



(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
21.11.2001 Bulletin 2001/47

(51) Int Cl.7: **A45D 2/02**

(21) Application number: **01111029.3**

(22) Date of filing: **08.05.2001**

(84) Designated Contracting States:
AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU
MC NL PT SE TR
 Designated Extension States:
AL LT LV MK RO SI

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(30) Priority: **15.05.2000 IT PC000018**

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(54) **Curler designed to produce curls of different diameters from the same lock of hair**

(57) This invention relates to a curler whose special, innovative function is that it produces curls or ringlets of different diameters from the same lock of hair by forming successively variable sets of waves and curls.

The curler basically consists of an elongated body (1) formed by a plurality of cylindrical elements (2, 3) with a larger and smaller diameter arranged alternately

on the same axis.

The accessory in accordance with the invention therefore makes it possible to produce hairstyles with very unusual effects, characterised by differentiated successions of curls; previously, such effects could only be obtained with laborious styling operations which required great patience and skill.

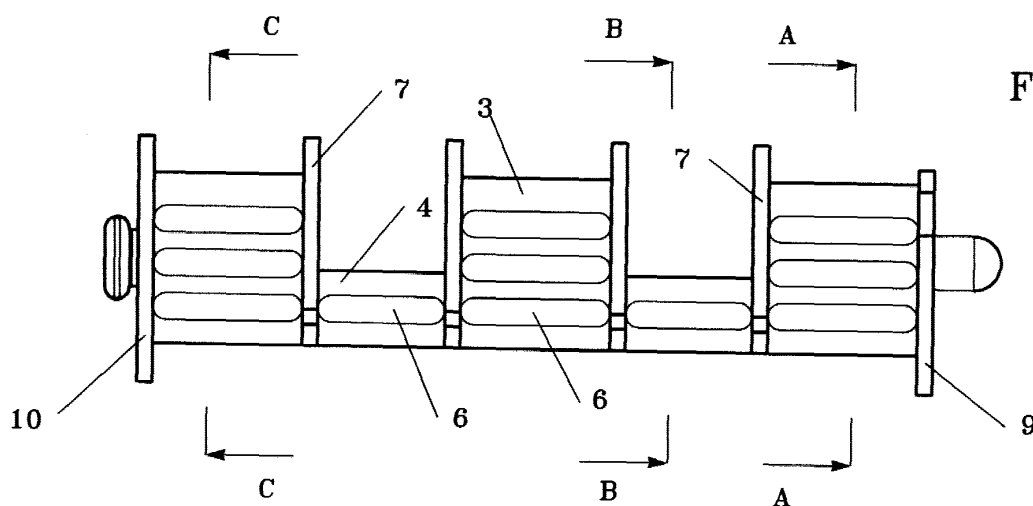


Fig. 5

Description

[0001] This invention relates to a curler whose special, innovative function is that it produces curls or ringlets of different diameters from the same lock of hair by forming successively variable sets of waves and curls.

[0002] In view of its versatility, the curler in accordance with the invention is suitable for use in the home, by hairdressers or by fashion designers. It consists of an accessory of suitable shape for a lock of hair to be wound round it; the lock is set into a particular shape comprising a succession of curls of different sizes.

[0003] The accessory in accordance with the invention therefore makes it possible to produce hairstyles with very unusual effects, characterised by differentiated successions of curls; previously, such effects could only be obtained with laborious styling operations which required great patience and skill.

[0004] The art of ladies' hairdressing, and the production of special hairstyles in general, requires imagination and experience together with the use of effective materials and tools.

[0005] The curler, which is perhaps the simplest and most practical hair styling tool, represents a cult object in the industry; it is a sign of "work in progress" which has been extensively featured in films, literature and all fashion circles.

[0006] Curlers generally consist of the classic cylinder made of plastic or other suitable material, sometimes with a slight groove in the centre, round which the locks of hair to be treated are wound to produce waves or curls.

[0007] Different techniques can be used to set the hair, which vary according to the desired result. For example, in the classic hot techniques, the hairdryer is used to stabilise the shape, whereas lotions, tinctures and stabilising liquids or pastes are used with the far more complex cold techniques, such as the "permanent wave".

