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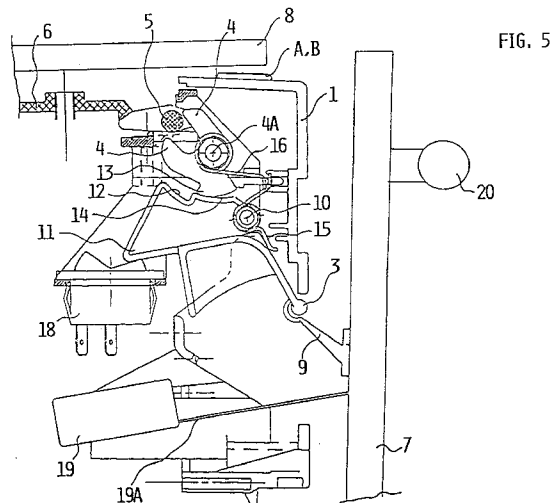
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(54) **Washing machine, particularly a domestic dishwasher, with decorative front panel.**

(57) Household washing-machine, particularly a dishwashing machine, comprising a front door (1) and a lock/release system (3-6,10-17) for said door (1) in respect to the machine cabinet (8) able to warrant the closure of the door (1) and allow its opening, wherein a decor-panel (7) with gripping means (20) able to exert a traction on the panel (7) is applied to said door (1), characterised in that the panel (7) is fastened in its lower side to the door (1) in such a way that following a traction exerted on the gripping means (20) the panel (7) is first retracted from the door (1) in the upper section of the latter; and in that the panel (7) has coupling means (26,27) above its fastening point (21) to the door (1), which transfer the traction exerted on the panel (7) to the door (1) upon exceeding a given passage of the panel (7).



The present invention refers to a washing-machine, particularly a household dishwashing machine, comprising a cabinet and a front loading door to which a decor-panel is associated, mainly for cosmetic purposes.

It is known that industrially manufactured dishwashing machines are mainly classed in two types, namely the so-called free-standing dishwashers and built-in dishwashers.

Dishwashing machines pertaining to the former type are usually installed after their purchase in any part of the house (kitchen or other room) independently from the other household furnishings, i.e. said machines are purchased individually and installed by the user in the most suitable place.

Built-in dishwashing machines are not purchased by the end user but rather by a resaler of built-in furniture to be integrated with other pieces of furniture and are usually covered by a front panel to match said furniture from a cosmetic standpoint (thus, the end user will purchase a set of said built-in pieces of furniture, including a dishwashing machine).

To this purpose several systems for fastening the panel to the door have been suggested.

According to the simplest systems the panel is rigidly fastened to the door so that the former cannot move in respect to the latter. Other machine types, for various reasons, have the panel fastened to the door through complex means allowing the former to move in respect to the latter during the door opening motion; said complex systems are usually obtained by means of articulated parallelogram type leverages or by hinging the decor-panel in the upper section of the door.

Other dishwashing machines of the above type are also known equipped with a control panel comprising the various machine associated controls and display devices, where said control panel is also equipped with a door opening grip, which is mechanically connected with a suitable closure latch; usually, the control panel is assembled in line with the upper section of the front loading door, below which said decor-panel is fastened.

A control panel as described above is known by way of example from the Italian patent application No. TO91A000374. In said application a household appliance door is particularly described comprising a front wall with an aperture closed by way of a small movable flap within which the fingers of a hand can be introduced; said aperture also has a movable edge whereby the traction exerted by the fingers on said edge causes a preliminary release of the door closing latch. Said solution, besides having a pleasant cosmetic result also allows a simple opening of the door through an easily accessible grip and a particularly smooth operating latch.

Among built-in dishwashing machines the so-called "fully integrated" machines are becoming popular,

where the main control and display devices are located on the upper edge of the door in such a way to be concealed and protected by a front projection of the machine worktop when the door is closed.

Thus, the machine front surface is entirely free and the loading door can be completely covered by the decor-panel to fully integrate the machine with the other kitchen furniture from a cosmetic standpoint.

On said dishwashing machines the decor-panel rigidly fastened to the door has a handle, which is a simple grip to allow the user to exert a traction on the door; in such a case the door opening/closing system has a so-called "jerk" opening mechanism, comprising substantially one or more jaws suitable to flexibly lock a corresponding pin (both the jaws and pin are assembled on the door and machine cabinet respectively, or vice versa according to the various solutions).

The above opening/closing systems are also provided with safety means suitable to disable the machine power feed when opening the door.

However, the machines of the type described above have some drawbacks.

As a matter of fact, the jerk opening system, typically called for in cases of a fully integrated dishwashing machine (also used on machines of different types) is not a comfortable one as it requires a certain force to be exerted by the user and a movement being necessarily sudden; moreover, the continuous stress on the handle and consequently on the decor-panel may cause damages and failures to the panel fastening system on the dishwashing machine door.

Fully integrated dishwashing machines of the type described above also have the particular problem of making it rather difficult for the user to verify the phase reached by the wash-cycle. Inspection of the dishwashing machines progress is only possible, in fact, by slightly opening the door to view its upper edge where both the controls and display devices are located. However, this inevitably causes an interruption of the wash-cycle.

It is the aim of the present invention to solve the above problems and specifically to indicate a dishwashing machine allowing an easy and safe inspection and/or control and/or opening, of the machine itself, in a simple economical manner without jeopardising its appearance.

The present invention is based on the acknowledgement that said aims can be attained by equipping the washing machine with a frontal decor-panel substantially hinged on the lower half of the loading door, so as to swing in its upper section and therefore be retracted from said section of the door.

