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(71) Applicant: **Ferlem IP Holding B.V.**
5705 CL Helmond (NL)

(72) Inventor: **VAN HOOFF, Bernardus Johannes Wilhelmus Nicolaas**
5705 CL HELMOND (NL)

(74) Representative: **Algemeen Octrooi- en Merkenbureau B.V.**
P.O. Box 645
5600 AP Eindhoven (NL)

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(54) **WALL LOCK DEVICE, ASSEMBLY COMPRISING THE WALL LOCK DEVICE AND BUILDING COMPRISING THE ASSEMBLY**

(57) A wall lock device comprising:
- a wall lock actuation arrangement provided with an input element of said angular transmission and an actuation element arranged for rotating said wall lock actuation arrangement about a virtual actuation axis for actuating said angular transmission;
- a wall lock locking arrangement provided with said output element of said angular transmission and a wall locking element arranged for locking said wall lock device via said wall locking element to said positioning and fastening device, wherein said wall lock locking arrangement

is arranged such that said wall lock locking arrangement, or at least the wall locking element thereof, is allowed to rotate about a virtual locking axis between a first angular position and a second angular position and wherein said wall locking element is moveable along said virtual locking axis, via actuation of said angular transmission through said actuation element, when said wall lock locking arrangement, or at least said wall locking element thereof, is in said first angular position for realising said locking.

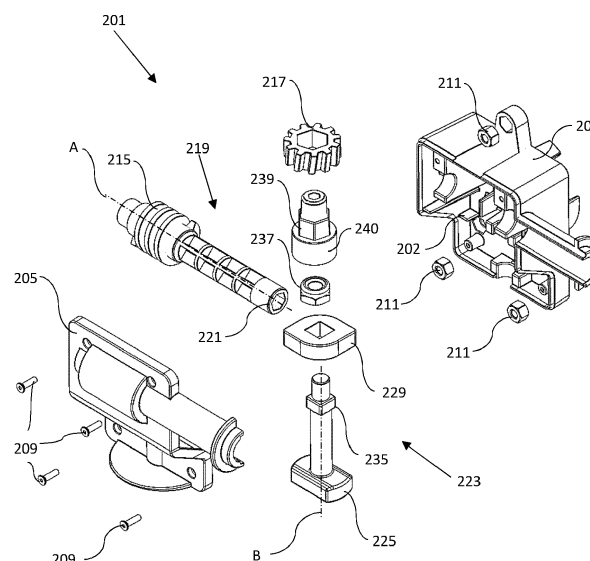


Fig. 16

Description

[0001] According to a first aspect, the present disclosure relates to a wall lock device arranged for locking a modular wall element to a positioning and fastening device.

[0002] According to a second aspect, the present disclosure relates to an assembly comprising the wall lock device according to the first aspect of the present disclosure.

[0003] According to a third aspect, the present disclosure relates to a building comprising an assembly according to the second aspect of the present disclosure.

[0004] DE 93 17 237 U1 relates to a partition wall element of a movable partition wall, with an extendable and retractable locking element for locking the partition wall element in the direction of movement, characterized by a worm drive which drives the extendable and retractable locking element during its extension and retraction movement.

[0005] The wall lock device is arranged for locking a wall element, preferably a modular wall element, to a positioning and fastening device, said wall lock device comprising an angular transmission, said wall lock device further comprising:

- a wall lock actuation arrangement provided with an input element of said angular transmission and an actuation element arranged for rotating said wall lock actuation arrangement about a virtual actuation axis for actuating said angular transmission;
- a wall lock locking arrangement provided with an output element of said angular transmission and a wall locking element arranged for locking said wall lock device via said wall locking element to said positioning and fastening device, wherein said wall lock locking arrangement is arranged such that said wall lock locking arrangement is allowed to rotate about a virtual locking axis between a first angular position and a second angular position and wherein said wall locking element is moveable along said virtual locking axis, via actuation of said angular transmission through said actuation element, when said wall lock locking arrangement is in said first angular position for realising said locking.

[0006] Within the context of the present disclosure an angular transmission is to be understood as a transmission wherein a rotation axis of an input element of the angular transmission encloses an angle different from 180 degrees with a rotation axis of an output element of the angular transmission. Preferably, the rotation axis of the output element encloses an angle of substantially 90 degrees, preferably a right-angle transmission, with the rotation axis of the input element. In an embodiment the angular transmission may comprise a bevel gear.

[0007] In an embodiment of the wall lock device, said angular transmission comprises a worm drive provided

with a worm screw and a worm gear, wherein said input element of said angular transmission is formed by said worm screw and said output element of said angular transmission is formed by said worm gear.

[0008] The present disclosure at least partly relies on the insight that an angular transmission, such as a worm drive, may beneficially be deployed for actuating a wall lock element. An angular transmission allows for providing only one actuation element for rotating the wall lock element about the virtual locking axis and for moving the wall lock element along the virtual locking axis. This is beneficial for allowing a constructor to lock the wall element in a relative practical manner to the positioning and fastening device. By rotating the wall lock element about the virtual locking axis the wall lock element may be positioned in a predetermined angular position related to the first angular position. The predetermined angular position may for instance correspond to a position wherein the wall lock element may perform a locking action onto the further element such as the positioning and fastening device, whereas in the second angular position, no such locking action may be realised. Instead, the second angular position may be used for example for allowing to position the wall lock element at least partly in a recess provided in the positioning and fastening device. Once the wall lock element is in the first angular position, the actuation element may be further deployed for realising said locking by moving the wall lock element along said virtual locking axis.

[0009] Moreover, the self-braking characteristic of the worm drive may beneficially be applied for maintaining the wall lock element in a locked position. This is beneficial for avoiding the need to provide further locking means for maintaining the wall element locked to the positioning and fastening device.

[0010] A further advantage of the wall lock device according to the present disclosure is that the actuation element may be used for unlocking said wall element. To this end, the actuation element is rotated about said virtual actuation axis in a direction of rotation opposite to the direction of rotation applied when realising said locking. When bringing the wall lock device from the locked condition into the unlocked condition the wall lock element is firstly moved along said virtual locking axis due to a rotation of the actuation element about the virtual actuation axis. Once, a friction force between the wall lock element and the positioning and fastening device is below a predetermined level, the wall lock element is moved from the first angular position to the second angular position due to actuation of the actuation element.

[0011] In this regard, it is beneficial if said wall lock device comprises a wall lock device housing arranged for fastening said wall lock device to said wall element.

[0012] Preferably, said wall locking element is provided outside said wall lock device housing and said locking is realised, in use, by clamping said positioning and fastening device between said wall locking element and said wall lock device housing.

[0013] Preferably, said wall lock device is provided with a rotation limiting arrangement arranged for limiting said rotation of said wall lock locking arrangement between said first angular position and said second angular position.

[0014] It is advantageous if said rotation limiting arrangement comprises a cam that is attached to said wall lock locking arrangement and blocked for rotation relative to said wall lock locking arrangement and wherein said rotation limiting arrangement further comprises a first end stop for blocking rotation beyond said first angular position.

[0015] In this regard, it is beneficial if said cam is provided between said wall locking element and said worm gear. This is beneficial for allowing to realise a relative compact wall lock device.

[0016] Preferably, said first angular position and said second angular position enclose an angle in the range of 70 and 140 degrees, preferably 90 degrees.

[0017] According to the second aspect, the present disclosure relates to an assembly comprising a wall lock device according to the first aspect of the present disclosure, said assembly further comprising said wall element and said positioning and fastening device, wherein said wall element is locked, by said wall lock device, to said positioning and fastening device.

[0018] Embodiments of the assembly according to the second aspect correspond to embodiments of the wall lock device according to the first aspect of the present disclosure. The advantages of the assembly according to the second aspect correspond to the advantages of the wall lock device according to the first aspect of the present disclosure presented previously.

[0019] Preferably, said assembly comprises a plurality of said modular wall elements, wherein said modular wall elements comprise a first interface arrangement at a first side of said modular wall element and a second interface arrangement at a second side of said modular wall element, wherein said first interface arrangement and said second interface arrangement are each provided with at least one of:

- a fluid connector arranged for receiving, via said modular wall element, a fluid, wherein said fluid connectors are mutually communicatively coupled for fluid flow;
- an electrical connector arranged for receiving, via said modular wall element, an Alternating Current, AC, mains signal, wherein said electrical connectors are mutually communicatively coupled;

wherein said first interface arrangement and said second interface arrangement are arranged such that a first interface arrangement of a first modular wall element of said plurality of modular wall elements interfaces with a second interface arrangement of a second modular wall element of said plurality of modular wall elements and wherein at least one of said fluid connectors and said

electrical connectors of said first modular wall element and said second modular wall element are connected, wherein each of said modular wall elements at a third side thereof are provided with a positioning and fastening device receiving recess, wherein a fastening arrangement of said positioning and fastening device is received in said positioning and fastening device receiving recess.

[0020] The present disclosure relies at least partly on the insight that realisation of known assemblies having walls comprising electrical wiring and/or ducting for gas or water generally requires realising a wall that is free from utilities such as electrical wiring and/or ducting for gas or water and subsequently rework said wall for integrating said utilities in said wall. The required reworking of the wall is a relative cumbersome activity that may add to the building time for building the building. Moreover, the reworking may add additional cost thereby making the building relatively expensive.

[0021] Alternatively, a less attractive wall may be realised by simply placing the electrical wiring and/or ducting for gas or water on an outer surface of the wall, thereby leaving the electrical wiring and/or ducting for gas or water in sight of persons present in the building. Though placing the utilities on the outer surface of the wall may be relative time effective as compared to reworking the wall, placing the utilities may add to the building time for building the building.