[0008] The main limitation encountered with the use of conventional curlers is that it is impossible to vary the curvature of the wave on the same lock of hair, with the result that the curls of all locks are identical.

[0009] If the diameter of the various curls in the same lock is to be varied, it is necessary to use instruments or brushes of different kinds or empirical tools, which often produce dubious results.

[0010] The invention in question, which falls into this sector, relates to the use of a curler with a new design which produces a number of curls of different sizes on the same lock of hair, thus allowing a variety of new styles to be produced.

[0011] The new curler in accordance with the invention eliminates the limitations of the traditional cylindrical curlers and also facilitates the application of the curler, especially in the case of the multiple winding technique.

[0012] The newly designed curler in accordance with the invention, which requires no particular manual dex-

terity (and therefore does not necessarily need to be used by a professional hairdresser), allows highly sophisticated styles to be produced with an accessory which can even be used in the home.

[0013] Another advantage offered by the invention is that the curler is manufactured by the common plastic moulding technique, and therefore at low cost. This aspect, together with the excellent styling results obtained, suggests that this accessory will soon come into widespread use.

[0014] All these special purposes, advantages and functions are achieved in accordance with the invention by a curler which is designed to produce curls or ringlets of different diameters from the same lock of hair by forming successively variable sets of waves and curls. The said curler is characterised in that it consists of a body formed by a succession of elements, e.g. cylindrical or the like, with alternately different diameters arranged on the same axis. Preferably the said elements are joined together by discoidal partitions containing grooves or the like through which the locks of hair wound round the curler are passed.

[0015] Various cylindrical elements whose diameter is alternately larger and smaller are arranged on the same axis, so that when the same lock of hair is wound in a spiral form round the accessory in question, uniformly alternating successions of curls with a larger and smaller diameter are formed.

[0016] The invention will be better understood from the description which follows, which is given by way of example but not of limitation, by reference to the annexed drawings in which:

- figure 1 represents a schematic, axonometric view of the whole of the curler in accordance with the invention
- figure 2 schematically represents the curler in accordance with the invention shown in longitudinal section
- figures 3 and 4 represent the side view and perspective view respectively of a different version of the curler in accordance with the invention;
- figure 5 shows, in longitudinal section, a preferred embodiment of the curler of the invention
- figures 5A, 5B and 5C are respectively sectional views along lines A-A, B-B and C-C of fig. 5.

[0017] With reference to the annexed figures, curler 1 basically consists of an elongated body formed by a plurality of cylindrical elements with larger or smaller diameters, arranged alternately.

[0018] As clearly shown in the figures, cylindrical elements of larger diameter 2 and cylindrical elements of smaller diameter 3 alternate consecutively on the same axis.

[0019] The various cylindrical elements 2 and 3 are separated by partitions 4 with a basically discoidal or truncated-cone shape; the lock of hair that is wound

from one cylinder to another is passed through a groove 5 in the perimeter of the said partitions.

[0020] As can be seen from the figures, groove 5 of each discoidal partition is positioned at a 180° angle to the groove of the adjacent partition.

[0021] This means that the lock of hair wound round the curler can be arranged in a succession of continuous coils of different sizes.

[0022] The use of the curler in accordance with the invention is now obvious; if a lock of hair is wound spirally round the accessory, it will alternately encounter larger and smaller diameters.

[0023] The lock of hair wound round the curler can be treated by a hot or cold process, in accordance with the techniques set out above, to produce a succession of larger or smaller curls alternating on the same lock of hair.

[0024] By repeating the same operation on all the other locks of hair, very unusual styles with great impact can be created in the fashion and hairstyling fields.

[0025] Figures 3 and 4 show a different embodiment of the curler.

[0026] In this version, the cylindrical elements of different diameter 2 and 3 are no longer coaxial but aligned at the perimeter wall, as are flat, circular partitions 4.

[0027] Basically, cylindrical elements 3 of smaller diameter are positioned eccentrically to cylindrical elements 2.

