EUROPEAN PATENT SPECIFICATION

A WASHING MACHINE COMPRISING A DETERGENT BOX
WASCHMASCHINE MIT EINEM WASCHMITTELDOSIERBEHÄLTER
MACHINE À LAVER AVEC BOÎTE DE DÉTERGENT

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Description

[0001] The present invention relates to a washing machine comprising a detergent box wherein the washing agents are placed.

[0002] Washing machines comprise detergent boxes wherein the washing agent is placed. The washing agent placed in the detergent box is delivered into the washing tub after being mixed with the wash water. Depending on the usage, washing agent residues accumulate at the bottom portions of the detergent box in the course of time. In order to eliminate this situation, which adversely affects the washing / rinsing performance of the washing machine, the need of removing and cleaning the detergent box arises. Cleaning the detergent box by easily removing it and then being able to mount it into its place again when desired are of importance in terms of user satisfaction. However, when the detergent box is pulled out for placing washing agents therein, the detergent box is desired not to be completely removed from its place.

[0003] In the state of the art German Patent Document no DE19505292, a drawer is explained having a bypass mechanism composed of protrusions and opposite protrusions which prevent the drawer from being dislodged unintentionally.

[0004] Document WO-A1-03/089708 discloses a washing machine comprising a detergent box with several individual compartments, wherein washing agents such as detergent and softener are placed. The individual compartments of the detergent box are separated by walls. The washing machine further comprises a flushing device which provides the water received from the water supply to be directed into the detergent box. The flushing device and the detergent box are both disposed in a detergent box chamber whereby the flushing device is located above the detergent box. Two protrusions are located on the top face and on the rear side of the detergent box walls in the pulling direction. On the flushing device, two respective stoppers are located, which face the detergent box. When the detergent box is pulled to its open position, the movement of the detergent box is stopped when the protrusions of the detergent box hit the corresponding stoppers of the flushing device.

[0005] The aim of the present invention is the realization of a washing machine comprising a detergent box which is prevented from being completely removed from its chamber unintentionally when pulled out for placing washing agents therein.

[0006] The washing machine realized in order to attain the aim of the present invention is explicated in the claims.

[0007] The washing machine of the present invention comprises a detergent box having one or more compartments wherein washing agents are placed and one or more walls which border the compartments; and a detergent box chamber wherein the detergent box is disposed such that it can move back and forth, and a flushing device which is disposed above the detergent box chamber and which closes the detergent box from above when the detergent box is disposed into the detergent box chamber, and which provides the water received from the main supply to be directed to the detergent box by means of the holes located on itself. The washing machine, furthermore, comprises one or more protrusions which are located on the walls of the detergent box, and one or more stoppers which are located on the flushing device such that the protrusion will bear against the stopper during the movement of the detergent box.

[0008] When the detergent box is pulled out of the detergent box chamber for loading washing agents therein, the stopper forms a barrier in front of the protrusion and thus, prevents the detergent box from being completely removed from the detergent box chamber. When the detergent box is pulled out for being completely removed out of the detergent box chamber, the stopper stretches and thus, provides the detergent box to be released from the detergent box chamber. By means of the protrusion and the stopper, the detergent box can be removed out of the detergent box chamber either partially or completely according to the force applied by the user depending on the desire of the user.

[0009] In the preferred embodiment of the present invention, the stopper comprises an inclined outlet surface, against which the protrusion bears when the detergent box is pulled out, and an inclined inlet surface, against which the protrusion bears when the detergent box is pushed to be mounted into the detergent box chamber. During the mounting of the detergent box into the detergent box chamber, the protrusion bears against the inlet surface; and during the removal of the detergent box from the detergent box chamber, the protrusion bears against the outlet surface of the stopper. In this embodiment, the protrusion is formed as a wedge, wherein its side, which bears against the outlet surface during the removal of the detergent box from the detergent box chamber, is inclined, and its side, which bears against the inlet surface while the detergent box is mounted into the detergent box chamber, is vertical.

[0010] According to the present invention, slits are located at both sides of the stopper. In an embodiment, the stopper is produced from the same material as the flushing device, wherein the stopper is located. By means of the slits, when the detergent box is desired to be completely removed from the detergent box chamber, the stretching movement of the stopper is facilitated. In a version of this embodiment, the slits continue both towards the front and back of the stoppers.

[0011] In another embodiment of the present invention, the washing machine comprises one or more stoppers produced from resilient material. Thus, the amount of force, exerted for pulling out the detergent box to remove it from the detergent box chamber, is reduced.

[0012] In an embodiment of the present invention, the washing machine, furthermore, comprises a channel, which is located before the stopper in the pulling direction of the detergent box, above the walls of the detergent box.
In another embodiment of the present invention, the washing machine comprises one protrusion on each intermediate wall which separates the compartments of the detergent box, and more than one stopper so as to correspond to these protrusions.

