Claims

1. A method for sealing a propeller shaft (1) located under water, wherein the propeller shaft (1) is arranged at a pod (2) that is suspended at a hull (3) of a ship and wherein an air chamber (8) is provided circumferentially around the propeller shaft (1), wherein the method comprising

supplying compressed air from a compressed air source (13) in an air supply line (12) to the air chamber (8),

discharging compressed air from the air chamber (8) in an air return line (16) and out of the air return line (16), and

collecting liquid present in the compressed air discharged from the air chamber (8) in an intermediate leakage tank (19) that is provided in the air return line (16) within a pod housing of the pod (2),

characterized

by closing the air return line (16) upstream of the intermediate leakage tank (19),

by supplying compressed air to the intermediate leakage tank (19) to effect flowing of liquid present in the intermediate leakage tank (19) to a leakage tank (24), and

by closing the air return line (16) downstream of the intermediate leakage tank (19) in connection with closing the air return line (16).

2. The method according to claim 1, **characterized**

by supplying said compressed air to the intermediate leakage tank (19) by supplying compressed air to an upstream end (34) of a connecting air line (22) from the air supply line (12), and by supplying compressed air from a downstream end (35) the connecting air line (22) to the air return line (16) at a point of the air return line (16) downstream of the intermediate leakage tank (19, and by supplying compressed air in the air return line (16) to the intermediate leakage tank (19) to effect said flowing of liquid present in the intermediate leakage tank (19) to the leakage tank (24) in the connecting liquid line (25).

3. The method according to claim 2, **characterized**

by providing a first valve (20) in the form of a check valve in the air return line (16) upstream of the intermediate leakage tank (19),

by supplying compressed air from the compressed air source (13) to the air chamber (8) through a first pressure regulator (14) in the air supply line (12),

by supplying compressed air in the connecting air line (22) through a third valve (21) and through a second pressure regulator (23) configured to provide a higher pressure than the first pressure regulator (14), and

by said closing of the air return line (16) upstream of the intermediate leakage tank (19) is effected by a difference between the pressure provided by the first pressure regulator (14) and the pressure provided by the second pressure regulator (23) causing the first valve (20) in the form of a check valve to close.

4. The method according to claim 3, **characterized**

by sending a signal from a pressure sensor (33) functionally connected to the air supply line (12) to the third valve (21) provided in the connecting air line (22) and triggering an alarm and/or closing the third valve (21) provided in the connecting air line (22) if the pressure in the air supply line (12) exceeds a predetermined threshold value when the third valve (21) provided in the connecting air line (22) is open.

5. An arrangement for sealing a propeller shaft (1) located under water, wherein the propeller shaft (1) is arranged at a pod (2) that is suspended at a hull (3) of a ship,

wherein the arrangement comprises

an air chamber (8) that is provided circumferentially around the propeller shaft (1),

an air supply line (12) configured to supply compressed air from a compressed air source (13) to the air chamber (8),

an air return line (16) configured to discharge compressed air from the air chamber (8) and out of the air return line (16), and

an intermediate leakage tank (19) for collecting liquid present in the air is provided in the air return line (16), wherein the intermediate leakage tank (19) being provided within a pod housing of the pod (2),

characterized

by a drainage arrangement comprising

a first valve (20) in the air return line (16) upstream of the intermediate leakage tank (19),

a leakage tank (24) in fluid connection with the intermediate leakage tank (19) by means of a connecting liquid line (25), and

a connecting air line (22) in fluid connection with the intermediate leakage tank (19),

by the drainage arrangement being configured to close the first valve (20) in the air return line (16), to supply compressed air in the connecting air line (22) to the intermediate leakage tank (19) to effect flowing of liquid present in the intermediate leakage tank (19) to the leakage tank (24) in the connecting liquid line (25),

by the drainage arrangement comprising a second valve (17) in the air return line (16) downstream of the intermediate leakage tank (19), and

by the drainage arrangement being configured to close the second valve (17) in the air return line (16) in connection with the closing of the first valve (20) in the air return line (16).

