23 by means of a plurality of intermediate metal plates 34, which are represented in Figures 4, 5 and 6. The intermediate plates 34 are arranged regularly along the peripheral border region 33 and protrude in the direction of the interior of the dome structure 19 in relation to the internal edge 37 of the peripheral border region 33. According to the exemplary embodiment represented in Figures 5 and 6, the intermediate plates 34 have a narrow elongated shape following the internal edge 37 of the peripheral border region 33 and the form of an L-shaped angle bracket at the corner between two adjacent dome walls 22.

[0054] Each of the intermediate plates 34 is welded beforehand to the cover 25 before being welded to the peripheral border region 33 of the seating wall 23. In the embodiment represented in Figure 4, the intermediate plates 34 are each fillet-welded against the inside face of the cover 25 by at least two welding lines 35, 36. The two welding lines 35, 36 are formed along two edges of the intermediate plate 34 which are arranged on either side of the internal edge 37 of the peripheral border region 33. According to one embodiment variant, the intermediate plates 34 are welded on each of their edges against the inside face of the cover 25.

[0055] Furthermore, the seating wall 23 and each intermediate plate 34 are fastened to one another by using a fillet welding line 38 formed along the internal edge 37 of the peripheral border region 33 and against the lower face of each intermediate plate 34. Fastening of the cover 25 to the peripheral border region 33 by using the said intermediate plates 34 is particularly advantageous insofar as it makes it possible to take up the forces exerted on the cover 25 when the pressure prevailing inside the tank is higher than atmospheric pressure, and thus makes it possible to relieve the welding line 31 which is formed further outside the dome structure 19 and which ensures sealing of the fastening of the cover 25 to the seating wall 23. In addition, the intermediate plates 34 are advantageous insofar as they make it possible to distribute the forces over a larger welding surface. Furthermore, the intermediate plates 34 constitute an intermediate stiffener between the cover 25 and the seating wall 23, which is capable of deforming resiliently when the pressure prevailing inside the tank is higher than atmospheric pressure in order to partly absorb the forces exerted on the cover 25. Lastly, since the welding lines 35, 36, 38 by which the cover 25 is fastened to the peripheral border region of the seating wall 23 are positioned as close as possible to the centre of the dome structure 19, the moment exerted on these welding lines 35, 36, 38 in case of a positive pressure in the tank is reduced.

[0056] Furthermore, as represented in Figure 4, the dome structure 19 comprises a profiled frame 40 against which the primary sealing membrane 17 is welded and which constitutes a holding region for the primary sealing membrane, that is to say a region, located at the

Claims

[Claim 1] Installation for storing a liquefied gas, comprising a bearing structure (1) and a sealed and thermally insulating tank arranged in the bearing structure (1), the bearing structure (1) comprising an upper bearing wall (3) and the tank comprising a ceiling wall (11) fastened to the upper bearing wall (3), the upper bearing wall (3) and the ceiling wall (11) being locally interrupted so as to delimit an opening (18), the bearing structure (1) comprising a dome structure (19) protruding vertically towards the outside of the tank from the upper bearing wall (3) around the opening and defining a passage (24) intended to be passed through by at least one pipe (20, 21) intended for loading or unloading liquefied gas to or from the tank, the dome structure (19) comprising dome walls (22) protruding from the upper bearing wall (3) and each comprising an upper end, the dome structure (19) comprising a seating wall (23) fastened to the upper ends of the dome walls (22), the seating wall (23) being continued horizontally and comprising a peripheral border region (33) which borders the passage (24) and which protrudes towards the passage (24) from the dome walls (22), the dome structure (19) comprising a cover (25) which covers the passage and is welded in a sealed manner to the seating wall (23), the said cover (25) being welded to at least one intermediate plate (34), the said intermediate plate (34) being welded to the seating wall (23) in the peripheral border region (33) along an internal edge (37) of the peripheral border region (33).

[Claim 2] Installation according to Claim 1, wherein the cover (25) is welded to a plurality of intermediate plates (34) which are arranged around the passage and which are each welded to the seating wall (23) in the peripheral border region (33), along the internal edge (37) of the peripheral border region (33).

