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DECISION of 11 October 1994

Case Number:

T 0500/92 - 3.2.4

Application Number:

85304420.4

Publication Number:

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IPC:

B65B 9/20, B65B 51/16

Language of the proceedings: EN

Title of invention: Packaging apparatus

Patentee:

Taylor, Alfred Alexander

Opponent:

- (01) Rovema-Verpackungsmaschinen GmbH
- (02) Wright Machinery Company Ltd.
- (03) Rovema Packing Machines Ltd.

Headword:

Relevant legal norms:

EPC Art. 56, 107, 123(2), 123(3)

EPC R. 67

Keyword:

"Amendments - added subject-matter (no)"

"Amendments - broadening of claim (no)"

"Inventive step (main, first and second auxiliary requests no; third auxiliary request - yes) "

"Refund of appeal fee (no)"

Decisions cited:

T 0073/88, G 0002/91

Catchword:

EPA Form 3030 10.93



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Boards of Appeal

Chambres de recours

Case Number: T 0500/92 - 3.2.4

DECISION
of the Technical Board of Appeal 3.2.4
of 11 October 1994

Appellant:

(Proprietor of the patent)

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(Opponents 01)

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(Opponents 02)

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Decision under appeal:

Interlocutory decision of the Opposition Division of the European Patent Office dispatched 21 May 1992 concerning maintenance of European patent No. 0 165 819 in amended form.

Composition of the Board:

Chairman:

C. Andries

Members:

S. Crane

J.-C. de Preter

Summary of Facts and Submissions

- I. European patent No. 0 165 819 was granted on 30 August 1989 on the basis of European patent application No. 85 304 420.4.
- Oppositions against the granted patent were filed by Opponents 01, 02 and 03. They requested revocation of the patent in its entirety on the grounds that its subject-matter lacked novelty and/or inventive step with respect to the state of the art (Article 100(a) EPC) and of insufficiency of disclosure (Article 100(b) EPC).

Of the state of the art cited in the opposition proceedings only that reflected by the following prepublished documents played any role in the appeal proceedings:

- (D1) US-A-3 070 931
- (D2) US-A-3 850 780
 - (D3) US-A-3 045 404
 - (D4) US-A-2 915 866
- (D5) DE-C-3 141 431
- III. By its decision issued on 21 May 1992 the Opposition Division found that the patent was to be maintained in amended form on the basis of Claims 1 to 10 (hereinafter claim set "D") and description pages 1 to 7 filed on 17 February 1992, and sheets 1 to 5 of the drawings as granted.

Claim 1 of claim set "D" reads as follows:

"A stripping and sealing assembly, for packaging apparatus, said apparatus including a product delivery head and a drive assembly to pass tubular bag material

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(12) past said delivery head so that product delivered from said head is located within said tubular bag material (12), said stripping and s ealing assembly including a pair of opposing sealing and stripping means (14, 40, 41, 42) located on opposite sides of said bag material (12) at a position downstream from said delivery head relative to the direction of movement of said bag material (12) through said apparatus, said sealing and stripping means (14, 40, 41, 42) being adapted to cooperate to sealingly close portions of said bag material (12) and strip same, a first arm means (15, 45) supporting one of said sealing and stripping means (14, 40, 41, 42), and a second arm means (15, 45)supporting the other sealing and stripping means (14,40, 41, 42), a pair of generally parallel rotatably driven shafts (16, 43, 44) from each of which there extends radially outwardly therefrom one of the arm means (15, 45), cutting means (27, 46) mounted so as to be adjacent the extremities of the arm means (15, 45) and adapted to cooperate to sever said sealed portions from said bag material (12) to thereby form discreet bags of said product and wherein each sealing and stripping means (14, 40, 41, 42) includes co-operating stripper bars (22, 49, 50) which strip the bag material (12); wherein the arm means (15, 45) via said shafts (16, 43, 44) are rotatably driven continuously through complete revolutions in synchronism in opposite directions about spaced parallel fixed axes extending generally transverse of the direction of movement of the bag material (12) so that prior to sealing said bag material (12) the sealing and stripping means (14, 40, 41, 42), are moved along said bag material (12) to cause the stripper bars (22, 49, 50), to strip same, and wherein each arm means (45) is provided with one of the stripper bars (22, 49, 50), and the assembly further includes pivotable supports (19, 20, 53, 55, 47, 48, 57) for each stripper bar (49, 50) pivotally mounting the stripper

bars (49, 50) relative to said arm means (15, 45) so as to provide for relative movement therebetween."

