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D E C I S I O N
of 19 October 1998

Case Number: T 0875/96 - 3.2.4

Application Number: 88119897.2

Publication Number: 0339134

IPC: B65B 57/10

Language of the proceedings: EN

Title of invention:

Packaging machine with a packaging article inclusion-proofing device for end-sealing mechanism

Patentee:

Fuji Machinery Co., Ltd.

Opponent:

Klöckner Hänsel Tevopharm B.V.

Headword:

End-sealer/FUJI

Relevant legal provisions:

EPC Art. 56, 100, 101
EPC R. 55

Keyword:

"Admissibility of the opposition (yes)"
"Inventive step (yes)"

Decisions cited:

T 0222/85, T 0925/91

Catchword:

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Case Number: T 0875/96 - 3.2.4

D E C I S I O N
of the Technical Board of Appeal 3.2.4
of 19 October 1998

Appellant: Fuji Machinery Co., Ltd.
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Decision under appeal: Decision of the Opposition Division of the
European Patent Office posted 26 July 1996
revoking European patent No. 0 339 134 pursuant
to Article 102(1) EPC.

Composition of the Board:

Chairman: C. A. J. Andries
Members: P. Petti
M. K. S. Aúz Castro

Summary of Facts and Submissions

I. The mention of the grant of European patent No. 339 134 was published on 3 February 1993. The granted Claim 1 reads as follows:

"1. A packaging machine with a packaging article inclusion-proofing device for an end-sealing mechanism, comprising
a motor (A) for driving a conveyor (12) for feeding packaging articles with a predetermined space therebetween into a packaging material (16),
a motor (B) for driving a series of rolls (18, 34) which deliver downstream the packaging material (16) being formed into a tube,
a motor (C) for driving an end-sealing mechanism (20) for achieving end-sealing of the tubular packaging material (16) in the crosswise direction relative to the line of feed,
a deviation detecting sensor (42) disposed at a predetermined position upstream of the end-sealing mechanism (20) for detecting deviation of packaging articles (10) inserted into the tubular packaging material (16) relative to the portion to be end-sealed, and
means for stopping and starting the motor (C) during a detected deviation of the packaging articles (10),
a reference timing pulse generating means (S1) which generates predetermined reference timing pulses for the timing of feeding the packaging articles (10) from said conveyor (12), and
control means (50, 52, 54, 56, 58, 60) operating to

detect a deviation on the basis of said reference timing pulse generating means (S1) and a deviation detecting signal furnished from said deviation detecting sensor (42) for stopping the motor (C) for driving the end-sealing mechanism with gradual deceleration and continuing the operation of the motor (A) for driving said conveyor (12) and of the motor (B) for delivering the packaging material upon detection of a deviation of a packaging article and starting the motor (C) by gradual acceleration, as soon as no further deviation has been detected, until the speed and phase thereof is synchronised with those of said motor (A) and of said motor (B)."

II. Three oppositions were filed against this patent.

The opposition of opponent I was withdrawn. The opposition of opponent II was rejected as inadmissible by a (first) decision of the opposition division dated 13 October 1995.

The opposition of opponent III (hereinafter respondent) was based upon Article 100(a) EPC (with respect to novelty and inventive step) and upon Article 100(b) EPC and was filed using the EPO-form 2300 (4 sheets) containing an annex with the title "Facts and arguments". The EPO-form 2300 (sheet 2) contains a first statement indicating the extent to which the present patent is opposed, namely as a whole, and a second statement indicating the grounds (Article 100(a) and (b) EPC) on which the opposition is based. The annex "Facts and arguments" comprises a feature analysis of the claims of the patent as granted, a

first part relating to novelty (pages 2 and 3), a second part relating to inventive step (pages 4 and 5) and a third part (page 5) relating to Article 100(b) EPC.

- III. During the opposition proceedings, the patent proprietor alleged that the opposition was inadmissible because of insufficiency of substantiation of the grounds invoked for opposition.

