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(54) Improvements introduced for the drum spindle of automatic washing machines

(57) Improvements introduced for the drum spindle of the automatic washing machines being of the kind of those where the spindle remains interlocked to the washing machine drum and crosses the tank body, for which it has a pair of bearings that allow the turn of the spindle with regard to the tank, so that the spindle (1),

with a constant diameter, has an independent ferrule that clasps to the same in relationship to the external part of interlocked union to the drum body (2), which remains placed in collaboration with the o-ring seal (9) between the cited drum body (2) and the internal bearing (6).

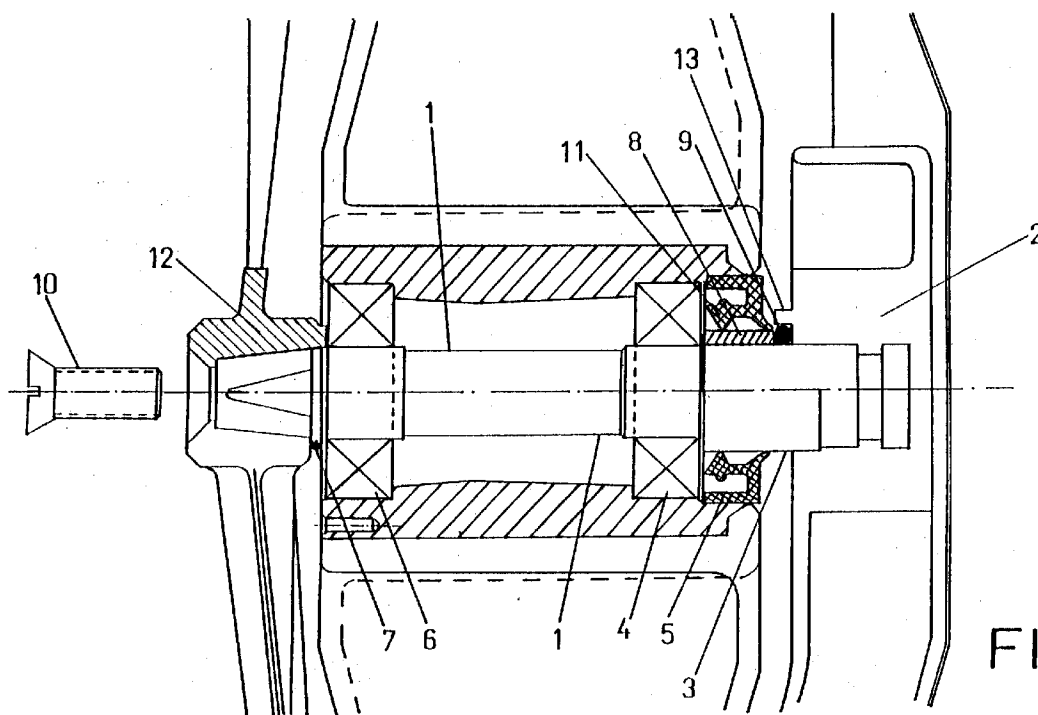


FIG. 1

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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 some improvements introduced for the drum spindle of automatic washing machines, so that the spindle is joined by one of its extremes to the drum body of the washing machine, having a pair of bearings and a detent that allow the turn with regard to the tank that covers the drum, and being joined by its other base through a threaded screw.

The improvements introduced in the drum spindle starting from shaping the spindle in relationship to its internal part related to the zone that is included between the internal bearing and the fixing to the drum, with the same diameter than the bearings zone, placing on it an independent ferrule with the interposition of an o-ring seal in relationship to the backing base on the zone that is related to the union with the drum.

In this way, fixing the spindle by the back screw, the fixing of the independent ferrule and the joint with the gyratory whole is realized, so that the joint impedes a possible water pass that can manage to damage the spindle.

FIELD OF APPLICATION.

The presented improvements are applicable for their incorporation to the spindles that transmit the swiveling to the automatic washing machines drums, through which a perfect watertightness is obtained in a simple way with a minimum cost.

BACKGROUND OF THE INVENTION.

Conventionally, the turn spindles that are interlocked to the automatic washing machines have in the extreme of interlocked fixing to the drum body, a stretch of bigger diameter in relationship to which one of the bearings remains backed, while near its fixed extreme, the spindle has a perimetric cope that makes easy the interlocked union with the drum for the working should be suitable, carrying out perfectly the characteristics of antiturn, antitraction and perpendicularity between them.

Likewise, on the stretch with an addition of thickness of the spindle, it has a gum body that acts as a watertight element, since if a water filtration happened, it would affect the bearings zone, damaging the bearings tracks and consistently both bodies.

In a second execution of the spindle that transmits the swiveling to the drum of the washing machine to which it is interlocked, the cited spindle is defined by a body with a cylindrical general shape whose extreme of interlocked fixing to the drum body has a continuous diameter on which a ferrule is placed.

