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File Number: T 16/92 - 3.2.1

Application No.: 88 111 745.1

Publication No.: 0 351 442

Title of invention: An improved structure for pipe fittings

Classification: F16L 19/00

D E C I S I O N
of 10 February 1993

Applicant: Hwang, Biing-Yih

Headword:

EPC Article 56

Keyword: "Inventive step (yes)"
"No pointer to the claimed solution"



Case Number : T 16/92 - 3.2.1

D E C I S I O N
of the Technical Board of Appeal 3.2.1
of 10 February 1993

Appellant :

Hwang, Biing-Yih
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Lin Yen Shian
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Taiwan (TW)

Representative :

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Decision under appeal :

Decision of the Examining Division 2.3.11.118
dated 16 August 1991 refusing European patent
application No. 88 111 745.1 pursuant to
Article 97(1) EPC.

Composition of the Board :

Chairman : F. Gumbel
Members : M. Ceyte
W.M. Schar

Summary of Facts and Submissions

I. European patent application No. 88 111 745.1 (publication No. 0 351 442) was refused by a decision of the Examining Division dated 16 August 1991.

II. The reason for the refusal was that the subject-matter of Claim 1 filed on 26 November 1990 did not involve an inventive step in view of the combined teaching of:

D1: CH-A- 198 475 and

D2: FR-A-1 192 883.

III. An appeal was lodged against this decision on 26 September 1991 and the prescribed fee was paid at the same time.

The Statement of Grounds of Appeal was filed on 15 November 1991.

IV. On the Board's initiative, the Appellant filed on 14 January 1993 a complete revised description together with an amended single claim and requested that the decision under appeal be set aside and that the patent sought should be granted.

The single claim is worded as follows:

"A system for connecting pipes together comprising:

a pipe fitting (1) having at least two passage components, each passage component being provided with a passage hole therethrough and including (a) a distal female-threaded, cylindrical portion (11), (b) an intermediate cylindrical portion ending in a first blocking edge (12) and (c) a proximal cylindrical portion ending in a second blocking edge (13), said first blocking edge (12) having a smaller

diameter than said female-threaded portion (11) and said second blocking edge (13) having a smaller diameter than said first blocking edge (12) and the pipe (5) such that the pipe (5) is inserted past said first blocking edge (12);

a plurality of anti-leak gaskets (2) which are sized to fit around the pipe (5) and inside of said intermediate cylindrical portion, an innermost one of said gaskets (2) abutting said first blocking edge (12);

a metal ring (3) which is sized to fit around the pipe (5) and inside of said intermediate cylindrical portion and which abuts an outermost one of said gaskets (2); and

a male-threaded ring (4) sized to be threaded into said distal female-threaded portion (11) and around the pipe, said male-threaded ring (4) including notches (41) which are provided for the reception of a turning tool whereby said male-threaded ring (4) is threadable into said female-threaded portion (11) so as to force said gaskets (2) to expand between the pipe (5) and said intermediate cylindrical portion, characterised in that the pipe (5) directly abuts said second blocking edge (13), that the male-threaded ring (4) is received completely within said distal female-threaded portion (11) of the pipe fitting (1), and that said notches (41) are provided in the distal circumferential end surface of the male-threaded ring (4)."

Reasons for the Decision

1. The appeal complies with the requirements of Articles 106 to 108 and Rule 64 EPC. It is admissible.

2. Compared with the originally filed single claim, the present claim does not introduce any change as to substance, the claimed subject-matter being merely more clearly formulated.

The subject-matter of the single claim therefore does not extend beyond the content of the application as originally filed (Article 123(2) EPC).

3. The claim is based in its pre-characterising portion on the disclosure of prior art document D1. The Appellant and the Examining Division both agree that its subject-matter is distinguished from this disclosure by the following characterising features:

- (a) the pipe directly abuts the second blocking edge;
- (b) the male-threaded ring (4) is completely received within the female-threaded portion of the pipe fitting;
- (c) the notches into which a tool can be inserted are provided in the distal circumferential end surface of the male-threaded ring.

In document D1 the fitting is also provided with a peripheral shoulder, called in the present application a "second blocking edge", which could clearly serve as an abutment or stop when the pipe is assembled with the fitting, so that the pipe does not excessively penetrate into the fitting. Since, however, such an abutment is not disclosed in document D1, novelty of feature (a) has to be acknowledged.

The further prior art document D2 does not come closer to the claimed subject-matter than this citation.

