CLAIMS

1. Reversible rotation mechanism ~~(1)~~ for generating a rotational motion, the reversible rotation mechanism ~~(1)~~ comprising

- a first toothed wheel ~~(11)~~ comprising first inclined teeth ~~(12)~~ extending in a generally radial direction,
- a second toothed wheel ~~(21)~~ comprising second inclined teeth ~~(22)~~ extending in a generally radial direction, the first and second toothed wheels being positioned coaxially with respect to each other and the first and second inclined teeth ~~(12, 22)~~ are inclined in opposite directions with respect to each other,
- a plurality of actuators ~~(31—34)~~ which are arranged to rotate the first toothed wheel ~~(11)~~ in a first direction and the second toothed wheel ~~(21)~~ in a second direction opposite to the first direction,

characterized in that the reversible rotation mechanism ~~(1)~~ comprises a plurality two-ended pawls ~~(40)~~ , the two-ended pawls being connected to respective actuators ~~(31—34)~~, wherein the two-ended pawls can be positioned

- in a first engaging position in which a first pawl end ~~(41)~~ engages with the first toothed wheel ~~(11)~~ which allows the respective actuators to actuate the first toothed wheel ~~(11)~~ in the first rotating direction, and
- in a second engaging position in which a second pawl end ~~(42)~~ engages with the second toothed wheel ~~(21)~~ which allows the respective actuators to actuate the second toothed wheel ~~(21)~~ in the second rotating direction.

2. Reversible rotation mechanism according to claim 1, wherein the actuators ~~(31—34)~~ are linear actuators which are positioned along the circumference of the first and second toothed wheels ~~(11, 21)~~ arranged to perform a linear stroke substantially tangentially to the circumference of the first and second toothed wheels ~~(11, 21)~~.

3. Reversible rotation mechanism according to any one of the preceding claims, wherein the actuators ~~(31—34)~~ are hydraulic cylinders.

4. Reversible rotation mechanism according to any one of the preceding claims, wherein the actuators ~~(31—34)~~ are driven in a phased relationship with respect to each other.

5. Reversible rotation mechanism according to any one of the preceding claims comprising four actuators ~~(31 – 34)~~.

6. Reversible rotation mechanism according to any one of the claims 2 – 5, wherein the linear stroke comprises an extending stroke and a retracting stroke, and

wherein a first subset of the actuators ~~(31, 32)~~ are arranged to simultaneously actuate the first or second toothed wheel ~~(11, 21)~~, wherein at least one of the first subset performs an extending stroke and at least another of the first subset performs a retracting stroke, and

wherein a second subset of the actuators ~~(33, 34)~~ are arranged to simultaneously actuate the first or second toothed wheel ~~(11, 21)~~, wherein at least one of the second subset performs an extending stroke and at least another of the second subset performs a retracting stroke.

7. Reversible rotation mechanism according to claim 6, wherein the first and second subsets actuate the first or second toothed wheels ~~(11, 21)~~ in turns.

8. Reversible rotation mechanism according to any one of the preceding claims, wherein a first subset of the two-ended pawls ~~(40)~~ can be positioned in the first engaging position and a second subset of the two-ended pawls can be positioned in the second engaging position to lock rotation of the reversible rotation mechanism.

9. Reversible rotation mechanism according to any one of the preceding claims, wherein the two-ended pawls ~~(40)~~ are connected to the respective actuators ~~(31 – 34)~~ via a hinged connection member ~~(36)~~.

10. Reversible rotation mechanism according to any one of the preceding claims further comprising a plurality of locks ~~(50)~~, each lock ~~(50)~~ being associated with a two-ended pawl ~~(40)~~, the locks ~~(50)~~ can be operated in a first and second lock state, wherein

- in the first lock state the lock ~~(50)~~ prevents the two-ended pawl ~~(40)~~ from reaching the second engaging position and

- in the second lock state the lock ~~(50)~~ prevents the two-ended pawl ~~(40)~~ from reaching the first engaging position.

11. Discharge assembly ~~(100)~~ for discharging dredged material, the discharge assembly ~~(100)~~ comprising a discharge pipe ~~(110)~~ being rotatable about a substantially vertical axis ~~(V)~~ **characterized in that** the discharge pipe ~~(110)~~ is rotatable by means of a reversible rotation mechanism ~~(1)~~ according to any one of the preceding claims.

12. Discharge assembly ~~(100)~~ according to claim 11, wherein the discharge assembly ~~(100)~~ further comprises a pump ~~(120)~~ with a pump inlet ~~(121)~~ and a pump outlet ~~(122)~~, the pump inlet ~~(121)~~ being connected to a supply conduit ~~(131)~~ arranged for supplying dredged material to the pump ~~(120)~~ and the pump outlet ~~(122)~~ being connected to the discharge pipe ~~(110)~~ arranged for discharging the dredged material.

13. Discharge assembly ~~(100)~~ according to any one of the claims 11 - 12, wherein the discharge pipe ~~(110)~~ runs through the first and second toothed wheels ~~(11, 21)~~ of the reversible rotation mechanism ~~(1)~~ in a substantial vertical direction which is substantially coaxial with respect to the rotational axes ~~(R)~~ of the first and second toothed wheels ~~(11, 21)~~, the discharge pipe ~~(110)~~ comprising a bend ~~(111)~~ at a downstream side of the reversible rotation mechanism ~~(1)~~.

14. Discharge assembly ~~(100)~~ according to any one of the claims 11 - 13, wherein the discharge pipe ~~(110)~~ comprises an upstream discharge pipe part ~~(110')~~ and a downstream discharge pipe part ~~(110'')~~, the upstream and downstream discharge pipe parts being connected by means of a rotational connection inside or upstream of the reversible rotation mechanism ~~(1)~~.

15. Vessel for discharging dredged material comprising a reversible rotation mechanism according to any one of the claims 1 – 10 or comprising a discharge assembly ~~(100)~~ according to any one of the claims 11 - 14.

16. Vessel according to claim 15, wherein the vessel comprises at least one superstructure integrated with the reversible rotation mechanism ~~(1)~~ or discharge assembly ~~(100)~~.