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**Datasheet for the decision  
of 12 February 2009**

**Case Number:** T 1377/07 - 3.2.04

**Application Number:** 00908348.6

**Publication Number:** 1171011

**IPC:** A44B 18/00

**Language of the proceedings:** EN

**Title of invention:**  
Mechanical fastener

**Patentee:**  
3M Innovative Properties Company

**Opponent:**  
Firma Gottlieb Binder GmbH & Co. KG

**Headword:**  
-

**Relevant legal provisions:**  
EPC Art. 52, 54, 104(1), 113(1)

**Relevant legal provisions (EPC 1973):**  
-

**Keyword:**  
"Late-filed document (admitted)"  
"Apportionment of costs (no)"  
"Novelty (no - all requests)"

**Decisions cited:**  
-

**Catchword:**  
-



Case Number: T 1377/07 - 3.2.04

**DECISION**  
of the Technical Board of Appeal 3.2.04  
of 12 February 2009

**Appellant:** Firma Gottlieb Binder GmbH & Co. KG  
(Opponent) Bahnhofstrasse 19  
D-71088 Holzgerlingen (DE)

**Representative:** Bartels, Martin Erich Arthur  
Patentanwälte Bartels & Partner  
Lange Strasse 51  
D-70174 Stuttgart (DE)

**Respondent:** 3M Innovative Properties Company  
(Patent Proprietor) 3M Center  
P.O. Box 33427  
St. Paul MN 55133-3427 (US)

**Representative:** Vossius & Partner  
Siebertstraße 4  
D-81675 München (DE)

**Decision under appeal:** Decision of the Opposition Division of the  
European Patent Office posted 27 June 2007  
rejecting the opposition filed against European  
patent No. 1171011 pursuant to Article 102(2)  
EPC.

**Composition of the Board:**

**Chairman:** M. Ceyte  
**Members:** A. de Vries  
T. Bokor

## **Summary of Facts and Submissions**

I. The Appellant (Opponent) lodged an appeal, received 14 August 2007, against the decision of the Opposition Division posted 27 June 2007 to reject the opposition against European Patent No. 1 171 011, and simultaneously paid the appeal fee. The statement setting out the grounds was received 25 October 2007.

II. Opposition was filed against the patent as a whole and based mainly on Article 100 (a) together with Articles 52(1) and 54 EPC 1973, for lack of novelty.

The Opposition Division held that the grounds for opposition under Article 100 EPC 1973 did not prejudice the maintenance of the patent as granted having regard in particular to the following document:

D1: EP-A-0 565 750

III. The following further documents also played a role in the appeal proceedings:

D7: FR-A-1 530 822

IV. Oral proceedings were duly held before this Board on 12 February 2009.

V. The Appellant (Opponent) requests that the decision under appeal be set aside and the patent be revoked in its entirety. Additionally, he requests that the auxiliary requests filed by the respondent during the oral proceedings not be admitted as late filed. Should they be admitted, he requests continuation of the proceedings in writing and apportionment of costs.

The Respondent (Proprietor) requests, as main request, that the appeal be dismissed and the patent be maintained as granted, or in the alternative, that the patent be maintained in amended form according to claim 1 of auxiliary requests 1, 2, 3A and 3B filed during the oral proceedings before the Board.

VI. The wording of claim 1 of the requests is as follows:

Main request (patent as granted)

"A mechanical fastener (20), comprising:

a) a substrate (22); and  
b) a plurality of engaging stems (28) extending from said substrate (22), wherein said stems (28) are arranged in a plurality of repeating arrangements (34, 36, 38, 40, 42, 44; 50, 52, 54, 56, 58, 60), wherein said stems within each of said arrangements (34, 36, 38, 40, 42, 44; 50, 52, 54, 56, 58, 60) are positioned in an unordered pattern, wherein said arrangements (34, 36, 38, 40, 42, 44; 50, 52, 54, 56, 58, 60) each having said unordered pattern repeat in more than one direction and wherein said fastener includes an x-axis and a y-axis which are mutually perpendicular to each other."

Auxiliary request 1

Claim 1 is as in the main request but adds at the end of the claim the following wording:

", wherein said plurality of repeating arrangements (34, 36, 38, 40, 42, 44; 50, 52, 54, 56, 58, 60) are ordered relative to one another along said x-axis and/or along said y-axis."

