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(54) **WASHING DRUM FOR A LAUNDRY WASHING MACHINE AND LAUNDRY WASHING MACHINE EQUIPPED WITH SUCH DRUM**

WASCHTROMMEL FÜR EINE WÄSCHEWASCHMASCHINE UND WÄSCHEWASCHMASCHINE MIT SOLCH EINER TROMMEL

TAMBOUR DE LAVAGE D'UNE MACHINE À LAVER LE LINGE ET MACHINE À LAVER LE LINGE ÉQUIPÉE D'UN TEL TAMBOUR

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Description

[0001] The present invention concerns the field of laundry washing techniques.

[0002] Specifically, the invention relates to a washing drum adapted to be rotatably mounted in a laundry washing machine.

BACKGROUND ART

[0003] Nowadays the use of laundry washing machines, both "simple" laundry washing machines (i.e. laundry washing machines which can only wash and rinse laundry) and laundry washing-drying machines (i.e. laundry washing machines which can also dry laundry), is widespread.

[0004] In the present description, the term "laundry washing machine" will refer to both a simple laundry washing machine and a laundry washing-drying machine. Laundry washing machines generally comprise an external casing, or cabinet, provided with a washing tub which contains a washing drum where the laundry is placed. A loading/unloading door ensures access to the washing drum.

[0005] Washing drums of known type typically comprise a substantially cylindrical wall closed at one end by a substantially flat rear wall and presenting, on its other end, an opening closed by said loading/unloading door.

[0006] Cylindrical wall is typically provided with perforations/holes which allow the liquid flowing therethrough.

[0007] Said holes are typically and preferably homogeneously distributed on the wall of the drum. Furthermore, the cylindrical wall is also typically provided with bulges.

[0008] According to the known art, bulges and holes are arranged to increase the performance of the washing process.

[0009] During the washing process, particularly when the washing drum is rotated, the laundry hits and/or is stuck against the inner surface of the drum wall and water contained in the laundry is ejected outwardly through the holes by means of the centrifugal force for centrifugally dehydrating the laundry.

[0010] Shape of bulges may affect treatment of the laundry due to interaction with laundry.

[0011] EP1028189A2 discloses a drum for a washing machine, with a drum shell in which elevations on the inside of the drum shell are advantageously arranged in rows next to one another on the circumference of the drum shell, the elevations pointing towards the axis of rotation of the drum and alternating with depressions, so that so passage openings realized between elevations and depressions are linearly arranged aligned along the rotational axis of the drum.

[0012] DE102012204560 A1 discloses a drum for a washing machine, which drum shell has a structural pattern based at least in sections on a Penrose tiling to achieve an effective suppression of vibrations of the

drum, thereby reducing deformation of the laundry drum compared to drums having a regular structuring and embossing. EP1925704 A1 discloses a drum adapted to be rotatably mounted in a tub of a washing machine or washer dryer, with a cylindrical wall provided with perforations and with a plurality of bulges oriented towards the exterior of the drum and shaped as frustum of pyramid, wherein the perforations of the drum are centered within the bulges.

[0013] WO2013030394A discloses a drum that is suitable for using in laundry washing or laundry washing-drying machines and that comprises a cylindrical body, at least one hole located on the cylindrical body and at least one bulge which is located on the cylindrical body and extends from the surface of the cylindrical body towards the rotational axis of the drum, and the contour of which is shaped as a polygon.

[0014] It is an object of the present invention to optimize the shape of the washing drum wall in order to increase dehydration performance of the laundry.

[0015] It is another object of the invention to optimize the shape of the washing drum wall in order to obtain a gentle treatment of the laundry.

DISCLOSURE OF INVENTION

[0016] Applicant has found that by providing a laundry washing machine comprising a washing tub external to a washing drum wherein the washing drum comprises a plurality of bulges and by providing said bulges with a squircle-shaped contour, it is possible to reach the mentioned objects.

[0017] In a first aspect thereof the present invention relates, therefore, to a washing drum which is adapted to be rotatably mounted in a laundry washing machine wherein laundry to be washed may be placed, said washing drum comprising a tubular body wall apt to rotate around a rotational axis and said tubular body wall comprising at least one bulge protruding from said tubular body wall towards said rotational axis and at least one hole, wherein the contour of said at least one bulge at said tubular body wall has the shape of a squircle, wherein the reference axis of said squircle-shaped contour is inclined with respect to said rotational axis.

[0018] The squircle is preferably composed by four rounded corners joined by four slightly rounded sides.

[0019] Preferably, the reference axis divides symmetrically two opposed slightly rounded sides.

[0020] In a preferred embodiment of the invention, the reference axis of the squircle-shaped contour is inclined with respect to the rotational axis to form an angle between 22,5° and 67,5° preferably an angle equal to 45°.

[0021] Preferably, said at least one bulge comprises side walls extending from said contour and terminating at a bottom wall.

[0022] According to a preferred embodiment of the invention, the washing drum comprises a plurality of bulges placed side by side, two adjacent bulges defining a chan-

nel therebetween.

[0023] In a preferred embodiment of the invention, said at least one hole is realized in said channel.

[0024] In a further preferred embodiment of the invention, said at least one hole is realized in said side walls and/or said bottom wall.

[0025] Preferably, the washing drum comprises a plurality of holes.

[0026] In a preferred embodiment of the invention, the holes are realized in the channel. In a further preferred embodiment of the invention, the holes are realized in the side walls and/or the bottom wall.

[0027] According to a preferred embodiment of the invention, the side walls and/or the bottom wall are rounded shaped.

[0028] In a preferred embodiment of the invention, the washing drum comprises a plurality of bulges, said plurality of bulges being arranged in a row along a main axis.

[0029] In a further preferred embodiment of the invention, the washing drum comprises one or more groups of bulges, said one or more groups comprising one or more rows of bulges aligned along a main axis.

[0030] Preferably, two of said groups are separated by a smooth area.

[0031] Preferably, the smooth area may be considered as a channel having a width preferably equal or larger than the width of a row of bulges.

[0032] According to a preferred embodiment of the invention, the main axis is parallel to the rotational axis.

[0033] According to a further preferred embodiment of the invention, the main axis is inclined with respect to the rotational axis.

[0034] In a preferred embodiment of the invention, the height of the side walls is constant.

[0035] In a further preferred embodiment of the invention, the height of the side walls varies. Preferably, the height of said side walls decreases continuously.

[0036] In a preferred embodiment of the invention, the bottom wall is parallel to the tubular body wall.

[0037] In a further preferred embodiment of the invention, the bottom wall is not parallel to the tubular body wall.

[0038] Preferably, the bottom wall is inclined with respect to the tubular body wall.

[0039] In a further aspect thereof, the present invention concerns a laundry washing machine comprising a washing tub external to a washing drum, wherein the washing drum is realized as described above.

BRIEF DESCRIPTION OF THE DRAWINGS

[0040] Further characteristics and advantages of the present invention will be highlighted in greater detail in the following detailed description of some of its preferred embodiments, provided with reference to the enclosed drawings. In the drawings, corresponding characteristics and/or components are identified by the same reference numbers. In particular:

- Figure 1 shows a perspective view of a washing drum according to the invention adapted to be used in a washing laundry machine;
- Figure 2 shows an element of the washing drum of Figure 1 isolated from the rest;
- Figure 3 is an enlarged view of a detail of the washing drum shown in figure 1;
- Figure 4 shows a geometrical shape used for realization of the washing drum according to the invention;
- Figure 5 shows a plan view of a detail of figure 3;
- Figure 6 is a cross section along line VI°-VI° of figure 2;
- Figure 7 is a cross section along line VII°-VII° of figure 2;
- Figure 8 is a cross section along line VIII°-VIII° of figure 5;
- Figure 8A is a further preferred embodiment of figure 8;
- Figure 9 shows a plan view of the drum portion shown in Figure 3, from the front point of view V indicated in Figure 3, according to a second preferred embodiment of the invention;
- Figures 10 and 11 show the washing drum of Figure 2 according to further preferred embodiments of the invention.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS OF THE INVENTION

[0041] The present invention has proved to be particularly advantageous when applied to laundry washing machines, as described below. It should in any case be underlined that the present invention is not limited to laundry washing machines. On the contrary, the present invention can be conveniently applied to laundry washing-drying machines (i.e. laundry washing machines which can also dry laundry).

