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(54) WIRELESS HAND-HELD REMOTE-CONTROL DEVICE AND DOCK THEREFOR

(57) A dock (300) and a wireless hand-held remote-control device (200), for controlling various sections of a powered chair, is disclosed, wherein the dock (300) is adapted to be incorporated within, for example, an arm section of the powered chair, while the wireless hand-held remote-control device (200) is adapted to be inserted into the dock (300) so as not to be lost or misplaced. The wireless hand-held remote-control device (200) has a plurality of control buttons disposed upon the primary or upper face portion (216) thereof so as to control various sections of the powered chair, such as, for example, the headrest section, the back section, a lumbar support section, and a footrest section. In addition, control buttons for the aforenoted sections of the powered chair are also disposed upon a front sidewall portion (212) of the wireless hand-held remote-control device (200) such that the various sections of the powered chair can be controlled both when the wireless hand-held remote-control device (200) is disposed within the dock (300) or when the wireless hand-held remote-control device (200) has been removed from the dock (300).

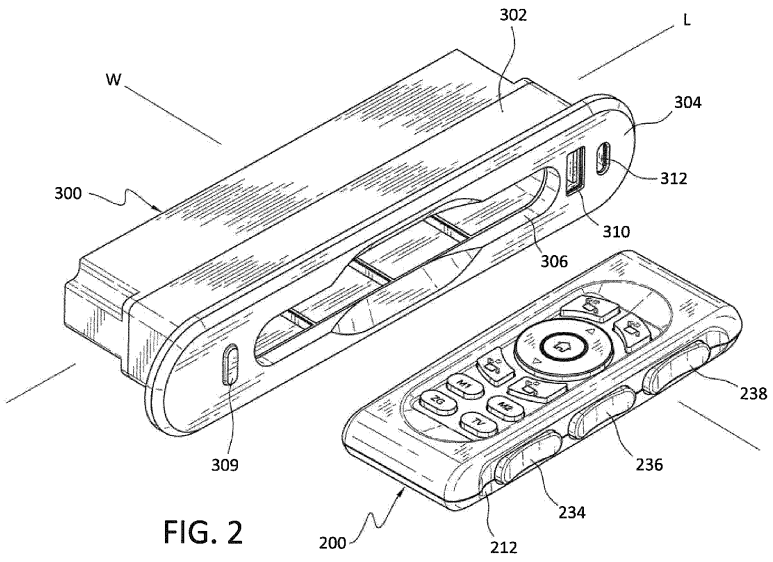

FIG. 2

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Description

FIELD OF THE INVENTION

[0001] The present invention relates to wireless hand-held remote control devices for controlling various powered devices, and a dock within which the wireless hand-held remote-control device can be placed so as to store the wireless hand-held remote-control device when it is not being used, as well as to prevent the same from being misplaced, and more particularly to a new and improved wireless hand-held remote-control device, and a dock therefor, which is particularly adapted to control powered lift chairs, powered recliner chairs, or powered lounger chairs.

BACKGROUND OF THE INVENTION

[0002] Powered lift chairs, powered recliner chairs, and powered lounger chairs are often found in residential home living rooms, family rooms, dens, offices, and bedrooms, as well as within business offices. Such chairs often come equipped with various different types of hand-held remote-control devices so as to control various sections of the particular chair in order to move one or more sections of the chair to particularly desired positions. For example, a footrest section of the chair may be moved to an elevated position or to a lowered position, the backrest section of the chair may be moved to an upright position or to any one of a multiplicity of reclined positions, a headrest section of the chair may be moved to various positions in conjunction with the movement of the backrest section of the chair, and a lumbar support section of the chair may be moved to a particular position so as to provide desired support to a person's lumbar region while sitting within the chair. The various different hand-held remote-control devices are essentially similar to each other in that they have various different buttons for controlling the movements of the footrest, the backrest, the headrest, and the lumbar support sections of the chair, however, some hand-held remote-control devices are hard-wired to the chair, while others are wireless. Obviously, if the hand-held remote-control device is hard-wired to the chair, it can be somewhat restrictive in its use depending upon its length, or due to the fact that the wire connecting the hand-held remote-control device to the chair can become entangled with a moving section of the chair, or with an object external to and totally dissociated from the chair.

[0003] Accordingly, wireless hand-held remote-control devices have become more prevalent. However, wireless hand-held remote-control devices present their own problems or inconveniences. Being wireless, and therefore totally independent of the various chair sections that they are controlling, they can obviously be located anywhere. Accordingly, they may become inadvertently wedged between different cushions or sections of the chair. Alternatively, they may be placed upon a table adjacent to the chair and then inadvertently covered by something which has also been placed upon the table. Still further, they may be dislodged from the table and fall onto the floor without the person, sitting within the chair, realizing what has happened to the remote-control device, and so the person, sitting in the chair, believes that the remote-control device has been misplaced or temporarily lost, thereby requiring the person, or someone else in the household or office, to expend time searching for the remote-control device. Yet further, since a wireless hand-held remote-control device operates upon battery power, in lieu of electrical power derived from an electrical wall socket wherein the hand-held remote-control device would be connected to the electrical wall socket by means of an electrical power cord, the battery of the wireless remote-control device needs to be periodically recharged. While recharging devices currently exist for recharging other devices, such as, for example, cell phones, they are independent devices which would not be readily adaptable for use with powered chairs in that the recharging devices would have to be placed upon some external surface of the chair, or upon a table or stand located adjacent to the chair.

[0004] A need therefore exists in the art for a new and improved wireless hand-held remote-control device. Another need exists in the art for a new and improved dock for housing the new and improved wireless hand-held remote-control device such that the new and improved wireless hand-held remote-control device does not get misplaced. Yet another need exists in the art for a new and improved dock for housing the new and improved wireless hand-held remote-control device such that the new and improved wireless hand-held remote-control device does not get misplaced and can be periodically recharged. Still another need exists in the art for a new and improved dock for housing the new and improved wireless hand-held remote-control device such that the new and improved wireless hand-held remote-control device does not get misplaced and can be periodically recharged, and wherein the new and improved dock and new and improved wireless hand-held remote-control device assembly can be readily incorporated within the overall structure of a powered lift chair, a powered reclining chair, or a powered lounger chair.

