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(54) **Crockery basket for dishwashers**

(57) The invention relates to a crockery basket (10) for dishwashing machines, which basket (10) is formed from metal bars and has a base (10l) and lateral walls (10le) and pivotable supports (25) provided with a row of prongs (20), the prongs of one support (25) each being respectively attached to a bearing shaft (21) and rotatably mounted in downwardly open bearing receivers (16) of the crockery basket (10), and the supports (25) being lockable on the support basket by vertically orientated prongs (10le) and being able to be brought into a position which is downwardly pivotable onto the base of the crockery basket (10). The mounting and the use of the supports (25) are improved and simplified in that each support (25) is engaged, by the bearing shaft (21),

in at least two bearing receivers (16) for bearing struts (15) of the crockery basket (10), which are orientated transversely relative to the bearing shaft (21), and each frame is supported by the bearing shaft (21) on bottom bars (10q), which are orientated transversely relative to the bearing shaft (21), in that at least one prong (20) has a locking end (20e), which extends beyond the bearing shaft (21) and is provided with a locking receiver (22), said locking end being fitted in the vertical position of the prongs (20) with a bottom bar (10l) of the crockery basket (10) orientated parallel to the bearing shaft (21), and in that the support is downwardly pivotable onto the base of the crockery basket (10) once the locking connection between the bottom bar (10l) and the locking end (20e) has been released.

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## Description

**[0001]** The invention concerns a crockery basket for dishwashers, which is formed from metal rods and which has a base, sides and tilting racks which are fitted with a row of spars, wherein the spars of each rack are attached to a bearing shaft, which can be rotated within bearing mounts of the crockery basket facing downwards and wherein when the spars are in the vertical position, the racks can be engaged onto the basket frame or moved into a folded position onto the base of the crockery basket.

**[0002]** A crockery basket of this design is known from EP 0 797 949 A 2. In this case, fitted to the ends of the bearing shaft of a rack are C-shaped catches, which are aligned towards each other and guided into double lugs specially fitted to the sides of the crockery basket, so that when pushed and rotated, they can be moved into two positions, in which the spars of the frame are either in an upright vertical position, or folded down onto the base of the crockery basket. This results in an arrangement with a large bearing clearance, which causes an insecure fixing of the rack in the required position. Moreover, the structural design of the crockery basket with the additional double lugs is expensive and handling of the rack is unwieldy due to the adjustment in two directions.

**[0003]** A similar design of crockery basket equipped with folding racks is disclosed in DE 197 55 339 A1. However, alternatively shaped bearing shafts and special guide components for the bearing shafts are used on the sides of the crockery basket. The design of the crockery basket and the handling of the rack are therefore encumbered by the same disadvantages.

**[0004]** The task of the invention is to create a crockery basket of the design described above, with a view to improving and simplifying the arrangement of the rack and handling of same.

**[0005]** The task is solved in accordance with the invention in that each rack with the bearing shaft is engaged onto at least two bearing mounts by bearing struts of the crockery basket which are positioned transverse to the bearing shaft and with the bearing shaft supported on base rods positioned transverse to the bearing shaft, in that at least one spar has a latch end with latch mount extending beyond the bearing shaft, which are engaged in the vertical position of the spar by a base rod of the crockery basket positioned parallel to the bearing shaft and in that once the latch connection between the base rod and the latch end is disengaged, the rack can be folded down onto the base of the crockery basket.

**[0006]** Through the latch connection between the bearing shaft of a rack and the bearing struts of the crockery basket, in connection with the support of the bearing shaft on the base rods of the crockery basket, an almost zero-play rotating position is achieved for the rack, which can also easily be released. By fitting a latch

end to at least one spar on the rack and by engaging this spar onto a base rod running parallel to the bearing shaft, it is simple to engage the rack into the position for use, wherein the only action required is a simple rotational movement onto the rack.

**[0007]** To engage the rack, the arrangement is constructed such that the latch end of the spar is formed in the shape of a C and when the spars are upright, the latch mounts open facing upwards.

**[0008]** If according to a further design, the bearing struts extend over a part of the dimension of the crockery basket transverse to the bearing shaft of the rack and have bearing mounts at both ends, the bearing struts can be used for the rotating position of two connected racks for plates or similar. In this case, it is preferential for the two racks located on the bearing struts to fold towards each other onto the base of the crockery basket, wherein if the spars are in the vertical position, the latch ends of the rack are facing each other and wherein the latch ends are engaged onto the base rods that run parallel between the bearing shafts. The only difference between the two racks lies in the method of securing and aligning the spar with the latch end.

