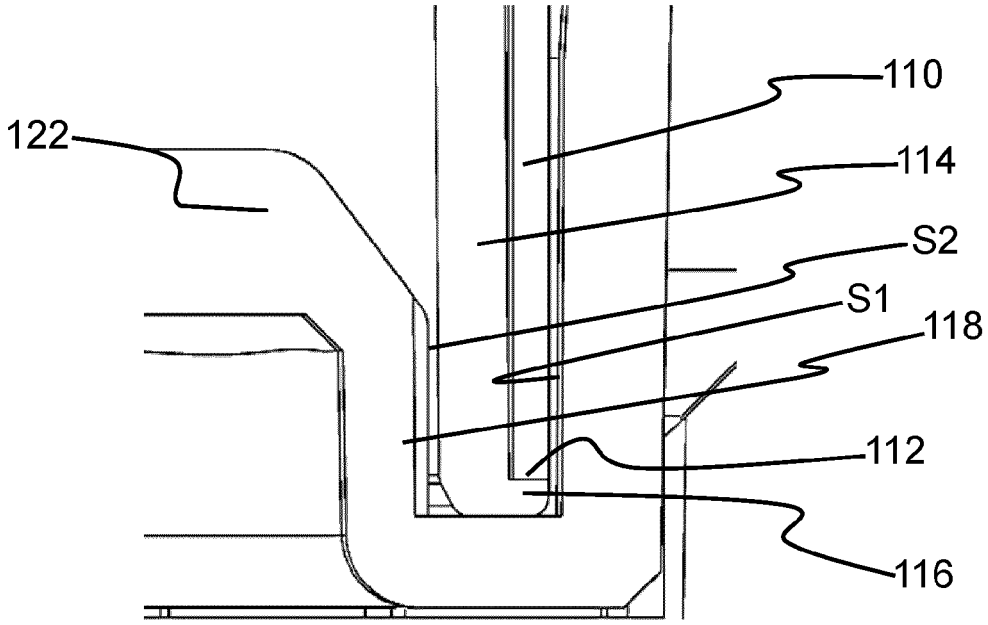
110
122
114
S2
S1
118
112
116

FIG.5D

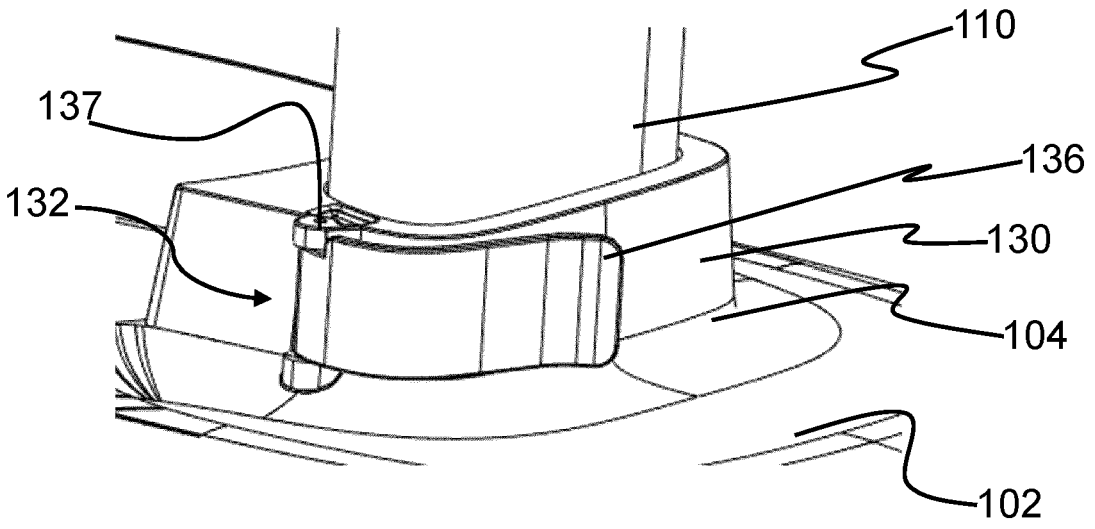

FIG.5E

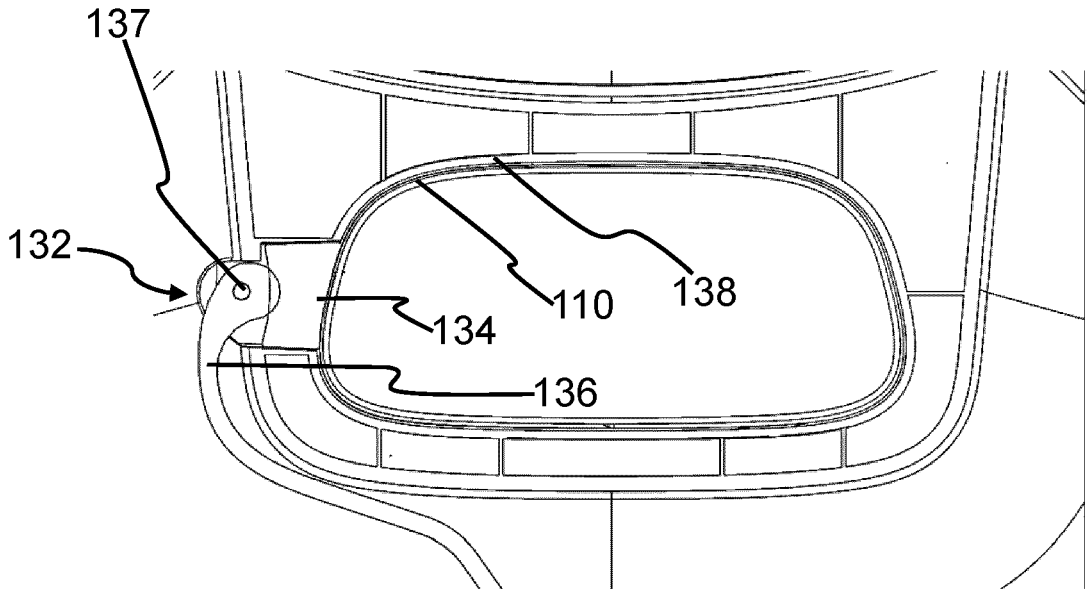

FIG.5F

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EUROPEAN SEARCH REPORT

Application Number
EP 23 15 1365

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X Y A	CN 213 624 882 U (ZHEJIANG SHAOXING SUPOR DOMESTIC ELECTRICAL APPLIANCE CO LTD) 6 July 2021 (2021-07-06) * the whole document *	1,8,9, 11,14,15 6,7,13 2-5,10, 12	INV. D06F81/00
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A	EP 3 783 171 B1 (SEB SA [FR]) 19 January 2022 (2022-01-19) * paragraphs [0039], [0045], [0048]; figures *	1-15	
A	CN 206 858 897 U (HUANG CHUNXIANG) 9 January 2018 (2018-01-09) * the whole document *	1-15	
			TECHNICAL FIELDS SEARCHED (IPC) D06F

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	21 June 2023	Popara, Velimir

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21-06-2023

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