[0042] With reference to Figure 1 a preferred embodiment of a washing drum 1 according to the invention which is adapted to be rotatably mounted in a laundry washing machine is shown.

[0043] The washing drum 1 preferably comprises a tubular body wall 10 apt to rotate around a rotational axis R, as better visible in Figure 2. The tubular body wall 10 is preferably cylindrically shaped. In different embodiments, the tubular body wall may be differently shaped, for example it may be frustum conical shaped and/or showing a rounded shape.

[0044] The tubular body wall 10 preferably comprises a rear end 12 closed by a rear wall 12 and a front end 14 presenting an opening 18 for loading/unloading laundry and preferably aligned with a loading/unloading door of the laundry washing machine (not shown). The tubular body wall 10 is preferably made by metallic material, preferably made of stainless steel.

[0045] The tubular body wall 10 comprises bulges 20 protruding from the tubular body wall 10 towards the ro-

tational axis R.

[0046] Preferably, the tubular body wall 10 is metallic and bulges 20 are obtained by punching the tubular body wall 10.

[0047] According to an aspect of the invention, the contour 30 of the bulge 20 at said tubular body wall 10 has the shape of a squircle.

[0048] Figure 4 shows a squircle in a cartesian coordinate system x and y. The squircle is defined by the equation $(x-a)^4+(y-b)^4=r^4$.

[0049] The squircle substantially shows four rounded corners K1÷K4 joined by four slightly rounded sides S1÷S4.

[0050] The squircle is symmetrical and shows two lines of symmetry coinciding with said axis x and y. Hereinafter, it will be indicated the first line of symmetry x as a reference axis X of the squircle. It has to be noted that, due to symmetry of squircle, the reference axis as used in the present invention could indicate also the second line of symmetry y.

[0051] In other words, the reference axis X divides symmetrically two opposed slightly rounded sides S2, S4.

[0052] It has to be noted that actually the squircle may be roughly symmetrical rather than perfectly symmetrical, in particular due to deformation caused by the punching process.

[0053] The bulge 20 preferably comprises side walls 32 extending from said contour 30 and terminating at a bottom wall 34.

[0054] Side and bottom walls 32, 34 preferably comprise smooth surfaces advantageously joined therebetween without sharp edges.

[0055] Side and bottom walls 32, 34 preferably comprise rounded surfaces with proper radii of curvature.

[0056] Rounded walls advantageously offer gentle treatment of the laundry.

[0057] According to an aspect of the invention, the bulge 20 is opportunely oriented at the tubular body wall 10 so that the reference axis X of the squircle-shaped contour 30 is inclined with respect to the rotational axis R, as illustrated in Figure 5.

[0058] In Figure 5 the rotational axis R is depicted together with the preferred rotation directions C1, C2 of the washing drum 1.

[0059] As known, in fact, during a washing cycle the washing drum 1 is preferably rotated in clockwise C1 and counterclockwise C2 directions around the rotational axis R for centrifugally dehydrating the laundry placed therein.

[0060] Clockwise C1 and counterclockwise C2 directions are also indicated in Figures 1 and 2.

[0061] According to an aspect of the invention, the reference axis X of the squircle-shaped contour 30 is inclined with respect to the rotational axis R of the washing drum 1 to form an angle A.

[0062] In a preferred embodiment of the invention, as illustrated in the Figures, the angle A is equal to 45°. Preferably, the angle is comprised between 22,5° and

67,5°.

[0063] Preferably, the tubular body wall 10 comprises a plurality bulges 20 placed side by side to define a desired pattern.

[0064] As illustrated in Figure 2, bulges 20 are preferably defined almost all over the entire tubular body wall 10 and arranged in a sort of inclined row-column matrix. Two adjacent bulges 20 preferably define therebetween a respective channel 50. The channel 50 is defined by side walls 32 of two adjacent bulges 20.

[0065] Each channel 50 is therefore preferably aligned along a direction inclined with respect to the rotational axis R.

[0066] Figure 10 shows a first different pattern obtained by bulges 20 displaced in groups G and arranged in inclined row-column spaced one to the other over the tubular body wall 110.

[0067] Bulges 20 are preferably arranged in rows along a main axis Y. Preferably, the main axis Y is parallel to the rotational axis R.

[0068] Between the groups G of bulges 20 smooth areas A are preferably defined. Each area A may also be considered as a large channel, preferably with a width equal or larger than a corresponding row of bulges, preferably aligned along the rotational axis R.

[0069] Figure 11 shows a second different pattern obtained by bulges 20 displaced in inclined rows H spaced one to the other over the tubular body wall 210.

[0070] Bulges 20 are preferably arranged in rows along a main axis Y'. Preferably, the main axis Y' is inclined with respect to the rotational axis R.

[0071] Between the groups H of bulges 20 smooth areas A' are preferably defined. Each area A' may also be considered as a channel, preferably with a width equal or larger than a corresponding row of bulges, preferably aligned along a direction inclined with respect to the rotational axis R.

[0072] The tubular body wall 10 preferably comprises distributed holes 70. Holes 70 are preferably obtained by punching the tubular body wall 10.

[0073] Holes 70 help discharging of water from inside of the washing drum 4 to the outside to centrifugally dehydrating the laundry placed therein.

[0074] According to a preferred embodiment of the invention, holes 70 are realized in channels 50, as better visible in Figures 3 and 5. Here, preferably, holes 70 are realized only in channels 50.

[0075] In different embodiments, holes 70 are differently distributed over the tubular body wall. For example, as illustrated in Figure 9, holes 70 in the tubular body wall 310 are additionally or alternatively realized at side walls 32 and/or bottom walls 34 of the bulges 20.

[0076] According to an advantageous aspect of the invention, the bulges 20 thanks to their shape and orientation, as described above, enhances channelling away of water when the washing drum 1 rotates, either in clockwise direction C1 or counterclockwise direction C2.

[0077] Referring to Figure 5, when the washing drum

1 rotates in clockwise direction C1, water hits the first/upper corner K1 and lateral sides S1, S2 of the bulge 20. The effect is that water is deflected from the center towards the sides of the bulge 20 along channels 50 between adjacent bulges 20, avoiding creation of turbulence and/or accumulation of water and enhancing conveyance of the water towards discharging holes 70.

[0078] Analogously, when the washing drum 1 rotates in counterclockwise direction C2 water hits the third/lower corner K3 and lateral sides S3, S4 of the bulge 20. The effect is that water is deflected from the center towards the sides of the bulge 20 along channels 50 between adjacent bulges 20, avoiding creation of turbulence and/or accumulation of water and enhancing conveyance of the water towards discharging holes 70.

[0079] According to a further advantageous aspect of the invention, the bulges 20 thanks to their shape and orientation, as described above, offer gentle treatment of the laundry when the washing drum 1 rotates, either in clockwise direction C1 or counterclockwise direction C2.

[0080] Referring to Figures 5 and 8, when the washing drum 1 rotates in clockwise direction C1, laundry hits the first/upper corner K1 and lateral sides S1, S2 of the bulge 20. The effect is that laundry does not stick against the inner wall of the tubular body wall 10 but the laundry is gently detached from the same. Analogously, when the washing drum 1 rotates in counterclockwise direction C2, laundry hits the third/lower corner K3 and lateral sides S3, S4 of the bulge 20. The effect is that laundry does not stick against the inner wall of the tubular body wall 10 but the laundry is gently detached from the same.