The washing machine realized in order to attain the aim of the present invention is illustrated in the attached figures, where:

Figure 1 - is the schematic view of a washing machine.
Figure 2 - is the perspective view of a detergent box.
Figure 3 - is the perspective view of a flushing device.
Figure 4 - is the view of detail A in Figure 3.
Figure 5 - is the sideways view of a detergent box and a flushing device when the detergent box is pulled out.

The elements illustrated in the figures are numbered as follows:
1. Washing machine
2. Detergent box
3. Detergent box chamber
4. Flushing device
5. Protrusion
6. Stopper
7. Outlet surface
8. Inlet surface
9. Slit
10. Channel

A washing machine (1) comprises a detergent box (2) having one or more compartments, wherein washing agents such as detergent and softener are placed and wherein the washing agents are mixed with water, and one or more walls which border the compartments; and a detergent box chamber (3) wherein the detergent box (2) is disposed, and a flushing device (4) which is disposed above the detergent box chamber (3) and which completely closes the detergent box (2) from above when the detergent box (2) is disposed into the detergent box chamber (3), and which provides the water received from the main supply to be directed into the detergent box (2).

The washing machine (1), furthermore, comprises
- one or more protrusions (5) which are located on the top face of the detergent box (2) walls that faces the flushing device (4), on the rear side of the detergent box (2) walls in the pulling direction (P) of the detergent box (2), and
- at least one protuberance-formed stopper (6) which is located on the flushing device (4) face that faces the detergent box (2), on the front side of the flushing device (4) in the pulling direction (P) of the detergent box (2), and against which the protrusion (5) bears during the movement of the detergent box (2).

When the detergent box (2) is pulled out for loading washing agent therein, the protrusion (5) hits the stopper (6) and, thus, prevents the detergent box (2) from being completely removed. Thus, one part of the detergent box (2) remains outside the detergent box chamber (3) such that the access of the user into the detergent box (2) will be enabled. When the detergent box (2) is desired to be completely removed out of the detergent box chamber (3) in order to be cleaned, the detergent box (2) is strongly pulled towards the front. Thus, the stopper (6) leaps over the protrusion (5) by stretching towards the flushing device (4) and enables the detergent box (2) to be removed from the detergent box chamber (3). Accordingly, depending on the desire and aim of the user, the detergent box (2) is provided to be removed from the detergent box chamber (3) partially or completely.

In the preferred embodiment of the present invention, the stopper (6) comprises
- an inclined outlet surface (7), against which the protrusion (5) bears while the detergent box (2) is removed from the detergent box chamber (3) partially or completely, and
- an inclined inlet surface (8), against which the protrusion (5) bears when the detergent box (2) is pushed to be mounted into the detergent box chamber (3).

In this embodiment, the protrusion (5) is formed as a wedge, wherein its side, which bears against the outlet surface (7) during the removal of the detergent box (2) from the detergent box chamber (3), is inclined, and its side, which bears against the inlet surface (8) while the detergent box (2) is mounted into the detergent box chamber (3), is vertical.

When the detergent box (2) is strongly pulled out for being completely removed, the inclined configuration of the outlet surface (7) facilitates the stretching of the stopper (6) towards the flushing device (4). When the detergent box (2) is desired to be mounted into the detergent box chamber (3), the inclined configuration of the inlet surface (8) facilitates the stretching of the stopper (6) towards the flushing device (4) and hence, the placing of the detergent box (2) into the detergent box chamber (3) again.

According to the present invention, the washing machine (1) comprises at least two slits (9) at both sides of the stopper (6) located on the flushing device (4). Thus, when the detergent box (2) is pulled out to be completely removed from the detergent box chamber (3), the stretching of the stopper (6) is facilitated. In an embodiment, the stopper (6) is produced from the same material as the flushing device (4). Thus, the low-cost production of the detergent box (2), which is prevented from being completely removed when pulled towards the front for loading.
washing agent therein, is enabled.

[0023] In a version of this embodiment, the slit (9) extends both towards the front and back of the stopper (6) at least to a considerable extent. Thus, during the removal of the detergent box (2) from the detergent box chamber (3) and the placing of it into the detergent box chamber (3) again, the stopper (6) is provided to allow the passing of the protrusion (5) by stretching sufficiently.

[0024] In another embodiment of the present invention, the stopper (6) is produced from a resilient material. Thus, the removal of the detergent box (2) from the detergent box chamber (3) completely is performed by exerting less power and is facilitated.

