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(71) Applicant: **Electrolux Home Products Corporation N.V.**
1130 Brussel (BE)

(72) Inventors:
• **Dal Ben, Diego**
33080 Porcia (PN) (IT)
• **Lorenc, Marcin**
33080 Porcia (PN) (IT)
• **Santarossa, Marco**
33080 Porcia (PN) (IT)

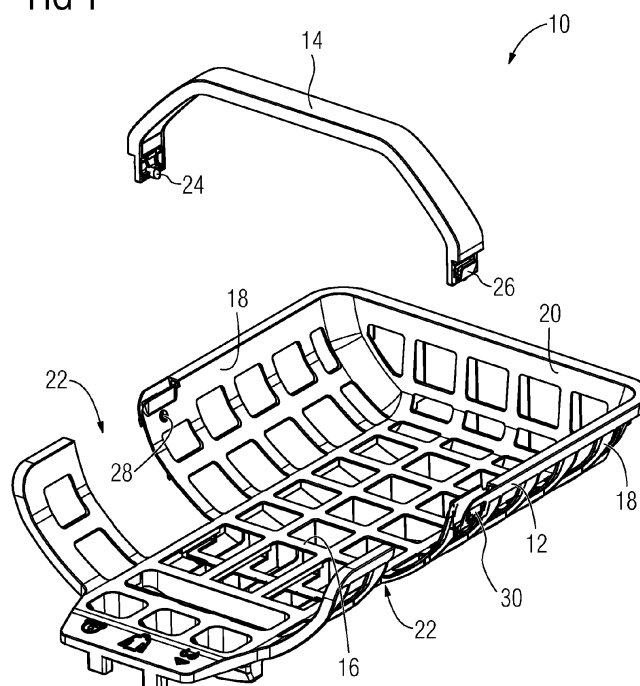
(74) Representative: **Nardoni, Andrea et al**
Electrolux Italia S.p.A.
Corso Lino Zanussi, 30
33080 Porcia (PN) (IT)

(54) **A laundry rack for a drum of a laundry dryer**

(57) The present invention relates to a laundry rack (10) for a drum of a laundry dryer. The laundry rack (10) includes a cage (12) and an elongated handle (14). The cage (12) comprises a bottom (16), two opposing side walls (18), an open front side and an open top side. The bottom (16) and the side walls (18) are at least partially formed as grids. The handle (14) is tiltable at the cage

(12) between a gripping position and a supporting position. The handle (14) extends upwardly in the gripping position, so that the handle (14) forms a handhold for the laundry rack (10). The handle (14) lies on the bottom (16) of the cage (12) in the supporting position, so that the handle (14) closes at partially the open front side of the cage (12).

FIG 1



Description

[0001] The present invention relates to a laundry rack for a drum of a laundry dryer according to the preamble of claim 1. Further, the present invention relates to a laundry dryer with a drum and a laundry rack.

[0002] In a laundry dryer a rack can be used for storing delicate clothes and footwear articles to be dried. Said rack is arranged inside the laundry drum. The storage of the delicate clothes and/or footwear articles in the rack reduces fabric damages during the drying process, since there is no contact of the clothes and footwear articles with the inner wall of the laundry drum.

[0003] EP 1 690 973 A1 discloses a rack-like framework for a drum of a laundry dryer. The framework is removably installed inside the drum. The framework comprises a horizontal structure, a rod, a housing and retaining means. The rod is substantially aligned with the bottom structure of the framework. The rod comprises a handgrip arranged at a free front end of said rod. The rod is adapted to be pushed into and pulled out of the housing. The retaining means are associated to the bottom structure. However, the framework is relative complex and includes a number of components.

[0004] It is an object of the present invention to provide a laundry rack for a drum of a laundry dryer, which laundry rack is less complex.

[0005] The object of the present invention is achieved by the laundry rack according to claim 1.

[0006] According to the present invention the handle is tiltable between a gripping position and a supporting position, wherein the handle extends upwardly in the gripping position, so that the handle forms a handhold for the laundry rack, and the handle lies on the bottom of the cage in the supporting position, so that the handle closes at least partially the open front side of the cage.