[0022] By providing a modular wall element provided with fluid connectors that are mutually communicatively coupled for fluid flow and/or with electrical connectors that are mutually communicatively coupled a direct integration of the utilities in the wall, without the need for reworking the wall or without the need for placing the utilities on the outer surface of the wall, may be realised thereby allowing to realise a relative attractive wall in a less cumbersome manner.

[0023] By providing the modular wall element with the first and second interface arrangement a relative large wall may be realised in a relative practical manner while realising a direct integration of the utilities in the wall. During installation the interface arrangements of neighbouring modular wall elements may be coupled thereby realising that utilities present in the neighbouring modular wall elements are communicatively coupled. This is beneficial for realising that the utilities may extend along the full length of the wall.

[0024] Providing said modular wall element at a third side thereof with a positioning and fastening device receiving recess and receiving the positioning and fastening device in the positioning and fastening device receiving recess is beneficial for allowing said modular wall element, via the positioning and fastening device, to be fixated to the floor. By providing the positioning and fastening device receiving recess the outer appearance, in use, of the modular wall element may be relatively unaffected by the fixation via the positioning and fastening device.

[0025] Within the context of the present disclosure the

electrical connector may in addition, or alternatively, be arranged for receiving a Direct Current (DC).

[0026] Preferably, said wall elements are provided with a wall lock device receiving space and a wall lock device that is provided in said wall lock device receiving space and arranged for locking said wall element to said fastening arrangement of said positioning and fastening device, wherein said wall element is locked, by said wall lock device, to said fastening arrangement of said positioning and fastening device. Receiving the wall lock device, by the modular wall element, is beneficial for allowing said modular wall element, via the wall lock device, to be fixated to the positioning and fastening device. By providing the wall lock device receiving space the wall lock device may be provided, at least partly, in the modular wall element thereby allowing realisation of a visually attractive wall.

[0027] It is beneficial if said positioning and fastening device comprises:

- said fastening arrangement fastened to said wall element;
- an elongated base extending in a longitudinal direction, said elongated base comprising a fastening arrangement receiving space partly receiving said fastening arrangement, wherein said fastening arrangement receiving space is dimensioned such that said fastening arrangement is movable in said fastening arrangement receiving space;
- a clamping element pivotably connected to said elongated base and arranged such that in a first position of said clamping element said fastening arrangement is movable in said fastening arrangement receiving space and in a second position of said clamping element said fastening arrangement is clamped between said clamping element and said elongated base, wherein said clamping element is maintained in said second position by said wall element.

[0028] By providing the fastening arrangement and the fastening arrangement receiving space, a wall element that is fastened to the fastening arrangement may be positioned relatively accurately relative to the floor by moving the fastening arrangement in the fastening arrangement receiving space. This is beneficial for allowing to achieve a predetermined position of the wall element relative to the floor. Once the predetermined position of the wall element is achieved the wall element may be clamped, by the clamping element and the elongated base, for maintaining the wall element in the predetermined position.

[0029] In this regard, it is beneficial if said elongated base and/or said fastening arrangement are made from extruded profiles, preferably extruded profiles made from aluminium. Extruded profiles are beneficial in this regard for realising a relative straight wall in a practical manner.

[0030] According to the third aspect the present disclosure relates to a building comprising an assembly ac-

cording to the second aspect of the present disclosure and a floor, wherein said elongated base of said positioning and fastening device is fastened to said floor.

[0031] Embodiments of the building according to the third aspect of the present disclosure correspond to embodiments of the assembly according to the second aspect and the wall lock device according to the first aspect of the present disclosure. The advantages of the building according to the third aspect of the present disclosure correspond to the advantages of the assembly according to the second aspect and to the advantages of the wall lock device according to the first aspect of the present disclosure presented previously.

[0032] The present disclosure will now be explained by means of a description of a preferred embodiment of a wall lock device an assembly comprising the wall lock device and a building comprising the assembly, in which reference is made to the following schematic figures, in which:

Fig. 1: a modular wall element according to the first aspect of the present disclosure is shown;

Fig. 2: elements of the modular wall element from Fig. 1 are shown;

Fig. 3 - 10: enlarged views of the elements of Fig. 2 are shown;

Fig. 11: the modular wall element of Fig. 1 is shown in an exploded view;

Fig. 12: a positioning and fastening device is shown;

Fig. 13: the positioning and fastening device from Fig. 12 is shown in an exploded view;

Fig. 14: a side view of the positioning and fastening device from Fig. 12 is shown;

Fig. 15: the positioning and fastening device from Fig. 12 is shown in an isometric view;

Fig. 16: elements of a wall lock device in an exploded view are shown;

Fig. 17: a side view of a wall lock device is shown;

Fig. 18 - 19: cross-sections of the wall lock device from Fig. 17 are shown;

Fig. 20: an assembly according to the present disclosure is shown;

Fig. 21: a method for realising a wall according to the present disclosure is shown;

Fig. 22: a method for realising an assembly according to the present disclosure is shown.

[0033] Modular wall element 1 comprises a frame part 3 and two wall parts 5 and 7. A first wall part 5 of the two wall parts is attached at a first side of the frame part 3 and is arranged for providing an inner wall of a building 401. A second wall part 7 of the two wall parts is attached at a second side of the frame part 3. The frame part 3 comprises four frame elements 9, 11, 13 and 15 that are interconnected via interface sub-arrangements 17, 19, 21 and 23 for forming, together with the interface sub-arrangements 17, 19, 21 and 23 a rectangular frame structure. The frame elements are, preferably, fabricated

from extrusion profiles, preferably made from aluminium. A first frame element 9 and a second frame element 11 of the four frame elements form, in use, respectively an upper and a lower edge of the modular wall element 1. A first side of the modular wall element 1 that, in use, forms a vertical edge of the modular wall element 1 is formed by a third frame element 13 of the four frame elements and two interface sub-arrangements 17 and 21 of the interface sub-arrangements. A further side, in use, a further vertical side of the modular wall element 1 is formed by a fourth frame element 15 of the four frame elements 2 and another two interface sub-arrangements 19 and 23 of the interface sub-arrangements. The interface sub-arrangements 17 and 21 form a first interface arrangement and the interface sub-arrangements 19 and 23 form a second interface arrangement.

[0034] The sub-arrangements 21 and 23 both comprise a housing 31 and a fluid connector 33 arranged for receiving, via said modular wall element 1, a fluid. The sub-arrangements 21 and 23 are mutually communicatively coupled, by a fluid conduit 25 and 27 for fluid flow between the sub-arrangements 21 and 23. The fluid connectors 33 of sub-arrangements 21 and 23 are complementary and arranged to cooperate for forming said mutual communicative coupling of the sub-arrangements 21 and 23.

[0035] The sub-arrangements 17 and 19 both comprise a further housing 35 and an electrical connector 37 arranged for receiving, via said modular wall element 1, an Alternating Current, AC, mains signal. The electrical connectors 37 of the sub-arrangements 17 and 19 are mutually communicatively coupled by a conductive element 29 such as a power wire. The electrical connectors 37 of sub-arrangements 17 and 19 are complementary and arranged to cooperate for forming said mutual communicative coupling of the sub-arrangements 17 and 19.

[0036] The first interface arrangement and the second interface arrangement are arranged such that a first interface arrangement of a first modular wall element 1, in use, is allowed to interface with a second interface arrangement of a second modular wall element (not shown) for realising a connection of said at least one of said fluid connectors and said electrical connectors of said first modular wall element 1 and said second modular wall element.

[0037] Modular wall element 1 further comprises a wall attachment arrangement 2 for attaching, in use, said modular wall element 1 to an outer wall or a further wall of said building, wherein said outer wall or further wall is substantially parallel to said modular wall element 1. The wall attachment arrangement 2 comprises an attachment opening arranged for receiving a fastening means 4 such as a bolt for fastening said modular wall element 1, via said fastening means 4, to said outer wall or said further wall. The wall attachment arrangement 2 is formed as part of the sub-arrangements. In an alternative embodiment it is conceivable that the attachment arrangement is comprised by the frame elements.

[0038] A positioning and fastening device 101 is arranged for positioning and fastening a wall element 303, preferably the modular wall element 1, to a floor 305 for realising the wall of the building 401. The positioning and fastening device 101 comprises a fastening arrangement 103. The fastening arrangement 103 is arranged for fastening to the wall element 303 and/or the modular wall element 1. To this end the modular wall element 1 is provided with a positioning and fastening device receiving recess 39 in frame element 11 thereof for receiving, in use, the fastening arrangement 103 of the positioning and fastening device 101.

[0039] The positioning and fastening device 101 comprises an elongated base 105 extending in a longitudinal direction L. The elongated base 105 comprises a fastening arrangement receiving space 107. The fastening arrangement receiving space 107 is arranged for partly receiving, in use, said fastening arrangement 103. In the embodiment shown, the fastening arrangement 103 is provided with a support element 119 that is arranged for being received in the fastening arrangement receiving space 107 and thereby supporting the fastening arrangement 103 onto the elongated base 105. The fastening arrangement receiving space 107 is dimensioned such that said fastening arrangement 103 is movable in said fastening arrangement receiving space 107 before said fastening arrangement 103 is fastened to said elongated base 105.

