



(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
25.05.2022 Bulletin 2022/21

(51) International Patent Classification (IPC):
E06B 7/215^(2006.01) E06B 7/23^(2006.01)

(21) Application number: **21207393.6**

(52) Cooperative Patent Classification (CPC):
**E06B 7/2316; E06B 7/215; E06B 7/23;
E06B 2003/7096**

(22) Date of filing: **10.11.2021**

(84) Designated Contracting States:
**AL AT BE BG CH CY CZ DE DK EE ES FI FR GB
GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO
PL PT RO RS SE SI SK SM TR**
Designated Extension States:
BA ME
Designated Validation States:
KH MA MD TN

(71) Applicant: **Panelia Woods Oy**
01801 Klaukkala (FI)

(72) Inventor: **LEHTINIEMI, Ari**
00250 Helsinki (FI)

(74) Representative: **Heinonen & Co**
Attorneys-at-Law Ltd
Fabianinkatu 29 B
00100 Helsinki (FI)

(30) Priority: **11.11.2020 FI 20206136**

(54) **SPLASH GUARD ARRANGEMENT FOR A DOOR, A DOOR COMPRISING A SPLASH GUARD ARRANGEMENT AND A METHOD FOR ARRANGING A SPLASH GUARD ARRANGEMENT IN A DOOR**

(57) The present invention pertains to a splash guard arrangement for a door. Sufficient ventilation is required in wet spaces, such as bathrooms. However, the gap between a door and a threshold may cause damages to hidden interior structure of buildings and to floor construction. A splash guard arrangement (100) according to the

present invention is arrangeable in an open space (102), which is arranged in a door (104). It comprises an elastic member (106) protruding from the open space (102), and at least one fixing means (108) for fixing the elastic member (106) in the open space (102) so that enabling ventilation via the open space (102).

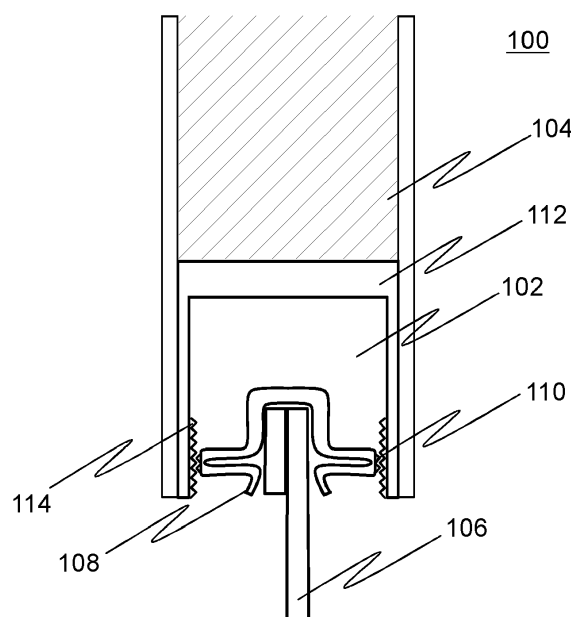


FIG. 1

Description

FIELD OF THE INVENTION

[0001] Generally the present invention relates to splash guard arrangement. In particular, the present invention pertains to a splash guard arrangement for a door.

BACKGROUND

[0002] Wet areas, such as bathrooms, in buildings require careful ventilation in order to avoid problems in structures caused by excess humidity in these areas. Typically, there are several regulations and rules in many countries concerning to wet areas. In many countries, such as in Finland, there has to be an appropriate gap, such as 15 mm, between the threshold and the door, which is arranged between a wet area and a dry area, in order to ensure sufficient ventilation of the wet area. Furthermore, the wet area is depressurized, so that replacement air is drawn through the gap to the wet area, instead of pushing humidity to dry areas. However, splash water entering the dry area under the door is unwanted and it might cause damages to hidden interior structure of buildings and to floor construction, especially a wood floor.

SUMMARY OF THE INVENTION

[0003] The objective is to at least ease the problems described hereinabove not satisfactorily solved by the known arrangements, and to provide a feasible splash guard arrangement arrangeable in a door enabling ventilation under the door.

[0004] The aforesaid objective are achieved according to the present invention as claimed in claim 1.

[0005] Accordingly, in one aspect of the present invention a splash guard arrangement arrangeable in an open space arranged in a door comprises an elastic member protruding from the open space for preventing splash of water from passing by the door, and at least one fixing means for holding the elastic member and for fixing the elastic member in the open space so that enabling ventilation via the open space.

[0006] In another embodiment, the fixing means comprise at least one pliable structure for adjusting the place of the fixing means in the open space. The advantage of this embodiment is to enable adjusting the height of the elastic member by adjusting the place of the fixing means in the open space.

