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Case Number: T 106 / 84

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**DECISION**  
**of the Technical Board of Appeal 3.2.1**  
**of 25 February 1985**

**Appellant:** Michaelsen, Ole, Voldby  
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DK - 8700 Horsens (DK)

**Representative:** Coleman, Stanley  
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**Decision under appeal:** Decision of Examining Division 080 of the European Patent  
Office dated 2 November 1983 refusing European patent  
application No 81 901 154.5 pursuant to Article 97(1)  
EPC

**Composition of the Board:**

Chairman: G. Andersson  
Member: M. Huttner  
Member: P. Ford

SUMMARY OF FACTS AND SUBMISSIONS

- I. European Patent Application No. 81 901 154.5 filed on 15 April 1981 as an international application PCT/DK 81/00040 claiming priority from a national Danish application of 16 April 1980 and published under the International Publication No. WO 81/03005 was refused by a decision of Examining Division 080 dated 2 November 1983. The decision was based on Claims 1 to 3 received on 29 July 1983 which are identical to Claims 1 to 3 as originally filed.

The reason given for the refusal was that in view of the prior art documents DE-A-1 778 394 and GB-A-1 562 610, the subject matter of Claim 1 did not involve an inventive step within the meaning of Article 56 EPC and was thus not allowable under Article 52(1) EPC.

- II. On 30 December 1983, the appellant lodged an appeal against this decision by telex and paid the appeal fee the same day. He subsequently confirmed the contents by letter received on 2 January 1984 and submitted the statement of grounds on 1 March 1984.

The appellant argued that the improved packing machine for wrapping up goods in a plastic foil taken off from a foil supply as defined in Claim 1 could not be deduced from anything disclosed in the prior art in view of the fact that the latter fails to deal with the problem of entirely clean cutting of a plastic foil without the formation of detrimental waste.

III. As a result of objections raised by the Board of Appeal in a communication to the appellant, the latter submitted on 2 November 1984 a new set of Claims 1-3 together with a revised introductory portion of the description, requesting that the impugned decision be set aside and that a European Patent be granted on the basis of these amended documents.

Claim 1 reads as follows:

A packing machine such as a packing table for wrapping up goods in a plastics foil taken off from a supply, and where provision is made of a heatable tear-off edge in the form of a heating rod having a heating body and temperature control means for separating from the supply, by thermal action on the foil, a piece of foil to be used for the wrapping, characterised in that the temperature control means are provided by the heating body proper including PTC-elements forming it or being inserted thereinto.

- IV. Moreover, the appellant also requested the reimbursement of the appeal fee under Rule 67 EPC.
- V. For the original claims, description and drawings reference should be made to publication No. WO 81/03005.

#### REASONS FOR THE DECISION

1. The appeal complies with Articles 106 and 108 EPC and Rule 64 EPC and is therefore admissible.
2. In the Board's view no objection may be raised to the preamble of Claim 1 acknowledging as known a packing

machine such as a packing table for wrapping up goods in a plastic foil taken from a supply and where provision is made of a heatable tear-off edge in the form of a heating rod having a heating body and temperature control means for separating from the supply, by thermal action on the foil, a piece of foil to be used for the wrapping.

These features are, in combination, part of the most pertinent state of the art, therefore Rule 29(1)(a) EPC is complied with.

Those features that are stated in the characterising portion of Claim 1 differ from the prior art referred to above with respect to the salient features which the appellant desires to protect, thus Rule 29(1) (b) EPC is complied with. Compared with the wording of Claim 1, on which the decision is based, the effective Claim 1 merely comprises the added feature of temperature-control means being provided by the heating body proper. This feature may be derived from the description, page 4, last paragraph, according to which the PTC elements affording the temperature control are forming or inserted into the heating rod. Therefore the subject matter of Claim 1 does not extend beyond the content of the application as filed as required by Article 123(2) EPC.

The introductory portion of the description contains a proper acknowledgement of the pertinent background art and states the advantageous effects of the invention with respect to that art and thus complies with Rule 27(1)(d) EPC.

Consequently, the application is also formally in conformity with the requirements of the Convention.

3. The examination as to whether a device according to Claim 1 is disclosed in any of the documents uncovered by the search report leads to the conclusion that the subject matter of Claim 1 is novel having regard to the state of the art, due to the fact that they all fail to disclose a heating body including PTC elements and serving as a tear-off edge for plastic foil.
4. In the apparatus of the same kind known from DE-A-1 778 394, a heatable tear-off edge is provided for separating a piece of plastic foil to be used for the wrapping of individual food articles. The edge is formed by a resistance heating wire whose maintenance of the desired temperature is very critical and the stabilisation of which, according to the appellant, is extremely difficult to achieve even when sophisticated and sensitive control circuits with quick acting temperature sensors are added. This is due to the frequent cooling and reheating at variable intervals occurring each time the plastic foil is cut with too low or too high temperatures compared with the desired temperature to be established. This may lead to either insufficient cutting or decomposition by combustion of the plastic material, the latter entailing the production of injurious fumes harmful to the operator's health and ashes liable to contaminate the food articles to be packed. The appellant considers this as disadvantageous.
5. Therefore, the technical problem to be solved underlying the present application resides in the provision of a simple, robust package table construction, which

can stand rough treatment and prevent effectively the formation of injurious gases or vapours when plastic foil lengths are cut or torn off by thermal action thereon and provides clean cutting while avoiding contamination of food articles to be wrapped.