[0081] In a preferred embodiment of the invention, as better visible in Figure 8, the height D of the side walls is preferably constant, or substantially constant, and the bottom wall 34 is preferably parallel, or substantially parallel, to the tubular body wall 10.

[0082] In further preferred embodiments of the invention, the height of the side walls varies, and the bottom wall preferably is not parallel to the tubular body wall. For example, as illustrated in the embodiment of Figure 8A, the height of the side walls 32' decreases continuously and the bottom wall 34' of the bulge 20' is inclined with respect to the tubular body wall 10.

[0083] Preferably, the height of the side walls 32' decreases continuously going from the first corner K1 to the third corner K3 (as it can be deduced by comparing distances D1 and D2 depicted in Figure 8A). The bottom wall 34' of the bulge 20' is therefore preferably sloped going from the first corner K1 to the third corner K3.

[0084] The effect of this shape is that the laundry is detached differently when the when the washing drum 1 rotates in clockwise direction C1 or in counterclockwise direction C2.

[0085] Advantageously, mechanical treatment of the laundry is differentiated between clockwise and counterclockwise rotations of the washing drum 1.

[0086] It has thus been shown that the present inven-

tion allows all the set objects to be achieved. In particular, it makes it possible to provide a washing drum increasing dehydration performance of the laundry during a washing cycle compared to known laundry washing machines.

[0087] While the present invention has been described with reference to the particular embodiments shown in the figures, it should be noted that the present invention is not limited to the specific embodiments illustrated and described herein; on the contrary, further variants of the embodiments described herein fall within the scope of the present invention, which is defined in the claims.

Claims

1. A washing drum (1) which is adapted to be rotatably mounted in a laundry washing machine wherein laundry to be washed may be placed, said washing drum (1) comprising a tubular body wall (10; 110; 210) apt to rotate around a rotational axis (R) and said tubular body wall (10; 110; 210) comprising at least one bulge (20; 20') protruding from said tubular body wall (10; 110; 210) towards said rotational axis (R) and at least one hole (70), wherein the contour of said at least one bulge (20; 20') at said tubular body wall (10; 110; 210) has the shape of a squircle, **characterized in that** the reference axis (X) joining mid points of opposite sides, of said squircle-shaped contour is inclined with respect to said rotational axis (R).
2. A washing drum (1) according to claim 1, **characterized in that** said reference axis (X) of said squircle-shaped contour is inclined with respect to said rotational axis (R) to form an angle between 22,5° and 67,5° preferably an angle equal to 45°.
3. A washing drum (1) according to claim 1 or 2, **characterized in that** said at least one bulge (20; 20') comprises side walls (32; 32') extending from said contour and terminating at a bottom wall (34; 34').
4. A washing drum (1) according to any of the preceding claims, **characterized in that** it comprises a plurality of said at least one bulge (20; 20') placed side by side, two adjacent bulges (20; 20') defining a channel (50; A; A') therebetween.
5. A washing drum (1) according to claim 4, **characterized in that** said at least one hole (70) is realized in said channel (50).
6. A washing drum (1) according to any of the claims 3 to 5, **characterized in that** said at least one hole (70) is realized in said side walls (32; 32') and/or said bottom wall (34; 34').
7. A washing drum (1) according to any of the claims

3 to 6, **characterized in that** said side walls (32; 32') and/or said bottom wall (34; 34') are rounded shaped.

8. A washing drum (1) according to any of the preceding claims, **characterized in that** it comprises a plurality of said at least one bulge (20; 20'), said plurality of bulges (20; 20') being arranged in a row along a main axis (Y; Y').
9. A washing drum (1) according to any of the claims 1 to 7, **characterized in that** it comprises one or more groups (G; H) of bulges (20; 20'), said one or more groups (G; H) comprising one or more rows of bulges (20; 20') aligned along a main axis (Y; Y').
10. A washing drum (1) according to claim 9, **characterized in that** two groups (G; H) of said one or more groups (G; H) are separated by a smooth area (A; A').
11. A washing drum (1) according to any of the claims 8 to 10, **characterized in that** said main axis (Y) is parallel to said rotational axis (R).
12. A washing drum (1) according to any of the claims 8 to 10, **characterized in that** said main axis (Y') is inclined with respect to said rotational axis (R).
13. A washing drum (1) according to any of the claims 3 to 12, **characterized in that** the height (D) of said side walls (32) is constant.
14. A washing drum (1) according to any of the claims 3 to 12, **characterized in that** the height of said side walls (32') varies.
15. A laundry washing machine comprising a washing tub external to a washing drum (1), **characterized in that** said washing drum (1) is realized according to any of the preceding claims.

Patentansprüche

1. Waschtrommel (1), die zur drehbaren Montage in einer Textilwaschmaschine ausgeführt ist, in der Waschgut platziert werden kann, wobei die Waschtrommel (1) eine rohrförmige Körperwand (10; 110; 210) umfasst, die sich um eine Rotationsachse (R) drehen kann, und die rohrförmige Körperwand (10; 110, 210) mindestens eine Ausbauchung (20; 20'), die von der rohrförmigen Körperwand (10; 110, 210) zu der Rotationsachse (R) vorragt, und mindestens ein Loch (70) umfasst, wobei die Kontur der mindestens einen Ausbauchung (20; 20') an der rohrförmigen Körperwand (10; 110, 210) die Form eines Superkreises hat, **dadurch gekennzeichnet, dass** die Bezugsachse (X), die Mittelpunkte gegenüberlie-

gender Seiten der superkreisförmigen Kontur verbindet, bezüglich der Rotationsachse (R) geneigt ist.

2. Waschtrommel (1) nach Anspruch 1, **dadurch gekennzeichnet, dass** die Bezugsachse (X) der superkreisförmigen Kontur bezüglich der Rotationsachse (R) geneigt ist und einen Winkel zwischen 22,5° und 67,5°, vorzugsweise einen Winkel gleich 45° bildet.
3. Waschtrommel (1) nach Anspruch 1 oder 2, **dadurch gekennzeichnet, dass** mindestens eine Ausbauchung (20; 20') Seitenwände (32; 32') umfasst, die sich von der Kontur erstrecken und an einer Bodenwand (34; 34') enden.
4. Waschtrommel (1) nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** sie eine Vielzahl der mindestens einen Ausbauchung (20; 20') umfasst, die nebeneinander platziert sind, wobei zwei benachbarte Ausbauchungen (20; 20') einen Kanal (50; A; A') definieren.
5. Waschtrommel (1) nach Anspruch 4, **dadurch gekennzeichnet, dass** in dem Kanal (50) mindestens ein Loch (70) ausgeführt ist.
6. Waschtrommel (1) nach einem der Ansprüche 3 bis 5, **dadurch gekennzeichnet, dass** das mindestens eine Loch (70) in den Seitenwänden (32; 32') und/oder der Bodenwand (34; 34') ausgeführt ist.
7. Waschtrommel (1) nach einem der Ansprüche 3 bis 6, **dadurch gekennzeichnet, dass** die Seitenwände (32; 32') und/oder die Bodenwand (34; 34') eine abgerundete Form haben.
8. Waschtrommel (1) nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** sie eine Vielzahl der mindestens einen Ausbauchung (20; 20') umfasst, wobei die Vielzahl von Ausbauchungen (20; 20') in einer Reihe entlang einer Hauptachse (Y; Y') angeordnet sind.