[0040] The positioning and fastening device 101 further comprises two clamping elements 109 that are each pivotably connected to the elongated base 105. The clamping elements 109 are provided with a protrusion 113 that, when connected to said elongated base 105, extends at least partly in said longitudinal direction L. The elongated base 105 is provided with a clamping element receiving space 117 for receiving said protrusion 103 and thereby pivotably connecting the clamping elements 109 to the elongated base 105. Each of the clamping elements 109 is further provided with a clamping organ 115 that, when connected to said elongated base 105, extends at least partly in said longitudinal direction L. The protrusion 113 and clamping element receiving space 117 are arranged such that in a position wherein said clamping organ 115 is substantially perpendicular to the elongated base 105 a removal of the clamping element 109 is possible by lifting the clamping element 109 relative to the elongated base 105. By aligning the clamping organ 119 substantially parallel to the elongated base 105 the fastening arrangement 103 may be clamped between the clamping organ 119 and the elongated base 105. In other words, the clamping elements 109 are arranged such that in a first position of the clamping elements 109 the fastening arrangement 103 is movable in the fastening arrangement receiving space 107 and in a second position of the clamping element 109 the fastening arrangement 103 is clamped between the clamping element 109 and the elongated base 105. The clamping elements 109 are further arranged for, in use, being

brought in the second position by placing the modular wall element 1 on a side of the clamping elements 109 facing away from the elongated base 105. The positioning and fastening device 101 may optionally be provided with interface organs 111 for providing an interface between the modular wall element 1, the elongated base 105 and the clamping elements 109. The interface organs 111 are supported on a virtual flat plane V formed by the clamping elements 109 and the elongated base 105.

[0041] The positioning and fastening device 101 further comprises a floor attachment arrangement 102 for attaching a floor 305 to said positioning and fastening device 101.

[0042] Wall lock device 201 comprises a housing 203. Housing 203 is provided with a first housing part 205 and a second housing part 207 that are arranged for being connected to each other via fastening elements 209 and thereby form a housing space for housing elements of the wall lock device 201. The second housing part 207 is provided with further fastening elements 211 for allowing the wall lock device 201 to be fastened to an element of the building 401 such as the modular wall element 1 or wall element 303. The modular wall element 1 and the wall element 303 may be provided with a wall lock device receiving space 41 for receiving the wall lock device 201.

[0043] Wall lock device 201 is arranged for locking to the positioning and fastening device 101 and thereby allowing an element of the building 401 such as the modular wall element 1 and/or wall element 303 to be locked to the positioning and fastening device 101. The wall lock device 201 comprises a worm drive 213 provided with a worm screw 215 and a worm gear 217. The worm screw 215 is provided as part of a wall lock actuation arrangement 219. The wall lock actuation arrangement 219 further comprises an actuation element 221. The actuation element 221 is arranged for rotating of the wall lock actuation arrangement 219 about a virtual actuation axis A for actuating the worm drive 213. In an alternative embodiment of the wall lock device 201, the worm drive is replaced by a bevel gear.

[0044] The worm gear 217 is provided as part of a wall lock locking arrangement 223. The wall lock locking arrangement 223 further comprises a wall locking element 225 that is arranged for locking said wall lock device 201, via said wall locking element 225, to said positioning and fastening device 101. The wall lock locking arrangement 223 is arranged such that said wall lock locking arrangement 223 is allowed to rotate about a virtual locking axis B between a first angular position and a second angular position.

[0045] The rotation of the wall lock locking arrangement 223 is limited, between said first angular position and said second angular position, by a rotation limiting arrangement 227 of the wall lock device 201. The rotation limiting arrangement 227 comprises a cam 229, a first end stop 231 and a second end stop 233. The cam 229 is attached to said wall lock locking arrangement 223 and

blocked for rotation relative to said wall lock locking arrangement 223. The cam 229 is blocked for rotation relative to the wall lock locking arrangement 223 by providing the cam 229 with a surface contour that is arranged to provide a form-locked connection with a locking axis 235 of the wall lock locking arrangement 223. The cam 229 is movable along said surface contour in a direction of said virtual locking axis B. Movement of the cam 229 relative to the housing 203 in the direction of the virtual locking axis B is avoided, or at least greatly limited, by guide elements and a worm gear adaptor 239. The guide elements provide a barrier to movement of the cam 229 at a side of the cam 229 facing the wall locking element 225. The worm gear adaptor 239 provides a barrier to movement of the cam 229 at a side of the cam 229 facing away from the wall locking element 225. The movement of the cam 229 along the surface contour may be realised by screwing a nut 237 and/or the worm gear adaptor 239 onto the locking axis 235. The locking axis 235 is provided with a screw thread (not shown) arranged for cooperation with the nut 237 and/or the worm gear adaptor 239. In a first embodiment of the wall lock device 201 a screwing action of the nut 237 causes a change in distance between the nut 237 and the wall locking element 225. The worm gear adaptor 239 provides an interface between the worm gear 217 and the nut 237 for transferring a rotation of the worm gear 217 to the nut 237. In this embodiment the worm gear adaptor 239 may be movable relative to the worm gear 217 and/or the nut 237 in the direction of the virtual locking axis B. Alternatively or in addition, the worm gear adaptor 239 may be provided with screw thread for cooperation with the screw thread provided onto the locking axis 235. In this alternative embodiment, the worm gear adaptor 239 is arranged for driving the cam 229 along said surface contour in the direction of said wall locking element 225 beyond a position that may be achieved with the nut 237. To this end the worm gear adaptor 239 is provided with a protruding wall piece 240 that overcomes a distance between the screw thread provided on the worm gear adaptor 239 and the cam 229.

[0046] The first end stop 231 and the second end stop 233 are provided as an integral part of the housing 203. The second housing part 207 of the embodiment according to the figures comprises rib organs forming the first and second end stops 231 and 233. The locking axis 235 comprised by the wall lock locking arrangement 223 is moveable along said virtual locking axis B. Operation of the worm drive 213 through actuation of the actuation element 221 may result in the cam 229 to contact the first end stop 231. Once the cam 229 is in contact with the first end stop 231 a further actuation of the actuation element 221 in a direction of rotation that is identical to the direction of rotation performed for realising that said cam 229 to be in contact with the first end stop 231 will cause the locking axis 235 to move such that the locking element 225 is moved towards the worm screw 215 of the worm drive 213. By movement of the locking element

225 relative to the housing 203 a distance between the locking element 225 and the housing 203 is reduced allowing to clamp a further element of the building 401 between the locking element 225 and the housing 203 for realising locking by the wall lock device 201.

[0047] Assembly 301 as part of building 401 comprises the modular wall element 1, the positioning and fastening device 101 and wall lock devices 201. Assembly 301 further comprises wall element 303 and floor 305. Floor 305 comprises a floor element lock device 307. The floor element lock device 307 is received in a through hole provided in the floor 305 and arranged for fixating the floor 305 to the floor attachment arrangement 102 of the positioning and fastening device 101. The wall element 303 is provided with two of the wall lock devices 201. A first wall lock device 201a of the two wall lock devices locks the wall element 303 to the positioning and fastening device 101. The second wall lock device 201b of the two wall lock devices is arranged for locking the wall element 303 to a further wall element (not shown) for forming a wall. The modular wall element 1 is locked to the wall element 303 via fastening means 4 that are provided in said wall attachment arrangements 2.

[0048] Method 501 is arranged for realising a wall comprising a plurality of modular wall elements 1. Method 501 comprises a step 503 of providing the modular wall elements 1 and the positioning and fastening device 101. Method 501 further comprises a step 505 of placing the first modular wall element of the modular wall elements on the positioning and fastening device 101 and receiving the positioning and fastening device 101 in the positioning and fastening device receiving recess 39 of the first modular wall element 1. In a yet further step of the method 501 during a step 507 a second modular wall element of the plurality of modular wall elements is placed on the positioning and fastening device 101, wherein the positioning and fastening device 101 is at least partly received in the positioning and fastening device receiving recess 39 of the second modular wall element.

[0049] A further step of method 501 is a step 509 of connecting a first interface arrangement of a first modular wall element 1 of the plurality of modular wall elements to a second interface arrangements of a second modular wall element 1 of the plurality of modular wall elements such that the fluid connectors 33 and the electrical connectors 37 of the first modular wall element 1 and the second modular wall element 1 are connected for realising a communicative coupling for fluid flow between the first modular wall element and the second modular wall element and a communicative coupling of the electrical connectors 37 between the first modular wall element and the second modular wall element. During step 507 of connecting, the first modular wall element 1 is moved along the positioning and fastening device 101 relative to the second modular wall element for realising said connection and the wall.

[0050] In an alternative embodiment of method 501, method 501 is used with wall elements 303 for locking a

plurality of wall elements 303 to the positioning and fastening device 101 instead or in addition to locking of the plurality of modular wall elements 1 to the positioning and fastening device 101. In this alternative embodiment of the method 501, the wall lock device 201 may be provided inside and/or attached to the wall elements 303.

[0051] Method 601 is arranged for realising assembly 301. Method 601 comprises a step 603 of providing the positioning and fastening device 101, the modular wall element 1 and the floor 305. During a subsequent step 605, the elongated base 105 of the positioning and fastening device 101 is fastened to the floor 305. Method 601 further comprises a step 607 of providing the clamping element 109 in the first position and, preferably while the clamping element 109 is in the first position, provide the fastening arrangement 103 in the fastening arrangement receiving recess 39 of the modular wall element 1.

[0052] Subsequently, during a step 609, the fastening arrangement 103, preferably in combination with the modular wall element 1, is provided in a predetermined position relative to the floor 305. Preferably, the fastening arrangement 103 is brought in a predetermined position relative to the floor 305 by moving the fastening arrangement 103 in the fastening arrangement receiving space 107. In an embodiment of method 601 it is conceivable that the fastening arrangement 103 is moved in a position relative to the elongated base 105 by positioning the modular wall element 1 in a predetermined position relative to the floor 305, preferably wherein the predetermined position relates to an alignment of the modular wall element 1 with another wall of the building.

[0053] The fastening arrangement 103 is being clamped, during a step 611, between the clamping element 109 and the elongated base 105. Preferably, during step 611 the clamping is realised by moving the clamping element 109 in the second position by pulling the modular wall element 1 towards the elongated base 105 by actuation of the actuation element 221.

