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# D E C I S I O N
# of 28 May 2002

**Case Number:** T 0262/99 - 3.2.1

**Application Number:** 90200391.2

**Publication Number:** 0421495

**IPC:** B68G 9/00

**Language of the proceedings:** EN

**Title of invention:**
Method and apparatus for assembling innerspring constructions for mattresses, cushions and the like

**Patentee:**
B'LINEA

**Opponents:**
CAUVAL INDUSTRIES/LA COMPAGNIE CONTINENTALE SIMMONS

**Headword:**
-

**Relevant legal provisions:**
EPC Art. 56

**Keyword:**
"Submission of a request at the outset of the oral proceedings (not admissible)"
"Kinematic inversion"
"Development of the art into a different direction"
"Inventive step (yes, second auxiliary request)"

**Decisions cited:**
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**Catchword:**

-

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Beschwerdekammern | Boards of Appeal | Chambres de recours

**Case Number:** T 0262/99 - 3.2.1

# D E C I S I O N
## of the Technical Board of Appeal 3.2.1
## of 28 May 2002

**Appellants:** (Opponents)
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LA COMPAGNIE CONTINENTALE SIMMONS
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**Decision under appeal:** **Decision of the Opposition Division of the European Patent Office posted 15 January 1999 rejecting the opposition filed against European patent No. 0 421 495 pursuant to Article 102(2) EPC.**

**Composition of the Board:**

**Chairman:** F. Gumbel
**Members:** M. Ceyte
J. Van Moer

## Summary of Facts and Submissions

I. The Respondent is proprietor of European patent No. 0 421 495 (application No. 90 200 391.2).

II. The patent was opposed by the appellants on the ground of lack of inventive step. The following state of the art was *inter alia* cited:

D1: EP-A-0 154 076

D2: EP-A-0 155 158

D3: JP-A-62 129 960

D4: US-A-3 930 929.

III. In its decision posted on 15 January 1999 the opposition division rejected the opposition.

An appeal against this decision was filed by the opponents on 10 March 1999 with the appeal fee being paid at the same time.

The statement of grounds of appeal was filed on 22 May 1999.

IV. Oral proceedings were held on 28 May 2002.

The appellants (opponents) requested that the decision under appeal be set aside and that the European patent be revoked in its entirety.

The respondent (patentee) requested that the appeal be dismissed and that the patent be maintained as granted

(main request) or, in the alternative, on the basis of the documents according to the first auxiliary request (claim 1 as filed at the oral proceedings, claims 2 to 16, description and drawings as granted) or according to the second auxiliary request (claims 1 to 14, description columns 1 and 2 filed at the oral proceedings, description columns 3 to 9 and drawings as granted).

Claims 1 and 7 as granted (main request) read as follows:

"1. A method for manufacturing an innerspring construction for mattresses, cushions and the like, in which a series of strings (2a, 2b, 2c, etc.) of jackets encasing coil springs (4) which are arranged separately from each other and with their longitudinal axis substantially parallel to each other and substantially perpendicular to the longitudinal direction (39) of these strings (2a, 2b, etc.), are fixed with adhesive (36) side to side, wherein the first string (2b) of a particular number of jackets (3) encasing springs (4) is moved, at least one of the longitudinal sides of the string (2b) running parallel to the axis of the springs (4) being coated with an adhesive (36) the coated side being pushed into contact with the corresponding side of a similar second string of pocketed springs, the cycle of operations being repeated on successive strings until an innerspring construction of desired size is obtained, said method being characterized in that said first string (2b) is moved according to its longitudinal direction and at least one of the longitudinal sides of string (2b) is coated with

an adhesive (36) from a fixed spot."

"7. An apparatus for manufacturing an innerspring construction of mattresses, cushions and the like, comprising strings (2b, 2c, etc.) of pocketed coil springs (4), which are fixed side to side by means of an adhesive (36), wherein said apparatus includes at least :

- a moving means or conveyor (1) for moving a string (2b) of a particular size,

- an applicator (5) for depositing an adhesive (36) onto the string (2b), and

- means (6, 8, 9) for positioning and pushing the coated side of said string against another string (2c), said apparatus being characterized in that said moving means or conveyor (1) are arranged for moving a string (2b) according to its longitudinal direction, while the applicator (5) is fixed facing said conveyor (1) for depositing an adhesive (36) onto the string (2b) moving along on said conveyor (1)."