Further aims and advantages of the present invention will be apparent from the following detailed description and from the attached drawings, which are supplied only as an explanatory and non-limiting example, wherein :

- Fig. 1 shows schematically a first vertical section of the upper section of a dishwashing machine door according to the present invention, with the door closed;
- Fig. 2 shows schematically two side views of the dishwashing machine according to the present invention, in two different operating conditions;
- Fig. 3 shows schematically a view of a possible coupling system for a decor-panel to the lower section of the dishwashing machine door, according to the present invention;
- Fig. 4 shows schematically a section of a possible fastening system for a decor-panel to the upper section of the dishwashing machine door, according to the present invention;
- Fig. 5 shows schematically a section similar to that of Fig. 1 of the upper section of a dishwashing machine door according to the present invention, with the door opened.
- Fig. 6 shows schematically two comparing views of a dishwashing machine according to the present invention with closed door and opened door;
- Fig. 7 shows schematically a view of a dishwashing machine provided according to a first possible variant of the present invention;
- Fig. 8 shows schematically a partial view and sectioned view of the upper section of a dishwashing machine realised according to a second possible variant of the present invention.
- Fig. 9 shows schematically two comparing views of a dishwashing machine realised according to a third possible variant of the present invention, in two different conditions of use.
- Fig. 10 shows schematically a side view of a dishwashing machine realised according to a fourth variant of the present invention.

In figure 1, which shows schematically the upper door section of a dishwashing machine according to the present invention in a closed position, reference number 1 indicates a vertically assembled door hinged in its lower section to the machine cabinet; reference number 2 indicates an aperture on the front side of door 1; reference number 3 indicates a movable arm as detailed further on located inside the aperture 2; reference number 4 indicates a lever pivoted in 4A which is a part of the door closure latch mechanism; reference number 5 indicates a pin engaging a fork obtained in lever 4; pin 5 is connected through a bar 6 to the household cabinet (lever 4, bar 6 and pin 5 form the actual latch operated by the arm 3).

In the embodiment described above the dishwashing machine is of the fully integrated type, i.e. it is equipped with a decor-panel as best seen in 7, e.g. made of wood, fully covering the front loading door 1; the display and control devices shown with A and B

respectively are located on the upper edge of the door so as to be concealed and protected by a front projection 8 of the machine's upper worktop when door 1 is closed.

Reference number 9 indicates a coupling element integral to panel 7, suitable to cooperate with the end of the arm 3.

Reference number 10 indicates the hinged point of a lever as indicated by reference number 11 integral to movable arm 3; lever 11 has in its upper part a first approximately triangular recess 12 to which a mechanical tooth shaped projection 13 integral to the described lever 4 engages when the door is closed.

The lever 11 itself shows above a second recess 14 located on the right side of the previous one, which is engaged by projection 13 when the door is open, as described in the following.

In its hinged point lever 11 is further equipped with a spiral spring 15, which tends to rotate the lever clockwise.

Reference number 16 indicates on the contrary a spiral spring tending to rotate lever 4 anticlockwise, i.e. with the latch in open position; reference number 17 indicates a fixed element provided to restrict lever 4 motion.

Reference numbers 18 and 19 indicate a safety push-button switch and a microswitch of a substantially known type, which are series connected to each other within the machine power feed circuit and which provide for power cut-out every time the door is opened or is being opened, as better described in the following.

Finally, reference number 20 indicates a handgrip integral to panel 7 which allows the user exert a traction for opening the door.

As is seen from the two views of figure 2, the fastening system of the decor-panel 7 to door 1 in a possible embodiment, better described in the following, allows panel 7 upper section to swing and consequently move away from the upper section of the door 1.

Specifically, panel 7 is hinged at point F of door 1 near the lower edge of the latter; on an upper position in respect to said fulcrum F panel 7 is associated with door 1 through connecting means L, which also operate to limit both the panel passage and return.

Figures 3 and 4 show by way of an explanatory and not limiting example, a possible embodiment of the coupling system or hinging between door 1 and decor-panel 7.

In figure 3 reference number 21 indicates a small supporting bracket comprising a central pin 21A; two such brackets 21 are fastened in a usual known manner on both the right and left sides of door 1, near its lower end in a suitable recess obtained on the metal surface of the door 1; 22 indicates a hooking element, e.g. in plastic material, with a tang 23; two said hooking elements 22 are fastened in a usual known man-

ner on the inner face of the decor-panel 7, in a position corresponding that of brackets 21 and such to allow a correct positioning of panel 7 on door 1.

Hinging the panel 7 to the lower section of the door 1 is obtained by coupling mutually elements 22 to brackets 21, passing over the central pins 21A, which form the system linkage (F, figure 2) with tangs 23, i.e. the decor-panel 7 on which the hooking elements 22 are fastened, approaches the door to let coupling element 9 enter aperture 2 and position itself under movable arm 3, whereas tangs 23 are inserted into brackets 21; as a result, the panel will be applied to the lower section of the door and remain supported in position by means of the brackets 21 and tangs 23.

It clear that as opposed to a pair of brackets 21 and a pair of elements 22 a single bracket 21 and a single element 22-23 (e.g. in the form of a horizontal traverse) of suitable length may be foreseen.

For coupling completion panel 7 upper section is fastened in a correct position on door 1 through suitable connecting means (L, figure 2), as best shown in figure 4.

In said figure 4, reference number 26 indicates a small plastic cylinder inserted from inside the door 1 into a hole on the door itself. A screw 27 is inserted into the small cylinder 26 and tightened on panel 7 to fasten it to door 1; as it will be seen, screw 27 is inserted into a second small cylinder or spacer 27A to avoid excessive tightening; the hole on the door will then be closed by a plastic plug 28; a second similar screw not shown in the figure, cooperating with a second small cylinder and a second plug, clamps the panel on the other side.

Moreover, return springs are advantageously provided for, one of which can be seen under 29, interacting between the head of screws 27 and the bottom of the small cylinder 26, suitable to maintain panel 7 flexibly adjacent to door 1.