Dependent Claims 2 to 10 relate to preferred embodiments of the stripping and sealing assembly according to Claim 1.

This decision was subsequently re-notified to Opponents 02 and 03 on 1 July 1992 after complaints from them that they had not received the decision issued on 21 May 1992.

IV. The Proprietor of the patent filed an appeal against this decision on 17 July 1992, the relevant appeal fee having been paid earlier on 19 February 1992.

The Statement of Grounds of Appeal was filed on 8 September 1992. With this statement the Proprietor submitted two new sets of claims according to a main request (claim set "E") and a first auxiliary request (claim set "F") on the basis of which the patent was to be maintained in amended form.

Claim 1 of claim sets "E" and "F" read respectively as follows:

"E": "A stripping and sealing assembly, for packaging apparatus, said apparatus including a product delivery head and a drive assembly to pass a tubular bag material (12) past said delivery head so that product delivered from said head is located within said tubular bag material, said stripping and stealing assembly including a pair of opposing sealing and stripping means (14, 40, 41, 42) located on opposite sides of said bag material (12) at a position downstream of said delivery head relative to the direction of movement of said bag material (12) through said apparatus, said sealing and

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stripping means (14, 40, 41, 42) being adapted to cooperate to sealingly close portions of said bag material (12) and strip same, a first arm means (15, 45) supporting one of the sealing and stripping means (14, 40, 41, 42), and a second arm means (15, 45) supporting the other sealing and stripping means (14, 40, 41, 42); wherein the arm means (15, 45) are rotatably driven through complete revolutions in synchronism in opposite directions about spaced parallel axes which are in a fixed stationary location at all times and extend generally transverse of the direction of movement of said bag material (12), so that prior to sealing said bag material said sealing and stripping means (14, 40, 41, 42) are moved along said bag material (12) to strip same."

"F": "A stripping and sealing assembly, for packing apparatus, said apparatus including a product delivery head, a drive assembly to pass tubular bag material (12) past said delivery head so that product delivered from said head is located within said tubular bag material, said assembly including a pair of opposing stripping and sealing means (14, 40, 41, 42) located on opposite sides of said bag material (12) at a position downstream from said delivery head relative to the direction of movement of said material (12) through said apparatus, said sealing and stripping means (14, 40, 41, 42) being adapted to cooperate to sealingly close portions of said bag material (12) and strip same, a first arm means (15, 45) supporting one of said sealing and stripping means (14, 40, 41, 42) and a second arm means (15, 45) supporting the other stripping and sealing means (14, 40, 41, 42), a pair of generally parallel rotatably driven shafts (16, 43, 44) from each of which there extends radially outwardly therefrom one of the arm means (15, 45) and wherein each stripping and sealing means (14, 40, 41, 42) includes a stripper bar (22, 49,

50) which strips the bag material (12); wherein the arm means (15) via said shafts (16) are rotatably driven through complete revolutions in synchronism in opposite directions about spaced parallel axes which are in a fixed stationary location at all times and extend generally transverse of the direction of movement of the bag material (12) so that prior to sealing said bag material (12), the stripper bars (22) of said sealing and stripping means (10, 14) are moved along said bag material (12) to strip same, and each stripper bar (22) is mounted on its associated arm means (15, 45) for angular movement relative thereto."

V. Appeals against the decision were also filed by Opponents 01 and 02 on 13 June 1992 and 20 July 1992 respectively, the corresponding appeal fee being paid on the same respective date in each case. The Statement of Grounds of Appeal were received on 3 September 1992 and 6 November 1992 respectively.

Both Opponents requested that the patent be revoked in its entirety. Opponents 02 requested refund of the appeal fee.

