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(54) Device for fixing a window to a washing machine door

(57) Union system between the frame and the crystal of washing machine doors destined for its use in the union between the door frame of the automatic washing machines and the crystal of the same one, that has a general truncated cone shape and with a perimetric projecting to the external part, with regard to its big-

ger base that is open for its union to the frame, so that the external prolongation (3) of the external open base of the cristal, remains placed in relationship to an inlet of the frame (5), having some means of interlocked fixing between both bodies and the support means of the crystal (2) in the frame (5).

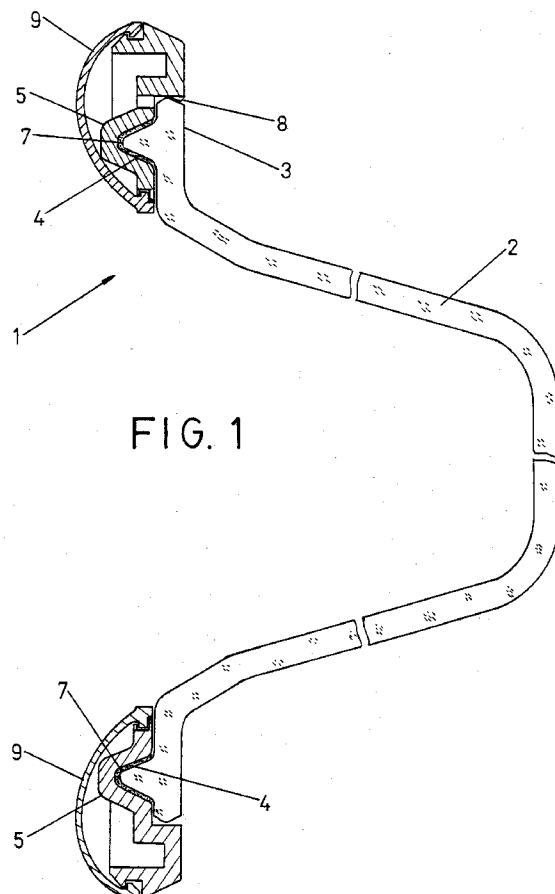


FIG. 1

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Description

OBJECT OF THE INVENTION.

As is expressed in the title of the present descriptive report, the following invention consists of an union system between the frame and the crystal of washing machines doors, being destined for the known hinged washing machines doors that have a frame like a circular crown, being the crystal that form a concavity to the exterior fixed to it, and remaining the corresponding beautifying element at the external part of the whole frame-crystal, so that the union between the frame and the crystal is materialized by an adhesive, obtaining an interlocked union in which a whole of protuberances of the own frame collaborate, contributing they to the support of the crystal since they get its fitting, making easy its manipulation since the assembly moment.

Through the system proposed for the union between the frame and the crystal of a washing machine door, a perfect union is obtained according to all the crystal perimeter so that obtaining a perfectly interlocked whole, the door behaviour is improved, mainly in the closing operation.

Besides, as the own frame is endowed of a string of protuberances preferably in number of three and placed at 120° for facilitating the perfect fitting of the crystal by simple pressure in their assembly, the manipulation of the whole frame-crystal is allowed since the same moment in which the assembly of both is materialized, since the cited protuberances support the crystal impeding any movement of the same one, so that the fixing by means of the adhesive is done without not any problem, not being necessary periods of waiting although the whole frame-crystal should be manipulated.

FIELD OF APPLICATION.

Just as it has been expressed, the union system that is described in the present report is destined for its application in the union between the frame of the whole of the automatic washing machine doors and the crystal of the same one, for those kinds of doors in which the same ones remain hinged to the own apparatus chassis, and the frame remains outwardly blocked up by the corresponding beautifying element, maintaining the aesthetic of the whole.

BACKGROUND OF THE INVENTION.

Conventionally, the whole of the door of a great amount of automatic washing machines models, is made up of a frame that is joined to the apparatus chassis in a gyratory way, being the door crystal fixed to the same one, remaining the frame outwardly blocked up by the corresponding beautifying element.

Thus, the frame has a shape like a circular crown, and in relationship to its internal surface with regard to

the fixed one, the crystal has a pair of L-shaped projectings in which it is inserted, while in the part of the cited projectings that is opposed to the fitting part, there is a little lung that is fixed to the frame through the corresponding screw, pressing the crystal so that thus the union between both is materialized.

For that, the crystal of general truncated cone shape with the open concavity to the exterior, has a perimetric projecting for its fixing, so that the worker places the crystal projecting between the L-shaped projectings of the frame, having the subjection lung once it is perfectly inserted.

Finally, the external surface of the frame remains outwardly blocked up by the corresponding beautifying element, so that the execution of all these operations requires the use of a great amount of workforce which increases the last cost of the product.

Besides, as the union between the frame and the crystal is a mechanical union although with an appropriate watertightness, the door behaviour, mainly during the closing manoeuvring, is not totally suitable because of the inertias that emerge because there is not a totally interlocked union between the elements that form it.

DESCRIPTION OF THE INVENTION.