Claims 1 and 6 according to the second auxiliary request read as follows:

"1. A method for manufacturing an innerspring construction for mattresses, cushions and the like, in which a series of strings (2a,2b,2c, etc.) of jackets encasing coil springs (4) which are arranged separately from each other and with their longitudinal axis substantially parallel to each other and substantially perpendicular to the longitudinal direction (34) of

these strings (2a,2b, etc.) are fixed with adhesive (36) side to side, wherein the first string (2b) of a particular number of jackets (3) encasing springs (4) is moved, at least one of the longitudinal sides of the string (2b) running parallel to the axis of the springs (4) being coated with an adhesive (36) the coated side being brought into contact with the corresponding side of a similar second string of pocketed springs, the cycle of operations being repeated on successive strings until an innerspring construction of desired size is obtained, said method being characterised in that said first string (2b) is moved according to its longitudinal direction and at least one of the longitudinal sides of string (2b) is coated with an adhesive (36) from a fixed spot, wherein the side of a first string (2b) of pocketed springs which should get an adhesive coating (36), is moved to a substantially horizontal position facing up when the adhesive (36) is applied ; the string (2b) is thereafter moved upright, such that the coated side arrives in a vertical position ; the coated side is pushed in a next step into contact with a similar side of another string (2c) of pocketed springs, which was not coated with adhesive ; the cycle of operations being repeated until an innerspring construction of desired size is obtained."

"6. An apparatus for manufacturing an innerspring construction of mattresses, cushions and the like, comprising strings (2b,2c, etc.) of pocketed coil springs (4), which are fixed side to side by means of an adhesive (36), wherein said apparatus includes at least:

- a moving means or conveyor (1) for moving a string

(2b) of a particular size,

- an applicator (5) for depositing an adhesive (36) onto the string (2b), and

- means (6,8,9) for pressing said string against another string (2c),

said apparatus being characterised in that said moving means or conveyor (1) are arranged for moving a string (2b) according to its longitudinal direction, while the applicator (5) is fixed facing said conveyor (1) for depositing an adhesive (36) onto the string (2b) moving along on said conveyor (1), wherein said conveyor (1) is mounted in a horizontal way and wherein said means for pressing a coated string of pocketed springs against a similar string consists of, on the one hand, a topple table (6) substantially parallel to the conveyor (1) which can be tilted from a substantially horizontal to a substantially vertical position around a rotation axis (7) parallel to said conveyor (1) and onto which a string (2b) of jackets (3) encasing each one spring can be slid when lying flat, the rotation axis being mounted at the side of the topple table (6) away from the conveyor (1), and, on the other hand, an assembly platform (8) situated at the same side of the topple table (6) as said rotation axis (7), such that, when the topple table is in vertical position, a string (2b) of pockets encasing springs (4) lying on the table, will be positioned against a similar string (2c) which is on the assembly platform, further means being provided for translating the topple table in vertical position toward the assembly platform (8), thus pushing a string (2b) of pocketed springs coming from the topple table into contact with a similar string (2c)

which had already arrived on the assembly platform (8)."

V. In support of their requests, the appellants made essentially the following submissions:

(i) It is the established jurisprudence of the Boards of appeal that requests not submitted in good time before the oral proceedings need not to be considered unless admitted on the ground that the subject of the proceedings has changed.

The respondent has had ample time and opportunity, i.e. more than 6 years to file amended claims. The first auxiliary request filed at the oral proceedings before the Board must therefore be rejected as inadmissible.

(ii) the same applies to the second auxiliary request submitted in a previous version shortly before the oral proceedings. In any case, the claimed method according the main request and also to this request is not inventive over the opposed prior art.

In the patent in suit, documents D1 or D2 were taken as starting point for the claimed invention. Not only these two citations but also D3 disclose a method and an apparatus of the type stated in the pre-characterising part of claim 1 and in that of claim 6 respectively.

The method disclosed in D3 solves the same technical problem with which the patent in suit is concerned, that is conceiving a method which can

be performed in a continous way. In D3, as the applicator traverses the string to be coated with adhesive, a newly arrived string can be charged on the topple table in order to bring it into contact with the coated string. Thus in this known method, these operations can be made simultaneously, and the output likewise be improved. Therefore the known method according to D3 and that claimed are equivalent to each other with respect to the object to be achieved and it is in the ability of the skilled person to choose between them according to the circumstances.

(iii) In the patent in suit as well as in D3 it is essential to provide one side of a string which extends parallel to the axis of the springs with an adhesive coating. It cannot be seen as inventive to carry out a simple kinematic inversion, viz instead of moving the adhesive applicator, to move the string to be coated relative to a fixed applicator.