The parts shown in figure 4, inserted in door 1 in a suitable arrangement and orientation, form the connecting means L with a passage and return limiting function as shown in figure 2.

As described referring to figures 2-4, it is apparent that decor-panel 7 is coupled with door 1 in such a way to be able to separate it from the door in its upper section through a slight traction exerted by the user and move away from the door without opening the latter.

Obviously, other systems are possible to have panel 7 hinged to door 1 on the lower side: e.g. brackets 21 may be replaced by at least a couple of slots cut on the door 1 sheet.

Alternatively, hinging the panel on the lower side may be obtained using more complex hinge elements, with suitable flexible return elements, such as a special flat spring.

Operation of the invention will now be described particularly referring to figures 5 and 6, where the

same previous reference numbers are used.

In the opening phase the user operates the handgrip 20 exerting a slight pull forward; as said decor-panel 7 is fastened in such a way to retract on the top, so that the user's pull causes a slight separation of panel 7 from door 1, which is at its maximum in the upper section of the door.

Said displacement of panel 7 is detected by a rod 19A causing microswitch 19 to open. Thus, before the latch is released (as it will be better explained further on) and the door opened, the power feed to the household appliance is cut. In the dishwashing machines where power feed is cut simultaneously with door opening, one of the spraying arms may eventually continue inertial rotation, with the risk of an outcoming hot water jet hitting the user.

In the present invention, on the contrary, microswitch 19 intervenes practically instantaneously within the lapse of time from separation of panel 7 and actual opening of door 1, as it intervenes faster in respect to safety switch 18 (this is possible also due to the fact that rod 19A also detects any slight motions). Thus, a time margin sufficient for avoiding the above risk is attained, i.e. the displacement occurring between the decor-panel and the door allows a power feed cut-out to the machine even before the door is opened.

If the user pulls panel 7 further forward, coupling element 9 fastened on it exerts a traction on the end of arm 3.

Such a traction causes lever 11 to rotate downwards and displace the first recess 12 out of reach of tooth 13; thus, lever 4 is released and rotates anticlockwise through spring 16 action and releasing from pin 5: the latch is released and door 1 can be entirely opened. As a matter of fact, once a maximum retraction between panel 7 and door 1 has been reached when screw 26 head hits the bottom of small cylinder 26, a further traction from the user will be transferred to door 1 causing it to open.

In its downward motion lever 11 determines the pressure of push-button switch 18, which causes a further cut-out of the power circuit and warrants the required safety. Switches 18 and 19 are in fact connected in series to each other: thus, the open condition of the power circuit is maintained constant by switch 18 as long as the door (or, if preferable, the latch) remains open; now, even if the user releases handgrip 20 (and consequently panel 7) causing a cut-out of microswitch 19, there will be no risk that the machine may resume operation.

At this point tooth 13 is engaged in the second recess 14 maintaining lever 4 fork turned towards pin 5 and switch 15 open as mentioned; tooth 13 position in the recess 14 is maintained through the aid of spring 15 action.

On the contrary, in a likely subsequent door closing stage substantially similar to that shown in figure

5, pin 5 and lever 4 come into contact; specifically, pin 5 fits in the fork obtained in lever 4, which is forced to rotate clockwise up to its starting position; then, tooth 13 moves away from the second recess 14 to the first recess 12 and lever 11 rotates upwards under spring 15 action, releasing switch 18 and going back to the starting conditions shown in figure 1 of door 1 hooked and switch 18 closed.

Both different conditions of closed door and open door are schematically shown in figure 6.

As mentioned above, it will be apparent how through hinging the decor-panel 7 on the lower side and the fact that it may be mechanically connected with a suitable latch, the machine can be equipped with a simple smoothly operating open/close system without any risks for the user and avoiding the usual problems caused by the dishwashing machines equipped with a jerk opening system.

It should also be mentioned that to release the latch described in figures 1 and 5 it is sufficient to impart a few centimetres pull to arm 3, so that according to the embodiment suggested above the retraction allowed to panel 7 may in any case be limited.

Of course, said retracting may be greater in other embodiments.

By way of example, figure 7 shows a dishwashing machine according to a particularly advantageous embodiment of the present invention (in said figure the same reference numbers of figure 1 are used).

The fully integrated type dishwashing machine shown in figure 7, has the main control devices on the upper edge of the door according to the known state of the art, whereas the machine operation display devices indicated with B are located on the front side of the door, in correspondence with its upper end or top corner.

It is clear that in such an embodiment - without prejudice to the other constructive elements described above - the user is able to verify the status of the wash-cycle progress, without the necessity of opening the door and/or stopping the operations of the machine.

This may be reached by means of simple changes to the above description referring to figures 1-6, providing a coupling system or hinging between door 1 and decor-panel 7 that allows the latter be moved away from the former to a sufficient extent to see said display devices B and suitably changing either the forms and/or reciprocal runs of some components.

Therefore, according to said embodiment, the coupling between arm 3 and element 9 will be designed to have the latter cooperating with the former only upon overcoming a first part of the passage accomplished by panel 7, over which the latch may be released as described above; to this purpose it is possible to realise elements 26-29 in such a way that the tensioning of springs 29 will signal the user of the ap-

proaching limit of said passage: in such a case, so as to warrant adjacency between the door 1 and panel 7 one or more magnetic elements integral to the panel and engaging the sheet material of the door or several springs of a different type and/or tension could be provided.

Moreover, it is clear that also the microswitch 19 or its rod 19A can be positioned in such a way so as to intervene upon overcoming said first section of passage.

A further embodiment of a fully integrated dishwashing machine according to the present invention is shown in figure 8, which is realised by substantially using the above described hooking and coupling systems.

According to said embodiment, the upper section of door 1 also has a seat for an oscillating element 30, e.g. made of plastic material and with a substantially round section, whose top surface bears the display devices A to indicate the status of the wash-cycle progress, which are powered from inside the door 1.