Auxiliary request 2

Claim 1 is as in the main request but adds at the end of the claim the following wording:

", wherein said plurality of repeating arrangements (34,36,38,40,42,44;50,52,54,56,58,60) are ordered relative to one another along said x-axis and said plurality of repeating arrangements (34,36,38,40,42,44;50,52,54,56,58,60) are ordered relative to one another along said y-axis"

Auxiliary request 3A

Claim 1 is as in auxiliary request 1 but for the addition of the following wording at the end of the claim:

"and wherein the x-positions and/or the y-positions of the engaging stems (28) within any repeating arrangement are unordered relative to each other"

Auxiliary request 3B

Claim 1 is as in auxiliary request 2 but for the addition of the following wording at the end of the claim:

"and wherein the x-positions and/or the y-positions of the engaging stems (28) within any repeating arrangement are unordered relative to each other"

VII. The Appellant argued as follows :

In the fastener of D1 the arrangements of stems repeat in multiple directions. Within each arrangement the stems are unordered in the sense of the patent as the

positions of subsequent stems are not mathematically predictable based on the known position of the first. The first five stems of a given pattern or rapport form an unordered arrangement and repeat in x and y directions as clear from figure 2. It is immaterial that they are separated by the remaining three of the pattern. Nor is the particular number of elements in the group.

D7 was filed at the earliest opportunity with the grounds of appeal and was prima facie relevant because novelty destroying. The stems of the fastener of D7 are arranged in an unordered pattern, defined on page 2 in the same manner as the patent. Repetition was implicit from the roller manufacturing process or figure 7.

All the relevant points of discussion based on D1 and D7 were raised at a much earlier stage, and auxiliary requests by way of response could have been filed much earlier. Moreover, these requests concerned claim combinations that the appellant could not have foreseen.

In any case, the fastener according to these further requests all lacked novelty against either D1 or D7. D1 in particular showed ordered repetition in both x and y directions, as well as disorder of the group in x and y directions.

VIII. The Respondent argued as follows :

The definition of unordered in paragraph [0021] of the specification requires the knowledge of the position of one or any number of stems cannot help to predict that of other stems. Here the terms "ordered" and

"unordered" are only technically meaningful for a sufficiently large number of elements, probably at least six. The terms are illustrated in table 2 which shows a regular pattern of intervals in the x direction but an irregular pattern along y; it thus demonstrates this concept of order/unorder along different axes.

The arrangement of D1 clearly does not fit this definition as certainly the position of the sixth and further stems in a group is determined by the first five, once these have been selected. The first five may be disordered, but the "rapport" as a whole had to be considered and this was clearly regulated. Even so, D1 does not directly and unambiguously teach repetition of identical unordered groups; for example, a different group of five stems could be chosen for each of the rapports shown in figure 2.

The US counterpart of D7 has been mentioned in the description from the outset, and should therefore already have been known to the Appellant. Its citation now is late. In any event, D7 explicitly excludes the repetition of the pattern in a single article. The groups in the pattern of figure 4 do not repeat in a particular direction in the sense of the patent as each is rotated by a random angle. These groups are moreover "ordered arrays" in the words of the US counterpart.

The auxiliary requests are a direct response to arguments that were only now presented at the oral proceedings. The number of requests simply takes into account the different attacks based on D1 or D7. Requests 1 and 2 incorporate into claim 1 features from the dependent claims specifying the manner of

repetition, and their claimed fastener is clearly distinct over D7. Requests 3A and 3B add detail of the degree of unorder within the arrangement, drawing upon the definition given in the specification. Such disorder is not disclosed in either D1 or D7.

## **Reasons for the Decision**

1. The appeal is admissible.

2. *Formal issues*

2.1 Admissibility of D7

D7 has been cited with the statement of the grounds and thus outside the opposition period. The Board firstly finds this document to be of prima facie relevance. It is immediately clear from the cited passages that it relates to a fastener with unordered stems, with the same type of "unorder", addressing the same problems as the patent. It has been submitted at the earliest possible stage in the appeal proceedings, with the statement of the grounds, and the respondent (as well as the Board) have had ample opportunity to take in its contents. The respondent has indeed dealt with D7 in some detail in his written submissions. Finally, both the nature of the contents of D7 and of the respondent's response have led the Board to believe that its admission would not give rise to serious procedural complications or delays, as they indeed have not. The Board therefore decides not make use of its power under Article 12(4) of the Rules of Procedure of the Boards of Appeal (RPBA) to hold inadmissible D7,



which could have been presented in the first instance proceedings.

