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(54) **A LADDER MOUNT ASSEMBLY FOR A WATERBORNE CRAFT**

(57) This invention relates to a ladder mount assembly for a waterborne craft. The ladder mount assembly comprises a base plate for mounting on the waterborne craft and a ladder engaging member. The ladder mount assembly further comprises a swivel joint intermediate the ladder engaging member and the base plate connecting the ladder engaging member to the base plate,

the swivel joint being configured to permit the ladder engaging member to swivel about both a vertical axis and a horizontal axis. In this way a ladder will be provided with a solid foundation in a waterborne craft, resulting in the safer use of a ladder that is easier to manoeuvre in flood evacuation situations.

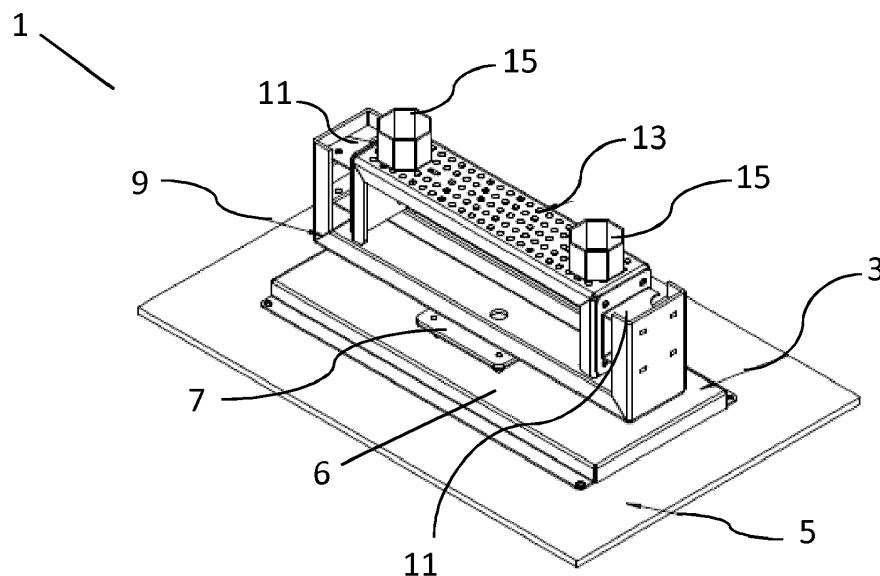


Fig. 1

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Description

Introduction

[0001] This invention relates to a ladder mount assembly for a waterborne craft.

[0002] In times of flooding, it is often necessary for the emergency services to rescue people and animals from their dwellings. This, however, is a time consuming and often dangerous exercise. The emergency services employ semi-rigid inflatable dinghies to reach the dwelling and thereafter evacuate the people and animals in the dinghy. In some cases, if the water levels have risen dramatically above ground level, it will be necessary to evacuate the people and animals from an upper floor of the dwelling. In order to do so, the emergency services have to use a ladder from the dinghy to reach the upper floor level. This is highly problematic.

[0003] First of all, it is difficult to securely mount a ladder in a semi-rigid dinghy or other waterborne craft. This is due in part to the fact that there is often water in the bottom of the waterborne craft, resulting in a slippery floor on which the ladder is mounted. It is not uncommon for the base of the ladder to slip along the floor. This is exacerbated by the fact that, particularly in fast moving bodies of water, the waterborne craft will also be moving and the foundation for the ladder will be inherently unsteady. If the ladder is dislodged, this can result in injury to the person or damage to the property.

[0004] In order to address the inherent instability of the ladder, it is necessary to provide a member of the rescue personnel with the dedicated task of securing the base of the ladder in the waterborne craft when people are being evacuated from their dwellings using a ladder. However, this is also not desirable as it requires an additional rescue person to be present in the waterborne craft during the rescue operation. As well as placing greater pressure on resources, this reduces the amount of available space in the rescue craft for evacuees, thereby increasing the amount of time required to rescue all persons as more trips will have to be undertaken in the case of large scale evacuations. This delay could have potentially disastrous consequences.

[0005] United States Patent No. 4,153,137, in the name of Johnson, discloses a ladder mount assembly for a waterborne craft. The ladder mount assembly allows the ladder to be mounted onto the gunwhale of a boat. Once in position, it is understood that the ladder may be rotated about a horizontal axis. Although useful for certain applications, this device only provides a relatively limited range of movement and adjustment and furthermore is not applicable to those waterborne craft without a gunwhale.

[0006] It is an object of the present invention to provide a ladder mount assembly that overcomes at least some of the above-identified problems. It is a further object of the present invention to provide a useful choice to the consumer.

Statements of Invention

[0007] According to the invention there is provided a ladder mount assembly for a waterborne craft comprising:

a base plate for mounting on the waterborne craft;

a ladder engaging member; and

a swivel joint intermediate the ladder engaging member and the base plate connecting the ladder engaging member to the base plate, the swivel joint being configured to permit the ladder engaging member to swivel about both a vertical axis and a horizontal axis.

[0008] By having such a ladder mount assembly, the ladder will be provided with a solid foundation in the waterborne craft, thereby obviating the likelihood of the base of the ladder slipping in the waterborne craft during a rescue operation. This will reduce the likelihood of the evacuees or their property suffering injury or damage during the rescue. Furthermore, this will obviate the need for a dedicated rescue person to hold the bottom of the ladder steady in the waterborne craft, reducing the pressure on resources, increasing the available space for evacuees in the craft and reducing the amount of time required to execute a rescue operation. In addition to the foregoing, the ladder mount assembly provides a great deal of flexibility when positioning the ladder relative to a building as it may rotate about both a vertical and a horizontal axis.

[0009] In one embodiment of the invention there is provided a ladder mount assembly in which there is provided a track for mounting on a floor of a hull of the waterborne craft and in which the base plate is slidably mounted on the track and is moveable in a reciprocal fashion along the track. This is an important feature of the invention as it allows emergency personnel to adjust the incline angle of the ladder when the waterborne craft is bow-in, ensuring that the ladder is at a safe angle for the evacuees to climb down. Additionally, when the waterborne craft is side-on to a dwelling, the ladder mount assembly, and by extension the ladder, can be moved along the track to align the ladder with a window. This requires less precise positioning of the waterborne craft relative to the dwelling, which speeds up the rescue process. It also allows the ladder to access areas that would be otherwise inaccessible.

[0010] In one embodiment of the invention there is provided a ladder mount assembly in which there is provided a locking mechanism for releasably securing the base plate in position relative to the track. In one embodiment of the invention there is provided a ladder mount assembly in which the track is oriented along the longitudinal axis of the waterborne craft's hull.

[0011] In one embodiment of the invention there is provided a ladder mount assembly in which there is provided

a locking mechanism to releasably secure the ladder engaging member in a fixed position about the vertical axis. By having such a ladder mount assembly, greater stability is provided to the ladder, making it easier for the evacuees to get to safety.

[0012] In one embodiment of the invention there is provided a ladder mount assembly in which there is provided a locking mechanism to releasably secure the ladder engaging member in a fixed position about the horizontal axis. Again, this will provide a more stable ladder for the evacuees to escape to safety.

[0013] In one embodiment of the invention there is provided a ladder mount assembly in which the swivel joint comprises a U-shaped plate rotatably mounted on the base plate about a vertical axis, and a horizontal axis mounted on the U-shaped plate about which the ladder engaging member is rotatably mounted. This is seen as a very simple and robust construction of assembly.

[0014] In one embodiment of the invention there is provided a ladder mount assembly in which the swivel joint comprises a pin rotatably mounted in a housing and at least one arm secured to the outermost end of the pin, each arm supporting portion of the ladder engaging member at its outermost end.

[0015] In one embodiment of the invention there is provided a ladder mount assembly in which the ladder engaging member is configured to releasably secure a ladder therein. This is seen as a useful embodiment as it allows the ladder to be removed when it is not in use, freeing up additional space in the waterborne craft.

[0016] In one embodiment of the invention there is provided a ladder mount assembly in which the ladder engaging member is configured to receive a plurality of disparately sized ladders. This is advantageous as the invention is not limited to the use of a particular ladder type or size.

[0017] In one embodiment of the invention there is provided a ladder mount assembly in which the ladder engaging member comprises a socket for reception of the end of a ladder side rail. This is seen as a particularly useful way of immobilizing the base of the ladder.

[0018] In one embodiment of the invention there is provided a ladder mount assembly in which the base plate is releasably mounted on a floor of a hull of the waterborne craft. This is seen as a particularly useful embodiment as it enables the ladder mount assembly to be used in a number of different waterborne crafts. Furthermore, it will free up space in the waterborne craft when the ladder mount assembly is not in use.

[0019] In one embodiment of the invention there is provided a ladder mount assembly in which there is provided a ladder mounted in the ladder engaging member. In one embodiment of the invention there is provided a ladder mount assembly in which the ladder is extensible. In one embodiment of the invention there is provided a ladder mount assembly in which the ladder is telescopic.

[0020] In one embodiment of the invention there is provided a ladder mount assembly in which the ladder is

provided with means to anchor the free end of the ladder to a structure. This is seen as an effective way of securing the position of the ladder and the waterborne craft relative to the dwelling.

5 **[0021]** In one embodiment of the invention there is provided a ladder mount assembly in which the ladder is provided with one or more floats. In one embodiment of the invention there is provided a ladder mount assembly in which the swivel joint is a universal joint.

10 **[0022]** In one embodiment of the invention there is provided a waterborne craft having the ladder mount assembly according to the invention mounted thereon.

[0023] In one embodiment of the invention there is provided a waterborne craft in which there is provided an anchoring system for securing the boat in position relative to an object while the ladder mount assembly is in use, the anchoring system comprising a suction cup tethered to the boat. This is seen as a particularly fast and effective way of securing the waterborne craft in station relative to the dwelling. The suction cup can be secured to a flat surface such as a window, door, lamppost or similar structure.

[0024] In one embodiment of the invention there is provided a waterborne craft in which there is provided an anchoring system for securing the boat in position relative to an object while the ladder mount assembly is in use, the anchoring system comprising a hook tethered to the boat, the hook being dimensioned to engage the frame of a vehicle by insertion through one of the gap between a vehicle body and a vehicle door, the gap between a vehicle body and a vehicle bonnet, and the gap between a vehicle body and a vehicle boot. This is seen as a simple anchoring device that may be used to secure the waterborne craft to a vehicle.

35 **[0025]** In one embodiment of the invention there is provided a waterborne craft in which there is provided an anchoring system for securing the boat in position relative to an object while the ladder mount assembly is in use, the anchoring system comprising a releasable clamp tethered to the boat. Again, this is a simple and effective device for securing the waterborne craft in position relative to a dwelling, lamppost, tree or like structure.