The oscillating element 30 is able to take two positions :

- a rest position, where the oscillating element 30 is in its seat and substantially contained within the dimensions of the door 1;
- a working position extending between the front surface of the door 1, when the door is still closed, and the rear surface of panel 7, when it is retracted from the door 1.

Operation of the dishwashing machine according to the suggested embodiment in figure 8 is very simple. When the door is closed, the machine is covered by the decor-panel, e.g. as shown on the left side in figure 6; under such condition the oscillating element 30 is maintained in rest position by panel 7, eventually in contrast to the action of suitable flexible means, such as a spiral spring.

If the user wishes to verify the status of the wash-cycle progress, it is sufficient to pull handle 20 so as to move the panel 7 away from the door 1: under such condition, due to the cited flexible means, the oscillating element 30 is free to take on its working position and the user can easily inspect the display devices A (figure 8, part A). It should also be mentioned that in such a case element 30 acts as a cover, concealing the free space between door and panel when viewed from above and eventually as a marker for the limit over which the door controlled release mechanism will be operated.

It is clear that the oscillating element 30 may also be equipped with control devices of the dishwashing machine, e.g. in the form of keys, in which case the user will have the opportunity of inspecting the machine also with the door 1 closed (one of said keys, mechanical type, could eventually control the latch release); it is also clear that the oscillating element 30 itself may be associated with the open/close mecha-

nism shown in figure 1 in order to carry out the functions of the coupling element 9; in such a case the oscillating element 30 should also be connected in use with the decor-panel 7, something of which can be obtained in a very simple and known way.

Also in the cases described above it would be possible to warrant the adjacency between the door and panel by means of springs and/or magnetic elements.

According to the above description it is clear how the present invention allows to also realise a fully integrated type dishwashing machine, wherein the display and/or control devices are normally covered by the decor-panel but can be inspected and/or operated if required without having to open the front loading door and without any risks.

The characteristics of the dishwashing machine according to the present invention therefore result in being clear from the present description and annexed drawings, as are its advantages; particularly represented by the following features:

- easy opening, as the usual problems with the jerk opening mechanisms are entirely removed; according to the present invention the door release is obtained through an easy smooth pull forward of the decor-panel, without any effort or sudden movements, without any risks of damaging the system fastening the panel to the door;
- capability, in case of fully integrated machines, of easy wash-cycle inspection without the need of opening the machine door and stopping the operating cycle;
- nice clean appearance, as the dishwashing machine door - in the case of a fully integrated machine - is entirely covered by the decor-panel, being absolutely identical to the machines of the known type;
- easy and economical assembly thanks to the suggested coupling system between the panel and door. Said solution also allows to obtaining a good production standardisation for the possible use of the same latch elements (3-18) on any type of dishwashing machine (fully integrated type, free-standing and built-in types, with handles in sight, etc.);
- safety ensured by a latch closing device, comprising a number of interacting levers and consequently with controlled pre-release, eventually combined with two safety switches, one of which for power feed cut-out to the appliance before the actual opening of the door.

It is obvious that numerous changes can be made by the man of art to the dishwashing machine described by way of example, without departing from the novelty principles of the innovative solution.

As an example, arm 3 and element 9 may be differently shaped provide for a different coupling sys-

tem. Moreover, both the position and shape of the microswitch 19 may differ from the ones shown in the figures.

As mentioned, also the fastening system of the decor-panel to the door may be different, without prejudice to the capability of allowing upon the first retraction of such to allow for the functioning of the open/close mechanism and/or activation of the safety microswitch, and/or control of display and command devices.

Finally, it is clear that the idea of providing a door opening device wherein the latch release and door opening occur at separate and subsequent times and/or a safety system, both controlled by the decor-panel motion, could also be advantageously applied to machines provided with a control panel in sight on the upper section of the door (i.e. free-standing type).

In such case, as shown schematically in figure 9, the control panel may have very small dimensions, as it would only contain machine controls B and display devices A and no longer the operating handle for the opening system. Therefore it is clear that in the case of machines controlled by way of keys and equipped with display lights, the part of the control panel in sight would be extremely small in size, in the order of 3 to 4 centimetres.

A further possible embodiment of the present invention applicable to a fully integrated type dishwashing machine is shown in figure 10. The machine shown in figure 10 has the elements already described referring to figure 2 and its door 1 is provided with a lock/release device M comprising a latch of the controlled pre-release type (i.e. as described in Italian patent application no. TO91A000374 previously mentioned).

According to said embodiment, the opening action of the door 7 of the dishwashing machine is "split" in two different stages :

- a first retraction stage of the panel 7 from the door 1, so as to gain access to the handle of device M;
- a second manual stage of a controlled release opening of door 1, i.e. not by jerking, using the handle of the device M.

Claims

1. Household washing-machine, particularly a dishwashing machine, comprising a front door (1) and a lock/release system (3-6,10-17) for said door (1) in respect to the machine cabinet (8) suitable to warrant the closure of the door (1) and allow its opening, wherein a decor-panel (7) with gripping means (20) suitable to exert a traction on the panel (7) is applied to said door (1), characterised in that the panel (7) is fastened in its lower side to the door (1) in such a way that upon exerting a

traction on the gripping means (20) the panel (7) is first retracted from the door (1) in the upper section of the latter, and in that the panel (7) has coupling means (26,27) above its fastening point (21) to the door (1), which transfer to the door (1) the traction exerted on the panel (7) upon exceeding a given passage of the panel (7).

2. Washing-machine according to claim 1, characterised in that mechanical coupling means (9) are provided between the panel (7) and the lock/release system (3-6,10-17) of the door 1, said mechanical coupling means (9) being suitable to operate the lock/release system (3-6,10-17) during retraction passage of the panel (7) from the door (1), said panel (7) substantially covers the whole door (1).