It is true that in the claimed method adhesive is applied onto an horizontally moving string and not onto a substantially vertical string. However this distinguishing feature is disclosed in D1 and the further feature that the strings are pushed into contact with each other in the vertical position is known from D3 and is also contained in D2. Accordingly the method according to claim 1 did not involve an inventive step with regard to the prior art according to D1, D2, D3 and common technical knowledge.

(iv) Furthemore, the EPC *inter alia* requires that the

claims must clearly define the subject of the invention, i.e. state all the essential features which are necessary to solve the technical problem underlying the patent in suit. In the present case, neither claim 1 as granted nor claim 1 according to the second auxiliary request state that several steps of the method can be made simultaneously so as to allow it to be performed in a continuous way. These claims which do not state this essential feature do not in this respect satisfy the above requirement and are thus not allowable.

VI. The respondent (patent proprietor) rejected in detail the arguments brought forward by the appellants.

It submitted in particular that the subject-matter of claim 1 as granted (main request) was clearly inventive over the opposed prior art. There was no disclosure whatsoever in this prior art of any not-moving adhesive applicator and nothing there would suggest applying adhesive onto a separate string of pocketed springs before bringing it into contact with the preassembled series of strings. In the opposed prior art the adhesive is systematically deposited onto the last string of the preassembled series of strings. To apply a kinematic inversion as suggested by the appellants would require the whole preassembled part to be moved with respect to the not-moving adhesive applicator. Obviously such method would not be feasible and practical. Thus the skilled person would not have arrived at the claimed invention even if he had combined the teachings of D1, D2 and D3.

## Reasons for the Decision

1. The appeal is admissible.

2. *Main request*

2.1 Novelty

The Board is satisfied that the subject-matter of claim 1 as granted is novel over the opposed prior art documents.

Since this was neither disputed during the opposition nor the appeal proceedings there is no reason for further detailed substantiation of this matter.

2.2 Inventive step

In the patent in suit prior art documents D1 and D2 were taken as the starting point for the claimed invention.

In particular D1 discloses a method for assembling an innerspring construction for mattresses, cushions and the like comprising strings of pocketed coil springs adhesively connected side by side, the springs being arranged separately and substantially parallel to one another with respect to their longitudinal axis but perpendicular to the longitudinal axis of said strings.

The method disclosed therein comprises in essence the following steps:

(i) one side of a first string of pocketed springs which extends parallel to the axis of the springs

is coated with an adhesive,

(ii) the coated side is positioned so as to face the corresponding side of a similar second string of pocketed springs,

(iii) then the coated side is brought into contact with said second string, whereupon the cycle of above steps (i) to (iii) is repeated until an innerspring construction of desired size is obtained.

According to the respondent's submissions a known method of this kind suffers from the drawback that since the adhesive applicator is moved relative to the not-moving string to be coated with adhesive, the method cannot be carried out in a continuous manner because the conveyor system on which the string is placed must repeatedly be stopped and started.

Therefore the technical problem to be solved by the present invention is to provide a method of the type disclosed in D1 which overcomes this disadvantage, i.e. which allows the glueing step to be carried out in a continuous way.

This problem is in essence solved by the following feature stated in the characterising part of claim 1: the string to be coated with adhesive is moved with respect to the not-moving adhesive applicator.

Although it is true that in documents D1 to D3 which relate to a method for assembling an innerspring construction for mattresses, the adhesive applicator is moved with respect to the not-moving string to be

coated, the Board cannot accept that the above sole characterising feature concerning the inversion of the relative movement of the cooperating elements implies an inventive step.

It is generally known that an element to be coated may be moved relatively to a not-moving coating applicator. Reference is made e.g. to D4 where separate elements are moved with the aid of a conveyor under a not-moving applicator. Moreover it is part of the common general knowledge of a practitioner that a desired relative movement of two elements can be achieved by moving either one of the elements and keeping the other fixed. Thus to carry out a simple kinematic inversion, i.e. an inversion of the relative movability of the two cooperating elements, in the present case to move the string to be coated relative to the not-moving applicator is an obvious choice. In doing so, the skilled person would immediately realise that the necessity to repeatedly stop and start the conveyor system on which the string to be coated is placed, is avoided.

It is also true that in the prior art documents D1 to D3, the adhesive is applied onto the last string of the preassembled series of strings, not on the separate string to be assembled as in the invention. In these prior art documents it is immaterial whether adhesive is applied onto the separate string or onto the preassembled part of adhered strings. The only relevant matter is that adhesive is applied between the string to be assembled and the preassembled series of adhered strings.