Contrary to the allegations of the patent proprietor, the opposition was considered as being admissible by the opposition division, which revoked the patent by its (second) decision dispatched on 26 July 1996.

In this decision, the subject-matter of Claim 1 as granted was considered as lacking inventive step in view of documents US-A-4 722 168 (E1) and JP-A-58-160 209 (E3).

- IV. On 26 September 1996 the proprietor of the patent (hereinafter appellant) lodged an appeal against this decision and simultaneously paid the appeal fee. A statement setting out the grounds of appeal was received on 26 November 1996.

- V. Oral proceedings were held on 19 October 1998.

- VI. The appellant requested that the decision under appeal be set aside and the opposition be declared inadmissible. Auxiliarily it was requested that the patent be maintained as granted.

With respect to the admissibility of the opposition, the appellant argued that none of the grounds upon which the opposition of the respondent was based was sufficiently substantiated in the notice of opposition.

With respect to the requirements of the subject-matter of Claim 1 of the patent as granted as to substance (auxiliary request), it was argued that this subject-matter involved an inventive step with respect to the content of document E1 which was considered as being the closest prior art.

VII. The respondent requested that the appeal be dismissed.

With respect to the admissibility of its opposition, the respondent contested the arguments of the appellant. With respect to inventive step, it was argued that the subject-matter of Claim 1 did not involve an inventive step having regard either to the combination of documents E3 and E1 or to the combination of documents GB-A-2 192 503 (E2) and E3.

Reasons for the Decision

1. The appeal is admissible.
2. *The admissibility of the opposition (main request of the appellant)*
 - 2.1 The issue to be decided in the present case is whether the notice of opposition contains an

indication of facts, evidence and arguments in support of the invoked grounds of opposition, as required by Rule 55(c) EPC.

According to the established jurisprudence of the boards this requirement is interpreted to the effect that there must be **sufficient** indication of the **relevant** "facts, evidence and arguments" for the opponent's case to be properly understood by the opposition division and the patentee (see T 222/85, OJ EPO 1988, 128; T 925/91, OJ EPO 1995, 469).

2.2 In the case under consideration the opponent has in the notice of opposition indicated "facts" namely state of the art "evidenced" by patent documents and literature and has presented arguments in some detail as to why according to his analysis the patent should be revoked.

2.2.1 As far as novelty is concerned, the first part of the annex "Facts and arguments" refers to three documents - indicated as D2 (GB-A-2 192 503), D3 ("*Flowtronic-perfectie met steun van microcomputers*", in "*Verpakken*" Nr. 14, September 1986, pages 14 and 15) and D4 ("*Flowtronic Pillow Pack Machine*", 4 pages leaflet) which are all considered as relating to the same packaging machine (i.e. to a machine called "Flowtronic") and indicates the passages of these documents which are considered to be relevant with respect to Claim 1.

2.2.1.1 In this respect, the appellant argued that the notice of opposition did not exactly indicate where **all** the

features of Claim 1 can be found in the cited documents and that there was no evidence that documents D2, D3 and D4 relate to the same machine.

2.2.1.2 It is true that in respect of novelty not every feature of claim 1 of the present patent was compared to features in the cited documents, the line of argumentation of the opponent going more into the direction that the type of the machine was the same in the patent and in the prior art. This was substantiated by indicating the - in view of the opponent - typical features for that type. Whether this is an appropriate approach is not the question of admissibility of the opposition but relates to the strength of the opponent's case.

2.2.2 As far as inventive step is concerned, the second part of the annex "Facts and arguments" refers not only to the documents indicated as D2, D3 and D4 but also to a further document indicated as D1. On the third sheet of the EPO-form 2300, document D1 is identified as the Japanese Utility Model Publication No. 160209/1983.

Furthermore, in the same space in which document D1 is indicated, a box defining the indicated document as being "cited in the patent specification, therefore not enclosed", has been filled with the number "2" (see page 3 of the EPO-form 2300 on top of right-hand side).