[0025] In an embodiment of the present invention, the washing machine (1), furthermore, comprises a channel (10), which is located before the stopper (6) in the pulling direction (P) of the detergent box (2), on the flushing device (4) face that faces the detergent box (2). Thus, when the detergent box (2) is pulled out, the protrusion (5) moves forward inside the channel (10) until bearing against the stopper (6), and the movement of the protrusion (5) is facilitated.

[0026] In an embodiment of the present invention, the washing machine (1) comprises more than one protrusion (5) on the detergent box (2) walls, and more than one stopper (6) on the flushing device (4) such that the stoppers (6) will correspond to the protrusions (5). In this embodiment of the present invention, the protrusions (5) are positioned on the intermediate walls, which are preferably located at the inner portion of the detergent box (2), to provide the detergent box (2) to be mounted into the detergent box chamber (3) and removed therefrom in a balanced manner. Thus, when the detergent box (2) is pulled towards the front for loading washing agent therein, the detergent box (2) is prevented from being completely removed out of the detergent box chamber (3) by the stoppers (6) hitting the protrusions (5). In the preferred version of this embodiment, a stopper (6) is located on each detergent box (2) wall that separates the compartments. Thus, the risk of unintentionally removing the detergent box (2) from its place is reduced.

[0027] In the washing machine (1) of the present invention, when the detergent box (2) is pulled towards the front for loading washing agent therein, the detergent box (2) is provided not to be completely removed out of the detergent box chamber (3), wherein it is disposed.

[0028] It is to be understood that the present invention is not limited by the embodiments disclosed above and an expert in the technique can easily introduce different embodiments. These should be considered within the scope of the protection postulated by the claims of the present invention.

Claims

1. A washing machine (1) comprising a detergent box (2) having one or more compartments, wherein washing agents such as detergent and softener are placed and wherein the washing agents are mixed with water, and one or more walls which border the compartments; and a detergent box chamber (3) wherein the detergent box (2) is disposed, and a flushing device (4) which is disposed above the detergent box chamber (3) and which completely closes the detergent box (2) from above when the detergent box (2) is disposed into the detergent box chamber (3), and which provides the water received from the main supply to be directed into the detergent box (2), wherein

• at least one protrusion (5) is located on the top face of the detergent box (2) walls that faces the flushing device (4), on the rear side of the detergent box (2) walls in the pulling direction (P) of the detergent box (2), and
• at least one protuberance-formed stopper (6) is located on the flushing device (4) face that faces the detergent box (2), on the front side of the flushing device (4) in the pulling direction (P) of the detergent box (2), and against which the protrusion (5) bears during the movement of the detergent box (2) when the detergent box (2) is pulled out of the detergent box chamber (3), characterized by at least two slits (9) which are located at both sides of the stopper (6) to facilitate the stretching of the stopper (6) when the detergent box (2) is pulled out to be completely removed from the detergent box chamber (3).

2. A washing machine (1) as in Claim 1, characterized in that the stopper (6) comprises an inclined outlet surface (7), against which the protrusion (5) bears while the detergent box (2) is removed from the detergent box chamber (3) partially or completely, and an inclined inlet surface (8), against which the protrusion (5) bears when the detergent box (2) is pushed to be mounted into the detergent box chamber (3).

3. A washing machine (1) as in Claim 1 or 2, characterized in that the slit (9) extends both towards the front and back of the stopper (6) at least to a considerable extent.

4. A washing machine (1) as in any one of the above Claims, characterized in that the stopper (6) is produced from a resilient material.

5. A washing machine (1) as in any one of the above Claims, characterized by a channel (10), which is located before the stopper (6) in the pulling direction (P) of the detergent box (2), on the flushing device (4) face that faces the detergent box (2).
Patentansprüche

1. Waschmaschine (1), umfassend einen Waschmittelkasten (2) mit einem oder mehreren Fächern, in den Waschmittel wie etwa Seife und Weichspüler gegeben werden und in dem die Waschmittel mit Wasser vermisch werden, und eine oder mehrere Wände, die die Fächer begrenzen; und eine Waschmittelkastenkammer (3), in der der Waschmittelkasten (2) angeordnet ist, und eine Spülvorrichtung (4), die über der Waschmittelkastenkammer (3) angeordnet ist und den Waschmittelkasten (2) von oben vollständig schließt, wenn der Waschmittelkasten (2) in der Waschmittelkastenkammer (3) angeordnet ist, und es ermöglicht, dass Wasser vom Wasserversorgungsnetz in den Waschmittelkasten (2) geleitet wird, wobei

   • wenigstens ein Vorsprung (5) auf der Rückseite der Wände des Waschmittelkastens (2) in Zugrichtung (P) des Waschmittelkastens (2) an der Oberseite der Wände des Waschmittelkastens (2) angeordnet ist, der der Spülvorrichtung (4) zugewandt ist, und

