

Internal distribution code:

- (A) Publication in OJ
(B) To Chairmen and Members
(C) To Chairmen
(D) No distribution

D E C I S I O N
of 10 May 2005

Case Number: T 0804/04 - 3.2.6

Application Number: 98919466.7

Publication Number: 1012371

IPC: D06F 37/02

Language of the proceedings: EN

Title of invention:

Improved drum assembly for washing and drying machines and method for making it

Applicant:

Miramondi S.R.L.

Opponent:

-

Headword:

-

Relevant legal provisions:

EPC Art. 56

Keyword:

"Inventive step (yes - after amendments)"

Decisions cited:

-

Catchword:

-



Case Number: T 0804/04 - 3.2.6

D E C I S I O N
of the Technical Board of Appeal 3.2.6
of 10 May 2005

Appellant: Miramondi S.R.L.
Via Mameli, 1
IT-20081 Abbiategrasso (IT)

Representative: Gustorf, Gerhard, Dipl.-Ing.
Patentanwalt
Bachstraße 6 A
D-84036 Landshut (DE)

Decision under appeal: Decision of the Examining Division of the
European Patent Office posted 4 February 2004
refusing European application No. 98919466.7
pursuant to Article 97(1) EPC.

Composition of the Board:

Chairman: P. Alting van Geusau
Members: G. L. de Crignis
J. H. van Moer

Summary of Facts and Submissions

- I. European patent application No. 98 919 466.7 published as international application PCT WO 98/48095 was refused by decision of the Examining division dated 4 February 2004.

In the course of the examination proceedings, the Examining Division had issued a first communication based on the International Preliminary Examination Report maintaining the objections raised therein. A second, third and fourth communication were issued in response to respectively filed amended sets of claims, concerning clarity, inventive step as well as deficiencies in regards of the requirements of Article 123(2) EPC. The Examining division summoned to oral proceedings which took place on 16 January 2004. During the oral proceedings a further amended claim 1 was filed in order to meet the clarity objections. However, the application was refused because the subject-matter of claim 1 was found to lack inventive step over the disclosure of

D1 DE-A-2 626 781

and the common general knowledge of the skilled person.

- II. On 2 April 2004 a notice of appeal against this decision was filed by the appellant (applicant) and the appeal fee was paid that same day, followed by the statement of grounds of appeal filed on 14 June 2004. The appellant requested that the decision of the Examining Division be set aside and a patent be granted on basis of a newly submitted set of claims.

III. In a communication attached to the summons for oral proceedings the Board drew attention to a number of inconsistencies in the disclosure of the patent application. Furthermore it submitted that the newly filed claim 1 did not appear to reflect the differences when compared to the prior art disclosed in D1, relied upon by the appellant.

IV. Oral proceedings were held on 10 May 2005. The appellant requested that the decision under appeal be set aside and that a patent be granted on the basis of the single claim submitted during oral proceedings.

The single claim on which the decision is based reads as follows:

"Method for making a drum assembly for washing and drying machines, comprising the steps of:

- providing a cylindrical band (2) including a plurality of wedge elements (8) each having an edge portion (9) formed by an inwardly projecting wall of said wedge element (8) and being substantially transversally oriented of said wedge element (8), i.e. perpendicular to the surface of said band (2),
- providing a rear closing disc (5),
- providing a ring element (3) or a front cover element including a plurality of windows (10) at each wedge element

- connecting the ring element (3) on the cylindrical band (2),
- connecting the rear closing disc (5) to the cylindrical band (2),

characterized in that the windows are substantially formed by a hole having a contour corresponding to that of the edge portion (9) of the respective wedge element (8),

wherein the connecting procedure has the following steps:

- the cut contour or edge of the window (10) is so deformed as to provide a deformed portion (11) facing the inside of the drum assembly (1), i.e. a direction substantially perpendicular to the mentioned edge portion (9),
- connecting the ring element 3 on the cylindrical band (2) by engaging the deformed portions (11) inside the respective wedge elements (8) and arranging said deformed portions (11) above and substantially at 90° with respect to the related edge portion (9),
- upsetting each deformed portion (11) against said edge portion (9) thereby causing said deformed portion to be rearwardly bent and cold clamped against the surface of said edge portion (9) thereby providing a gripping force thereagainst."