VI. In response to a communication of the Board pursuant to Article 11(2) RPBA dated 1 September 1994 the Proprietor filed on 9 September 1994 a new claim set "G" corresponding to a second auxiliary request for the case that Claim 1 of claim set "F" were to be found to infringe Article 123(3) EPC. Claim 1 of claim set "G" corresponds to Claim 1 of claim set "F" except in that the words "the stripper bars of said sealing and stripping means are moved along said bag material" have been replaced by "the sealing and stripping means moves along the bag material with the stripper bars engaged with said bag material".

The third auxiliary request of the Proprietor was for maintenance of the patent in the form decided by the Opposition Division (claim set "D"), in other words dismissal of the appeals of the Opponents.

VII. Oral proceedings were held on 11 October 1994. The oral proceedings were not attended by Opponents 02 and 03 (other party to the proceedings under Article 107 EPC), their intended absence having been notified to the Board by letters dated 27 September 1994 and 8 September 1994 respectively.

In accordance with the provisions of Rule 71(2) EPC, the oral proceedings were continued without them.

VIII. The arguments put forward by Opponents 01 and 02 in support of their request for revocation of the patent can be summarised as follows:

The amendments made to Claim 1 of all sets contravened Article 123(2) EPC. In particular, there was no basis in the original disclosure for the features added to the claims concerning the continuous drive of the sealing and stripping means through complete revolutions about fixed axes which are in a "stationary location at all times" (claim sets "E", "F" and "G"). Furthermore, as originally disclosed the stripper bars had only been described in close association with the closing bars so that the isolated references to stripper bars in Claim 1 of claims sets "F", "G" and "D" without any reference to the closing bars constituted an inadmissible intermediate generalisation which added subject-matter to the original disclosure. In addition, the reference in Claim 1 of claim set "F" to the stripper bars being moved along the bag material to strip same contravened Article 123(3) EPC as granted Claim 1 required such movement of the whole sealing and stripping means.

The only features of Claim 1 of claim set "E" which could distinguish its subject-matter from document D1 were ones which for the above reasons had to be disregarded, so on that basis the subject-matter of the claim lacked novelty.

However, even it novelty were found to be given then the subject-matter of the claim lacked inventive step having regard to the state of the art represented by documents D1 to D5. Packaging apparatus of the general type to which the claimed invention related having continuously rotatable sealing heads was well known, as could be seen for example from documents D2, D3 and D5. It was also well known to provide stripping means on the sealing heads of packaging apparatus if the product to be packaged was light and voluminous. According to document D4 the stripping means were associated with reciprocating sealing heads and as shown in document D1 the stripping means were arranged on oscillating sealing heads. In the latter case the stripping action was totally independent of the fact that the sealing heads returned into their open position by reversal of their motion and the stripping means disclosed there would function equally well if associated with rotating sealing heads. Thus there was no technical barrier which could dissuade the skilled person from using stripping means of this type on continuously rotating sealing heads if the need arose.

Claims 1 of claim sets "F", "G" and "D" included the further restriction that the stripper bars be angularly movably or pivotably mounted on the sealing and stripping heads. This constructional possibility was already shown in document D1 in relation to the deflators, which could also be considered as stripping means, and corresponded to that used to mount the

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stripper bars in document D4. This feature therefore added nothing of inventive significance to the claims.

IX. In support of his requests the Proprietor argued in essence as follows:

It was clear to the person skilled in the art from the original disclosure that the sealing and stripping means rotated continuously and that the axes of rotation had to be stationary during operation. No other sensible interpretation of the disclosure was possible.

The statement of Claim 1 of claim set "F" could not infringe Article 123(3) EPC as it merely served to define which element of the sealing and stripping means performed the stripping action and was a limitation of the scope of the granted Claim 1.

As for inventive step it was not denied that both continuously rotating sealing heads and sealing heads provided with stripping means were both known per se. However, the person skilled in the art had been of the opinion that to provide stripping means on continuously rotating sealing heads would be technically very difficult in view of the need to correlate the speed and movement of the stripping means to that of the moving bag material. The patent proposed effective ways of doing this. In particular, with regard to Claims 1 of claim sets "F", "G" and "D" the angularly movable or pivotable mounting of the stripper bars on the sealing and stripping head allowed the movement of the stripper bars during stripping to be controlled in an advantageous way.

