



Europäisches Patentamt
European Patent Office
Office européen des brevets



(11) **EP 0 937 809 B1**

(12) **EUROPEAN PATENT SPECIFICATION**

(45) Date of publication and mention
of the grant of the patent:
02.05.2003 Bulletin 2003/18

(51) Int Cl.7: **D06F 39/12, B65H 75/36**

(21) Application number: **99102639.4**

(22) Date of filing: **12.02.1999**

(54) **Domestic appliances using water, such as washing machines, tumbledriers and dishwashers**

Wasserverbrauchende Haushaltmaschinen wie Waschmaschinen, Waschtrockner und
Geschirrspülmaschinen

Appareils domestiques consommateurs d'eau, tels que machines à laver, sèche-linge et lave-vaisselle

(84) Designated Contracting States:
DE ES FR GB IT SE

(30) Priority: **21.02.1998 DE 19807401**

(43) Date of publication of application:
25.08.1999 Bulletin 1999/34

(73) Proprietor: **WHIRLPOOL CORPORATION**
Benton Harbor Michigan 49022 (US)

(72) Inventors:
• **Mäntele, Gerd Whirlpool Europe srl Patent Dept.**
21025 Comerio (IT)
• **Noceroni, Michele**
Whirlpool Europe srl Pat. Dept.
21025 Comerio (IT)

• **Nagel, Thomas**
Whirlpool Europe srl Patent Dept.
21025 Comerio (IT)
• **Prete, Michele Whirlpool Europe srl Patent Dept.**
21025 Comerio (IT)

(74) Representative: **Guerici, Alessandro**
Whirlpool Europe S.r.l.
Patent Department
Viale G. Borghi 27
21025 Comerio (VA) (IT)

(56) References cited:
DE-A- 1 474 233 **US-A- 3 456 680**
US-A- 3 461 906 **US-A- 3 760 838**
US-A- 3 880 188 **US-A- 3 897 923**
US-A- 4 715 402 **US-A- 4 870 988**

Note: Within nine months from the publication of the mention of the grant of the European patent, any person may give notice to the European Patent Office of opposition to the European patent granted. Notice of opposition shall be filed in a written reasoned statement. It shall not be deemed to have been filed until the opposition fee has been paid. (Art. 99(1) European Patent Convention).

EP 0 937 809 B1

Description

[0001] The invention relates to domestic appliances, such as washing machines, tumble-driers, dishwashers and the like, with a water outlet system with outlet hose.

[0002] In installing domestic appliances the outlet hose should be easily accessible after the removal of the packaging and be capable of being easily extended to the correct length for attachment to the local outlet system. In addition, the outlet hose already led out of the casing of the appliance, requires a larger pack for outlet hose arranged on the rear panel of the machine housing for the packaging, storage and transport.

[0003] US-A-4 715 402 discloses an appliance having a hose retainer for removably receiving the outlet hose within a cabinet of the appliance. The appliance includes accen parts for affording access to a portion of the hose for pulling it outwardly.

[0004] It is an object of the invention to arrange the outlet hose for a domestic appliance of the above-mentioned type for packaging, storage and transport, so that the size of the packaging is determined only by the dimensions of the appliance housing and that the outlet hose can be rapidly and simply connected with the local outlet system at the point of use.

[0005] This object is met by the invention in, by providing in the rear panel of the appliance housing, an outwardly open receiving assembly for the end of the outlet hose and the outlet hose installed so that it can be drawn out, is introduced into the receiving assembly through an inlet and is set up for packaging, storage and transport of the domestic appliance with its end in an outlet.

[0006] The end of the outlet hose is inserted in the receiving assembly and arranged in such a way that it is lightly held and can be withdrawn from the appliance housing. In this way the size of the packaging required can be reduced to the dimensions of the appliance casing, without hindering connection of the outlet hose to the local outlet system. All that is required is simply to withdraw the outlet hose from the appliance casing until there is a sufficient length free for connection. Handling is simplified as a result of the fact that the end of the outlet hose is held in an arcuate holder, which extends with the end of the outlet hose in the receiving assembly from entry to exit and does not extend with the outlet hose beyond the receiving assembly. The end of the outlet hose can then be easily held.