[0007] According to one aspect of the present invention the handle has two positions for different functions. In the gripping position the handle is provided for gripping the laundry rack by a user. In the supporting position the open front side of the cage is at least partially closed by the handle. The inventive laundry rack is realized only by two components, i.e. the cage and the handle. Additional components are not required, so that the laundry rack has a simple, but efficient structure.

[0008] Preferably, the ends of the handle are attached or attachable at upper portions of the side walls.

[0009] Further, the one end of the handle may comprise a pin corresponding with a pin hole in the upper portion of the one side wall for receiving said pin.

[0010] In particular, the pin and the pin hole form a pivot joint for the tiltable handle.

[0011] Moreover, the other end of the handle may comprise a snap-in protrusion corresponding with a recess in the upper portion of the other side wall for receiving said snap-in protrusion.

[0012] The snap-in protrusion and the recess may have similar cross-sections, wherein the snap-in protrusion is marginally smaller than the recess.

sion is marginally smaller than the recess.

[0013] Further, the snap-in protrusion and the recess may provide a stable gripping position, if the snap-in protrusion is received by the recess.

5 **[0014]** Otherwise, the handle is tiltable, if the snap-in protrusion is out of the recess. Also in the support position the snap-in protrusion is out of the recess.

[0015] For example, the handle is tiltable about 90 degrees.

10 **[0016]** Further, the handle may be tiltable about 180 degrees.

[0017] Preferably, the cage comprises two opposing vertical slots arranged in the side walls, wherein each slot is provided for receiving one end portion of the handle in the supporting position.

15 **[0018]** Additionally, the cage may comprise a rear wall.

[0019] In particular, the rear wall may be at least partially formed as a grid.

20 **[0020]** At last, the laundry rack may be provided for receiving delicate laundry and/or footwear articles to be dried.

[0021] Moreover, the handle in the supporting position forms a supporting surface for receiving at least a part of articles to be dried thereon so as to keep such articles inclined relative to the bottom of the cage.

25 **[0022]** Further, the present invention relates to a laundry dryer with a drum, wherein the laundry dryer comprises at least one laundry rack mentioned above.

[0023] The novel and inventive features believed to be the characteristic of the present invention are set forth in the appended claims.

[0024] The invention will be described in further detail with reference to the drawings, in which

35 FIG 1 illustrates an exploded perspective view of a laundry rack for a drum of a laundry dryer according to a preferred embodiment of the present invention,

40 FIG 2 illustrates a perspective view of the laundry rack with a handle in a gripping position according to the preferred embodiment of the present invention,

45 FIG 3 illustrates a perspective view of the laundry rack with the handle in a supporting position according to the preferred embodiment of the present invention,

50 FIG 4 illustrates a detailed perspective view of the connection between one end of the handle and the cage in the supporting position according to the preferred embodiment of the present invention, and

55 FIG 5 illustrates a detailed perspective view of the connection between another end of the handle and the cage in the supporting position accord-

ing to the preferred embodiment of the present invention.

[0025] FIG 1 illustrates an exploded perspective view of a laundry rack 10 for a drum of a laundry dryer according to a preferred embodiment of the present invention. The laundry rack 10 is provided for receiving delicate pieces of clothing, such as wool garments, footwear articles and the like.

[0026] The laundry rack 10 includes an open cage 12 and a handle 14. The cage 12 comprises a bottom 16, two side walls 18 and a rear wall 20. The front side and the top side of the cage 12 are preferably open. The side walls 18 are inclined, so that the broadness of the cage 12 increases from the bottom up. The bottom 16, the side walls 18 and the rear wall 20 are formed as grids. Each of the side walls 18 includes a vertical slot 22. Said vertical slots 22 are arranged face to face with each other.

[0027] The handle 14 has the form of a bracket. A pin 24 is arranged at one end of the handle 14. The pin 24 extends in a horizontal direction. In this example, the pin 24 is arranged at an inner side of the handle 14 and is inward-looking. A snap-in protrusion 26 is arranged at the other end of the handle 14. In this example, the snap-in protrusion 26 is arranged at an outer side of the handle 14 and is outward-looking.

