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(71) Applicant: ARCELIK ANONIM SIRKETI [TR/TR]; E5
Ankara Asfalti Uzeri, Tuzla, 34950 ISTANBUL (TR).

(72) Inventors: AYGUN, Oktay; E5 Ankara Asfalti Uzeri, Tuzla, 34950 ISTANBUL (TR). MERIC, Davut; E5 Ankara Asfalti Uzeri, Tuzla, 34950 ISTANBUL (TR). SUNEL, Gurbuz; E5 Ankara Asfalti Uzeri, Tuzla, 34950 ISTANBUL (TR). TOMBULOGLU, Tamer; E5 Ankara Asfalti Uzeri, Tuzla, 34950 ISTANBUL (TR). OZSU, Arda; E5 Ankara Asfalti Uzeri, Tuzla, 34950 ISTANBUL (TR).

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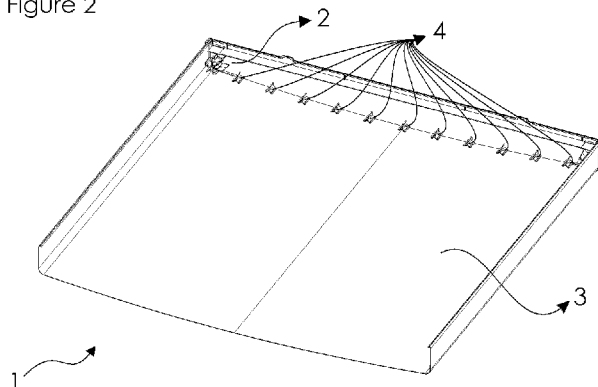
UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

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(54) Title: A REFRIGERATOR DOOR COMPRISING ELASTIC PLATE HOLDER

Figure 2



(57) Abstract: Refrigerator door (1) comprising a refrigerator door plate (3), at least one cover (2) holding the refrigerator door plate, and at least one plate holder (4) positioned on said cover (2). The plate holders (4) provided on the cover (2) firmly hold the door plate (3) and do not leave a mark on the door plate (3) due to their elastic structure.



Description**A REFRIGERATOR DOOR COMPRISING ELASTIC PLATE HOLDER**

[0001] The present invention relates to a refrigerator door.

[0002] In refrigerator doors, the thickness of a door plate is not always identical.

In general, this problem arises from the dyeing process. The thickness of a refrigerator door plate increases after dyeing and mounting of the door plate becomes difficult in cases where the dye thickness is excessive. In addition, the teeth holding the door plate are made of rigid plastic material. Therefore, by observation from outside of the locations where the lower and the upper covers join a refrigerator door plate, marks are visible on points where the plastic teeth rest. If the door plate is loosely joined to the upper and the lower covers in order to prevent formation of such marks, polyurethane foam leaks out of the door during filling of the polyurethane.

[0003] Tie pieces such as the one seen in Figure 1 are used in the state of the art refrigerators. A tie piece is introduced between two vertical surfaces to enhance the strength of the parts in that region.

[0004] The aim of the present invention is to prevent formation of marks on a door plate caused by tie pieces, and also to enable said door plate to be firmly joined to the lower and the upper covers of a refrigerator.

[0005] The refrigerator door plate realized to achieve the aim of the present invention and disclosed in the first claim and the dependent claims, comprises a cover holding a refrigerator door plate, and at least one plate holder positioned on said cover.

[0006] In an embodiment of the invention, the plate holder of the refrigerator door consists of three portions, and the middle portion is configured to be elastic.

[0007] In another embodiment of the invention, the elastic portion of the plate holder is shaped as a semi-cylinder, and the lip portion of the cylinder opens and flexes when the plate holder is flexed.

[0008] In another embodiment of the invention, all portions of the plate holder are adjacent to each other and are adhered on the cover.

