CLAIMS

1. A device (0) for transferring a liquefied gas from a supply tank (10) of a first structure (1) to a receiving tank (20) of a second structure (2), at least one of the structures (1, 2) being a floating structure, the transfer device (0) comprising at least one pipe (3) for loading the receiving tank (20) with liquid and at least one pipe (4) for returning the gas present in the receiving tank (20) to the supply tank (10), characterized in that the gas return pipe (4) comprises at least one pressure regulation system (5) comprising at least one first branch (51) equipped with an expansion member (510) for expanding the gas and a second branch (52) disposed in parallel with the expansion member (510) and equipped with a valve (520) configured to allow or interrupt circulation of the gas in the second branch (52).

2. The ~~fluid transfer~~ device (0) for transferring a liquefied gas as claimed in the preceding claim, comprising a control device (54) which operates the valve (520) configured to allow or interrupt circulation of the gas in the second branch (52), depending on a first pressure measured on the gas return pipe (4).

3. The ~~fluid transfer~~ device (0) for transferring a liquefied gas as claimed in claim 2, wherein the pressure regulation system (5) is configured to keep the valve (520), itself configured to allow or interrupt circulation of the gas in the second branch (52), closed when the first pressure (P1) measured on the gas return pipe (4) is higher than a first safety threshold, the gas passing through the expansion member (510).

4. The ~~fluid transfer~~ device (0) for transferring a liquefied gas as claimed in claim 2 or 3, wherein the pressure regulation system (5) is configured to keep the valve (520), configured to allow or interrupt circulation of the gas in the second branch (52), open when the first pressure (P1) measured on the gas return pipe (4) is lower than or equal to a first safety threshold.

5. The ~~fluid transfer~~ device (0) for transferring a liquefied gas as claimed in any one of the preceding claims, wherein the expansion member (510) is controlled mechanically.

6. The ~~fluid transfer~~ device (0) for transferring a liquefied gas as claimed in any one of the preceding claims, wherein the expansion member (510) is configured to manage an inlet pressure of the gas, the range of values of which is between a first value (A) and

a second value (B), and to set a gas outlet pressure, the range of values of which is between a third value (C) and a fourth value (D).

7. The ~~fluid transfer~~ device (0) for transferring a liquefied gas as claimed in ~~any one of~~ the preceding claim~~s~~, wherein the valve (520) configured to allow or interrupt circulation of the gas in the second branch (52) allows gas circulation in the second branch (52) up to a fifth pressure value (E) of the gas, the fifth value (E) being higher than the first value (A) and lower than the fourth value (D).

8. The ~~fluid transfer~~ device (0) for transferring a liquefied gas as claimed in ~~any one of the preceding~~ claim~~s~~ 6 or 7, wherein the gas return pipe (4) comprises a pressure control valve (40) disposed between the pressure regulation system (5) and the supply tank (10).

9. The ~~fluid transfer~~ device (0) for transferring a liquefied gas as claimed in the preceding claim, wherein the pressure control valve (40) manages an inlet pressure of the gas, the range of values of which is between the third value (C) and the fourth value (D), and sets a gas outlet pressure, the range of values of which is between the third value (C) and a sixth value (F) lower than the fourth value (D).

10. The ~~fluid transfer~~ device (0) for transferring a liquefied gas as claimed in the preceding claim, wherein the gas return pipe (4) comprises a safety device (42) disposed between the receiving tank (20) and the pressure regulation system (5) and configured to interrupt the circulation of the gas in the gas return pipe (4) when the gas pressure measured between the pressure control valve (40) and the supply tank (10) exceeds a second safety threshold with a value higher than the sixth value (F).

11. The ~~fluid transfer~~ device (0) for transferring a liquefied gas as claimed in the preceding claim, wherein the safety device (42) is configured to interrupt the circulation of the gas in the gas return pipe (4) when the gas pressure measured between the receiving tank (20) and the pressure regulation system (5)~~the safety device (42)~~ exceeds a third safety threshold with a value higher than the second value (B).

12. A structure (1, 2) comprising at least one device (0) for transferring a ~~fluid~~liquefied gas as claimed in any one of claims 1 to 11 and at least one supply tank (10) intended to contain gas in the liquid state or a receiving tank (20) intended to contain gas in the liquid state.

13. A system for loading a liquid natural gas, which combines at least one structure (2) comprising the receiving tank (20) intended to contain liquid natural gas and at least one structure (1) as claimed in the preceding claim, which comprises at least the supply tank (10), at least one of these structures (1, 2) being a floating structure.

14. The system as claimed in the preceding claim, wherein the supply tank (10) is configured to operate at a pressure of between 0.05 barg and 0.700 barg, while the receiving tank (20) is configured to operate at a pressure of between 0.05 barg and 10 barg.

15. A method for transferring a liquid natural gas from a supply tank (10) to a receiving tank (20), which employs a ~~fluid transfer~~ device (0) for transferring a liquefied gas as claimed in any one of claims 1 to 11.

16. The transfer method as claimed in the preceding claim, during which the valve (520) configured to allow or interrupt circulation of the gas in the second branch (52) is kept closed when ~~the~~a first pressure (P1) measured on the gas return pipe (4) is higher than a first safety threshold, the gas then passing through the expansion member (510), or the valve (520) configured to allow or interrupt circulation of the gas in the second branch (52) is kept open when the first pressure (P1) measured on the gas return pipe (4) is lower than or equal to the first safety threshold.