[0028] Although this configuration requires slightly more complex moulds for manufacturing purposes, it is more practical because it is no longer necessary to ensure that the lock of hair is passed through grooves 5 when it is wound from one cylindrical element to the next.

[0029] In the embodiment of figures 5 to 5C, the bodies 2 and 3 are provided with slots 6 for the passage of treatment substances like dyes or the like.

[0030] Between bodies 2 and 3 inner partitions 7 are provided, which are flattened at their base 8, aligned with the perimeter wall of bodies 2 and 3.

[0031] An end wall 9 has a shape like the one of partitions 7, but is turned upside down with respect to the first ones.

[0032] A second end wall 10, is circular.

[0033] A major advantage of the curler in accordance with the invention is that it allows the lock of hair to be wound from the end, unlike current procedures, in which the lock is wound from the root, and must then be secured with a hair grip at the end, which involves more difficulty and a less stable configuration.

[0034] The accessory described could obviously present numerous modifications and variations; for example, grooves could be included to facilitate the passage of liquids and treatment substances, or the curler could be divided into a number of connectable components, each of which consists of a larger cylinder and a small cylinder joined together and fitted with joining and connection means for other similar components.

[0035] All these variations, like others which are not described here but can easily be imagined and derive from the invention, must be deemed to fall within the protection of the invention, as defined by the following claims.

Claims

1. Curler designed to produce ringlets or curls of different diameters from the same lock of hair, **characterised in that** it consists of a body (1) formed by a succession of elements (2, 3) with different, alternating width.
2. Curler designed to produce ringlets or curls of different diameters as claimed in the preceding claim, **characterised in that** it basically consists of an elongated body (1) formed by a plurality of cylindrical elements (2, 3) with a larger and smaller diameter arranged alternately on the same axis.
3. Curler according to claim 1, **characterised in that** it basically consists of an elongated body (1) formed by a plurality of elements (2, 3) having elliptical or polygonal section, with a larger and smaller width, arranged alternately on the same axis.
4. Curler designed to produce ringlets or curls of different diameters as claimed in claim 2 or 3, **characterised in that** basically discoidal or truncated-cone-shaped partitions (4) are inserted between the said elements (2, 3), which said partitions (4) contain grooves (5) or the like through which the lock of hair wound round the curler passes.
5. Curler designed to produce ringlets or curls of different diameters as claimed in claim 4, **characterised in that** the said groove (5) in each discoidal partition (4) is positioned at a 180° angle from the groove in the adjacent partition.
6. Curler as claimed in claim 2 or 3, **characterised in that** the said cylindrical elements (2, 3) of different diameter are arranged with the side walls aligned.
7. Curler as claimed in claim 2 or 3, **characterised in that** between bodies (2) and (3) inner partitions (7) are provided, which are flattened at their base (8), aligned with the perimeter wall of bodies (2) and (3), and at least an end wall (9) has a shape like the one of inner partitions (7), but is turned upside down with respect to these last.
8. Curler designed to produce ringlets or curls of different diameters as claimed in the preceding claims, **characterised in that** the whole curler, including the cylindrical components and partitions,

is made in a single piece.

9. Curler designed to produce ringlets or curls of different diameters as claimed in the preceding claims, **characterised in that** it is made of a number of mutually connectable pieces. 5

10. Curler designed to produce ringlets or curls of different diameters as claimed in the preceding claims, **characterised in that** push-fit joining means or the like are used if it is made of a number of mutually connectable pieces. 10