2.2 Admissibility of the auxiliary requests; apportionment of costs

New lines of attack based on novel interpretations of D1 and D7 were developed at the oral proceedings and played a central role there. Therefore, though the respondent may have been familiar with D1 and D7 from the outset and could in principle have formulated fallback positions at an earlier stage, Article 113(1) EPC demands that he be given an opportunity to respond in an appropriate manner to these new facts and evidence. It is debatable whether the filing of four auxiliary requests is so appropriate. However, the amendments concerned are not complex and all requests could be considered by the parties without foreseeable procedural delay as they indeed were. Therefore, and particularly in the interests of fairness and equitability, the respondent is allowed pursuant to Article 13(2) RPBA to file these requests in response.

Moreover, the admission of the auxiliary requests has not given rise to any further costs to the Appellant over and above those he must in any case make in connection with the oral proceedings. The Board therefore sees no compelling reason for an apportionment of costs under Article 104(1) EPC.

3. *Background & Claim terminology*

3.1 The present invention concerns mechanical fasteners of the type used in mutually engaging pairs, and in

particular the manner in which the engaging stems are arranged on the fastener substrate. Essentially, and using the terminology of claim 1, the stems are grouped in a pattern of arrangements that repeat in more than one direction. The positions of the stems in each such arrangement are "*unordered*". Two such fasteners will engage at any planar position or any relative angular orientation with constant engagement and constant disengagement force (as filed description page 6, first paragraph).

3.2 The term "*unordered*" is defined in paragraph [0021], lines 37 to 41 as meaning that "the positions of the engaging stems 28 are mathematically unpredictable relative to each other" such that "even if the location of one or any number of the engaging stems is known, this information cannot be used to determine the location of any other engaging stem". According to further lines 41 to 44, an arrangement can be so "*unordered*" in only the x- or y-coordinates of the stems' positions. This is illustrated in table 2 and paragraph [0022], where only the x-coordinates are "*unordered*", while the y-coordinates follow a regular pattern of intervals a-a-b and is ordered.

What is meant by "*repeat*" is explained in more detail in paragraph [0029], lines 51 to 58 : a fastener has repeating arrangements "if it includes *at least two* identical *unordered* arrangements" (emphasis added), which "are not required to be adjacent each other" but "may be spaced apart from each other with another arrangement of engaging stems located between them". Repetition may be "*ordered*" or "*unordered*", see preceding lines 49 to 51, in any other direction.

Neither claims nor description furthermore lay any constraints on shape or orientation of the arrangements, which may further include any number of stems, see paragraph [0021], line 36 to 37.

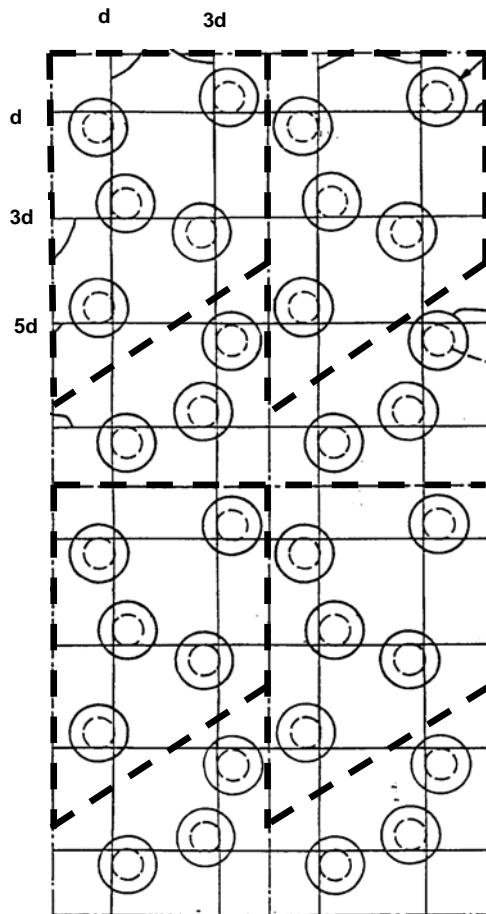
4. *Main request*

4.1 Reading the terms of granted claim 1 as above its main idea is understood as requiring the distribution of stems on the substrate of a mechanical fastener to include two or more identical arrangements along at least two directions (i.e. a minimum of three non-collinear arrangements). They may be of any shape or orientation, include any number of stems, and need not be adjacent. However, the stems within the arrangements should lack order, e.g. a recognizable pattern, at least along one of x or y axes.