In the present report, an union system between the frame and the crystal of washing machine doors is described by means of which, the interlocked fixing of the door frame is obtained, remaining it hinged to the apparatus chassis and to the own central crystal of the door, so that the crystal has a general truncated cone shape in and in relationship to the external open bigger base is endowed of a prolongation to the exterior, so that the external prolongations of the crystal remains backed to a frame inlet, having the means of interlocked fixing between both bodies and the support means of the crystal in the frame, having later the beautifying element that blocks up the external surface of the frame.

The interlocked fixing between the frame of the whole-door and the crystal of the same one, is defined by a projecting of the perimetric prolongation of the crystal that because of its assembly in the frame remains in relationship to a cleft, with similar section, of the own frame.

The interlocked union between the crystal and the frame of the whole-door is materialized through an adhesive that is placed manually or automatically in the cleft frame in which the perimetric perpendicular projecting of the prolongation is inserted, to the exterior of the bigger base of the crystal.

In the other hand, for making easy the crystal placement in its assembly in the frame of the whole-door, the own frame has a whole of protuberances, preferably in number of three and placed at 120°, in the side of the cope where the external perimetric prolongation is backed, so that they keep the crystal in the assembly and working positions, allowing the manipulation of the

whole-door without some periods of waiting for the adhesive drying.

In order to complement the description which is done hereinafter and for the purpose of providing a better understanding of its characteristics, the present descriptive report is accompanied by a drawing, in whose only figure the most significant details of the invention are represented in an illustrative and not limitative way.

BRIEF DESCRIPTION OF THE DESIGNS.

Figure 1.- It shows a diametrically sectioned view of the washing machine door, where we observe as the external perimetric projection of the crystal has a projection that is inserted into a similar cleft of the frame body in relationship to which, the interlocked union is done by means of the adhesive that is placed in the same one, as well as one of the protuberances that allow the support of the crystal in its normal position and the beautifying frame.

DESCRIPTION OF A PREFERRENT EMBODIMENT.

In view of the above cited figure and in accordance with the adopted numbering, we can observe as the crystal (2), with a general truncated cone shape, of the door (1) has in relationship to the external open bigger base a perimetric prolongation (3) to the exterior so that it has, in that prolongation and in relationship to its external surface, a little projecting (4), remaining the prolongation (3) of the crystal (2) placed in relationship to an internal cope of the frame (5).

Likewise, the frame (5) in relationship to the backing surface of the perimetric prolongation (3) has a cleft (6) which coincides with the projecting (4) of the prolongation (3) of the same one, so that the union of both is done placing manually or automatically an adhesive (7) cord in the cited cleft (6).

Besides, aside of the internal cope of the frame (5) in which the perimetric prolongation (3) of the crystal (2) is placed, the cited frame has a whole of protuberances (8), preferably in number of three and placed at 120° among them, that allow the support of the own crystal (2) with the frame (5), only introducing the crystal (2) with a little pressure.

With this disposition, once the crystal (2) has been assembled in the frame (5) for it should be fixed by the adhesive (7) previously placed in the cleft (6), the instant manipulation of the whole without not any defects in the fixing, since as the crystal (2) remains supported by the protuberances (8) of the own frame, the cited crystal will not suffer not any displacement and the adhesive will realize perfectly its mission of interlocked fixing.

These characteristic has a great importance since the industry, to which the present union system is destined, needs the daily manufacture of a great amount of door-wholes, so that the elimination of the periods of waiting in the adhesive drying represents a great advance

in their industrialization.

Besides, because of that motive, it is not necessary the incorporation of some means for the placement of the whole frame-crystal for being able to continue its industrialization while the adhesive dries and the cited means are not necessary nor to stop the assembly line during the cited drying period, so that all implies a smaller last cost of the product because it is not necessary any added inversion.

Thus, once the crystal (2) has been assembled in the frame (5) with the adhesive (7) that has been previously placed in the cleft (6) for their interlocked fixing, the whole frame-crystal can be manipulated without not any problem, obtaining likewise a perfect fixing between both.

Finally, once the crystal (2) has been assembled in the frame (5), the beautifying element (9) will be placed, remaining completed the whole of door (1) for automatic washing machines, so that the whole is materialized in a fast and simple way with a minimum workforce, resulting a system totally reliable and very economical.

Claims

1. UNION SYSTEM BETWEEN THE FRAME AND THE CRYSTAL OF WASHING MACHINE DOOR, being destined for its use in the union between the door frame of the automatic washing machine and the crystal of the same one, that has a general truncated cone shape, with a perimetric projecting to the external part, with regard to its bigger base that is open for the union to the frame, and characterized in that the external prolongation (3) of the external open base of the crystal, remains placed in relationship to an inlet of the frame (5), having the means of interlocked fixing between both bodies and the support means of the crystal (2) in the frame (5).
2. UNION SYSTEM BETWEEN THE FRAME AND THE CRYSTAL OF WASHING MACHINE DOOR, according to the first claim and characterized in that the means of interlocked fixing between the frame (5) and the crystal (2) are defined by a projecting (4) of the perimetric prolongation (3) of the crystal (2) which, during its assembly in the frame (5), remains in relationship to a cleft (6), with equal section, of the own frame.
3. UNION SYSTEM BETWEEN THE FRAME AND THE CRYSTAL OF WASHING MACHINE DOOR, according to the previous claims, and characterized in that the interlocked fixing between the crystal (2) and the frame (5) is done by means of an adhesive (7) that is placed manually or automatically in the frame cleft (6).
4. UNION SYSTEM BETWEEN THE FRAME AND

THE CRYSTAL OF WASHING MACHINE DOOR,
according to the first claim and characterized in that
the support means of the crystal (2) with the frame
(5) are defined by a whole of protuberances (8) of
the lateral surface of the cope on which the perimet-
ric prolongation (3) of the crystal (2) is backed so
that these protuberances keep the crystal in its
working position.

