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(54) **A drum surface for washing machines**

(57) In the washing machine drum (1) of the invention, a number of engaged rings (3) and a number of adjacent ring groups (5) comprising the rings (3) are provided on the drum surface (2). The rings (3) are in a form of nested successive elevations (3a) and recessions (3b), and water discharge orifices (4) are provided on the elevations (3a) and recessions (3b).

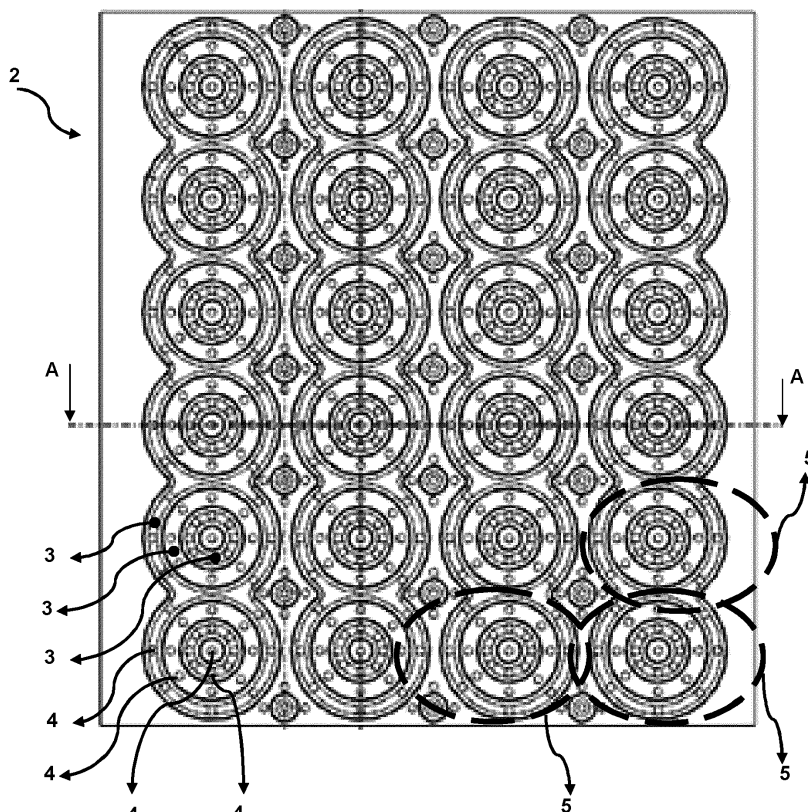


Figure - 3

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Description

Technical Field

[0001] This invention relates to surface structures of rotating drums used in washing machines.

Prior Art

[0002] As it is known, rotating drums, which are used in washing machines and laundries to be washed are put therein, have a crucial role in the washing and spinning performance of the machine. In order to enhance the washing and spinning performance of the machine, to increase the contact area of the drum with the laundry, and to discharge more water during spinning, it is necessary to increase the total orifice area on the drum.

[0003] In the published patent application No JP2008-212635, which is an example of prior art about the technical field, it is seen that contact surface between the drum and the laundry is increased by pyramidally forming one after another on the drum surface (and by perforating the dented portions of these structures). In the published patent application No WO03054275, which is another example of prior art about the technical field, it is disclosed that the drum surface is formed dome-shapedly. It is seen herein that the discharge orifices remain between the domes and the aim is to increase the drum endurance and water discharge capacity.

Brief Description of the Invention

[0004] In the washing machine drum of the invention, a number of engaged rings and a number of adjacent ring groups comprising the rings are provided on the drum surface. The rings are in a form of nested successive elevations and recessions, and water discharge orifices are provided on the elevations and recessions.

[0005] Thanks to a number of these elevations and recessions, the contact area of the drum surface with the laundries is increased. This is a factor for increasing the washing performance. An advantage of the engaged rings, which are engaged as elevations and recessions, is that they ensure increasing the endurance of the drum surface. Therefore, a high number of water discharge orifices can be opened in desired portions of the rings. It is known that the increase of the water discharge orifices is also a factor for enhancing the spinning performance.

Objectives of the Invention

[0006] An aim of the invention is to improve washing performance by increasing contact area between the drum and laundry and to improve spinning performance by increasing total orifice area on the drum, by means of structures formed on drum surface.

[0007] Another aim of the invention is to form an easily producible, cost effective, less energy consuming wash-

ing machine drum with increased washing and spinning performance.