This second part contains a first statement (see page 4, 1st paragraph, lines 1 to 8) which relates to

document D1 and has to be considered as describing the closest prior art, i.e. the primary source of information. According to this statement, the teaching in the present patent - compared to the teaching of document D1 (namely with the feature that the movement of the end sealers, i.e. of the end-sealing mechanism, is stopped when the deviation of an article is sensed) - only differs therefrom in that the starting and stopping of the end-sealing mechanism, due to the application of a separate drive for each unit of the machine, is gradual.

In a second statement (see page 4, 1st paragraph, lines 9 and 10) which relates to documents D2, D3 and D4, it is indicated that the application of separate drives is taught by these documents, each of which is considered as being a secondary source of information. Moreover, the second part of the annex contains a third statement (see page 4, 1st paragraph, lines 10 to 13) which concerns the problem to be solved and a fourth statement (see page 4, 2nd paragraph) which indicates a conclusion.

2.2.2.1 The arguments of the appellant with respect to this second part of the annex can be summarized as follows:

In the above mentioned first statement, the features "end sealers (40)" and "article conveyor (12)" are referred to and it is considered that these features are disclosed in the document D1 which is clearly identified as being the **Japanese Utility Model** publication No. 160 209/1983, while in the

description of the patent the reference is to the Japanese **Patent** Publication No. 160 209/1983 (i.e. document E3 as referred to in the above section III). This **Utility Model** Publication is however irrelevant since it relates to clothes for preventing charging of static electricity. Moreover, in the Japanese **Patent** Publication cited in the description of the patent the end sealers and the article conveyor are not provided with the reference number (40) and (12). Having regard to this misleading information, it was not possible for the appellant to understand the arguments in the notice of opposition with respect to inventive step.

2.2.2.2 Contrary to the appellant's allegations the notice of opposition sets out the opponent's case sufficiently so that it can be understood on an objective basis. This applies also to the indication of the Japanese Utility Model Publication referred to in the notice of opposition.

It is clear from the notice of opposition **itself** that the document D1 has been cited by mistake as a Japanese Utility Model. The third sheet of the EPO form 2300 also gives the information that the document D1 was the document "cited in the patent specification" and that it was "therefore not enclosed". Thus, the correction of this obvious mistake can easily be derived from the notice of opposition itself when read with the opposed patent in which the only Japanese document cited is the Japanese Patent Application Publication No. 160 209/1983 (i.e. JP-A-160 209/1983 document E3).

The fact that in the passages relating to the document D1 reference numbers are mentioned which do not correspond to those indicated in the document itself (i.e. in document D1) represents a further mistake which is not relevant for the understanding of the passages. Moreover, the reader of these passages would immediately realize that the reference numbers 40 and 12 are the same as in the opposed patent, particularly because in the feature analysis of Claim 1 made on page 1 of the annex "Facts and arguments" the "end sealers" and the "article conveyor" are provided with these reference numbers.

2.2.2.3 Therefore, the ground for opposition according to Article 100 (a) EPC is sufficiently substantiated.

2.2.3 As to the ground for opposition according to Article 100(b) EPC, it is stated in the notice of opposition (see page 5) that with respect to the gradual starting and stopping of the motor C the disclosure was insufficient, the term "gradual" being subjective, and that more specific information about the limits of the acceleration and the deceleration was needed.

2.2.3.1 In this respect, the appellant substantially asserted that the reasons given in the third part of the above mentioned annex did not relate to Article 100(b) but to Article 84 EPC. In particular, the substantiation of this ground was not sufficient because also the opponent acknowledged that the term 'gradual' in Claim 1 was subjective.

2.2.3.2 The board cannot accept this argument of the appellant for the following reasons:

The third part of the annex "Facts and arguments", in which a feature in Claim 1 is referred to concerning "the gradual starting and stopping of the motor C", contains the statements that "the term gradual is subjective and differs from person to person" and that "a machine according to D1 (i.e. document E3, as referred to in the above section III) could also be said to gradually start and stop the sealers" which statements relate to the clarity of Claim 1 in so far as Claim 1 contains the expression "gradual starting and stopping".

