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D E C I S I O N
of 4 April 1995

Case Number: T 0561/92 - 3.2.5

Application Number: 87118296.0

Publication Number: 0274676

IPC: D01H 9/00

Language of the proceedings: EN

Title of invention:
Device to piece up rovings of textile fibres

Applicant:
S. BIGAGLI & C. S.p.A.

Opponent:
-

Headword:
Piecing-up device/BIGAGLI

Relevant legal provisions:
EPC Art. 56, 84, 123(2)

Keyword:
"Sufficient disclosure"
"Inventive step"

Decisions cited:
-

Catchword:
A claim must contain all features deemed necessary to define the method for which protection is sought.

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Case Number: T 0561/92 - 3.2.5

D E C I S I O N
of the Technical Board of Appeal 3.2.5
of 4 April 1995

Appellant: S. BIGAGLI & C. S.p.A.
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Decision under appeal: **Decision of the Examining Division of the European Patent Office dated 10 February 1992 refusing European patent application No. 87 118 296.0 pursuant to Article 97(1) EPC.**

Composition of the Board:

Chairman: C. V. Payraudeau
Members: M. H. M. Liscourt
H. P. Ostertag

Summary of Facts and Submissions

I. On 14 March 1992 the Appellant (Applicant) lodged an appeal against the decision of the Examining Division dispatched on 10 February 1992 to refuse European patent application No. 87 118 296.0.

The appeal fee was paid simultaneously and the Statement of Grounds of Appeal was received on 9 June 1992.

II. In its decision, the Examining Division had held that the subject-matter of the patent application which concerns a device to piece up rovings of textile fibres on a spinning machine did not involve an inventive step in view of the combined teachings of the documents:

EP-A-O 196 127 (D1), which discloses a spinning machine provided with a piecing-up device for rovings of another type, and

GB-A-2 063 324 (D2), which discloses a splicing up device for yarns of a type similar to the one claimed in the patent application in suit.

III. In his Statement of Grounds, the Appellant essentially submitted that the subject-matter of the invention related to an improvement to the device disclosed in the document D1 which was concerned with the problem of the automatic changing of roving packages on a machine that spins carded wool.

The Appellant further submitted that, contrary to the opinion expressed in the decision under appeal, the deficiencies of the splices obtained with this known device were not evident for the person skilled in the

art since the consistency of a roving of carded wool depends on the type of the rags used which vary from one customer to another.

He also pointed out that the person skilled in the art would never have considered applying the teaching of the document D2 which relates to the splicing of yarn ends to the piecing-up of rovings. The person skilled in the art knew that a roving of carded wool is not the same as a yarn and that a roving should not undergo a very intensive intermingling (which means of violent action as in D2); otherwise the whole roving becomes layered and the head and tail ends of the fibres are dispersed and detached from the remainder of the rovings.

According to the Appellant, it was necessary for arriving at the invention to understand that, beside the solution of D1:

- it was possible to piece up two rovings with an air jet provided that the jet was kept at a very low pressure;

- it was necessary to avoid displacing the roving so as to prevent the roving from breaking and therefore it was necessary to keep a part of the chamber stationary in relation to the roving passing through;

- it was necessary to piece up the rovings without the latter being clamped at the sides of the piecing-up chamber, as instead is done for yarns in automatic splicers for winding machines. While the clamping of the yarns at the sides of the splicing chamber is a necessary fact in view of the strength of the action of the air jet, it has been found necessary not to clamp the rovings so as to avoid

even the remotest danger that tension might be created in the roving (during piecing-up) in the clamping zone and might reduce the already very scanty consistency of the roving itself.

The Appellant requested consequently that the decision under appeal be set aside and a patent be granted.

IV. In a communication pursuant to Article 110(3) EPC, the Board expressed the preliminary opinion that a patent could be granted on the basis of the request of the Appellant but only on the condition that the claims did contain all the features which were necessary to define the matter for which protection was sought.

V. The Appellant filed in answer, on 8 September 1993, a new set of claims numbered 1 to 14 (pages 1 to 3) and requested the grant of the patent on the basis of these new claims together with the description (pages 1 to 7) filed on 22 December 1990 and the drawings (sheets 1/4 to 4/4 (Figures 1 to 14)) as originally filed. On request of the Board, the Appellant filed by telecopy on the 31 March 1995 a new amended page 1 and amended pages 2 and 3 of the claims containing an amended Claim 14 to be substituted to Claim 14 of the set of claims filed on 8 September 1993.

VI. The wording of the present Claim 1 reads as follows:

"1. Device to piece up rovings of textile fibres on a spinning machine for carded or combed yarns, equipped with an automatic system for changing the rolls of roving being fed, comprising a piecing-up chamber (10) consisting of a first half-chamber (11) solidly fixed to the structure of the spinning machine (13) and a second half-chamber (12) connected to a movable element (17) of said automatic system, whereby such half-chambers (11-

111, 12-112) are coupled together momentarily when such movable element (17) is moved in an actuating position, the first half-chamber (11-111) containing permanently the roving being processed, whereas the second half-chamber (12-112) comprises grippers (25-26) which retain the roving (114) of a full roll (18) until the moment when the two half-chambers (11-12) are coupled together, and at least one nozzle (21-121) to deliver fluid under pressure into the piecing-up chamber which enters into action when the grippers (25-26) have opened."

The other independent Claim 14 reads as follows:

"14 - Spinning machine for carded or combed yarns equipped with a system for the automatic changing of rolls of roving, which comprises a device to piece-up the rovings fed, the device comprising a piecing-up chamber (10) consisting of a first half-chamber (11-111) solidly fixed to the structure of the spinning machine (13) and a second half-chamber (12-112) connected to a movable element (17) of said system, the two half-chambers (11-111, 12-112) being coupled together momentarily when such movable element is moved in an actuating position, the first half-chamber (11-111) containing permanently the roving being processed, whereas the second half-chamber (12-112) comprises grippers (25-26) which retain the roving (114) of a full roll (18) until the moment when the two half-chambers (11-12) are coupled together, and at least one nozzle (21-121) to deliver fluid under pressure into the piecing-up chamber which enters into action when the grippers (25-26) have opened."