3. Washing-machine according to claim 2, characterised in that said lock/release system (3-6,10-17) comprises a latch (4-6,11) of controlled pre-release type, i.e. the type where the release of the latch (4-6,11) and the opening movement of the door (1) can occur at separate successive times.

4. Washing machine according to claim 1, characterised in that said panel (7) covers substantially the whole door (1), that said door has control means (A, figure 7) behind said panel (7) and that the retraction of the panel (2) from the door (1) allows access to said control means (A, figure 7) without the need of opening the door.

5. Washing machine according to claim 1, characterised in that said panel (7) covers substantially the whole door (1), that said door has display means (B, figures 6 and 7) of the machines operational status located behind said panel (7) and that the retraction of the panel (2) from the door (1) allows access to said display means (B, figures 6 and 7) without the need of opening the door.

6. Washing machine according to claim 1, characterised in that safety means (18,19) are provided able to detect displacement of the panel (7) from the door (1) to interrupt operations of the machine prior to the opening of the door (1).

7. Washing machine according to claims 2 and 3, characterised in that said door (1) has a front aperture (2) in correspondence of which, within the door 1 a control leverage (3) for said latch (4-6,11) is provided and that on the rear surface of said panel (7) an integral connecting element (9), which protrudes inside said aperture (2), and is apt to cooperate, in particular by way of traction,

with said leverage (3).

8. Washing machine according to claim 6, characterised in that once the door (1) has been opened, said safety means (18) are able to disable power supply to the machine for all the time the door remains open, also in the condition of the panel (7) being adjacent to the door (7).

9. Washing machine according to claims 4 or 5, characterised in that said control means (A, figure 1 and 4) and/or said display means (A, figure 1 and 4) are arranged on the upper edge of the door (1) in such a way as to be covered and protected, when the door (1) is closed, by a front projection (8) of the machine's upper worktop.

10. Washing machine according to at least one of the previous claims, characterised in that the upper section of the door (1) a seat for an oscillating element (30) has been obtained, on the upper surface of which said control means and/or said display means (B) are arranged, said oscillating element (30) is able to assume two positions a rest position, wherein the oscillating element (30) is found in its seat and substantially contained within the dimensions of door 1, and a working position extending between the front surface of the door (1), when this is still closed, and the rear surface of panel (7), when this is retracted from the door (1) said oscillating element (30) being in particular associated with the panel (7) and with the lock/release system (3-16,10-17), so as to form said mechanical connecting means.

11. Washing machine according to claim 3, characterised in that means are provided able to indicate a retraction limit of the panel (7) from the door (1) over which the opening of the latch (4,5,6,11) intervenes.

12. Washing machine according to claim 1, characterised in that said door (1) comprises a control panel with control means (A) and/or display means (B), said panel (7) being applied to said door (1) below said control panel.

13. Washing machine according to at least one of the previous claims, characterised in that the door (1), above the fastening point (21) or hinging of the panel (7) has a couple of through-holes (26) wherein screws (27) partially screwed on panel (7) are inserted from inside the door (1), said screws having particularly some strikers (27A) suitable to hinder an excessive screw tightening, and return springs (29) interacting between the screws head (27) and the bottom of the holes (26), in order to maintain the panel (7) flexibly ad-

jacent to the door (1).

- 14.** Washing machine according to at least one of the previous claims, characterised in that flexible return means (29) are provided, able to keep the panel (7) flexibly adjacent to the door (1) and/or magnetic elements integral to the panel (7) and engaging on the sheet-plate material of the door (1), able to warrant the adjacency between the door and the panel.

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- 15.** Household washing machine, in particular a dish-washing machine, comprising a front door (1) and a lock/release system (M) for door (1) in respect to the machine cabinet (8), able to warrant the closure of the door (1) and allow its opening, being applied a decor-panel (7) substantially covering the whole door (1) and having gripping means (20) suitable to exert a traction on the panel (7) is applied to said door (1), characterised in that said lock/release system (M) comprises a latch of controlled pre-release type, i.e. of the type in which the latch release and door (1) opening movement can take place at separate and successive times.

