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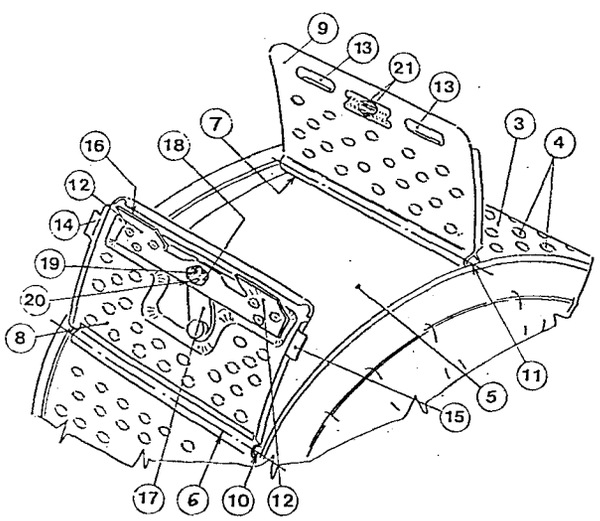
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(54) Drum for a laundry washing machine of the top-loading type.

(57) Described is a washing drum for a laundry washing machine of the top-loading type, having its peripheral wall formed with an access opening, a pair of door flaps being hingedly connected to opposite transverse edges of said opening, the width of said door flaps being greater than that of said opening.

According to the invention, said door flaps are provided with simple engagement elements in the form of hooks and apertures, and with locking means of the lever and cam type for locking the door flaps in their mutually overlapping closed positions. The locking means comprises a lever biased to the locking position and manually pivotable to the release position. Connected to the lever is a head portion adapted to be engaged by resilient elements affixed to the other door flap and to be released from such engagement by pivoting said lever.



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Drum for a Laundry Washing Machine of the Top-Loading Type

Description

This invention relates to a drum for a laundry washing machine of the top-loading type, and particularly to a closure mechanism for the doors of a drum of this type designed to prevent the doors from accidentally opening during rotation of the drum.

Known laundry washing machines of the top-loading type are equipped with a drum rotatable about a horizontal axis, the peripheral wall of the drum being formed with an opening for the indrodution and discharge of laundry.

Hingedly connected to opposite edges of the opening is a pair of door flaps biased by spring means towards an upright open position.

From this upright position, in which the drum opening is accessible for the introduction or discharge of the laundry, the door flaps may be displaced to a lowered position in which they are engaged with one another, closing the drum opening so as to permit the drum to be rotated.

The described door flaps are designed so as to ensure an efficient mutual engagement during rotation of the drum, particularly during rotation thereof in the centrifuge mode.

Accidental opening of the door flaps during operation in this mode would result in serious damage of the drum, the frame and/or the internal components of the machine.

In view thereof, a known drum for a laundry washing machine comprises two door flaps hingedly connected to opposite

edges of the access opening in the manner described and being of a smaller width than said opening, the free end portions of said door flaps being provided with hooks and apertures, respectively adapted to engage with one another in the closed position of the door flaps.

The door flap carrying the hooks is provided with additional hooks spaced from said first mentioned hooks and facing in the opposite direction thereto so as to permit the other door flap to be engaged and disengaged only by depressing it to a position in which it is inclined inwards with respect to the drum.

In this embodiment, the presence of the additional hooks forms a stop for the free end of said other door flap effective to prevent the door flaps from accidentally opening during rotation of the drum.

Although a drum of this design ensures reliable operation of the machine, its practical usefulness is limited by the necessity of depressing the door flaps inwards of the drum for the introduction and discharge of the laundry. This operation is rendered particularly difficult if a large volume of laundry is to be introduced into the drum or discharged therefrom.

By depressing the door flaps downwards into the drum, the door flaps are brought into contact with the laundry, whereby the latter may be damaged.

Also known are drums for laundry washing machines comprising two door flaps hingedly connected and spring-biased in the manner described, wherein the door flaps are of a greater width than the drum opening and provided with suitable locking means adapted to permit mutual engagement of the door flaps in the closure position.

In this case, the door flaps are prevented from being dis-

placed towards the interior of the drum by the engagement of their edges with the edges of the drum opening, so that the laundry may be introduced into the drum and discharged therefrom without difficulty.

The locking means employed in this embodiment are of rather complicated construction, however, and rather impractical in use, consisting of pins, lugs or the like affixed to one of the door flaps and adapted to be brought into snap engagement between resilient rods affixed to the lateral edges of the drum opening as the door flaps are mutually overlapped in the closure position.

It is an object of the present invention to eliminate the inconveniences and limitations connected with the employ of the above described constructions by providing a locking device for the door flaps of a drum which is of simple construction and reliable and simple in operation.

