

Publication in the Official Journal Yes / No

File Number: T 676/89 - 3.2.2
Application No.: 84 306 031.0
Publication No.: 137 713
Title of invention: Modular ground mine

Classification: F42B 22/00, F42B 22/06

D E C I S I O N
of 26 March 1991

Proprietor of the patent: Royal Ordnance plc

Opponent: 01) AEG Aktiengesellschaft
02) Bundesrepublik Deutschland, diese vertreten
durch den Bundesminister der Verteidigung,
dieser vertreten durch den Präsidenten des
Bundesamts für Wehrtechnik und Beschaffung

Headword:

EPC Art. 56

Keyword: "Inventive step (denied); bonus effect"

Headnote



Case Number : T 676/89

D E C I S I O N
of the Technical Board of Appeal 3.2.2
of 26 March 1991

Appellant 01 :
(Opponent 01)

AEG Aktiengesellschaft
Theodor-Stern-Kai 1
D - 6000 Frankfurt 70 (DE)

Representative :

Dr. Kurt Lertes
Theodor-Stern-Kai 1
D - 6000 Frankfurt 70 (DE)

Appellant 02 :
(Opponent 02)

Bundesrepublik Deutschland,
diese vertreten durch den Bundesminister
der Verteidigung,
dieser vertreten durch den Präsidenten
des Bundesamts für Wehrtechnik und Beschaffung
Postfach 73 60
D - 5400 Koblenz (DE)

Respondent :
(Proprietor of the patent)

Royal Ordnance plc
Griffin House
P.O. Box 288
5 The Strand
GB - London WC2N 5BB (GB)

Representative :

McCormack, Derek James
Patents and Licensing Department, 2nd Floor
Royal Ordnance plc
11 The Strand
GB - London WC2N 5JT (GB)

Decision under appeal :

Decision of Opposition Division 2.3.10.089 of the
European Patent Office dated 21 August 1989
rejecting the opposition filed against European
patent No. 137 713 pursuant to Article 102(2)
EPC.

Composition of the Board :

Chairman : G. Szabo
Members : W.D. Weiß
J. van Moer

Summary of Facts and Submissions

I. European patent No. 0 137 713 comprising one independent claim and three dependent claims was granted on 19 August 1987 on the basis of European patent application No. 84 306 031.0, filed 3 September 1984 and claiming the priority of the British patent application No. 8 324 179 of 9 September 1983.

II. Claim 1 reads as follows:

"1. A naval ground mine comprising at least two modules (1, 2), each module including a cylindrical casing (4) containing a mass of explosive, characterised in that each casing is provided with a spigot (6) on an end face (5) thereof, and each spigot being provided with a radially outwardly directed lip (7), the mine further comprising a ring (3) having a radially outer surface which conforms substantially without discontinuity to the peripheral contour of the casing (4) at least in the region of the said end face (5) thereof, and a radially inner surface (9) adapted to embrace and hold together the lips (7) of the spigots of adjacent end faces (4) of the two modules, the ring (3) being capable of being divided circumferentially into distinct segments (10, 11) to permit assembly of the mine, and being provided with fastening means (12) whereby the ring segments can be firmly held together."

The dependent Claims 2 to 4 refer to particular embodiments of the naval ground mine according to Claim 1.

III. Two oppositions were filed against this patent on the grounds of lack of novelty and inventive step in the light of a contended public prior use and of a number of documents of which
(D2) US-A-2 853 038
is of particular relevance.

IV. The Opposition Division rejected the opposition pursuant to Article 102(2) EPC in a decision dated 21 August 1989. According to the decision, the subject-matter of Claim 1 was novel and involved an inventive step. With respect to the document (D2) highlighted above, this decision states that this document refers to torpedoes and does not belong to a technical field equivalent to the field of naval ground mines, because these fields deal with the solution of different technical problems.

V. Both Opponents (Appellants) filed an appeal against this decision on 12 October 1989. The appeal fees were paid on 17 October 1989 and on 18 October 1989, respectively. The Statements of Grounds were filed on 17 November 1989 and on 11 November 1989, respectively.