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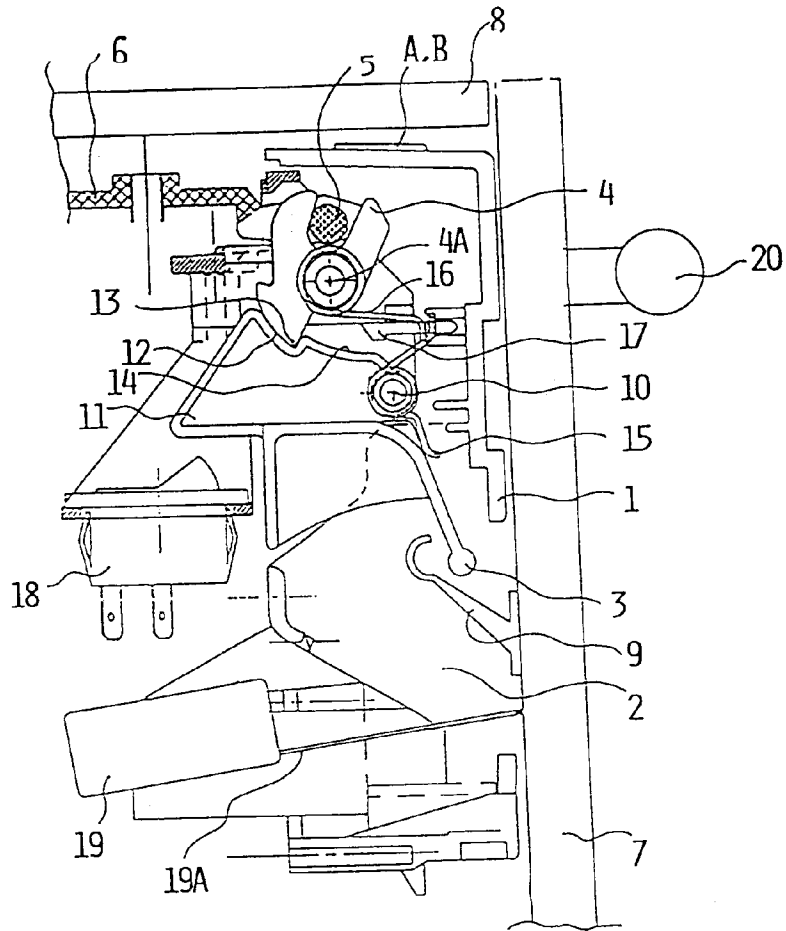
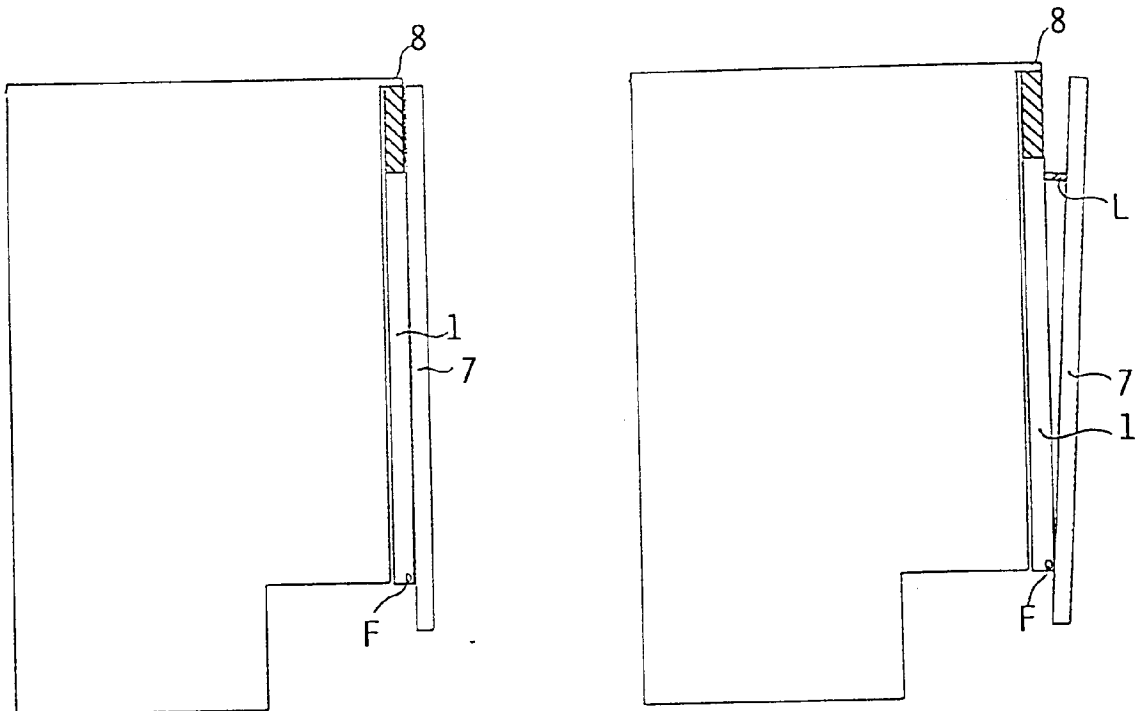


