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**Datasheet for the decision
of 20 February 2019**

Case Number: T 0121/17 - 3.2.08

Application Number: 09162461.9

Publication Number: 2133553

IPC: F02M55/00, F02M55/02, B21K1/16,
B21K21/12

Language of the proceedings: EN

Title of invention:

A process for obtaining a pipe for supplying fuel to an
internal combustion engine

Patent Proprietor:

Chesini Meccanica s.r.l.

Opponent:

TI Automotive (Heidelberg) GmbH

Headword:

Relevant legal provisions:

EPC Art. 56

Keyword:

Inventive step - (yes)

Decisions cited:

Catchword:



Beschwerdekammern

Boards of Appeal

Chambres de recours

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Case Number: T 0121/17 - 3.2.08

D E C I S I O N
of Technical Board of Appeal 3.2.08
of 20 February 2019

Appellant: Chesini Meccanica s.r.l.
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Decision under appeal: **Decision of the Opposition Division of the
European Patent Office posted on 17 November
2016 revoking European patent No. 2133553
pursuant to Article 101(3) (b) EPC.**

Composition of the Board:

Chairwoman P. Acton
Members: A. Björklund
J. Hoppe

Summary of Facts and Submissions

- I. By the decision posted on 17 November 2016, the opposition division revoked the European patent No. 2 133 553 because its subject-matter did not involve an inventive step.
- II. The appellant (patent proprietor) filed an appeal against this decision in the prescribed form and within the prescribed time limit.
- III. Oral proceedings were held before the Board on 20 February 2019.
- IV. At the end of the proceedings, the parties' requests were as follows:

The appellant requested that the decision under appeal be set aside and that the patent be maintained in amended form based on the new main request labelled as "Auxiliary Request II", auxiliarily based on auxiliary requests III to V, all requests filed with the grounds of appeal.

The respondent (opponent) requested that the appeal be dismissed.

- V. Claim 1 of the main request, labelled "Auxiliary request II", reads:

"A process for producing a pipe for supplying fuel to an engine, comprising the steps of;

- prearranging a pipe made of austenitic stainless steel (1),
- executing a hot-pressing operation at at least one end (3) of the pipe (1),

wherein said at least one end subjected to hot-pressing (3) sequential has a frustoconical end section (3a), a substantially cylindrical intermediate section (3b) with outer diameter greater than said frustoconical end section (3a), and a frustoconical section (3c) for connection to said pipe (1) and subjecting said at least one end (3) of said pipe (1) to heat induction treatment, followed by fast cooling in air or inert atmosphere"

Claim 4 of the main request reads:

"A pipe when obtained according to any preceding claim 1 to 3, wherein said at least one end subjected to hot-pressing (3) sequential has a frustoconical end section (3a), a substantially cylindrical intermediate section (3b) with outer diameter greater than said frustoconical end section (3a), and a frustoconical section (3c) for connection to said pipe (1)."

VI. The following documents are referred to in this decision:

D1: WO 2007/105659 A1 (translation D4: EP 1 995 445 B1)
D3: US 6 070 618 A
D19: US 6 702 980 B2

Remark: D4 has been used and accepted by both parties as the English translation of the prior art D1.

VII. The appellant's arguments as far as relevant for the decision can be summarised as follows:

The subject-matter of claim 1 of the main request (labelled "Auxiliary Request II") differed from the process disclosed in D1 at least in that the end of the

pipe subjected to the hot-pressing had a frustoconical end section.

The wording of claim 1 required that the end section of the end of the pipe subjected to hot-pressing is frustoconical. This meant that the extreme end of the pipe resulting from the process of claim 1 was frustoconical. Although the schematic drawings of the contested patent may not clearly show such a frustoconical end section, this was not a reason to disregard the clear wording of the claim.

D1 described a rounded end section as essential to the fuel pipe disclosed in this document (see paragraphs [0028], [0031] and [0037] of the translation D4). Therefore, the person skilled in the art would have had no incentive to disregard this teaching and make the end section of the fuel pipe of D1 frustoconical.

Consequently, the subject-matter of claim 1 involved an inventive step for this reason alone. It followed that the subject-matter of claim 4 also involved an inventive step.

VIII. The respondent's arguments as far as relevant for the decision can be summarised as follows:

D1 disclosed, in Figure 3, that the end of the pipe subjected to pressing had a frustoconical end section. In view of the drawings of the contested patent, the term "frustoconical" should not be interpreted in the strict mathematical sense. The end section of the fuel pipe of Figure 13 of D1 was slightly rounded like on the figure of the contested patent. Furthermore, the claim merely required that some part of the end of the pipe which connects to a seat is frustoconical, but

this did not necessarily have to be the very end of the pipe. Therefore, the end section of the pipe of D1 was frustoconical in the sense of claim 1.

If the frustoconical end section were a distinguishing feature, this would solve the problem of providing a more rigid connection of the pipe. The person skilled in the art would have found a fuel pipe with a frustoconical end section in D3. Applying the teaching of a frustoconical end section to the process for producing a fuel pipe of D1 would not involve an inventive step.