Detailed Description of the Invention

45 **[0026]** The invention will now be more clearly understood from the following description of some embodiments thereof given by way of example only with reference to the accompanying drawings, in which:-

50 Figure 1 is an isometric view of a ladder mount assembly according to the invention;

55 Figure 2 is a front view of the ladder mount assembly according to the invention;

Figure 3 is a plan view of the ladder mount assembly according to the invention;

Figure 4 is a side view of the ladder mount assembly according to the invention;

Figure 5 is a perspective view of the ladder mount assembly mounted on a track in a waterborne craft;

Figure 6 is a perspective view of the ladder mount assembly in which the U-shaped plate is rotated approximately 90 degrees relative to the base plate mounted on a track in a waterborne craft;

Figure 7 is a perspective view of the ladder mount assembly in which the U-shaped plate is rotated approximately 45 degrees relative to the base plate mounted on a track in a waterborne craft;

Figure 8 is a perspective view of a waterborne craft positioned side-on to a building and a telescopic ladder is deployed from the ladder mount assembly on the waterborne craft against an upper floor window;

Figure 9 is a perspective view of a waterborne craft positioned front-on to a building and a telescopic ladder is deployed from the ladder mount assembly on the waterborne craft against the building;

Figure 10 is a perspective view of a waterborne craft positioned front-on to a building and an extensible ladder is deployed from the ladder mount assembly on the waterborne craft against the building;

Figure 11 is a perspective view of the ladder mount assembly with a telescopic ladder engaged therein in a waterborne craft tethered side-on to a building using a pair of suction cups;

Figure 12 is a perspective view of an alternative anchoring means;

Figure 13(a)-(d) are perspective views of a variety of hook shapes to be used as alternative anchoring means;

Figure 14 is a perspective view of the ladder mount assembly with a fully retracted telescopic ladder engaged therein in a stowed position in the bow of a waterborne craft;

Figure 15 is a perspective view of the ladder mount assembly according to the invention in use in a waterborne craft on a body of water;

Figure 16 is a plan view of an alternative construction of base plate for a ladder mount assembly according to the invention;

Figure 17 is a perspective view from below of the base plate shown in Figure 16;

Figure 18 is a perspective view of an alternative construction of ladder engaging member and swivel joint for a ladder mount assembly according to the invention;

Figure 19 is a plan view of the ladder engaging member and swivel joint shown in Figure 18;

Figure 20 is a front view of the ladder engaging member and swivel joint shown in Figure 18;

Figure 21 is a cross-sectional view along the lines A-A of the ladder engaging member and swivel joint shown in Figure 20;

Figure 22 is a cross-sectional view along the lines B-B of the ladder engaging member and swivel joint shown in Figure 20;

Figure 23 is a cross-sectional view along the lines C-C of the ladder engaging member and swivel joint shown in Figure 20; and

Figure 24 is a cross-sectional view along the lines D-D of the ladder engaging member and swivel joint shown in Figure 20.

[0027] Referring to Figures 1 to 4 inclusive, there is shown a ladder mount assembly, indicated generally by the reference numeral 1. The ladder mount assembly comprises a base plate 3 for mounting on a floor 5 of a waterborne craft (not shown). The ladder mount assembly 1 further comprises a swivel joint 6, comprising a U-shaped plate 9 rotatably mounted on the base plate 3 about a vertical axis 7, and a horizontal axis 11 mounted on the U-shaped plate 9 about which the ladder engaging member 13 is rotatably mounted. There is further provided a pair of sockets 15 to releasably secure the ends of the side rails of a plurality of disparately sized ladders (not shown). Although it can be seen in Figure 3 that the pair of sockets 15 are octagonal in cross section, it will be understood that the pair of sockets 15 could also be, but not limited to, circular or rectangular in cross section. Additionally, it will be understood that a universal joint or the like could alternatively be used instead of a swivel joint.

[0028] Referring now to Figure 5, there is shown the ladder mount assembly 1 slidably mounted on a track 17 which is mounted on the floor 5 of a waterborne craft 19. The ladder mount assembly 1 is moveable in a reciprocal fashion along the track 17. The track as shown in Figure 5 is oriented along the longitudinal axis of the hull of the waterborne craft 19. However it will be understood that a track could also be provided along the latitudinal axis of a waterborne craft or indeed could be offset to both the longitudinal and latitudinal axes. As shown in Figures 5 to 7 inclusive, there is provided a locking mechanism 21 for releasably securing the base plate 3 in position

relative to the track 17. It can be seen in Figures 5 to 7 inclusive that the locking mechanism 21 is a quick-release bolt, however it is envisaged that alternative releasable securing means could be used. The ladder mount assembly 1 as shown in Figure 5 is provided with a locking mechanism, indicated by way of a lever 23 to releasably secure the U-shaped plate 9 in a fixed position about the vertical axis. The ladder mount assembly 1 is provided with a locking mechanism 25 to releasably secure the ladder engaging member 13 in a fixed position about the horizontal axis.

[0029] Referring specifically to Figure 6 there is shown the ladder mount assembly 1 slidably mounted on the end of the track 17 near the bow of a waterborne craft 19 wherein the U-shaped plate 9 has been rotated approximately 90 degrees relative to the base plate 3. Referring specifically to Figure 7 there is shown the ladder mount assembly 1 slidably mounted on the end of the track 17 near the bow of a waterborne craft 19 wherein the U-shaped plate 9 has been rotated approximately 45 degrees relative to the base plate 3.

[0030] Referring now to Figure 8, there is shown a waterborne craft 19 positioned side-on to a building, enabling an extended telescopic ladder 27 which is securely engaged within the ladder mount assembly (not shown) to reach an upper floor window 29 of a building 31. In a flood rescue situation, as simulated in Figure 8, an anchoring system is provided by way of suction cup 33 and releasable clamp 37. The suction cup 33 is secured to a window 29 to secure the waterborne craft 19 in position relative to the building 31. The suction cup 33 is tethered to the waterborne craft 19. It will be appreciated that the suction cup 33 can be secured to a range of flat surfaces including, but not limited to a window, door, lamppost or similar structure.

[0031] As shown in Figures 8, 9, 11 and 14, the anchoring system comprises one or more suction cups 33 and releasable clamps 37 tethered to the waterborne craft 19 by means of a length of webbing 35 having a releasable clamp 37 affixed to either end of the webbing 35, wherein one of the releasable clamps 37 is tethered to the waterborne craft 19 and the other of the releasable clamps 37 is affixed to a rope 39 which is tied to the suction cup(s) 33. It will be understood that a number of alternative tethering materials could be used instead of webbing, including, but not limited to sisal rope, hemp rope, steel wire, nylon and chain. Furthermore, as is shown in Figures 8, 9, 11 and 14, carabiners are used for the releasable clamp in the anchoring system. However it will be understood that alternative releasable clamp types including, but not limited to, a shackle could be used instead of or in addition to the carabiner.

[0032] An alternative tethering means to the suction cups 33 is shown in Figure 12. A C-clamp, indicated generally by reference numeral 101, comprises a C-shaped body 45, a loop 47 for the threading of a tether (not shown) and a threaded hole through which a screw 49 protrudes. An arrow A represents the direction in which the screw

49 may move. It is envisaged that the C-clamp could be attached to a tethering means using loop 47 and affixed to a door frame, a window sill or a window frame to secure the waterborne craft in position relative to a building while the ladder mount assembly is in use. It will be understood that a bar clamp, a ratchet clamp or the like could also be used instead of or in addition to the C-clamp to equally good effect.

[0033] In addition to the foregoing, a quick-release buckle 36 is provided on the length of webbing 35. It is envisaged that the quick-release buckle 36 can be employed if it is necessary to quickly detach the waterborne craft from its mooring. In this instance, the quick-release buckle 36 is opened, allowing the webbing 35 to run through the quick-release buckle 36, resulting in the waterborne craft being untethered from the object to which it is tethered. It will be understood that it would also be possible to use Velcro as an alternative to a quick-release buckle.

[0034] Figures 13 (a)-(d) show an assortment of hooks to be used as a further alternative anchoring system. It will be understood that the hook may comprise a variety of shapes as represented by reference numerals 201, 301, 401 and 501. In use, the hook is tethered to a waterborne craft by feeding and securing a tether through a loop 51 on the hook, the hook being dimensioned to engage the frame of a vehicle by insertion through one of the gap between a vehicle body and a vehicle door, the gap between a vehicle body and a vehicle bonnet, and the gap between a vehicle body and a vehicle boot. It is envisaged that the hook will be made of angled metal and is relatively thin in order to fit through a small gap. It is envisaged that the hook will be positioned in a suitable gap and twisted through 90 degrees in order to engage the frame of a vehicle. It will be understood that there may be provided a plurality of hooks.

[0035] Referring specifically to Figure 9, there is shown the waterborne craft 19 positioned front-on to the building 31. The ladder mount assembly is positioned at the bow-end of the track 17 and the U-shaped plate 9 is substantially in line with the base plate 3, and has an extended telescopic ladder 27 securely engaged within the pair of sockets 15 to reach an upper floor of a building 31. As previously described, an anchoring means is provided by a pair of suction cups 33, each of which are secured to a window 29 to secure the waterborne craft 19 in position relative to the building 31. Referring specifically to Figure 10, there is shown the waterborne craft 19, again positioned front-on to a building, wherein an extensible ladder 41 is securely engaged within the pair of sockets 15 of the ladder mount assembly 1 and is deployed against the building 31. The ladder mount assembly 1 is positioned at the end of the track 17 and again, the U-shaped plate 9 is substantially in line with the base plate 3. It will be appreciated that a range of ladder types will be compatible with the ladder mount assembly 1. It will be understood that the end of the ladder would typically be positioned to coincide with an upstairs window or roof

of a building.

[0036] Referring specifically to Figure 11, there is shown the waterborne craft 19 positioned side-on to the building 31. The ladder mount assembly 1 is positioned at the stern-end of the track 17. The U-shaped plate 9 has been rotated about the vertical axis 7 approximately 90 degrees relative to the base plate 3, and has been pivoted about the horizontal axis 11 to achieve the correct incline angle. The telescopic ladder 27 has been securely engaged within the pair of sockets 15 and has been deployed against the building 31. As previously described, an anchoring means is provided by a pair of suction cups 33, each of which are secured to a pair of windows 29 to secure the waterborne craft 19 in position relative to the building 31.

[0037] Referring specifically to Figure 14, there is shown the waterborne craft 19 positioned side-on to the building 31. The ladder mount assembly 1 is positioned at the bow-end of the track 17 and the U-shaped plate 9 is substantially in line with the base plate 3. The swivel joint 6 has been rotated approximately 90 degrees about the horizontal axis 11 such that the ladder engaging member 13 is substantially at a right-angle relative to the U-shaped plate 9. The telescopic ladder 27 is securely engaged within the pair of sockets and has been fully retracted to achieve a stowed position at the bow of the waterborne craft 19.

[0038] Referring now to Figure 15, there is shown the ladder mount assembly in use in the waterborne craft 19 on a body of water. The waterborne craft 19 is positioned side-on to a bridge 43, and the telescopic ladder 27 has been securely mounted in the ladder mount assembly (not shown) and has been extended and deployed against the bridge 43. The use of the ladder mount assembly obviates the need for the base of a ladder to be held in place by an additional person.