However, this part of the annex also contains the statements that "the **disclosure** is insufficient for the skilled man to carry out the invention" (emphasis added) and that "the skilled person needs more specific information about the limits of acceleration and deceleration to carry out the invention". Having regard to the fact that the term "disclosure" has to be interpreted as relating to the content of the whole patent, there is no doubt that these statements relate to the ground for opposition according to Article 100(b) EPC. These statements also represent a sufficient substantiation of this ground for opposition in so far as they enable the opposition division and the patentee to examine the alleged ground only by checking whether the patent specification contains sufficient information concerning the "gradualness" of the acceleration or

deceleration, i.e. without the need to make further investigations.

2.2.3.3 Thus, also the ground for opposition according to Article 100(b) EPC is sufficiently substantiated.

2.3 Having regard to the above evaluations, the opposition is admissible. Therefore, the main request of the appellant is to be rejected.

3. *Interpretation of Claim 1 as granted*

3.1 The meaning of the features in Claim 1 which relate to the "detection of the deviation" needs to be established.

According to Claim 1, the deviation detecting sensor is "disposed at a predetermined position upstream of the end-sealing mechanism", is suitable "for detecting deviation of packaging articles inserted into the tubular packaging material (16) relative to the portion to be end-sealed" and furnishes a "deviation detecting signal". Moreover, the control means is "operating to detect a deviation on the basis of the reference timing pulse generating signal generating means", which "generates predetermined reference timing pulses for the timing of feeding the packaging article...".

Thus, it is not clear from the wording of Claim 1 whether a deviation is detected by the sensor or by the control means.

According to the description of the patent (see column 5, lines 35 to 41), "a deviation detecting sensor 42 ... detects deviation of the packaging articles 10 contained in the tubular bag 16a, when the packaging articles 10 should deviate from the regular position relative to the seal timing of the end-sealing mechanism 20". Moreover, "the deviation detection signals ... are outputted in the form of a pulse wave as shown in Figure 3" (see column 8, lines 15 to 17).

However, it is also clear from the description of the patent that "the AND circuit 60 ... outputs a 'deviation present' signal ..., provided that the deviation timing signal ... should coincide with the deviation detection signal..." (see column 8, lines 29 to 40).

Therefore, it has to be understood that the "deviation detecting sensor" does not directly detect the deviation but only furnishes an **article** detection signal representative of the **position** of the articles in the tubular packaging material relative to the portion to be end-sealed. The deviation is detected **by the control means** on the basis of the article detection signal and of the timing signal, i.e. the timing pulses, generated by the reference timing pulse generating means S1.

- 3.2 The feature "means for stopping and starting the motor (C) **during** a detected deviation of the packaging articles" is unclear in so far as the deviation cannot be considered as being a time. Having regard to the description of the patent (see column 8, line 56 to column 9, line 17), this feature has been interpreted as follows: "means for stopping the motor **upon detection of a deviation of the packaging articles** and for starting it **after a duration of stopping corresponding to the detected deviation**".
- 3.3 The expressions "stopping the motor (C) ... with gradual deceleration" and "starting the motor (C) with gradual acceleration" imply that both acceleration and deceleration **are controlled to be gradual** (see the description of the patent, column 6, lines 36 to 42). In other words, the term "gradual acceleration" (or "gradual deceleration") cannot be compared with the normal acceleration (or deceleration) present when a motor is started (or stopped).
- 3.4 The feature "starting the motor ... as soon as no further deviation has been detected" means that the motor driving the end-sealing mechanism is re-started **provided that no deviation is detected for the next packaging article**. This feature has to read with the feature that the control means operates to continue the operation of motor (B) for delivering the packaging material containing the articles. In other words, since motor (B) does not stop when motor (C) stops, the deviation of the next article can be

detected. If two adjacent articles deviate from their regular positions, motor (C) is started when no deviation is sensed for the next (third) article (see the description of the patent, column 9, lines 18 to 26).