[0009] The refrigerator door realized to achieve the aims of the present invention is illustrated in the accompanying drawings, wherein:

- [0010] Figure 1 is a view of a tie piece of an application of the prior art.
- [0011] Figure 2 is a view of a refrigerator door of an embodiment of the invention.
- [0012] Figure 3 is a view of a plate holder of another embodiment of the invention.
- [0013] The elements in the figures are numbered individually and the correspondence of these numbers are given hereinafter.
1. Refrigerator door
 2. Cover
 3. Door plate
 4. Plate holder
 - 4a. Lower body
 - 4b. Middle body
 - 4c. Upper body
- [0014] The refrigerator door (1) comprises a refrigerator door plate (3), at least one cover (2) holding the refrigerator door plate, and at least one plate holder (4) positioned on said cover (2).
- [0015] The refrigerator door (1) of the invention is characterized by the plate holder (4) comprising two lower bodies (4a) abutting on the door plate (3), a middle body (4b) of elastic structure provided above the lower bodies (4a), and an upper body (4c) through which the plate holder (4) is fixed on the cover (2).
- [0016] In an embodiment of the invention, a refrigerator door (1) is embodied comprising a refrigerator door plate (3), a cover (2) holding the refrigerator door plate, and at least one plate holder (4) positioned on the cover (2), characterized by the plate holder (4) comprising two lower bodies (4a) abutting on the door plate (3), a middle body (4b) of elastic structure provided above the lower bodies (4a), and an upper body (4c) through which the plate holder (4) is fixed on the cover (2). The refrigerator door plate (2) is mounted between two covers (2). Plate holders (4) are provided on the inner portion of the covers (2) for mounting. The function of the plate holders (4) is providing a firm connection between the door plate (3) and, the lower and the upper covers (2). The plate holder (4) consists of three portions, namely, in bottom to top orientation, the lower

body (4a), the middle body (4b) and the upper body (4c). The lower body (4a) of the plate holder (4) is connected to the door plate (3) upon mounting. The connection between the door plate (3) and the lower body (4a) is elastic and the lower bodies (4a) are movable on the plate surface. A middle body (4b) is provided adjacent to the lower body (4a). The middle body (4b) is of elastic structure compared to the lower and the upper bodies. Wherein said elasticity may be provided by the material, as well as any form of elasticity provided by design. The middle body (4b) is adjacent to the upper body (4c). The upper body (4c) is provided between the cover (2) and the middle body (4b), and enhances the strength of the plate holder (4).

[0017] In another embodiment of the invention, a refrigerator door (1) is embodied characterized by a refrigerator cover (2) comprising a plate holder (4) having a semi-cylindrical shaped middle body (4b) enabling the plate holder to flex upwards from the door plate (3) by the lower bodies (4a) moving away from each other by means of force from the door plate (3), and an upper body (4c) shaped as a tie piece between the upper portion of the middle body (4b) and the cover. The semi-cylindrical shape of the middle body (4b) and the lower body (4a) not being fixed to the plate provides elasticity to the plate holder (4). By this, the plate holders (4) provided on the cover (2) firmly hold the door plate (3) and do not leave a mark on the door plate (3) due to their elastic structure. In addition, a door plate (3) of varying thicknesses are usable without modifying cover (2) dimensions due to said elasticity. Wherein at least two covers (2) are provided so as to be over and below the door plate (3).

[0018] In another embodiment of the invention, a refrigerator door (1) is embodied wherein the lower body (4a), the middle body (4b) and the upper body (4c) are adhered to the cover (2). The elastic plate holder (4) composed of the lower body (4a), the elastic middle body (4b) and the upper body (4c), is configured as fixed to the cover (2) piece.

[0019] By the present invention, a cover (2) comprising elastic plate holder (4) is embodied for a door plate (3) whose thickness change after dyeing process, instead of using a cover having more widely spaced plate holder

teeth. By this, problems arising from the plate holder teeth excessively compressing or loosely holding the plate are solved.

Claims

1. A refrigerator door (1) comprising a refrigerator door plate (3), at least one cover (2) holding the refrigerator door plate, and at least one plate holder (4) positioned on said cover (2); **characterized by**
 - the plate holder (4) comprising two lower bodies (4a) abutting on the door plate (3),
 - a middle body (4b) of elastic structure provided above the lower bodies (4a), and
 - an upper body (4c) through which the plate holder (4) is fixed on the cover (2).
2. A refrigerator door (1) according to claim 1, **characterized by** a refrigerator cover (2) comprising a plate holder (4) having a semi-cylindrical shaped middle body (4b) enabling the plate holder to flex upwards from the door plate (3) by the lower bodies (4a) moving away from each other by means of force from the door plate (3), and an upper body (4c) shaped as a tie piece between the upper portion of the middle body (4b) and the cover.
3. A refrigerator door (1) according to any one of the preceding claims, wherein the lower body (4a), the middle body (4b) and the upper body (4c) are adhered to the cover (2).
4. A refrigerator comprising a refrigerator door (1) as in any of the above claims.