4.2 D1, see title and abstract, is also concerned with the distribution of stems ("Stoppeln" 13) on the substrate ("Träger" 10) of a mechanical fastener ("Haftverschussteil"). The stems are arranged in a repeating basic pattern element 10 ("Rapport") shown in figure 1 of D1, which includes eight stems. These are placed near the eight intersections of two pairs of parallel grid-lines 16 intersecting a further pair of transverse gridlines 15), with the stem sides tangential to both intersecting grid lines. Two rules govern placement: along any given grid line successive stems 1) lie on opposite sides, and 2) are either both inside or both outside the corresponding pair of intersecting grid lines 15 or 16. Figure 2 shows four identical such pattern elements arranged directly adjacent each other,

but any number of such repeating groups is possible, see column 4, lines 22 to 37.

4.2.1 Considering figure 2, the first five stems in each pattern element 10 (starting from the top) form an arrangement of stems which is repeated both down and across the figure. These arrangements are identified with a dashed border in the figure below, which is derived from figure 2 of D1.



The arrangements are separated at least in the "downward" direction by the remaining three stems of each "rapport". As noted claim 1 as granted does not require the repeating arrangements to be directly adjacent each other.

4.2.2 A closer look at the arrangement gives the following values for the x- and y-coordinates of each stem starting from the top stem and working down to the lowermost stem; d is half the gridline interval, r is half the stem diameter.

stem	x		$\Delta x$		y	$\Delta y$	
1	3d+r	A			d-r		
2	d-r	B	2d+r	a	d+r	2r	a
3	d+r	C	2r	b	3d-r	2d-2r	b
4	3d-r	D	2d-r	c	3d+r	2r	a
5	d-r	B	2d	d	5d-r	2d-2r	b

A pattern is clearly visible in the sequence of intervals  $\Delta y$  along the y-axis: **abab**. In the y-direction this pattern can be said to be ordered.

4.2.3 However, no pattern can be identified in the sequence of x-coordinates. These produce a sequence **ABCDB**, while their intervals produce **abcd** (where different characters merely denote a different value but otherwise have no alphanumeric significance or rank). The x-positions of the stems are therefore *unordered* within the arrangement, so that the arrangement itself is *unordered* within the sense of the patent.

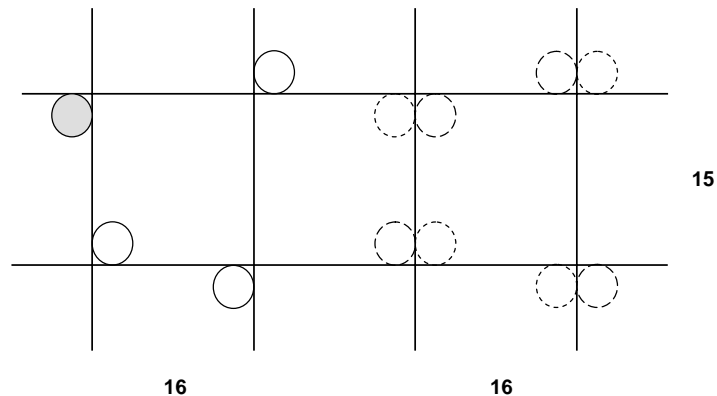
4.2.4 The D1 distribution of stems can thus be shown to include unordered arrangements of stems that repeat in more than one direction across the substrate as required by claim 1 as granted.

4.2.5 The Board is unconvinced that the terms "order" or "unordered" imply a lower limit of six on the number of

elements in an arrangement of items that is to be considered in those terms. The example of a simple geometrical ordering by placing stems at the points of an equilateral triangle demonstrates that this assumption cannot be generally correct; any lower limit must depend on the particular ordering rule or system.

In any case, even if the group were to be expanded by inclusion of the sixth, seventh or even eighth stem, it is not the more ordered in the x-direction. The sequence in x-coordinates for the complete arrangement is **ABCDBADC** and shows no clear system. The sequence of intervals of **abcdabc** is one short of a conclusively ordered system.