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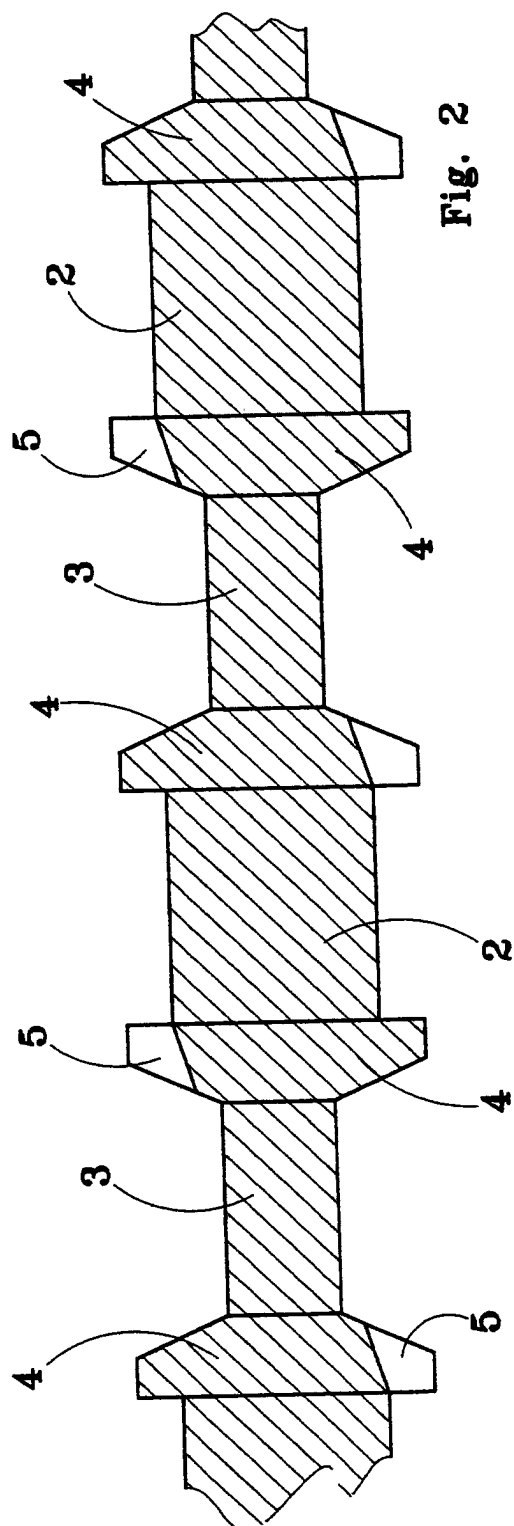
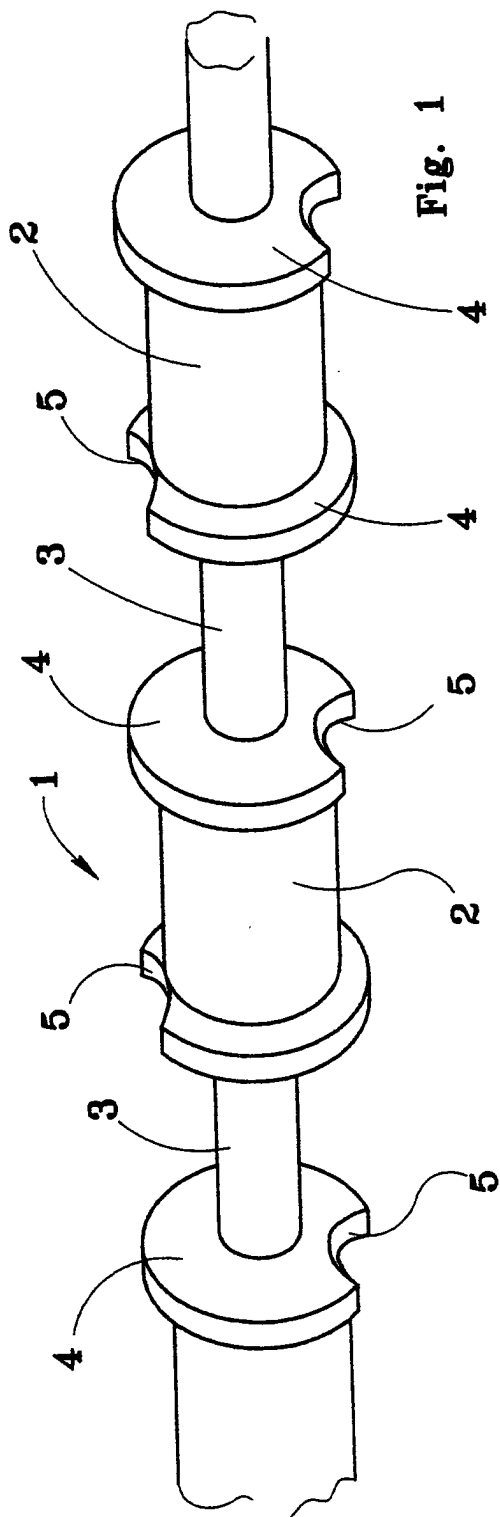