OVERALL OBJECTIVES OF THE INVENTION

[0005] An overall objective of the present invention is to provide a new and improved wireless hand-held remote-control device. Another overall objective of the present invention is to provide a new and improved dock for housing the new and improved wireless hand-held remote-control device such that the new and improved wireless hand-held remote-control device does not get misplaced. Yet another overall objective of the present invention is to provide a new and improved dock for housing the new and improved wireless hand-held remote-control device such that the new and improved wireless

hand-held remote-control device does not get misplaced and can be periodically recharged. Still another overall objective of the present invention is to provide a new and improved dock for housing the new and improved wireless hand-held remote-control device such that the new and improved wireless hand-held remote-control device does not get misplaced and can be periodically recharged, and wherein the new and improved dock and new and improved wireless hand-held remote-control device assembly can be readily incorporated within the overall structure of a powered lift chair, a powered reclining chair, or a powered lounger chair.

SUMMARY OF THE INVENTION

[0006] In accordance with the principles and teachings of the present invention, there is disclosed a wireless hand-held remote-control device, and a dock for housing the wireless hand-held remote-control device, wherein the dock is adapted to be fixedly secured or incorporated within the overall structure of a powered lift chair, a powered reclining chair, or a powered lounger chair, more particularly within one of the arm sections of the chair. More specifically, the dock comprises a hollow box having the configuration of a substantially rectangular parallelepiped, defined by a longitudinal extent and a transverse extent, with a substantially oval or elliptically shaped flanged portion fixedly formed or defined upon the front face or front wall thereof, and a slot formed within the front face or wall of the dock and extending into the hollow box. When the dock is fixedly secured or incorporated within one of the arm sections of the powered lift chair, the powered reclining chair, or the powered lounger chair, the flanged front face or wall of the dock will engage, and effectively be flush with, an outer surface portion of one of the chair arms while the wireless hand-held remote-control device is adapted to be inserted through the slot and into the hollow interior of the dock so as to be stored therewithin. It is also noted that the wireless hand-held remote-control device is secured within the dock by a magnetic interface defined between a pair of magnets incorporated which are within or upon an interior rear wall portion of the dock, and a pair of ferromagnetic plates which are incorporated within a rear side wall portion of the wireless hand-held remote-control device. Still yet further, the interior rear wall portion of the dock and the rear side wall portion of the wireless hand-held remote-control device are also provided with suitable electrical charging interface components whereby when the wireless hand-held remote-control device is disposed within the dock, the batteries of the wireless hand-held remote-control device can automatically be charged such that the wireless hand-held remote-control device always has sufficient electrical power to emit control signals when and as may be desired to control the movements of the various components or sections of the powered lift chair, the powered reclining chair, or the powered lounger chair, such as, for example, the footrest, the backrest, headrest, and the lumbar support section of the chair.

[0007] In addition, the primary or upper face of the wireless hand-held remote-control device is provided with a plurality of control buttons for controlling the movements of various sections of the chair, such as, for example, the footrest, the backrest, the headrest, and the lumbar support section of the chair, and, still further, a side wall portion of the wireless hand-held remote-control device also includes a plurality of control buttons for controlling the movements of the various sections of the chair, such as, for example, the footrest, the backrest, and the headrest section of the chair. In this manner, the movements of the footrest, backrest, and the headrest sections can be controlled both when the wireless hand-held remote-control device is inserted into, and disposed within, the dock, or when the wireless hand-held remote-control device has been removed from the dock. Lastly, one end of the interior lower wall portion of the dock is provided with a smoothly curved, upwardly extending bump or convex projection, and correspondingly, one end of the lower face of the wireless hand-held remote-control device is provided with a transversely extending concave recess for accommodating the curved bump or convex projection of the dock, or more particularly, to permit the wireless hand-held remote-control device to be inserted into the dock. In this manner, the wireless hand-held remote-control device can only be inserted into the dock in a predetermined manner or orientation so as to ensure that the magnetic and charging interfaces are properly aligned with each other, as well as to ensure that the sidewall portion of the wireless hand-held remote-control device, having the various control buttons mounted operatively thereon, is accessible to the person, sitting in the chair, when the wireless hand-held remote-control device is disposed within the dock.

BRIEF DESCRIPTION OF THE DRAWINGS

[0008] Various other features and attendant advantages of the present invention will be more fully appreciated from the following detailed description when considered in connection with the accompanying drawings in which like reference characters designate like or corresponding parts throughout the several views, and wherein:

FIGURE 1 is a front, right side, perspective view of a conventional **PRIOR ART** powered chair which may be a powered lift chair, a powered reclining chair, or a powered lounger chair;

FIGURE 2 is a front, right side, perspective view of a new and improved dock, and a new and improved wireless, hand-held remote-control device wherein the new and improved wireless hand-held remote-control device is adapted to be inserted into and housed within the new and improved dock when the new and improved wireless hand-held remote-con-

trol device is to be stored;

FIGURE 3 is a side elevational view showing the new and improved wireless hand-held remote-control device disposed within the new and improved dock when the new and improved wireless hand-held remote-control device is to be stored within the new and improved dock;

FIGURE 4 is an enlarged, side elevational detailed view of the new and improved dock and one side of the new and improved wireless hand-held remote-control device illustrating the magnetic interface components of the new and improved dock and the new and improved wireless hand-held remote-control device, as well as the charging interface components of the new and improved dock and the new and improved wireless hand-held remote-control device;

FIGURE 5 is an enlarged front elevational view of a first embodiment of the new and improved wireless hand-held remote-control device illustrating the various control buttons mounted thereon; and

FIGURE 6 is an enlarged front elevational view of a second embodiment of the new and improved wireless hand-held remote-control device illustrating the various control buttons mounted thereon.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0009] With reference first being made to **FIGURE 1,** a conventional, **PRIOR ART,** powered lift chair, powered reclining chair, or a powered lounger chair is disclosed and is generally indicated by the reference character 100. The chair 100 is seen to comprises a seat section 102, a back section 104 which may be moved between various positions between an upright position and one or more reclined positions, a lumbar support section 106 which is effectively part of the backrest section 104 but which is positionally located, and independently operated, so as to be capable of engaging the lumbar region of the back of the torso of the person seated in the chair 100 so as to provide various degrees of lumbar support as may be desired, and a headrest section 108 which may be moved to various positions as desired by a person seated in the chair 100 such that the headrest section 108 is disposed at a particular position that the person seated in the chair 100 finds most comfortable. In addition, the chair 100 further comprises a footrest section 110 which, in a manner similar to that of the headrest section 108, may be moved to various positions as desired by a person seated in the chair 100 such that the footrest section 110 is disposed at a position that the person seated in the chair 100 finds most comfortable. Lastly, the chair 100 comprises a pair of oppositely disposed arm sections 112,114.