[0039] Referring now to Figures 16 and 17, there is shown an alternative construction of base plate for a ladder mount assembly according to the invention, indicated generally by the reference numeral 61. The base plate 61 has a plurality of apertures therein for reception of bolts or other fixing members to secure the swivel joint (not shown) thereto. Furthermore, as illustrated in Figure 17, the base plate 61 comprises a pair of legs 65 each with an outwardly depending flange 67 for securing the base plate in a track (not shown).

[0040] Referring now to Figures 18 to 20 inclusive, there is shown an alternative construction of the ladder engaging member 70 and the swivel joint 80 of the ladder mount assembly according to the invention. The swivel joint 80 comprises a housing 81 in which a pin 83 is rotatably mounted. The pin 83 has, at its outermost end, a pair of arms 85, 87 diametrically spaced apart from each other about the pin 83 and extending outwardly from the pin 83. The ladder engaging member 70 comprise a pair of U-shaped brackets 71, 73, one of which is mounted at the end of one of the arms 85 of the swivel joint and the other of which is mounted at the end of the other of

the arms 87 of the swivel joint. The U-shaped brackets 71, 73 each comprise a pair of outwardly projecting arms 75 bridged at their base by a cross-bar 77. The pair of outwardly projecting arms 75 each have an aperture 79 dimensioned to receive and retain the end of a ladder therein (not shown). The cross-bars 77 are rotatably mounted on the end of the arms 85, 87 respectively.

[0041] It will be understood that various modifications could be made to the configuration described in relation to Figures 18 to 20 inclusive. For example, the cross-bars 77 may be fixed in relation to the arms and instead the arms 85, 87 could be rotatable relative to the pin 83. Alternatively, the arms 85, 87 may be provided by a single, continuous arm that passes through a through-bore in the pin 83 and the single arm may be rotatable relative to the pin while the two cross-bars are fixed in position to the single arm. As a further alternative, the single arm could be fixed in position relative to the pin while the two cross-bars 77 may be rotatable relative to the single arm.

The apertures 79 are substantially circular and are suitable to engage ladders with circular shaped legs. The apertures could also engage other shaped legs if desired. Alternatively, the apertures 79 may be another shape, such as rectangular or other to suit an alternative shape of ladder leg.

[0043] Referring now to Figures 21 to 24 inclusive, there are shown a plurality of cross-sectional views of the parts of the swivel joint 80. Referring specifically to Figures 21 and 22, it can be seen that there are provided a plurality of ball bearings 89 supporting the pin 83 so as to provide a rotatable pin. Furthermore, in the embodiment shown, the pin is configured for limited vertical movement in the housing. In this way, when the pin is depressed downwardly, such as when a person is on a ladder that is mounted in the ladder engaging member, the weight of the person on the ladder can cause the pin to be depressed downwardly effectively securing the pin in position and temporarily preventing rotation of the pin, effectively fixing it in position. Once the weight is removed from the ladder, the pin is able to spring back upwards and rotation of the pin in the housing is permitted once more. A spring (not shown) may be provided to allow the pin spring upwardly after being depressed by a user. The pin need not necessarily be locked in position in the housing. Instead, the depression could permit the feet of the ladder (not shown) to contact the base plate and the feet of the ladder could provide the resistance to rotation of the ladder required. A locking mechanism, if desired, may be provided to hold the U-shaped brackets of the ladder engaging member in a fixed position, preventing rotation of the brackets and the ladder about a horizontal axis.

[0044] In use in an emergency situation, the waterborne craft 19 is positioned against a building and anchored to the building as previously described. The ladder mount assembly 1 is correctly positioned on the track 17 and secured thereon by the locking mechanism 21. The correct rotational angle of the U-shaped plate 9 is

chosen and secured by locking mechanism 23. A ladder is secured within the sockets 15 and is extended to reach an upper floor of a building. The correct incline angle of the ladder relative to the building is chosen by pivoting the U-shaped plate 9 about the horizontal axis 11 and the position is secured by locking mechanism 25. The evacuation process can then begin.

[0045] It is envisaged that in a preferred embodiment of the present invention, a ladder will be provided with means to anchor the free end of the ladder to a structure. Such means may include the use of hooks or C-clamps or the like located on the end caps of the ladder. It is also envisaged that the ladder may be provided with one or more floats so that the ladder can float on water. Although the ladder mount assembly of the present invention as described in the drawings shows a ladder mount assembly 1 slidably mounted on a track 17, it will be understood that the base plate 3 may also be releasably mounted on a floor of a hull of a waterborne craft.

[0046] Finally, although the ladder mount assembly of the present invention as hereinbefore described shows a ladder mount assembly for use in a semi-rigid inflatable dinghy, it will be understood that the ladder mount assembly could be mounted in other types of waterborne crafts such as ships, trawlers, cruisers, pontoons, hovercrafts and the like for applications such as search, rescue and recovery. It will be further understood that the ladder mount assembly of the present invention could have further applications such as extracting military troops from water borne areas with high walls or from buildings. It will also be understood that the ladder mount assembly could also be used in everyday situations, for example to enable individuals to access an oil rig from a waterborne craft. Furthermore, the ladder mount assembly could be used on a range of different waterborne crafts to assist individuals to board or disembark from the waterborne craft. Oftentimes, when a waterborne craft is moored at a dock wall, it can be quite difficult for its passengers to reach the dock. Some docks have ladders affixed to the dock wall, however owing to the wet conditions, these ladders often become slippery or fall into disrepair, making them very dangerous. Some docks do not have ladders, requiring passengers to climb the dock wall using holes in the wall. The combination of wet conditions and the steep incline angle of the footholds results in a dangerous climb for disembarking passengers or passengers boarding the waterborne craft. The use of the ladder mount assembly would provide a more favorable incline angle, allowing passengers to reach the dock in an easier and safer manner.

[0047] In this specification the terms "comprise, comprises, comprised and comprising" and the terms "include, includes, included and including" are all deemed interchangeable and should be afforded the widest possible interpretation.

[0048] The invention is in no way limited to the embodiment hereinbefore described but may be varied in both construction and detail within the scope of the appended

claims.

Claims

1. A ladder mount assembly (1) for a waterborne craft (19) comprising:
 - a base plate (3, 61) for mounting on the waterborne craft;
 - a ladder engaging member (13, 70); and
 - a swivel joint (6, 80) intermediate the ladder engaging member and the base plate connecting the ladder engaging member to the base plate, the swivel joint being configured to permit the ladder engaging member to swivel about both a vertical axis and a horizontal axis.
2. A ladder mount assembly (1) as claimed in claim 1 in which there is provided a track (17) for mounting on a floor of a hull of the waterborne craft and in which the base plate (3, 61) is slidably mounted on the track and is moveable in a reciprocal fashion along the track.
3. A ladder mount assembly (1) as claimed in claim 2 in which there is provided a locking mechanism for releasably securing the base plate in position relative to the track.
4. A ladder mount assembly (1) as claimed in claims 2 or 3 in which the track (17) is oriented along the longitudinal axis of the waterborne craft's hull.
5. A ladder mount assembly (1) as claimed in any preceding claim in which there is provided a locking mechanism to releasably secure the ladder engaging member in a fixed position about the vertical axis.
6. A ladder mount assembly (1) as claimed in any preceding claim in which there is provided a locking mechanism to releasably secure the ladder engaging member in a fixed position about the horizontal axis.
7. A ladder mount assembly (1) as claimed in any preceding claim in which the swivel joint comprises a U-shaped plate rotatably mounted on the base plate about a vertical axis, and a horizontal axis mounted on the U-shaped plate about which the ladder engaging member is rotatably mounted.
8. A ladder mount assembly (1) as claimed in any of claims 1 to 6 in which the swivel joint comprises a pin (83) rotatably mounted in a housing (81) and at least one arm (85, 87) secured to the outermost end of the pin (83), each arm supporting portion of the ladder engaging member (70) at its outermost end.

9. A ladder mount assembly (1) as claimed in any preceding claim in which the ladder engaging member (13, 70) is configured to releasably secure a ladder therein. 5
10. A ladder mount assembly (1) as claimed in any preceding claim in which the ladder engaging member is configured to receive a plurality of disparately sized ladders. 10
11. A ladder mount assembly (1) as claimed in any preceding claim in which the ladder engaging member comprises a socket for reception of the end of a ladder side rail. 15
12. A ladder mount assembly (1) as claimed in any preceding claim in which the base plate is releasably mounted on a floor of a hull of the waterborne craft. 20
13. A ladder mount assembly (1) as claimed in any preceding claim in which there is provided a ladder mounted in the ladder engaging member and the ladder is provided with means to anchor the free end of the ladder to a structure. 25
14. A waterborne craft (19) having the ladder mount assembly (1) according to any preceding claim mounted thereon. 30
15. A waterborne craft (19) as claimed in claim 18 in which there is provided an anchoring system for securing the boat in position relative to an object while the ladder mount assembly is in use, the anchoring system comprising one of: 35
- (i) a suction cup tethered to the boat.
 - (ii) a hook tethered to the boat, the hook being dimensioned to engage the frame of a vehicle by insertion through one of the gap between a vehicle body and a vehicle door, the gap between a vehicle body and a vehicle bonnet, and the gap between a vehicle body and a vehicle boot; and 40
 - (iii) a releasable clamp tethered to the boat. 45

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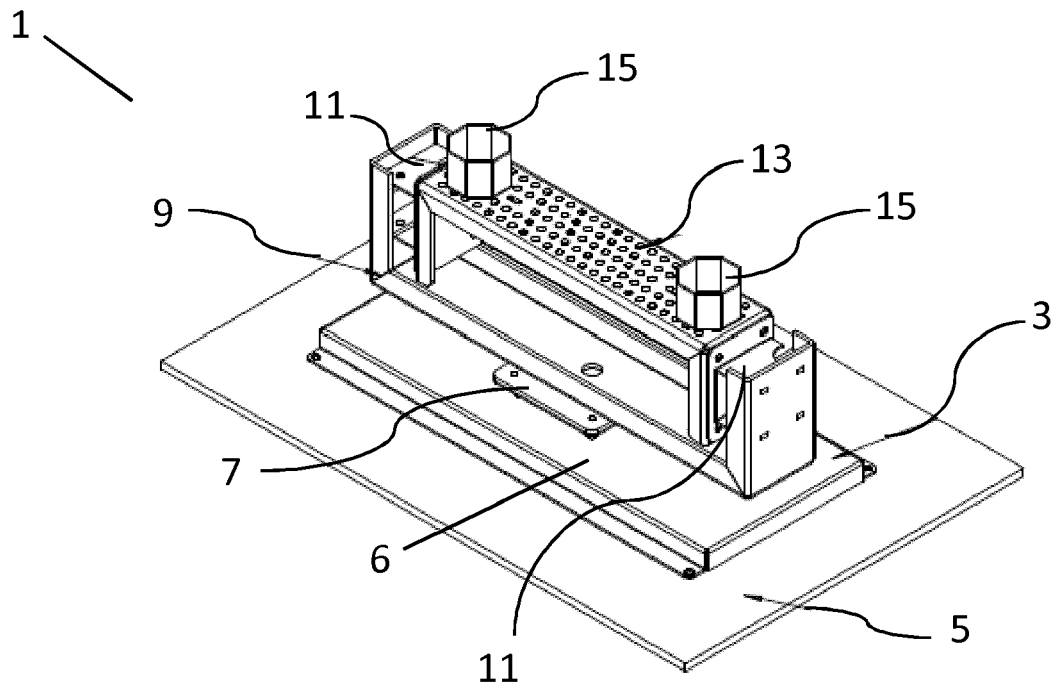