[0007] Yet, in another embodiment, the fixing means comprise retaining means for retaining the fixing means in said open space. In this case, the fixing means may be able to be arranged in a right place in the open space of the door without a need to use any additional means for fixing it, such as glue.

[0008] In an embodiment, the arrangement further comprises a support member arrangeable in the open

space, and in another embodiment, the member comprises retaining means for retaining the fixing means in the open space. These embodiments may help arranging the fixing means in the open space and enabling easy adjustment of the height of the elastic member. In addition the support member may prevent any splash water from getting touch with an inner material of the door.

[0009] In one aspect of the present invention, a door comprises the arrangement according to the present invention. In an embodiment, the open space is arranged in the bottom part of the door. This embodiment is advantageous, because splash of water typically affect the bottom part of the door and floor level.

[0010] In another embodiment, the open space is arranged both in the bottom part and in the top part of the door. This embodiment may enable the assembling of the door both ways, i.e. for right and left-handedness.

[0011] Further, in an embodiment, the open space in the top part of the door is covered with a covering means. This embodiment may prevent splash of water and/or moisture to get in in the open space that does not have the splash guard of the present invention.

[0012] Accordingly, in one aspect of the present invention, a method for arranging a splash guard in a door comprises at least the steps

- arranging an open space in a door, and
- arranging fixing means in the open space.

[0013] Some preferable embodiments of the invention are described in the dependent claims.

[0014] Significant advantages can be achieved with the present invention when compared to the prior art solution. The arrangement may be cheap to manufacture, it may be durable and maintenance free. The arrangement may be easy to assemble and it may be possible to retrofit to a door.

[0015] The expression "a number of" refers herein to any positive integer starting from one (1), e.g. to one, two, or three.

[0016] The expression "a plurality of" refers herein to any positive integer starting from two (2), e.g. to two, three, or four.

[0017] Different embodiments of the present invention are disclosed in the dependent claims.

BRIEF DESCRIPTION OF THE RELATED DRAWINGS

[0018] Next the invention is described in more detail with reference to the appended drawings in which

Fig. 1 illustrates a side view of a cross section of an embodiment of a splash guard arrangement in accordance with the present invention.

Fig. 2 is a flow diagram of an embodiment of a method for arranging a splash guard arrangement in a door in accordance with the present invention.

DETAILED DESCRIPTION OF THE EMBODIMENTS

[0019] Fig. 1 illustrates a side view of the cross section of an embodiment of a splash guard arrangement in accordance with the present invention. A splash guard arrangement 100 arrangeable in an open space 102, which is arranged in a door 104, comprises an elastic member 106 protruding from the open space 102, and at least one fixing means 108 for fixing the elastic member 106 in the open space 102 so that enabling ventilation via the open space 102.

[0020] In an embodiment, the open space 102 is arranged in the bottom part of the door 104. The person skilled in the art understands that the thickness of the door sets limits to the width of said open space. As an example, a door with a thickness of 40 mm can be provided with about a 30 mm wide open space, for example, in order to leave enough material of the door on both long sidewalls of the opening, such as 5 mm, for example. This may ensure that the material around the open space will not be too easily damaged during transport and use.

[0021] In an embodiment, the length of the open space is related to the width of the door, so that neither end of the open space extends to the side ends of the door. Preferably, both side ends have about 5 mm - 10 mm material, for example, and the open space is arranged between the side ends of the door.

[0022] The height of the open space may vary, but in a preferable embodiment, the height is about 30 mm - 40 mm enabling sufficient air flow through the open space.

[0023] The elastic member 106 can be made of various materials such as rubber or plastic, for example. In an embodiment, the length of the elastic member corresponds the length of the open space or is slightly shorter, such as 1 mm - 3 mm.

[0024] The height of the elastic member may vary, but in a preferable embodiment, it is about 30 mm - 40 mm, for example. The thickness of the elastic member is chosen to provide sufficient firmness to the elastic member, but not to hinder the elasticity of the elastic member. In an embodiment, the thickness of the elastic member is about 5 mm - 10 mm, for example.

[0025] The fixing means 108 of the present invention can be implemented in various ways. In an embodiment, depicted in Fig. 1, the fixing means comprise pliable structures at the both sides of the elastic member for adjusting the place of the fixing means in the open space. In an embodiment, the fixing means are made of a material enabling pliable structure of the fixing means, such as, but not limited to, plastic or metal, such as aluminium or steel, for example. The width of the fixing means may vary, but preferably it is about 20 mm - 30 mm.