[0010] Turning now to the present invention, with reference being made to **FIGURES 2-4,** and in accordance with the principles and teachings of the present invention, there is disclosed a wireless hand-held remote-control device which is generally indicated by the reference character 200, and a dock, for housing the wireless hand-held remote-control device 200 when the wireless hand-held remote-control device 200 is to be stored within the dock, wherein the dock is generally indicated by the reference character 300. More particularly, the dock 300 is adapted to be fixedly secured or incorporated within the overall structural framework of a powered lift chair, a powered reclining chair, or a powered lounger chair, more particularly within one of the left and right, oppositely disposed arm sections 112,114 of the chair 100. More specifically, it is seen that the dock 300 effectively comprises a hollow box or housing portion 302, which has the configuration of that of a substantially rectangular parallelepiped as defined along a longitudinal extent or axis **L** and a transverse extent or axis **W.** The front of the hollow box or housing portion 302 of the dock 300 is seen to comprise a substantially oval or elliptically shaped flanged wall portion 304 which is fixedly formed or integrally defined upon the front face or wall of the box or housing portion 302, and an elongated slot 306 is formed or defined within the flanged front face or wall portion 304 of the box or housing portion 302 so as to extend inwardly into the interior of the hollow box or housing portion 302. When the box or housing portion 302 of the dock 300 is adapted to be fixedly secured or incorporated within one of the arm sections 112,114 of the chair 100, the flanged front face or wall portion 304 of the dock 300 will engage, and effectively be flush with, an outer surface portion of one of the arm sections 112,114 of the chair 100, while the wireless hand-held remote-control device 200, also having a configuration which is that of a rectangular parallelepiped, is adapted to be inserted through the slot 306 of the flanged front face or wall portion 304 of the dock 300 and moved into the hollow interior of the box or housing portion 302 so as to be stored therewithin as can best be appreciated from **FIGURE 3.** As will be more fully discussed in detail hereinafter, the slot 306 effectively has a wider width dimension at its central portion, as compared to the width dimensions at it end portions so as to accommodate the various control buttons as disclosed in FIGURE 2 and as more fully discussed in **FIGURE 5.**

[0011] With reference now being made to **FIGURE 4,** it is also noted that the wireless hand-held remote-control device 200 is adapted to be secured within the dock 300 by a magnetic interface defined between the dock 300 and the wireless hand-held remote-control device 200. More particularly, as can be readily seen and appreciated from **FIGURE 4,** a pair of laterally spaced magnets 308 are incorporated within, or mounted upon, an interior rear wall portion of the dock 300, and a pair of laterally spaced ferromagnetic plates 202 are mounted upon or incorporated within a rear side wall portion 204 of the wireless

hand-held remote-control device 200 such that when the wireless hand-held remote-control device 200 is inserted into the dock 300, the pair of laterally spaced ferromagnetic plates 202 of the wireless hand-held remote-control device 200, mounted upon the rear side wall portion 204 of the wireless hand-held remote-control device 200, will be properly aligned with the pair of laterally spaced magnets 308 incorporated within, or mounted upon, the interior rear wall portion of the dock 300 thereby fixedly holding or retaining the wireless hand-held remote-control device 200 within the dock 300. Continuing still further, it is also seen that the interior rear wall portion of the dock 300 has a first electrical charging interface 310 incorporated therein or mounted thereon, and the rear side wall portion 204 of the wireless hand-held remote-control device 200 is corresponding provided with a second electrical charging interface 206 whereby when the wireless hand-held remote-control device 200 is disposed within the dock 300, the batteries of the wireless hand-held remote-control device 200 can automatically be charged such that the wireless hand-held remote-control device 200 always has sufficient electrical power to emit control signals when and as may be desired to control the movements of various sections of the chair 100, such as, for example, the footrest section 110, the backrest section 104, the headrest section 108, and the lumbar support section 106. The batteries may be any type of suitable re-chargeable batteries, such as, for example, lithium-ion batteries. It is lastly seen that one end of the interior lower wall portion 312 of the dock 300 is provided with a smoothly curved, transversely extending bump, or convex projection 314 which may be an upstanding projection or a projection that extends transversely inwardly from the open end of the slot 306 into and across the interior hollow region of the dock box or housing 302 within which the wireless hand-held remote-control device 200 is to be inserted. Correspondingly, one end of the lower face 208 of the wireless hand-held remote-control device 200 is provided with a transversely extending concave recess 210 for accommodating the curved bump or convex projection 314 of the dock 300, the front side wall portion 212 of the wireless hand-held remote-control device 200 being provided with a wall 214 for engaging the external face of the curved bump or convex projection 314 when the wireless hand-held remote-control device 200 is fully or completely inserted into the dock 300. In this manner, it is to be appreciated that the wireless hand-held remote-control device 200 can only be inserted into the dock 300 in a predetermined manner or orientation so as to ensure that the magnetic and charging interfaces 202,308, 206,310 are properly aligned with each other and that the wireless hand-held remote-control device 200 is in fact fully or completely inserted into the dock 300, as well as to readily provide access to the plurality of control buttons mounted upon the front side wall portion of the wireless hand-held remote-control device 200 as will be described more fully hereinafter.

[0012] With reference now being made to **FIGURE 5,** a first embodiment of a wireless hand-held remote-control device is disclosed and is generally indicated by the reference character 200. More particularly, it is seen that in accordance with 8the teachings and principles of the present invention, the first embodiment of the wireless hand-held remote-control device 200 is seen to comprise a primary or upper face 216 which is provided with a multiplicity of control buttons for controlling the movements of the various sections of the chair, such as, for example, the footrest, the backrest, and the headrest sections of the chair. More specifically, it is noted that the multiplicity of control buttons mounted upon the primary or upper face 216 comprises a first pair of control buttons 218,220 for respectively controlling the extension or recline movement of the headrest section 108 of the chair 100, and the retraction or return-to-normal movement of the headrest section 108 of the chair 100. Similarly, a second pair of control buttons 222,224 are provided upon the primary or upper face 216 of the wireless hand-held remote-control device 200 for respectively controlling the extension or recline movement of the backrest section 104 of the chair 100, and the retraction or return-to-normal movement of the backrest section 104 of the chair 100. Continuing further, a third pair of control buttons 226,228 are provided upon the primary or upper face 216 of the wireless hand-held remote-control device 200 for respectively controlling the extension or elevation movements of the footrest section 110 of the chair 100, and the retraction or return-to-normal movement of the footrest section 110 of the chair 100. It is of course to be appreciated that additional control buttons, not illustrated, may likewise be provided for controlling the extension and retraction of the lumbar section 106 of the chair 100.