[0054] In an alternative embodiment of method 601, method 601 is used with wall elements 303 for locking a plurality of wall elements 303 to the positioning and fastening device 101 instead or in addition to locking of the plurality of modular wall elements 1 to the positioning and fastening device 101. In this alternative embodiment of the method 601, the wall lock device 201 may be provided inside and/or attached to the wall elements 303.

Claims

1. A wall lock device (201) arranged for locking a wall element (1, 303), preferably a modular wall element (1), to a positioning and fastening device (101), said wall lock device (201) comprising an angular transmission (213), said wall lock device (201) further comprising:

- a wall lock actuation arrangement (219) pro-

- vided with said wan input element (215) of said angular transmission (213) and an actuation element (221) arranged for rotating said wall lock actuation arrangement (219) about a virtual actuation axis (A) for actuating said angular transmission (213);
- a wall lock locking arrangement (223) provided with an output element (217) of said angular transmission (213) and a wall locking element (225) arranged for locking said wall lock device (201) via said wall locking element (225) to said positioning and fastening device (101), wherein said wall lock locking arrangement (223) is arranged such that said wall lock locking arrangement (223) is allowed to rotate about a virtual locking axis (B) between a first angular position and a second angular position and wherein said wall locking element (225) is moveable along said virtual locking axis (B), via actuation of said angular transmission (213) through said actuation element (221), when said wall lock locking arrangement (223) is in said first angular position for realising said locking.
2. A wall lock device (201) according to claim 1, wherein the angular transmission (213) is a worm drive (213) provided with a worm screw (215) and a worm gear (217), wherein the worm screw (215) forms the input element (215) of the angular transmission (213) and wherein the worm gear (217) forms the output element (217) of the angular transmission (213).
 3. A wall lock device (201) according to claim 1 or 2, wherein said wall lock device (201) comprises a wall lock device housing (203) arranged for fastening said wall lock device (201) to said wall element (1, 303).
 4. A wall lock device (201) according to claim 3, wherein said wall locking element (225) is provided outside said wall lock device housing (203) and said locking is realised, in use, by clamping said positioning and fastening device (101) between said wall locking element (225) and said wall lock device housing (203).
 5. A wall lock device (201) according to any one of the preceding claims, wherein said wall lock device (201) is provided with a rotation limiting arrangement (227) arranged for limiting said rotation of said wall lock locking arrangement (223) between said first angular position and said second angular position.
 6. A wall lock device (201) according to claim 5, wherein said rotation limiting arrangement (227) comprises a cam (229) that is attached to said wall lock locking arrangement (223) and blocked for rotation relative to said wall lock locking arrangement (223) and wherein said rotation limiting arrangement (227) further comprises a first end stop (231) for blocking rotation beyond said first angular position.
 7. A wall lock device (201) according to claims 2 and 6, wherein said cam (229) is provided between said wall locking element (225) and said worm gear (217).
 8. A wall lock device (201) according to any one of the preceding claims, wherein said first angular position and said second angular position enclose an angle in the range of 70 and 140 degrees, preferably 90 degrees.
 9. Assembly (301) comprising a wall lock device (201) according to any one of the preceding claims, said assembly (301) further comprising said wall element (1, 303) and said positioning and fastening device (101), wherein said wall element (1, 303) is locked, by said wall lock device (201), to said positioning and fastening device (101).
 10. Assembly (301) according to claim 9, wherein said assembly (301) comprises a plurality of said modular wall elements (1), wherein said modular wall elements (1) comprise a first interface arrangement at a first side of said modular wall element (1) and a second interface arrangement at a second side of said modular wall element (1), wherein said first interface arrangement and said second interface arrangement are each provided with at least one of:
 - a fluid connector (33) arranged for receiving, via said modular wall element (1), a fluid, wherein said fluid connectors (33) are mutually communicatively coupled for fluid flow;
 - an electrical connector (37) arranged for receiving, via said modular wall element (1), an Alternating Current, AC, mains signal, wherein said electrical connectors (37) are mutually communicatively coupled;
 wherein said first interface arrangement and said second interface arrangement are arranged such that a first interface arrangement of a first modular wall element of said plurality of modular wall elements (1) interfaces with a second interface arrangement of a second modular wall element of said plurality of modular wall elements (1) and wherein at least one of said fluid connectors (33) and said electrical connectors (37) of said first modular wall element and said second modular wall element are connected, wherein each of said modular wall elements (1) at a third side thereof are provided with a positioning and fastening device receiving recess (39), wherein a fastening arrangement (103) of said positioning and fastening device (101) is received in said positioning and fastening device receiving recess (39).

11. Assembly (301) according to claim 9 or 10, wherein said wall elements (1, 303) are provided with a wall lock device receiving space (41) and a wall lock device (201) that is provided in said wall lock device receiving space (41) and arranged for locking said wall element (1, 303) to said fastening arrangement (103) of said positioning and fastening device (101), wherein said wall element (1, 303) is locked, by said wall lock device (201), to said fastening arrangement (103) of said positioning and fastening device (101). 5 10
12. Assembly (301) according to any one of the claims 9 to 11, wherein said positioning and fastening device (101) comprises: 15
- said fastening arrangement (103) fastened to said wall element (1, 303);
 - an elongated base (105) extending in a longitudinal direction (L), said elongated base (105) comprising a fastening arrangement receiving space (107) partly receiving said fastening arrangement (103), wherein said fastening arrangement receiving space (107) is dimensioned such that said fastening arrangement (103) is movable in said fastening arrangement receiving space (107); 20 25
 - a clamping element (109) pivotably connected to said elongated base (105) and arranged such that in a first position of said clamping element (109) said fastening arrangement (103) is movable in said fastening arrangement receiving space (107) and in a second position of said clamping element (109) said fastening arrangement (103) is clamped between said clamping element (109) and said elongated base (105), wherein said clamping element (109) is maintained in said second position by said wall element (1, 303). 30 35
13. Assembly (301) according to claim 12, wherein said elongated base (105) and/or said fastening arrangement (103) are made from extruded profiles, preferably extruded profiles made from aluminium. 40
14. Building (401) comprising an assembly (301) according to any one of the claims 9 to 13 and a floor (305), wherein said elongated base (105) of said positioning and fastening device (101) is fastened to said floor (305). 45 50

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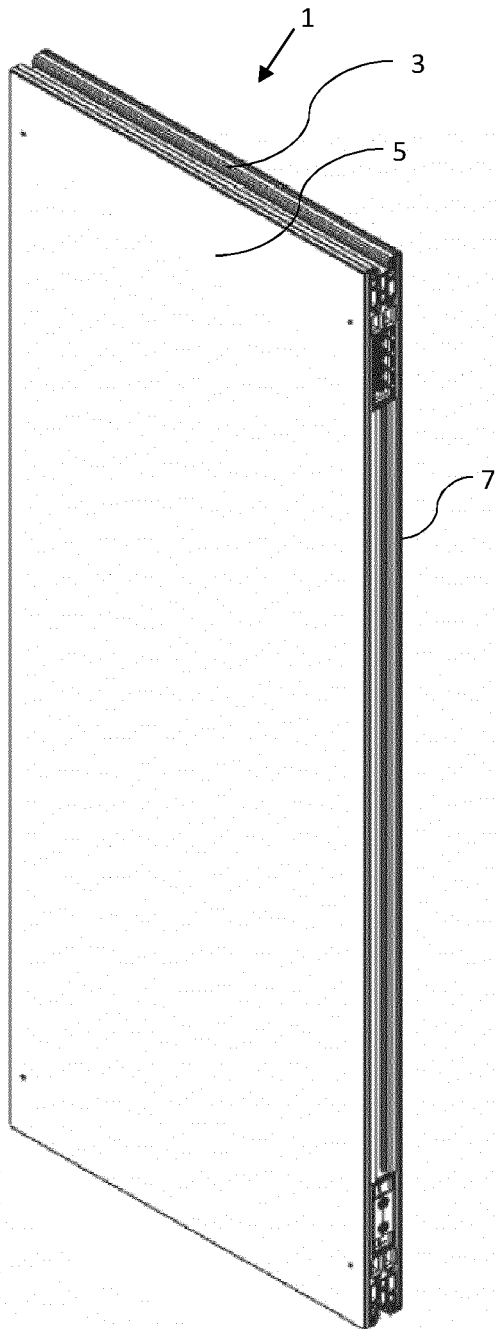


