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(54) **A drum for washing and/or drying devices**

(57) The drum (T) which can rotate about its own axis and which is developed for washing and/or drying devices according to the present invention comprises at least one lifter element (1) positioned on the inner surface (T1) of the drum (T); and at least one groove (2) provided on said drum (T), into which groove said lifter element (1) is

fastened. Upon the rotational movement of the drum (T), the lifter element (1) is moved within this groove (2), along and between the two ends (2a) of the groove (2). Thus, any laundry in the drum (T) is agitated and shaken in a more efficient way while the drum is rotated (T), as well as the efficiency of the washing and/or drying operation of the washing and/or drying device is increased.

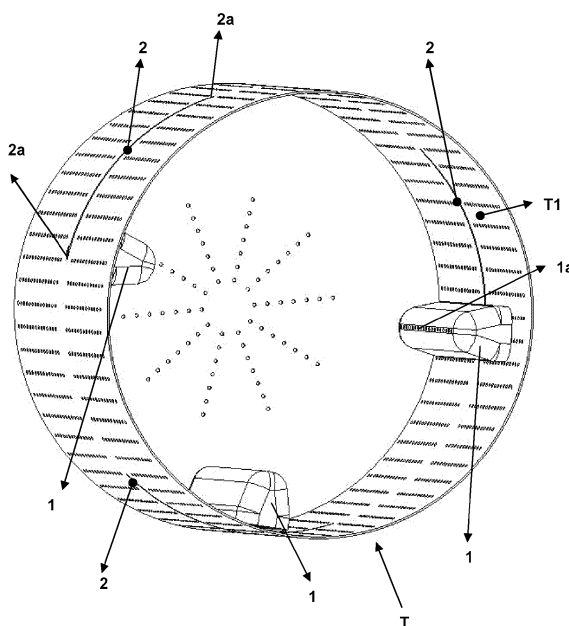


Figure 1

Description

Technical Field

[0001] The present invention relates to drums used in washing and/or drying devices.

Prior Art

[0002] As known, drums used for cleaning and drying of laundry are provided in washing and/or drying devices. The drums are units which have perforated structures and can rotate around their own axes at adjustable speeds. Said drums comprise lifter elements generally provided at the inner surface of the drums. These elements are fixed to the surface of the drum and ensure that laundry is agitated and shaken more efficiently as the drum rotates. However, the laundry cannot be washed and/or dried efficiently enough and may be harmed since the lifter elements are fixed or immovable.

[0003] For the solution of said problems, drums having lifter elements with a movable structure are developed.

[0004] The patent application EP2053152A1 in the known state of the art discloses one drum comprising a lifter with a movable structure. This lifter comprises a base part fixed to the drum and a movable part placed on said base part. This base part has a hollow form and there is provided one U-shaped spring, of which one end contacts with the base part and the other end contacts with the movable part, at the region where the movable part and this base part are connected to each other. Thus, the movable part can be moved in upward and downward directions by way of said spring. The embodiment developed in the patent application EP2053152A1 can prevent any harm from occurring on the laundry. However, it cannot provide an efficient solution for an adequately-efficient washing or drying operation for the device.

[0005] Another patent application KR20050011511A in the known state of the art, in turn, discloses a washing machine drum comprising a movable lifter developed with the aim of increasing the washing process efficiency. The lifter provided in this drum is moved up and down in the radial direction by means of a driver unit while the drum is rotated and ensures a more efficient agitation for the laundry being handled in the device. However, since the speed of said lifter in the radial direction is increased with an increase of the rotation speed of the drum, it hits the tub more harshly. This may cause both structural damages and may cause a loud noise to come from the device.

Brief Disclosure of Invention

[0006] The drum which can rotate about its own axis and which is developed for washing and/or drying devices according to the present invention comprises at least one lifter element positioned on the inner surface of the drum; and at least one groove provided on said drum,

into which groove said lifter element is fastened. Upon the rotational movement of the drum, the lifter element is moved within this groove, along and between the two ends of the groove. Thus, any laundry in the drum is agitated and shaken in a more efficient way while the drum is rotated, as well as the efficiency of the washing and/or drying operation of the washing and/or drying device is increased.

Object of Invention

[0007] The object of the present invention is to develop a washing and/or drying device comprising a movable lifter element provided in its drum.

[0008] Another object of this invention is to develop a washing and/or drying device which can provide a more efficient agitation for the laundry being handled in the device.

[0009] A further object of this invention is to develop a washing and/or drying device providing a more efficient washing and/or drying process.

[0010] Still a further object of this invention is to develop a washing and/or drying device which do/does not damage the laundry while it is agitated and shaken.