Both Appellants insist in their assertions that naval ground mines and torpedoes belong to neighbouring technical fields, because naval ground mines may also be launched through torpedo tubes and are manufactured in the same factories as the torpedoes. One Appellant (01) asserts, for the first time, an additional public prior use claiming that this would destroy the novelty of the patented subject-matter.

VI. The Respondent, although admitting that the locking ring used in conjunction with the patented ground mine has been known per se, maintains his view that the cited documents relate to remote, not relevant technical fields and problems and, therefore, give no useful hint to a person skilled in the art who wants to solve the problem of sonar detection of a modular ground mine. Such a modular ground mine is expressly acknowledged as prior art. He contests the technical content of the newly asserted prior use as

well as the public character of it. Consequently, the Respondent requests that the appeals be dismissed.

VII. In a Communication pursuant to Article 110(2) EPC and dated 14 December 1990, the Board drew the attention to the fact that the historical development of naval war showed that naval ground mines have for a long time been launched inter alia via the torpedo tubes of submarines. Pages 52, 83 and 84 of a book by Ledebur "Die Seemine", J.F. Lehmanns Verlag, Munich 1977, was cited by the Board as a proof in this respect. Moreover, the Board drew the attention of the parties to the fact that the facts and evidence filed by the Appellant (01) during the Appeal proceedings left considerable doubts at least with respect to the publicity of the asserted use.

VIII. Appellant 01, in a letter dated 30 January 1991, maintained his assertion that the prior use had not been subject to confidentiality.

IX. Both Appellants request that the decision of the Opposition Division be set aside and the patent be revoked.

Reasons for the Decision

1. The appeal is admissible.

2. Novelty

It is undisputed by all the parties that none of the documents cited nor the prior use asserted by the Appellants during the Opposition proceedings before the first instance relates to a naval ground mine.

Consequently, the subject-matter of Claim 1 is novel with respect to such evidence.

The prior use which has been newly asserted by Appellant (01) during the Appeal proceedings has not been included into the consideration of novelty for reasons which will be set out later in this decision.

3. Closest state of the art

The Respondent has explicitly acknowledged in the description of the patent in suit, (cf. column 1, lines 16 to 58) and confirmed in his letter dated 25 April 1990, page 1, last paragraph, that a naval ground mine comprising the features in the pre-characterising part of Claim 1 has been known before the priority date of the patent in suit. Although no printed document has been cited in this respect, a modular ground mine comprising all the features enumerated in the first part of Claim 1 and described in column 1, lines 16 to 58, of the description, can, therefore, be considered as constituting the closest prior art.

4. Problem and solution

4.1 The description of the patent in suit, (cf. in particular column 1, lines 25 to 58) states that naval ground mines in general, and hence also the modular ground mine which forms the closest prior art described above, must be capable of withstanding extremely rough handling. Therefore with this known modular design, the strong joint of the modules is achieved by the simple expedient of providing a flange at each end of each module, and of bolting through the flanges.

The patent in suit suggests that a major disadvantage of this known modular ground mine consists in that its bulky protruding flanges provide a regular pattern which render

such mine clearly identifiable by modern sonar devices. Consequently, the patent in suit maintains to solve the problem of detection by providing a connection between the modules which is undetectable by a sonar but nevertheless constitutes an adequately strong joint.

- 4.2 Although not mentioned by the patent in suit, the protruding flanges of the closest prior art mine also bring about another problem which is as serious as the problem mentioned above and recognisable by a person skilled in the art.

The historical development of naval war shows, see for instance the above-mentioned book by Ledebur, (pages 52, 83 and 84), that naval ground mines have for a long time, and to an increasing extent, been launched via the torpedo tubes of submarines and surface crafts. In these cases their shape, at least with respect to the diameter, has to fit into the torpedo tubes. This requirement, however, constitutes a rather tough restriction of size for ground mines which are intended to reliably destroy their target when this passes in a certain distance and therefore need to have a higher explosive power than those weapons which are constructed to explode on direct contact.

