CLAIMS

1. Rotational absorber device for scrubbing an absorbate from a gas, the device comprising a housing having a gas inlet, a gas outlet, an absorbent liquid inlet and means for providing a sustained flow of absorbent liquid to the absorbent liquid inlet, and an absorbent liquid outlet; a rotor mounted for rotation in said housing and connecting to the inlets and outlets, the rotor comprising a plurality of scrubbing channels extending axially and parallel to a common rotation axis, wherein the channels are circumferentially enclosed by walls over an entire axial length of the rotor between the absorbent liquid inlet and the absorbent liquid outlet; wherein the device further comprises means for rotating the rotor causing the absorbent liquid fed to the rotor to be at least partly separated from the gas fed to the rotor, and exit the rotor in the form of absorbent liquid droplets that are propelled radially outwards with respect to a central axis of rotation of the rotor towards the absorbent liquid outlet where the absorbent liquid is discarded.

2. Rotational absorber device according to claim 1, wherein the axial length of the rotor and the scrubbing channels ranges from 100-5000 times the cross-sectional width of the channels.

3. Rotational absorber device according to claim 1 or 2, wherein the gas inlet and the absorbent inlet are located upstream of the rotor, and the gas outlet and the absorbent liquid outlet are located downstream of the rotor.

4. Rotational absorber device according to any one of the preceding claims, further comprising pressurizing means adapted to increase the pressure of the inlet gas.

5. Rotational absorber device according to anyone of the preceding claims, wherein the plurality of scrubbing channels amounts to at least 10, more preferably at least 100, and most preferably at least 1000.

6. Rotational absorber device according to any one of the preceding claims, further comprising an absorbent liquid collector that connects to the absorbent liquid outlet.

7. Rotational absorber device according to any one of the preceding claims, wherein the housing comprises a first and a second rotor both mounted for rotation in said housing whereby the second rotor is provided axially downstream from the first rotor.

8. Rotational absorber device according to claim 5, comprising a first and a second absorbent liquid inlet, located upstream of the first and second rotor respectively, and/or a first and a second absorbent liquid outlet, located downstream of the first and second rotor respectively.

9. Rotational absorber device according to claim 6, wherein at least one of the first and second absorbent liquid outlets reconnects to at least one of the first and second absorbent liquid inlets.

10. Rotational absorber device according to any one of the preceding claims, further comprising flow direction means provided upstream and/or downstream of the rotor, whereby the optionally upstream flow direction means act as means for rotating the rotor, and wherein the flow direction means comprises a volute, a stator blade or an impeller, or a combination of these.

11. Rotational absorber device according to any one of the preceding claims for use on vessels.

12. Rotational absorber device according to any one of the preceding claims for use in scrubbing SO_2 from flue gasses.

13. Vessel provided with a rotational absorber device according to any one of the preceding claims.

14. Method for scrubbing an absorbate from a gas, the method comprising providing a rotational absorber device in accordance with any one of the preceding claims, feeding a gas to the gas inlet, selecting an absorbent liquid by the ability of the absorbate to dissolve in the absorbent liquid, feeding a sustained flow of the absorbent liquid to the absorbent liquid inlet, rotating the rotor in said housing which causes the absorbent liquid to confine to an inward facing wall of the scrubbing channels and form a film thereto, allowing molecular transport of absorbate from the gas to the absorbent liquid, causing the absorbent liquid fed to the rotor to be at least partly separated from the gas fed to the rotor and exit the rotor in the form of absorbent liquid droplets that are propelled radially outwards with respect to a central axis of rotation of the rotor towards the absorbent liquid outlet, and exiting the gas through the gas outlet and the absorbent liquid through the absorbent liquid outlet.

15. Method according to claim 14, wherein the absorbate comprises methanol.