FIG. 1

FIG. 2



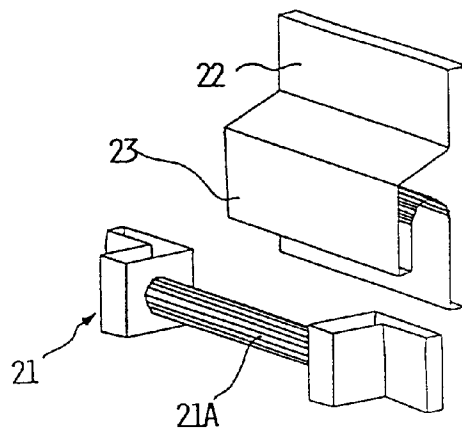


FIG. 3

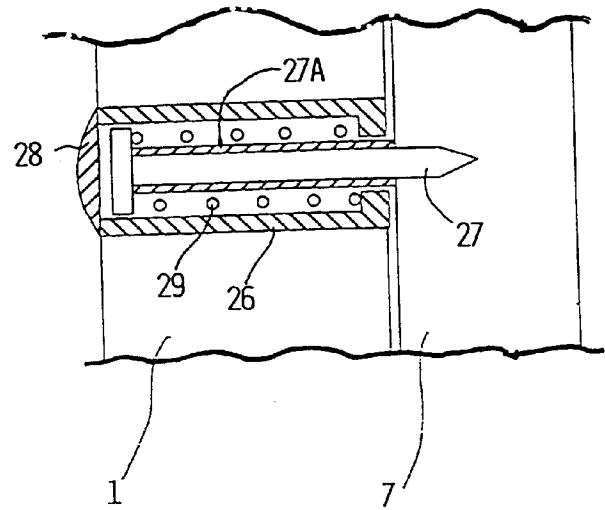


FIG. 4

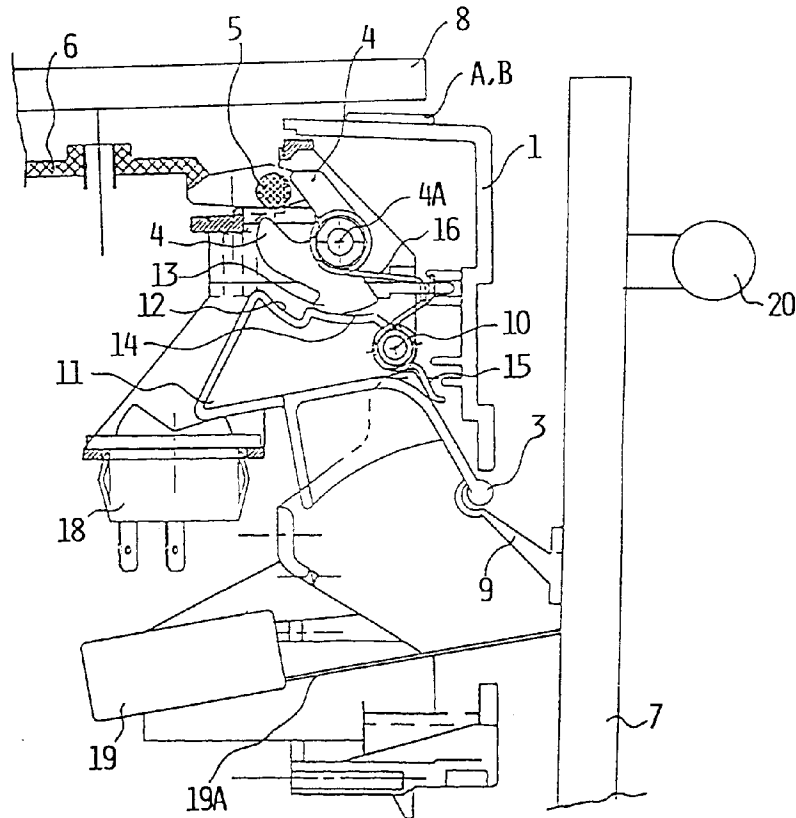


FIG. 5

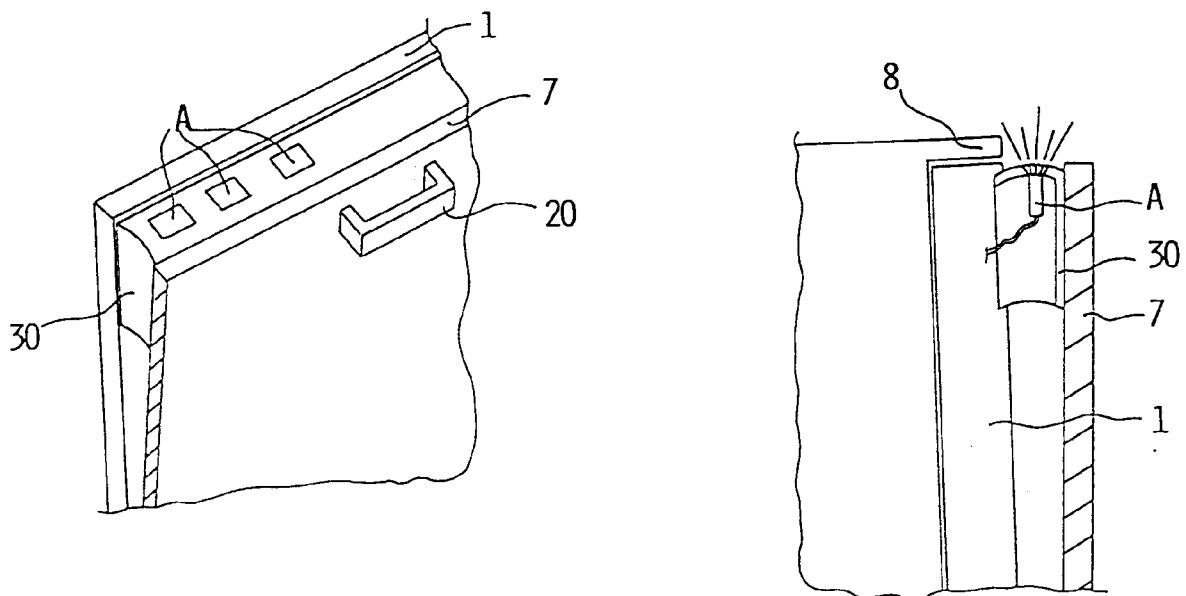
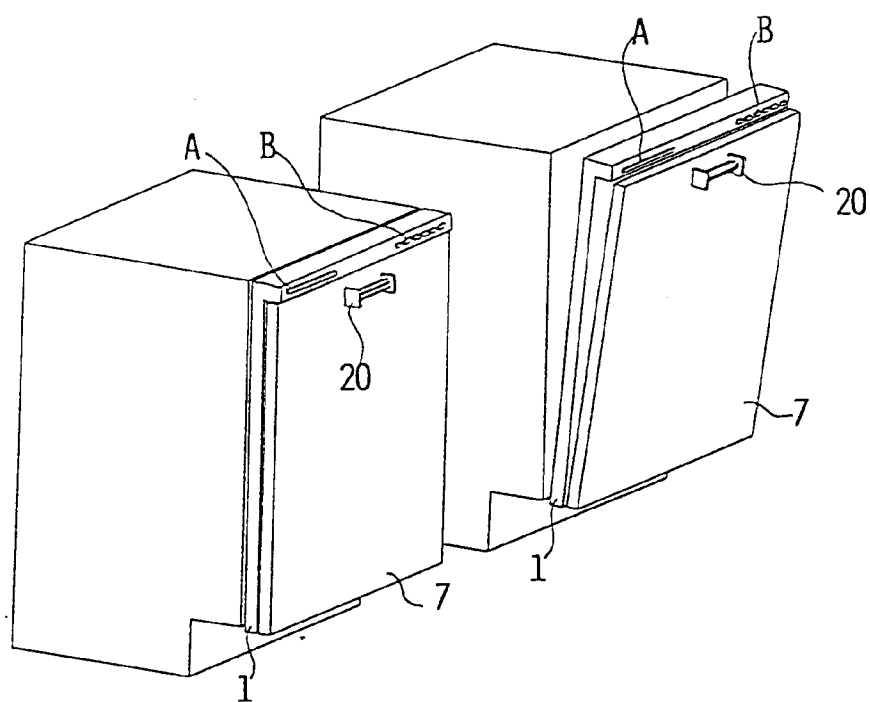