9. Waschtrommel (1) nach einem der Ansprüche 1 bis 7, **dadurch gekennzeichnet, dass** sie eine oder mehrere Gruppen (G; H) von Ausbauchungen (20; 20') umfasst, wobei die eine oder die mehreren Gruppen (G; H) eine oder mehrere Reihen von Ausbauchungen (20; 20') umfassen, die entlang einer Hauptachse (Y; Y') ausgerichtet sind.
10. Waschtrommel (1) nach Anspruch 9, **dadurch gekennzeichnet, dass** zwei Gruppen (G; H) der einen oder der mehreren Gruppen (G; H) durch einen glatten Bereich (A; A') getrennt sind.
11. Waschtrommel (1) nach einem der Ansprüche 8 bis

- 10, **dadurch gekennzeichnet, dass** die Hauptachse (Y) parallel zu der Rotationsachse (R) verläuft.
12. Waschtrommel (1) nach einem der Ansprüche 8 bis 10, **dadurch gekennzeichnet, dass** die Hauptachse (Y') bezüglich der Rotationsachse (R) geneigt ist.
13. Waschtrommel (1) nach einem der Ansprüche 3 bis 12, **dadurch gekennzeichnet, dass** die Höhe (D) der Seitenwände (32) konstant ist.
14. Waschtrommel (1) nach einem der Ansprüche 3 bis 12, **dadurch gekennzeichnet, dass** die Höhe (D) der Seitenwände (32') variiert.
15. Textilwaschmaschine, umfassend einen Waschbotich, der außerhalb einer Waschtrommel (1) liegt, **dadurch gekennzeichnet, dass** die Waschtrommel (1) nach einem der vorhergehenden Ansprüche ausgeführt ist.

Revendications

1. Tambour de lavage (1) qui est conçu pour être monté de manière rotative dans une machine à laver le linge dans laquelle le linge à laver peut être placé, ledit tambour de lavage (1) comprenant une paroi de corps tubulaire (10 ; 110 ; 210) pouvant tourner autour d'un axe de rotation (R) et ladite paroi de corps tubulaire (10 ; 110 ; 210) comprenant au moins un renflement (20 ; 20') faisant saillie de ladite paroi de corps tubulaire (10 ; 110 ; 210) vers ledit axe de rotation (R) et au moins un trou (70), le contour dudit au moins un renflement (20 ; 20') au niveau de ladite paroi de corps tubulaire (10 ; 110 ; 210) ayant la forme d'un squircle, **caractérisé en ce que** l'axe de référence (X) joignant les points médians de côtés opposés dudit contour en forme de squircle est incliné par rapport audit axe de rotation (R).
2. Tambour de lavage (1) selon la revendication 1, **caractérisé en ce que** ledit axe de référence (X) dudit contour en forme de squircle est incliné par rapport audit axe de rotation (R) pour former un angle entre 22,5° et 67,5°, de préférence un angle égal à 45°.
3. Tambour de lavage (1) selon la revendication 1 ou 2, **caractérisé en ce que** ledit au moins un renflement (20 ; 20') comprend des parois latérales (32 ; 32') s'étendant depuis ledit contour et se terminant au niveau d'une paroi inférieure (34 ; 34').
4. Tambour de lavage (1) selon l'une quelconque des revendications précédentes, **caractérisé en ce qu'il** comprend une pluralité dudit au moins un renflement (20 ; 20') placé côte à côte, deux renflements (20 ; 20') adjacents définissant un canal (50 ; A ; A') entre

eux.

5. Tambour de lavage (1) selon la revendication 4, **caractérisé en ce que** ledit au moins un trou (70) est pratiqué dans ledit canal (50).
6. Tambour de lavage (1) selon l'une quelconque des revendications 3 à 5, **caractérisé en ce que** ledit au moins un trou (70) est pratiqué dans lesdites parois latérales (32 ; 32') et/ou ladite paroi de fond (34 ; 34').
7. Tambour de lavage (1) selon l'une quelconque des revendications 3 à 6, **caractérisé en ce que** lesdites parois latérales (32 ; 32') et/ou ladite paroi de fond (34 ; 34') sont de forme arrondie.
8. Tambour de lavage (1) selon l'une quelconque des revendications précédentes, **caractérisé en ce qu'il** comprend une pluralité dudit au moins un renflement (20 ; 20'), ladite pluralité de renflements (20 ; 20') étant disposée en une rangée le long d'un axe principal (Y ; Y').
9. Tambour de lavage (1) selon l'une quelconque des revendications 1 à 7, **caractérisé en ce qu'il** comprend un ou plusieurs groupes (G ; H) de renflements (20 ; 20'), lesdits un ou plusieurs groupes (G ; H) comprenant une ou plusieurs rangées de renflements (20 ; 20') alignés le long d'un axe principal (Y ; Y').
10. Tambour de lavage (1) selon la revendication 9, **caractérisé en ce que** deux groupes (G ; H) desdits un ou plusieurs groupes (G ; H) sont séparés par une zone lisse (A ; A').
11. Tambour de lavage (1) selon l'une quelconque des revendications 8 à 10, **caractérisé en ce que** ledit axe principal (Y) est parallèle audit axe de rotation (R).
12. Tambour de lavage (1) selon l'une quelconque des revendications 8 à 10, **caractérisé en ce que** ledit axe principal (Y') est incliné par rapport audit axe de rotation (R).
13. Tambour de lavage (1) selon l'une quelconque des revendications 3 à 12, **caractérisé en ce que** la hauteur (D) desdites parois latérales (32) est constante.
14. Tambour de lavage (1) selon l'une quelconque des revendications 3 à 12, **caractérisé en ce que** la hauteur desdites parois latérales (32') varie.
15. Machine à laver le linge comprenant une cuve de lavage externe à un tambour de lavage (1), **caractérisée en ce que** ledit tambour de lavage (1) est réalisé selon l'une quelconque des revendications

précédentes.

