CLAIMS

1 A fluid-tight, thermally-insulated tank constructed in a carrying structure, the carrying structure comprising a carrying wall (1) constituting a non-horizontal support wall, the fluid-tight, thermally insulated tank comprising a plurality of tank walls delimiting an interior space of the tank, said tank walls including at least one non-horizontal tank wall, the non-horizontal tank wall comprising:

a plurality of anchoring members (10, 219) arranged on an internal surface of the support wall,

a thermally insulated barrier comprising a plurality of insulating blocks (8, 206, 91, 96, 97) juxtaposed in a repeat pattern over the internal surface of the support wall and anchored to the support wall by means of the anchoring members, and

a fluid-tight membrane (12, 207) carried by said thermally insulated barrier,

wherein the anchoring members comprise an anchoring and positioning member, said anchoring and positioning member comprising:

a projecting element (62, 38, 15, 94, 102) projecting toward the interior space of the vessel and arranged between a plurality of said juxtaposed insulating blocks, and

a clamping element (39, 65) attached directly or indirectly to the projecting element and extending transversely to the projecting element in order to bear against the insulating blocks (8, 206, 91, 96, 97) between which the projecting element is arranged in order to clamp said insulating blocks against the support wall,

wherein a thickness chock (63) is arranged about the projecting element (62, 38) of the anchoring and positioning member (10), the thickness chock (63) having an internal surface on which the insulating blocks (8) between which the projecting element is arranged are kept abutting by the clamping element.

wherein said anchoring and positioning member further comprises a positioning chock (64, 16, 25, 31, 44, 50, 93, 85, 99) interacting with the projecting element (62, 38, 15, 94, 102) and arranged on the thickness chock (63), so that the thickness chock (63) is between the carrying structure and the positioning chock (64) in a thickness direction of the tank wall and the positioning chock is between the clamping element (39, 65, 339) and the thickness chock (63) in the thickness direction of the tank wall, the positioning chock comprising a stop surface (5, 22, 27, 28, 33,

35, 48, 55, 88, 89, 95) facing an upward direction of the support wall, the upward direction being parallel or oblique to a direction of greatest slope (100) of the support wall,

wherein an external lateral surface (11, 7, 92, 98, 309) of at least one of the insulating blocks between which the projecting element (62, 38, 15, 94, 102) is arranged abuts against the stop surface of the positioning chock such that the positioning chock maintains the lateral surface of said at least one insulating block at a predetermined distance from the projecting element (62, 38, 15, 94, 102).

2 The tank as claimed in claim 1, wherein the stop surface and the lateral surface of said at least one insulating block are planar and parallel.

3 The tank as claimed in one of claims 1 to 2, wherein the positioning chock (25) has a housing (26) for receiving the projecting element, a first stop surface (27) located at a predetermined first distance from the housing and oriented in a first direction about the housing and a second stop surface (28) located at a predetermined second distance from the housing and oriented in a second direction about the housing, the positioning chock being configured in order to be able to be engaged on the projecting element in a first position in which the first stop surface faces the upward direction of the support wall and in a second position in which the second stop surface faces the upward direction of the support wall.

4 The tank as claimed in claim 3, wherein the first stop surface (27) and the second stop surface (28) are two parallel opposed surfaces of the positioning chock that are arranged on either side of the housing.

5 The tank as claimed in one of claims 1 to 2, wherein said anchoring and positioning member comprises at least two projecting elements (83, 84) arranged between a plurality of said juxtaposed insulating blocks and projecting toward the interior space of the tank,

the positioning chock (85) having two housings (86, 87) traversing the positioning chock in a thickness direction of the positioning chock in order to receive the two projecting elements, a first stop surface (88) located at a predetermined first distance (b) from a first of the housings and a second stop surface (89) parallel to the first stop surface located at a predetermined second distance (B) from a second of the housings, the positioning chock being configured in order to be able to be engaged on the two projecting elements in a first position in which the first stop surface faces

the upward direction of the support wall in order to receive the lateral surface of the insulating block and in a second position in which the second stop surface faces the upward direction of the support wall in order to receive the lateral surface of the insulating block, the second position being changed relative to the first position.

6 The tank as claimed in one of claims 1 to 5, wherein the positioning chock (31) comprises a support body (32, 45, 51) having a lateral surface configured as first stop surface (33, 52) and an adjustment insert (34, 47, 53) having a predetermined thickness mounted on the first stop surface parallel to the first stop surface, a surface of the adjustment insert being configured as second stop surface (35, 55) spaced from the first stop surface by the predetermined thickness of the adjustment insert, the adjustment insert (34, 47, 53) being mounted detachably on the support body in order selectively to uncover the first stop surface or to cover the first stop surface with the adjustment insert such that the lateral surface of said at least one insulating block abuts against, selectively, the first or the second stop surface of the positioning chock.

7 The tank as claimed in claim 6, wherein the adjustment insert (34, 47, 53) is mounted on the support body by adhesive bonding, screwing, snap-fitting or nesting.

