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(54) A support element

(57) A home appliance (A) of the present invention comprises at least one door (D) which moves on at least one movement axis (x); at least two opposite hinges (H) to which said door (D) is connected; and at least one support element (1) which is engaged to said two hinges (H). Said support element (1) comprises at least one holding slot (2, 3) bent thereon, and at least one connection end (4) engaged to at least one slot (5) provided on at least one hinge (H) at least at one side of the support element.

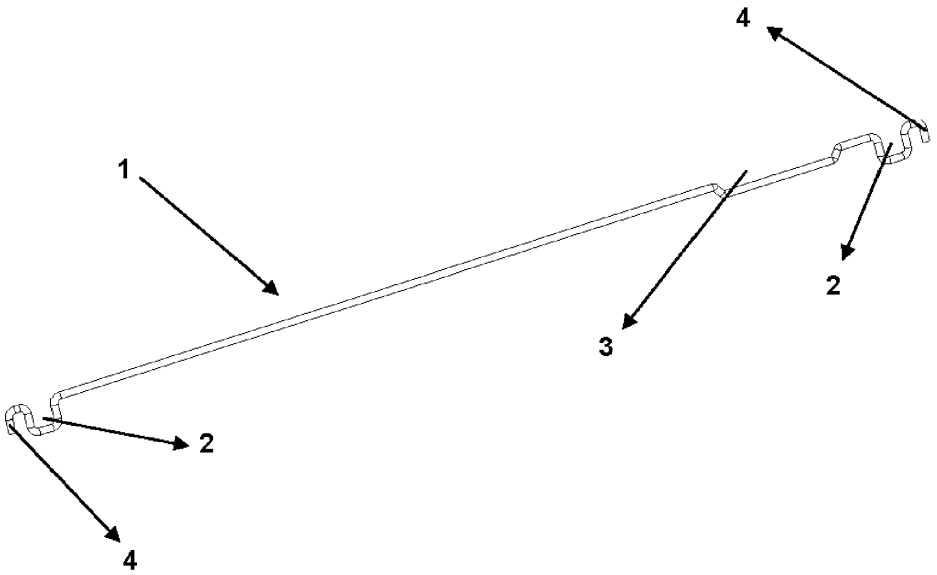

Figure 1

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Description

Technical Field

[0001] The present invention relates to support elements used in door groups of home appliances.

Prior Art

[0002] In home appliances, such as a washing machine or an oven, comprising at least one door, the door is connected to a hinge, which is connected to the home appliance from one side and to the door from other side and which extends along the movement axis of the door, and moves at said hinge. During said movement, the cables and/or conduit (e.g. a drain hose in a dishwasher), which pass from the movement axis of the door preferably so as to intersect with said axis, can be stuck to the door and/or can get damages by rubbing to the door. Therefore, in the state-of-the-art cables are preserved in cable holding elements for preventing the damages.

[0003] The patent document no US2005001106A1 of the state-of-the-art discloses a home appliance preventing cables therein from being damaged. In movable parts of said home appliance such as door, the cables are passed through a cable holding slot. Said slot allows preventing the cables therein from being damaged while moving. By means of placing the slot in movable parts of the home appliance such as hinge, the damages which can be given to the cables in said movable parts are prevented. But in said system, used slot is costly, and attaching said slot to the door makes the production difficult. Also there is no embodiment for protecting conduits in said system.

Brief Description of the Invention

[0004] A home appliance of the present invention comprises at least one door which moves on at least one movement axis of the door; at least two opposite hinges to which said door is connected; and at least one support element engaged to said two hinges. Said support element comprises at least one holding slot bent thereon, and at least one connection end which is engaged to at least one slot provided on at least one hinge at least at one side of the support element.

[0005] In the home appliance, at least one cable and/or conduit, which pass(es) from the movement axis of the door, is/are fit into said holding slot. Therefore, the damages which can be given to the cable and/or the conduit passing from the movement axis during the movement of the door are prevented.

Objectives of the Invention

[0006] An aim of the invention is to develop a home appliance comprising a support element which prevents the elements such as the cables and/conduits passing from the movement axis of a door of the appliance from the door movement.