6. The solution of this problem is based on the idea of making use of the known temperature self-limiting phenomenon of PTC resistors for accurately maintaining a predetermined critical cutting temperature for the plastic foil at the tear-off edge in order to avoid detrimental thermal action during separation of the foil length.

According to the application, this is done by providing the tear-off edge with one or more PTC resistance elements as stated in the characterising clause of Claim 1.

7. It remains to be examined whether the subject matter of Claim 1 involves an inventive step and the question now arises whether the publications cited would give the skilled person any indication how the heating element of the known packing machine and provided with temperature control circuitry could be modified to avoid the drawbacks pointed out above.
8. After the drawbacks caused by the thermal action on the foil, due to temperature deviations that had been recognised, the machine known from DE-A-1 778 394, as is pointed out in the application, had already been improved by the control circuitry deemed necessary to cope with the problem of accurately maintaining the critical temperature of the heat wire. It is well known in the art that such control circuits are complicated,

expensive and need service regularly and are prone to developing defects and thus are unreliable.

- 8.1 The contention of the Examining Division was that with the device disclosed by GB-A-1 562 610 a determined temperature would also be required and, therefore, the problem solved by the use of PTC elements would be similar to that of the application. However, according to the appellant, this cannot be sustained because this piece of prior art deals with the problem of improving the heat dissipation in a heating element enclosed in a casing and insulated by a liquid surrounding the heating element. Furthermore, it particularly teaches the use of PTC heating elements in personal beauty kits such as hair curlers, on the one hand, and household goods, such as coffee makers, hot plates, flat irons, immersion heaters etc., on the other hand.

In all of these applications, the problem of stringent temperature control would not arise, because the temperatures to be produced by those PTC elements are by no means critical and they do not need to be kept within a very small range as is imperative with the inventive device in order to achieve the fume and ash free cutting of the plastic film material.

Hence, the object of this non-analogous prior art is totally different from that of the invention and it ought to be recognised that in the absence of a cutting edge, the solutions likewise are different.

- 8.2 It must be noted that we are dealing in the instant case with the issue of protection of a well known heat-

ing element applied for a new purpose.

The yardstick for measuring the inventive step applied to such uses must therefore go beyond the mere appreciation of such different use. Therefore, the Board invited the appellant to put forward evidence why a specialist having knowledge of electrical heating equipment, who is the person skilled in the art to be called upon to solve the problem at hand, would not think of replacing the conventional heating elements by PTC elements in order to avoid the recognised shortcomings, even though he was aware of the temperature self-limiting characteristics and the expected advantages resulting therefrom and no unsurmountable difficulties could be envisaged if they were to be used in heaters for cutting edges in packing machines. This awareness would indicate that the choice made was clear and would have to be assessed as obvious, as the Examining Division has done. In such a case, it is relevant to consider whether there are any valid secondary considerations tending to displace the prima facie assessment of obviousness. If there are no such considerations the patent application would have to be refused. Otherwise, there would be the constant danger of blockage of normal daily progress of technological development work where combinations of known components are put together to achieve the result envisaged by the designer. Routine development work ought not to be hampered by the protection the patent law provides.

Consequently, the appellant basically relied on such secondary considerations and presented several.



8.3 The appellant asserted thorough attempts by others to solve the problem in the course of several years prior to the filing date and corroborated this by referring to US-A-3 754 489 (Carver, filed 1971), U-A-3 947 656 (Lodi, filed 1974) and US-A-4 014 229 (Lynch, filed 1975). Carver provided the cut-off element with a substantial mass thus providing a heat sink in an attempt to maintain a substantially lowered temperature constant during severing. Lynch tried to improve performance by a thermostat control to obtain clean severance of a plastic film at a still lower temperature of 240-260°F. Lody, on the other hand, made use of a thermistor as a sensor with a particular electric circuit as temperature control means. These attempts clearly show that the specialist in the field of plastic foil cutting equipment chose to improve control by refining and complicating the temperature control means, which as the appellant persuasively pointed out, made packing machines increasingly complicated and expensive as time went on. They did in fact not yield the optimum solution to the problem involved.

The cited documents do indicate that, although the PTC elements and their characteristics were commonly known and they had been used in other fields, the packing machine industry nevertheless adhered to additional control means separate from the heating means proper, and concentrated on efforts for improving the control means. Consequently, development led away from the use of PTC elements for heating a cutting edge. What was needed was a sharp change of direction in the art and that is what the present invention has provided through the appreciation of the feasibility of using PTC-elements for the novel purpose of cutting.