**[0009]** The cost of the basket components is kept low in that the base rods running parallel to the shaft ends of the rack, with the ends vertical, form wall rods angled upwards, to which peripheral, horizontal wall rods are attached.

**[0010]** The invention is explained in more detail by way of one of the design examples illustrated in the drawings. The following are shown:

Fig. 1 a partial view of the crockery basket showing details of the rotating position and locking of the racks with a row of spars,

Fig. 2 an exploded partial view with a rack locked into the position for use with spars in the vertical position, and

Fig. 3 an exploded partial view with rack folded onto the base of the basket.

**[0011]** Fig.1 shows a crockery basket 10 formed from metal rods and its base rods 101 and 10q arranged in the base area, which are aligned in the longitudinal and transverse direction of the crockery basket 10. Thus, the longitudinal base rods 101 are attached to the transverse base rods 10q. The longitudinal base rods 101 are angled upwards at right angles on the ends 10le and serve as vertical wall rods, to which horizontally running wall rods 10w and 10wa are attached, thereby completing the physical carcass of the crockery basket 10.

**[0012]** The racks 25 with the row of spars 20 have at one end of the spars 20 a bearing shaft 21, on which the crockery basket 10 can be rotated. Thus, attached to the underside of longitudinal base rods 101, are at least two separate bearing struts 15, the ends 15e of which

are fitted with latch mounts 16 facing downwards. The bearing shafts 21 of the racks 25 are mounted and engaged onto these latch mounts 16 together with the transverse base rods 10q, wherein the bearing shafts 21 are supported by the transverse base rods 10q.

**[0013]** The rotating position thus created operates at practically zero-play, whilst still being simple to disengage.

**[0014]** The partial views shown in Figs. 2 and 3 illustrate in more detail the two positions of the rack 25 on the crockery basket 10. At least one spar 20 of a rack 25 extends beyond the bearing shaft 21 and forms a C-shaped end 20e with latch 22 for a longitudinal base rod 101.

**[0015]** In the required position with the spars 20 in the vertical position, the latch mount 22 faces upwards and faces onto a longitudinal base rod 101 adjacent to the rotating bearing arrangement, as shown clearly by Figs. 1 and 2. If the rack 25 is subjected to a rotational movement, this locking connection between the end 20e of the spar 20 and the longitudinal base rod 101 is released and the rods can be folded down onto the longitudinal base rods 101, as shown by the 20' position shown in Figs. 1 and 3.

**[0016]** If the bearing struts 15 with their ends 15e project beyond two longitudinal base rods 101, two racks 25 can be rotated on the bearing struts 15. The racks 25 are formed as mirror images and can be folded against each other, as shown by Fig. 1. Thus, the required positions engage onto the longitudinal base rods 101 arranged between the bearing shafts 21. The two racks 25 rotate in opposite directions.

## Claims

1. A crockery basket for dishwashers, which is formed from metal rods and which has a base, sides and tilting racks which are fitted with a row of spars, wherein the spars of each rack are attached to a bearing shaft, which can be rotated within bearing mounts of the crockery basket facing downwards and wherein when the spars are in the vertical position, the racks can be engaged onto the basket frame or moved into a folded position onto the base of the crockery basket, characterised in that each rack (25) with the bearing shaft (21) is engaged onto at least two bearing mounts (16) by bearing struts (15) of the crockery basket (10) which are positioned transverse to the bearing shaft (21) and with the bearing shaft (21) supported on base rods (10q) positioned transverse to the bearing shaft (21), at least one spar (20) has a latch end (20e) with latch mount (22) extending beyond the bearing shaft (21), which are engaged in the vertical position of the spar (20) by a base rod (101) of the crockery basket (10) positioned parallel to the bear-

ing shaft (21),

and

in that once the latch connection between base rod (101) and latch end (20e) is disengaged, the rack (25) can be folded down onto the base of crockery basket (10).

