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Bezeichnung der Erfindung: Positioning mechanism for calender rolls
Title of invention:
Titre de l'invention :

Klassifikation / Classification / Classement : D21G 1/00

ENTSCHEIDUNG / DECISION
vom / of / du 6 October 1989

Anmelder / Applicant / Demandeur :

Patentinhaber / Proprietor of the patent / Titulaire du brevet : Valmet-Appleton Incorporated

Einsprechender / Opponent / Opposant : Kleinewefers GmbH

Stichwort / Headword / Référence :

EPÜ / EPC / CBE Article 56

Schlagwort / Keyword / Mot clé : "Inventive step (affirmed)"

Leitsatz / Headnote / Sommaire

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Case Number : T 60/88 - 3.2.2

D E C I S I O N
of the Technical Board of Appeal 3.2.2
of 6 October 1989

Appellant : (Opponent)
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Decision under appeal :
Decision of the Opposition Division of the European Patent Office dated 25 January 1988 rejecting the opposition filed against European patent No. 29 649 pursuant to Article 102(2) EPC.

Composition of the Board :

Chairman : G. Szabo

Members : R. Gryc

P. Bossung

Summary of Facts and Submissions

I. European patent No. 29 649 comprising five claims, was granted to the Respondent on 30 May 1984 on the basis of European patent application No. 80 303 263.0 filed on 17 September 1980.

II. After an opposition filed by the Appellant had been rejected by a decision of 25 January 1988 of the Opposition Division, the Appellant (Opponent) lodged an appeal on 3 February 1988 and paid the relevant fee simultaneously.

In his Statement of Grounds filed on 28 May 1988, the Appellant disputed the existence of any inventive step in the patented invention in view of the teaching of US-A-3 777 656 (cited in the application as filed and referred to as D3 in the impugned decision) combined with the teaching of DE-A-1 811 214 (cited in the course of the opposition proceedings and referred to as D1).

The Appellant argued that all the features of the invention had already been known per se from these anticipations which belonged to the same technical field and that the problem considered in the patent was already recited in D3. The Appellant also raised objections on the basis of Articles 100(b) and 123(2) EPC.

The Respondent replied that the person skilled in the art had a priori no reason to combine the teachings of citations D3 and D1 and that a pure combination of the features disclosed in said two anticipations would not lead to the invention.

III. At the oral proceedings of 6 October 1989, the Appellant contended mainly that citation D1 had already disclosed the automatic sequential repositioning of the rolls as well as the maintenance of a lost motion gap, that means should necessarily be provided to maintain this gap and were thus implicitly suggested and that, when starting from the state of the art described in D1 and searching to accelerate the separation of the rolls, the skilled practitioner would immediately find the solution in document D3.

IV. On the contrary, the Respondent held that, in the embodiment known from citation D1, the gaps between the rolls would be maintained when the calender was not in operation to prevent the formation of flat spots on the rolls and that they have nothing to do with a lost motion gap according to the invention. Moreover, the problem of a rapid separation of the rolls in an emergency situation was not even considered in citation D1.

The Respondent contended also that the teaching of this document would not lead the man skilled in the art to the use of additional hydraulic means to sustain the pistons of the interconnecting assemblies in their upper position according to the invention.

In order to better distinguish the invention from the state of the art, the Respondent submitted at the oral hearing a new set of four claims comprising an amended Claim 1 specifying the additional means for maintaining a lost motion described initially in former Claim 5, now abandoned, and the former Claims 2 to 4 as granted.