A drawback emerges in this execution, and it consist on the ferrule must have a perfect fitting to the spindle, being it mechanized, rectified and galvanized because of this motive, so that the cited execution increases the price of the product substantially, not being advisable its incorporation to determined appliances.

Besides, if there is some water filtration, it also can affect to the components of the spindle whole.

Thus, starting from the knowing of the these drawbacks, it is a question of being able to obtain a whole of the turn spindle of the washing machines drum that must be 100% effective, besides of being economical.

DESCRIPTION OF THE INVENTION.

In the present report some improvements introduced in the drum spindle of the automatic washing machines are described, being of the kind of those in which the spindle remains interlocked to the body of the washing machine drum and crosses the tank body, having for this motive a pair of bearings that allow the spindle turn with regard to tank that covers the drum, so that the improvement consists on the incorporation of an independent ferrule that clasps the turn in relationship to the extreme side that is related to internal bearing, as well as an o-ring seal that is placed between the cited ferrule and the drum body.

Placing the ferrule in this way, it is not necessary any special mechanization or rectification, being it centred appropriately by itself and so that the o-ring seal avoids the water pass to the bearing tracks and the consequent deterioration of the cited tracks, having to change the whole of the spindle for solving the problem, with the high cost that it means.

In the other hand, the pulley that receives the swiveling for the turn of the drum spindle, remains running up directly against the back bearings, forming an interlocked whole with the spindle when the corresponding screw is tightened over the cited pulley.

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 DESCRIPTIONS OF THE DESIGNS.

Figure 1.- It shows a sectioned view of the spindle drum of a washing machine, so that the conventional assembly way has been represented in a side, where we observe the addition of thickness of the internal extreme of the spindle with the watertight body that remain perimetric with regard to it, in relationship to the corresponding backed bearing, while in its other side the spindle has been represented with the improvements introduced in the same one, that are referred to the independent ferrule and to the o-ring seal of watertightness so

that we can observe the structural difference that is between both.

DESCRIPTION OF A PREFERRED EMBODIMENT.

In view of the above cited figure and in accordance with the adopted numbering, we can observe as in the conventional manufacture of the spindle (1), the same one has an addition of thickness (3) in relationship to the extreme of interlocked fixing to the drum body (2), so that the internal base of the cited addition of thickness is backed to the bearing (4), remaining the body (5) exterior and perimetric for materializing the watertightness. Likewise, in relationship to the bearing (6) more external, it has an o-ring seal (7) that closes the whole when the screw (10) is threaded by the base that is related to it.

With this structure, if there is a water leak by the watertightness body (5), the water enters to the zone of the bearing tracks, causing the deterioration of the same ones, so that we have to change the components that are related with the spindle, that is the bearings and the tank.

In the other hand, in the new execution with the improvements that are based on the incorporation of an independent ferrule (8) without the necessity of an special mechanization and the o-ring seal (9) on which the external extreme of the spindle (1) presses, we obtain the perfect watertightness fixing of the whole, with a minimum cost and also incorporating the joint body (11).

At the same time, the o-ring seal (9) is coming up in a perimetric way against a circular projecting (13) of the own drum (2), so that thus it is perfectly placed.

Besides, the pulley (12) that receives the swiveling for the turn of the drum spindle, is coming up against the back bearings (6), so that when the screw is threaded (10), the pulley (12) forms an unitary whole with the gyratory elements, pressing on the o-ring seal (9) that does a closing perfectly watertight.

With this shape, the o-ring seal (9) does a watertight closing, totally reliable, while the independent ferrule (8) is centred by itself, having a perfect behaviour in all the spindle whole.

This execution has a reduced economic cost, so that it is accesible for its incorporation to whole range of apparatus models that can incorporate it.

ent ferrule (8) that claspes to the same one in relationship to the extreme part of interlocked union to the drum body (2), which is placed in collaboration with the o-ring seal (9) between the cited drum body (2) and the internal bearing (6), while the pulley (12), which receives the swiveling for the turn of the drum spindle, remains running up directly against the back bearings (6).

2. IMPROVEMENTS INTRODUCED FOR THE DRUM SPINDLE OF AUTOMATIC WASHING MACHINES, according to the first claim and characterized in that the ferrule (8) does not need neither any mechanization nor any special rectification since it is centred adequately by itself. Besides, the o-ring seal (9) blocks the water pass to the bearing tracks and it acts as the external stop on a circular projecting(13) of the drum.

Claims

1. IMPROVEMENTS INTRODUCED FOR THE DRUM SPINDLE OF AUTOMATIC WASHING MACHINES, being of the kind of those where the spindle remains interlocked to the washing machine drum and crosses the tank body so that for that, it has a pair of bearings that allow the spindle turn with regard to the tank and characterized in that the spindle (1), with a constant diameter, has an independ-