Figure 1 (Prior Art)

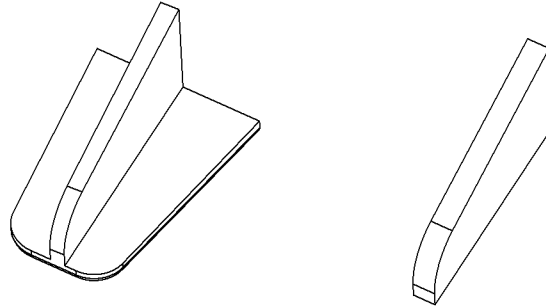


Figure 2

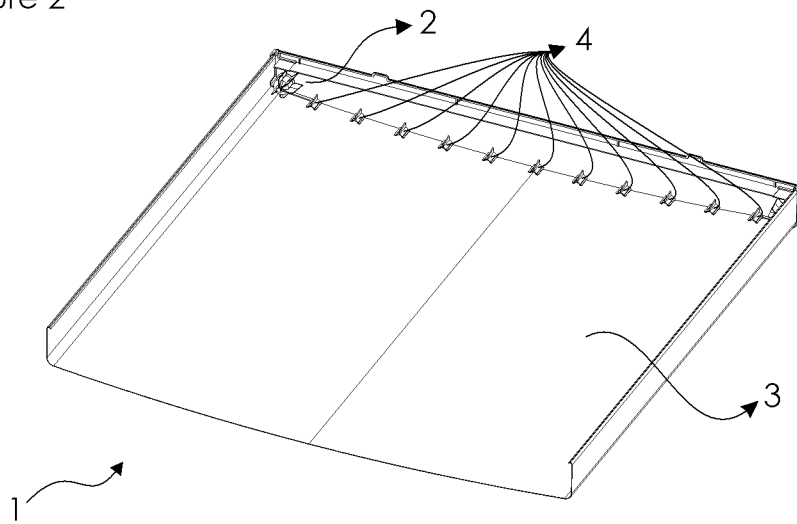
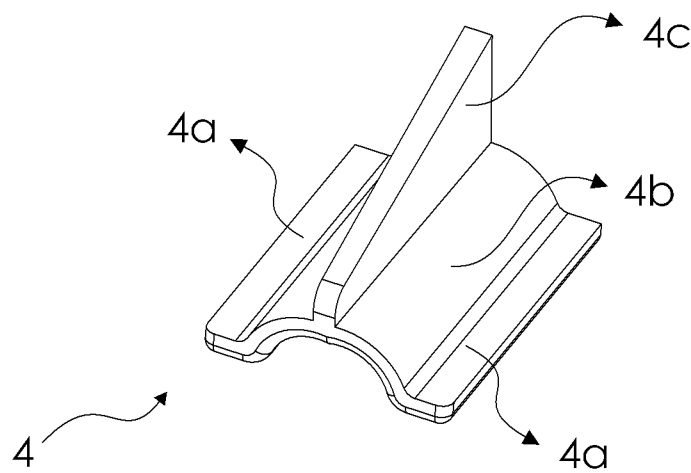


Figure 3



INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2018/067565

A. CLASSIFICATION OF SUBJECT MATTER
INV. F25D23/02
ADD.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
F25D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2004/194253 A1 (JUNG JAE-WOOK [KR]) 7 October 2004 (2004-10-07) abstract; figures 3, 4 paragraphs [0053] - [0055], [0059] -----	1-4
A	WO 2016/208189 A1 (PANASONIC IP MAN CO LTD [JP]) 29 December 2016 (2016-12-29) abstract; figures 5-10 -----	1-4
A	EP 2 561 292 A2 (BSH BOSCH SIEMENS HAUSGERAETE [DE]) 27 February 2013 (2013-02-27) abstract; figures 1-5 -----	1-4



Further documents are listed in the continuation of Box C.



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"&" document member of the same patent family

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European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040,
Fax: (+31-70) 340-3016

Authorized officer

Yousufi, Stefanie

INTERNATIONAL SEARCH REPORT

Information on patent family members

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