3.5 The expression "reference timing pulse generating means (S1) which generates predetermined reference timing pulses **for the timing of feeding the packaging articles (10) from said conveyor (12)**" defines a pulse generating means associated with motor (A) for driving the feeding conveyor 12 (see the description of the patent, column 4, lines 35 to 42).

3.6 Having regard to the above clarifications, Claim 1 of the patent as granted has to be interpreted (see particularly the parts in italics) as defining a packaging machine with a packaging article inclusion-proofing device for an end-sealing mechanism, comprising

- a *first* motor (A) for driving a conveyor (12) for feeding packaging articles with a predetermined space therebetween into a packaging material (16),
- a *second* motor (B) for driving a series of rolls (18, 34) which deliver downstream the packaging material (16) being formed into a tube,
- a *third* motor (C) for driving an end-sealing mechanism (20) for achieving end-sealing of tubular packaging material (16) in the crosswise direction relative to the line of feed,

- an *article* detecting sensor (42) disposed at a predetermined position upstream of the end-sealing mechanism (20) for detecting *the position* of packaging articles inserted into the tubular packaging material (16) relative to the portion to be end-sealed,
- means for stopping and starting the *third* motor (C), said means being suitable for stopping the *third* motor upon detection of a deviation of the packaging articles and for starting it after a duration of stopping corresponding to the detected deviation,
- a reference timing pulse generating means (S1) which generates predetermined reference timing pulses for the timing of feeding the packaging articles (10) from said conveyor (12), and
- control means (50, 52, 54, 56, 58, 60) operating
- to detect a deviation on the basis of said reference timing pulses and a *position* detecting signal furnished from said *article* detecting sensor (42) and
- to control said means for stopping and starting the *third* motor (C) so as to stop the *third* motor (C) with gradual deceleration, *i.e.* with a deceleration which is controlled to be gradual, upon detection of a deviation of a packaging article, continuing however the operation of the

first and second motors (A,B) and to start the *third* motor (C) by gradual acceleration, *i. e. with an acceleration which is controlled to be gradual*, as soon as no further deviation of the next *packaging article* has been detected, to allow the speed and the phase of the *third* motor to be synchronized with those of said *first and second* motors (A, B).

3.7 During the oral proceedings the appellant agreed with the above interpretation of claim 1.

4. *The prior art*

4.1 Document E3, for which an English translation was provided by the respondent, discloses a packaging machine with a packaging article inclusion-proofing device for an end-sealing mechanism, comprising a conveyor 8 for feeding packaging articles with a predetermined space therein between into a packaging material 6, a motor 60, drive means (chain 66, sprockets 65, 64 and 71, and chain 74) for driving a conveyor (lead conveyor 13) which delivers downstream the packaging material being formed into a tube, and drive means (sprocket 64, chain 67, speed governor 40, sprocket 42, chain 43, sprocket 37, clutch 35) for driving an end-sealing mechanism 34 for achieving end-sealing of tubular packaging material in the crosswise direction relative to the line of feed, said drive means for the lead conveyor 13 and for the end-sealing mechanism being driven by motor 60, a deviation detecting sensor 57 disposed at a predetermined position upstream of the end-sealing

mechanism 34 for detecting deviation of packaging articles inserted into the tubular packaging material relative to the portion to be end-sealed, stopping and starting means (clutch 36 and brake 38) for stopping the driving of the end-sealing mechanism upon detection of a deviation of the packaging articles and for starting it after a duration of stopping corresponding to the detected deviation, a reference timing pulse generating means which generates predetermined reference timing pulses D, and control means operating to detect a deviation on the basis of said reference timing pulses D and a deviation detecting signal E furnished from said deviation detecting sensor 57 and to control said stopping and starting means so as to stop the driving of the end-sealing mechanism and continuing to drive the lead conveyor 13 and the lead conveyors upon detection of a deviation of a packaging article and to start the driving of the end-sealing mechanism as soon as no further deviation has been detected, to allow the speed and the phase of the end-sealing mechanism to be synchronized with those of the feeding conveyor 8 and the lead conveyor 13.