Reasons for the Decision

- 1. The appeals comply with the requirements of Article 106 to 108 and Rules 1(1) and 64 EPC. They are therefore admissible.
- 2. State of the art
- 2.1 Document D1 relates to the type of packaging apparatus operating on the "form-fill-seal" principle in which a heat sealable bag material is drawn from a roll and formed into a tube into which is dropped a weighed quantity of product, the tube passing through sealing heads which make bottom and top transverse seals across the tube. As particularly described in document D1 a pair of sealing heads which can each oscillate through approximately 90° are arranged on opposite sides of the tube and are mounted on a frame which is reciprocable along the length of the tube. After being swung inwards to form a seal the sealing heads are moved downwardly to draw a new length of bag material from the roll, the sealing heads are then opened and move upwardly to their original position. Each of the sealing heads carries a telescopically mounted stripper which engage opposite sides of the tube as the sealing heads swing in towards their sealing position and thereby strip product from the area of the bag material which is to be heat sealed. The sealing heads also carry respective deflators which serve to squeeze the sides of the tube to expel air therefrom.
- 2.2 Document D2 is particularly concerned with obtaining a long contact time between sealing jaws mounted on counterrotating shafts and a bag material moving therebetween. Each sealing jaw is capable of sliding radially with respect to the shaft and is guided in its

motion by a "D"-shaped cam track, the straight portion of which is parallel to the path of the bag material. Because of the greater radial distance of the sealing jaw from the shaft at the ends of the straight portion than at its centre, the linear speed of the sealing jaw would automatically change during the course of its travel. To compensate for this means are provided to vary the speed of rotation of the shaft.

- Document D3 relates to packaging apparatus of the "form-fill-seal" type wherein the sealing heads, which are mounted on continuously counterrotating shafts, are associated with "stoppers" which contact the bag material upstream of the seal after this has been formed to prevent the next quantity of product delivered into the tube from falling forcibly on the seal and damaging it while it is still warm. The bag material is drawn from the supply roll by a separate feed mechanism.
- 2.4 According to document D4 transversely reciprocable sealing jaws, which in a similar way to that discussed above with respect to document D1 also serve to draw the bag material from the supply roll, have pivotably mounted thereon stripper bars which, as the sealing jaws move together, contact and move along the bag material to strip it. Each stripper bars comprises a roller mounted for rotation between the free ends of levers pivoted to respective ends of the sealing jaws.
- 2.5 Document D5 discloses continuously counterrotating sealing heads for "form-fill-seal" packaging apparatus which are combined with means for drawing the bag material through the apparatus. To this end the shafts on which the sealing heads are mounted carry feed sectors which engage the bag material after the seal has been formed and draw it downwardly by one bag length.

- Main request of the Proprietor (claim set "E")
- 3.1 Allowability of the amendments

In the originally filed application it is stated (page 1, lines 16, 17 and 22, 23) that one of the problems associated with prior art packaging apparatus of the relevant type is that the packaging operation is intermittent, i.e. not continuous, and accordingly slow. In the description of the preferred embodiment it is then stated (paragraph bridging pages 2 and 3) that the stripping, closing and sealing assembly operates on a continuous basis. In the opinion of the Board this provides adequate support for the feature added to Claim 1 of claim set "E" that the arm means are driven "through complete revolutions" which in the context is equivalent to saying that they rotate continuously. Furthermore, it is apparent to the person skilled in the art that as described in the originally filed application the axes around which the arm means rotate are stationary during the whole of the packaging operation, so that the addition of this feature is also not objectionable under Article 123(2) EPC. Since the above mentioned features added to granted Claim 1 to form Claim 1 of claim set "E" clearly limit the scope of the granted claim there is also no objection under Article 123(3) EPC.