Reasons for the Decision

1. *Scope of the claims (Article 123(2) EPC*

The present Claims 1 and 14 are based on the corresponding Claims 1 and 14 as filed, the scope of which has been restricted by introduction of features which were present in the description as filed (page 2, lines 16 to 21; page 3, line 30 to page 4, line 2 and page 5, lines 14 to 23).

Thus the subject-matters of the present Claims 1 and 14 do not extend beyond the content of the application as filed.

2. *Clarity (Article 84 EPC)*

In its communication, the Board had objected that the claims on file did not contain all the features which were deemed necessary to define the matter for which the protection was sought, that is a device which is capable of performing a piecing-up between two ends of roving, in particular the provision of a half-chamber rigidly attached to the structure of the machine in which the roving being processed lies continuously, of gripper or like element which positions the head of the roving in the second half-chamber and releases it when the chamber is closed and means for actuating the nozzles when the chamber is closed.

The independent Claims 1 and 14 now on file have been amended to include these features. The former objection of the Board is thus traversed and the claims are therefore considered as satisfying the conditions of clarity set up in Article 84 EPC.

3. *Novelty*

The document D1, which has been considered as representing the nearest state of the art in the impugned decision is also considered as the most relevant by the Board of appeal.

This document is directed to a procedure and a device for changing roving packages on machines to spin carded wool, with automatic re-attachment of the roving.

According to this prior document, splicing takes place on a grill of aspiration intake by means of a first intermingling of the fibres when the new and old rovings are brought into contact with each other (see page 12, lines 5 to 8 of D1).

The subject-matter of the present independent Claims 1 and 14 differs from this state of the art notably in that the splicing takes place in a piecing-up chamber comprising two half-chambers and at least a nozzle to deliver fluid under pressure into the piecing-up chamber.

The subject-matter of the independent Claims 1 and 14 is thus novel. Novelty was in fact not put in doubt by the decision under appeal.

4. *Inventive step*

As stated in the description as originally filed (page 1, lines 7 to 12), the invention relates to a device for the piecing-up of rovings of textile fibres, to be adapted on automatic spinning machines, the rovings being free of substantial twist.

The device according to the document D1 which fulfils the same aim presents, according to the patent application in suit (page 1, line 22 to page 2, line 3), the drawback that it produces a splice which often lacks of sufficient strength and leads to breakage of the roving and interruption of the spinning process.

As explained by the Appellant in his Statement of Grounds, the device according to the present invention avoids the above deficiencies and makes therefore the spinning machine more reliable thanks to the combined features according to which the two ends of roving are spliced in a piece-up chamber under the influence of a fluid under pressure as defined and claimed in Claims 1 and 14. No suggestion can be found in the document D1 that the splicing means which are there disclosed could be modified in such a manner.

The impugned decision has considered that the person skilled in the art would have immediately noticed the deficiencies of the splicing device of the document D1 and would have considered using the teaching of document D2 to solve this problem.

Although the Appellant has observed that it was not immediately evident for the person skilled in the art that the breakage of the roving was due to the insufficient of the splicing in the device according to the document D1, the Board considers nevertheless that the said problem does not contribute to the inventive step because in the course of the normal cooperation between the manufacturer of machines and his clients, the discovery of the cause of the breaking of the roving could easily be studied.

The Appellant has however demonstrated to the satisfaction of the Board that the person skilled in the art would not have considered using the device disclosed in the document D2 since this device was conceived for splicing already twisted yarns and since the problem to be solved in this latter case is totally different from the problem of piecing-up an untwisted roving.

The structure of the splicing device of the document D2 is adapted to this special function. The person skilled in the art wanting to improve the piecing-up device in the machine according to the document D1 could not directly try using this device in said machine but could only find in the document D2 the "idea" of using a splicing chamber where the splicing is made with the help of a jet of pressurised air. However, as stressed by the Appellant, he would have discarded the idea of using that principle for piecing-up a roving which has a very weak structure.

Moreover, even if the person skilled in the art would have overcome this prejudice and have tried to adapt the device of the document D2 to the piecing-up of roving, he would not have succeeded without displaying inventive ingenuity since, as observed by the Appellant, while the clamping of the yarns at the sides of the splicing chamber is necessary, the rovings to be pieced up must be released from the gripper during the piecing-up as defined and claimed in Claim 1.

Therefore, the piecing-up device according to Claim 1 was not obvious for a skilled person.

The devices which are subject-matter of Claims 2 to 13 are particular embodiments of the device according to Claim 1. They are therefore also not obvious.

The spinning machine which is subject-matter of Claim 14 is equipped with a system for automatic changing of the rolls of roving and comprises a device to piece-up showing the same features as the device according to Claim 1.

Thus, the spinning machine according to Claim 14 is not obvious for the same reasons.

5. Therefore, the invention satisfies the requirements of Article 56 and 52(1) EPC, and, according to Article 97(2), a patent may be granted.

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 documents:

Description: page 1 filed by telecopy on the 31 March 1995 and pages 2 to 7 filed on the 22 December 1990 with letter dated 17 December 1990;

Claims: Claim 1 to 13 filed on 8 September 1993 with letter dated 30 August 1993 and Claim 14 as filed by telecopy on the 31 March 1995;

Drawings: sheets 1/3 to 3/3 as filed.

The Registrar: The Chairman:

A. Townend C. Payraudeau