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**Datasheet for the decision
of 14 July 2020**

Case Number: T 1400/19 - 3.2.01

Application Number: 11807145.5

Publication Number: 2593356

IPC: B63B35/12, B63H1/20

Language of the proceedings: EN

Title of invention:

A PROPULSION UNIT FOR A MARINE VESSEL AND A MARINE VESSEL
HAVING A PROPULSION UNIT

Applicant:

Kongsberg Maritime Sweden AB

Headword:

Relevant legal provisions:

EPC Art. 54, 56

Keyword:

Novelty - (yes)
Inventive step - (yes)

Decisions cited:

Catchword:



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Case Number: T 1400/19 - 3.2.01

D E C I S I O N
of Technical Board of Appeal 3.2.01
of 14 July 2020

Appellant: Kongsberg Maritime Sweden AB
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Decision under appeal: **Decision of the Examining Division of the
European Patent Office posted on 19 December
2018 refusing European patent application No.
11807145.5 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman G. Pricolo
Members: J. J. de Acha González
O. Loizou

Summary of Facts and Submissions

I. The appeal of the applicant lies against the decision of the Examining Division to refuse the European patent application with number 11807145.5.

II. In its decision the Examining Division found that the subject-matter of claim 1 of the sole request lacked novelty (Article 54 EPC) in view of WO 99/14113 (**D1**).

The following pieces of prior art are also referred to in the decision:

D2: US 2006/172632 A1,

D3: SE 61 072 C1,

D4: CA 2 025 507 A1,

D5: JP H07 89487 A,

D6: EP 0 255 136 A1,

D7: EP 0 758 606 A1,

D8: DE 129 799 C,

D9: CN 2 214 354 Y,

D10: JP H03 2896 U, and

D11: JP 2002 104284 A.

III. With the statement of grounds of appeal, the appellant requested that the decision under appeal be set aside and a patent granted on the basis of the main request or the auxiliary request filed therewith.

IV. With letter dated 8 July 2020, filed in response to a communication of the Board raising objections in respect of dependent claims of the main request, the appellant requested that the decision under appeal be set aside and the case remitted to the Examining

Division with the order to grant a patent on the basis of an amended main request as filed with said letter of 8 July 2020 and a description to be adapted.

- V. Claim 1 of the main request is identical to claim 1 of the main request underlying the decision under appeal and reads as follows:

"A propulsion unit (1) for a marine vessel (2) intended to operate in icy waters, the propulsion unit (1) comprising a pulling propeller (3) which is rotatable about a propeller axis in a plane of rotation for the propeller (3) and which is mounted on a hub (4) that is rotatable together with the propeller (3), the propeller (3) being arranged such that the pulling propeller (3) can act on a block of ice in the water to cut the ice, even when the block of ice has an extension that exceeds the diameter of the propeller (3), **characterised in that** the hub (4) is designed as a cutting element that is capable of cutting ice that encounters the hub (4), by means of having said hub (4) extending in the direction of the propeller axis, beyond the plane of rotation of the propeller (3) arranged to meet a wall of ice before the propeller (3) meets the same wall of ice and wherein said hub (4) is provided with elevated cutting members (5) or has a polygonal cross section or at least one cut-out portion (16) such that the surface of the hub (4) becomes uneven."

Reasons for the Decision

1. Claim 1 is based on originally filed claims 1, 2, 3 and 9 as well as on originally filed page 5, lines 21 to 34 and page 7 lines 21 to 25. When referring to the application as originally filed reference is made to the WO publication of the international application. In particular, although the term "pulling propeller" is not explicitly disclosed in the originally filed documents, this term derives directly and unambiguously therefrom. According to page 7, lines 21 to 34 as well as figures 1, 2 and 3, the propeller disclosed can be a traction type propeller. This kind of propeller is referred to in the field of marine vessels as a pulling propeller.

The subject-matter of claims 2 and 3 is disclosed on page 6, lines 9 to 12 of the application as filed.