Fig. 1

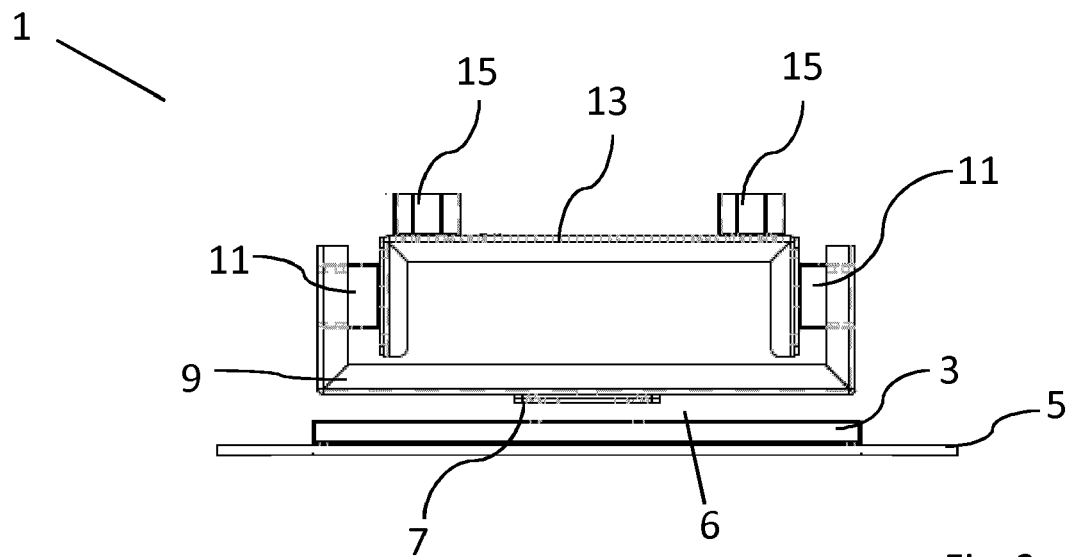


Fig. 2

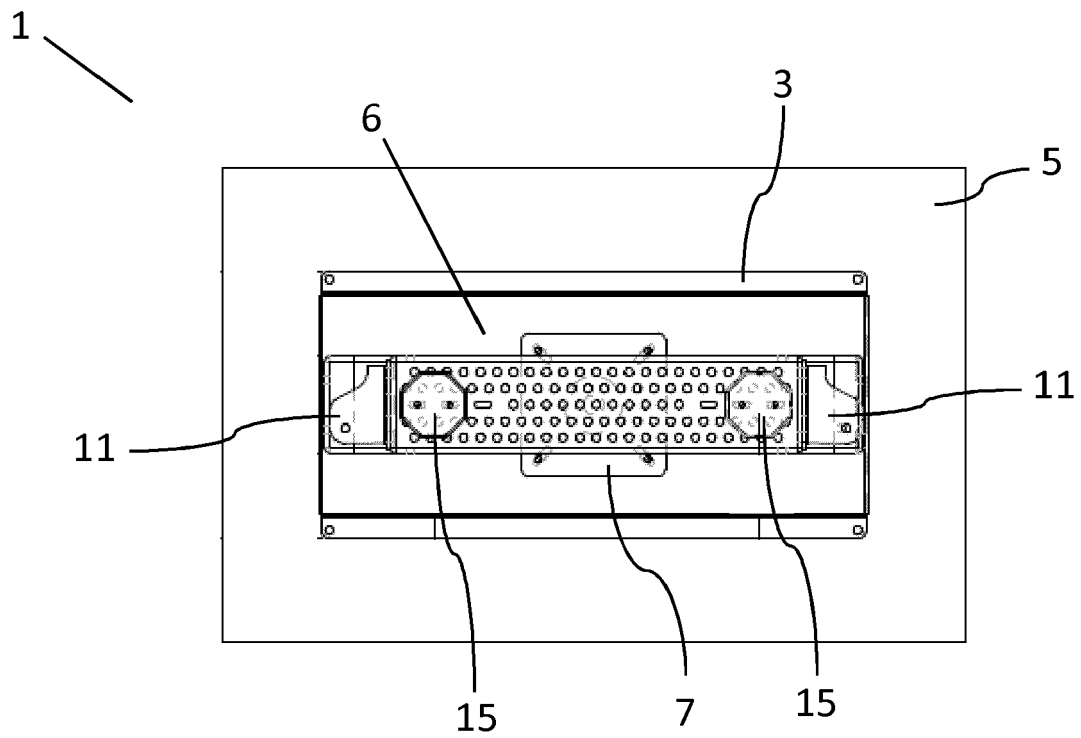


Fig. 3

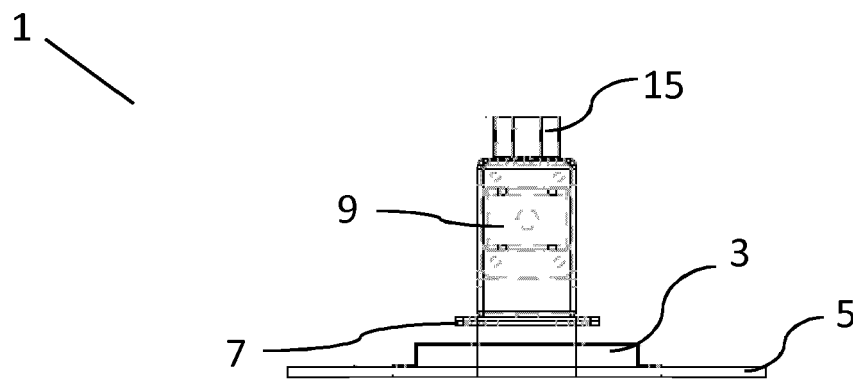


Fig. 4

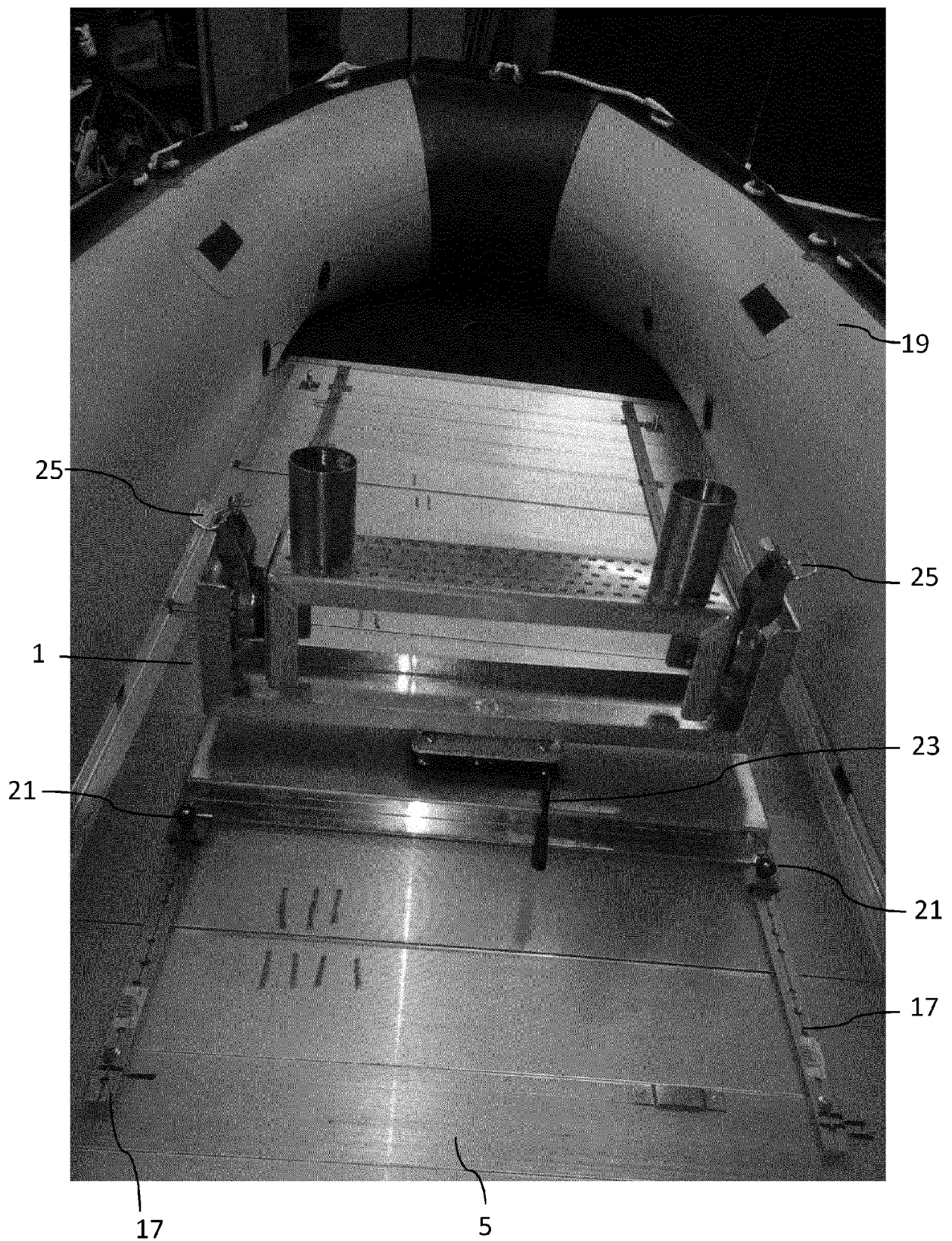


Fig. 5