8.4 The appellant further produced evidence as to one important and surprising advantage produced by the machine made according to the invention and supplied to a user by the appellant's company. In a letter to the appellant's company, one of their customers, Safeway Supermarket GmbH, confirmed that the conventional heating elements had shown the tendency of developing residue deposits thereon, increasing with operating time, a drawback which unexpectedly did not occur with the heating devices including PTC elements according to the invention. Thus the Board has no reason to query the appellant's statement that none of the specialists in the field could have possibly foreseen this significant advantage, thus the presence of an unexpected advantage has been established.

8.5 The letter of Safeway further clearly reveals the fact that the machine proved to be the best out of a number of different ones tested over a considerable period of time and the customer declares that he was completely satisfied with the product he obtained from the appellant's company.

The appellant's assertion that the commercial success his device enjoys is merely based on the superior performance of the product related to the features claimed rather than extraordinary sales promotion efforts must be considered in the light of the fact that the appellant's company is rather small, for which reason it is conceivable that it cannot afford to indulge in major sales campaigns and sophisticated marketing techniques. Thus, the Board is prepared to accept in this case that the commercial success stems from the technical advantages related to the features claimed.

8.6 Furthermore, the appellant has contended that an existing great human need has been met by the packing machine according to the invention. Such need existed for a long time prior to the filing date of the application, since the article on "Meat-wrappers Asthma: A case Study," published in Journal of Occupational Medicine, Vol. 18, No. 2, February 1976, clearly shows that the respiratory illness experienced with workers on a packing line has been associated with exposure to fumes emitted for the first time in the first half of 1972. This has been corroborated by the reference to the documents dealt with in paragraph 8.3. Hence, it can be regarded as established that from then on a significant occupational health problem existed in packing plants. In view of the fact that problems having to do with health of people are always sought to be solved as quickly as possible, the period of seven years until the inventor came along with his invention, constitutes, in the opinion of the Board, a time long enough for the problem to be regarded as one of long standing.

8.7 Without question, the appellant has been successful in achieving the utmost simplicity with the self regulating heating edge proposed by doing away with the conventional ohmic resistance heating combined with the complicated control circuitry hitherto deemed essential in the foil cutting art. Achieving simplicity without the sacrifice of quality is indicative of greater rather than lesser inventive accomplishment, even though in engineering simplification represents a particular and incessant endeavour. In fact, experience in engineering shows that it is by far much more difficult to develop a simple solution than a complicated one

effecting the same result. This is even more so when a superior result ought to be obtained. Unfortunately, there is a danger that this will be disregarded in the appraisal of non-obviousness of simpler solutions and the statement in hindsight that such solution is so simple that anyone confronted with the problem could easily have thought of it is, indeed, the foundation of many decisions destroying applications or patents for lack of "inventive step", even when persons with practical experience in the related industry recognise that it is very surprising that no one had ever hit upon the simple solution before.

Moreover, in the present case, simplification has been accompanied with an improvement of the heating rod performance, in that it adjusts itself rapidly to the very exact temperature specified by the foil manufacturer after cooling down by the cutting operation or an idling period during which the temperature increase has taken place. Therefore, the achievement of simplicity with concomittant improved quality of performance must be considered as an indication of non-obviousness.

- 8.8 The Examining Division argued that the appellant's stressing of the temperature accuracy requirements of the inventive device as by far exceeding those of other known devices, was not sufficiently persuasive since the contents of the application would fail to provide any reliable basis of the meaning of the "very small range of temperature" which the PTC-elements can maintain. In the opinion of the Board, this, however, is not the fact. Even though the appellant's disclosure lacks specifically defined limits of the range of tem-

peratures to be maintained, the description nevertheless states on page 5 that the temperature should be such that the plastic material ought not to be burnt but rather decomposed. Since this precise temperature is determined by thermal properties of the plastic foil material, the skilled person may readily gather that it must be maintained as closely as possible. Consequently, only a minimum deviation is tolerable.

9. The Board's view, therefore, is that the subject matter of Claim 1 would not be obvious from either citation taken singly or together relied on by the Decision of the Examining Division. Hence, the required inventive step is not lacking and Article 56 EPC is fulfilled. Claim 1 is therefore allowable having regard to Article 52(1) EPC.
10. The dependent Claims 2 and 3, having as subject matter special embodiments of the invention as claimed in the independent Claim 1 on which the ultimately depend, are also allowable, since their acceptance is contingent on the allowability of Claim 1, which has to be approved.
11. The appellant has shown no cause for the requested reimbursement of appeal fee. The Board cannot find a substantial procedural violation by reason of which the reimbursement would be equitable.

#### ORDER

For these reasons, it is decided that:

1. The decision of the Examining Division 080 of the European Patent Office dated 2 November 1983 is set

aside.

2. The application is remitted to the first instance with the order to grant a European patent on the basis of the following documents:

- Claims 1 to 3 and
- description, pages 1, 2 and 2a, as received on 2 November 1984
- pages 3 to 6 and drawing sheet 1/1 as originally filed.

3. The request for reimbursement of the appeal fee is refused.

The Registrar:

The Chairman:

B A Norman

G. Andersson