Description of Figures

[0011] Examples of a drum of the invention, one lifter element provided in said drum, and a fixation part used for connecting said element to the drum are illustrated in the annexed figures, briefly described as follows.

Figure 1 is a perspective view of the drum.

Figure 2 is a front sectional view of the drum.

Figure 3 is an illustration of the detail A taken from the drum illustrated in Figure 2.

Figure 4 is a perspective view of the fixation part.

Figure 5 is another perspective view of the drum.

Figure 6 is an illustration of the detail B taken from the drum illustrated in Figure 5.

Figure 7 is a perspective view of the lifter element.

Figure 8 is an illustration of the detail C taken from the lifter element illustrated in Figure 7.

Figure 9 is another perspective view of the lifter element.

Figure 10 is an illustration of the detail D taken from the lifter element illustrated in Figure 9.

Figure 11 is a top sectional view of the fastened state of the mounting part and the locking element.

[0012] The parts in said figures are individually numbered as following.

drum	(T)
inner surface	(T1)
lifter element	(1)
hole	(1a)

(continued)

groove	(2)
end of groove	(2a)
fixation part	(3)
body	(3a)
upper surface	(3b)
lateral surface	(3c)
mounting part	(4)
movement element	(5)
locking element	(6)
protrusion	(6a)

Description of Invention

[0013] As known, a tub (not shown in figures) is provided in the washing and/or drying devices and in this tub is provided a drum (T), which preferably has holes thereon and can rotate about its own axis. The drums (T) are generally produced from plain metal plates, which are firstly pierced and then given a circular form. There is provided a laundry loading opening (not shown in figures) on the front side of the drums (T). An exemplary drum (T) of the invention illustrated in figures 1 and 2 comprises at least one lifter element (1) which is positioned on the inner surface (T1) of the drum (T) and ensures that any laundry placed in the drum (T) is agitated and shaken in a more effective way as the drum (T) is rotated, and at least one groove (2), to which said lifter element (1) is fastened. On said lifter element (1), there is provided at least one hole (1a) for passing water and/or air there through.

[0014] Said groove (2) is formed in a determined length on the circumferential surface forming the drum (T), so as to sweep an arc on this surface. In the exemplary embodiment illustrated in figures, there are provided three grooves (2) on the drum (T), these grooves (2) being formed along the circumference of the drum (T).

[0015] The lifter element (1), illustrated in detail in Figure 3, is fastened to said groove (2) and can be moved along and between the two ends (2a) of this groove (2). The movement of the lifter element (1) in the groove (2) is provided by means of the rotational movement of the drum (T), under the effect of the movement of laundry in the drum (T), or under the gravity effect. Thus, the laundry is agitated and shaken more efficiently and the washing and/or drying efficiency of the device is increased.

[0016] The lifter element (1) can be mounted to the drum (T) in different ways. In the exemplary embodiment illustrated in figures, the lifter element (1) is fastened to the drum (T) by means of at least one fixation part (3). This fixation part (3) illustrated in Figure 4 comprises at least one body (3a), and at least two movement elements (5), which are positioned on at least one lateral surface (3c) of the body (3a) such that one of these elements is provided on the other one.

[0017] In one exemplary embodiment of this invention,

the fixation part (3) is fastened to the lifter element (1) by means of at least one locking element (6), which comprises at least one protrusion (6a), as illustrated in Figure 10 and Figure 11. In this embodiment, the fixation part (3) comprises at least one mounting part (4), wherein this mounting part (4) is fastened to the locking element (6) once it is placed into at least one gap (not shown in figures) formed by the protrusion (6) provided in the locking element (6). Thus, the mounting part (4) and the locking element (6) can move with respect to each other when they are assembled. As seen in mounted state of the mounting part (4) and the locking element (6), as illustrated in cross-section in Figure 11, both elements can move rotationally (R) with respect to each other. Thus, the lifter element (1) and the connecting part (3) can be moved rotationally with respect to each other and the freedom of movement of this lifter element (1) on the drum (T) can be enhanced. Said freedom of movement keeps the laundry from being caught between the lifter element (1) and the drum (T) as the device is in operation and allows the lifter element (1) to hit the laundry by more variable angles and thus, increases the washing efficiency.

[0018] The lifter element (1) is fastened to the groove (2) provided in the drum (T) by means of the fixation part (3), whose state in which it is fastened to the lifter element (1) is illustrated in Figure 9, such that the groove (2) remains between the movement elements (5) as shown in detail in Figure 6. Thus, the lifter element (1) can move freely along the groove (2) between the two ends (2a) thereof (2) by the rotational movement of the drum (T). Upon this movement of the lifter element (1), the laundry is agitated in a more efficient way and thus, the drying efficiency of the device is increased. In addition, the movement of the lifter element (1) along the groove (2) ensures a more efficient agitation for the laundry being handled in the device. Thus, the laundry can be washed more efficiently without any exposure to harm.