[0007] For safety reasons it is envisaged that the part of the outlet hose introduced into the appliance casing should be provided with a stop which, after removal of the end of the outlet hose from the receiving assembly, limits the extraction movement of the outlet hose through impact of the stop against the inlet, so that the connection of the outlet hose to the internal outlet of the appliance within the appliance casing is not subjected to an unnecessary tensile force.

[0008] If the outlet hose is not firmly attached to a local outlet system then it is advantageous to provide an em-

bodiment which is characterised by the provision of a suspension lug on the holder. The outlet hose can then be suspended after use.

[0009] In accordance with a further embodiment retaining elements are provided, preferably moulded-on formed, on the receiving assembly to fix the outlet hose in the operating position and for fixing the mains plug of the appliance connecting cable. The mains plug of the appliance connecting cable will then also be accepted by the receiving assembly and held securely at least in the packed condition of the domestic appliance. It is thus envisaged that the retaining device for the appliance connecting cable is covered with the holder so that the domestic appliance can only be electrically connected when the outlet hose has been removed from its not-in-service position in the receiving assembly.

[0010] The entry and the exit for the outlet hose is preferably moulded-on formed in the receiving assembly.

[0011] The incorporation of the receiving assembly into the rear panel is preferably done in such a way that the receiving assembly is provided with entry and exit openings positioned vertically above one another in a marginal area of the rear panel. Adequate space is then available between the appliance unit and the adjacent side wall of the appliance casing for the extractable storage of the outlet hose.

[0012] For the incorporation of the receiving assembly in the rear panel it is envisaged, in one embodiment, that the receiving assembly be provided with a circumferential attachment flange in which the fastening seating for connecting the receiving assembly inserted in a recess in the rear panel with the rear panel is built in.

[0013] To enable the exit aperture for the outlet hose in the receiving assembly which is no longer required in the operating condition to be closed, one embodiment envisages that a closure lid for the exit is provided by means of an elastic connecting member, in particular moulded-on.

[0014] If the appliance outlet system has an extraction pump, the outlet hose is connected to the outlet of this extraction pump.

[0015] The invention will be illustrated in more detail by way of an example of an embodiment with the aid of the drawings.

Fig. 1 shows a perspective view of the rear panel of the appliance casing of an electrical domestic appliance using water with outlet hose and appliance connecting cable.

Fig. 2 in a larger perspective representation of the receiving assembly with the end of the outlet hose secured therein and

Fig. 3 a partial view of the domestic appliance with the outlet hose in the ready-for-use position.

[0016] The domestic appliance with the machine assembly is enclosed in an appliance casing 10 where the

machine assembly is adapted according to the function of the domestic appliance as a washing machine, tumble-drier, dishwasher and the like. The design of the machine assembly is not of significance for the purposes of the present invention and is not therefore explained in more detail.

[0017] 11 indicates the rear panel of the appliance casing 10. An outwardly opening, trough-like receiving assembly 20 is set into this rear panel 11. If the internal outlet system within the appliance is provided with an extraction pump 13, then an outlet hose with the end 17 (Fig. 2) turned towards it is connected to the outlay from this extraction pump 13. The receiving assembly 20 is arranged in a vertical boundary region of this rear panel 11 and has an entry 21 and an exit 22 for the end of the outlet hose 14. The entry 21 serves to introduce the outlet hose 14 into the receiving assembly 20 and the end of the outlet hose 14 can be inserted into the exit 22 and held in the receiving assembly 20. Entry 21 and exit 22 can be integrally formed in one piece as sleeves on the receiving assembly 20.

[0018] The end of the outlet hose 14 can be held in an arcuate holder 16 which extends from the entry 21 to the exit 22 and which holds the outlet hose 14 on removal from the receiving assembly 20. The holder 16 may be clamped only to the end of the outlet hose 14, so that it can be removed when the outlet hose 14 is attached to the local outlet system. If the connection of the outlet hose to the local outlet system is not fixed, then it can be hung on the holder 16 provided with a suspension lug 17.

[0019] The receiving assembly 20 may comprise a retaining member 28 covered by the holder 16 which can be employed to receive the mains plug of the appliance connecting cable 30, as shown in Figs. 1 and 2. Before the plug of the appliance power cable can be accessed the end of the outlet cable 14 held in the receiving assembly 20 must be removed and the holder 16 taken out of the receiving assembly 20. This will release the exit 22 and can be covered with a closure cap 26, as shown in Fig. 3.