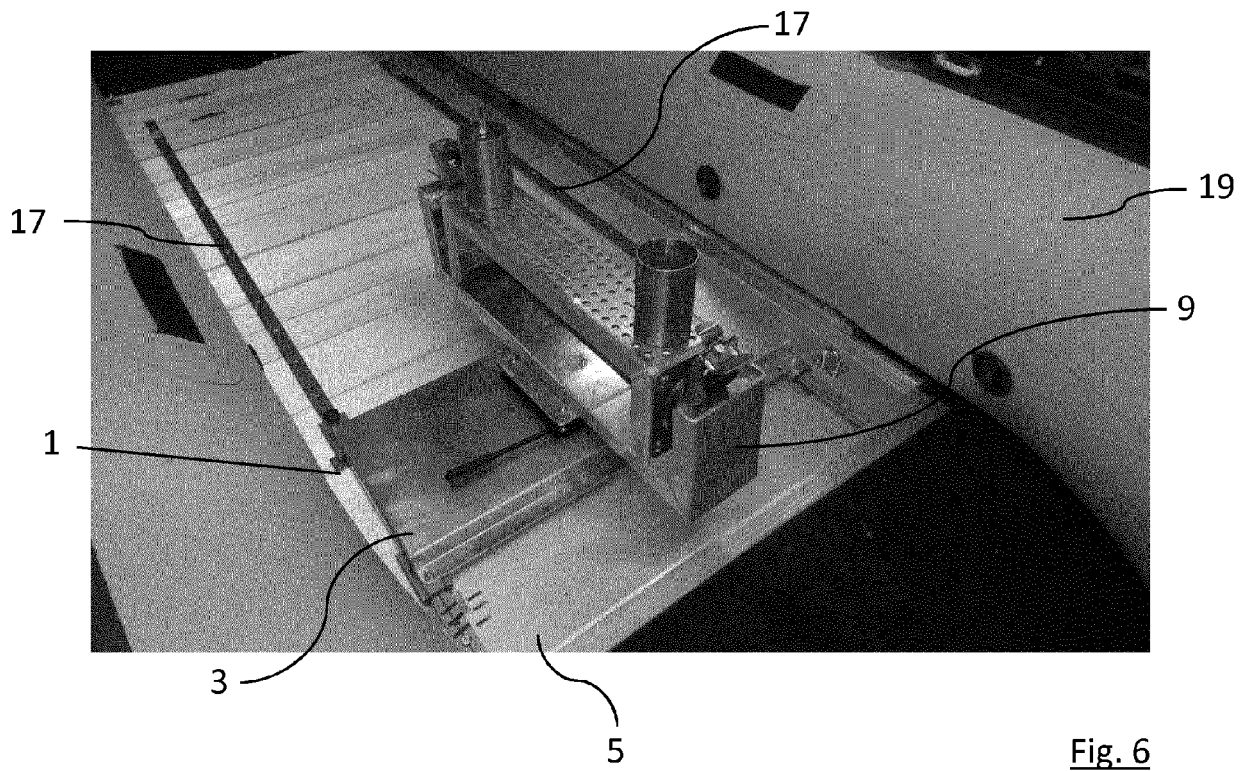


Fig. 6

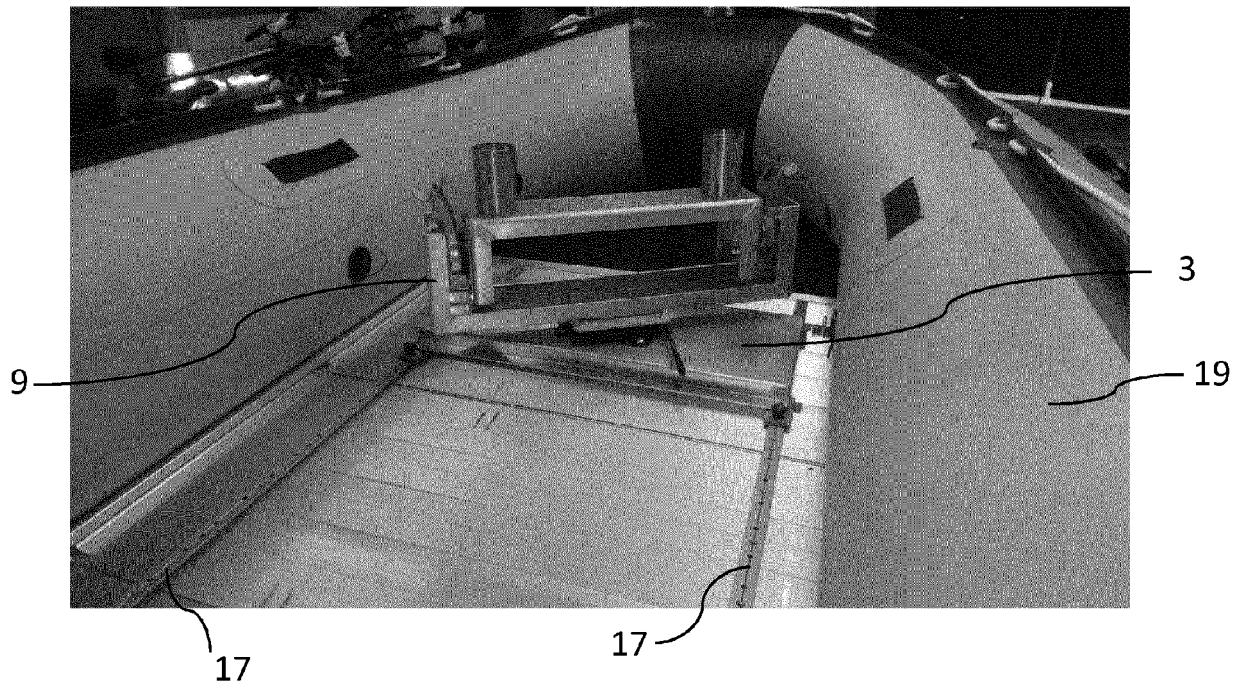


Fig. 7

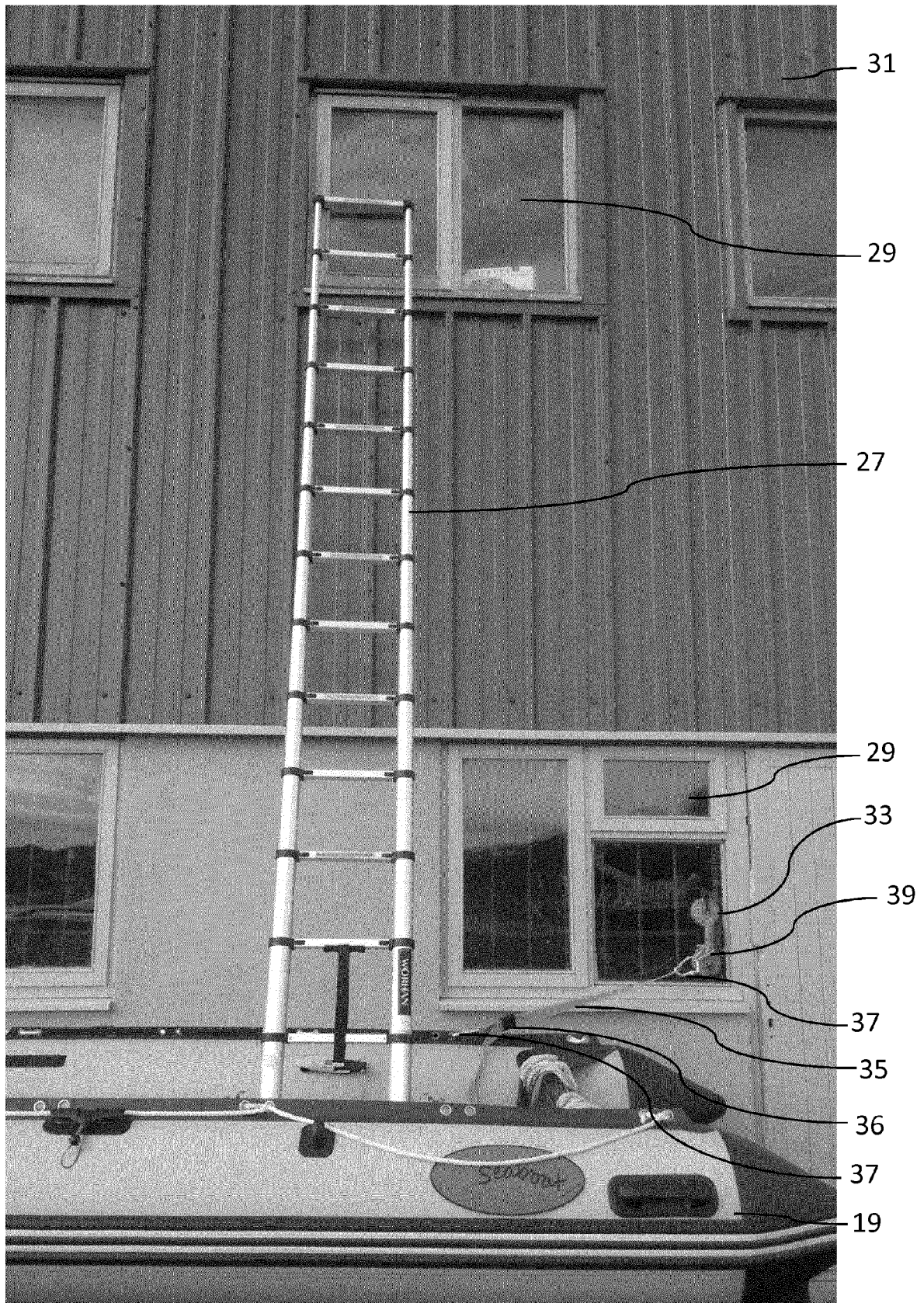


Fig. 8

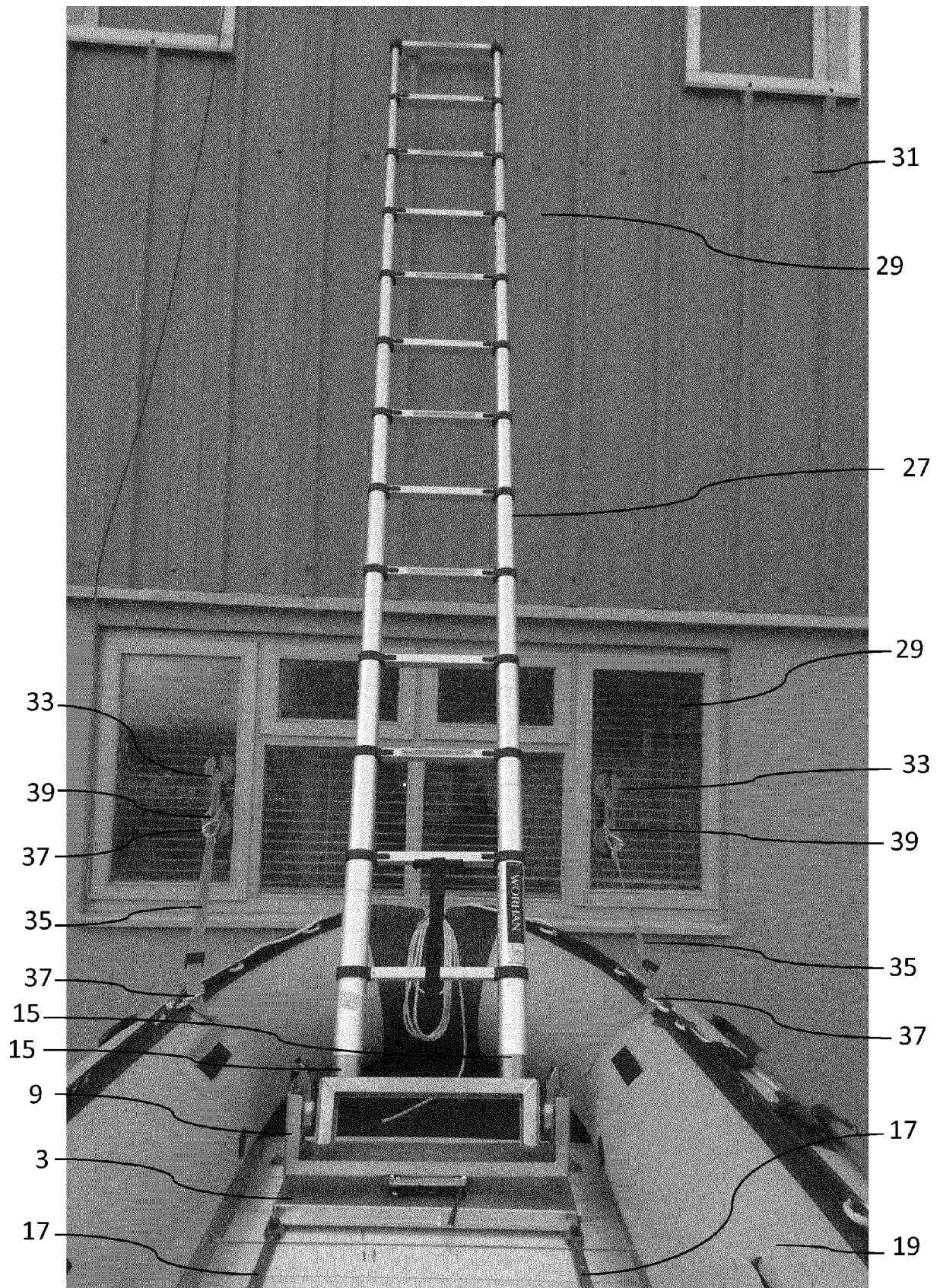


Fig. 9