[0026] The number of fixing means in an open space may vary, but according to a preferable embodiment, the elastic member is fixed to an open space by using 2-3 fixing means for ensuring firm fixing of the elastic member in the open space, but leaving space between and/or

around them for the airflow. The elastic member is preferably fixed in the open space such a way that there is about 10 mm - 20 mm space above it for ensuring airflow over the elastic member.

[0027] In embodiment depicted in Fig. 1, the elastic member is fastened substantially in the middle of the fixing means. This embodiment ensures free airflow on both sides of the elastic member. In an embodiment, the arrangement further comprises a support member, which is preferably made of a rigid material, such as aluminium, for example. The purpose of the support member is to ensure fastening of the elastic member to the fixing means.

[0028] In an embodiment, the fixing means comprise retaining means 110 for retaining the fixing means in the open space. In an embodiment, the retaining means comprise a toothing structure for retaining the fixing means in the open space.

[0029] In an embodiment, the fixing means are fixed to the long sidewalls of the open space. In another embodiment, the arrangement further comprises a support member 112 arrangeable in the open space. The support member according to the present invention is advantageously attach to the long sidewalls of the open space by some feasible means, such as gluing, screws, nails and/or staples, for example, but not limited to. The support member is made of some suitable material, such as plastic or metal, for example.

[0030] The size of the support member is advantageously selected so that it correspond the size of the open space, but does not protrude from it. The person skilled in the art understands that in case of a rebated door, the long sidewall of support member is shorter in the rebated side corresponding the dimensions of the open space.

[0031] In an embodiment, the support member comprises retaining means 114 for retaining the fixing means in the open space. In an embodiment, the retaining means comprise a toothing structure for retaining the fixing means in the open space.

[0032] In an embodiment a door comprises the arrangement of the present invention. In an embodiment, the open space is arranged in the bottom part of the door, and in another embodiment, the open space is arranged both in the bottom part and the top part of the door.

[0033] The open space can be arranged in the door in many ways. In one embodiment, the open space is arranged in a door mechanically by milling, cutting and/or shaping, for example.

[0034] In another embodiment, the door is manufactured by gluing one side or both sides a board made of a waterproof material, such as a plastic board, for example. In an embodiment, the inner part of the door comprises profiles for reinforcing the door.

[0035] In an embodiment, the inner material is plastic, for example, enabling shattering of the door and recycling the material, when the door is removed from service. In another embodiment, the inner material is a moisture-

proof insulation board.

[0036] In these embodiments, the open space is arranged by selecting the size of the inner material so that the open space is formed either in the bottom side or both in the bottom side and in the top side of the door.

[0037] In an embodiment, the open space in the top part of said door is covered with a covering means. In an embodiment, the covering means are a plastic part set to prevent splash water and/or moisture from getting in to the inner part of the door.

[0038] In an embodiment, the covering means are formed so that letting airflow in also in the top side of the door.

[0039] Figure 2 is a flow diagram of an embodiment of a method for arranging a splash guard arrangement in a door in accordance with the present invention.

[0040] At step 202, an open space is arranged in a door. In an embodiment, the open space is arranged in a door mechanically by milling, cutting and/or shaping, for example. This embodiment is useful when retrofitting the splash guard in a door. In another embodiment, the door is manufactured in a way that it comprises an open space.

[0041] At step 204, the fixing means are arranged in the open space. The place of the fixing means are selected so that the elastic member is covering the gap between the threshold and the door, and the airflow is enabled to pass via the open space.

[0042] Consequently, a skilled person may on the basis of this disclosure and general knowledge apply the provided teachings in order to implement the scope of the present invention as defined by the appended claims in each particular use case with necessary modifications, deletions, and additions.

Claims

1. A splash guard arrangement arrangeable in an open space arranged in a door comprising
 - an elastic member protruding from said open space for preventing splash of water from passing by said door, and
 - at least one fixing means for holding said elastic member and for fixing said elastic member in said open space so that enabling ventilation via said open space.
2. A splash guard arrangement according to claim 1, wherein said fixing means comprise at least one pliable structure for adjusting the place of the fixing means in the open space.
3. A splash guard arrangement according to any preceding claim, wherein said fixing means comprise retaining means for retaining said fixing means in said open space.

4. A splash guard arrangement according to any preceding claim, wherein said arrangement further comprises a support member arrangeable in said open space.
5. A splash guard arrangement according to any preceding claim, wherein said support member comprises retaining means for retaining said fixing means in said open space.
6. A door comprising a splash guard arrangement according to any of claims 1-5.
7. A door according to claim 6, wherein said open space is arranged in the bottom part of said door.
8. A door according to claim 6, wherein said open space is arranged both in the bottom part and in the top part of said door.
9. A door according to claim 8, wherein said open space in the top part of said door is covered with a covering means.
10. A method for arranging a splash guard arrangement in a door comprising at least the steps of
 - Arranging an open space in a door,
 - Arranging fixing means in said open space.