[0020] This closure cap 26 is moulded-on through an elastic connecting member 27 on the receiving assembly 20.

[0021] The outlet hose 14 is withdrawn from the appliance casing 10 until the length required for connection to the local outlet system is attained, where the outlet hose is led into the entry 21. A stop 15 provided on the outlet hose 14 limits the maximum extractable length. As made clear in Fig. 1, the outlet hose 14 can be stowed extractably in a sufficient length between the machine assembly and the adjacent side wall 12 of the appliance casing 10.

[0022] As shown in Fig. 2, the receiving assembly 20 is provided with a circumferential attachment flange 31 in which the apertures 23 and 24 required for attachment to the rear panel 11 are provided. The receiving assembly 20 is inserted in a cut-out in the rear panel 11. In

addition, the receiving assembly 20 may comprise additional retaining elements 25 which may be employed to hold the outlet hose 14 in its operating position. The holder 16 may also be held in additional retaining elements in the receiving assembly 20.

Claims

1. Domestic appliances using water, such as washing machines, tumble-driers, dishwashers and the like with a water outlet system with outlet hose, the outlet hose being stowed extractably in a casing of the appliance,
characterised in that
an outwardly open receiving assembly (20) for the free end of the outlet hose (14) is provided in the rear panel (11) of the appliance casing (10), such receiving assembly having an entry (21) and an exit (22), and **in that**
the outlet hose (14) is brought out through the entry (21) into the receiving assembly (20) and fixed with its free end in an exit (22) for packaging, storage and transport of the domestic appliance.
2. Domestic appliance in accordance with Claim 1
characterised in that
the free end of the outlet hose (14) is held in an arcuate holder (16) which extends from the entry (21) to the exit (22) and which holds the outlet hose (14) when the free end of the outlet hose (14) is fixed in the receiving assembly (20) and which does not project out of the receiving assembly (20) when the outlet hose (14) is in place.
3. Domestic appliance in accordance with Claim 1 or 2
characterised in that
the part of the outlet hose (14) comprised within the appliance casing (10) is provided with a stop (15) which through impact of the stop (15) against the entry (21) limits the withdrawal of the outlet hose (14) after the removal of the free end of the outlet hose (14) from the receiving assembly (20).
4. Domestic appliance in accordance with one of the claims 1 to 3
characterised in that
the holder (16) is provided with a suspension lug (17).
5. Domestic appliance in accordance with one of the claims 1 to 4
characterised in that
fixing elements (25, 28) are provided, preferably integrally, on the receiving assembly (20) for fixing the outlet hose (14) in the operating position and for fixing the mains plug of the appliance connecting cable (30).

6. Domestic appliance in accordance with Claim 5
characterised in that
the fixing elements (28) for the appliance connecting cable (30) is covered by the end of the outlet hose (14) with the holder (16) fixed in the receiving assembly (20). 5
7. Domestic appliance in accordance with one of the claims 1 to 6
characterised in that 10
the entry (21) and exit (22) on the receiving assembly (20) are formed as one piece.
8. Domestic appliance in accordance with one of the claims 1 to 7
characterised in that 15
the receiving assembly (20) is provided with entry (21) and exit (22) arranged vertically one above the other and in a vertical edge region of the rear panel (11).
9. Domestic appliance in accordance with one of the claims 1 to 8
characterised in that 20
the receiving assembly (20) is provided with a circumferential fixing flange (29) in which fixing holes (23, 24) for connecting the receiving assembly (20) inserted in a cut-out in the rear panel (11) with the rear panel (11) are provided. 25
10. Domestic appliance in accordance with one of the claims 1 to 9
characterised in that 30
a closure cap (26) for the exit (22) is provided on the receiving assembly (20), particularly moulded-on, on an elastic connecting member (27). 35
11. Domestic appliance in accordance with one of the claims 1 to 10
characterised in that 40
where there is an extraction pump (13) in the outlet system within the machine, the outlet hose (14) is connected to the outlet from the extraction pump (13). 45