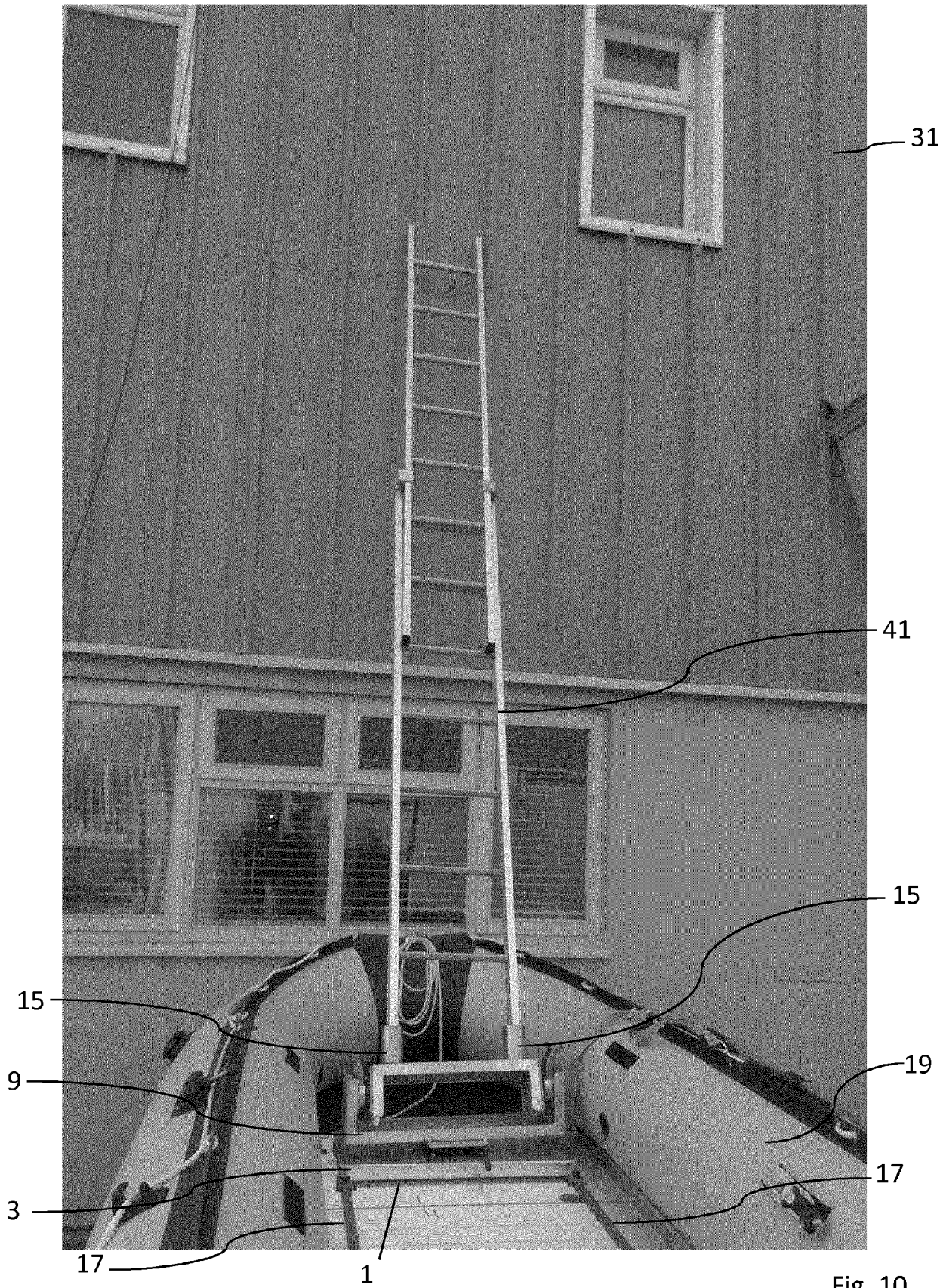


Fig. 10

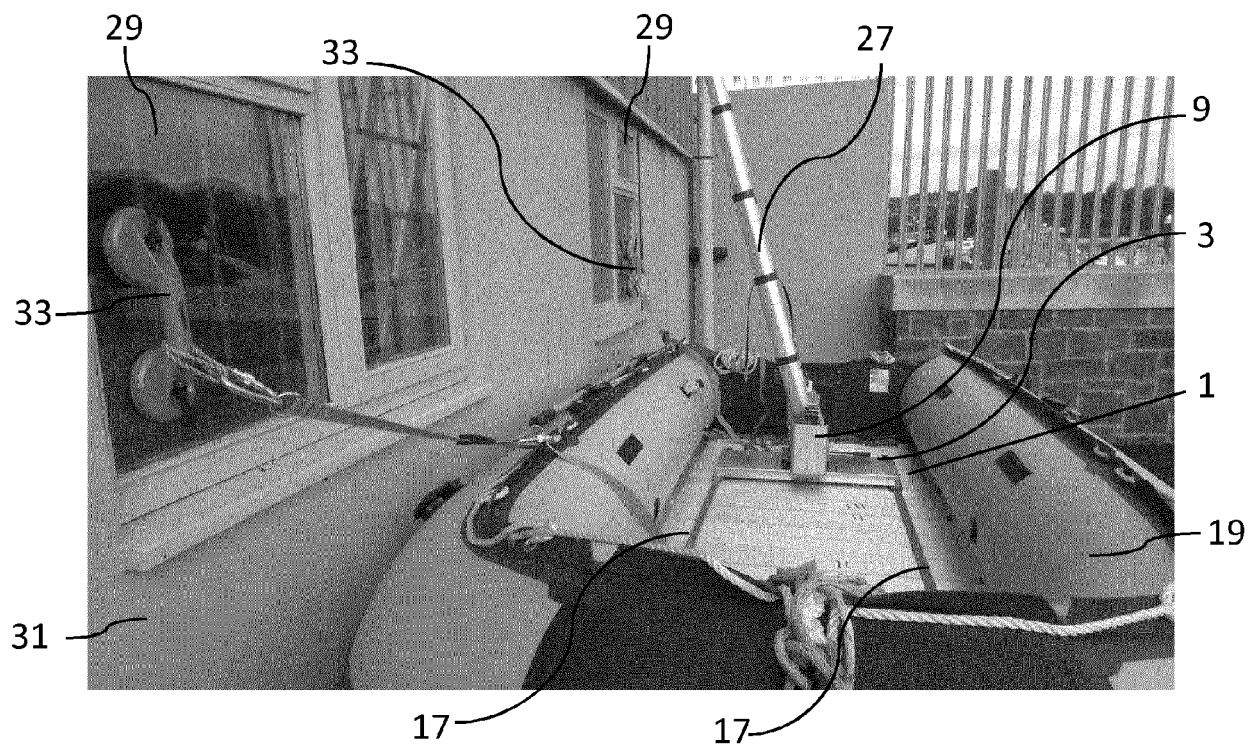


Fig. 11

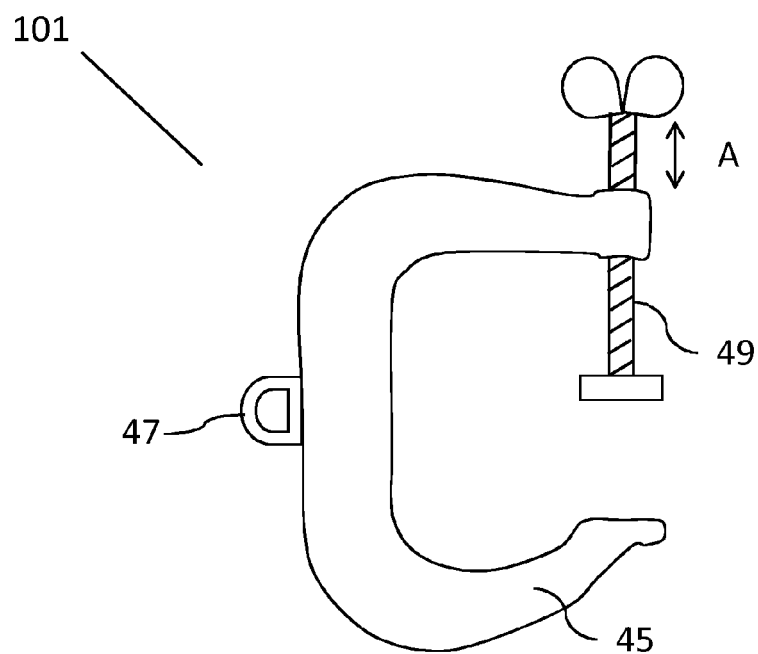


Fig. 12

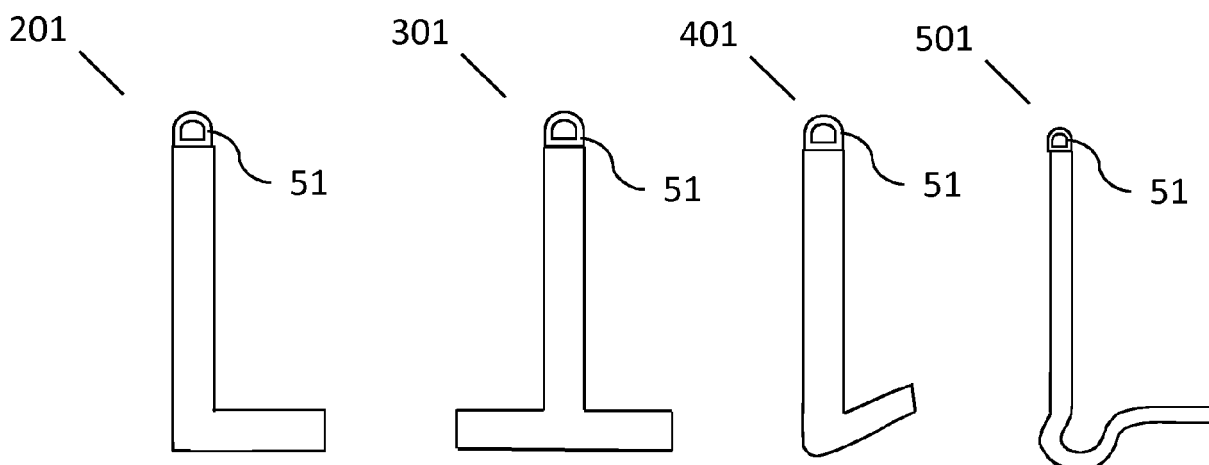


Fig. 13 (a)