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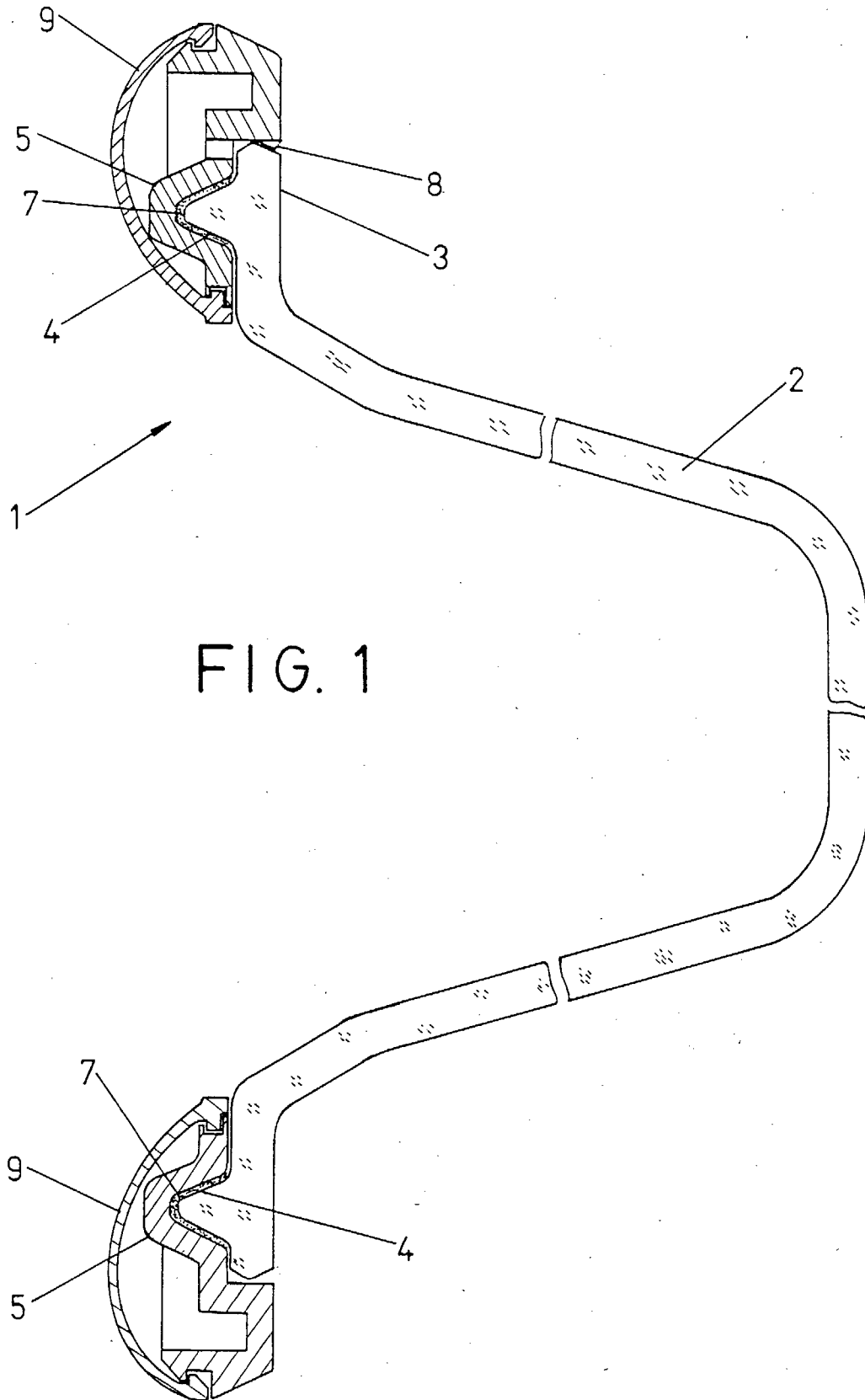
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EUROPEAN SEARCH REPORT

Application Number
EP 98 50 0052

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
A	DE 36 03 211 A (MIELE & CIE) 6 August 1987 * abstract; figures * ----	1	D06F37/28 D06F39/14
A	GB 2 118 580 A (FAINI SPA) 2 November 1983 * abstract; figures * -----	1	
			TECHNICAL FIELDS SEARCHED (Int.Cl.6)
			D06F
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 6 August 1998	Examiner Helpiö, T.
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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