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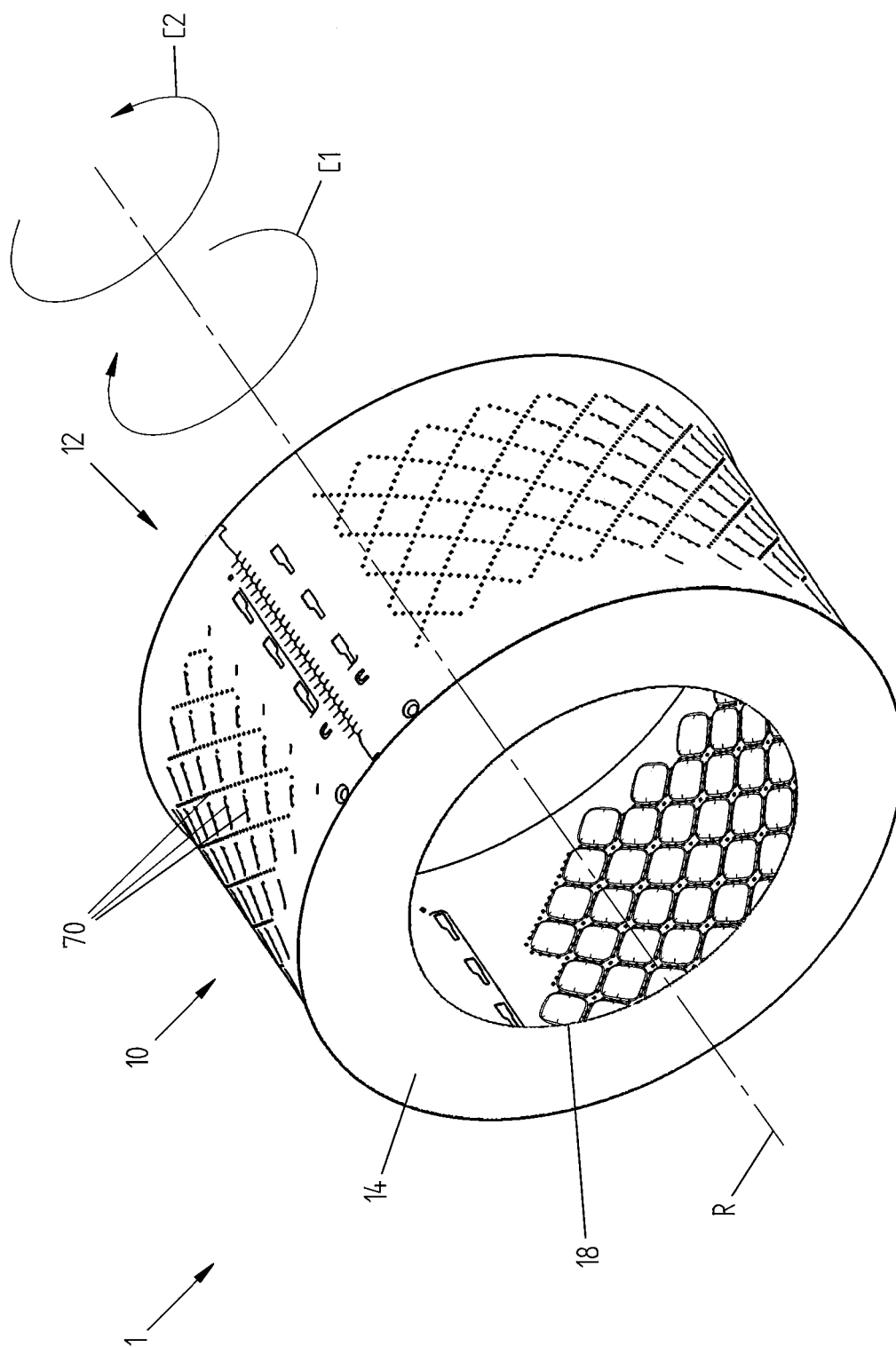