3.2 Novelty

It is apparent from the discussion in section 2 above that none of the documents D1 to D5 discloses a stripping and sealing assembly as defined in Claim 1 of claim set "E", in particular, an assembly wherein the sealing and stripping means are supported on arms means rotatably driven through complete revolutions in opposite directions. This requirement provides a clear

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distinction over the disclosure of document D1 where the sealing jaws oscillate through an angle of approximately 90°. The subject-matter of the claim is therefore novel.

3.3 Inventive step

Having regard to the fact that "form-fill-seal" packaging apparatus having continuously counterrotating sealing heads was well known per se, see for example documents D3 and D5, the technical problem to be solved by the claimed invention is to be seen as providing such apparatus which is suitable for use with products which require stripping. According to Claim 1 of claim set "E" this is achieved in that the arm means which support the sealing means also support stripping means which prior to sealing the bag material move along the bag material to strip it.

The main argument put forward by the Proprietor in support of the inventive step of the subject-matter of the claim is that none of the cited prior art discloses stripping means which moves over bag material which is itself in motion - according to documents D1 and D4 the bag material is stationary as it is stripped - and that the person skilled int he art would have thought the technical difficulties associated with giving the stripping means the required path and speed of movement adequately to strip moving bag material would be surmountable only at unjustifiable cost, if at all. That argument could however only have any force if the subject-matter of the claim were restricted to the situation where the bag material is moving as it is stripped. As correctly pointed out by the Opponents that is not the case. Nor, contrary to what has been suggested by the Proprietor, is it a necessarily corollary of having continuously rotating sealing and stripping means, as can be seen from document D5. Thus

the subject-matter of the claim has to be evaluated for inventive step on the basis that the bag material may be stationary as it is stripped by the stripping means. In such a situation the Board can see no technical reason which could persuade the person skilled in the art that the form of stripping means proposed for the oscillating sealing heads disclosed in document D1 would be inappropriate for performing the required stripping operation when used with continuously rotating sealing heads, such as disclosed in document D3, and therefore it would be obvious for him to do so when the need arose.

Accordingly the Board comes to the conclusion that the subject-matter of Claim 1 of claim set "E" does not involve an inventive step (Article 56 EPC).

- 4. First and secondly auxiliary requests of the Proprietor (claim sets "F" and "G")
- 4.1 Allowability of the amendments (claim set "F")

Claim 1 of claim set "F" differs from Claim 1 of claim set "E" in that each sealing and stripping means is stated to include a stripper bar, it being the stripper bars which are moved along the bag material to strip it, and each stripper bar being mounted on the associated arm means for angular movement relative thereto.

As originally disclosed each sealing and stripping means includes both a stripper bar and a closing bar, the purpose of the latter being to close the tube of bag material upstream of the stripper bar. The stripper and closing bars do not however have such a close functional and structural interrelationship that the skilled person would consider them inseparable to the extent that the disclosed apparatus could not adequately function if the

closing bars were not present. The absence of a reference to the closing bars in Claim 1 of claim set "F" cannot therefore be seen as adding subject-matter which extends beyond the original disclosure. Furthermore, each of the stripper bars is mounted on the associated arm means via pivotable supports so the requirement of "angular movement" stated in the claim also has support in the original disclosure. There is therefore no objection to the claim under Article 123(2) EPC.

With regard to Article 123(3) EPC the Opponents have raised the objection that granted Claim 1 requires the sealing and stripping to move along the bag material to strip it, whereas according to Claim 1 of claim set "F" this movement is only required of the stripper bars. In this context it is necessary to consider the relevant passage of granted Claim 1 in the light of the totality of the disclosure of the patent specification from which it is clear that the actual sealing means do not have any stripping function. Thus it is apparent that the relevant passage in Claim 1 of claim set "F" represents an unambiguous limitation of scope in comparison with granted Claim 1 in that the stripping means has been defined as comprising a stripper bar.

4.2 Inventive step (claim set "F")

The provision of stripping means in the form of stripper bars is conventional, as can be seen from documents D1 and D4. Furthermore, the statement that each stripper bar is mounted on the associated arm means for "angular movement" relative thereto is very broad in its ambit and includes arrangements where the stripper bar is mounted on the arm means for rotation about its own axis. Such an arrangement is shown in document D4 where the stripper bar takes the form of a roller and given

the fact that the stripper bar must move along the bag material this arrangement of the stripper bar must be seen as being a measure which the person skilled in the art would automatically consider as being advantageous in the circumstances.