[0013] Still further, it is also seen that the primary or upper face 216 of the wireless hand-held remote-control device 200 is provided with first and second memory control buttons 230,232, marked **M1,M2,** such that when these buttons are respectively depressed, the various sections of the chair 100 can be automatically moved to preset positions. In a similar manner, another button 234, marked **TV,** is also provided upon the primary or upper face 216 of the wireless hand-held remote-control device 200 so as to automatically move the various sections of the chair 100 to a predetermined **TV** position, and lastly, still another button 236, marked **ZG,** is also provided upon the primary or upper face 216 of the wireless hand-held remote-control device 200 so as to automatically move the various sections of the chair 100 to a predetermined zero-gravity position at which the headrest section 108 of the chair 100, the backrest section 104 of the chair 100, and the footrest section 110 of the chair 100 are effectively disposed at positions which effectively define a horizontal plane, or a planar arrangement wherein the headrest section 108 of the chair 100 is disposed at an elevation which is slightly lower than that of the footrest section 110 of the chair 100. In this manner, the various movements of the footrest section 110, the backrest sec-

tion 104, and the headrest section 108 of the chair 100 can also be controlled when the wireless hand-held remote-control device 200 has been removed from the dock 300. Lastly, as can best be appreciated from **FIGURES 2,3,** and **5,** the front side wall portion 212 of the wireless hand-held remote-control device 200 is also provided with a plurality of control buttons 238,240,242 for respectively controlling the movements of the various sections of the chair, such as, for example, the footrest section 110, the backrest section 104, and the headrest section 108 of the chair 100. In this manner, the various movements of the footrest section 110, the backrest section 104, and the headrest section 108 of the chair 100 can also be controlled, by a person sitting in the chair 100, when the wireless hand-held remote-control device 200 has been inserted into the dock 300. Lastly, a **HOME** button 244 is provided upon the primary or upper face 216 of the wireless hand-held remote-control device 200 so as to automatically move all of the various sections of the chair 100 to a normal or default seated position. Reverting to **FIGURES 2** and **3,** it is likewise seen that the front flanged wall portion 304 of the dock is also provided with a **HOME** button 309 as well as a pair of charging ports 310,312 for charging auxiliary electronic devices, the charging ports comprising, for example, a type-**C** charging port, or a type **1.0** charging port.

[0014] With reference lastly being made to **FIGURE 6,** there is disclosed a second embodiment of a new and improved wireless hand-held remote-control device which has been developed in accordance with the principles and teachings of the present invention and which is generally indicated by the reference character 400. It is to be noted that the second embodiment of the new and improved wireless hand-held remote-control device 400 is generally similar to the first embodiment of the new and improved wireless hand-held remote-control device 200, with some differences which will be more fully discussed immediately hereinafter, and accordingly, component parts of the second embodiment of the new and improved wireless hand-held remote-control device 400 which correspond to components parts of the first embodiment of the new and improved wireless hand-held remote-control device 200 will be designated in the 400 series. More particularly, it is seen that the primary or upper face 416 of the second embodiment of the new and improved wireless hand-held remote-control device 400 comprises a first pair of control buttons 418,420 for respectively controlling the extension or recline movement of the backrest and headrest sections 104,108 of the chair 100, wherein the backrest and headrest sections 104108 of the chair 100 have effectively been integrated together as opposed to being separately or independently movable with respect to each other, as was the case within the first embodiment of the new and improved wireless hand-held remote-control device 200, and the retraction or return-to-normal movement of the backrest and headrest sections 104,108 of the chair 100. In addition, a second pair of control buttons 426,428 are provided upon the primary or upper face portion 416 of the second embodiment of the new and improved wireless hand-held remote-control device 400 for respectively controlling the extension or elevation movements of the footrest section 110 of the chair 100, and the retraction or return-to-normal movement of the footrest section 110 of the chair 100. As was also the case with the first embodiment of the new and improved wireless hand-held remote-control device 200, the primary or upper face portion 416 of the second embodiment of the new and improved wireless hand-held remote-control device 400 is likewise provided with a **HOME** button, a pair of memory buttons **M1,M2** designated as 430,432, a **TV** button designated as 434, and a zero gravity button **ZG** designated as 436. Lastly, as was also the case with the first embodiment of the new and improved wireless hand-held remote-control device 200, the front sidewall portion 412 of the second embodiment of the new and improved wireless hand-held remote-control device 400 is likewise provided with a pair of control buttons 438,440 for controlling the headrest/backrest 108/104 and footrest 110 sections of the chair 100.

[0015] Obviously, many variations and modifications of the present invention are possible in light of the above teachings. For example, while various different control buttons have been disclosed upon the new and improved wireless hand-held remote-control devices for controlling various different functions of various different sections of a powered chair, it is to be noted that other buttons may be included upon a wireless hand-held remote-control device for controlling various other different functions of various different sections of a powered chair. Still further, the electronic control circuitry of the various different control buttons may be altered such that the various different control buttons will control other sections of a powered chair than has been specifically illustrated. It is therefore to be understood that within the scope of the appended claims, the present invention may be practiced otherwise than as specifically described herein.

Claims

1. A hand-held remote-control device for controlling various sections of a powered chair and for insertion within a dock such that said hand-held remote-control device cannot be misplaced, comprising:

   a housing having a configuration which is substantially that of a parallelepiped and comprising a primary upper face, a rear side face, a front side face, and a bottom face;
   a plurality of control buttons operatively mounted upon said primary upper face for controlling various sections of the powered chair; and
   a plurality of control buttons operatively mounted upon said front side face for controlling various sections of the powered chair,

whereby the various sections of the powered chair can be controlled by said hand-held remote-control device both when said hand-held remote-control device is disposed within the dock or has been removed from the dock.

2. The hand-held remote-control device as set forth in Claim 1, further comprising:
at least one magnetic interface mounted upon said rear side face of said hand-held remote-control device for cooperation with at least one magnetic interface disposed upon the dock so as to fixedly secure said hand-held remote-control device within the dock.

3. The hand-held remote-control device as set forth in Claim 1, wherein:
said hand-held remote-control device comprises a wireless hand-held remote control device.