[0007] The other aim of the invention is to develop a home appliance comprising a support element which ensures supporting of the door hinges.

[0008] Another aim of the invention is to develop a home appliance comprising a cost effective and reliable support element which is easy to produce and assemble.

Description of the Drawings

Exemplary embodiments of a home appliance comprising a support element of the invention are shown in the attached figures wherein;

[0009]

Figure 1 is a perspective view of the support element.
Figure 2 is a perspective view of a part of the home appliance which comprises the support element.
Figure 3 is a view of E detail of the support element shown in Figure 2.
Figure 4 is a detail view of the support element.

[0010] The parts in the figures are individually enumerated and the corresponding terms of reference numbers are given as follows:

Home appliance	(A)
Conduit	(B)
Cable	(C)
Door	(D)
Hinge	(H)
Movement axis	(x)
Support element	(1)
Holding slot	(2, 3)
Connection end	(4)
Slot	(5)

Description of the Invention

[0011] Home appliances such as dishwasher or oven, which comprises at least one door, can be provided with elements such as cable and/or conduit passed from the movement axis of the door so as to intersect with said axis. However, said elements can move from their places due to the movement of the door or can be damaged due to the fact that the elements are stuck in the movement axis of the door. Said invention discloses a home appliance comprising a system preventing such elements from being damaged.

[0012] A home appliance (A), a part of which is exemplary shown in figure 2, comprises at least one door (D); at least two hinges (H) to which said door (D) is connected and which are fixed to the home appliance (A); and at least one support element (1) which is engaged to said two hinges (H). The support element (1), detailed view of which is shown in figure 1, is preferably made of a

cylindrical wire and comprises at least one holding slot (2, 3) thereon in a bent state. Said holding slot (2, 3) is formed by bending at least an area of the support element (1) in "U" shape, and the elements such as the conduit (B) and/or the cable (C), which pass(es) from the movement axis (x) of the door (D) preferably so as to intersect with the axis (x), is/are placed into the slot (2, 3). According to the numbers and dimensions of the elements passing from the movement axis (x) of the door (D), the number and width of the slots (2, 3) provided in the support element (1) can be changed.

[0013] The support element (1), detailed views of which are shown in figures 3 and 4, is engaged to at least one slot (5) provided on the hinge (H) from at least one connection end (4) at least at one side of the element (1). Similarly the support element (1) is engaged to at least one other slot (5) provided on one another hinge (H) from at least one another connection end (4) in at least one other side of the element (1). Therefore the support element (1) is fixed to at least two opposite hinges (H) from at least two sides. Said connection ends (4) are preferably in the shape of hook and engage to the slots (5) preferably in the shape of a hole. Thus, it is ensured that the support element (1) is fixed to the hinges (H) in a reliable manner.

[0014] Figures exemplary show a home appliance (A) which comprises at least one conduit (B) passing from the movement axis (x) of the door (D) and at least one cluster of cable (C), and a support element (1) comprising two slots (2, 3) in which said conduit (B) and cable (C) are placed. By means of fixing the support element (1) to the hinges (H), said conduit (B) fits into one (2) of the holding slots (2, 3) and the cable (C) fits into the other one (3) of the holding slots (2, 3). When the door (D) of the home appliance (A) is moved, said conduit (B) and/or cable (C) do not move since they fit into the holding slot (2, 3). Therefore, during the movement of the door (D), the risks of conduit (B) and/or the cable (C) being slid and getting stuck abolish. In other words; damages, rupture and opening of the conduit (B) and/or the cable (C) by means of getting stuck are prevented. Moreover, since the support element (1) is made of a cylindrical wire (in other words since the support element (1) does not comprise a sharp surface), the conduit (B) and/or the cable (C) is/are not cut even if a force is applied thereon.

[0015] Since the support element (1) is fixed to at least one hinge (H) from one side of the support element (1) and to another hinge (H) from at least one other side of the support element (1) with the present invention, the support element (1) ensures that said hinges (H) support each other. When stress occurs on one hinge (H) due to a force applied to the door (D) of the home appliance (A), said stress is divided by the support element (1) to the other hinge (H). Thus; more durable home appliance (A) is provided.