- V. In support of his request the appellant essentially relied upon the following submissions:

D1 should be considered as representing the closest prior art. D1 provided circular openings (15) which did not correspond to the form of the edges of the wedge elements (7). The edge portions (8) of D1 did not extend around the windows (15) and did not have a size and shape such that they might be housed inside the wedge element (7). In D1 the rim portion (12) was only rolled against the edge (8), whereas, according to the invention, the mutual connection was effected by a cold clamping process. The invention provided a continuous contact against a greater surface of the contour edge effected by a cold clamping process. D1 did not allow and therefore could not suggest centering of the ring element to the inwardly projecting walls of the wedge element. As a result the claimed method resulted in a very rigid and secure connection which allowed increased speed of rotation of the drum in comparison with the drum of D1.

Reasons for the Decision

1. The appeal is admissible.
2. *Amendments*

The single claim defines a method for making a drum assembly and is based on the disclosure of the originally filed description, in particular page 10, line 14 to page 11, line 5 and page 9, lines 3 to 10.

Although most of the figures and in particular Figure 6 contain errors, these errors are not detrimental to the understanding of the claimed method of making a drum assembly and in view of the fact that amendment of the drawing could introduce added subject-matter a reference was inserted into the description to draw attention to the fact that the drawings are only schematic and partly incorrect so that all the details have to be interpreted with the help of the description.

In view of these amendments the present application documents do not give rise to objections based on either Article 123(2) or 84 EPC.

3. *Inventive step*

3.1 D1 represents the closest prior art and contains a combination of pre-characterising features of claim 1. It discloses a method of making a washing machine having a drum which is assembled by mechanically forming matching connecting parts of the cylindrical band and of a ring element thereby avoiding welding or rivetting as a means for connecting these parts. D1 already refers to the drum assembly having improved mechanical strength, being easy to manufacture in an automated process and avoiding the use of rivets in the connections between the cylindrical mantel and the covers at the regions of the wedges.

3.2 The claim of the present application differs from D1 by specifying in the characterising portion:

- (a) the form of the windows as being substantially formed by a hole having a contour corresponding to

that of the projecting edge portion of the respective wedge element.

- (b) the cut contour or edge of the window being so deformed as to provide a deformed portion facing the inside of the drum assembly, i.e. a direction substantially perpendicular to the mentioned edge portion,
- (c) connecting the ring element on the cylindrical band by engaging the deformed portions inside the respective wedge elements and arranging said deformed portions above and substantially at 90° with respect to the related edge portion,
- (d) upsetting each deformed portion against said edge portion thereby causing said deformed portion to be rearwardly bent and cold clamped against the surface of said edge portion thereby providing a gripping force thereagainst.

3.3 When starting from D1, the problem to be solved by the subject-matter of the claim is to provide a method which allows improved mechanical strength of the drum assembly, in particular with a view to allow higher rotation speeds, while maintaining ease of manufacture in an automated process.

3.4 When compared to the method for making a drum assembly known from D1, the solution as represented by features of the single claim essentially combines

- more accurate positioning of the edges to be clamped together,

- a more substantial connection area and
- pressed together portions of the parts to be connected.

Although D1 also discloses centering of the ring element with respect to the cylindrical band, this known centering relies on mating surfaces of the cylindrical band 3 and a cup-shaped protrusion on the ring element 4 and is thus not directly related to the parts to be clamped together, i.e. the projecting walls 8 and rolled edge 12 in D1.

D1 not only lacks any incentive to change the known centering by forming a portion of the window edge to extend as a centering protrusion into the inside of the drum assembly and use the edges of the respective wedge element as centering counterparts, rolling of the edge portions of the round hole implies an in itself well known but simple rolling tools which is, however, not immediately suitable for openings having no circular circumference. The known rolling method of connecting the two parts of the drum therefore also fails to give any hint in the direction of differently shaped holes or different deformation connecting methods.

- 3.5 The other documents available in the proceedings do not suggest the claimed process or details of this process either. Therefore, the subject-matter of the present single claim of the patent application involves an inventive step in the sense of Article 56 EPC.

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 on the basis of the following documents:
 - the single claim submitted during oral proceedings
 - description, pages 1 to 12 submitted during oral proceedings
 - figures, Nr. 1 - 9 submitted during oral proceedings.

The Registrar:

The Chairman:

M. Patin

P. Alting van Geusau