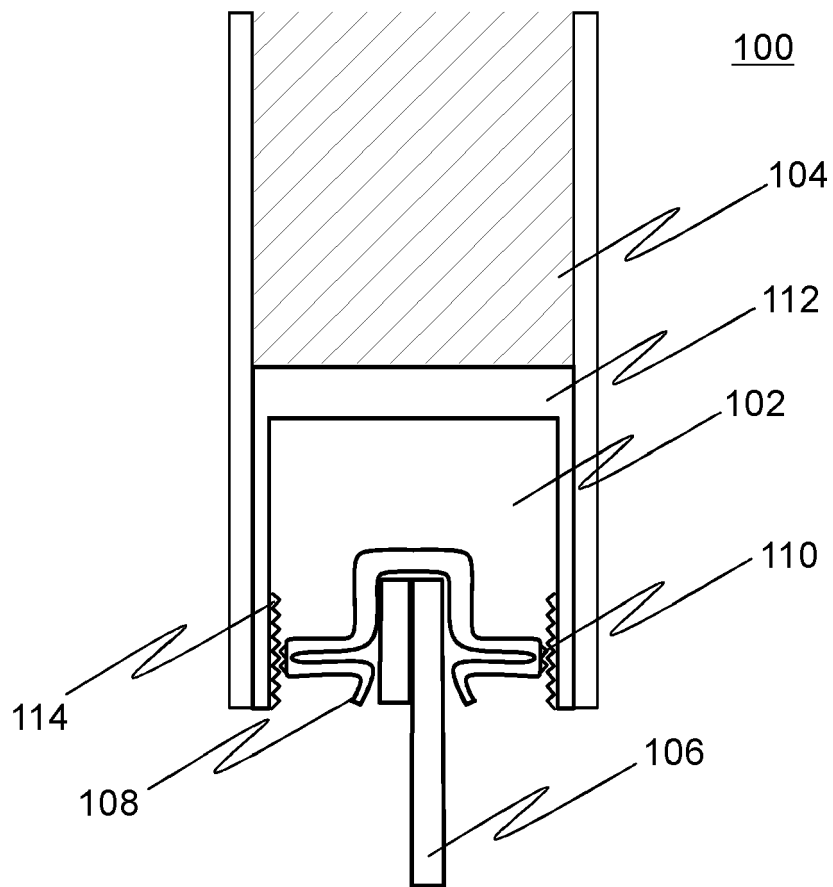


FIG. 1

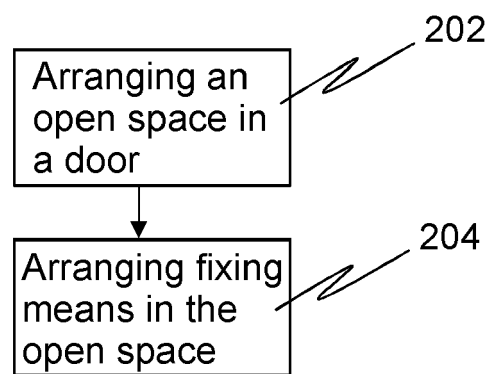


FIG. 2



EUROPEAN SEARCH REPORT

Application Number

EP 21 20 7393

5

10

15

20

25

30

35

40

45

50

55

1

EPO FORM 1503 03.82 (P04C01)

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	DE 16 59 771 A1 (CANFIELD CO GMBH H O) 28 January 1971 (1971-01-28) * abstract; figures 2-4 * * page 5, paragraph 4 * -----	1-10	INV. E06B7/215 E06B7/23
X	EP 1 498 569 A1 (PLANET GDZ AG [CH]) 19 January 2005 (2005-01-19) * abstract * * figures 1-4 * -----	1-7, 9	
X	EP 1 936 097 A1 (PLANET GDZ AG [CH]) 25 June 2008 (2008-06-25) * abstract; figures 5,6 * -----	1-7, 9	
			TECHNICAL FIELDS SEARCHED (IPC)
			E06B
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 9 March 2022	Examiner Wehland, Florian
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	

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

EP 21 20 7393

5

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
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

09-03-2022

10

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
DE 1659771 A1	28-01-1971	DE 1659771 A1	28-01-1971
		GB 1123660 A	14-08-1968
EP 1498569 A1	19-01-2005	EP 1498569 A1	19-01-2005
		EP 2267263 A2	29-12-2010
EP 1936097 A1	25-06-2008	NONE	

15

20

25

30

35

40

45

50

55

EPO FORM P0459

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