- 4.2 Document E1 discloses a packaging machine with a packaging article inclusion-proofing device for an end-sealing mechanism, comprising a feeding conveyor motor 34 for driving a feeding conveyor 22 for feeding packaging articles with a predetermined space therebetween into a packaging material 12, delivering roll motors 37a, 37b, 37c for driving a series of pairs of rolls 27, 28, 29 which deliver downstream the packaging material being formed into a tube (each

delivering roll motor driving a pair of rolls), an end-sealing mechanism motor 41 for driving an end-sealing mechanism 17, 18 for achieving end-sealing of tubular packaging material in the crosswise direction relative to the line of feed, a deviation detecting sensor (comprising a photo-transmitter 6, a window 8 and photo-receiver) disposed at a predetermined position upstream of the end-sealing mechanism for detecting how the packaging articles inserted into the tubular packaging material are positioned relative to the portion to be end-sealed, means for stopping and starting the end-sealing mechanism motor 41, said means being suitable for stopping this motor upon detection of a deviation of the packaging articles and for starting it after a duration of stopping which is calculated; control means operating to detect a deviation on the basis of a deviation detecting signal furnished from said deviation detecting sensor 6, 8 and to control motors 34, 37a, 37b, 37c and 41 so as to stop all said motors (in synchronisation) upon detection of a deviation of a packaging article, to start only delivering roll motors 37a, 37b, 37c (while the feeding conveyor motor 34 and the end-sealing mechanism motor 41 are disabled) for a time interval sufficient to allow a string of articles contained within the tubular packaging material (and including the 'deviating' article) to pass through the end-seal mechanism, to initiate the normal running mode of the packaging machine, i.e. to re-stop delivering roll motors 37a, 37b, 37c when a registration mark provided on the packaging material reaches a predetermined position and to re-start and synchronize all the motors.

4.3 In document GB-A-2 192 503 (E2) a wrapping machine provided with a feeding conveyor ("product infeed"), a longitudinal sealing mechanism and an end-sealing mechanism driven by a single motor and having mechanically interlinked drives is defined as representing the prior art. The invention according to document E2, which refers to a wrapping machine, called "FLOWTRONIC", consists essentially in replacing the interlinked drives with individual alternating current motors controlled by a microprocessor.

According to this document the jaws of the end-sealing mechanism are controlled by a microprocessor with superimposed constant and sinusoidal components. The sinusoidal component of the jaws velocity allows changes in the cut length of the packaging material.

4.4 A machine called "FLOWTRONIC" is also referred to in the article "*Flowtronic-perfectie met steun van microcomputers*", in "*Verpakken*" Nr. 14, September 1986, pages 14 and 15 (document E5). This machine is described as provided with the feature "no product - no bag" ("geen produkt - geen pouch"). However, in document E5 there is no reference to document E2.

5. *Novelty*

In the decision under appeal, the subject-matter of Claim 1 of the patent as granted was found to be novel by the opposition division. During the appeal proceedings no objections with respect to novelty

were raised by the respondent. Having regard to the cited prior art, the board sees no reasons for deviating from the finding of the opposition division with respect to novelty.

6. *Inventive step*

6.1 The feature that the motor of the end-sealing mechanism is stopped **with gradual deceleration**, upon detection of a deviation of a packaging article, and started **with gradual acceleration**, as soon as no further deviation has been detected is an essential feature of the packaging machine according to Claim 1 of the patent as granted.

As already indicated in the above section 3.3, this feature means that the deceleration and the acceleration of the motor driving the end-sealing mechanism is controlled to be gradual. In other words, the claimed packaging machine allows the degree of smoothness in the motion of the motor when it is decelerated or accelerated to be set. This results in the avoidance of vibrations and shocks when the motor is stopped upon detection of a deviation and when it is re-started. Moreover, since the degree of smoothness in the deceleration and acceleration can be set, the machine can easily be adapted to different working conditions (e.g. to different cut lengths).