8 The tank as claimed in claim 6 or 7, wherein the adjustment insert (34, 47) is configured as an adjustment band and the positioning chock (44) furthermore comprises one or more additional adjustment bands (47) superposed on the adjustment band detachably in order to allow adjustment of the predetermined distance between the lateral surface of said at least one insulating block and the projecting element.

9 The tank as claimed in claim 8, wherein the or each additional adjustment band (47) is mounted on an underlying adjustment band by adhesive bonding, screwing, snap-fitting or nesting.

10 The tank as claimed in one of claims 6 to 7, wherein the adjustment insert (53) is selected from a predetermined batch of adjustment inserts having different dimensions in order to adjust the predetermined distance between the lateral surface of said at least one insulating block and the projecting element.

11 The tank as claimed in one of claims 1 to 5, wherein the positioning chock (16, 25) is formed as a single piece.

12 The tank as claimed in claim 11, wherein the positioning chock (16, 25) is selected from a predetermined batch of positioning chocks having different dimensions in order to adjust the predetermined distance between the lateral surface of said at least one insulating block and the projecting element.

13 The tank as claimed in one of claims 1 to 12, wherein the insulating blocks (8, 206, 91) are arranged in the form of a plurality of mutually parallel rows (3, 4) in which an anchoring and positioning member (10, 15) is arranged at an interface between at least two insulating blocks (8, 206) of a row and in which the stop surface (5, 22, 27, 28, 33, 35, 48, 55, 88, 89) of the positioning chock (64, 16, 25, 31, 44, 50) interacts with an external lateral surface of each of the at least two insulating blocks of the row such that the positioning chock maintains the external lateral surface of each of the at least two insulating blocks of the row at a predetermined distance from the projecting element.

14 The tank as claimed in claim 13, wherein the anchoring and positioning member (10, 15) is arranged between an upper row (3) of the insulating blocks located on the support surface above the anchoring and positioning member and a lower row (4) of the insulating blocks located on the support surface below the anchoring and positioning member, wherein the stop surface (5, 22, 27, 28, 33, 35, 48, 55, 88, 89) of the positioning chock (64, 16, 25, 31, 44, 50) interacts with an external lateral surface of each of the at least two insulating blocks of the upper row.

15 The tank as claimed in claim 14, wherein the anchoring and positioning member (10, 15) is arranged at an interface between at least two insulating blocks (8, 206) of the upper row (3) and at an interface between at least two insulating blocks (8, 206) of the lower row (4), the clamping element (39, 65) being configured in order to interact with the at least two insulating blocks of the upper row and the at least two insulating blocks of the lower row in order to clamp said insulating blocks against the support wall.

16 The tank as claimed in claim 15, wherein the clamping element (65) has the form of a cross.

17 The tank as claimed in one of claims 1 to 16, wherein each insulating block (8, 206) comprises a bottom panel (17, 29) and the lateral surface (11, 7) of the insulating block abutting against the positioning chock comprises a lateral surface of said bottom panel.

18 The tank as claimed in claim 17, wherein the bottom panel (17, 29) has a globally rectangular form with a re-entrant cut-out (9, 7) at the four corners of the bottom panel, wherein an external lateral surface of the re-entrant cut-out of the bottom panel abuts against the positioning chock (64, 16, 25, 31, 44, 50).

19 The tank as claimed in claim 18, wherein the re-entrant cut-out (9) of the bottom panel comprises two external lateral surfaces (11, 56) parallel, respectively, to a length direction and a width direction of the bottom panel (17) and arranged abutting against two mutually perpendicular stop surfaces (5, 6) of the positioning chock (64).

20 The tank as claimed in claim 18, wherein the re-entrant cut-out of the bottom panel comprises an external lateral surface (92) oblique relative to a length direction and a width direction of the bottom panel and arranged abutting against the stop surface (95) of the positioning chock (93).

21 The tank as claimed in claim 1, wherein the projecting element (338) of an anchoring and positioning member is engaged in a housing (309, 59) formed in the thickness of the insulating block (308) at a distance from the edges of the insulating block, the housing (309, 59) being delimited by an internal lateral surface of the insulating block, the internal lateral surface abutting against the stop surface of the positioning chock (364).

22 A vessel (70) for the transportation of a cold fluid product, the vessel comprising a hull (72) and a tank as claimed in one of claims 1 to 21, arranged in the hull.

23 A method for loading or unloading a vessel (70) as claimed in claim 22, wherein a cold fluid product is conveyed through insulated pipelines (73, 79, 76, 81) from or to a floating or land-based storage installation (77) to or from the vessel's tank (71).

24 A system for transferring a cold fluid product, the system comprising a vessel (70) as claimed in claim 22, insulated pipelines (73, 79, 76, 81) arranged so as to connect the tank (71) installed in the vessel's hull to a floating or land-based storage installation (77), and a pump for driving a stream of cold fluid product through the insulated pipelines from or to the floating or land-based storage installation to or from the vessel's tank.