Patentansprüche

1. Haushaltsmaschine wie Waschmaschine, Wäschetrockner, Geschirrspüler und dergleichen, die Wasser benutzt und mit einem einen Ablassschlauch aufweisenden Wasserablasssystem versehen ist, wobei der Ablassschlauch in einem Gehäuse der Haushaltsmaschine ausziehbar untergebracht ist,
dadurch gekennzeichnet, 50
dass eine nach außen offene Aufnahmevorrichtung (20) für das freie Ende des Ablassschlauchs (14) in der Rückwand (11) des Maschinengehäuses (10)

vorgesehen ist, wobei diese Aufnahmevorrichtung einen Eingang (21) und einen Ausgang (22) aufweist, und dass der Ablassschlauch (14) über den Eingang (21) in die Aufnahmevorrichtung (20) gebracht ist und mit seinem freien Ende im Ausgang (22) zur Verpackung, Lagerung und zum Transport der Haushaltsmaschine befestigt ist.

2. Haushaltsmaschine nach Anspruch 1,
dadurch gekennzeichnet,
dass das freie Ende des Ablassschlauchs (14) in einem bogenförmigen Halter (16) gehalten wird, der vom Eingang (21) zum Ausgang (22) verläuft und den Ablassschlauch (14) hält, wenn das freie Ende des Ablassschlauchs (14) in der Aufnahmevorrichtung (20) befestigt ist, und der nicht aus der Aufnahmevorrichtung (20) herausragt, wenn der Ablassschlauch (14) installiert ist.
3. Haushaltsmaschine nach Anspruch 1 oder 2,
dadurch gekennzeichnet,
dass der im Maschinengehäuse (10) enthaltene Teil des Ablassschlauchs (14) mit einem Anschlag (15) versehen ist, der durch den Anstoß des Anschlags (15) am Eingang (21) das Ausziehen des Ablassschlauchs (14) nach der Entfernung des freien Endes des Ablassschlauchs (14) aus der Aufnahmevorrichtung (20) begrenzt.
4. Haushaltsmaschine nach einem der Ansprüche 1 bis 3,
dadurch gekennzeichnet,
dass der Halter (16) mit einer Aufhängeöse (17) versehen ist.
5. Haushaltsmaschine nach einem der Ansprüche 1 bis 4,
dadurch gekennzeichnet,
dass Befestigungselemente (25, 28) vorzugsweise integriert an der Aufnahmevorrichtung (20) zur Befestigung des Ablassschlauchs (14) in der Betriebsposition und zur Befestigung des Netzsteckers des Maschinenverbindungskabels (30) vorgesehen sind.
6. Haushaltsmaschine nach Anspruch 6,
dadurch gekennzeichnet,
dass die Befestigungselemente (28) für das Maschinenverbindungskabel (30) durch das Ende des Ablassschlauchs (14) mit dem Halter (16) verdeckt sind, der in der Aufnahmevorrichtung (20) befestigt ist.
7. Haushaltsmaschine nach einem der Ansprüche 1 bis 6,
dadurch gekennzeichnet,
dass der Eingang (21) und der Ausgang (22) an der Aufnahmevorrichtung einstückig angeformt sind.

8. Haushaltsmaschine nach einem der Ansprüche 1 bis 7,
dadurch gekennzeichnet,
dass die Aufnahmevorrichtung (20) mit einem Eingang (21) und mit einem Ausgang (22) versehen ist, die beide vertikal übereinander und in einem vertikalen Eckbereich der Rückwand (11) angeordnet sind. 5
9. Haushaltsmaschine nach einem der Ansprüche 1 bis 8,
dadurch gekennzeichnet,
dass die Aufnahmevorrichtung (20) mit einem peripheren Befestigungsflansch (29) versehen ist, in dem Befestigungslöcher (23, 24) zur Verbindung der in einer Ausnehmung der Rückwand (11) eingefügten Aufnahmevorrichtung (20) mit der Rückwand (11) vorgesehen sind. 10 15
10. Haushaltsmaschine nach einem der Ansprüche 1 bis 9,
dadurch gekennzeichnet,
dass eine an der Aufnahmevorrichtung (20) vorzugsweise angeformte Verschlusskappe (26) vorgesehen ist, die mittels eines elastischen Verbindungsglieds (27) mit der Aufnahmevorrichtung (20) verbunden ist. 20 25
11. Haushaltsmaschine nach einem der Ansprüche 1 bis 10,
dadurch gekennzeichnet,
dass bei der Ausrüstung des Ablasssystems in der Maschine mit einer Saugpumpe (13) der Ablassschlauch (14) mit dem Ausgang der Saugpumpe (13) verbunden ist. 30 35

