CLAIMS

1. A vessel (3) with a semi-automatic or automatic vessel mooring system, the vessel (3) including a hull (22);
a mooring line winch unit (7);
at least one mooring line extending from said winch unit (7);
a weight (14) at an end of the at least one mooring line;
a mooring line guide boom (5) with at least one mooring line guide, and a mooring line guide portion (26) movable between a retracted position aligned with the hull (22), and an extended position;
wherein the hull (22) includes at least one hull opening (11) and wherein the at least one mooring line extends through the at least one hull opening (11);
wherein the mooring line guide is provided by at least one mooring line guide boom opening (12) in the mooring line guide portion (26) aligned with the at least one hull opening (11) when the mooring line guide boom (5) is in the retracted position aligned with the hull (22);
wherein the mooring line guide boom (5) is pivotally supported in the hull, and includes a mooring line guide boom actuator (6) provided to swing the mooring line guide boom (5) with the mooring line guide portion (26) between the retracted position aligned with the hull (22) and the extended position;
whereby the mooring line guide portion (26) in the extended position allows the winch unit (7) to lower the weight (14) at the end of the mooring line extending through the mooring line guide and onto a quay (1).

2. The vessel of claim 1, wherein the at least one mooring line includes a messenger line (8) and a main mooring line (9) attached to the messenger line (8) and wherein the weight (14) is attached to the end of the messenger line (8).

3. The vessel of claim 1 or 2, wherein the weight (14) includes a shore side controller (18), controlling at least the winch unit (7).

4. The vessel of any of the preceding claims, wherein the winch unit (7) is located inside the hull (22).

5. The vessel of any of the preceding claims, wherein at least one weight includes a conical seating portion (15) conforming to an opening seat (13) surrounding a mooring line guide boom opening (12) in the mooring line guide portion (26), sealing the hull opening (11) when the at least one mooring line is in a retracted position.

6. The vessel of any of the preceding claims, wherein at least one weight include a flat bottom surface (4).

7. The vessel of any of the preceding claims, wherein the mooring line guide boom (5) of the semi-automatic or automatic vessel mooring system includes telescopic elements (17) or linearly extending arms (23) provided to linearly shift the mooring line guide portion (26) between a retracted position aligned with the hull (22) and the extended position.

8. The vessel of any of the preceding claims, further including an indicator light (27) for each mooring line.

9. The vessel of any of the preceding claims, wherein the vessel is an autonomous vessel.

10. The vessel of any of the preceding claims, including two or more semi-automatic or automatic vessel mooring systems, each including two or three mooring lines, each mooring line being controlled by the winch unit (7), wherein the winch unit includes one mooring line drum (28) for each mooring line.

11. A method of semi-automatic or automatic mooring of a vessel (3) with a semi-automatic or automatic vessel mooring system, the vessel (3) including a hull (22);
a mooring line winch unit (7);
at least one mooring line extending from said winch unit (7);
a weight (14) at an end of the at least one mooring line;
a mooring line guide boom (5) with at least one mooring line guide on a mooring line guide portion (26), movable between a retracted position aligned with the hull (22), and an extended position;
the method comprising the steps of:
navigate the vessel (3) to come alongside a quay (1);
move the mooring line guide portion (26) from a retracted position alongside the hull (22) to an extended position above the quay (1);
actuate the winch unit (7) to lower the weight (14) onto the quay (1);
move the mooring line guide portion (26) from the extended position above the quay (1) to the a retracted position alongside the hull (22);
pull the mooring line out to receive a mooring line attachment portion of the mooring line;
attach the mooring line attachment portion to a mooring line attachment element on the quay; and
operate the winch unit to adjust mooring line tightening.

12. The method of claim 11, wherein the semi-automatic or automatic vessel mooring system includes further mooring lines, the method further includes repeating the steps of:
pulling the further mooring lines out to receive the further mooring lines attachment portions of the further mooring lines;
attach the further mooring line attachment portions to further mooring line attachment elements on the quay; and
operate the winch unit to adjust the tightening of the further mooring lines.

13. The method of claim 11, wherein the step of operating the winch unit to adjust mooring line tightening includes operating a shore side controller (18) attached to at least one weight (14).