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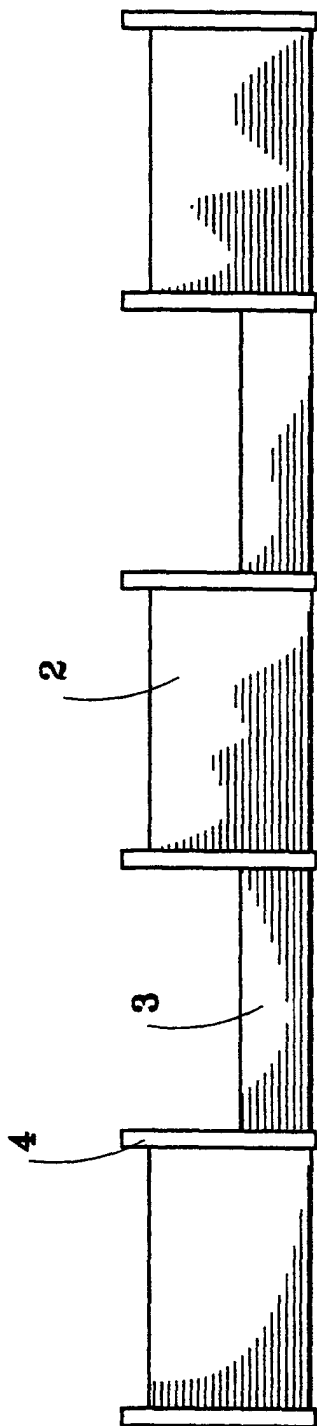