However in the case of a not-moving adhesive

applicator, either the separate string or the pre-assembled series of the strings could be moved with respect to the fixed adhesive applicator. The skilled person confronted with this alternative would immediately realise that the separate string and not the bulky preassembled part of variable size should be displaced with respect to the not-moving applicator. In other words nothing of inventive significance can be seen in the displacement of the separate string instead of the preassembled part during adhesive deposit.

The respondent argued that all the prior art documents D1, D2 and D3 which relate to the same technical field as the invention consistently teach the same method for applying adhesive, i.e. moving the adhesive applicator relative to the not-moving string. Thus this prior art would demonstrate a technical prejudice against the displacement of the string to be coated during adhesive deposit.

The Board is unable to follow such reasoning. A technical prejudice cannot be demonstrated by the mere fact that three documents of the available prior art disclose a method applying one of two possible alternatives whilst the invention claims the other. Hence, these citations are not sufficient to prove the existence of a technical prejudice which would have hindered the skilled person to perform the obvious kinematic inversion referred to above and the obvious step of moving the string to be assembled instead the preassembled part of adhered strings.

Accordingly the Board comes to the conclusion that the method according to claim 1 lacks an inventive step as required by Article 56 EPC.

The aspects referred to above with respect to the inventive step of the method according to claim 1 apply in turn also to the corresponding device according to claim 6 which therefore also does not involve an inventive step (Article 56 EPC). Consequently the main request must fail.

3. *First auxiliary request*

This request was submitted for the first time during the oral proceedings before the Board.

According to the jurisprudence of the Boards of Appeal it is only in exceptional circumstances, e.g. when the basis of the proceedings has changed due to the filing of a new relevant prior art document at a late stage before the oral proceedings that a request for amendments submitted by the patentee at the outset of oral proceedings will be considered on its merits by a Board of Appeal. In the present case the basis of the proceedings has not changed and therefore the first auxiliary request submitted at the oral proceedings before the Board is to be rejected as inadmissible.

In any event this late filed request is clearly not allowable, given that the apparatus according to independent claim 6 is the same as that according to granted claim 6, which according to point 2 above lacks an inventive step as required by Article 56 EPC.

4. *Second auxiliary request*

4.1 Admissibility

The filing of amendments or auxiliary requests, as pointed out in the "Guidance for parties to appeal proceedings and their representatives", OJ EPO 1996, 342 and in numerous decisions of the Boards of Appeal should be done "as early as possible". However, this guidance goes on as follows (at point 3.3):

"It should be borne in mind that the board concerned may disregard amendments which are ... not submitted in good time prior to oral proceedings (as a rule four weeks before the date set for the oral proceedings)" (emphasis added).

In the present case a request corresponding in substance to the second auxiliary request was filed on 28 April 2002, i.e. more than four weeks before the date set for the oral proceedings and thus according to the criteria from the "Guidance for parties and their representatives" it was filed "in good time" prior to the oral proceedings.

Furthermore amended claim 1 results from the combination of granted claims 1 and 2 and amended claim 6 from the combination of granted claims 6 and 10. Dependent claims 2 and 10 which relate to the specific embodiment depicted in the drawings were specifically opposed in the notice of opposition so that there is no need for searching for further prior art documents. Consideration for such amended claims can therefore reasonably be expected on the part of the appellants (opponents) and there is also no question of

the appellants being taken unfairly by surprise.

For the above reasons the Board concludes that the second auxiliary request is admissible.

4.2 Patentability

4.2.1 In the nearest art document D1, a first string of pocketed springs to be coated with adhesive is horizontally placed on a vertically movable support. The upper side of this string is then coated with adhesive by means of movable applicators disposed above, which traverse a portion of the string. By this way the adhesive penetrates the cover fabric well, while running of the adhesive is largely avoided. This might be important if relatively liquid glue is used. When the adhesive is set, the support moves down a distance equal to one coil spring diameter. A second string located on a shelf is moved by a push bar onto the first string. The first string is located slightly below the level of the shelf so that the second or new string does not slide across it while being pushed by the bar. To insure a good adhesion, the second string is urged towards the previously treated first string by a series of spacebars which are arranged to move up and down.

According to the respondent's submissions a method or device of this kind suffers from the problem that it does not work in a continuous manner, the assembly process thus being complicated and costly.