4. The hand-held remote-control device as set forth in Claim 3, wherein:

said wireless hand-held remote-control device is battery-powered;
and
at least one battery of said battery-powered wireless hand-held remote-control device comprises a lithium-ion battery.

5. The hand-held remote-control device as set forth in Claim 3, further comprising:
at least one electrical charging interface disposed upon said rear side face of said wireless hand-held remote-control device for cooperation with at least one electrical charging interface disposed within the dock so as to electrically recharge said at least one battery of said hand-held remote-control device when said hand-held remote-control device is disposed within said dock.

6. The hand-held remote-control device as set forth in Claim 1, further comprising:
a recess defined within said bottom face of said hand-held remote-control device for cooperation with a convex bump/projection mounted within the dock so as to ensure that said hand-held remote control device can only be inserted into the dock in a predetermined manner.

7. A dock for housing a hand-held remote-control device for use in connection with controlling various sections of a powered chair, comprising:

a hollow housing having a configuration which is substantially that of a rectangular parallepiped, and which is adapted to be fixedly mounted within a frame portion of the powered chair;
a flanged portion fixedly secured upon a front face of said hollow housing; and
an elongated slot defined within said flanged portion and extending into said hollow housing for permitting a hand-held remote-control device to be insert ed through said slot and into said hollow housing such that the hand-held remote-control device can be stored within said dock.

8. The dock as set forth in Claim 7, further comprising:
at least one magnetic interface disposed within said hollow housing of said dock for cooperation with at least one magnetic interface disposed upon the hand-held remote-control device so as to fixedly secure the hand-held remote-control device within said housing of said dock.

9. The dock as set forth in Claim 7, further comprising:
at least one electrical charging interface disposed within said hollow housing of said dock for cooperation with at least one electrical charging interface disposed upon the hand-held remote-control device so as to electrically recharge the hand-held remote-control device when the hand-held remote-control device is disposed within said housing.

10. The dock as set forth in Claim 7, further comprising:
at least one charging port defined within said flanged portion of said dock for charging auxiliary electronic devices.

11. The dock as set forth in Claim 7, further comprising:
a convex bump/projection mounted within said hollow interior of said dock for cooperation with a concave recess defined upon the hand-held remote-control device so as to ensure that the hand-held remote control device can only be inserted into said dock in a predetermined manner.

12. The dock as set forth in Claim 7, further comprising:
a **HOME** button mounted upon said flanged portion of said dock for returning all sections of the chair to their original positions.

13. The dock as set forth in Claim 7, wherein:
when said dock is disposed within the frame portion of the powered chair, said flanged portion of said dock will engage an outer surface region of the frame portion of the powered chair so as to ensure that said dock is fixedly secured within the frame portion of the powered chair.

14. In combination, a dock for housing a hand-held remote-control device for use in connection with controlling various sections of a powered chair, wherein:

said dock comprises a hollow housing having a configuration which is substantially that of a rec-

tangular parallepiped, and which is adapted to be fixedly mounted within a frame portion of the powered chair;
a flanged portion fixedly secured upon a front face of said hollow housing;
said hand-held remote-control device comprises a housing having a configuration which is substantially that of a parallelepiped and comprising a primary upper face, a rear side face, a front side face, and a bottom face; and
an elongated slot defined within said flanged portion of said dock and extending into said hollow housing of said dock for permitting said hand-held remote-control device to be inserted through said slot of said flanged portion of said dock and into said hollow housing of said dock such that said hand-held remote-control device can be stored within said dock.

15. The combination as set forth in Claim 14, further comprising:

a first magnetic interface disposed within said hollow housing of said dock; and
a second magnetic interface mounted upon said rear side face of said hand-held remote-control device for cooperation with said first magnetic interface disposed within said hollow housing of said dock so as to fixedly secure said hand-held remote-control device within said housing of said dock.

