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Case Number: T 18 3 / 82

T 191 bis

DECISION
of the Technical Board of Appeal 3.2.1
of 11 October 1984

Appellant: The D.L. Auld Company
1209 North Fifth Street
Columbus Ohio 43201 (US)

Representative: Baron & Warren
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Decision under appeal: Decision of Examining Division 093
Office dated 12.07.1982
application No 79 300 786.5
EPC
of the European Patent
refusing European patent
pursuant to Article 97(1)

Composition of the Board:

Chairman: G. Andersson
Member: P. Ford
Member: K. Schügerl

Summary of facts and submissions

- I. European patent application No. 79 300 786.5 filed on 8 May 1979 and published on 14 November 1979 (publication number 0 005 376), was refused by decision of the Examining Division 093 dated 12 July 1982. The decision was based on a set of claims, received on 14 April 1981, consisting of two independent claims 1 and 9 and of claims 2 to 8 dependent from claim 1, claim 1 being amended according to the applicant's request received on 26 February 1982.
- II. The stated ground for the refusal was that the subject matter of claims 1 and 2 were not based on inventive step, having regard to the following documents:
- (1) US-A-4 034 708
 - (2) DE-A-2 738 749
 - (3) US-A-3 725 912
 - (4) US-A-3 431 889
- and having further regard to the fact that no information was given as to how a certain integer of the claimed method would produce the desired effect (the convex shape), so that also this integer was a mere selection open to any practitioner.
- III. Against this decision, the applicant lodged an appeal. The appeal fee and the statement of Grounds were received in due time.

IV. In the course of the written procedure before the Board objection was raised under Article 84 and 83 EPC. With respect to the convex shape, the claims 1 and 9 were not clear and not supported by the description; the description did not disclose the invention sufficiently clearly for it to be carried out by a person skilled in the art.

V. Finally, the appellant submitted, on invitation of the rapporteur, new pages 1-14 of the description and a new page 1 of the claims as amendments. The independent claims 1 and 9 now on file are worded as follows:

"1. A method of producing decorative emblems or plaques comprising flow-coating a clear, viscous, fluent plastic on to the top surface of a decorated foil substrate (12) while the substrate is held flat and horizontal on a support surface (14), and allowing or causing the fluent plastic coating to cure while maintaining the substrate flat and horizontal to bond the said coating to the substrate, characterised in that said top surface of the substrate (12) has a series of designs (82) and is flow-coated with the clear fluent plastic by means of multiple orifices (61,62) which are passed over the top decorative surface of the substrate (12) at a steady speed to produce a uniform thickness coating of approximately 0.508 to 0.762 mm thick which does not overflow the edges of the substrate, and in that individual emblems or plaques are stamped out of the substrate having the cured plastic coating (84) thereon by application of a cutting die to the bottom surface of the substrate so as to cut contiguous with the shape of each individual design (82) of the series of designs and to impart a slightly convex shape to the top surface of each said emblem or plaque".

"9. A method of producing decorative emblems comprising flow-coating a clear, viscous, fluent plastic on to the top surface of a decorated foil substrate (12) while the substrate is held flat and horizontal on a support surface (14), and allowing or causing the fluent plastic coating to cure while maintaining the substrate flat and horizontal to bond the said coating to the substrate, characterised by the steps of

(a) priming the top surface of an approximately 0.0762 to 0.508 mm thick aluminium foil sheet (12) having a top surface and a bottom surface,

(b) silk-screen printing and embossing said top surface to form a series of individual decorative emblem shapes (82) thereon,

(c) allowing or causing the decorations to set prior to placing the bottom surface of said aluminium foil sheet on top of a vacuum mat (45) on a horizontal vacuum table (35),

(d) applying a vacuum draw to said bottom surface of said aluminium foil sheet through the vacuum mat (45) to hold said aluminium foil sheet flat and horizontal,

(e) flow-coating a clear viscous polyurethane in liquid form onto said top surface of said aluminium foil sheet by passing multiple orifices (61,62) over said top surface at a steady speed as said aluminium foil sheet is held stationary and constantly ejecting liquid polyurethane from each of said orifices during the passage so that said liquid polyurethane flows to the edges of the aluminium foil sheet without flowing over said edges and forms a uniform coating of approximately 0.508 to 0.762 mm thick on said top surface,

(f) heating the coated aluminium foil sheet under infrared lamps (23) while said aluminium foil sheet is maintained flat and horizontal to cure said liquid polyurethane,

(g) cooling and removing the coated aluminium foil sheet from said vacuum mat, and

(h) stamping individual emblems from said aluminium foil sheet by application of a cutting die contiguous with each of said emblem shapes to the bottom surface of said aluminium foil sheet so that each emblem has a convex shape when viewed from said top surface".

Reasons for the Decision

1. The appeal complies with Articles 106 to 108 and with Rule 64 EPC; it is, therefore allowable.
2. The description and the claims now on file do not contain subject-matter which extends beyond the content of the application as filed. The amendments thus meet the requirements of Article 123(2) EPC.
3. Regarding the feature "to impart a slightly convex shape to the top surface of each emblem or plaque", the Board has the following comments:

The application offers no further explanation as to how the convex shape is brought about. When studying the description, the skilled person is therefore left to his professional knowledge. Thus, enquiries have to be made about the extent of this professional knowledge.

The appellant has referred to the "Tool and Manufacturing Engineers Handbook", McGraw Hill Book Company, 1976.

From pages 15-2 to 15-5 and 15-17 to 15-29, the skilled person learns that:

(a) almost all cold-worked materials exhibit residual stresses, causing warping of the products,

(b) a number of factors affects the distortion in the special case of cutting and shearing and that

(c) in order to obtain a "part features identical to the condition of the material being fed to the die", a special, rather expensive technique ("fine blanking") has to be applied, using very close tolerances of the dies and a counterpunch.