[0028] The pin 24 of the handle 14 corresponds with a pin hole 28 arranged in an upper central portion of the one side wall 18. The pin hole 28 is provided for receiving the pin 24. The snap-in protrusion 26 corresponds with a recess 30 arranged in an upper central portion of the other side wall 18. The recess 30 is provided for receiving the snap-in protrusion 26. The pin hole 28 and the recess 30 are arranged face to face with each other. Thus, the one end of the handle 14 is attached at the one side wall 18 by the pin 24 and the pin hole 28. In a similar way, the other end of the handle 14 is attached at the other side wall 18 by the snap-in protrusion 26 and the recess 30.

[0029] The handle 14 is tiltable at the cage 12 between a gripping position and a supporting position. In the gripping position the handle 14 extends upwardly, so that a user may grip the laundry rack 10 by hand. In the supporting position a central portion of the handle 14 lies on the bottom 16 of the cage 12, so that the open front side of the cage 12 is partially closed by the handle 14. Thus, the handle 14 forms a front wall for the cage 12 in the supporting position. Such front wall forms a supporting surface for receiving thereon at least a part of articles to be dried so as to keep them inclined relative to the bottom 16 of the cage 12. In fact, when the handle 14 is in the supporting position, articles to be dried can rest partly on the handle 14 and partly on the bottom 16 of the cage 12, thereby assuming a tilted position relative to the bottom 16.

[0030] FIG 2 illustrates a perspective view of the laundry rack 10 with the handle 14 in a gripping position according to the preferred embodiment of the present in-

vention. The handle 14 extends upwardly, so that a user can grip the laundry rack 10 by hand.

[0031] The pin 24 of the handle 14 is received by the pin hole 28 in the one side wall 18. The snap-in protrusion 26 is received by the recess 30 in the other side wall 18. The recess 30 and the snap-in protrusion 26 have similar cross-sections. The cross-section of the recess 30 is marginally bigger than the cross-section of the snap-in protrusion 26. In this example, the snap-in protrusion 26 is receivable by the recess 30, when the handle 14 is in the gripping position. When the snap-in protrusion 26 is received by the recess 30, then the handle 14 is stable in the gripping position and not tiltable.

[0032] FIG 3 illustrates a perspective view of the laundry rack 10 with the handle 14 in a supporting position according to the preferred embodiment of the present invention. The central portion of the handle 14 lies on the bottom 16 of the cage 12. The open front side of the cage 12 is partially closed by the handle 14. In the supporting position the handle 14 forms a front wall for the cage 12. Such wall is useful for receiving thereon articles to be dried, such as footwear articles, so as to keep them at least partly raised from the bottom 16 of the cage 12. In this way drying air may efficiently pass through said articles, thereby improving drying process efficiency.

[0033] FIG 4 illustrates a detailed perspective view of the connection between the one end of the handle 14 and the cage 12 in the supporting position according to the preferred embodiment of the present invention. Said detailed perspective view is characterized by the reference numeral IV in FIG 3. The pin 24 is received by the pin hole 28 in the one side wall 18. Thus, the pin 24 is received by the pin hole 28 in the gripping position as well as in the supporting position of the handle 14.

[0034] FIG 5 illustrates a detailed perspective view of the connection between the other end of the handle 14 and the cage 12 in the supporting position according to the preferred embodiment of the present invention. Said detailed perspective view is characterized by the reference numeral V in FIG 3. The snap-in protrusion 26 is arranged besides the recess 30 in the other side wall 18. The snap-in protrusion 26 is not received by the recess 30 in the other side wall 18 in the supporting position of the handle 14.

[0035] Before the handle 14 can be moved from the gripping position to the support position, the snap-in protrusion 26 has to be pushed out of the recess 30 by the user. The pin 24 and the pin hole 28 form a pivot joint during the move of the handle 14 between the gripping position and the support position. The pin 24 remains inside the pin hole 28 in the gripping position as well as in the support position. When the handle 14 is moved to the support position, end portions of said handle 14 are received by the slots 22 in the side walls 18. Between the gripping position and the support position the handle 14 is pivoted about 90 degrees. Further, the handle 14 may be provided for a pivoting about 180 degrees.

[0036] The laundry rack 10 according to the present

invention includes only two components, i.e. the cage 12 and the handle 14. This reduces the complexity of the laundry rack 10. Further, the support position of the handle 14 allows an undisturbed passing of the air stream through the laundry rack 10 with the laundry drum, so that the drying process is improved.