FIG. 8

FIG. 9



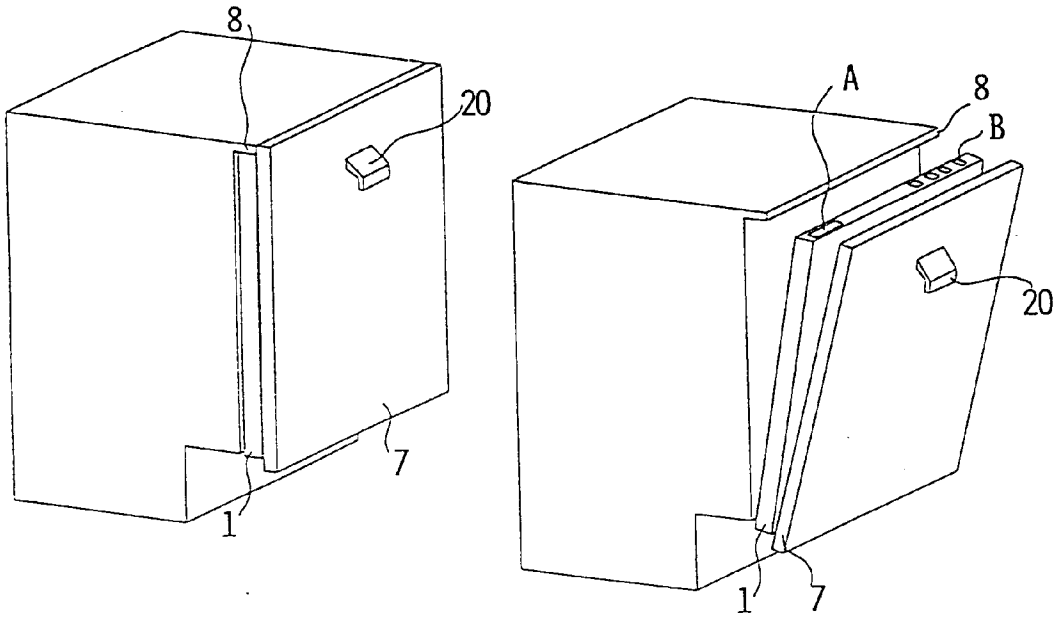


FIG. 6

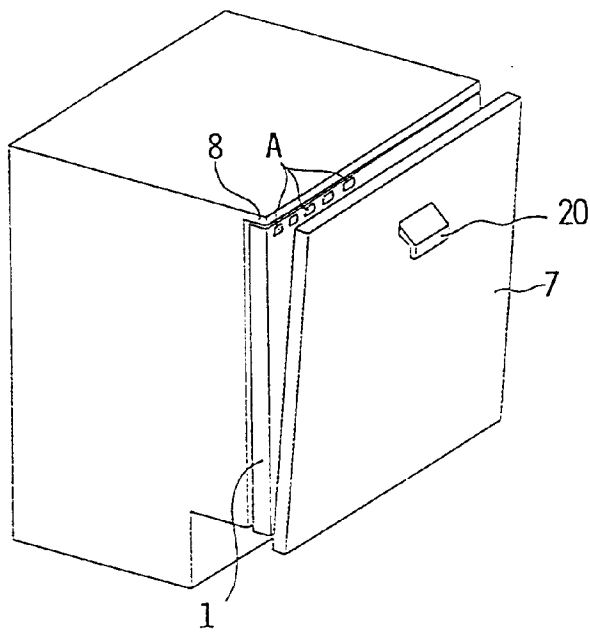


FIG. 7

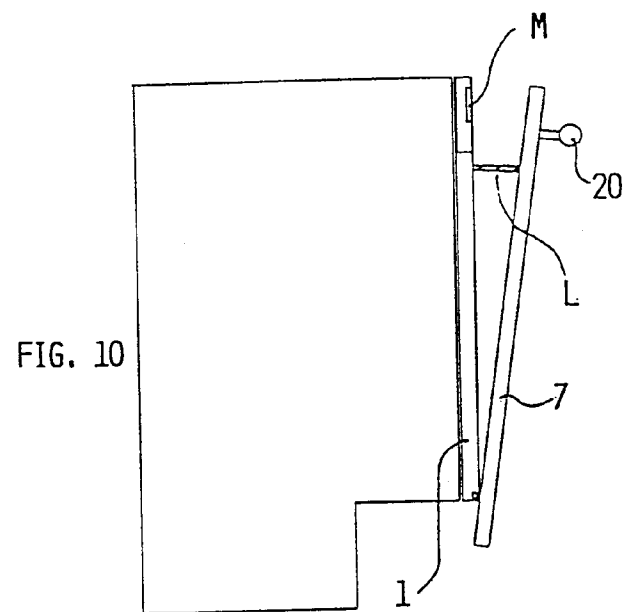


FIG. 10



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 95 10 2172

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	FR-A-2 464 689 (BOSCH-SIEMENS HAUSGERATE GMBH) * page 4 - page 7; figures * ---	1,15	A47L15/42
A	EP-A-0 514 984 (MERLONI ELETTRODOMESTICI SPA) * column 3 - column 6, line 26; figures * ---	1,15	
A	EP-A-0 520 963 (SMEG SPA) * abstract; figures * ---	1,15	
A	DE-U-90 15 940 (INDUSTRIE ZANUSSI SPA) * the whole document * -----	1,15	
			TECHNICAL FIELDS SEARCHED (Int.Cl.6)
			A47L D06F
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 23 May 1995	Examiner Vanmo1, M
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