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71 Applicant: **NORSK HYDRO A.S.**
Bygdoy Allé 2
N-0257 Oslo 2 (NO)

72 Inventor: **Bakken, Trygve**
Kitty Kløllandsv. 8H
N-1346 Gjøttum (NO)

Seljebo, Gunnar
Alaskveien 29
N-0753 Oslo 7 (NO)

74 Representative: **Allen, Oliver John Richard et al**
Lloyd Wise, Tregear & Co. Norman House 105-109 Strand
London, WC2R 0AE (GB)

54 Louvered ventilators.

57 A louvered ventilator consists of several vertically arranged louver members (2) which are fastened at their upper and lower ends to a frame construction (3).

Such louvered ventilators are used for separating water (rain) from the air passing through.

The louver members (2) have S-like shape and are provided with longitudinally disposed drain bores or canals (8) which are open towards the surface of the louver member through a slit (9).

Description

LOUVERED VENTILATORS

The present invention relates to a louvered ventilator, comprising several vertically arranged louver slats or air-foils which are fastened to a frame construction or housing (cassette).

Such louvered ventilators are used in ventilated rooms, or the like, on offshore constructions and ships, and provide a separation of water from air passing through the ventilators. They preferably have the following specification:

The opening in the cascade (louver) should be more than 70%.

Air passing through the louvered ventilator should not be deviated more than 10%. If the deviation is more than 10%, pairs of ventilator cassettes should be mounted so that the air blows in opposite directions.

98% of all water drops having a size longer than 30 μm should be intercepted by the louvered ventilator. The co-efficient for the pressure drop, $\Delta P_{\text{louver}}/1/2\rho u^2$, should not be more than 7 (ρ = density, u = velocity).

The co-efficient for the pressure drop should not be more than 4 for air passing through the ventilator in the reverse direction.

The water separation requirements should be achieved under a load of 40 l(of water) m^2h (air) with an air velocity of 6,3 m/s.

Louvered ventilators are known in which the louver slats have a curved or part circular shape, and where each of these members is provided with a lip or the like for the collection of water drops. This known type of louvered ventilator does, however, not comply with all the above requirements, and reveals different properties depending on the wind direction (rain weather direction).

The present invention has for its main object to provide a louvered ventilator which preferably complies with all of the above requirements with regard to water separation, air pressure drop and so on, and which in addition is less sensitive with regard to the wind direction.

A louvered ventilator in accordance with the invention comprises a louvered ventilator, comprising several vertically arranged louver slats, which are fastened to a frame construction or housing at their upper and lower ends characterized in that the louver slats or members (2) have a S-like shape and consists of an inlet part (A) which is essentially parallel to the normal to the plane of the ventilator and an intermediate part (B) which forms an angle (α) with said normal and which is connected to the inlet part (A) through a first curved part (4), an outlet part (C) which is connected to the intermediate part (B) through a second curved part (5) and which is essentially parallel with said normal to the plane of the ventilator, and in that the louver slats or members are provided with longitudinally disposed open mouthed drain canals (8).

Whilst such a ventilator may have some or all of the "specification" criteria set out above these are not essential as the slat formation of the invention

may be used in all ventilators.

The invention will now be further described by way of example with reference to the accompanying drawings in which:

Fig. 1 is a perspective view of a louvered ventilator according to the invention,

Fig. 2 is a horizontal cross section of the louvered ventilator shown in Fig. 1, and

Fig. 3 is a cross section of a louver for the ventilator shown in Fig. 1 and 2.

As can be seen in Figs. 1 and 2, the louvered ventilator 1 consists of several louver members i.e. slats or aerofoils 2. The slats are disposed in a vertical, upright position in a cascade arrangement.

Such louvered ventilators can be 2 metres high and 2 - 3 metres wide.