[Claim 3] Installation according to Claim 1 or 2, wherein the or each intermediate plate (34) protrudes towards the interior of the dome structure (19), and wherein the intermediate plate (34) is welded to the cover (25) by using at least one welding line (35, 36) extending along at least one edge of the intermediate plate (34).

[Claim 4] Installation according to Claim 3, wherein the or each intermediate plate (34) is welded to the cover (25) by using at least two welding lines (35, 36) extending along at least two edges of the intermediate plate (34), which are arranged on either side of the internal edge (37) of the peripheral border region (33).

[Claim 5] Installation according to any one of Claims 1 to 4, wherein the cover (25) is welded in a sealed manner to the seating wall (23) by using an intermediate frame (28) which is arranged around the passage (24) and around the at least one intermediate plate (34).

[Claim 6] Installation according to Claim 5, wherein the intermediate frame (28) is welded to the seating wall (23) by means of at least one sealed welding line (29, 30) extending along an internal or external peripheral edge of the intermediate frame (28).

[Claim 7] Installation according to Claim 5 or 6, wherein the cover (25) is welded to the intermediate frame (28) by means of at least one sealed welding line (31), the at least one sealed welding line (31) preferably extending along an external peripheral edge (39) of the cover (25).

[Claim 8] Installation according to any one of Claims 1 to 7, wherein the tank comprises a tank wall anchored against each of the dome walls (22), each tank wall comprising a primary sealing membrane (17) intended to be in contact with the liquefied gas contained in the tank, the dome structure (19) comprising a profiled frame (40) against which the primary sealing membrane (17) is welded and which is welded by a sealed welding line (43) to the peripheral border region (33) of the seating wall (23).

[Claim 9] Installation according to Claim 8, wherein the profiled frame (40) has an L-shaped cross section which comprises a first branch (41) and a second branch (42) that are perpendicular to one another, the first branch (41) being welded to the primary sealing membrane (17) and to the peripheral border region (33) and extending vertically, and the second branch (42) extending horizontally and being fastened to a fastening lug (44) which protrudes towards the ceiling wall (11) from the peripheral border region (33) of the seating wall (23).

[Claim 10] Installation according to Claim 9, wherein the profiled frame (40) comprises reinforcing gussets (46) which each have a first edge pressing against the first branch (41) and a second edge pressing against the second branch (42).

[Claim 11] Installation according to any one of Claims 1 to 10, comprising a loading/unloading tower (26) which passes through the passage (24) defined by the dome structure (19), the loading/unloading tower (26) comprising at least two vertical masts which pass through the cover (25) and are fastened to one another by cross-members (27), the two vertical masts each forming a pipe for loading or unloading the tank.

[Claim 12] Installation according to any one of Claims 1 to 11, wherein the ceiling wall (11) as well as each tank wall anchored against one of the dome walls (22) comprises a secondary thermally insulating barrier (12) held against the bearing structure (1), a secondary sealing membrane (14) resting against the secondary thermally insulating barrier (12), a primary thermally insulating barrier (15) resting against the secondary sealing membrane (14) and a primary sealing membrane (17) resting against the primary thermally insulating barrier (15) and intended to be in contact with the liquefied gas contained in the tank.

[Claim 13] Ship (70) for transporting a fluid, the ship comprising an installation according to any one of Claims 1 to 12.

[Claim 14] Transfer system for a fluid, the system comprising a ship (70) according to Claim 13, insulated pipelines (73, 79, 76, 81) arranged so as to connect the tank (71) of the ship to a floating or onshore storage installation (77), and a pump for delivering a fluid through the insulated pipelines from or to the floating or onshore storage installation to or from the tank of the ship.

[Claim 15] Method for loading or unloading a ship (70) according to Claim 13, wherein a fluid is conveyed through insulated pipelines (73, 79, 76, 81) from or to a floating or onshore storage installation (77) to or from the tank (71) of the ship.