Description of Drawings

[0008] Embodiments of the washing machine drum surface are shown in annexed figures, wherein;

Figure 1 is general perspective view of the drum.

Figure 2 is perspective view of a portion of the drum surface (in a flattened manner).

Figure 3 is top view of Figure 2.

Figure 4 is the view of A-A section in Figure 3.

[0009] The reference numbers as used in figures may possess the following meanings;

Drum	(1)
Drum surface	(2)
Ring	(3)
Elevation	(3a)
Recession	(3b)
Water discharge orifice	(4)
Ring groups	(5)

Description of the Invention

[0010] Figure 1 shows perspective view of an exemplary washing machine drum (1). Figure 2-4 show structural details of the drum surface (2) therein and by this structure, increasing the contact area of the drum surface (2) with laundries and increasing the number of water discharge orifices (4) are aimed.

[0011] Figure 2-3 show details on the drum surface (2). According to the figures, a number of engaged rings (3) and a number of adjacent ring groups (5) comprising the rings (3) are formed on the surface (2). Rings (3) are made in a form of nested successive elevations (3a) and recessions (3b). Thanks to a number of elevations (3a) and recessions (3b), the area where the laundries contact with the drum surface (2) is increased. This is a factor for enhancing the washing performance.

[0012] An advantage of the engaged rings (3), which are engaged as elevations (3a) and recessions (3b), is that they ensure increasing the endurance of the drum surface (2). Therefore, a high number of water discharge orifices (4) can be opened in desired portions of the rings (3). It is known that increasing the water discharge orifices (4) is also a factor for enhancing the spinning performance. (As shown in Figure 4, water discharge orifices can be used in all surfaces of the rings (3) where elevation (3a) and recession (3b) remain.)

[0013] The rings (3), which are shown in Figure 2-3, are exemplary formed in round structure. Alternatively, the rings (3) may be in elliptical or multilateral (the edges may be linear and/or curvilinear) structure. In the ring (3)

with multilateral structure, it is preferred that the joints of the edges are rounded (for the protection of laundries).

[0014] While the drum (1) is rotating during the washing, water therein partially remains between the recessions (3b) and water is moved upwardly to the upper portion of the laundries. Thus, quick and homogenous distribution of water to the laundries is ensured. This enables laundries to get wet in a short time and therefore, energy consumption of the machine is decreased. 5

[0015] During the spinning, the spinning performance is low since water extracted from the laundry does not completely leave the internal surface of the drum in flat surface drums. This invention enables water, which is in the drum surface, to flow to the recessions (3b), to discharge from the orifices (4) and spinning performance is enhanced. 10 15

Claims

1. A washing machine drum (1) **characterized in that** a number of engaged rings (3) and a number of adjacent ring groups (5) comprising the rings (3) are provided on the drum surface (2); the rings (3) are in a form of nested successive elevations (3a) and recessions (3b). 20 25
2. A drum (1) according to claim 1 **characterized in that** water discharge orifices (4) are provided on the portions of the rings (3) where the elevation (3a) exists. 30
3. A drum (1) according to claim 1 **characterized in that** water discharge orifices (4) are provided on the portions of the rings (3) where the recession (3b) exists. 35
4. A drum (1) according to claim 1 **characterized in that** rings (3) are in rounded structure. 40
5. A drum (1) according to claim 1 **characterized in that** rings (3) are in elliptical structure.
6. A drum (1) according to claim 1 **characterized in that** rings (3) are in multilateral structure. 45
7. A drum (1) according to claim 1 **characterized in that** the joints of the edges of the ring (3) with multilateral structure, are rounded. 50

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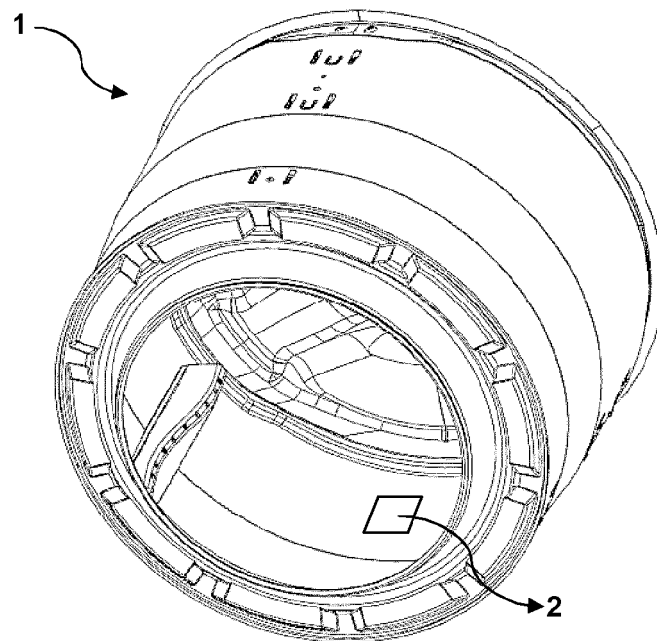