[0037] Although an illustrative embodiment of the present invention has been described herein with reference to the accompanying drawings, it is to be understood that the present invention is not limited to that precise embodiment, and that various other changes and modifications may be affected therein by one skilled in the art without departing from the scope or spirit of the invention. All such changes and modifications are intended to be included within the scope of the invention as defined by the appended claims.

List of reference numerals

[0038]

10 laundry rack

12 cage

14 handle

16 bottom

18 side wall

20 rear wall

22 slot

24 pin

26 snap-in protrusion

28 pin hole

30 recess

IV detailed perspective view

V detailed perspective view

Claims

1. A laundry rack (10) for a drum of a laundry dryer, wherein

- the laundry rack (10) includes a cage (12) and an elongated handle (14),
- the cage (12) comprises a bottom (16), two opposing side walls (18), an open front side and an open top side,

- the bottom (16) and the side walls (18) are at least partially formed as grids, and
- the handle (14) is tiltable at the cage (12), **characterized in, that**

the handle (14) is tiltable between a gripping position and a supporting position, wherein the handle (14) extends upwardly in the gripping position, so that the handle (14) forms a handhold for the laundry rack (10), and the handle (14) lies on the bottom (16) of the cage (12) in the supporting position, so that the handle (14) closes at least partially the open front side of the cage (12).

2. The laundry rack according to claim 1, **characterized in, that** the ends of the handle (14) are attached or attachable at upper portions of the side walls (18).

3. The laundry rack according to claim 1 or 2, **characterized in, that** the one end of the handle (14) comprises a pin (24) corresponding with a pin hole (28) in the upper portion of the one side wall (18) for receiving said pin (24).

4. The laundry rack according to claim 3, **characterized in, that** the pin (24) and the pin hole (28) form a pivot joint for the tiltable handle (14).

5. The laundry rack according to any one of the preceding claims, **characterized in, that** the other end of the handle (14) comprises a snap-in protrusion (26) corresponding with a recess (30) in the upper portion of the other side wall (18) for receiving said snap-in protrusion (26).

6. The laundry rack according to claim 5, **characterized in, that** the snap-in protrusion (26) and the recess (30) have similar cross-sections, wherein the snap-in protrusion (26) is marginally smaller than the recess (30).

7. The laundry rack according to claim 5 or 6, **characterized in, that** the snap-in protrusion (26) and the recess (30) provide a stable gripping position, if the snap-in protrusion (26) is received by the recess (30).

8. The laundry rack according to any one of the claims 5 to 7, **characterized in, that** the handle (14) is tiltable, if the snap-in protrusion (26) is out of the recess (30).

9. The laundry rack according to any one of the pre-

ceding claims,

characterized in, that

the handle (14) is tiltable about 90 degrees.

10. The laundry rack according to any one of the claims 1 to 8, 5

characterized in, that

the handle (14) is tiltable about 180 degrees.

11. The laundry rack according to any one of the preceding claims, 10

characterized in, that

the cage (12) comprises two opposing vertical slots (22) arranged in the side walls (18), wherein each slot (22) is provided for receiving one end portion of the handle (14) in the supporting position. 15

12. The laundry rack according to any one of the preceding claims,

characterized in, that

the cage (12) comprises a rear wall (10). 20

13. The laundry rack according to claim 12,

characterized in, that

the rear wall (20) is at least partially formed as a grid. 25

14. The laundry rack according to any one of the preceding claims,

characterized in, that

the handle (14) in the supporting position forms a supporting surface for receiving at least a part of articles to be dried thereon so as to keep such articles inclined relative to the bottom (16) of the cage (12). 30

15. A laundry dryer with a drum, 35

characterized in, that

the laundry dryer comprises at least one laundry rack (10) according to any one of the claims 1 to 14.