FIG. 1

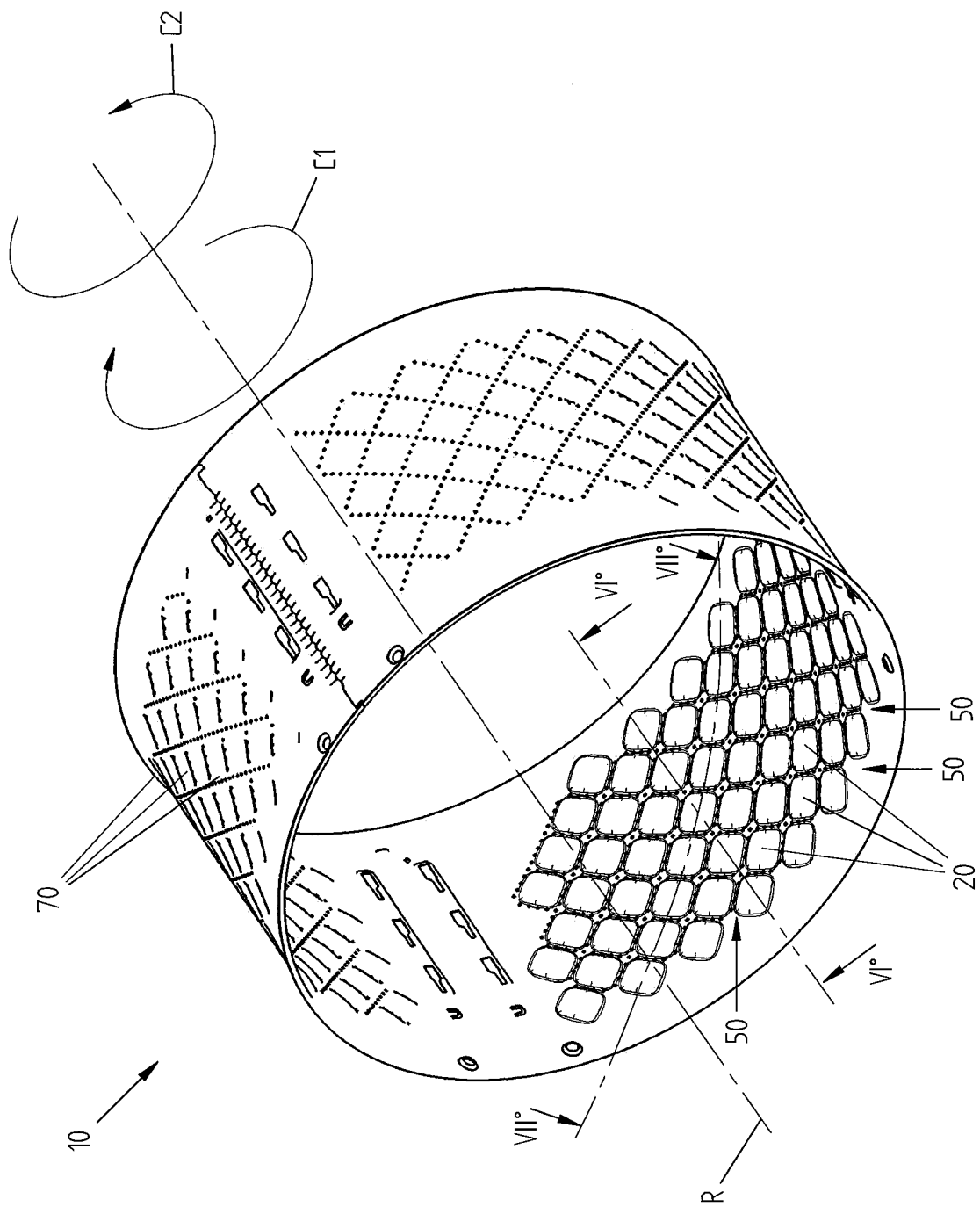


FIG. 2

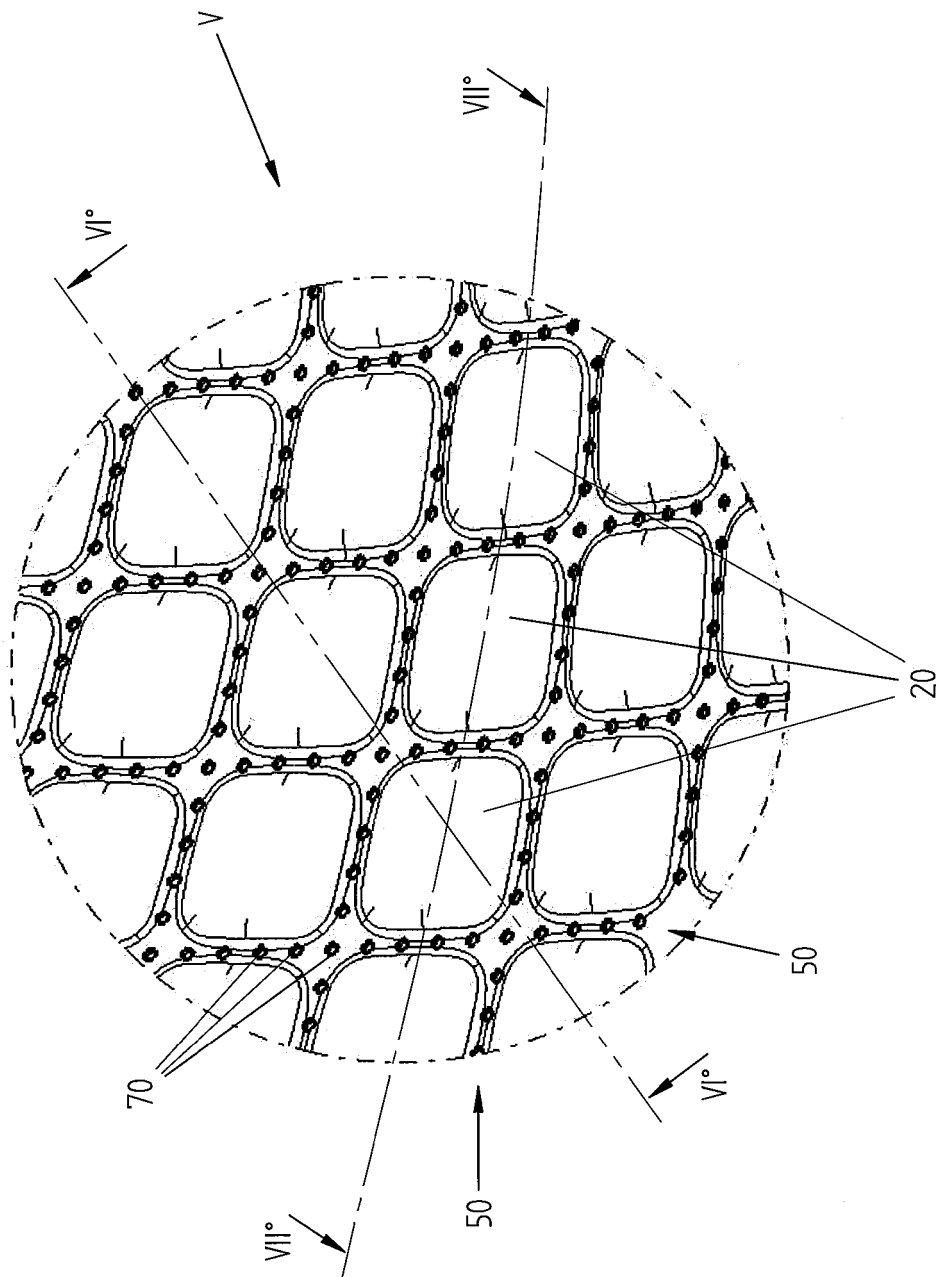


FIG. 3

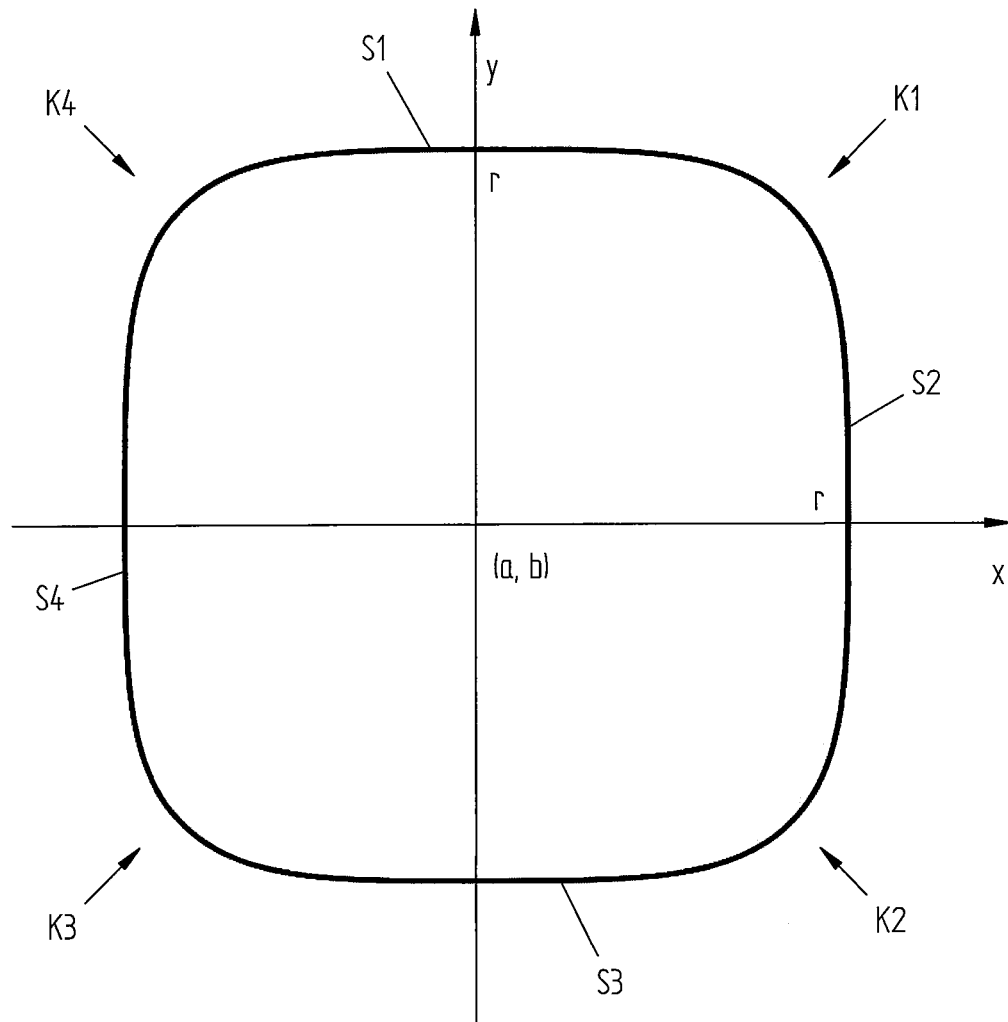


FIG. 4

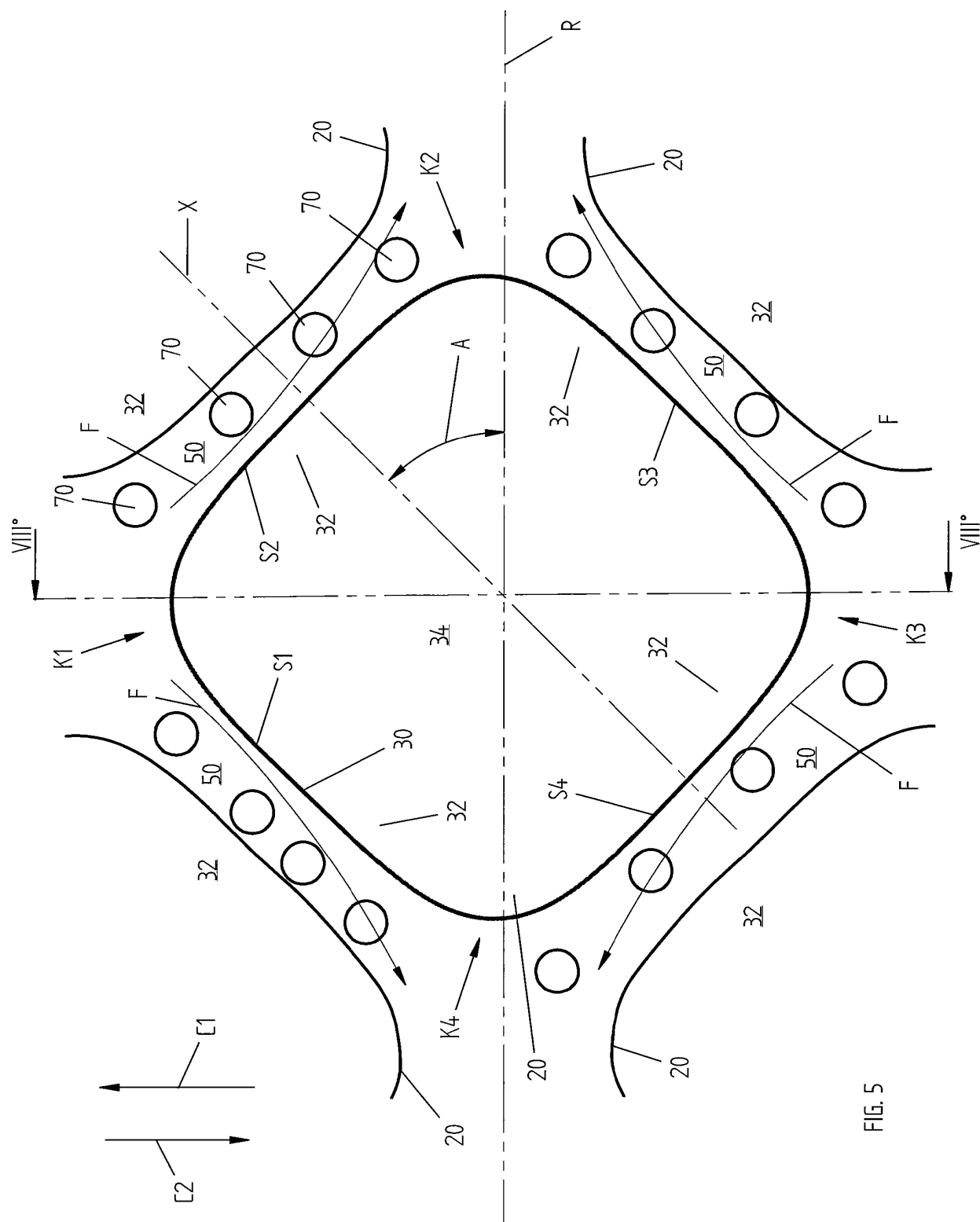