4. As further references, the applicant submitted a number of pages from "Eary and Reed, Techniques of Pressworking Sheet Metal" and from "Sachs, Principles and Methods of Sheet Metal fabricating". Indeed, the appellant stated in its letter to the Board received 17 August 1983, the years 1951 and 1953 respectively as years of publication, but did not submit any explicit proof for it. The Board, therefore, could not base its decision on the two last-named documents. The first-named publication can be regarded as a sufficient indication of the relevant knowledge of the practitioner.

5. Incidentally, this state of the practitioner's professional knowledge is corroborated by a document, published before the priority date of the application, which has been found by the Board of its own motion. The publication Tschätsch, "Taschenbuch der Umformtechnik", München-Wien 1977 shows on page 153, fig. 180 the deformations occurring during a die-cutting operation, fully corresponding to the information to be gathered from the first-mentioned "Tool and Manufacturing Engineers Handbook".
6. There is an additional aspect to be considered: claim 1 as rejected was directed to the production of "emblems, plaques and panels". As to the production of panels which have, in general, rather large dimensions, it would be difficult to see, even when taking the above clarifications into account, how the desired convex shape can be produced. By limiting the method to the production of "emblems or plaques" (claim 1 now on file), this deficiency has been eliminated.
7. To sum up, the features in question, interpreted from the background of the professional knowledge, instruct the skilled man first, to accept the known deviations from perfect flatness not as a disadvantage but as an integral part of the invention, secondly, consequently, not to make use of the known counter-measures against such deviations, and, thirdly, if necessary, to apply the known means, for example, an increase in clearance of the dies, to obtain the desired result. The characteristics "to impart a slightly convex shape to the top surface of each said emblem or plaque" in claim 1 and the corresponding feature" so that each emblem has a convex shape when viewed from said top surface" have to

- be interpreted therefore as an indication of the desired result and also as a limitation which excludes certain ways of carrying out the cutting procedure, not yielding this result. In view of the clarifications forwarded in the appeal procedure and in view of the limitation of claim 1 to "emblems or plaques", the claims 1 and 9 and also the application as a whole can be regarded as complying with Articles 83 and 84 EPC.
8. US-A-4 034 708 (and the corresponding DE-A-2 738 749) discloses a production method comprising the following steps:
 - (a) a plurality of designs is applied to a large substrate; (2) the design positions of the substrate are embossed; (3) the large substrate is adhesively connected to a release sheet; (4) the individual emblems are severed from the remaining substrate by a kiss-cut operation from the design side of the substrate without affecting the release sheet; (5) the remaining substrate is peeled off from the adhesive sheet and (6) the emblems are individually covered with the plastic layer.
 9. The Examining Division held in its decision that the skilled person, by combining the teachings of the before-mentioned documents with the disclosure of US-A-3 725 112, could arrive at the claimed method. In this respect, it has first to be remembered that the flow-coating process is clearly state of the art, as witnessed also by US-A-3 431 889 and duly acknowledged already in the original application page 2, line 30, and in the precharacterising parts of the independent claims.

US-A-3 725 112 is concerned with a display device, consisting of a substrate, a decorative layer adherent to the substrate and a transparent epoxy coating. This coating may be applied by the known flow-coating process. No cutting operation is involved in the production method; the display device is produced as a single piece, substrate, decorative layer and coating being in the main co-extensive.

10. The teaching of the last named US-document goes beyond the general state of the art only insofar as it discloses the covering of a display device by the known flow-coating process, an application which is plainly self-evident indeed. However, neither this document nor any other of the cited publications show the flow-coating of a relatively large substrate, bearing a number of individual designs, so that both the individual designs and the area between these designs are coated with the plastic layer simultaneously and, afterwards, the individual designs with their individual substrates are severed from the remaining part of the substrate.
11. A comparison of this procedure with the steps (1) to (6) of the method according to US-A-4 034 708, enumerated in paragraph 8, yields the following result:

The claimed method starts with step (1); the next step resembles the step (6) insofar as the plastic coating is applied, but to the entire area of the substrate, not to the individual designs; then follows a cutting operation, which corresponds to the step (4) only in that it severs the individual designs with their substrate from the remainder of the substrate; but neither is the cutting operation a kiss-cut procedure - a release sheet

(step (3)) not being used - nor is the substrate cut from the design side, but from the bottom side; further, the cutting operation produces at the same time a slightly convex shape, an effect which could be achieved according to the known method only by the separate embossing procedure (step (2)). Finally, the discarding of the waste material (as self-evident, not mentioned in the claims) can be effected in the usual way, as in sheet metal working, by discarding the cut scrap, whereas the known method needs a rather difficult peeling-off from the release sheet (step (5)).

12. Thus, some of the steps have to be omitted, the remaining steps partly modified and arranged into a new sequence. The reason for it is clear: the known process is tailored to a specific effect, to bring about a lens-like section of the plastic coating, whereas the claimed method represents a basically different approach; an imitation of the lens effect with a plastic covering of constant thickness. Within the new approach, the single steps acquire a new signification, insofar as they contribute toward a new end. In view of the synergistic contribution of the several integers of the new method, it is of little interest whether a single step, taken per se, is entirely or partially known.
13. From the foregoing analysis it follows that due to the different concept and to the different role of the single steps within these concepts, a mere combination of the teachings of US-A-4 034 708 and US-A-3 725 112 is, strictly speaking, impossible. It follows further that US-A-3 725 112 does not provide an incentive for the skilled person to transform by way of simple modifications the method known from US-A-4 034 708 into the claimed procedure. Instead, the known method has to be in the main abandoned in favour of the new concept.