The slats are so arranged as partly to overlap one another. The distance between each slat is dependent upon the thickness of each slat as well as the requirement that the opening in the cascade which should be more than 70%. The slats are attached by means, (not shown), at their upper and lower ends, to a housing 3 by means of welding, a screw connection, a groove connection or the like.

Fig. 3 depicts an example of a louver slat according to the invention in cross section. The drawing is to the scale 1:1, the numerals in the co-ordinates being in centimetre.

As can be seen in Fig. 3, the slat has a S-like shape and consists of an inlet part A, an inclining, intermediate part B, and an outlet part C. The inlet part A is connected to the intermediate part B through a first curved part 4, and the outlet part C is connected to the intermediate part B through a second curved part 5.

The inlet part A and the outlet part C have their longitudinal axis essentially parallel with the normal for the ventilator (the co-ordinate x), and the intermediate part B forms an angle α with said normal of about 50°. Both the inlet part A and the outlet part C have rounded ends 6, 7 to prevent separation of the air passing through the ventilator.

As can further be seen in Fig. 3, the louver slat is provided with longitudinally oriented canals or bores 8 which serves as drainage for the water deposited on the slat. These drain canals 8, which in Fig. 3 have a round or circular shape, are open towards the surface of the vertical member through a vertical slit 9. To prevent the water drops from passing over a slit 9, it has to be sufficiently wide. It is, however, not necessary to use round canals 8. Thus, the canals may be oval, rectangular or the like.

Preliminary tests have proved that the slats shown in Fig. 3 fully complies with the previously mentioned requirements. It is, however, possible that some adjustments regarding the shape of the louver member may even improve these results. The length of the inlet A and outlet part C as shown in Fig. 3 may be varied as may the length of the intermediate part B or the angle α as shown in Fig. 3. It may also be possible to improve the results by positioning the

canals 8 differently, or by altering the thickness of the louver slats.

The slats 2 are preferably made of extruded aluminium profiles. However, other fabrication methods and materials may also be used.

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Claims

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1. A louvered ventilator, comprising several vertically arranged louver slats, which are fastened to a frame construction or housing at their upper and lower ends characterized in that the louver slats or members (2) have a S-like shape and consists of an inlet part (A) which is essentially parallel to the normal to the plane of the ventilator and an intermediate part (B) which forms an angle (α) with said normal and which is connected to the inlet part (A) through a first curved part (4), an outlet part (C) which is connected to the intermediate part (B) through a second curved part (5) and which is essentially parallel with said normal to the plane of the ventilator, and in that the louver slats or members are provided with longitudinally disposed open mouthed drain canals (8).

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2. A louvered ventilator according to Claim 1, characterized in that the ends of the inlet part (A) and the outlet part (C) are rounded (6, 7).

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3. A louvered ventilator according to Claims 1 or 2 characterized in that the inlet part (A) and the outlet part (C) stretch straight outwardly from the intermediate part (B).

4. A louvered ventilator according to Claims 1 or 2 characterized in that the inlet part (A) and the outlet part (B) are curved and thus are partly or wholly, an integral part of the first (4) and second curved part (5), respectively.

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5. A louvered ventilator according to any of Claims 1 - 4, characterized in that the angle (α) between the intermediate part (B) and the normal to the ventilator plane, is approximately 50°.