6.2 In a first attack against Claim 1, the respondent considered document E3 as disclosing the closest prior art. The arguments of the respondent can be

summarized as follows:

In the machine according to document E3, the jaws forming the end-sealing mechanism have to be stopped in their open position, i.e. in a position where they allow the passage of a "deviating" article. Since the end position of jaws depends on the delay, i.e. on the instant at which the deceleration begins, and on the braking force, the jaws can be considered as being stopped with a controlled deceleration. Moreover, when the "deviating" article has been removed, the jaws must re-start with an acceleration which can be considered as being controlled in so far as the speed of the jaws has to be synchronized with that of the packaging material. In the machine according to document E3, the synchronism is maintained by using mechanical linkages, such as drive shafts, clutches and brakes driven by a common drive motor. The mechanical constitution of the machine involves problems with the shock produced when the jaws of the end-sealing mechanism are stopped and has little flexibility, particularly because it needs many mechanical adjustments when the cut length has to be changed.

On the basis of this analysis of document E3, the subject-matter of Claim 1 differs from the machine according to document E3 only in that the drive means of the feeding conveyor, the series of rolls and the end-sealing mechanism are each constituted **by an individual motor.**

Document E1 suggests the use of individual drive motors which are electronically controlled by separate closed-loop controllers receiving commands from a microprocessor. In column 1 (lines 49 to 54) the advantages of machines having microprocessor-based constitution with respect to the flexibility in the change of the cut length are indicated. The skilled person reading document E3 will immediately realize that the use of electronically controlled motors allows the shocks to be minimized. The motor driving the end-sealing mechanism can be considered as being stopped with gradual deceleration and re-started with gradual acceleration, because the jaws have to be stopped in their open position and when re-started have to be synchronized with the speed of the packaging material. Moreover, document E1 teaches that the acceleration of the motors driving the intermediate rolls (finwheel motors) is controlled by a ramp. Therefore, it would be obvious for the skilled person concerned with the problem of modernizing the mechanical machine according to document E3 to apply to this machine the teaching of document E1 and arrive at the claimed subject-matter.

6.2.1 The board cannot accept the analysis of the respondent as a realistic approach.

(i) The present invention concerns a packaging machine provided with a plurality of drive motors which can be individually controlled. At the priority date of the patent, a packaging machine of this type was known from document E1, which was published in 1988, and which represented a technological evolution with respect to a machine having a mechanical constitution, such as the machine known from document E3 which was published in 1983. Thus, it cannot be considered as being obvious that the skilled person, at the priority date of the patent under appeal, although he already knew of a more modern machine (i.e. a machine with a constitution allowing electronic control of individual motors), nevertheless starts from an older machine with a mechanical constitution and then - although he had neglected in a first phase the modern machine in so far as he had chosen the older machine - tries to modernize it in order to arrive at a machine allowing electronic control. This approach of the respondent is guided by the knowledge of the patent under appeal.

(ii) It has to be considered that the differences between the machine according to document E1 and that according to document E3 are not only structural (i.e. individual motors instead of a mechanical linkage) but also functional, in so far as the machine according to document E3 allows the stop of the end-sealing mechanism

without stopping the feeding conveyor, while the machine according to document E1 does not allow it. This functional difference also renders unlikely the combination of the teachings of the two documents.

Moreover, if the skilled person were to start from the machine according to document E3 and were to apply to this machine the teaching of document E1, this would imply an extensive modification of the mechanical entity, which raises the question as to why the machine according to document E3 has been chosen as a starting point for a further development.

- (iii) In any case, the analysis of documents E3 and E1 made by the respondent is based upon an interpretation of the features concerning the "gradual deceleration and acceleration" of the end-sealing mechanism which does not correspond to the technical meaning which has to be given to these features in the context of the present patent (see the comments in the above sections 3.3 and 6.1).