Figure - 1

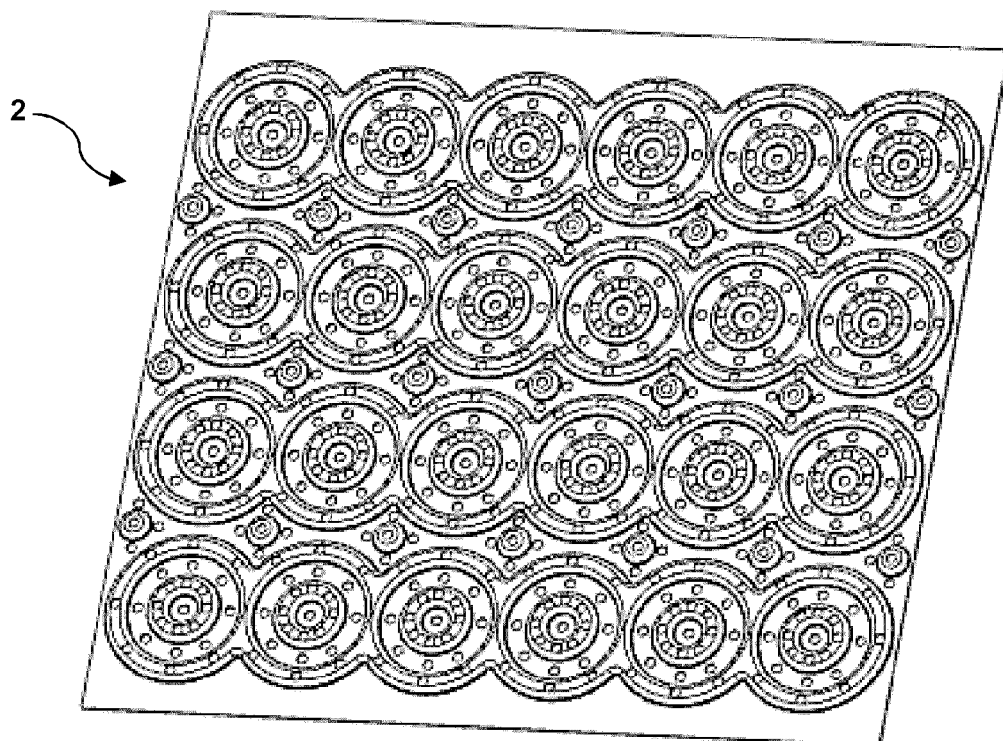


Figure - 2

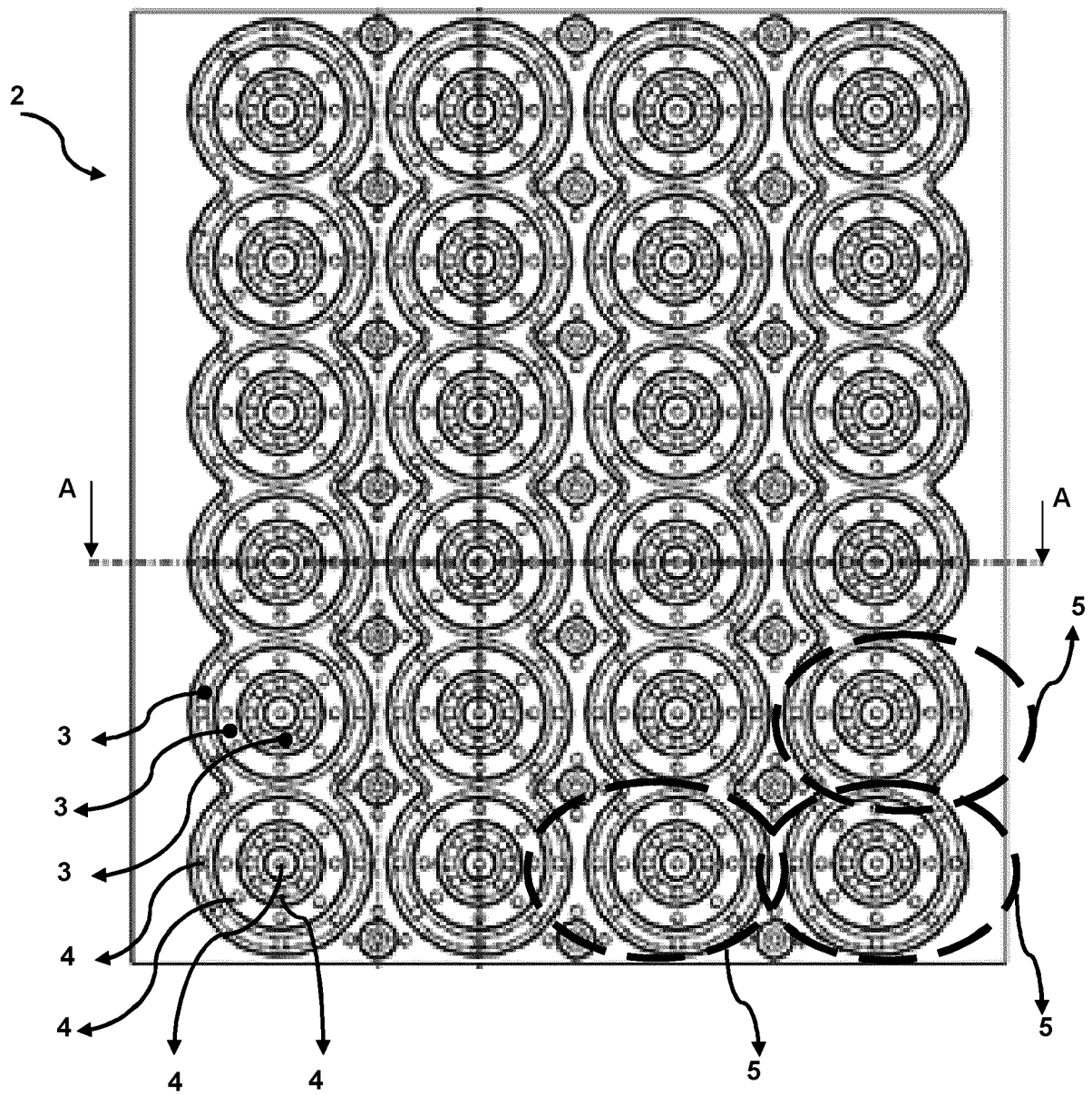


Figure – 3

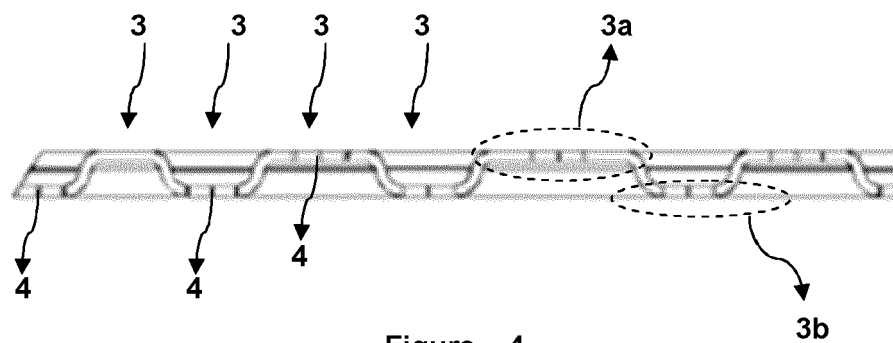


Figure – 4



EUROPEAN SEARCH REPORT

Application Number
EP 11 18 9211

DOCUMENTS CONSIDERED TO BE RELEVANT			
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X	EP 0 866 161 A2 (AEG HAUSGERAETE GMBH [DE]) 23 September 1998 (1998-09-23) * abstract; claims 1-3; figures 2-3 * -----	1,2,6,7	INV. D06F37/02
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The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (IPC)
			D06F
Place of search		Date of completion of the search	Examiner
Munich		6 March 2012	Diaz y Diaz-Caneja
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document</p>			

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EPO FORM 1503 03 82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
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The members are as contained in the European Patent Office EDP file on
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- WO 03054275 A [0003]