6. The arrangement according to claim 5, **characterized**

by the connecting air line (22) being in fluid connection with the intermediate leakage tank (19) so that an upstream end (34) of the connecting air line (22) is in fluid connection with the air supply line (12) and so that a downstream end (35) of the connection air line is in fluid connection with the air return line (16) at a point upstream of the second valve (17) in the air return line (16) and downstream of the intermediate leakage tank (19), and

by the drainage arrangement being configured to supply said compressed air to the upstream end (34) of the connecting air line (22) from the compressed air source (13) that is configured to supply compressed air to the air chamber (8) that is provided circumferentially around the propeller shaft (1), and from downstream end (35) of the connecting air line (22) to the air return line (16) and in the air return line (16) to the intermediate leakage tank (19) leakage to effect said flowing of liquid present in the intermediate leakage tank (19) to the leakage tank (24) in the connecting liquid line (25).

7. The arrangement according to claim 6, **characterized**

by the connecting air line (22) being provided with a third valve (21), and

by the drainage arrangement being configured to open the third valve (21) provided in the connecting air line (22) to supply compressed air to the intermediate leakage tank (19) to effect flowing of liquid present in the intermediate leakage tank (19) to the leakage tank (24) in the connecting liquid line (25).

8. The arrangement according to claim 6, **characterized**

by a first pressure regulator (14) in the air supply line (12), and

by the connecting air line (22) being provided with a third valve (21) and with a second pressure regulator (23) configured to provide a higher pressure than the first pressure regulator (14), and

by the drainage arrangement being configured to open the third valve (21) provided in the connecting air line (22) to supply compressed air through the second pressure regulator (23) in the connecting air line (22) and in the air return line (16) into the intermediate leakage tank (19) to effect flowing of liquid present in the intermediate leakage tank (19) to the leakage tank (24) in the connecting liquid line (25).

9. The arrangement according to claim 6, **characterized**

by a first pressure regulator (14) in the air supply line (12),

by the connecting air line (22) being provided with a third valve (21) and with a second pressure regulator (23) configured to provide a higher pressure than the first pressure regulator (14),

by the first valve (20) in the air return line (16) upstream of the intermediate leakage tank (19) being in the form of a check valve, and

by the drainage arrangement being configured to open the third valve (21) provided in the connecting air line (22) to supply compressed air through the second pressure regulator (23) in the connecting air line (22) and in the air return line (16) into the intermediate leakage tank (19) to effect closing of the first valve (20) and to effect flowing of liquid present in the intermediate leakage tank (19) to the leakage tank (24) in the connecting liquid line (25).

10. The arrangement according to any of the claims 7 to 9, **characterized**

by connecting a pressure sensor (33) to the air supply line (12), and

by sending a signal from the pressure sensor (33) to the third valve (21) provided in the connecting air line (22) of the drainage circuit arrangement and triggering an alarm and closing the third valve (21) provided in the connecting air line (22) of the drainage circuit arrangement if the pressure in the air supply line (12) exceeds a predetermined threshold value when the third valve (21) provided in the connecting air line (22) of the drainage circuit arrangement is open.

11. The arrangement according to any of the claims 5 to 10, **characterized**

by a lubricant chamber (7) provided between a first seal ring (5) provided circumferentially around the propeller shaft (1) and a second seal ring (6) that is provided circumferentially around the propeller shaft (1), wherein the lubricant chamber (7) is provided circumferentially around the propeller shaft (1).

12. The arrangement according to claim 11, **characterized**

by the air chamber (8) provided between a face seal (4) provided circumferentially around the propeller shaft (1) and the first seal ring.

13. The arrangement according to claim 11 or 12, **characterized**

by a lubricant supply line (9) configured to supply lubricant from a lubricant tank (10) to the lubricant chamber (7) and a lubricant return line (11) configured to supply lubricant from the lubricant chamber (7) to the lubricant tank (10).