Fig. 3

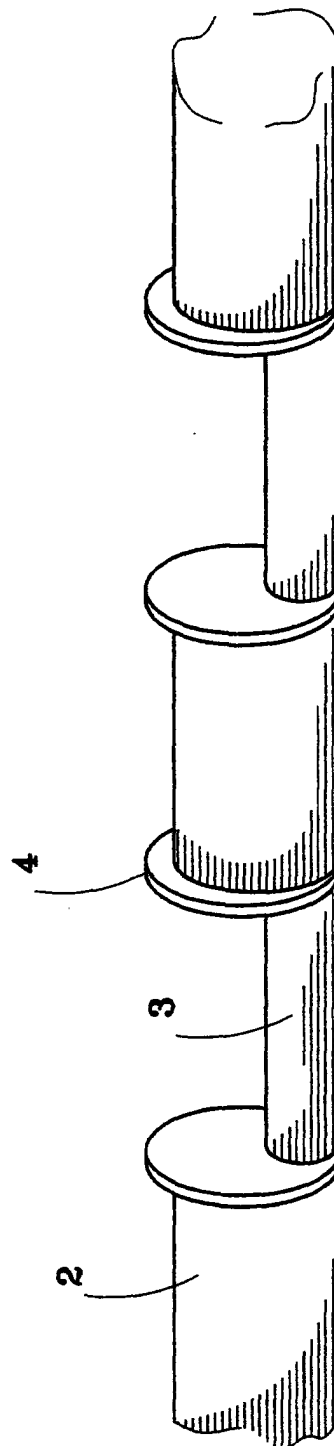
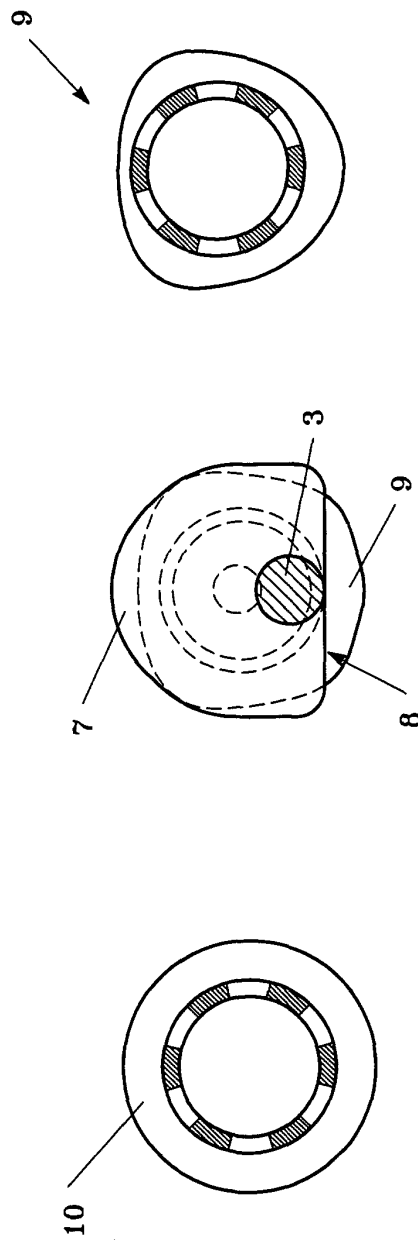
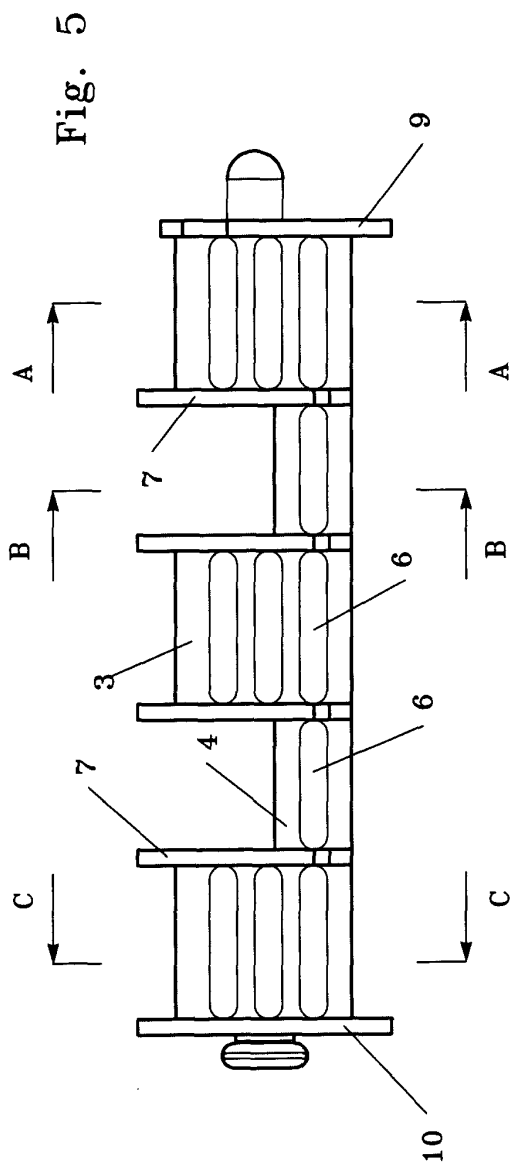


Fig. 4





European Patent
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EUROPEAN SEARCH REPORT

Application Number
EP 01 11 1029

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
X	US 2 525 981 A (DORIS WEBSTER) 17 October 1950 (1950-10-17) * figure 5 * * column 3, line 46 - line 61 *	1,2,4,6, 8,9	A45D2/02
Y	---	10	
Y	US 2 242 913 A (LEONARDO INGRASSIA) 20 May 1941 (1941-05-20) * figure 8 * * page 5, column 2, line 62 - line 73 *	10	
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P,A	US 6 186 150 B1 (LO ZHEN-XING) 13 February 2001 (2001-02-13) * abstract * * figures 9,10 *	1	
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			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
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The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 28 August 2001	Examiner Zetzsche, B
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

EPC FORM 1503 03/92 (P04001)

**ANNEX TO THE EUROPEAN SEARCH REPORT
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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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28-08-2001

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