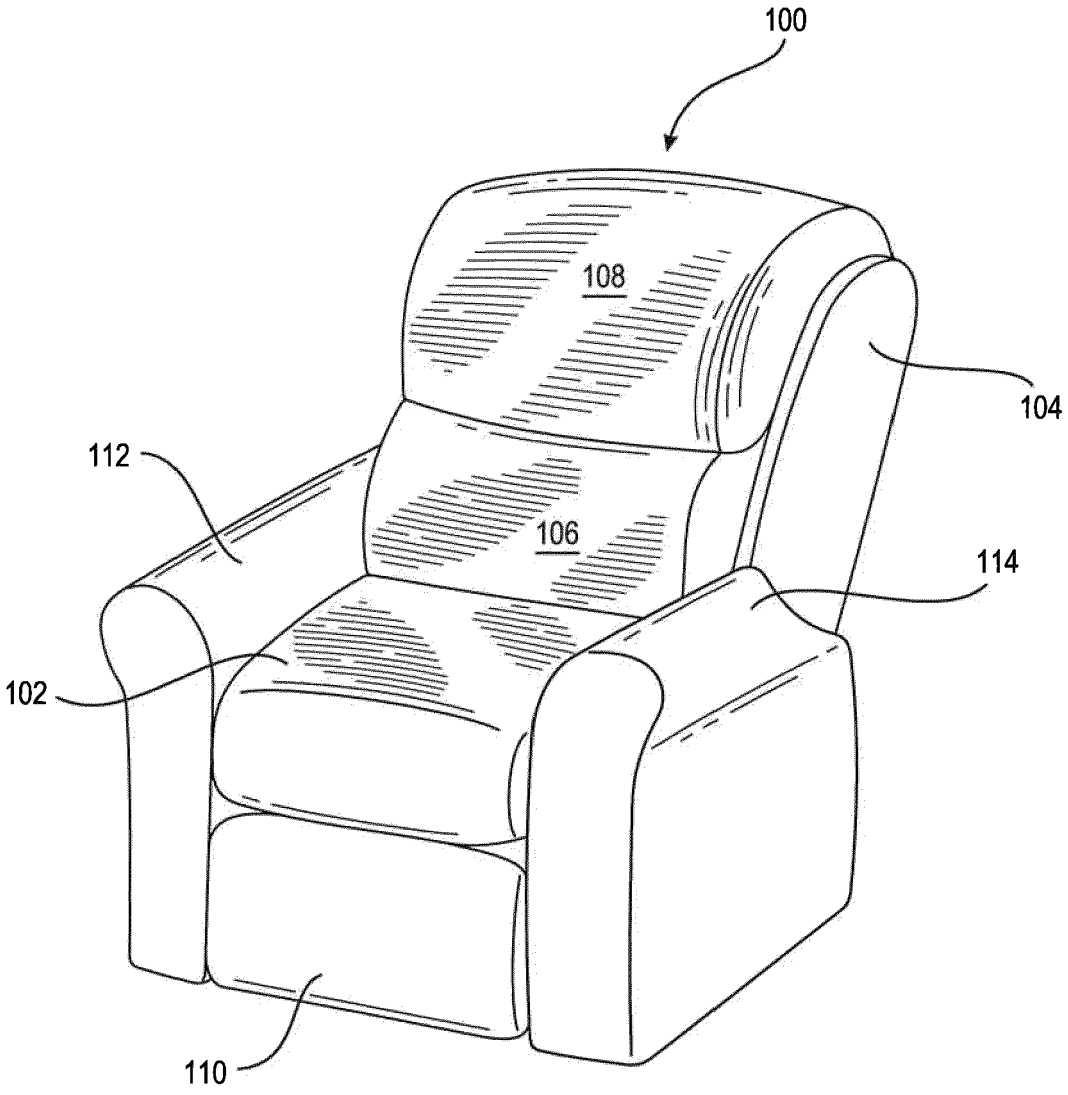


FIG. 1
(PRIOR ART)