Thus it is not possible to recognise an inventive step in the subject-matter of Claim 1 of claim set "F".

- Claim set "G" was only submitted for the case that Claim 1 of claim set "F" should be found to infringe Article 123(3) EPC and since the technical content of its Claim 1 is identical to that of the latter it need not be considered further here.
- 5. Third auxiliary request of the Proprietor (claim set "D")

In comparison with Claim 1 of claim set "G" Claim 1 of claim set "D" includes the further limitations that the arm means extend from respective rotatably driven shafts, that one of the arm means has cutting means at the extremity thereof adapted to sever the bag material into discrete bags and that each stripper bar is mounted in the associated arm means by way of pivotable supports so as to provide for relative movement therebetween. All these features find clear support in the original disclosure, which since this has not been disputed by the Opponents need not be further elaborated on here.

The pivotable mounting arrangement of the stripper bars on the associated arm means is a clear technical teaching which goes beyond the mere possibility of "angular movement" proposed in Claim 1 of claim set "F". By virtue of this pivotable mounting arrangement the path and speed of the stripper bar can be more readily tailored to the specific requirements than when the

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stripper bar is carried on telescoping shafts as is in the case in document D1. The Opponents have argued that the deflators shown in document D1, which are pivotally mounted, effectively constitute stripping means within the terms of Claim 1 so that the feature of the privotable mounting of the stripper bars can be considered as being disclosed therein. The Board cannot accept that view since the function and mode of action of the stripper bars and the deflectors are distinct and the person skilled in the art would not confound the one with the other. Similarly, in these circumstances, the pivotable mounting of the deflators cannot encourage the person skilled in the art to replace the mounting arrangement for the stripper bars actually described by a pivotable one. It is true that document D4 shows a pivotable mounting arrangement of stripper bars on associated sealing heads but those heads are capable of linear motion towards and away from each other so that the teaching of this document is not directly applicable to a situation in which the sealing heads are in continuous rotation.

Accordingly, the Board has come to the conclusion that the subject-matter of Claim 1 of claim set "D" cannot be derived in an obvious manner from the state of the art. This claim together with its dependant Claims 2 to 10 therefore constitute a suitable basis for the maintenance of the patent in amended form, in confirmation of the contested decision.

5. Sufficiency of disclosure

The objections raised in this context in the opposition proceedings, which have not been pursued in the course of the appeal, were to the effect that the patent specification did not disclose in relation to the embodiment of Figures 1 to 3 the means whereby on the

one hand the stripper bars were caused to move faster than the bag material to strip it whereas on the other hand the sealing head during the sealing operation had to have the same speed as the bag material. However, in the opinion of the Board, the necessary speed differentials result automatically from the construction shown, the stripper bar as it first contacts the bag material lying at a greater radius from the axis of rotation than the sealing head when it contacts the bag material (see the discussion of document D2, section 2.2 above).

Thus the ground of opposition under Article 100(b) EPC cannot prejudice maintenance of the patent in the requested amended form.

7. Refund of the appeal fee

The appeal of Opponents 02 was filed as a precautionary measure for the case that they were not otherwise a party to the proceedings, refund of the appeal fee being requested if appropriate. They referred to Decision T 73/88 (OJ EPO 1992, 557) in this respect. In Decision G 2/91 (OJ EPO 1992, 206), published two months before the filing of the appeals by Opponents 02, the Enlarged Board of Appeal found itself unable to follow Decision T 73/88, which was held to depart from established practice, and drew a clear distinction between the rights of Appellants and of parties to the proceedings as of right (Article 107 EPC). The appeal of Opponents 02 meets all the requirements of admissibility and the Board can see no justification for a refund of the appeal fee.

Order

For these reasons it is decided that:

- 1. The appeals are dismissed, so that the decision of the first instance is maintained.
- The request for refund of the appeal fee is refused.

The Registrar:

The Chairman:

N. Maslin

C. Andries