Claims

1. A drum (T) for washing and/or drying devices, which is rotatable about its own axis and comprises at least one lifter element (1) positioned on its inner surface (T1), **characterized in that** it said drum (T) comprises at least one groove (2) on itself, to which groove (2) is fastened said lifter element (1), wherein said lifter element (1) is such a lifter element (1) that moves in and along this groove (2) between the two ends (2a) thereof (2) upon the rotational movement of the drum (T).
2. The drum (T) according to Claim 1, **characterized in that** said drum (T) comprises at least one fixation part (3) for mounting the lifter element (1) to the groove (2) provided on the drum (T).

3. The drum (T) according to Claim 2, **characterized in that** said fixation part (3) comprises at least one body (3a), and at least two movement elements (5), which are positioned on at least one lateral surface (3c) of the body (3a) such that one of these elements is provided on the other one. 5
4. The drum (T) according to Claim 3, **characterized in that** the lifter element (1) is placed into the groove (2) such that the groove (2) remains between the movement elements (5). 10
5. The drum (T) according to Claim 1, **characterized in that** the lifter element (1) comprises at least one hole (1a) provided on said element (1) for allowing water and/or air passage. 15
6. The drum (T) according to Claim 2, **characterized in that** said fixation part (3) comprises at least one mounting element (4). 20
7. The drum (T) according to Claim 6, **characterized in that** said drum (T) comprises at least one locking element (6), to which said mounting element (4) is fastened and which comprises at least one protrusion (6a). 25

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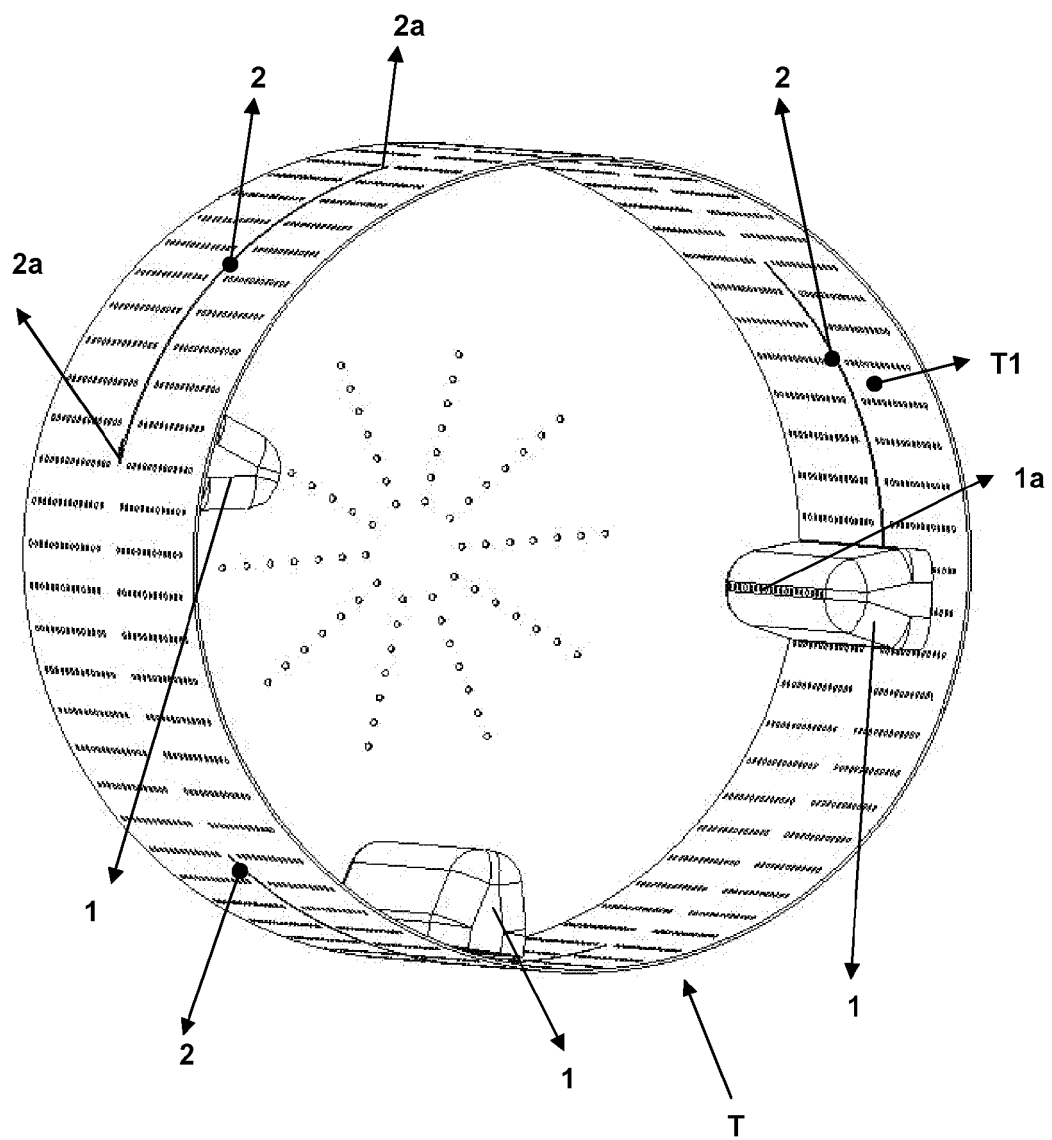


