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D E C I S I O N
of 15 June 2001

Case Number: T 0510/00 - 3.2.5

Application Number: 95931973.2

Publication Number: WO 96/08357

IPC: B29C 51/44

Language of the proceedings: EN

Title of invention:
Thermoforming apparatus for thermoformable materials in ribbon or sheet-form

Applicant:
ISAP OMV GROUP SPA

Opponent:
-

Headword:
-

Relevant legal provisions:
EPC Art. 54, 56

Keyword:
"Novelty (yes)"
"Inventive step (yes)"

Decisions cited:
-

Catchword:
-

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Case Number: T 0510/00 - 3.2.5

D E C I S I O N
of the Technical Board of Appeal 3.2.5
of 15 June 2001

Appellant: ISAP OMV GROUP SPA
Parona
IT-37025 Verona (IT)

Representative: Ede, Eric
Fitzpatricks
4 West Regent Street
Glasgow G2 1RS (GB)

Decision under appeal: **Decision of the Examining Division of the European Patent Office posted 13 September 1999 refusing European patent application No. 95 931 973.2 pursuant to Article 97(1) EPC.**

Composition of the Board:

Chairman: W. Moser
Members: W. R. Zellhuber
A. Burkhart

Summary of Facts and Submissions

I. The appellant (applicant) lodged an appeal against the decision of the Examining Division refusing application No. 95931973.2.

II. The Examining Division held that the subject-matter of the claims on which the decision under appeal was based did not involve an inventive step having regard to the prior art as disclosed in documents

D1: GB-A 2 263 660 and

D2: DE-A 39 28 301.

III. In a communication of 2 November 2000, the Board of Appeal made reference to the following document cited in the International Search Report:

D3: WO-A 94/15863

which, according to a preliminary opinion of the Board, appeared to destroy novelty of the subject-matter of claim 1 on which the decision under appeal was based.

IV. The appellant requested that the decision under appeal be set aside and that a patent be granted on the basis of amended claims 1 to 24 received on 26 March 2001.

V. Independent claim 1 reads as follows:

"1. A thermoforming apparatus comprising

- a thermoforming machine (10) fitted with at least one female die (12) and counter-die or

male die (13) reciprocally approachable and removable for the operations of closing, thermoforming and opening, a feeder appropriate for feeding thermoforming material in ribbon or plate (14) from between each female die (12) and counter-die (13),

- cutting means associated with the die and counter-die for cutting the ribbon or plate material, immediately after the closure of the die (12) and counter-die (13),

- at least one work or treatment station for articles (15) thermoformed in the or each die (12) or counter-die (13),

- extraction pick-up means (16) designed to withdraw a thermoformed article from the female die (12) and transfer it to a receiving conveying template (17) which has the same seating configuration as that of the female die (12) and is arranged to move the thermoformed articles (15) past at least one work or treatment station,

- characterised in that retention means are provided in said receiving conveying template to constrain articles in position against undesired movement therein, wherein said retention means are adapted to engage an article such that the article is constrained in a desired position."

VI. The appellant argued as follows:

Document D1 disclosed a thermoforming apparatus

according to the preamble of claim 1. However, document D1 only disclosed the template conveyor means into which thermoformed articles were inserted after extraction from the female mould. The articles, once inserted into the templates, were held only by their own weight. Thus, they were not securely retained against undesirable movement.

Document D2 disclosed a pick-up plate for withdrawing a thermoformed article from a combined moulding/die-cutting tool of a thermoforming machine. After insertion of the plate into the mould, the thermoformed articles were pushed into openings of the plate and over a retaining stud. However, these means still allowed some degree of freedom of movement of the moulded article and, thus, did not retain the articles against any undesired movement.

Consequently, the prior art did not suggest an apparatus according to the present invention.

Reasons for the Decision

1. *Novelty*

The subject-matter of claim 1 is novel, because none of documents cited above or in the Search Report discloses a thermoforming apparatus comprising pick-up means and a receiving conveying template wherein the template is provided with retention means adapted to engage the articles such that the article is constrained in a desired position.

2. *Inventive step*

2.1 The closest prior art is represented by an apparatus as disclosed in document D1. The apparatus comprises pick-up means designed to withdraw a thermoformed article from a female die and to transfer it to a receiving conveying template which has the same seating configuration as that of the female die and is arranged to move the thermoformed article past a work or treatment station.

The problem underlying the application in suit may be seen in providing an apparatus wherein the articles are rapidly and securely extracted and transferred from the dies to the work stations.

This problem is solved by an apparatus as disclosed in claim 1, in particular in that retention means are provided in the receiving conveying template which are adapted to engage an article such that the article is constrained in a desired position.

2.2 This solution is not suggested by the available prior art:

2.2.1 Document D1 describes an apparatus wherein a suction plate is used as pick-up means and the templates are plates provided with openings into which the articles are inserted.

Documents D2 and D3 disclose means for withdrawing thermoformed articles from a female mould of a thermoforming machine. In order to overcome the drawbacks of the conventionally used suction plate for picking up the moulded articles from the female die, pick-up means provided with mechanically operating retention means are suggested. Thus, articles

comprising perforations or which do not have a flat upper edge can be picked up from the female die.

2.2.2 The available prior art does not mention any problems arising from and during the transfer of the articles from pick-up means to work stations.

Furthermore, neither document D2 nor document D3 suggests an apparatus wherein conveying templates are used for the transport of moulded articles from pick-up means to work stations. Accordingly, they do not suggest any specific means or measures for securing the articles on such templates.

2.2.3 Moreover, as the pick-up means disclosed in documents D2 and D3 replace the conventionally used suction plate which is inserted between the two halves of the mould to pick up the moulded articles from the female die, the retention means of these pick-up means are designed to grip and hold the articles from above in order to extract them from the female die.

In the apparatus according to the present invention, the articles are transferred from pick-up means to conveying templates which have the same seating configuration as that of the female die. Accordingly, any retention means in the templates have to be designed to hold the articles which, here, are inserted from above into respective openings of the template.

Accordingly, the retention means disclosed in documents D2 and D3, which may be suitable for being used in pick-up means, are not necessarily suitable for being used in such conveying templates.

2.2.4 To sum up, the available prior art does not suggest an apparatus wherein the templates used for the transfer of the moulded articles from pick-up means to work stations are provided with retention means in order to constrain the articles in a desired position during their transfer from pick-up means to work stations.

2.2.5 The other documents cited in the Search Report are of less relevance than the above mentioned documents.

3. Therefore, the subject-matter of claim 1 according to the single request is novel and involves an inventive step within the meaning respectively of Articles 54 and 56 EPC, with regard to the cited prior art.

The subject-matter of claims 2 to 24 which are appendant to this claim 1 similarly is novel and involves an inventive step.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The case is remitted to the first instance with the order to grant a patent in the following version:

Description: Pages 8 and 13 of the application as filed;
pages 5, 6, 7, 9, 10 and 12 received on 5 March 2001;
pages 1 to 4 and 11 received on 14 June

2001.

Claims: 1 to 24 received on 26 March 2001.

Drawings: Sheets 1/8 to 8/8 received on 5 March 2001.

The Registrar: The Chairman:

M. Dainese W. Moser