FIG. 5

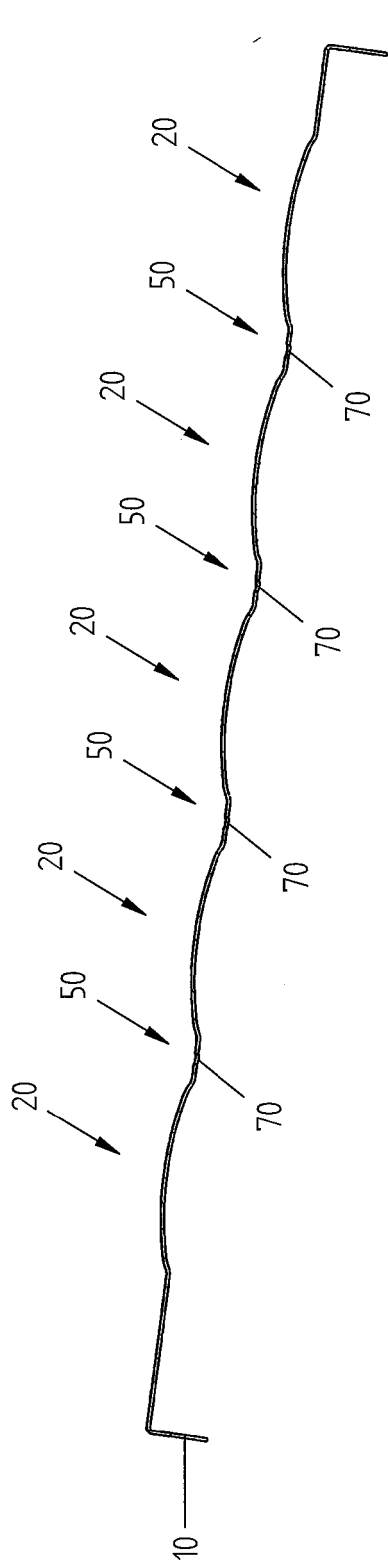


FIG. 6

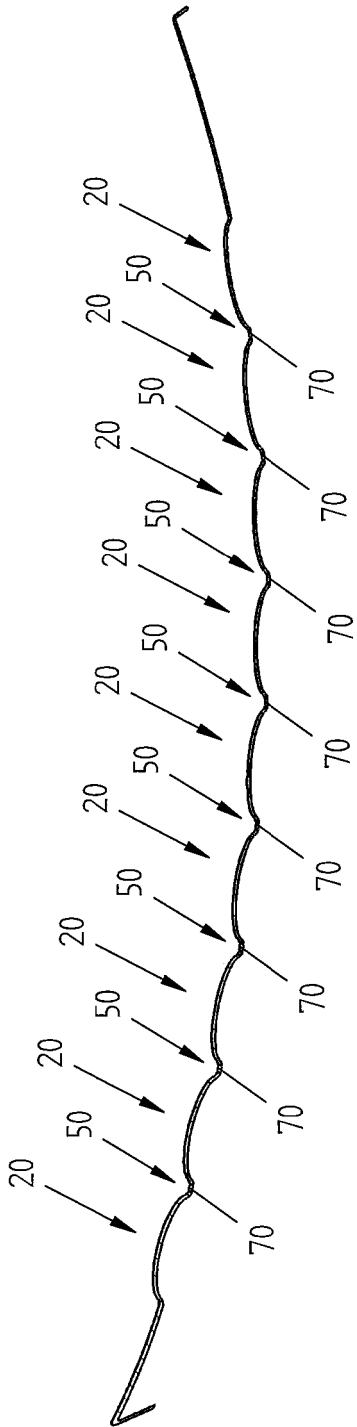
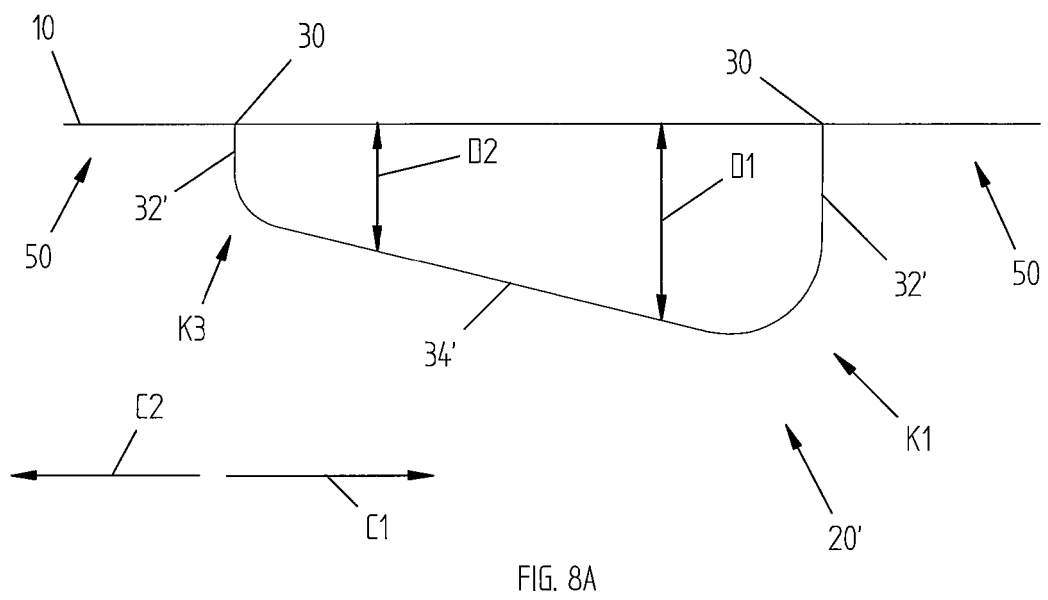
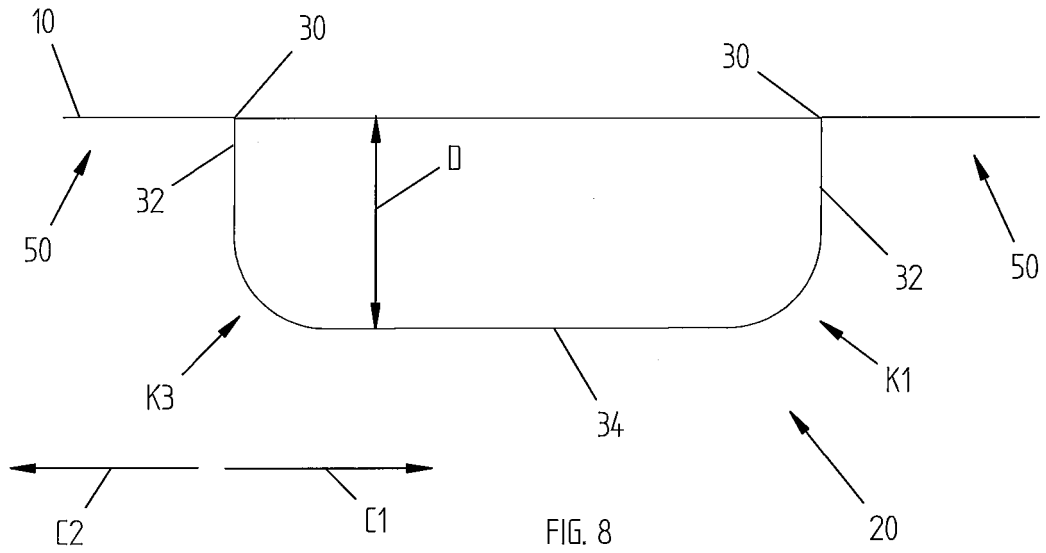
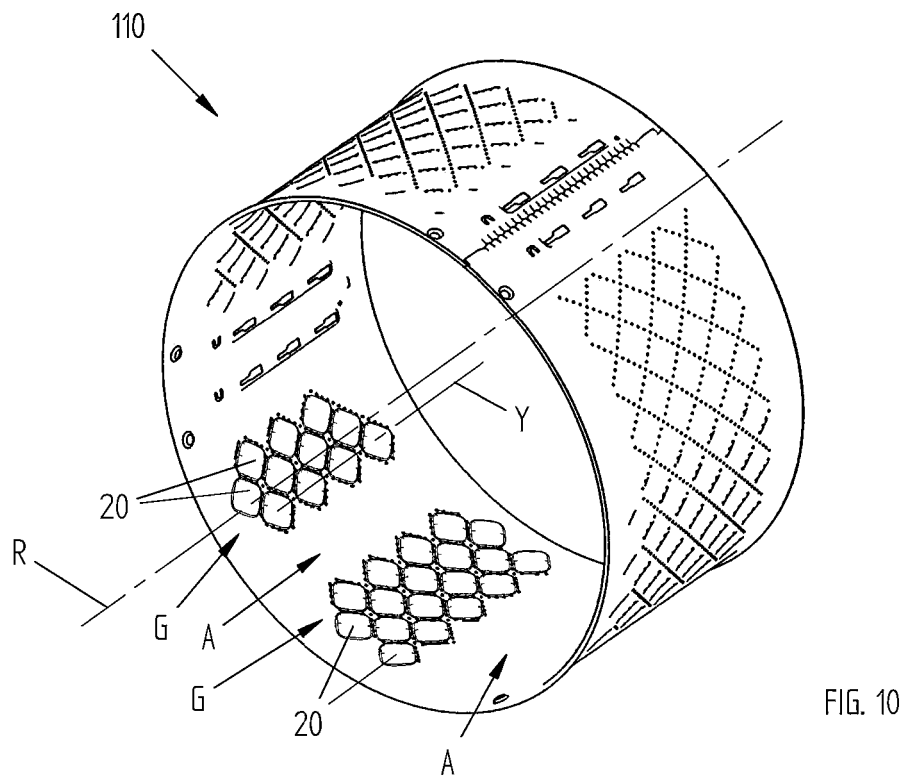