These and other objects are attained according to the invention by a washing drum, particularly for a laundry washing machine of the top-loading type having a peripheral wall formed with an opening for the introduction and discharge of the laundry, said opening being provided with two oppositely located and partially overlapping door flaps hingedly connected to opposite transverse edges edges of said opening and provided with spring means biassing them towards their open positions, the width of said door flaps being greater than that of said opening.

This drum is characterized in that said door flaps are provided with simple engagement elements in the form of hooks and apertures and with locking means of the lever and cam type.

The characteristics and advantages of the invention will become more evident from the following description of an exemplary embodiment with reference to the accompanying

drawings, wherein:

fig. 1 shows a partial perspective view of a washing drum according to the invention with the door flaps in their upright open position,

fig. 2 shows a partial cross-sectional view of the drum of fig. 1 with the door flaps depressed to their closure position, and

fig. 3 shows a locking device for the door flaps in the closed position.

With reference to the drawings, there is shown a portion of a washing drum according to the invention adapted to be mounted in a laundry washing machine of the top-loading type for rotation about a horizontal axis.

The drum has a peripheral wall 3 formed with openings 4 and connected in a per se known manner to a pair of end walls (not shown).

Peripheral wall 3 is formed with at least one opening 5 of preferably rectangular shape for the introduction and discharge of the laundry.

Hingedly connected to opposite transverse edges 6 and 7 of opening 5 is a pair of door flaps 8 and 9, respectively, adapted to be brought to a partially overlapping relationship in their closed positions. Door flaps 8, 9 are of arcuate configuration so as to conform to the circular profile of the drum in their closed position.

Adjacent their respective hinged connections, door flaps 8 and 9 are provided with at least one torsion spring 10 and 11, respectively, adapted to bias the respective door flap towards its upright open position shown in fig. 1.

The door flaps are provided with perforations for the passage of the washing fluid within the drum, and with hooks 12 and apertures 13, respectively adapted to be

engaged with one another as the door flaps are depressed towards their closed position.

The width of the door flaps is essentially smaller than that of opening 5. To prevent the door flaps from being depressed downwards into the drum, they are provided with suitable stop elements 14 and 15 affixed to the longitudinal edges of at least one of the door flaps, for instance door flap 8, and adapted to abut the top surface of the longitudinal edges of opening 5. The same effect may of course be attained in a different manner, as by making the width of the door flaps greater than that of the opening.

The thus constructed door flaps are adapted to engage one another and be disengaged from each other without having to be depressed into the drum itself, so as to permit the laundry to be introduced into the drum and discharged therefrom in a simple manner. This eliminates the possibility of the laundry being damaged by the door flaps as in known constructions.

The above described hooks 12 are each formed with a slightly curved portion 16 adapted to be introduced into a respective aperture 13 without, however, coming into locking engagement therewith.

For ensuring efficient mutual engagement of the door flaps 8 and 9 in their closed position, the invention provides the employ of a locking device comprising a manually operable lever 17 mounted adjacent the free edge of door flap 8 intermediate hooks 12 for pivotal movement between two operative positions for locking the door flaps in the closed position and releasing them therefrom, respectively. Lever 17 is biased by per se known means towards its locking position.

A cylindrical pivot pin 18 of lever 17 is formed with a projecting head 19 of conical shape provided with two

lateral recesses 20 adapted to cooperate with two resilient elements 21 extending parallel to one another, with their ends affixed adjacent the free edge of door flap 9 intermediate apertures 13.

If lever 17 is pivoted to the position for locking the door flaps in their closed position, head portion 19 is aligned in a position in which resilient elements 21 are received in recesses 20 so as to prevent the door flaps of the drum from being opened.

If, on the other hand, lever 17 is manually pivoted to its position for releasing the door flaps, as indicated by the arrow A in fig. 3, resilient elements 21 are gradually moved apart from one another and thereby disengaged from recesses 20, until they are finally supported solely by the straight surface portion 22 of head 19 adjacent the maximum diameter thereof. In this position, resilient elements 21 are completely disengaged from head 19, permitting the door flaps to be opened with the aid of their respective torsion springs.

The thus designed locking device is of simple construction and operation and ensures efficient retention of the door flaps of the drum in their closed position, excluding any accidental opening thereof during rotation of the drum.

In the embodiment described, the hooks and apertures ensure proper alignment of the door flaps in the closed position without the necessity of depressing the door flaps inwards of the drum as in known constructions, thereby eliminating the above noted disadvantages and permitting the laundry to be introduced into the drum and discharged therefrom without difficulty.