Document E3 discloses an end-sealing mechanism which is stopped in a predetermined position (i.e. in the open position of the jaws) and is re-started in order to synchronize the jaws with the speed of the incoming articles. When the jaws are stopped, there is a **position control** which does not necessarily imply a control of the gradualness in the deceleration phase of the jaws (i.e. a control of the

smoothness in the motion of the jaws when they are decelerated). In other words, the jaws can be stopped in the predetermined position without controlling their deceleration but only on the basis of the time necessary for the deceleration. The same applies for the phase of re-starting of the jaws: the synchronism speed can be arrived at without controlling **how** the motor accelerates.

The same considerations apply to document E1. The fact that the end-sealing mechanism of the machine known from this document is driven by an individually controlled servo-motor does not imply a gradual deceleration or acceleration in the meaning of the present patent. Moreover, the indication that a ramp is called to control the orderly acceleration of the finwheel motors (see column 8, lines 24 and 25), firstly, does not refer to the motion of the end-sealing mechanism, and secondly, does not necessarily imply that the degree of smoothness in the motion of the finwheel motors when they are accelerated can be varied.

Thus, the subject-matter of Claim 1 differs from the machine according to document E3 not only in that the drive means of the feeding conveyor, the series of rolls and the end-sealing mechanism are each constituted **by an individual motor** but also in that the motor of the end-sealing mechanism is stopped **with gradual deceleration** and started **with gradual acceleration**.

Since the features concerning the gradual

acceleration and deceleration are neither suggested by E3 nor disclosed in E1, the skilled person, even if the teachings of these documents were to be combined, would not arrive at the claimed subject-matter.

6.3 In a further attack against Claim 1, the respondent considered the packaging machine according to document E2 as being the starting point and argued as follows:

The claimed subject-matter differs from this machine only in that the motor driving the end-sealing means is re-started as soon as no further deviation of the next packaging article has been detected, because document E2 does not show when the end-sealing mechanism is started. The respondent also argued that, having regard to document E3, this difference would not imply an inventive step.

In the machine described in document E2, the jaws can be stopped and started with controlled deceleration or acceleration because they can be controlled by the microprocessor with superimposed constant and sinusoidal velocity. Moreover, since the drive motors of this machine are individually controlled by a servo-system, the stop (or the start) of these motor is made with gradual deceleration (or acceleration). According to the respondent, this document also discloses in an implicit manner a deviation detecting sensor as defined in the present patent.

6.3.1 Also these considerations of the respondent cannot

succeed because they are clearly based on an ex post facto analysis of document E2.

- (i) This document does not explicitly disclose any inclusion-proofing device for an end-sealing mechanism. The statement on page 2 (lines 31 to 33) according to which "the microprocessor can instruct any drive to stop, for instance if it is desired to miss-out crimps, or to cater for missing pack contents" represents a general information which does not disclose unequivocally an inclusion-proofing device comprising a "deviation detector".
- (ii) Even if the machine were to be considered as being provided with an inclusion-proofing device for the end-sealing mechanism, neither document E2 nor document E5, which also refers to a machine called "FLOWTRONIC", disclose how such an inclusion-proofing device works.
- (iii) In any case, having regard to the findings in the above sections 3.3 and 6.1, the fact that the jaws are controlled during their normal operation with superimposed constant and sinusoidal velocity does not imply that they are stopped **with gradual deceleration** upon detection of a deviation and re-started **with gradual acceleration** as soon as no deviation is detected, in order to control the degree of smoothness in the motion of the motor.

Thus, having also regard to the comments in the above

section 6.2.1(iii), document E2, alone or in combination with other cited documents, would not lead the skilled person to the claimed subject-matter in an obvious way.

6.4 Therefore, the board comes to the conclusion that the subject-matter of the independent Claim 1 of the patent as granted involves an inventive step as required by Article 56 EPC.

7. During the appeal proceedings the respondent no longer based its arguments upon the ground for opposition according to Article 100(b) EPC. In any case, this ground - having also regard to the comments in the above section 3.3 - would not prejudice the maintenance of the patent as granted.

8. The patent is therefore to be maintained unamended.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The patent is maintained unamended.

The Registrar:

The Chairman:

N. Maslin

C. Andries