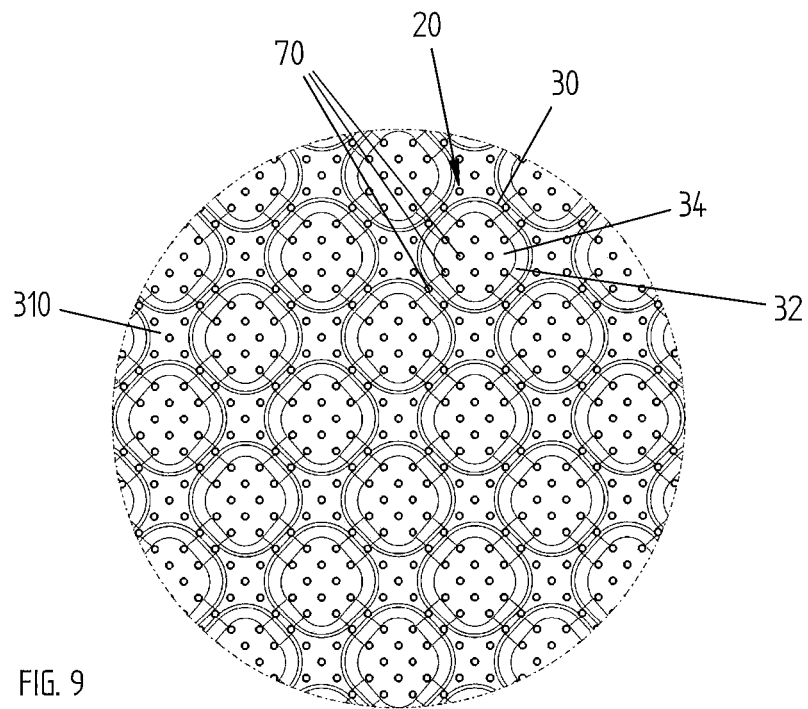


FIG. 7





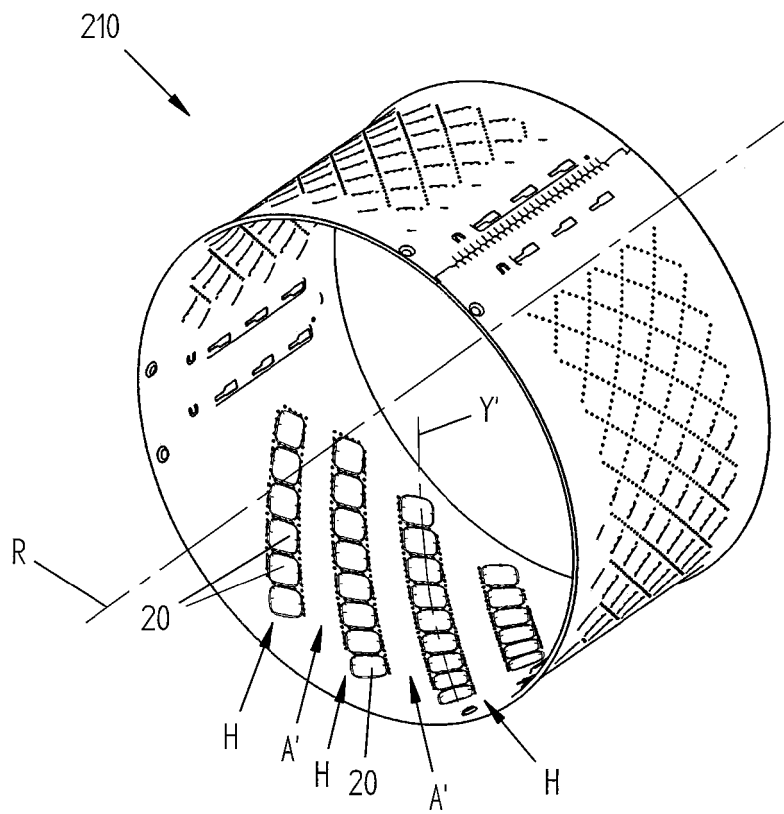


FIG. 11

REFERENCES CITED IN THE DESCRIPTION

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