V. The new Claim 1 on file reads as follows:

"A mechanism for positioning a stack (16) of vertical calender rolls (24 to 35) relative to a support frame, each roll being mounted to the frame for movement in the vertical direction comprising: means (23) for lifting and lowering the top roll (24) of said stack, means (90,92) for lifting and lowering the bottom roll of said stack, means interconnecting the remaining rolls (25 to 34) of said stack (16), one to the other and to said top roll (24) for movement with the later, said mechanism characterized by: said interconnecting means including piston (52) and cylinder (50) assemblies associated with each of said remaining rolls (25 to 34), and a lost motion connecting means (62,70,72,56) incorporated in said piston and cylinder assemblies for interconnecting said assemblies one to the other and to said top roll, and means (72,78,80,82,84,88) controlling operation of said assemblies to permit or prevent movement of the pistons (52) relative to the cylinders (50), said controlling means including hydraulic pressure means comprising the lower chamber (72) of the cylinders, a passage (78) and a hydraulic pressure source (88) for maintaining a lost motion spacing (d) between parts of said lost motion connecting means when the pistons are permitted to move during movement of the rolls into contact with each other whereby when the pistons (52) are permitted to move the remaining rolls (25 to 34) may be sequentially lowered and automatically positioned in contact with each other and said top (24) and bottom (35) rolls, and when the pistons (52) are prevented from moving, the rolls may be rapidly separated, one from the other, by a distance determined by the lost motion connecting means by lowering said bottom roll."

VI. At the end of the hearing, the Appellant requested that the decision under appeal be set aside and the patent be revoked.

The Respondent requested that the appeal be dismissed and the patent be maintained in an amended form on the basis of the new set of four claims presented at the hearing and the description and drawings as granted.

Reasons for the Decision

1. The appeal is admissible.

2. **Amendments** (Art. 123 EPC)

The new Claim 1 filed at the oral proceedings corresponds to the former Claim 1 as granted with two main modifications.

2.1 The first amendment clarifies that the lost motion connecting means is incorporated in the piston and cylinder assemblies. This feature is clearly supported by the description of the patent (cf. col. 4, lines 15-20 and col. 5, lines 15-25) and the drawings (cf. Figs. 3-5).

2.2 The second amendment specifies some of the means controlling operation of said assemblies to permit or prevent movement of the pistons relative to the cylinders. Only the references of said means were cited in the former Claim 1 as granted but the corresponding elements are undoubtedly described in the description of the patent (cf. col. 4, lines 53-65 and col. 5, lines 1-25) and represented on Fig. 5.

2.3 These two amendments do not introduce any new matter and do not represent a shift of the invention as claimed but only clarify the same. Moreover, general means are

replaced with specific ones, and the protection conferred by the claim is not extended but limited.

Consequently the modifications do not contravene Article 123 EPC.

3. **Disclosure of the invention** (Art. 100(b) EPC)

3.1 The Appellant objected that neither Claim 1 nor the description teaches how the rolls may be "sequentially lowered" when the pistons are permitted to move as recited in the characterising portion of Claim 1. This objection was presented under the heading of "unclear teaching" with the suggestion that it would also imply insufficiency of disclosure.

In any case, the Board cannot agree with this assertion because it is clear from col. 5, lines 26-35 of the description that after the rolls have been separated due to an emergency, the solenoid valve of the hydraulic circuit controlling each cylinder is closed and the pistons locked in place, then the complete stack of rolls is raised, and the solenoid valves are opened **sequentially** to lower the rolls one after the other until all the pistons are at the top of the cylinders.

Therefore the skilled person can find therein all the information that he needs to operate the mechanism as claimed.

3.2 The same applies to the Appellant's objection concerning the simultaneity of the lowering of the lower-most roll and the lifting of the upper-most roll. It may be nevertheless noted that Claim 1 does not exclude the

feature and since this characteristic is not essential, there is no need to mention it in the independent claim of a patent. The manner of operating an apparatus does not have to be detailed in the independent claim of a patent provided that all the essential features of the apparatus are stated therein according to Rule 29(3) EPC.

3.3 Concerning the different positions of the rolls, it is clear from the description of the patent (cf. col. 4, lines 29-45 and from col. 5, line 26 to col. 6, line 8) that after the rolls have fallen down due to an emergency, the complete stack is raised again in preparation for resumption of calendering.

Consequently, no objection under Article 100(b) EPC can be retained against the patent.

4. **Novelty**

After having examined all the citations covered by the search report as well as those introduced in the course of the further proceedings, the Board is satisfied that none of them discloses a mechanism for positioning a stack of rolls comprising in combination all the features recited in Claim 1 at present on file.

Since the Appellant did not dispute novelty, there is no need for further detailed substantiation of this matter and the subject-matter as set forth in Claim 1 is to be considered as novel within the meaning of Article 54 EPC.