Fig. 1

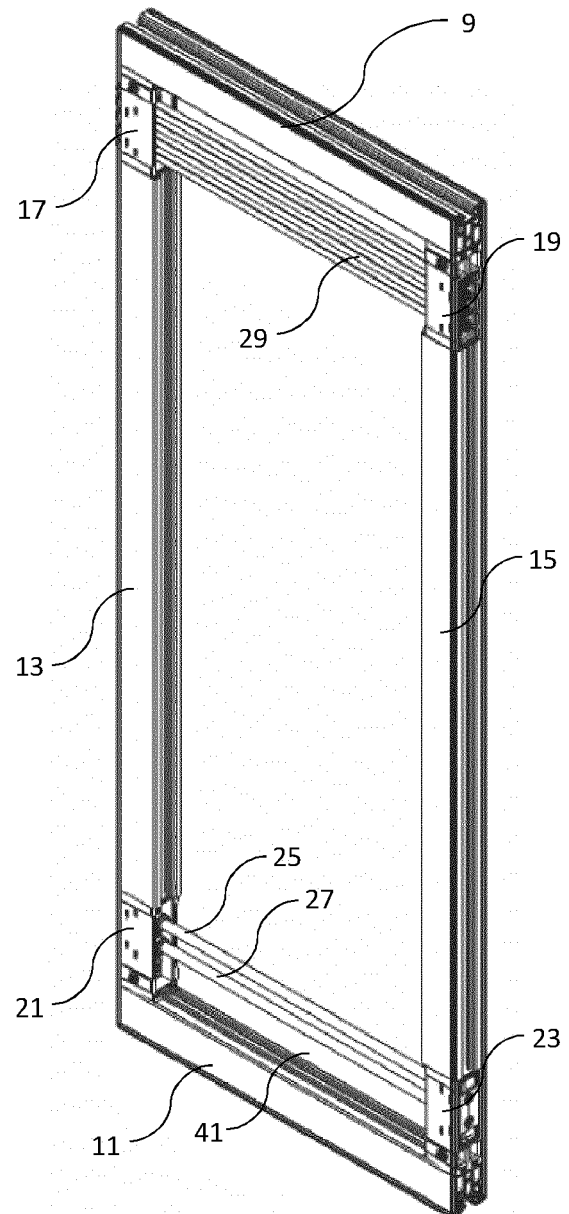


Fig. 2

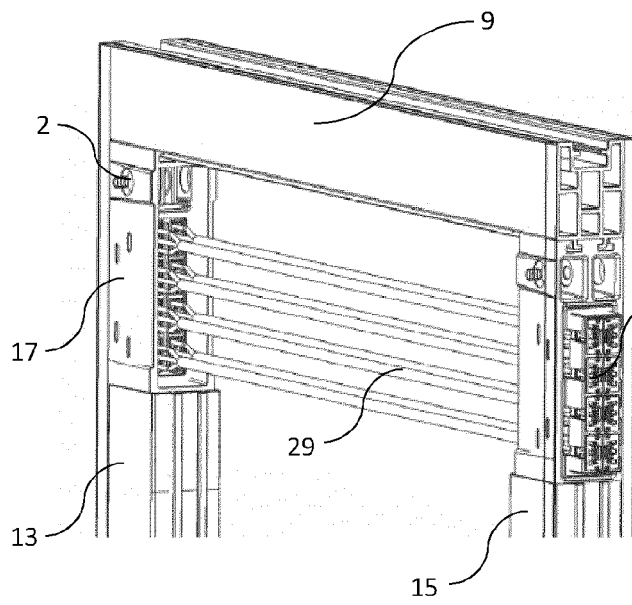


Fig. 3

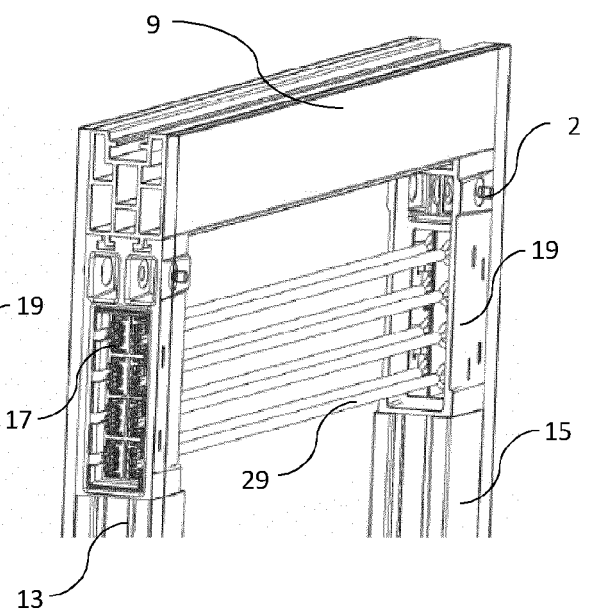


Fig. 4

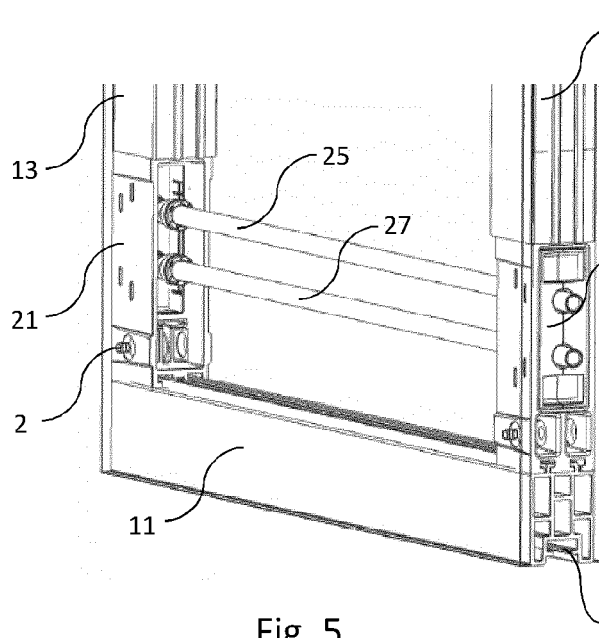


Fig. 5

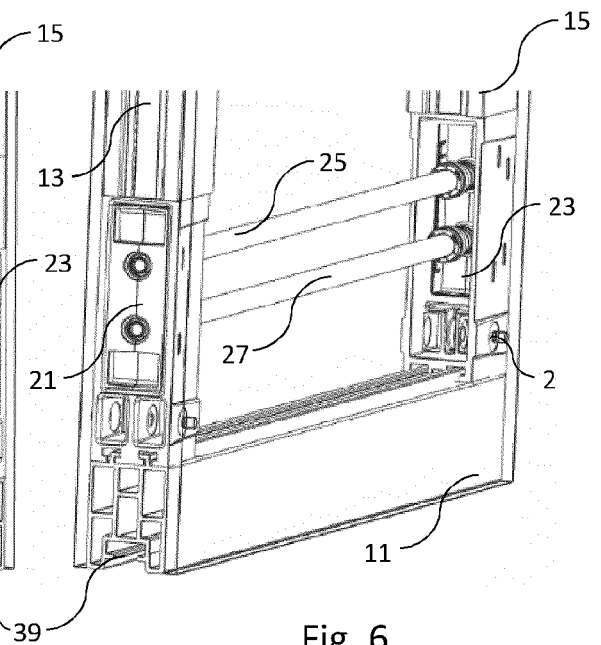


Fig. 6

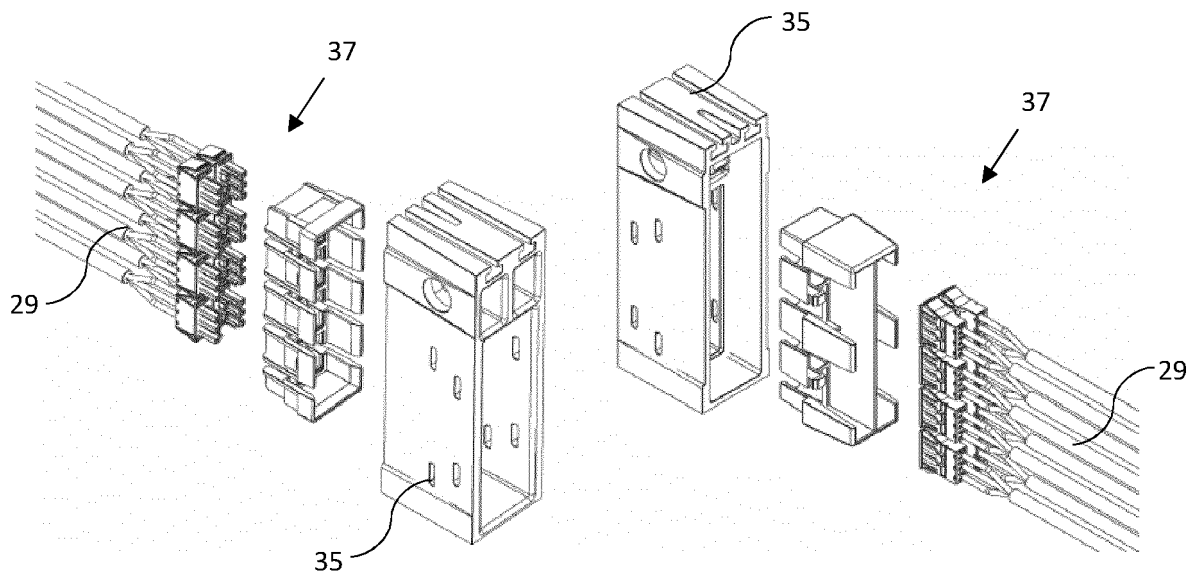


Fig. 7

Fig. 8