2. The Examining Division considered in its decision that the subject-matter of claim 1 of the main request was not new in view of the propulsion unit disclosed in D1. The Board disagrees and shares the view of the appellant.

According to claim 1 of the main request, the propeller 3 is mounted on a hub 4 that is rotatable together with the propeller. This hub is therefore the hub on which the blades of the propeller are mounted, i.e. the propeller hub. Consequently, hub 4 of the current application does not correspond to elements 3 and 9 of D1. Element 3 is the propeller drive shaft on which the screw propeller 4 (blades and hub) is mounted. Element 9 is described in D1 as being the hub for the ice breaking blades 6 which together constitute also a

propeller (see page 5 line 23 to page 6 first paragraph of D1). This ice breaking propeller, blades 6 and hub 9, is fitted on the drive shaft 3 fore of the screw propeller and therefore is not part of the hub of the screw propeller 4. Accordingly, D1 does not disclose the features of the characterising part of claim 1 because the hub of the screw propeller 4 is not designed as a cutting element that is capable of cutting ice. This is done by the smaller propeller fitted to the drive shaft 3 fore of the screw propeller 4.

Furthermore, the screw propeller 4 of the propulsion unit of D1 is not arranged such that the propeller 4 can act on a block of ice in the water to cut the ice, even when the block of ice has an extension that exceeds the diameter of the propeller since the screw propeller is mounted inside a nozzle 5 and is not disclosed as having blades intended to fulfill an ice cutting function additional to guiding the flow of water (see page 5, second paragraph of D1).

Additionally, D2, D3, D5, D6, D7, D8, D9, D10 and D11 are not directed to propulsion units for marine vessels intended to operate in icy water but these documents deal with water flow optimization for the propulsion units, in particular reduction of vortices generated in the propeller, in order to improve propeller efficiency.

D4 is similar to D1. The propeller 14 is not intended to cut ice, its hub 15 is not designed as an ice cutter and the ice crusher (16, 17) is mounted to the shaft separated from the propeller hub (see figure 3).

Consequently, the subject-matter of claim 1 is new in view of the prior art at hand (Article 54 EPC)

3. Furthermore, the subject-matter of claim 1 according to the main request involves an inventive step (Article 56 EPC).

4. Starting from D1 or D4 as the closest prior art, the subject-matter of claim 1 of the main request differs from these disclosures in that:
the propeller is arranged such that it can act on a block of ice in the water to cut the ice, even when the block of ice has an extension that exceeds the diameter of the propeller, and in that the hub is designed as a cutting element that is capable of cutting ice that encounters the hub, by means of having said hub extending in the direction of the propeller axis, beyond the plane of rotation of the propeller arranged to meet a wall of ice before the propeller meets the same wall of ice and wherein said hub is provided with elevated cutting members or has a polygonal cross section or at least one cut-out portion such that the surface of the hub becomes uneven.

This has the effect that the ice from the ice block or sheet hitting on the extended part of the hub will be cut, broken or milled (see page 5, lines 30 to 32 of the application as originally filed). Thus, the objective technical problem can be formulated as to improve resistance of the propulsion unit when operating in icy waters in which horizontal forces on the propulsion device are reduced.

None of the prior art documents at hand hints to the solution proposed by the invention of the current application and consequently the subject-matter of

claim 1 of the main request involves an inventive step in view of this prior art available.

5. Accordingly, the set of claims filed by the appellant as the main request define patentable subject-matter. However, the description still needs to be adapted, in particular, with respect to the acknowledgement of the relevant prior art. Thus, the application is not yet formally ready for grant. Since the outstanding matters may be most expediently dealt with by the Examining Division, the Board considers it appropriate to remit the case to the Examining Division under Article 111(1) EPC for further prosecution regarding the adaptation of the description.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The case is remitted to the Examining Division with the order to grant a European patent on the basis of the following claims and drawings, and a description to be adapted:
 - Claims: 1 to 8 filed with letter dated 8 July 2020;
 - Drawings: sheets 1/7 to 7/7 as published.

The Registrar:

The Chairman:



A. Vottner

G. Pricolo

Decision electronically authenticated