Further differing features were present but also did not involve an inventive step. Consequently, the subject-matter of claim 1 did not involve an inventive step. For the same reasons, the subject-matter of claim 4 did not involve an inventive step.

Reasons for the Decision

1. It is undisputed that D1 represents the closest prior art.
- 1.1 Document D1 (reference is made to the passages of D4 accepted by both parties as the translation of D1) discloses:

A process for producing a pipe for supplying fuel to an engine (paragraphs [0043] to [0044], it is implicit that this process is also used for producing the pipe of the embodiment in Figure 13), comprising the steps of:

- prearranging a pipe made of stainless steel (paragraph [0022]),

- executing a pressing operation at at least one end of the pipe (paragraph [0044], lines 33 to 45), wherein said at least one end subjected to pressing sequentially has an end section (Figure 13), a substantially cylindrical intermediate section (5) with outer diameter greater than said frustoconical end section, and a frustoconical section (5a) for connection to said pipe and subjecting said at least one end of said pipe to heat treatment (paragraph [0047]), followed by cooling (it is implicit that the end of the pipe is cooled after the heat treatment).

- 1.2 It is disputed whether D1 discloses that the end section of the end of the pipe subjected to the pressing operation is a frustoconical end section.
- 1.3 The end of an object is usually represented by its extreme end. Contrary to the respondent's submissions, an object cannot be understood to have parts which extend beyond its end. The meaning of the term "end section" is a section which includes the extreme end. Neither the description nor the drawings indicate that it should be interpreted differently.

Consequently, the wording of claim 1 requires that the extreme end of the pipe produced by the process is frustoconical.

- 1.4 The term "frustoconical" is clear to the person skilled in the art and does therefore not need any interpretation in view of the description and drawings. It means the shape of a frustum of a cone, where the frustum is the basal part of a solid cone formed by cutting off the top on a plane parallel to the base.

It is true that the end section of the pipe shown in the drawing of the patent in suit may not look exactly frustoconical. However, drawings in patents are normally schematic and the drawing of the contested patent does not contain any scale, dimensions or other characteristics of a technical drawing. The drawing of the patent in suit does not therefore teach the skilled person that the term "frustoconical" in claim 1 should be interpreted in a manner deviating from its normal meaning, especially since the description does not provide any definition of the term "frustoconical" differing from its normal meaning. If at all, the skilled person would recognise that the drawing is not entirely in line with the claimed subject-matter.

- 1.5 The extreme end of the pipe of D1, Figure 13, is rounded, and several passages of the description (see D4, e.g. column 2, lines 32 to 33; column 10, lines 17 to 18 and column 11, lines 2 to 3) indicate that the respective seat surface of the different embodiments of the fuel pipes disclosed in D1 is spherical.

Consequently, the subject-matter of claim 1 differs from the process disclosed in D1 at least in that the end of the pipe subjected to pressing has a frustoconical end section.

2. According to the respondent, the problem solved by this difference is to provide a process for obtaining a pipe which allows a more rigid connection of the pipe during use.
3. It is true that a fuel pipe with a frustoconical end section is known from D3 (see Figures 1a and 1b, column 2, line 67 to column 3, line 4).

3.1 However, column 2, lines 29 to 40 (of the translation D4), describes the specific geometry of the fuel pipes of D1, which have, *inter alia*, a spherical seat surface followed by a conical surface, and Figure 8 of D1 in conjunction with paragraph [0037] (of the translation D4) describe how the spherical seat surface of the pipe and the corresponding surface of the mating part deform and that the width of the contacting surfaces increase when the tightening torque is applied. This mechanism of deformation is responsible for forming the seal between the pipe and the mating part and is described as reducing the depth of the indent generated on the seat surface of the mating part such that any remaining deformation of the seat surface can be reduced even if the pipe is harder than the mating part. The spherical seat surface is indispensable for this effect.

3.2 The person skilled in the art starting from the process disclosed in D1 would not have disregarded the teaching that the spherical seat surface, i.e. a spherical end section, is indispensable for the proper connection of the pipe. Substituting it with a different geometry, such as a frustoconical end section, would have gone against the teaching of D1 and would thus not have been obvious for the skilled person.

For this reason alone, the subject-matter of claim 1 involves an inventive step.

3.3 Whether any further allegedly differing features would have been obvious to the skilled person is therefore moot in the assessment of inventive step of the subject-matter of claim 1 and need not be discussed further.

4. Claim 4 defines a pipe obtained (by the process) according to any preceding claim. This pipe also has a frustoconical end section.

For the reasons set out with respect to claim 1, the subject-matter of claim 4 also involves an inventive step.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The case is remitted to the opposition division with the order to maintain the patent in amended form on the basis of claims 1 to 5 of auxiliary request II filed with letter dated 24 March 2017 and an amended description columns 1 to 3 and page "a" submitted during the oral proceedings on 20th February 2019 and Figure 1 as published.

The Registrar:

The Chairwoman:



C. Moser

P. Acton

Decision electronically authenticated