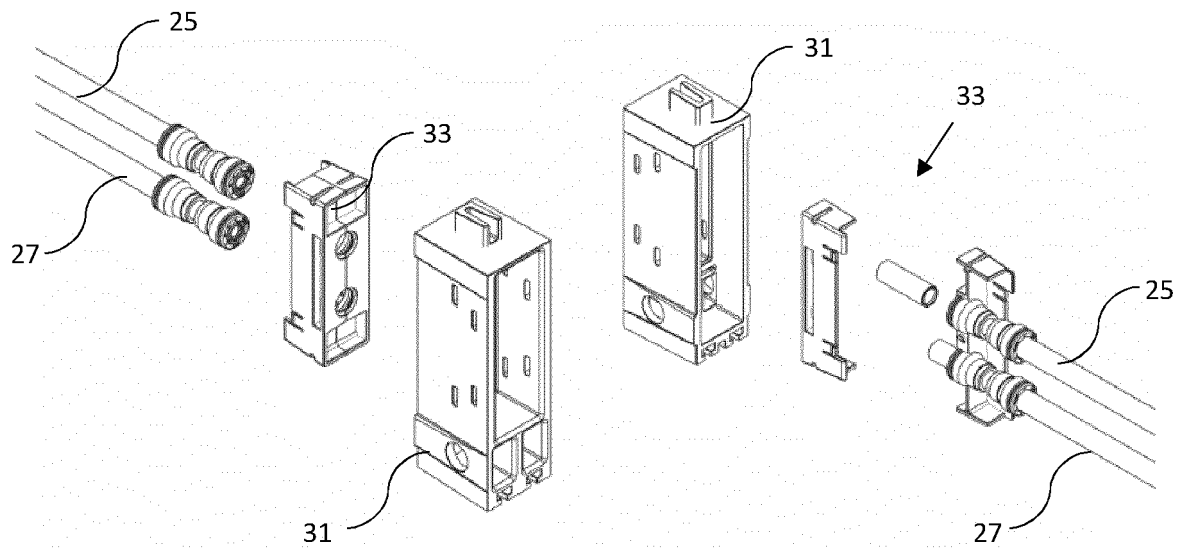


Fig. 9

Fig. 10

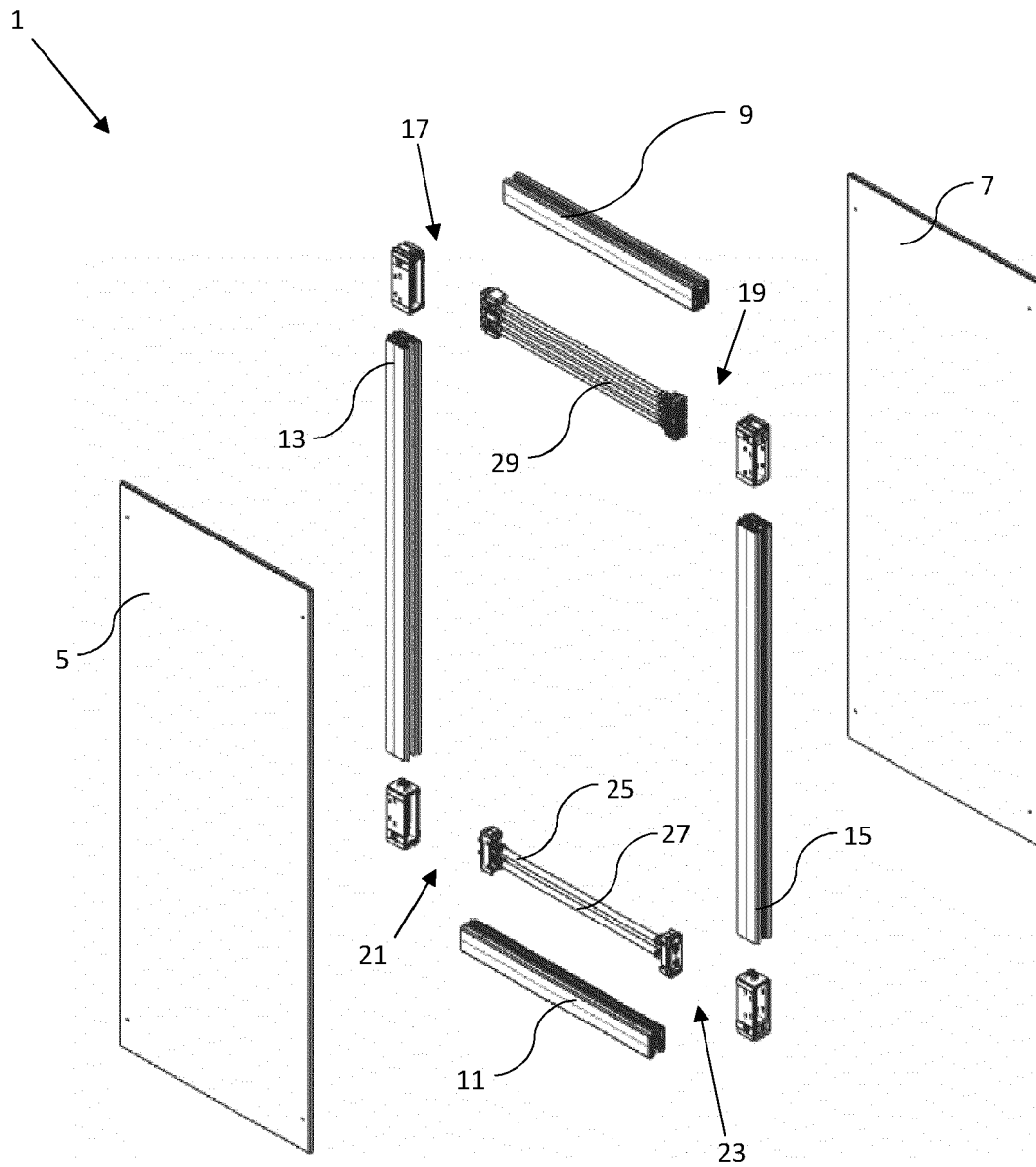


Fig. 11

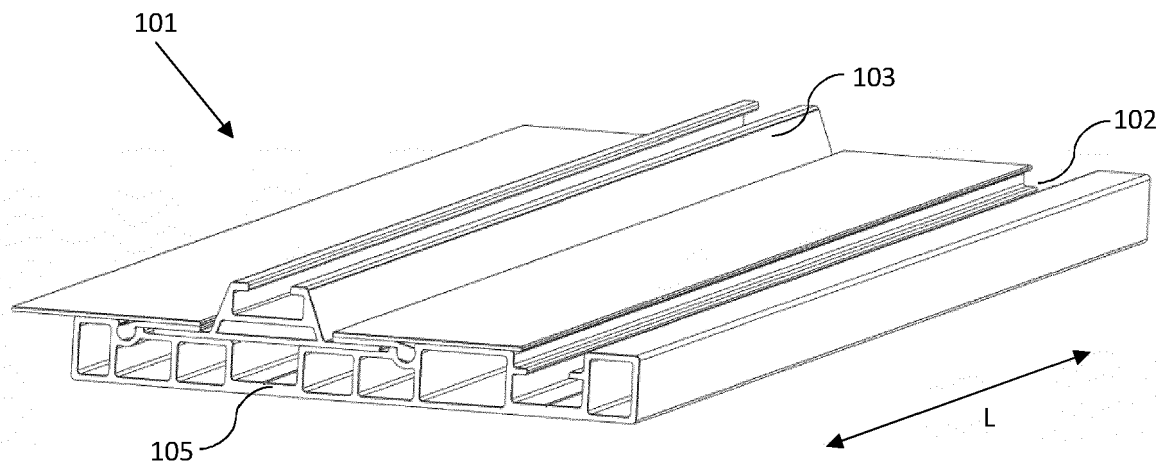


Fig. 12

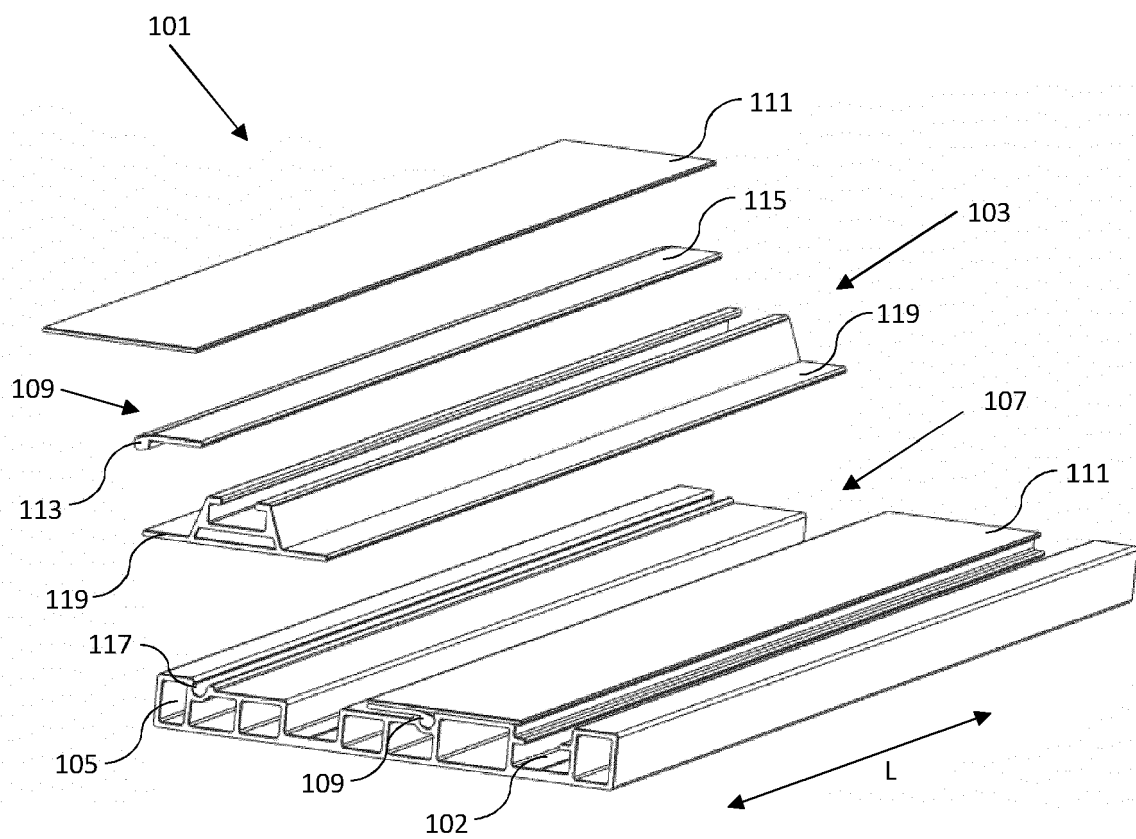


Fig. 13

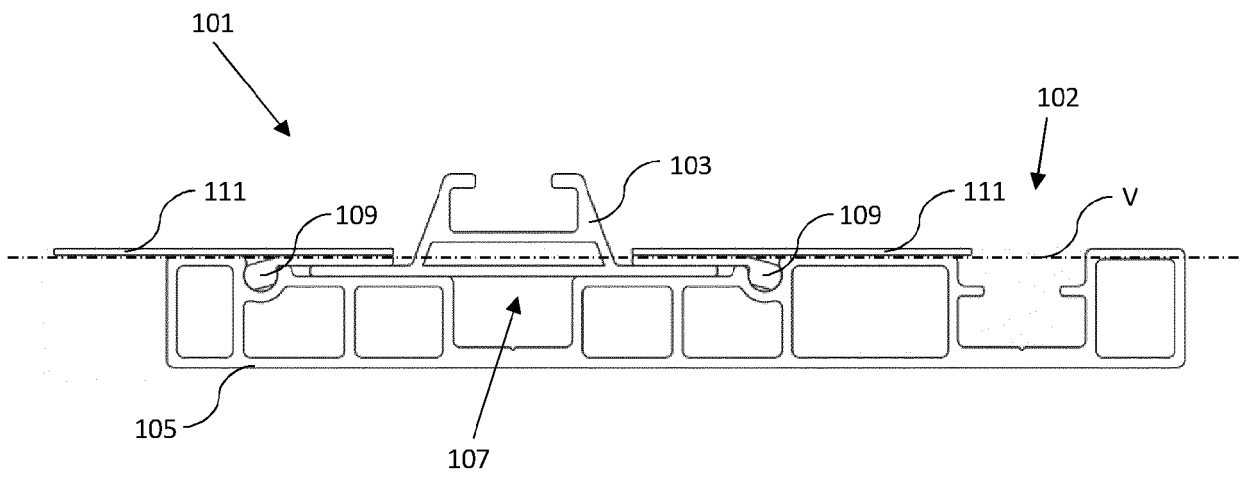


Fig. 14

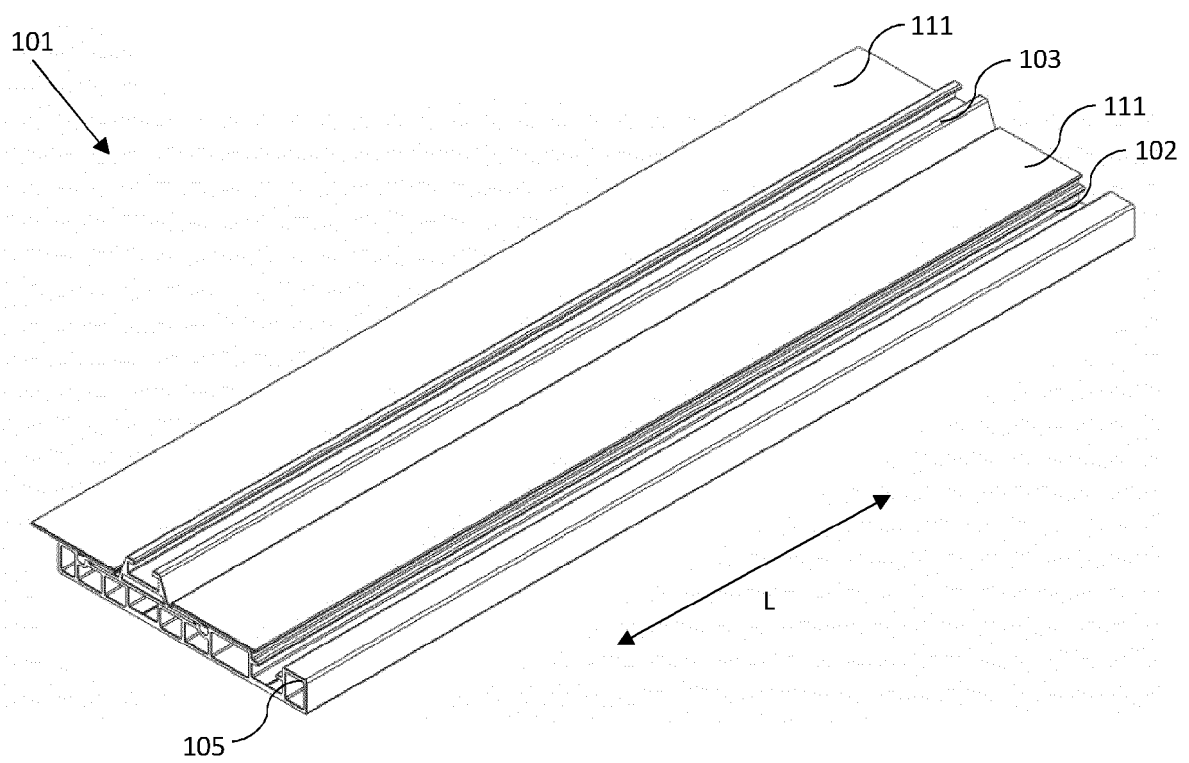


Fig. 15

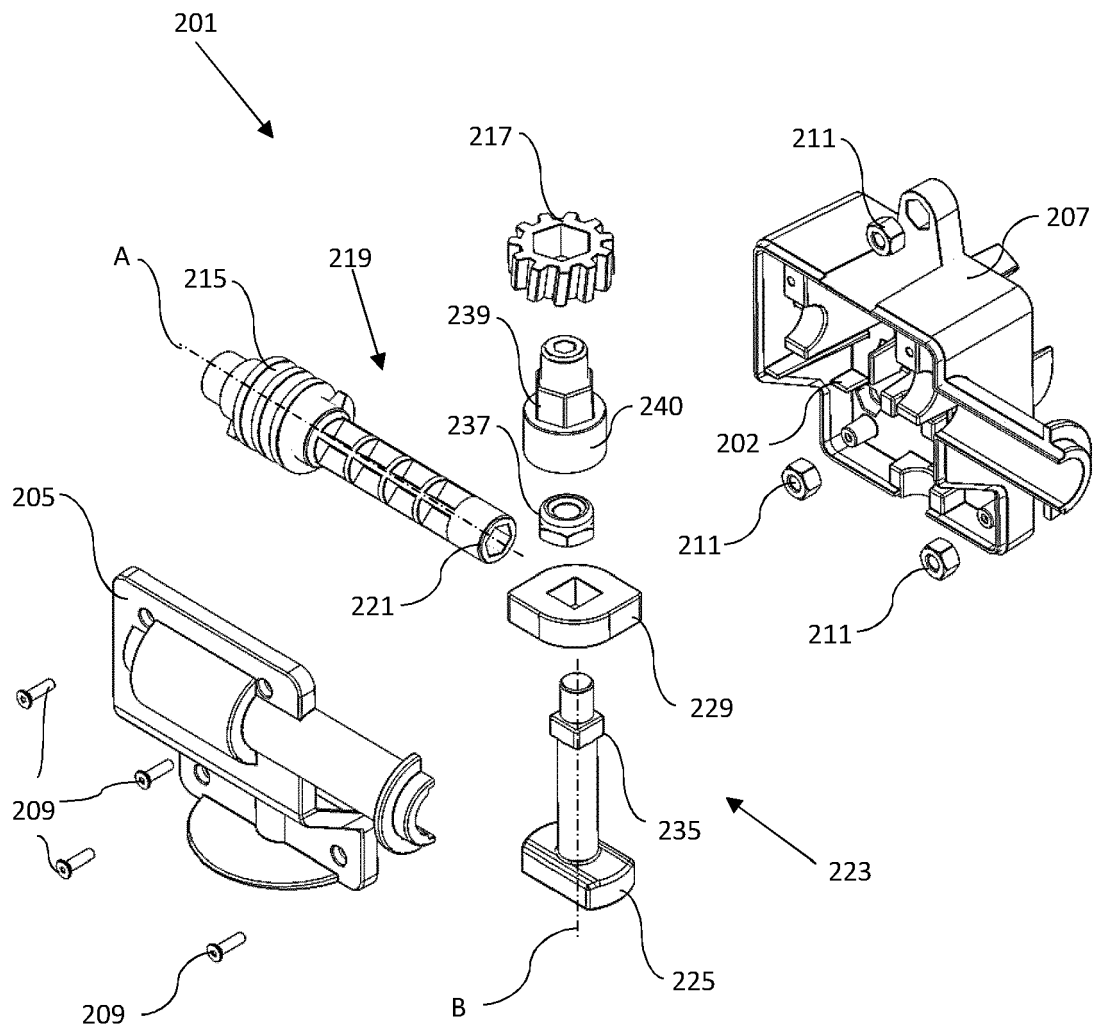


