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Bezeichnung der Erfindung: Fibre metering arrangement
Title of invention:
Titre de l'invention :

Klassifikation / Classification / Classement : D01G 23/06, G01G 11/04, G01G 17/02

ENTSCHEIDUNG / DECISION

vom / of / du 30 May 1989

Anmelder / Applicant / Demandeur : Haigh Chadwick Limited

Patentinhaber / Proprietor of the patent /
Titulaire du brevet :

Einsprechender / Opponent / Opposant :

Stichwort / Headword / Référence :

EPÜ / EPC / CBE Articles 84 and 56

Schlagwort / Keyword / Mot clé : "Inventive step (yes);
clarity of the independent claim"

Leitsatz / Headnote / Sommaire

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Case Number : T 25/88 - 3.2.1

D E C I S I O N
of the Technical Board of Appeal 3.2.1
of 30 May 1989

Appellant : Haigh Chadwick Limited
Marsh Mills
Cleckheaton West Yorkshire (GB)

Representative : McNeight, David Leslie
McNeight & Lawrence
Regent House
Heaton Lane
Stockport
Cheshire SK4 1BS (GB)

Decision under appeal : Decision of Examining Division 121 of the European Patent Office dated 18 August 1987 refusing European patent application No. 84 301 721.1 pursuant to Article 97(1) EPC

Composition of the Board :

Chairman : F. Gumbel
Members : F. Brösamle
F. Benussi

Summary of Facts and Submissions

I. European patent application No. 84 301 721.1 filed on 14 March 1984 and published under publication No. 0 122 717 was refused by the decision of the Examining Division dated 18 August 1987. That decision was based on Claims 1 to 26 as originally filed.

The reason given for the refusal was that in view of the prior art documents

(1) FR-A-2 263 498 and
(3) CH-A-490 526

the subject-matter of Claim 1 is not novel. The Examining Division argued that even if an additional belt in Claim 1 were excluded the subject-matter of Claim 1 would not be novel in view of (3) and (1), in particular page 1, line 25 to page 2, line 24 of the latter document. In addition, the Examining Division considered the case that in Claim 1 only one weighplate was present and came to the conclusion that this difference vis-à-vis the prior art according to (1) or (3) cannot be regarded as involving an inventive step as such arrangements are well known in the art, see Figure 2 of document (2) FR-A-2 379 624.

The Examining Division came to the conclusion that Claims 1 to 4 are not allowable and that the remaining claims would not be linked by a single inventive concept, Article 82 EPC, so that due to lack of unity of invention a complete examination of the remaining claims would not be possible.

II. On 15 October 1987 a notice of appeal was filed and the appeal fee was paid in due time. The Statement of Grounds of Appeal was filed on 18 December 1987, together with an Affidavit signed by Mr Kenneth Floyd. The Appellant set out the difference between a weighbelt and a weighplate and argued that weighplates up to now have not been used commercially, since they did not work until the Appellant's development. Weighbelts, as usually applied in practice are, however, more complicated and costly than weighplates. If the terms weighplate and weighbelt are clearly separated the Appellant finds that the novelty objection of the Examining Division falls away and that an objection under Article 56 cannot stand up in the face of the statements in (1) about (3).

III. In its first communication dated 21 July 1988 the Board raised a clarity objection since the characterising feature of Claim 1 "is sufficiently spaced from ... so as not to cause ..." would not imply a clear technical teaching and could only indicate a result to be achieved. It was felt that (3) constitutes the nearest prior art destroying novelty of the subject-matter of Claim 1 even if the statements laid down in the Affidavit were duly considered.

IV. In reply to the above mentioned communication the Appellant filed with letter dated 19 September 1988 a new Claim 1 for consideration and gave reasons for the wording of the technical features of Claim 1 which could not be clearer worded due to the nature of the present technical field (fibre treatment). Concerning the item of inventive step the Appellant puts forward that the fact to move the nip roller arrangement far enough away from the weighplate as prescribed in new Claim 1 is contradictory to the teachings of known arrangements and that the simplicity of the solution to the problem to obtain a correct reading of the weighplate laid down in Claim 1 cannot be detrimental to the question of whether or not this idea involves an inventive step.

V. In its communication dated 5 April 1989 pursuant to Article 11(2) of the Rules of Procedure of the Boards of Appeal, the Board found it expedient in the present case to hold oral proceedings. In detail the Board maintained its clarity objection and its opinion that (3) constitutes the nearest prior art and found that Claim 1 filed with letter of 19 September 1988 is not correctly delimited over this prior art. In addition, an objection under Article 123(2) EPC was raised by the Board since the feature of the Claim 1 in suit, that the distance between the weighplate and the roller arrangement is "at least the length of the weighplate" appeared to extend beyond the original disclosure since there this feature is only disclosed in combination with additional support means. The Board moreover raised an objection under Articles 56 EPC.