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Drum for a Laundry Washing Machine of the Top-Loading Type

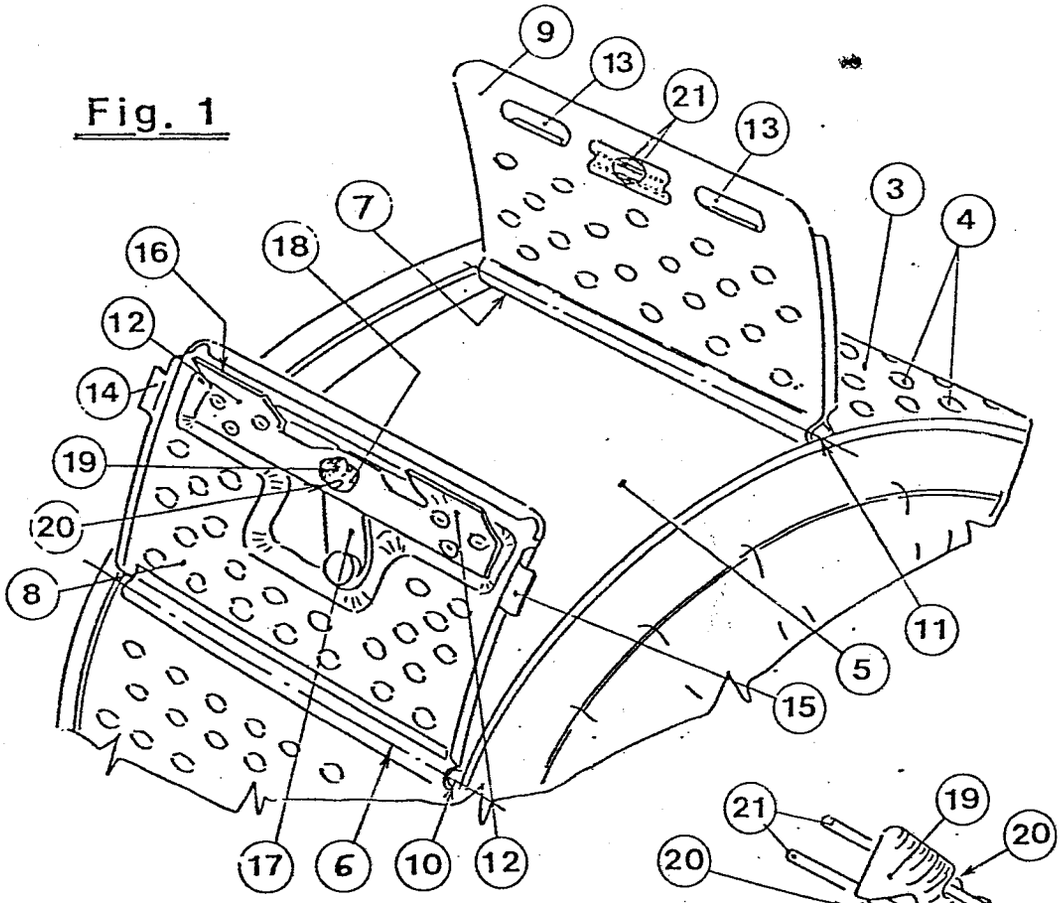
Patent Claims

1. A washing drum, particularly for a laundry washing machine of the top-loading type, having a peripheral wall formed with an opening for the introduction and discharge of the laundry, said opening being provided with two oppositely located and partially overlapping door flaps hingedly connected to opposite transverse edges of said opening and provided with spring means biassing them towards their open positions, the width of said door flaps being greater than that of said opening, characterized in that said door flaps (8, 9) are provided with simple engagement elements in the form of hooks (12) and apertures (13), and with locking means (17 to 22) of the lever and cam type.

2. A drum according to claim 1, characterized in that said locking means comprises a manually operable lever (17) mounted on one door flap (8) and provided with a head (19) formed with recesses (20) adapted to cooperate with corresponding resilient elements (21) extending parallel to one another and having their ends affixed to the other door flap (9) so that said elements are adapted to be moved apart from one another, said lever being adapted to be pivoted to two operative positions for locking and releasing said dor flaps, respectively, in which positions said head portion is lockingly engaged with, and disengaged from, respectively, said resilient elements.

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Fig. 1



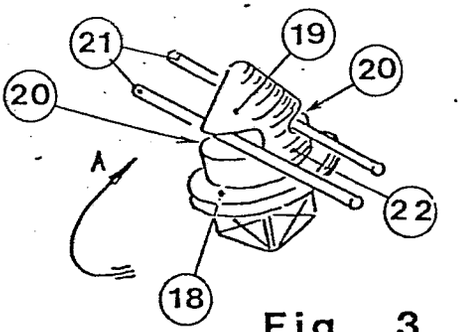


Fig. 3

Fig. 2