Fig. 16

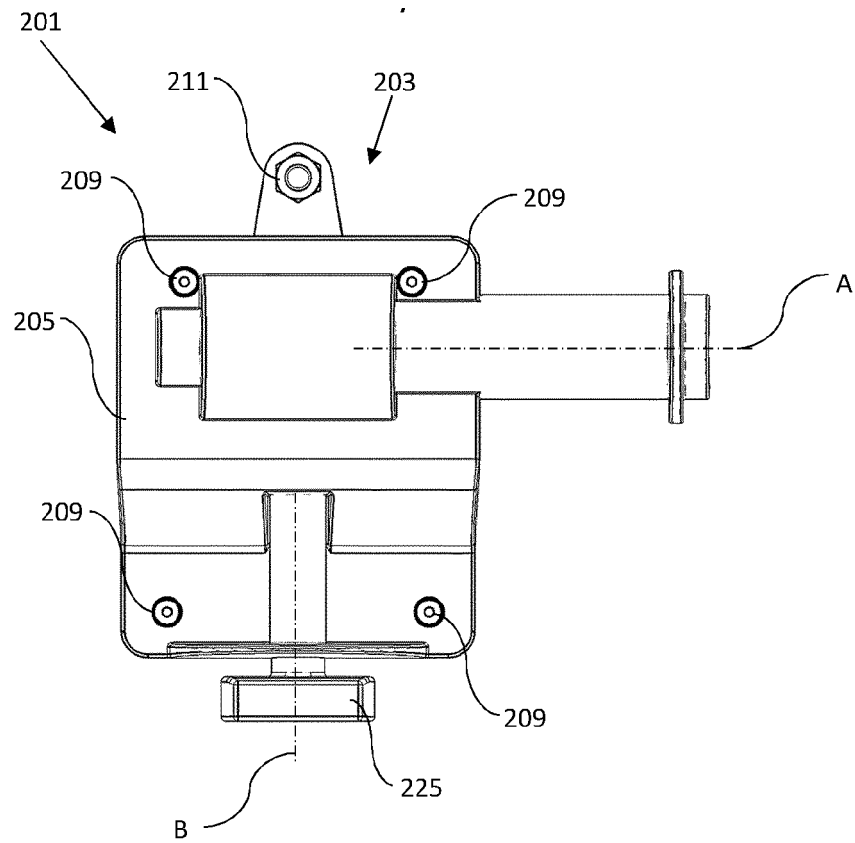


Fig. 17

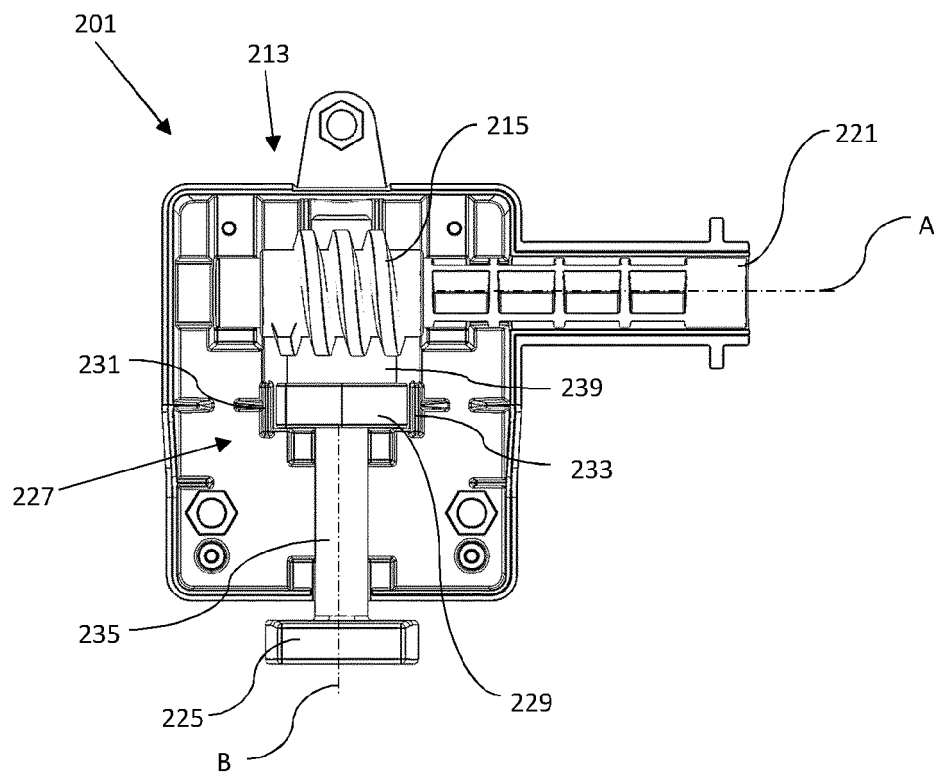
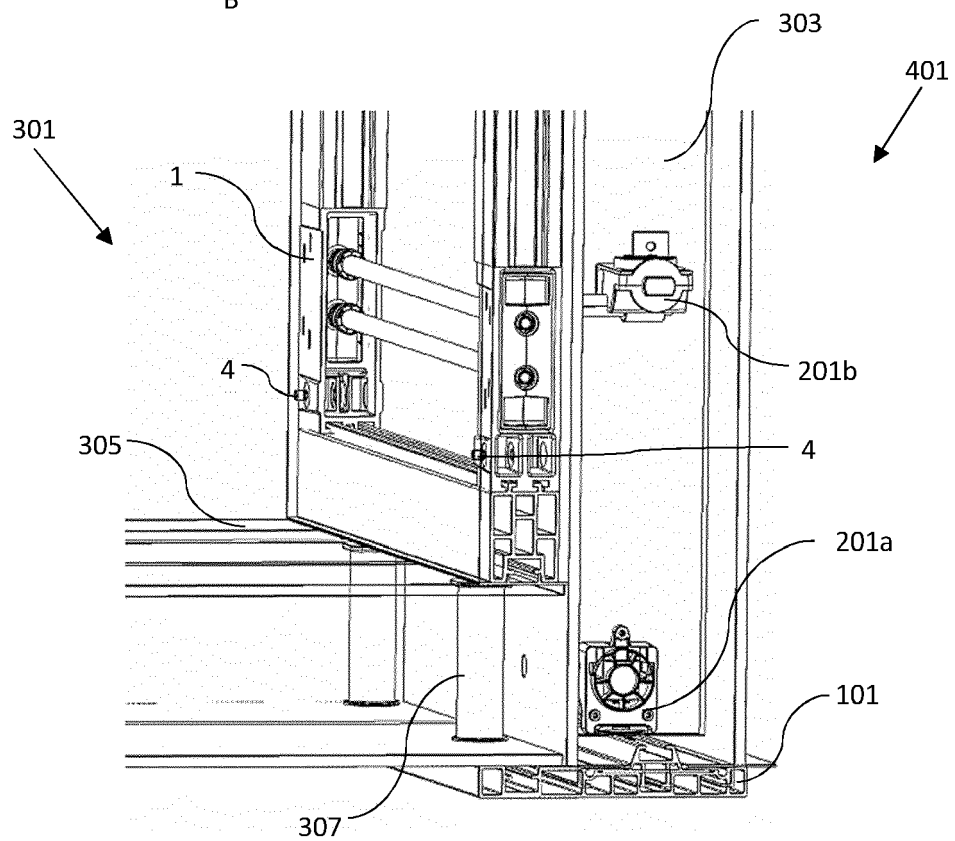
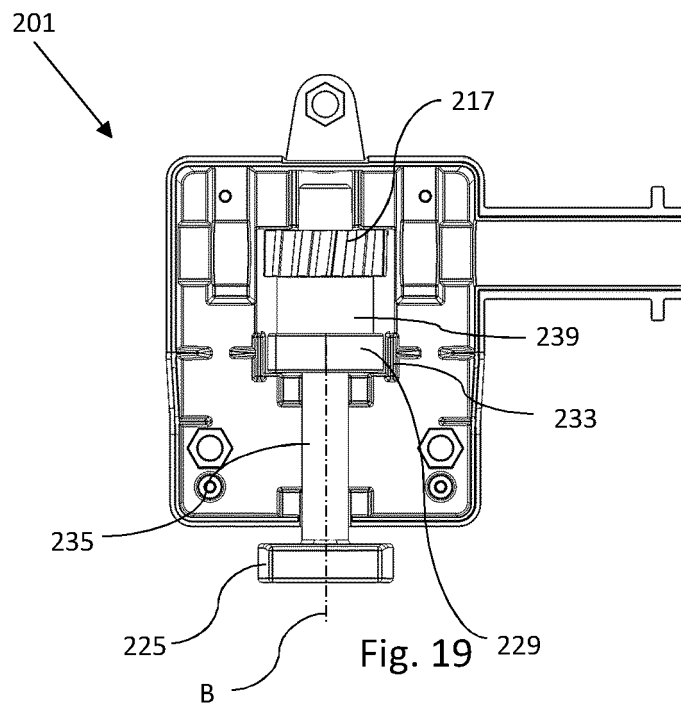


Fig. 18



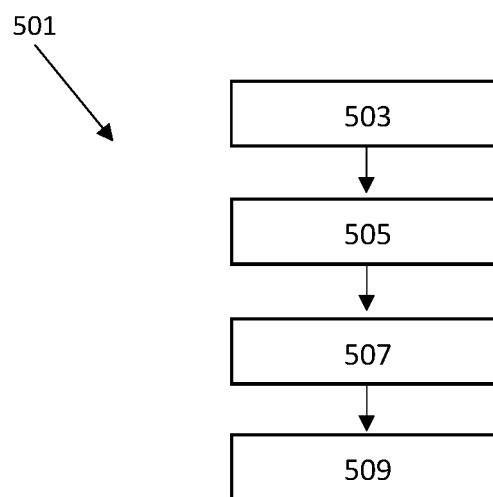


Fig. 21

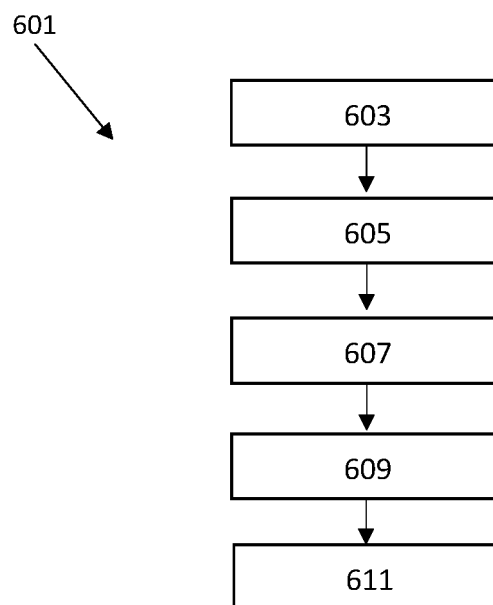


Fig. 22



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Place of search The Hague		Date of completion of the search 12 January 2021	Examiner Antonov, Ventseslav
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Place of search The Hague		Date of completion of the search 12 January 2021	Examiner Antonov, Ventseslav
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