Revendications

1. Appareil domestique utilisant de l'eau, tel qu'un lave-linge, un séchoir rotatif, un lave-vaisselle ou analogue ayant un système de sortie d'eau avec un tube souple de sortie, le tube souple de sortie étant rangé dans une cavité de l'appareil afin qu'il puisse être extrait, 40
caractérisé en ce que
un ensemble de réception (20) ouvert vers l'extérieur et destiné à l'extrémité libre du tube souple de sortie (14) est formé dans le panneau arrière (11) du boîtier (10) de l'appareil, l'ensemble de réception ayant une entrée (21) et une sortie (22), et **en ce que** 50
le tube souple de sortie (14) est conduit par l'entrée (21) dans l'ensemble de réception (20) et est fixé avec son extrémité libre dans une sortie (22) pour le conditionnement, le stockage et le transport de l'appareil domestique. 55

2. Appareil domestique selon la revendication 1,
caractérisé en ce que
l'extrémité libre du tube souple de sortie (14) est maintenue dans un support courbe (16) qui s'étend de l'entrée (21) à la sortie (22) et qui supporte le tube souple de sortie (14) lorsque l'extrémité libre du tube souple de sortie (14) est fixée dans l'ensemble de réception (20), et qui ne dépasse pas à l'extérieur de l'ensemble de réception (20) lorsque le tube de sortie (14) est en place.
3. Appareil domestique selon la revendication 1 ou 2,
caractérisé en ce que
la partie du tube souple de sortie (14) placée dans le boîtier d'appareil (10) a un organe d'arrêt (15) qui, par choc de l'organe d'arrêt (15) contre l'entrée (21), limite l'extraction du tube souple de sortie (14) après l'extraction de l'extrémité libre du tube souple de sortie (14) de l'ensemble de réception (20).
4. Appareil domestique selon l'une des revendications 1 à 3, **caractérisé en ce que**
le support (16) possède une patte de suspension (17).
5. Appareil domestique selon l'une des revendications 1 à 4,
caractérisé en ce que
des éléments de fixation (25, 28) sont incorporés sur l'ensemble de réception (20), de préférence sous forme solidaire, pour la fixation du tube souple de sortie (14) en position de fonctionnement et pour la fixation de la fiche principale du câble de connexion de l'appareil (30).
6. Appareil domestique selon la revendication 5,
caractérisé en ce que
les éléments de fixation (28) du câble de connexion de l'appareil (30) sont couverts par l'extrémité du tube souple de sortie (14) avec le support (16) fixé dans l'ensemble de réception (20).
7. Appareil domestique selon l'une des revendications 1 à 6,
caractérisé en ce que
l'entrée (21) et la sortie (22) placées sur l'ensemble de réception (20) sont formées en une seule pièce.
8. Appareil domestique selon l'une des revendications 1 à 7,
caractérisé en ce que
l'ensemble de réception (20) a une entrée (21) et une sortie (22) disposées verticalement l'une au-dessus de l'autre et dans la région du bord vertical du panneau arrière (11).

9. Appareil domestique selon l'une des revendications 1 à 8,

caractérisé en ce que

l'ensemble de réception (20) est muni d'un flasque circonférentiel (29) de fixation dans lequel sont formés des trous (23, 24) de fixation destinés à raccorder l'ensemble de réception (20) inséré dans une découpe du panneau arrière (11), au panneau arrière (11).

10

10. Appareil domestique selon l'une des revendications 1 à 9,

caractérisé en ce que

un capuchon de fermeture (26) de la sortie (22) est disposé sur l'ensemble de réception (20), en particulier sous forme moulée, sur un organe élastique de raccordement (27).

15

11. Appareil domestique selon l'une des revendications 1 à 10,

20

caractérisé en ce que

une pompe d'extraction (13) est disposée dans le système de sortie à l'intérieur de la machine, et le tube souple de sortie (14) est raccordé à la sortie de la pompe d'extraction (13).

25

30

35

40

45

50

55