4. In the closest prior art document D1, the male threaded ring still protrudes from the fitting after the tightening operation. The Appellant has pointed out that this ring may thus be subject to unintentional release. This kind of fitting is sensitive to torque or tightening; it will leak if the ring is unintentionally loosened.

Moreover, the tightening operation is limited since the male-threaded ring can only be tightened up to the point at which its radial protruding part abuts against the fitting. It may thus occur that such a fitting is not sufficiently tightened to fully seal the fitting and prevent fluid loss therefrom.

5. In the light of the foregoing, the technical problem underlying the patent application in suit may be seen in providing an improved pipe fitting of the type disclosed in document D1 which overcomes the above-mentioned drawbacks.
6. This problem is in essence solved by the following aforementioned characterising technical features (b) and (c).
7. As already pointed out in section 3 above the fitting according to the claim differs from that of the closest prior art document D1 by the technical features stated in the characterising part.

The subject-matter of the claim is likewise novel vis à vis document D2 which in particular does not disclose a fitting of the type having two blocking edges or shoulders, as stated in the prior art part of the claim.

Hence, the subject-matter of the claim is novel vis à vis this prior art.

8. It still remains to be examined whether the requirement of inventive step is met by the subject-matter of the claim.

8.1 The characterising feature (b) of the claim is shown in the schematic drawing of document D2 only, without any other clarifying description. This citation is wholly silent with respect to the further characterising feature (c): there is no disclosure or schematic representation of this feature. Moreover this feature is not implicitly disclosed in this document, since it is not the sole possibility to completely fit the male threaded ring shown into the pipe fitting: since the male threaded ring has an internal diameter which is much larger than the external diameter of the tube another possibility would consist in providing its internal surface with teeth or notches into which a tool can be inserted.

Therefore, without an ex post facto analysis, a skilled person applying the teaching given therein to the known pipe fitting according to document D1 would not arrive at the claimed solution.

8.2 Moreover, document D2 addresses and solves a problem which is substantially different from that underlying the patent application in suit. The design proposed in document D2 is intended to solve the problem of avoiding noise propagation in a tube fitting between the tubes and the fitting. This is achieved by avoiding any metal - metal contact between the tube and the fitting. The metal male-threaded ring which is therein disclosed has therefore an internal diameter which is much larger than the external diameter of the tube, so as to prevent these two parts from coming into contact.

The relevant disclosure of document D2 is clearly confined to the problem of avoiding noise propagation and gives no

pointer to the claimed solution of the problem addressed in the patent application in suit.

Accordingly, confronted with the problem underlying the patent application in suit, i.e. in particular that of avoiding any unintentional loosening which would inevitably cause a leakage, the skilled person would not have considered the teaching of document D2 and thus would not have provided the fitting of document D1 with a male-threaded ring which is (when tightened) completely received in the fitting, let alone provided notches in the circumferential end surface of the ring (feature (c)).

- 8.3 In view of the technical advantages achieved by the claimed teaching over the known fitting of document D1, that is to say, the ability to sufficiently tighten the male-threaded ring in any circumstances to fully seal the fitting in addition to preventing any leakage due to unintentional loosening of this ring, the claimed teaching is not to be regarded as self-evident or falling within the normal competence of the skilled person.
- 8.4 The Board has also considered the further prior art documents cited in the search report and found them not prejudicial to the patentability of the subject-matter of the single claim, even when seen in combination with the afore-mentioned documents D1 and D2.
- 8.5 Therefore, in the Board's judgment, the subject-matter of the single claim involves an inventive step (Article 56 EPC). This claim is thus allowable in accordance with Article 52(1) EPC.
9. The description and the drawings also meet the requirements of the Convention.

Order

For these reasons, it is decided that:

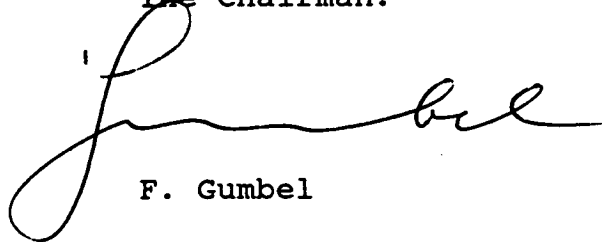
1. The decision under appeal is set aside.
2. The case is remitted to the first instance with the order to grant a patent on the basis of the following application documents:
 - description and single claim filed on 14 January 1993
 - drawings: sheet 1/4 filed on 12 September 1988, and sheets 2/4 - 4/4 as originally filed.

The Registrar:

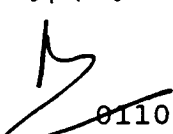


S. Fabiani

The Chairman:



F. Gumbel

in. Mh.

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