4.2.6 Such a finding does not in any way contradict the general teaching of D1. Though D1 sets rules for placement of the stems it also allows for a measure of indeterminacy. In particular, the rules determine the position of the first four stems (at the intersections of first pair of gridlines 16 with the pair 15) if one of these is given. However, two options exist for the remaining four stems (at the intersection of pair 15 with the second of the gridline pairs 16), see the figure below.



In effect the rules produce two internally (two-dimensionally) ordered groups which are mutually unordered. Such a hybrid ordering scheme is somewhat analogous to the arrangement described in paragraph [0022] of the patent, which is disordered in one direction but ordered in the other. The Board concludes that D1 does not unequivocally teach strict ordering that runs counter to the "unorder" taught by the patent. Rather, the patent defines "unorder" in such broad terms that these are applicable also to a hybrid system such as that of D1.

It is then of no consequence that there are different possible ways of grouping the stems in the D1 arrangement that do not fit the requirements of claim 1. D1 may provide a scheme for placing the stems on the substrate, it cannot prescribe how the stems are to be viewed as grouped and an almost infinite number of ways of identifying groups on the D1 fastener exist. As demonstrated above one of these does meet the requirements of claim 1 and this is sufficient to destroy novelty of the claimed fastener. This does not reflect on any ambiguity in D1's teaching, but rather on weaknesses in the terms used to define the claim and which fail to exclude a reading of the prior art that falls within these terms.

For example, the definition of "unordered" used in the patent does not require the stems to be positioned entirely randomly. The underlying notion of unpredictability does not exclude the use of some scheme or system to produce stem positions that are not determined on the basis of any other stem positions, or

that the stem positions might be governed by other constraints. Paragraph [0036] of the patent, for example, gives preferred values for head density and shows that their placement cannot be completely arbitrary. The gridlines in D1 similarly constrain placement of the stems without fully determining their position.

4.3 Further D7, see claim 1, also discloses a fastener with stems arranged on a substrate. The main thrust of this document, as follows from the claim, is an overall irregular or disordered distribution of the stems (D7 uses the corresponding French terms "irrégulier" and "en désordre" interchangeably), defined - see page 2, right hand column, third complete paragraph - in almost identical wording to that used to define "unorder" in the present patent.

4.3.1 Page 5, the final paragraph of the left hand column, discusses a modification in which subgroups of stems are positioned in such disordered fashion on the fastener. The subgroups are normally identical, as shown in figure 4, and consequently repeat in more than one direction. The last sentence but one of the left-hand column discusses various types of subgroups : "carrés, rectangulaires, circulaires, en forme de polygones réguliers ou *de configuration irréguliere*" (emphasis added). The Board reads this as referring to subgroups of irregular polygonal shape.

4.3.2 That these subgroups are not oriented in the same direction does not mean that they are not identical, much less that they do not repeat. Even if angularly rotated they retain their characteristic shape and will



be identified as the same polygon. This is easily demonstrated in figure 4, where all the groups are easily seen to have the same shape and to be the same.

4.3.3 In summary, the fastener of D7 discussed in connection with figure 4 has disordered (polygonal) arrangements of stems that repeat in more than one direction across the substrate as shown in figure 4. This modified embodiment of D7 possesses all the features required by claim 1 as granted.

4.4 The Board concludes in the light of the above that the subject-matter of that claim lacks novelty in view of the prior art of both D1 and D7.

5. Auxiliary requests 1, 2, 3A and 3B

5.1 Auxiliary requests 1 and 2 add to claim 1 as granted further detail regarding the way the arrangements repeat across the substrate, namely in x or y directions or both. The remaining auxiliary requests 3A and 3B then incorporate further information regarding the "unorder" within an arrangement, where x- and/or y-positions are unordered.

5.2 In each of these instances the additional features are already derivable from D1. Thus the figure in section 4.2.1 above and derived from figure 2 of D1 shows the arrangements of 5 stems marked by the dashed border repeating down (y) and across (x) the plane of the drawing. In paragraph 4.2.3 the Board had already reached the conclusion that these arrangements were unordered in their x-coordinates.

5.3 The subject-matter of claim 1 in these alternative versions also lacks novelty.

## **Order**

### **For these reasons it is decided that:**

1. The decision under appeal is set aside.
2. The patent is revoked.

The Registrar

The Chairman

G. Magouliotis

M. Ceyte