Consequently, if a known modular ground mine with protruding flanges were adapted in diameter to fit into a torpedo tube, the person skilled in the art would immediately realise that the flanges would provide an empty space between the torpedo tube and the surface of the ground mine which could have been better used for additional explosives. Moreover, the protruding flanges would impede the convenient and quick loading of the mine into the torpedo tube for launching.

These two disadvantages immediately call for a removal of the protruding flanges and for the creation of a less obtrusive surface.

- 4.3 The problem indicated under point 4.2, as well as the one under 4.1, is simultaneously solved by the features specified in Claim 1. Consequently, the solution of either of these independent problems also results in the solution of the other. In particular, the measure that "the ring has a radially outer surface which conforms substantially without discontinuity to the peripheral contour of the casing" at least in the region of the connection of the modules favours the launchability of the mine through a torpedo tube but simultaneously makes it less identifiable by a sonar.

5. Inventive step

- 5.1 The problem of launchability of a ground mine via a torpedo tube specified under 4.2 above is a well known desideratum in relation to any known ground mine, see Ledebur above. It may be that torpedoes and naval ground mines give rise to different problems as soon as they have left their common launching device, which problems then require independent constructional solutions. As far as the behaviour within a torpedo tube is concerned, the main body of a ground mine has to meet the same requirements as the main body of a torpedo which is intended to be slidably launched through the same torpedo tube. The Board is, therefore, convinced that a mutual exchange of technical information between the fields of torpedoes and of naval ground mines, as far as problems caused by the common launching device are concerned, is daily routine for the skilled designers in these fields.

5.2 The designer of a modular ground mine who wants to modify a known ground mine (with protruding flanges) to make it launchable through a torpedo tube and therefore to create a continuous cylindrical surface of its main body at least in the region of this connection will, consequently, also inform himself in the field of torpedoes about how flanges protruding from the surface can be avoided whilst a firm connection between adjacent modules can be nevertheless maintained.

5.3 In the course of his search the person skilled in the art would have found document (D2). This document discloses a torpedo the main body of which is composed of the module sections (20, 30, 40, 50). Each section is provided with a spigot on an end face (15a, 15b) thereof with an radially outwardly directed lip. According to column 2, in particular last paragraph, adjacent sections are connected by a ring (60) having a radially outer surface which conforms substantially without discontinuity to the peripheral contour of the sections at least in the region of the said end face thereof. The radially inner surface (65) of the ring is adapted to embrace and hold together the lips on the spigots of adjacent end faces of the two module sections to be connected. The ring (60) is capable of being divided into distinct segments (6A, 6B, 6C) to permit assembly of the torpedo and being provided with fastening means in form of screws (62) whereby the ring segments can be firmly held together.

Consequently, the modular torpedo disclosed in (D2) comprises the same relevant features as the modular naval ground mine according to Claim 1.

5.4 A person skilled in the art trying to solve the problem of making a known modular ground mine launchable through a torpedo tube, as specified in paragraph 4.2 above, in the

knowledge of document D2, would arrive at a naval ground mine comprising the features of Claim 1.

Using his modified ground mine, the person skilled in the art would readily accept as a favourable extra (bonus) effect that it is also less detectable by sonar devices than were previous mines. This property cannot, however, render inventive the otherwise obvious design (cf. T 21/81, OJ EPO 1983, 15).

- 5.6 The subject-matter of Claim 1 is therefore lacking an inventive step.
6. In the course of the Appeal proceedings the Appellant (01) has asserted, for the first time, a further prior use of a modular ground mine which, according to the contention by this party, would have affected the novelty of the subject-matter of Claim 1. The facts and evidence delivered by the Appellant, however, could not remove the considerable doubts of the Board, whether the circumstances of the asserted use were such as to render this use public. The matter was, in any case, irrelevant in view of the above conclusion.

Order

For these reasons, it is decided that:

1. The decision of the Opposition Division is set aside.
2. The patent is revoked.

The Registrar



N. Maslin

The Chairman



G. Szabo

01829

W.D. 4 274.70