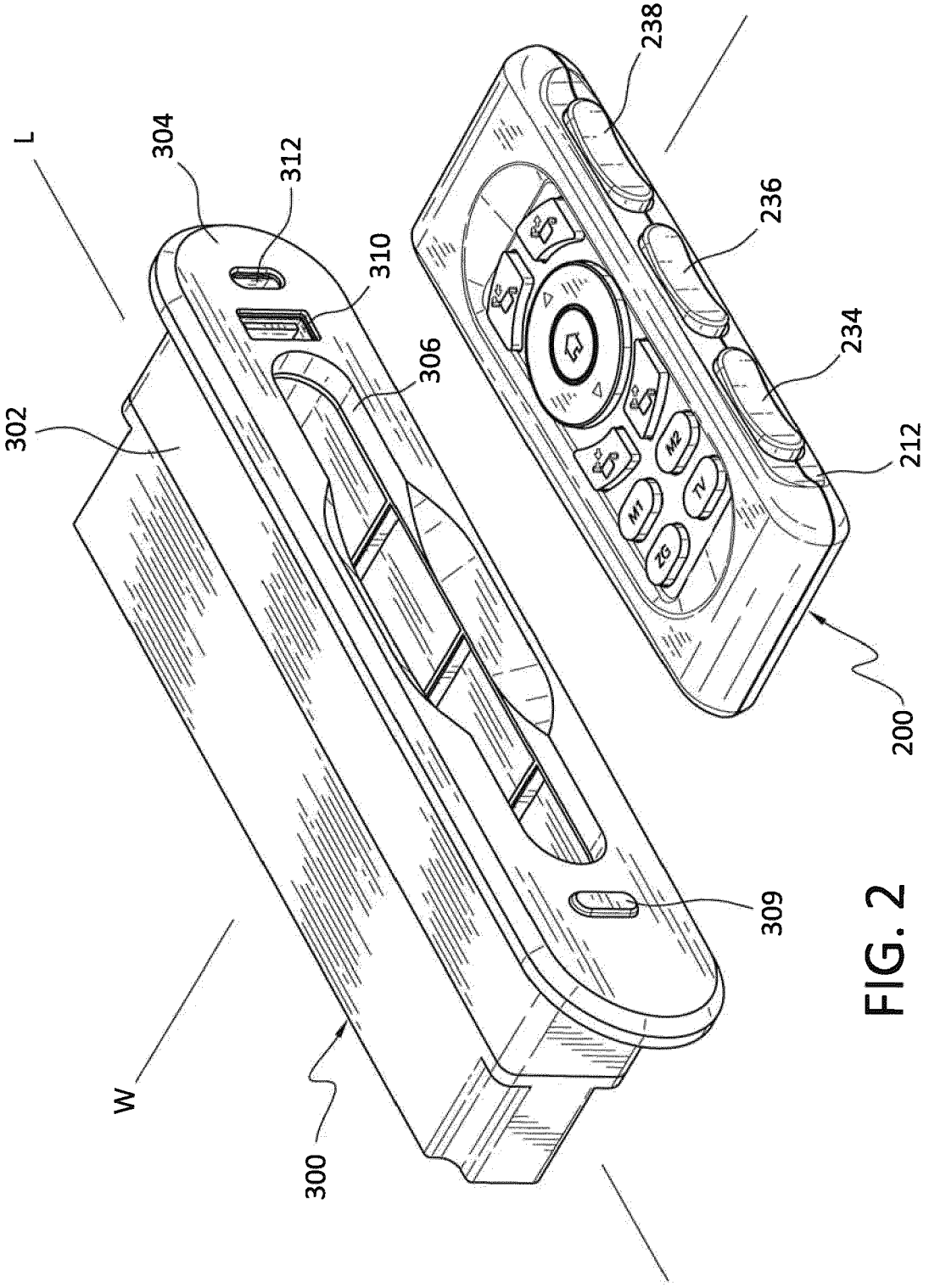


FIG. 2

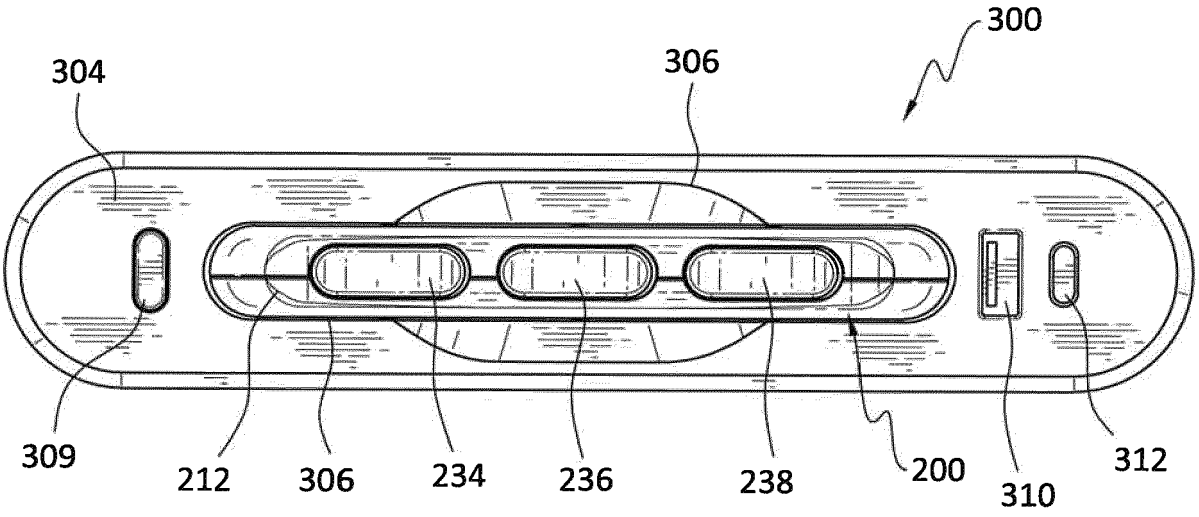


FIG. 3

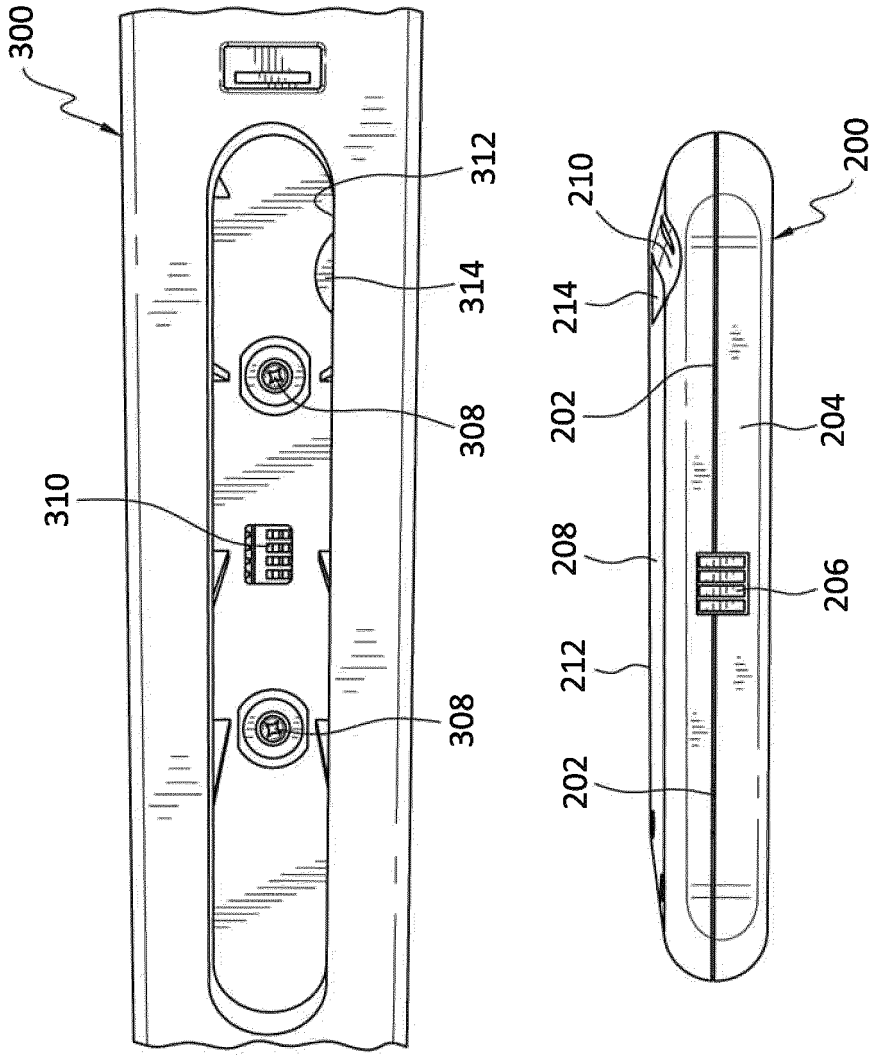
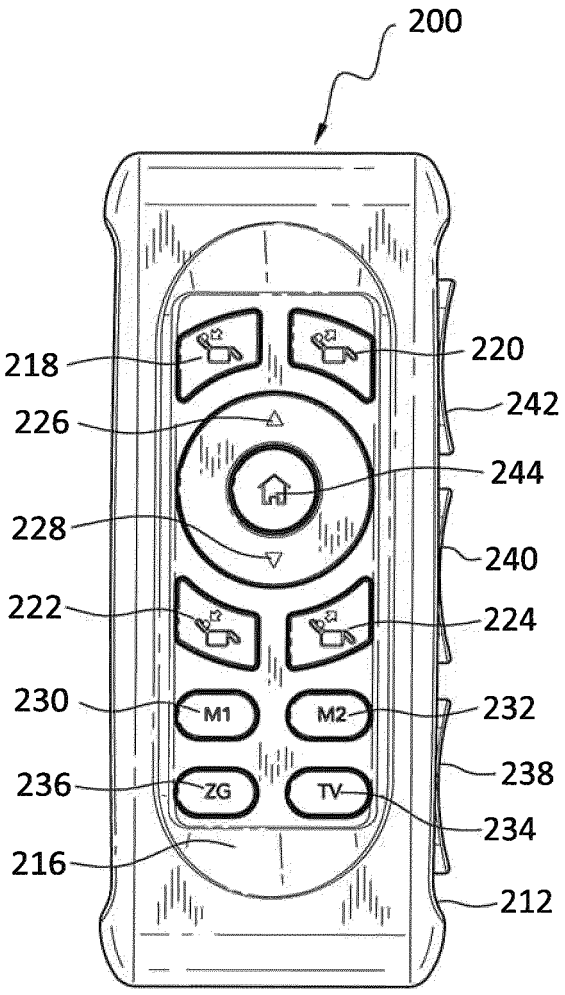