Fig. 13 (b)

Fig. 13 (c)

Fig. 13 (d)

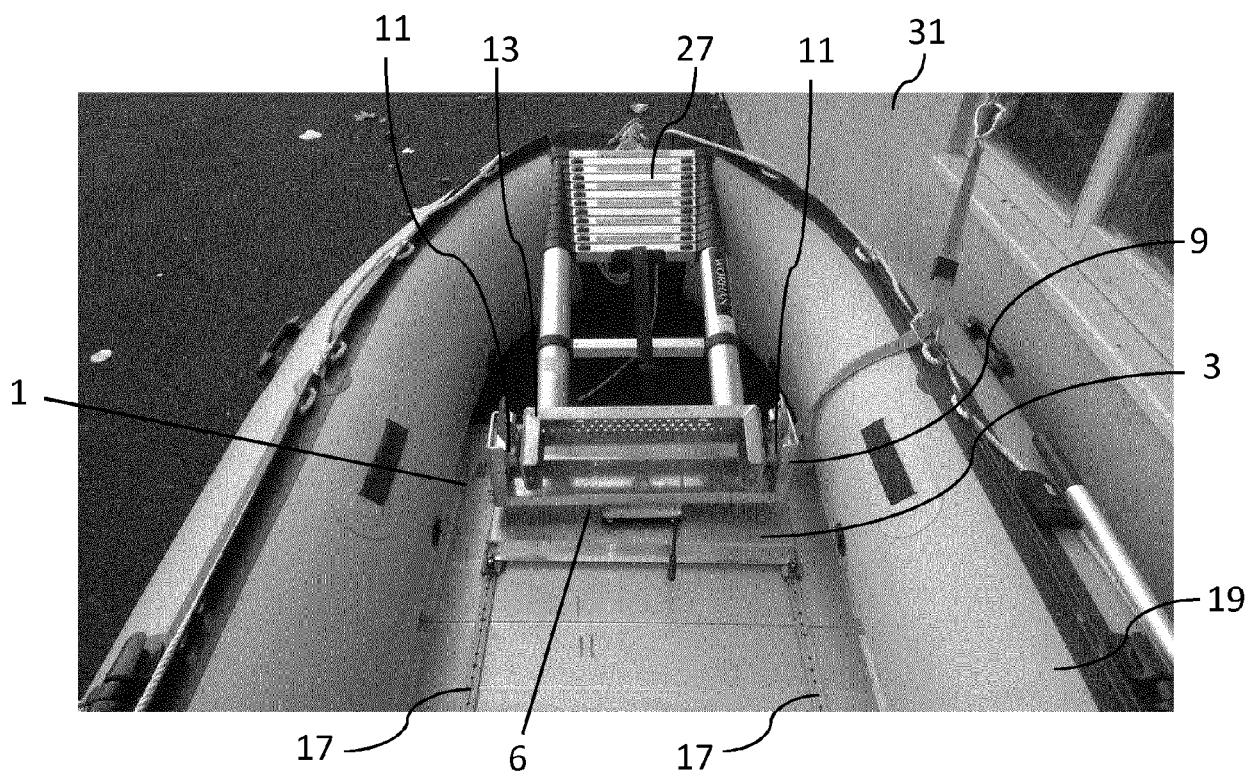
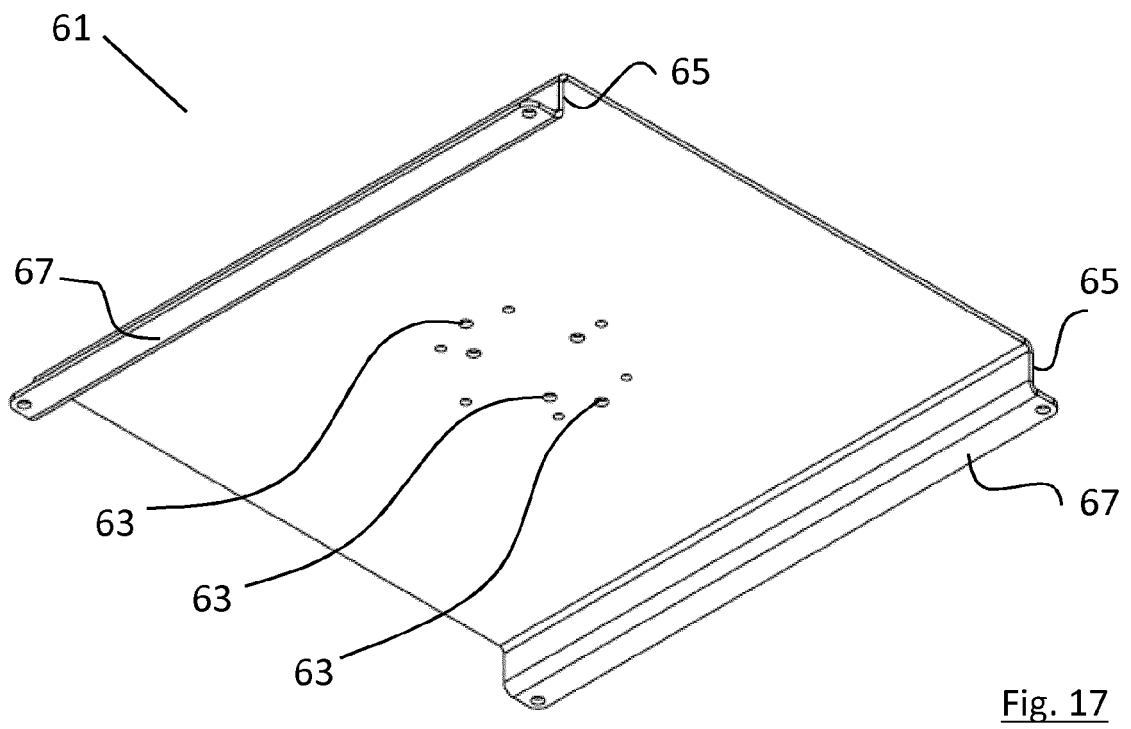
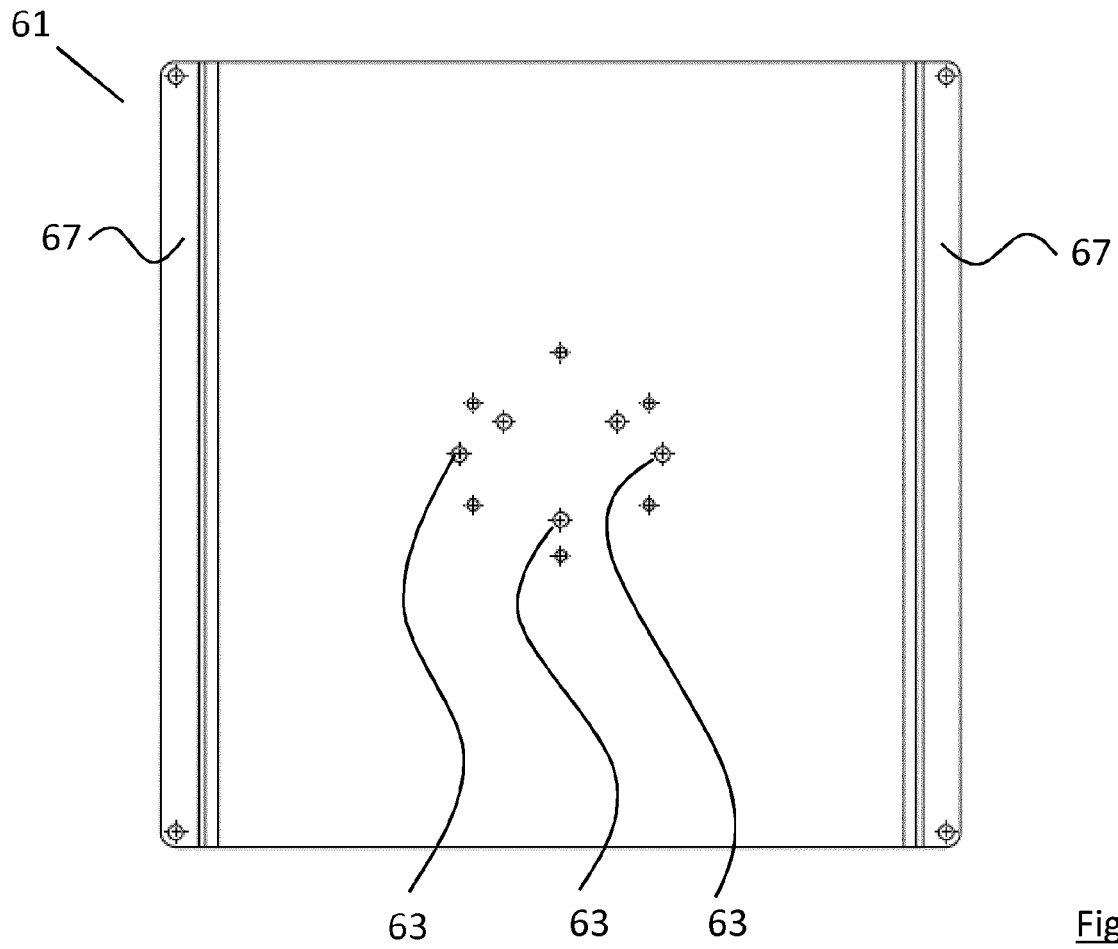