Claims

1. A home appliance (A) which comprises at least one door (D) which moves on at least one movement axis (x); at least two opposite hinges (H) to which said door (D) is connected; and at least one support element (1) which is engaged to said two hinges (H) **characterized in that** said support element (1) comprises

   - at least one holding slot (2, 3) bent thereon;
   - at least one connection end (4) which is engaged to at least one slot (5) provided on at least one hinge (H) at least at one side of the support element.

2. A home appliance (A) according to claim 1 **characterized in that** the support element (1) is made of a cylindrical wire.

3. A home appliance (A) according to claim 1 **characterized in that** the holding slot (2, 3) is formed by bending at least one area of the support element (1) in "U" shape.

4. A home appliance (A) according to claim 1 **characterized in that** the connection end (4) of the support element (1) is in the shape of hook.

5. A home appliance (A) according to claim 1 **characterized in that** at least one conduit (B) which pass from the movement axis (x) of the door (D) is engaged to at least one holding slot (2).

6. A home appliance (A) according to claim 1 **characterized in that** at least one cable (C) which pass from the movement axis (x) of the door (D) is engaged to at least one holding slot (3).

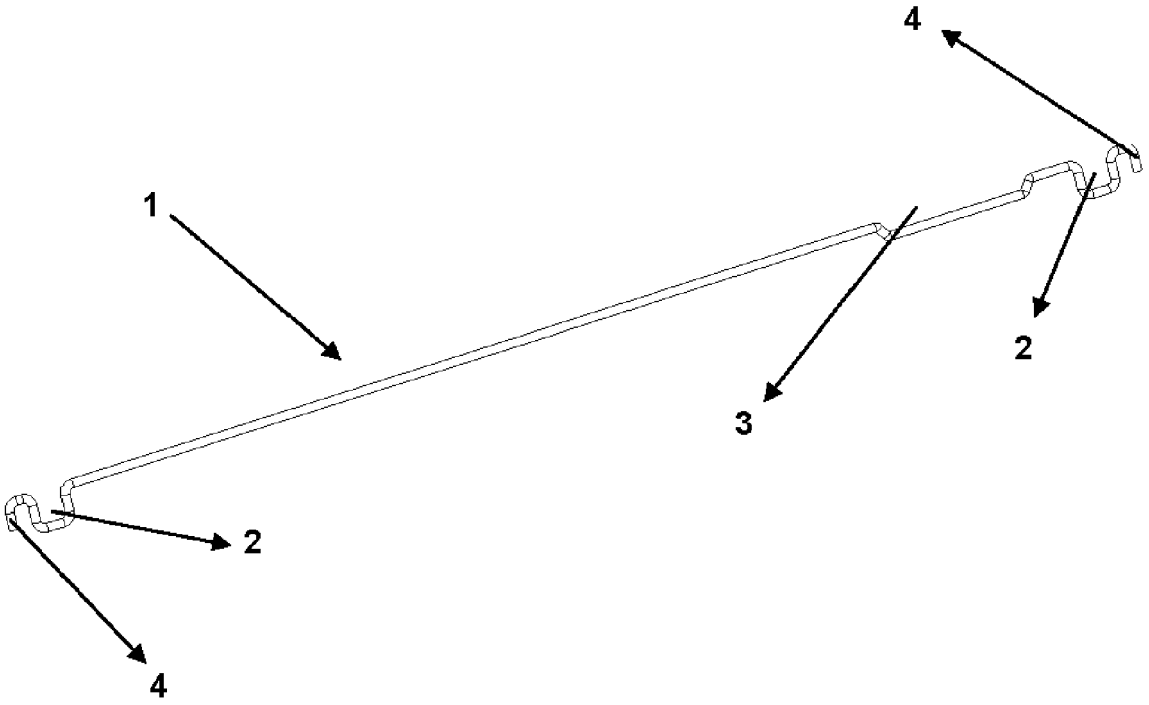

Figure 1

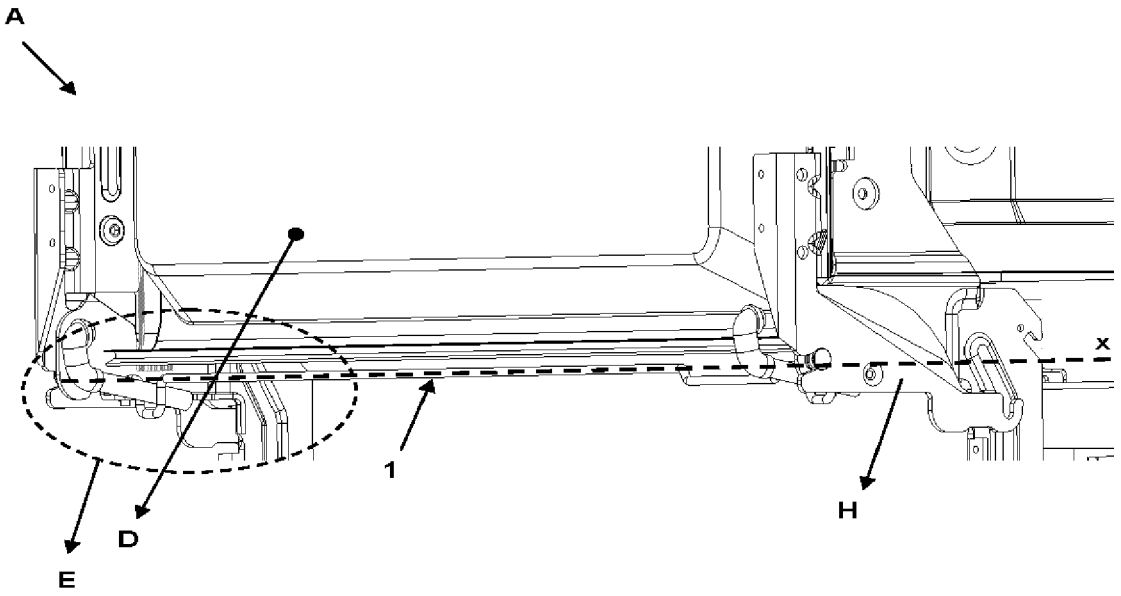

Figure 2

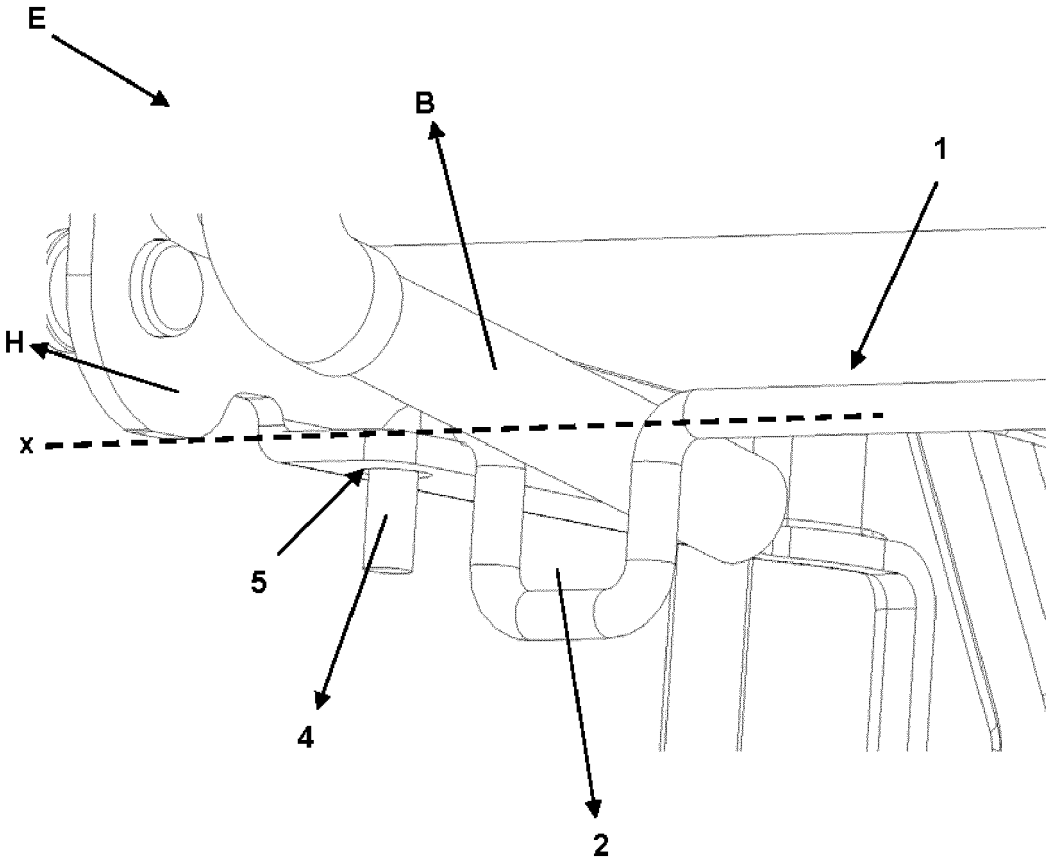

Figure 3

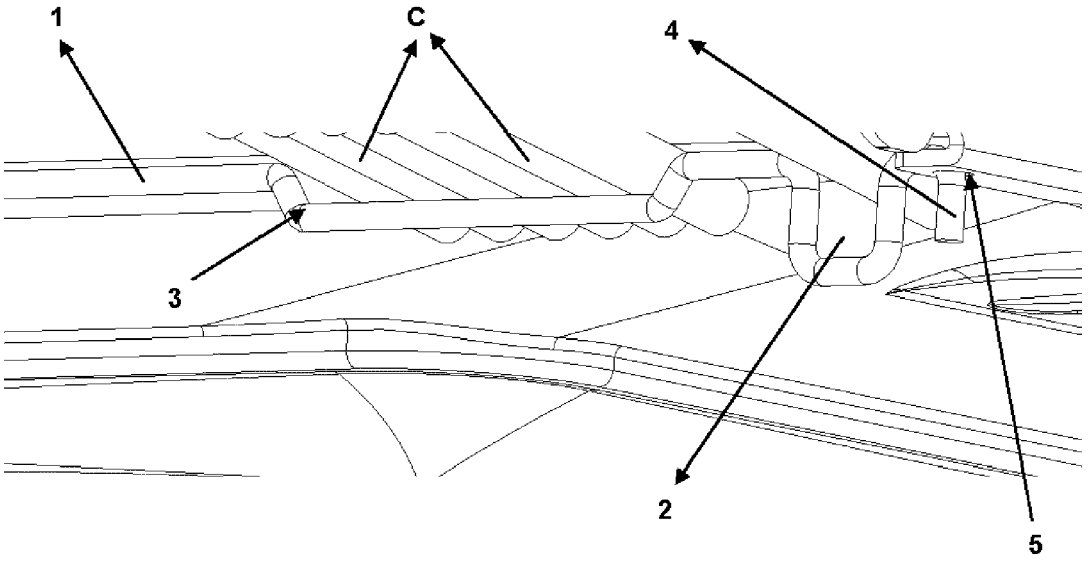

Figure 4

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EUROPEAN SEARCH REPORT

Application Number
EP 12 16 6378

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	US 2005/001106 A1 (SIPPLE HORST [DE]) 6 January 2005 (2005-01-06) * the whole document *	1-6	INV. D06F39/14 E05D11/00 A47L15/42
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TECHNICAL FIELDS SEARCHED (IPC)

D06F
E05D
A47L
F25D

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	19 June 2012	Jezierski, Krzysztof

CATEGORY OF CITED DOCUMENTS

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A : technological background
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D : document cited in the application
L : document cited for other reasons

& : member of the same patent family, corresponding document

EPO FORM 1503 03.82 (P04C01)

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 12 16 6378

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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19-06-2012

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

REFERENCES CITED IN THE DESCRIPTION

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