2. Crockery basket in accordance with Claim 1, characterised in that the latch end (20e) of the spar (20) is formed in a C-shape and in the vertical spar (20) position has a lock mount (22) facing upwards.
3. Crockery basket in accordance with Claim 1 or 2, characterised in that the bearing struts (15) extend over a part of the dimension of the crockery basket (10) transverse to the bearing shafts (21) of the rack (25) and have bearing mounts (16) at both ends (15e).
4. Crockery basket in accordance with Claim 3, characterised in that the two racks (25, 25') located on the bearing struts (15) can be folded towards each other onto the base of the crockery basket (10), wherein if the spars (20) are in the vertical position, the latch ends (20e) of the racks (25, 25') are positioned opposite each other and wherein the latch ends (20e) are engaged onto the base rods (101) that run parallel between the bearing shafts (21).
5. Crockery basket in accordance with Claims 1 to 4, characterised in that the base rods (101) running parallel to the bearing shafts (21) of the racks (25) with the ends (101e) form wall rods angled upwards, to which peripheral, horizontal wall rods (10w, 10wa) are attached.

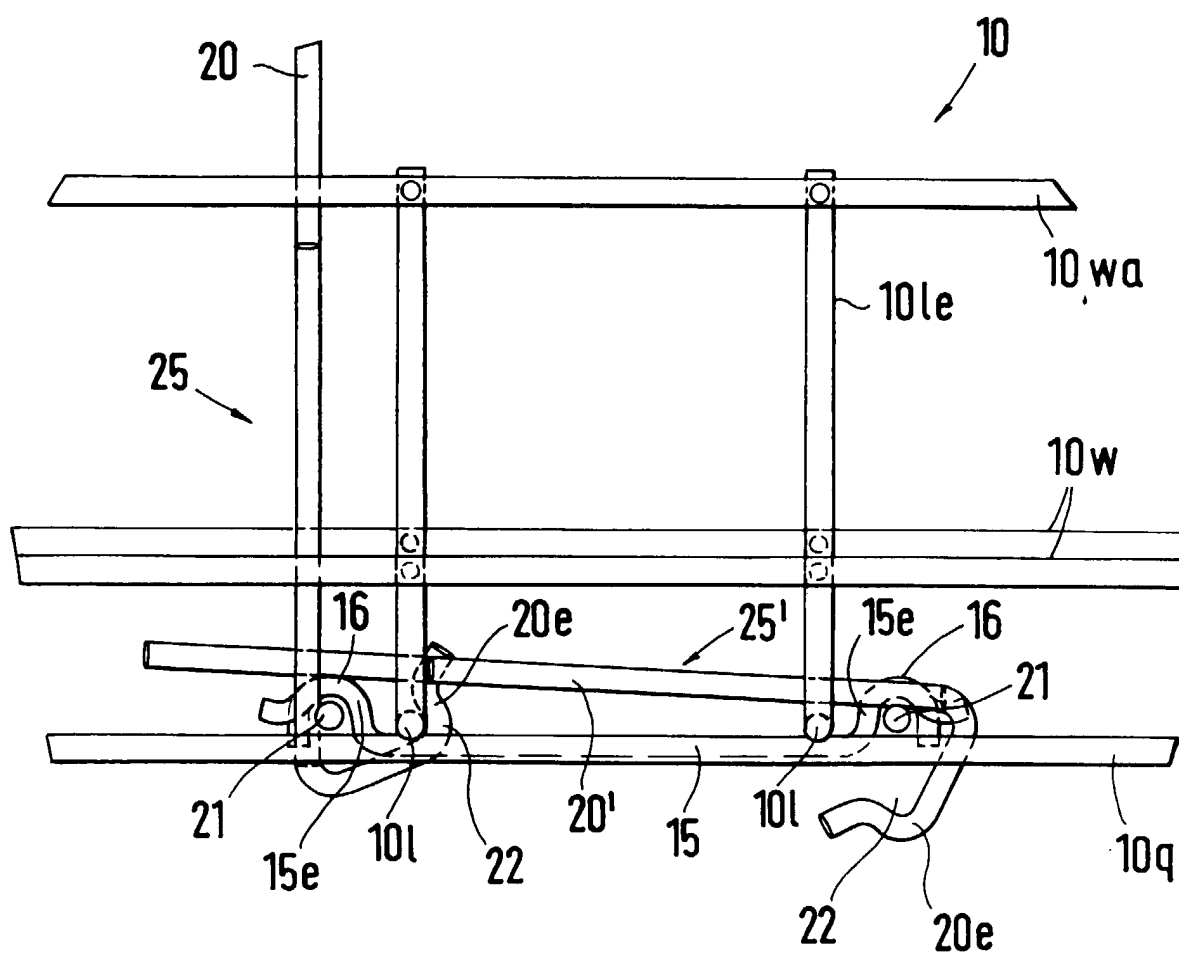


Fig.1

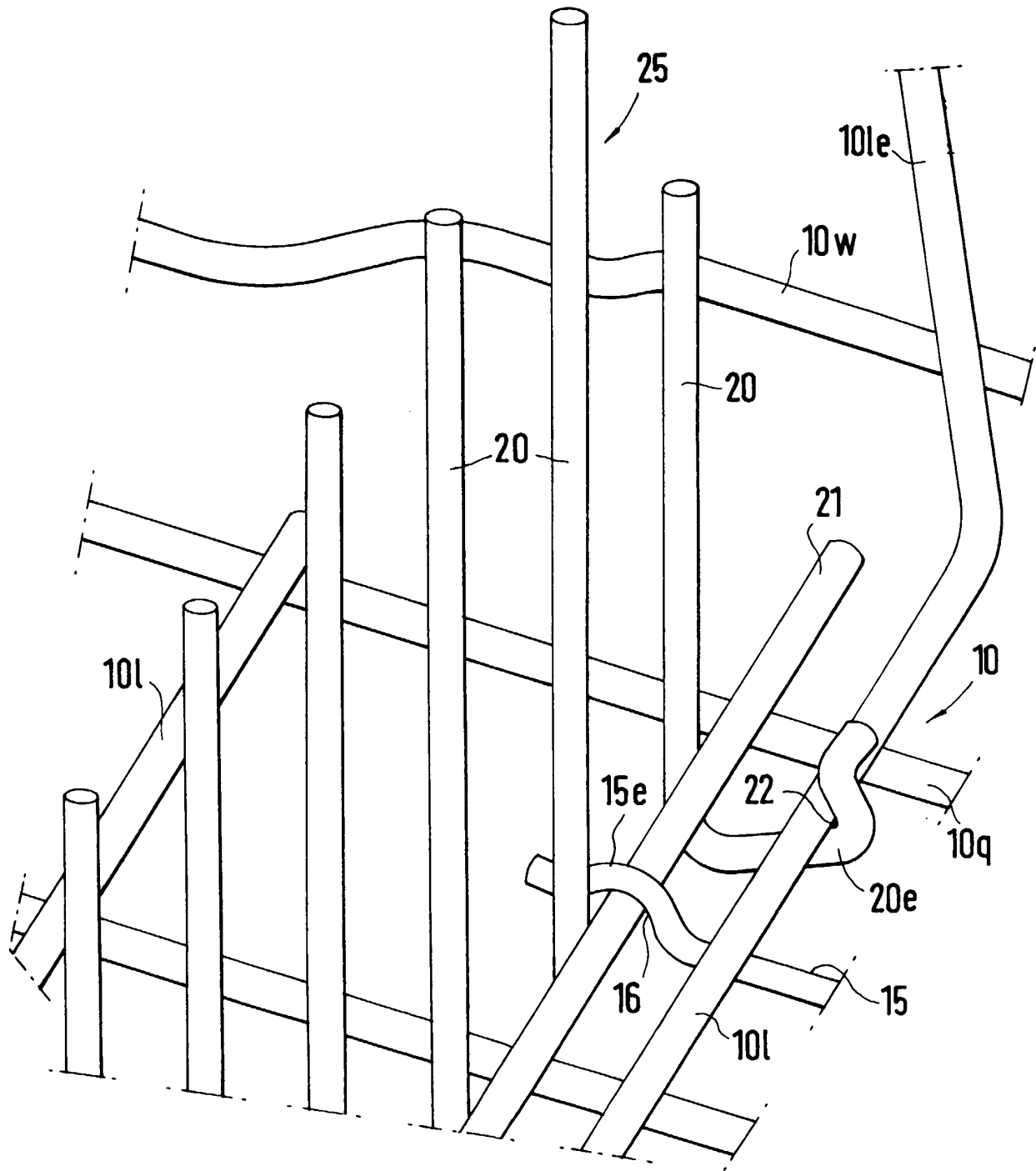


Fig.2

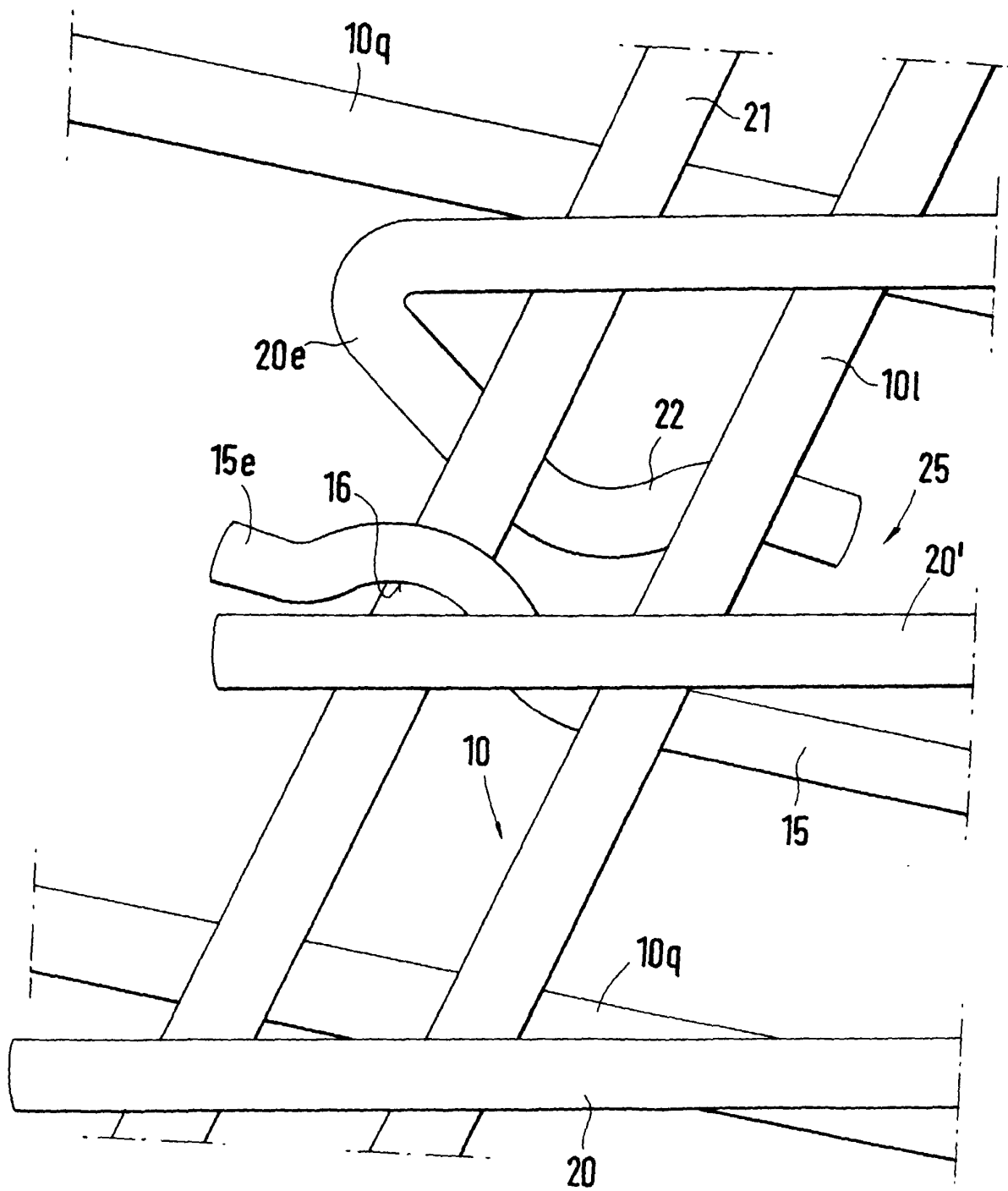


Fig. 3



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## EUROPEAN SEARCH REPORT

Application Number  
EP 00 12 3839

| DOCUMENTS CONSIDERED TO BE RELEVANT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                 |                                  |                                              |
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| Category                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Citation of document with indication, where appropriate, of relevant passages                                   | Relevant to claim                | CLASSIFICATION OF THE APPLICATION (Int.Cl.7) |
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| The present search report has been drawn up for all claims                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                 |                                  |                                              |
| Place of search                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                 | Date of completion of the search | Examiner                                     |
| THE HAGUE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                 | 27 February 2001                 | Fairbanks, S                                 |
| CATEGORY OF CITED DOCUMENTS<br>X : particularly relevant if taken alone<br>Y : particularly relevant if combined with another document of the same category<br>A : technological background<br>O : non-written disclosure<br>P : intermediate document<br>T : theory or principle underlying the invention<br>E : earlier patent document, but published on, or after the filing date<br>D : document cited in the application<br>L : document cited for other reasons<br>& : member of the same patent family, corresponding document |                                                                                                                 |                                  |                                              |

EPO FORM 1503 03/92 (P4/C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT  
ON EUROPEAN PATENT APPLICATION NO.**

EP 00 12 3839

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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