Fig. 14



Fig. 15



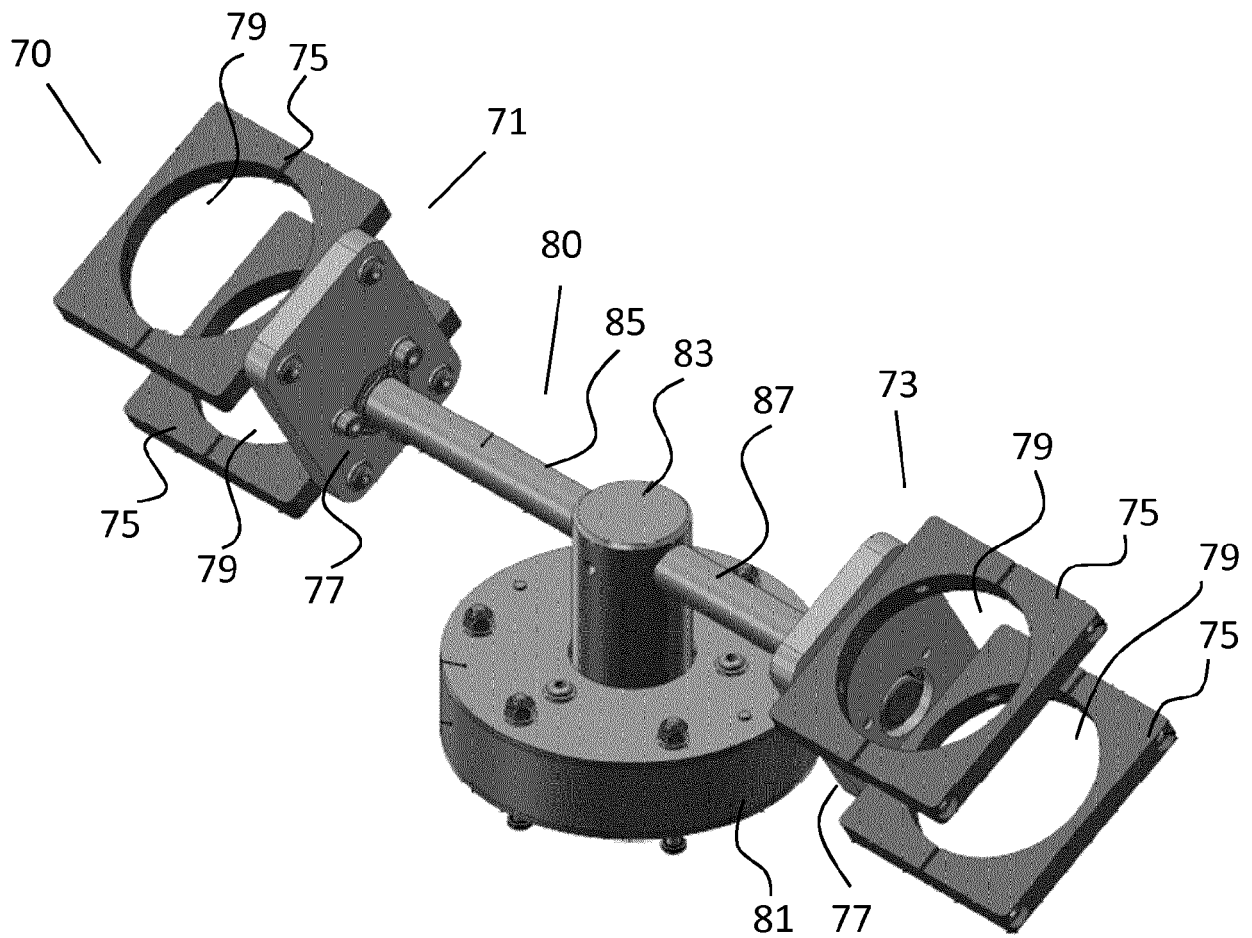


Fig. 18

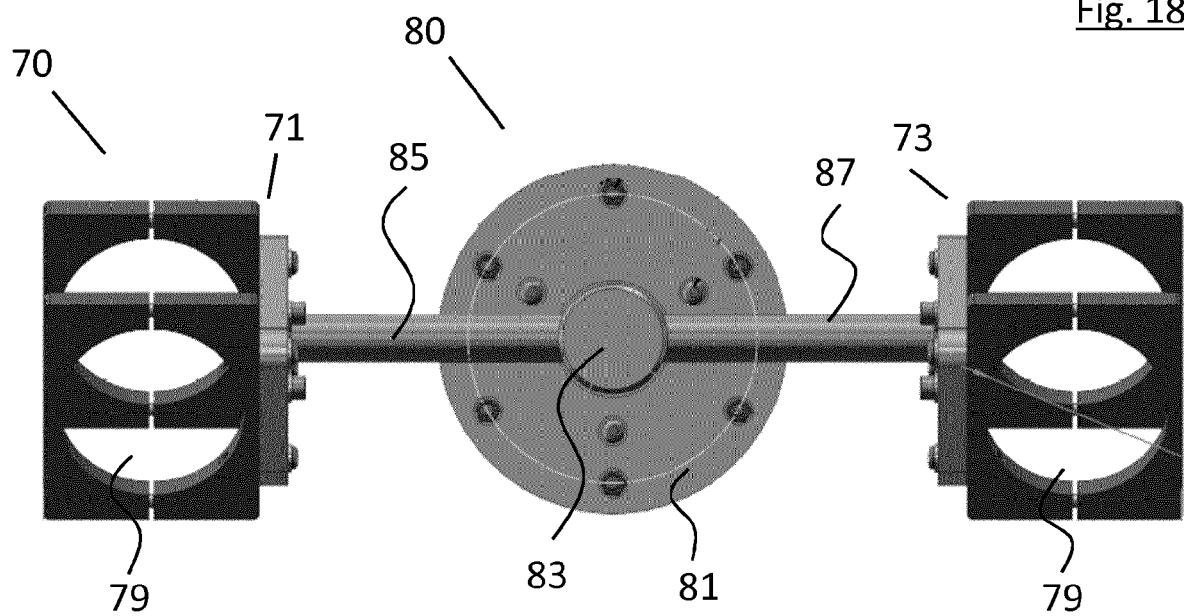
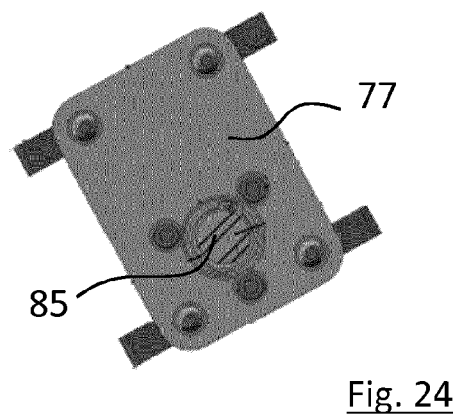
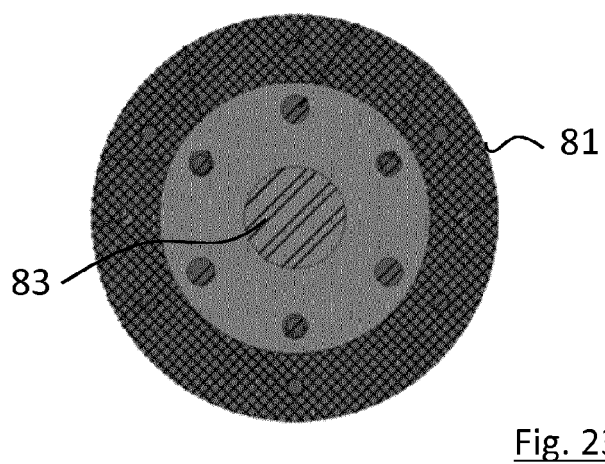
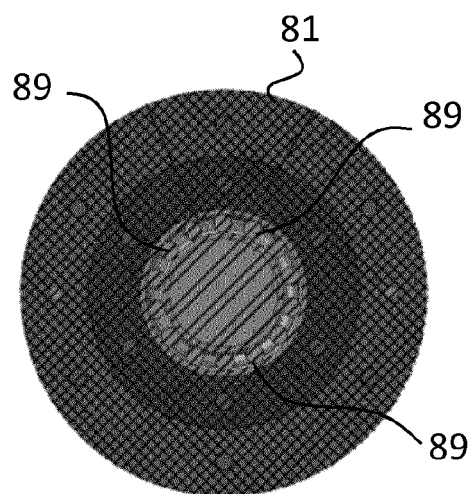
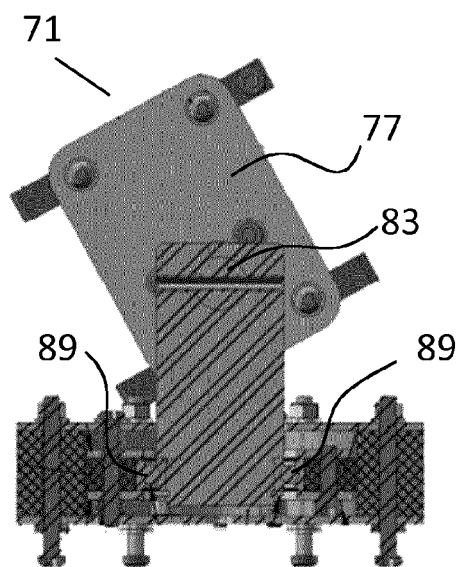
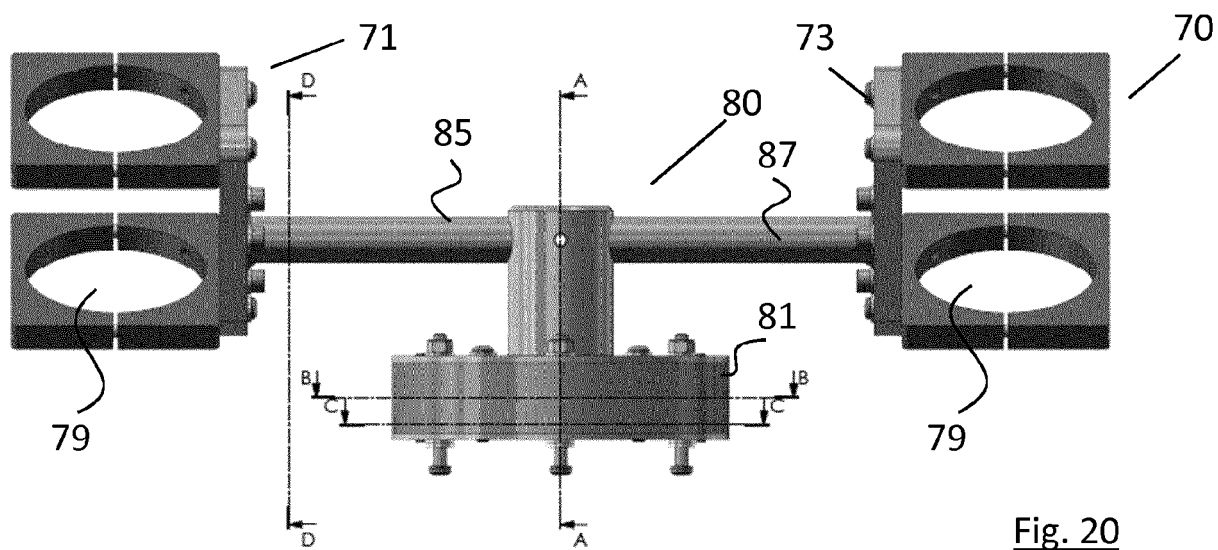


Fig. 19





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Place of search The Hague		Date of completion of the search 16 April 2018	Examiner Bauer, Josef
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