   • wenigstens ein gewölbter Anschlag (6) auf der Vorderseite der Spülvorrichtung (4) in Zugrichtung (P) des Waschmittelkastens (2) an der Fläche der Spülvorrichtung (4) angeordnet ist, die dem Waschmittelkasten (2) zugewandt ist, an dem der Vorsprung (5) während der Bewegung des Waschmittelkastens (2) anliegt, wenn der Waschmittelkasten (2) aus der Waschmittelkastenkammer (3) gezogen wird,

gekennzeichnet durch wenigstens zwei Schlitze (9), die auf beiden Seiten des Anschlags (6) angeordnet sind, um das Dehnen des Anschlags (6) zu ermöglichen, wenn der Waschmittelkasten (2) herausgezogen wird, um vollständig aus der Waschmittelkastenkammer (3) entfernt zu werden.

2. Waschmaschine (1) nach Anspruch 1, dadurch gekennzeichnet, dass der Anschlag (6) eine geneigte Auslassfläche (7), an der der Vorsprung (5) anliegt, während der Waschmittelkasten (2) teillweise oder vollständig aus der Waschmittelkastenkammer (3) entfernt wird, und eine geneigte Einlassfläche (8) umfasst, an der der Vorsprung (5) anliegt, während der Waschmittelkasten (2) zum Anbringen in der Waschmittelkastenkammer (3) geschoben wird.

3. Waschmaschine (1) nach Anspruch 1 oder 2, dadurch gekennzeichnet, dass der Schlitz (9) sich wenigstens in einem wesentlichen Maße sowohl zur Vorder- als auch Rückseite des Anschlags (6) erstreckt.

4. Waschmaschine (1) nach einem der vorangehenden

Ansprüche, dadurch gekennzeichnet, dass der Anschlag (6) aus einem elastischen Material hergestellt ist.

5. Waschmaschine (1) nach einem der vorangehenden Ansprüche, gekennzeichnet durch einen Kanal (10), der in Zugrichtung (P) des Waschmittelkastens (2) vor dem Anschlag (6) an der Fläche der Spülvorrichtung (4) angeordnet ist, die dem Waschmittelkasten (2) zugewandt ist.

Revendications

1. Un lave-linge (1) comprenant un bac à produits (2) qui présente un ou plusieurs compartiments, dans lequel des produits de lavage comme le détergent, l’assouplissant, etc. sont placés et dans lequel les produits de lavage sont mélangés avec l’eau, et une ou plusieurs parois qui délimitent les compartiments, et une chambre du bac à produits (3) dans laquelle le bac à produits (2) est disposé, et un distributeur (4) qui est disposé au-dessus de la chambre du bac à produits (3) et qui ferme complètement le bac à produits (2) par le dessus lorsque le bac à produits (2) est disposé dans la chambre du bac à produits (3), et qui permet à l’eau reçue à partir de l’alimentation en eau d’être dirigée dans le bac à produits (2), où

   • au moins une protubérance (5) est disposée sur la face supérieure des parois du bac à produits (2) qui fait face au distributeur (4), sur la face arrière des parois du bac à produits (2) dans le sens de traction (P) du bac à produits (2), et

   • au moins une butée (6) en forme de protubérance est disposée sur la face du distributeur (4) qui fait face au bac à produits (2), sur la face frontale du distributeur (4) dans le sens de traction (P) du bac à produits (2) et sur laquelle la protubérance (5) s’appuie pendant le mouvement du bac à produits (2) lorsque le bac à produits (2) est tiré hors de la chambre du bac à produits (3),

   caractérisé par au moins deux fentes (9) qui sont situées sur les deux côtés de la butée (6) pour faciliter l’êtreinte de la butée (6) lorsque le bac à produits (2) est retiré de manière à être détaché complètement de la chambre du bac à produits (3).

2. Un lave-linge (1) selon la Revendication 1, caractérisé en ce que la butée (6) comprend une surface de sortie inclinée (7) sur laquelle la protubérance (5) s’appuie lorsque le bac
à produits (2) est poussé à être monté dans la chambre du bac à produits (3).

3. Un lave-linge (1) selon la Revendication 1 ou 2, caractérisé en ce que la fente (9) s’étend à la fois vers l’avant et l’arrière de la butée (6) au moins à un niveau considérable.

4. Un lave-linge (1) selon l’une quelconque des revendications précédentes, caractérisée en ce que la butée (6) qui est produite d’un matériau élastique.

5. Un lave-linge (1) selon l’une quelconque des revendications précédentes, caractérisé par un canal (10) qui est situé avant la butée (6) dans le sens de traction (P) du bac à produits (2) sur la face du distributeur (4) qui fait face au bac à produits (2).
REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

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