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FIG 1

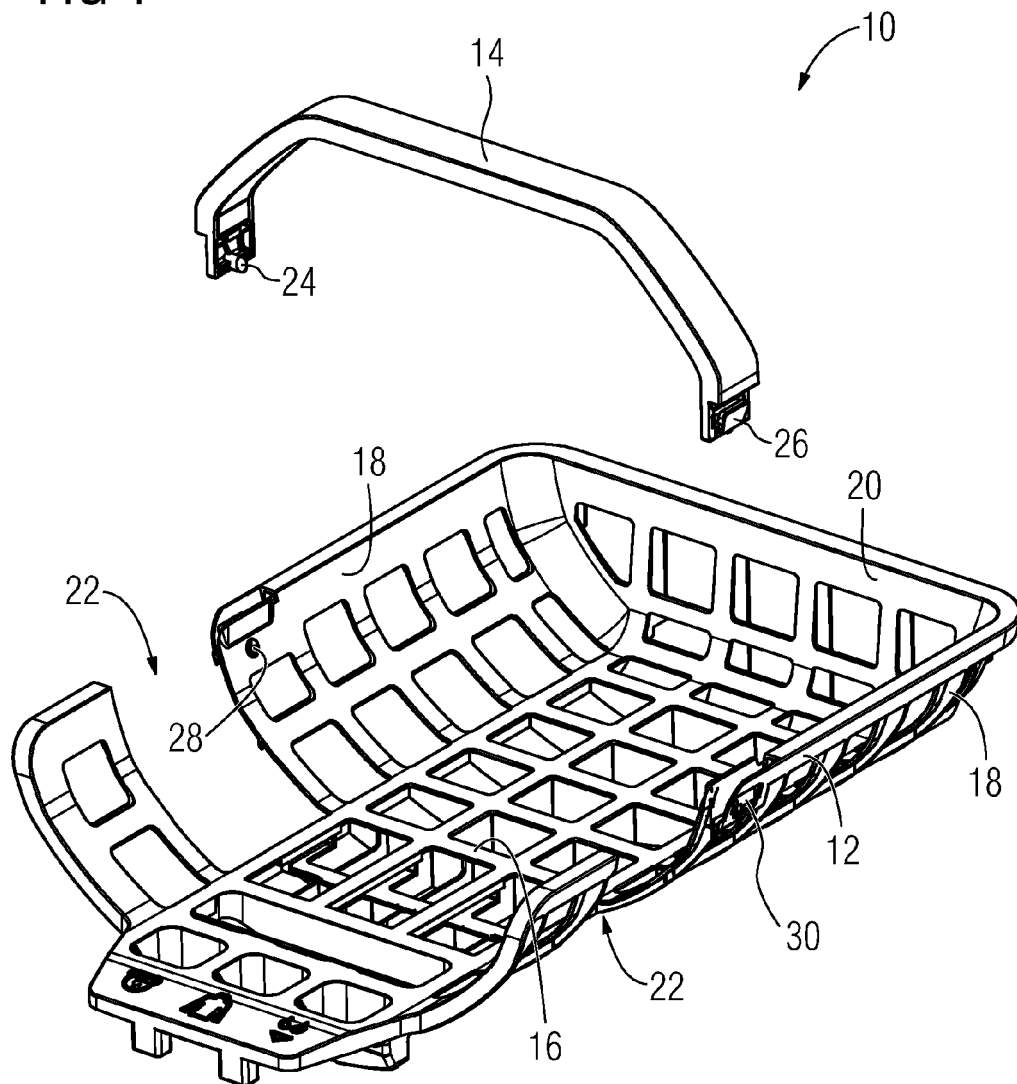


FIG 2

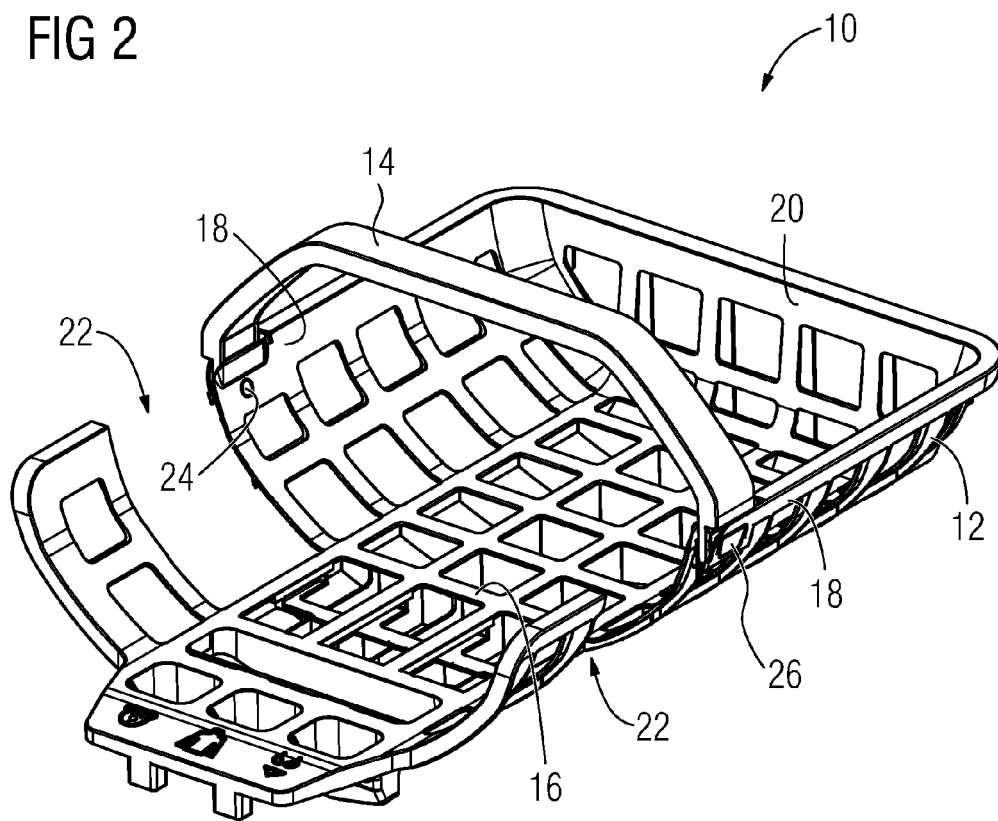


FIG 3

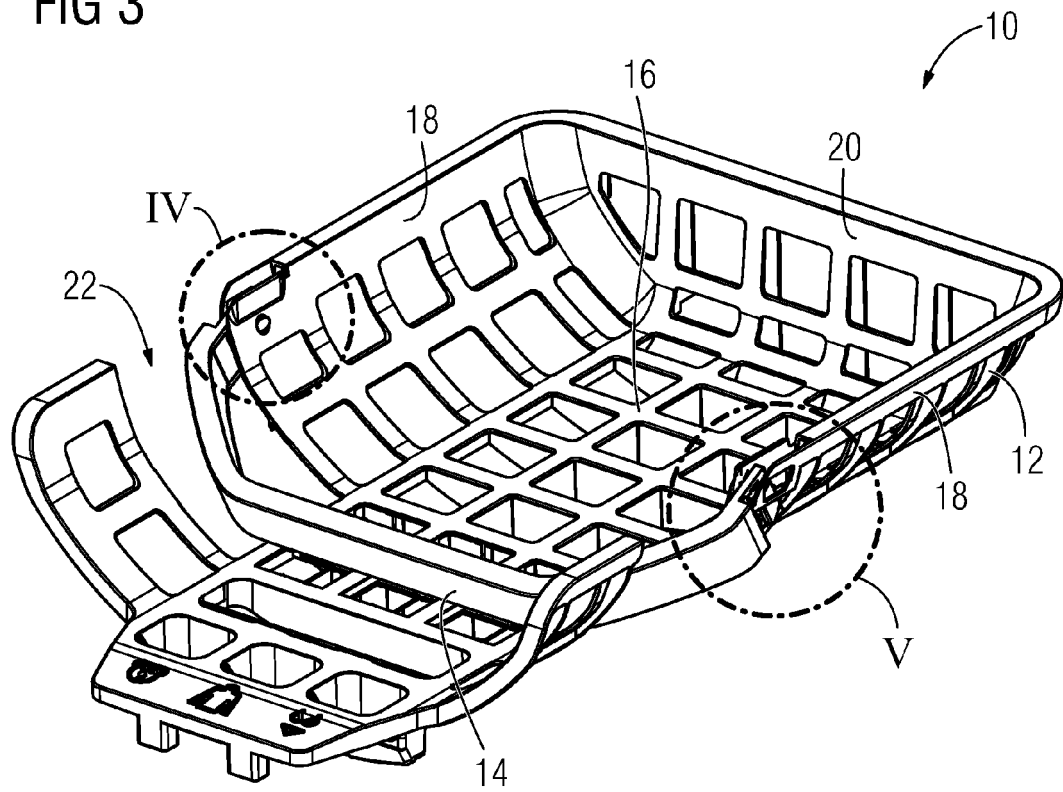


FIG 4

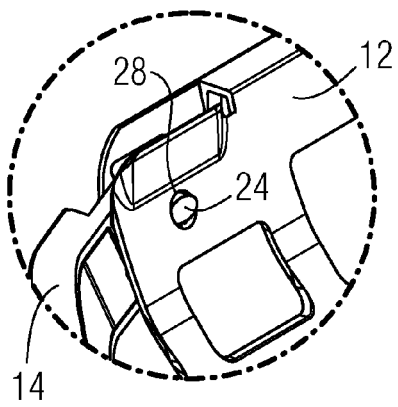
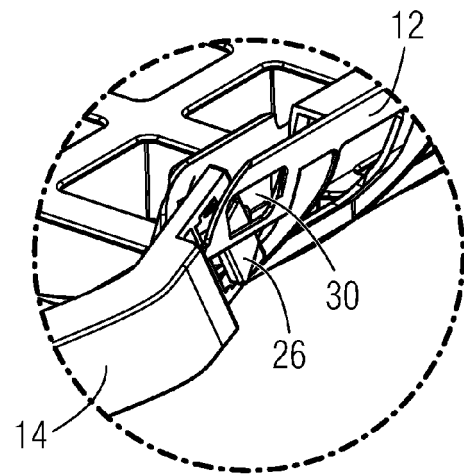


FIG 5





EUROPEAN SEARCH REPORT

Application Number
EP 11 18 7026

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A,D	EP 1 690 973 A1 (ELECTROLUX HOME PROD CORP [BE]) 16 August 2006 (2006-08-16) * the whole document *	1-15	INV. D06F58/04
A	JP 9 220399 A (HITACHI LTD) 26 August 1997 (1997-08-26) * abstract; figure 1 *	1-15	
A	US 2003/010736 A1 (HOPE RICHARD [US]) 16 January 2003 (2003-01-16) * abstract; figures 1,4 *	1-15	