FIG. 4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224
230
M1
M2
232
236
ZG
TV
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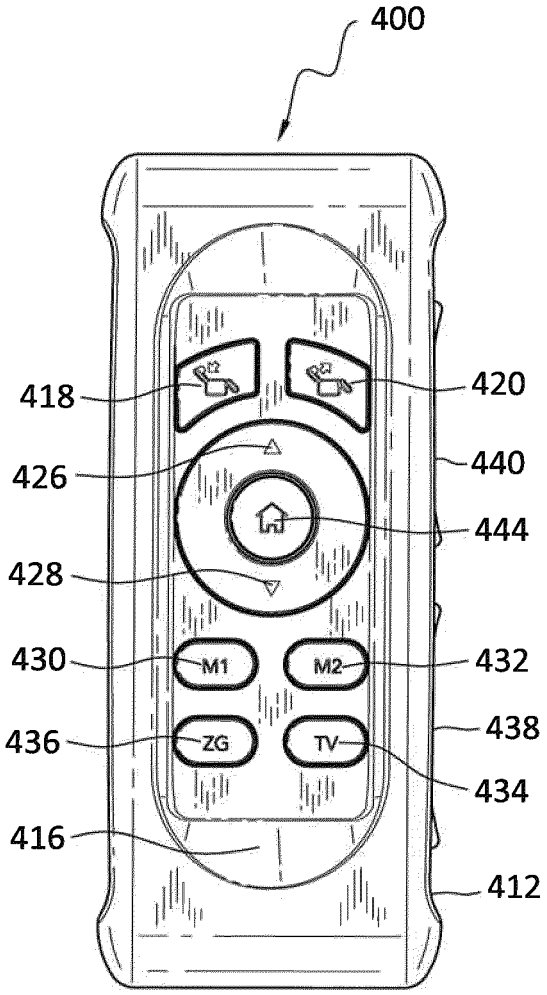
216
212

FIG. 5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426
444
428
430
M1
M2
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436
ZG
TV
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434
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412

FIG. 6

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PARTIAL EUROPEAN SEARCH REPORT

under Rule 62a and/or 63 of the European Patent Convention. This report shall be considered, for the purposes of subsequent proceedings, as the European search report

Application Number
EP 23 16 7490

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	US 2016/378199 A1 (SIZELOVE STEVEN [US] ET AL) 29 December 2016 (2016-12-29) * paragraph [0027] - paragraph [0054]; figures 1-7 *	1,3-7,9, 11,13 2,8	INV. A47C31/00
X Y	US 2020/305609 A1 (RAINS JASON D [US] ET AL) 1 October 2020 (2020-10-01) * paragraph [0073] - paragraph [0097]; figures 1-29 *	7-13 2,8	
X	JP 2000 306466 A (SONY CORP) 2 November 2000 (2000-11-02) * paragraph [0007] - paragraph [0011]; figure 1 *	1,4	
Y	CN 218 213 829 U (EMOMO TECH CO LTD) 3 January 2023 (2023-01-03) * paragraph [0039] - paragraph [0041]; figures 1-9 *	2,8	

TECHNICAL FIELDS SEARCHED (IPC)

A47C
H01H
A47B
G06F
B64D
B60R
A61H

INCOMPLETE SEARCH

The Search Division considers that the present application, or one or more of its claims, does/do not comply with the EPC so that only a partial search (R.62a, 63) has been carried out.

Claims searched completely :

Claims searched incompletely :

Claims not searched :

Reason for the limitation of the search:

see sheet C

Place of search	Date of completion of the search	Examiner
The Hague	11 December 2023	Kus, Slawomir

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
Y : particularly relevant if combined with another document of the same category
A : technological background
O : non-written disclosure
P : intermediate document

T : theory or principle underlying the invention
E : earlier patent document, but published on, or after the filing date
D : document cited in the application
L : document cited for other reasons

& : member of the same patent family, corresponding document

EPO FORM 1503 03.82 (P04E07)

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INCOMPLETE SEARCH
SHEET C

Application Number
EP 23 16 7490

Claim(s) completely searchable:
1-13

Claim(s) not searched:
14, 15

Reason for the limitation of the search:

1.0. Incomplete Search under Rule 62a EPC
1.1. The present set of claims 1-15 contains three independent claims 1,7,14 in the same category.
Under Article 84 in combination with Rule 43(2) EPC, an application may contain more than one independent claim in a particular category only if the subject-matter claimed falls within one or more of the exceptional situations set out in paragraph (a), (b) or (c) of Rule 43(2) EPC. This is not the case in the present application.
Independent claims 1,7 relate to inter-related products - exception (a) (in the sense of plug-and-socket) (see Guidelines F-IV 3.2 and 3.3), therefore such two independent claims are allowable.
However third independent claim 14 relates neither to inter-related products - exception (a) together with the independent claims 1/7, nor to different uses of a product or apparatus - exception (b) (see Guidelines F-IV 3.2 and 3.3).
Regarding exception (c) it is noted that claim 14 do not relate to an exceptional case of "alternative" solutions in the sense of mutually exclusive possibilities, since it would have always been possible to recast the independent claim 14 as the dependent on claims 1/7 by selecting a common wording for the essential features in claims 1/7 and 14.
1.2. In accordance with Rule 62a(1) EPC the applicant had been invited to indicate the single independent apparatus claim on the basis of which the search had to be carried out. No reply had been received within the the period set in the invitation dated 14.09.2023. Therefore, in accordance with Rule 62a(1) EPC, second sentence, the search has been carried out on claims 1-13
1.3. The claims must be amended in such way as to remove the unsearched subject-matter and the description must be adapted accordingly.
In addition, the amendments may not relate to subject-matter that was excluded from the search following an invitation under Rule 62a(1) EPC. The applicant is also informed that any attempt to reintroduce subject-matter not searched under Rule 62a(1) will be objected under Rule 137(5) EPC.
1.4. The subject-matter to be excised may be made the subject of one or more divisional applications. The divisional applications must be filed with the European Patent Office in Munich, The Hague or Berlin and shall be in the language of the proceedings relating to the present application (cf. Article 76(1) and Rule 36(2) EPC). The time limit for filing divisional applications (Rule 36(1) EPC) must be observed.

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 23 16 7490

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

11-12-2023

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2016378199 A1	29-12-2016	CN 106275449 A	04-01-2017
		EP 3109738 A1	28-12-2016
		RU 2016125426 A	26-12-2017
		US 2016378199 A1	29-12-2016
US 2020305609 A1	01-10-2020	AU 2020256170 A1	07-10-2021
		CA 3133009 A1	08-10-2020
		CA 3213855 A1	08-10-2020
		CN 113950272 A	18-01-2022
		DE 112020001700 T5	16-12-2021
		GB 2595825 A	08-12-2021
		US 2020305609 A1	01-10-2020
		WO 2020205887 A1	08-10-2020
JP 2000306466 A	02-11-2000	NONE	
CN 218213829 U	03-01-2023	NONE	

EPO FORM P0459

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