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Fig.1

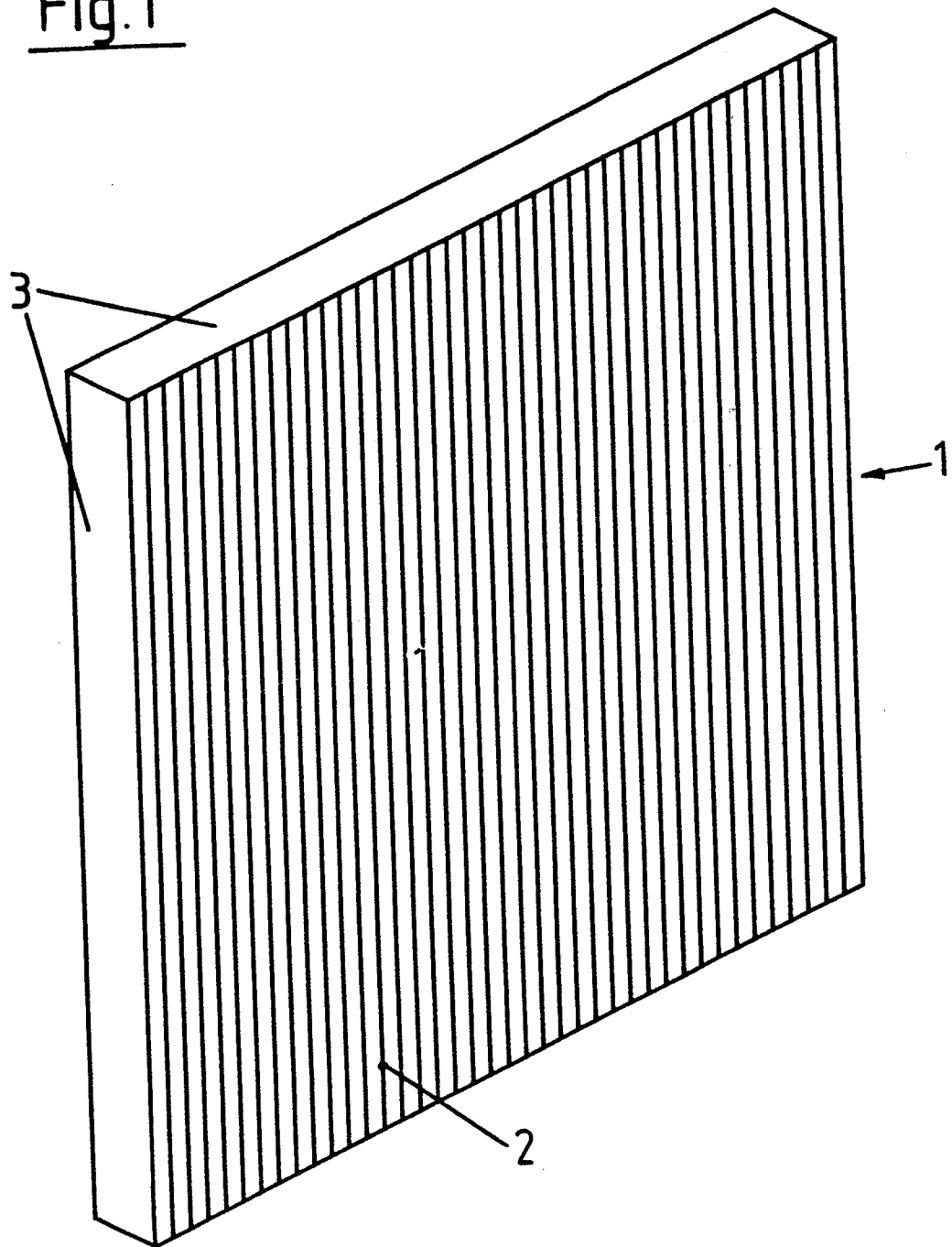
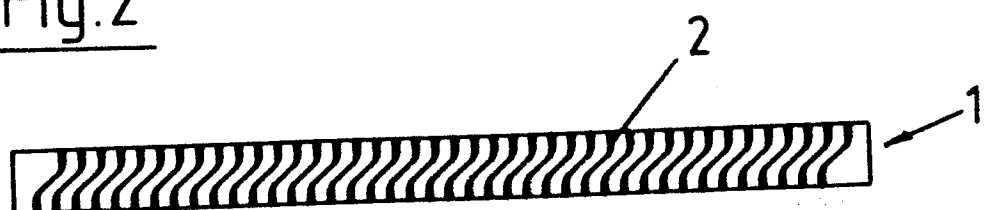


Fig.2



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Fig.3