Therefore the technical problem to be solved by the present invention may be seen so as to provide an improved automatised method and apparatus for

manufacturing an innerspring construction for mattresses and the like, which allows the glueing and assembly steps to be made in a substantially continuous way, and enables a simpler and more efficient assembly process.

4.2.2 This problem is in essence solved by the following steps stated in method claim 1

(i) while the first string is moved according to its longitudinal axis in an horizontal position, its upper side is coated with adhesive dispensed from a fixed adhesive applicator,

(ii) then the string and its coated side are turned to a vertical position and pushed into contact with another similar surface of a second string which has no adhesive coating, the cycle of operations being repeated until an innerspring construction of desired size is obtained.

The solution set down in claim 1 to the problem underlying the patent in suit is based on the idea of carrying out the coating step onto a horizontally moving string from a fixed applicator before it is connected to the series of already assembled springs. In this way a relatively liquid adhesive can be used and sprayed in a continuous manner from above onto the upper side of the horizontal string to be assembled, while avoiding stains of adhesive. Moreover the subsequent assembly step can be easily performed due to the fact that the string and its coated side are tilted upright and pushed into contact with a similar vertically positioned string.

4.2.3 In D3 a first string is horizontally positioned on a support. This string is then translated and brought into a vertical position towards a preassembled part of adhered strings standing on an assembly platform. Only then the external vertical side of the last string is provided with an adhesive coating by a moving applicator nozzle.

In D2 the separate string to be assembled is horizontally translated in a vertical position against a preassembled part of adhered strings lying on an assembly platform, the external vertical side of the last string being then provided with an adhesive coating.

In D2 as well as in D3 the string and its side to be coated are in a vertical position when adhesive from a movable applicator is applied thereto. Thus, the method disclosed in D2 and D3 suffers inter alia from the problem that the adhesive may flow down the vertical side of the string during adhesive deposit, which may lead to stains.

Furthermore the adhesive is deposited, in these citations, onto the last string of the preassembled part of adhered strings. No mention is made about the feature that adhesive is applied to a separate string which is to be assembled.

4.2.4 There is furthermore no disclosure or suggestion in D1 to D3 of the claimed teaching according to which the coating step is carried out horizontally followed by an assembly step by which the coated string is brought into a vertical position and pushed into contact with the preassembled series of adhered strings.

The relevant prior art documents D1 to D3 consistently teach that the coating step and the assembly step should be realised in the same vertical or horizontal position. Thus, in the nearest prior art document D1, the adhesive coating is applied onto a horizontally positioned string and the assembly step is also carried out between horizontally positioned strings. In D2 and D3 on the other hand, the coating and assembly steps are both carried out in a vertical position. Hence the teaching of claim 1 proceeds in a different direction as compared with that of D1, D2 or D3.

Therefore in the Board's judgement, the subject-matter of claim 1 cannot be derived in an obvious manner from the available prior art and consequently involves an inventive step (Article 56 EPC).

Dependent claims 2 to 5 concern particular embodiments of the method claimed in claim 1 and are likewise allowable.

4.2.5 Contrary to the appellants' submissions, claim 1 which is directed to a method for manufacturing an innerspring construction for mattresses clearly defines all the steps which are necessary for manufacturing such innerspring construction starting from separate strings of pocketed coil springs. Furthermore, the object stated in the patent in suit, that is a method which can be performed substantially continuously, is achieved by the coating step, in which the strings to be coated with adhesive can be continuously moved under the adhesive applicator as well as by the simplicity of the subsequent assembly process in comparison to that disclosed in the nearest prior art document D1. The Board is thus satisfied that claim 1 according to the

second auxiliary request meets the requirements of Article 84 EPC.

4.2.6 Claim 6 which is directed to an apparatus for manufacturing an innerspring construction for mattresses contains all the features expressed in terms of structural and functional limitations which permit the claimed method to be carried out. Consequently, the reasons referred to above with respect to the inventive step of the method according to claim 1 apply - *mutatis mutandis* - also to the corresponding apparatus according to claim 6.

The subject-matter of claim 6 therefore also involves an inventive step (Article 56 EPC) and is thus allowable.

Claims 7 to 14 concern particular embodiments of the apparatus claimed in claim 6 and are likewise allowable.

4.2.7 For the above reasons the Board concludes that the second auxiliary request is allowable.

## 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 maintain the patent with the following documents:

- claims 1 to 14 and description columns 1 and 2 filed at the oral proceedings, description columns 3 to 9 and drawings as granted (second auxiliary request).

The Registrar: The Chairman:

S. Fabiani F. Gumbel