A	WO 2005/064070 A1 (BSH BOSCH SIEMENS HAUSGERAETE [DE]; ACKERMANN UWE [DE]; DITTMER LOTHAR) 14 July 2005 (2005-07-14) * paragraph [0022] - paragraph [0026]; figures 1,3 *	1-15	
A	WO 2006/009382 A2 (LG ELECTRONICS INC [KR]; JEONG SEONG HAE [KR]; YOON JUHAN [KR]) 26 January 2006 (2006-01-26) * paragraph [0041] - paragraph [0065]; figures 1-3 *	1-15	
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (IPC) D06F
Place of search Munich		Date of completion of the search 12 March 2012	Examiner Hannam, Martin
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			

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EPO FORM 1503 03.82 (P04C01)

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

EP 11 18 7026

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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12-03-2012

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 1690973	A1	16-08-2006	AT 388263 T 15-03-2008
		DE 602005005158 T2 30-04-2009	
		EP 1690973 A1 16-08-2006	
		ES 2298955 T3 16-05-2008	
		IT PN20050004 U1 11-08-2006	

JP 9220399	A	26-08-1997	NONE

US 2003010736	A1	16-01-2003	NONE

WO 2005064070	A1	14-07-2005	AT 389050 T 15-03-2008
		CN 1926277 A 07-03-2007	
		DE 10360872 A1 21-07-2005	
		EA 200600976 A1 29-12-2006	
		EP 1699969 A1 13-09-2006	
		ES 2302062 T3 01-07-2008	
		KR 20060115761 A 09-11-2006	
		SI 1699969 T1 31-08-2008	
		US 2007119071 A1 31-05-2007	
		WO 2005064070 A1 14-07-2005	

WO 2006009382	A2	26-01-2006	DE 112005001216 T5 14-06-2007
		KR 20060008461 A 27-01-2006	
		US 2008209754 A1 04-09-2008	
		WO 2006009382 A2 26-01-2006	

REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

- EP 1690973 A1 [0003]