5. **The state of the art closest to the invention**

According to the description of the patent (cf. col. 1, lines 25-64), the features of the claimed rolls

positioning mechanism which are to be considered as the most important are those allowing a rapid separation of the rolls in an emergency situation i.e. the means for lifting and lowering the top and bottom rolls of the stack and the lost motion interconnecting means.

The rolls positioning mechanism known from D3 (US-A-3 777 656) appears to comprise such features and also to be capable of accomplishing rapid separation of the rolls. Therefore, the Board considers this state of the art as the closest to the invention.

6. **The problem and its solution**

In the positioning mechanism known from document D3, the rolls are interconnected by lifting threaded spindles carrying vertically adjustable nuts which support the rolls when they are lifted.

In order to maintain the initial spacing of the lifted rolls as they gradually wear, it is necessary to continuously re-adjust the longitudinal position of the nuts along the lifting spindles, which imposes a loss of time and a burden on the production run.

This can be regarded as a disadvantage and thereby the technical problem is to obviate such inconvenience.

The Board is satisfied that this problem is solved by the combination of features according to Claim 1, which incorporate automatically adjustable hydraulic connecting assemblies (in replacement of the known mechanical interconnecting means) with the provision of hydraulic controlling means capable of guaranteeing a lost motion spacing between the connecting parts of the assemblies.

7. Inventive step

Hydraulic interconnecting means according to Claim 1 comprising pressure means for maintaining a lost motion spacing between the connecting parts is disclosed as such in neither of the two prior documents cited during the proceedings relating to hydraulic rolls connecting assemblies, i.e. in FR-A-1 579 061 (already cited before grant) or D1.

7.1 Citation FR-A-1 579 061 concerns calenders having a bottom roll journalled stationary in the frame and classical lifting bars to lift the rolls successively. Hydraulic rolls supporting means are provided for use in combination with the lifting main cylinders to relieve rapidly the rolls of the pressure of their weight. No lost motion means are mentioned.

The way to avoid damage to the rolls suggested in this citation is the opposite of what is carried out with the mechanism according to the invention in the sense that in an emergency situation, these prior piston and cylinder assemblies are activated to support i.e. suspend the rolls instead of letting them drop.

The person skilled in the art starting from the mechanism according to D3 and looking for means which guarantee the desired effect would have thus no reason to refer to such a prior apparatus that works in a manner which provides a different result and even if the skilled person had had considered it, he would not have found any particular instruction or hint leading him to the invention.

7.2 As far as document D1 is concerned, this recognises the same problem (cf. page 2, paragraph 3) as that involved in the present patent and stated above under point 6.

In order to solve this problem, D1 teaches the use of hydraulic interconnecting assemblies comprising most of the characteristics of those described in Claim 1. Moreover, the provision of a lost motion spacing between the parts of the assemblies is explicitly called forth. But, although it appears clearly from the description of this prior document that the lost motion spacing is maintained during the normal running of the calender, no special means for maintaining this spacing appears to be provided or even suggested.

Consequently, to reach the solution according to Claim 1, the skilled man starting from the above-mentioned closest state of the art would have had to combine the teachings of D1 and D3 first, and, second, without any instruction, to provide additional means for maintaining the lost motion spacing. Assuming nevertheless that he had done so, the teaching of D1 would have lead him to discharge any fluid from the lower chambers of the cylinders of the connecting assemblies so as to avoid providing any motive function.

Therefore, even when combining the teachings of D1 and D3 and providing some additional means for maintaining the lost motion spacing between the connecting parts, the skilled man would not have normally pressurised the lower chambers of the cylinders so as to maintain the lost motion and satisfy the characteristics of the invention.

7.3 For the foregoing reasons, the Board considers that the subject-matter of Claim 1 implies an inventive step in the meaning of Article 56 EPC and is patentable according to Article 52 EPC.

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 maintain the patent in an amended form on the basis of the following documents:

   - Claim 1 as presented at the oral proceedings,
   - Claims 2 to 4 as granted,
   - Claim 5 to be deleted and
   - Description and drawings as granted.

The Registrar: The Chairman:

S. Fabiani G. Szabo

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