VI. With letter dated 12 April 1989 three versions (A, B, C) of Claim 1 were submitted for consideration, but again the Board could not accept versions "B" and "C" for lack of inventive step, see further communication dated 11 May 1989, and version "A" for reasons of Article 123(2) EPC since according to the content of the application as originally filed further support means are provided to solve the problem how to bridge the large distance between the weighplate and the nip roller arrangement.

VII. The Appellant submitted with his letter dated 16 May 1989, received 22.05.89, completely revised documents to overcome the objections of the Board in the previous communication.

Grant of a patent is requested on the following basis:

- pages 1 to 7, received 22.05.89;
- Claims 1 to 21, received 22.05.89;
- Figures 1 and 2 identical with originally filed Figures 2 and 3.

VIII. Claim 1 reads as follows:

"1. A fibre metering arrangement comprising a supply conveyor (13) carrying fibre (11) to a weighing arrangement and a fibre removal arrangement removing fibre from the weighing arrangement, the fibre removal arrangement comprising a nip roller arrangement (16) and the weighing arrangement comprising a weighplate (14) located between the supply conveyor (13) and the fibre removal arrangement, characterised in that the nip of the said nip roller arrangement (16) is spaced from the weighplate (14) by at least the length (in the direction of fibre movement) of the weighplate (14) and sufficiently so as not to cause the fibre to accumulate over the weighplate and in that separate further support means (15; 15') are provided between the weighplate (14) and the nip roller arrangement (16)."

Reasons for the Decision

1. The appeal is admissible

2. Claim 1 is no longer open to formal objections under Articles 123(2), 84 and Rule 29(1) EPC.

2.1 Claim 1 is a combination of features contained in the originally filed Claims 1, 2 (nip rollers), 6 (further support means between the weighplate and the nip roller arrangement) and Figures 2/3 (spacing between the nip roller arrangement and the weighplate at least the length of the weighplate) so that the requirements of Article 123(2) EPC are now fully met.

2.2 The Board is convinced that the functional term "sufficiently so as not to cause ... over the weighplate" in the characterising clause of Claim 1 is justified in the present case, since it appears to be impossible to express this feature of the invention in another way without unnecessarily restricting the scope of the claim. "Results to be achieved" are per se not excluded in claims (see also the example given in the "Guidelines" C-III, 4.7, ashtray) if it is clear that the invention or a feature thereof can only be defined in such terms and if the result is one which can be directly and positively verified by tests involving nothing more than trial and error. These considerations in assessing the requirements of Article 84 EPC (clarity) appear, in the Board's view, to be applicable in the present case so that the former clarity objections raised by the Board are no longer upheld vis-à-vis present Claim 1.

2.3 Claim 1 also meets the requirements of Rule 29(1) EPC since none of its characterising features is known from the nearest prior art reflected by document (3).

3. Present Claim 1, which is formally in order, see above, has changed the basis for assessing novelty and inventive step of its subject-matter as compared with Claim 1 the first instance was confronted with when refusing the application. By incorporating features from Claims 2 and 6, as well as from Figures 2/3 as originally filed into

original Claim 1, the situation as to the question of patentability has severely changed.

3.1 The subject-matter of Claim 1 is novel in view of the prior art fibre metering arrangements disclosed in (1), (2) and (3).

The distinguishing features of the subject-matter of Claim 1 over the nearest prior art fibre metering arrangement according to (3) are:

(a) the distance between the nip of the nip roller arrangement and the weighplate - seen in the direction of fibre movement - is at least the length of the weighplate;

(b) the distance of (a) is chosen to be sufficient so as not to cause the fibre to accumulate over the weighplate; and

(c) separate further support means are provided between the weighplate and the nip roller arrangement.

3.2 None of these features (a) to (c) can be seen from the available prior art documents, so that the subject-matter of Claim 1 is clearly novel.

3.2.1 Document (1) does not disclose a weighplate in the meaning of present Claim 1 but a weighbelt construction where the problem of accumulation of the fibre over the weighplate is different from those inherent with a weighplate in the present sense. Under these preconditions (1) does not fulfill the features set out in the preamble of Claim 1 and consequently the characterising features of Claim 1 are also not known from (1).

3.2.2 Document (2) discloses a weighplate within the meaning of the preamble of Claim 1, but none of its characterising features (a) to (c).

3.2.3 In the nearest prior art arrangement according to (3) a sensing unit "67" acts on a motor which drives the rollers "52, 58 and 59'" in such a way that the weight of the fleece over the weighplate is kept constant. It is true that no accumulation of fibre over the weighplate is shown or described in (3), but this does not necessarily mean that such fibre accumulation is positively excluded.

4. The problem to be solved by the subject-matter of Claim 1 is to create a fibre metering arrangement in which the fibre does not tend to accumulate over the weighplate.

4.1 The solution to this object of the invention is based on the idea that the nip roller arrangement is spaced far enough from the weighplate so that the accumulation of fibre does not negatively influence the reading of the weighplate and as a consequence does not lead to an incorrect metering control signal. In detail this result is achieved by features (a) to (c) set out under 3.1. Feature (a) links the spacing of the nip roller arrangement amongst others to the length of the weighplate. This constitutes the minimum spacing since according to feature (b) a further condition must be met which links the spacing to the requirement that no accumulation of fibre takes place over the weighplate, i.e. the practitioner has to verify whether the spacing is such that by visual test no accumulation of fibre over the weighplate occurs. If accumulation of fibre over the weighplate, however, is observed then the spacing must be increased until this phenomenon disappears. Claim 1 gives furthermore the teaching that the spacing must be bridged by separate further support means, since the support effect linked to the existence of the nip roller arrangement is no longer sufficient to properly guide the fibre over the distance defined by the characterising features (a) and (b) of Claim 1.

4.2 Documents (1) to (3) are of no relevance to the finding of the claimed solution to the object of the invention as there obviously a spacing in the order of that prescribed in Claim 1 is not suggested. It is the merit of the inventor to have found that, compared with the existing prior art fibre metering arrangements, the spacing of the nip roller arrangement from the weighplate must be very large in order to eliminate the influence of any accumulation of fibre over the weighplate.

From (1), a person skilled in the art knows that frictional forces between the fibre and the weighing arrangement falsify the reading of the latter. In (1) a weighbelt is therefore used which supports and transports the fibre in the region of the weighing arrangement and which excludes frictional forces between the weighing means and the fibre. Compared with the solution laid down in Claim 1 this solution is completely different and requires additional drive means in form of a motor for the weighbelt and driving rolls and it requires the weighbelt itself which must be of a specific construction (endless, light, low friction ...). Consequently, (1) leads the skilled person away from the claimed solution where no weighbelt is used.

Documents (3) and (2) both disclose weighplates within the meaning of the generic part of Claim 1, that is they do not rely on a weighbelt. In (3), see in particular Figure 5, the nip roller arrangement "59, 59'" is closely spaced to the weighing arrangement - contradictory to feature (a) of Claim 1 - and it must be concluded therefrom that feature (b) of Claim 1, which necessarily leads to a greater spacing than that already prescribed by feature (a) of Claim 1, cannot be derived from (3) either. Finally, feature (c) of Claim 1 is not realised in the construction according to (3) as there no separate further support means are foreseen. These considerations are also valid for document (2).

4.3 It has additionally to be considered what a person skilled in the art would have done when starting from (3) and being confronted with the problems involved in this known fibre metering device. In the Board's view normal practice would have been to control all nip roller arrangements of the complete system so that no irregular mass flow of the fibre to be metered would occur. As (1) clearly shows, the skilled person did actually study in this context further influences, such as friction between the fibre and its supporting means. The inventor of (1) knew for instance the solution laid down in (3), but did not go the way prescribed in present Claim 1; on the contrary a solution to the problems of (3) was searched and found resulting in the provision of the weighbelt, which is totally different from what is claimed in Claim 1.

4.4 Summarising, the Board comes to the result that the fibre metering device according to Claim 1 is based on an inventive step in the light of the available prior art including the general knowledge of a skilled person.

In the Board's opinion, present Claim 1 is thus allowable.

4.5 The dependent Claims 2 to 21 describe further embodiments of the invention and are not open to objection either.

5. The following editorial amendments to the description and to Claim 17 are necessary:
- Claim 17 reference sign "15" should read "15′";

- page 1 lines 24 to 26 "a supply conveyor ... from the weighplate" to be deleted;

- page 2 line 18 "thickness of the fleece." replaced by "length of the weighplate.";

- page 3 line 16 "take-off" replaced by "supply";

- page 5 lines 14 & 15 "depth or ... weighplate 14." replaced by "length of the weighplate 14 in the direction of fibre movement.";

- page 6 line 3 "14" replaced by "13";

- page 12 ("Abstract") deleted.

The amendments to the description take account of the prior art and the scope of the claims in their present form. The thus amended description does not give rise to objections, see also present Figures 1 and 2.

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 European patent on the basis of the following documents:

- Claims 1 to 21 and description pages 1 to 7 filed with letter of 16 May 1989 with the amendments set out under point 5 above.

- Figures 2 and 3 of the published patent application No. 0 122 717 renumbered as Figures 1 and 2.

The Registrar:

S. Fabiani

The Chairman:

F. Gumbel

Br. 15.6.89

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