Figure 1

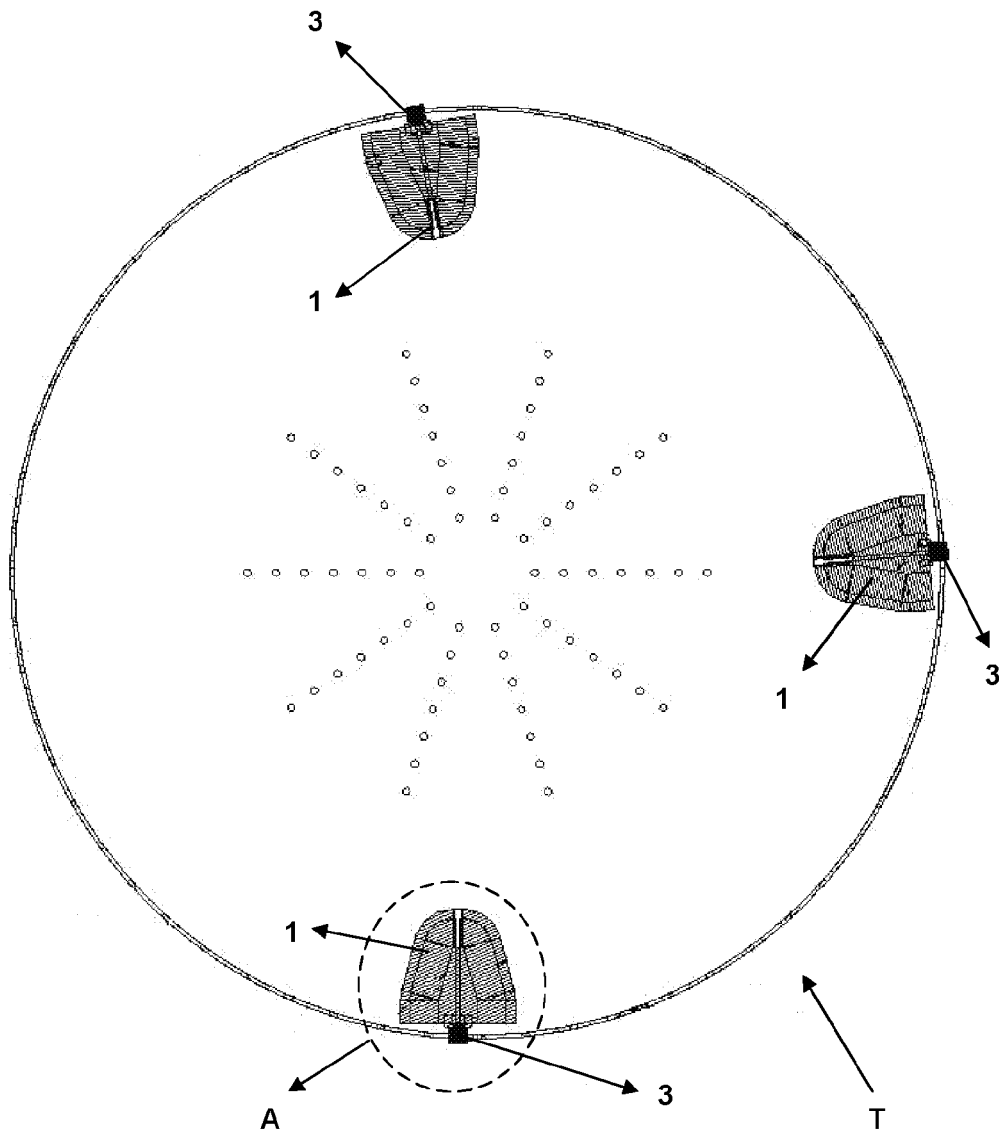


Figure 2

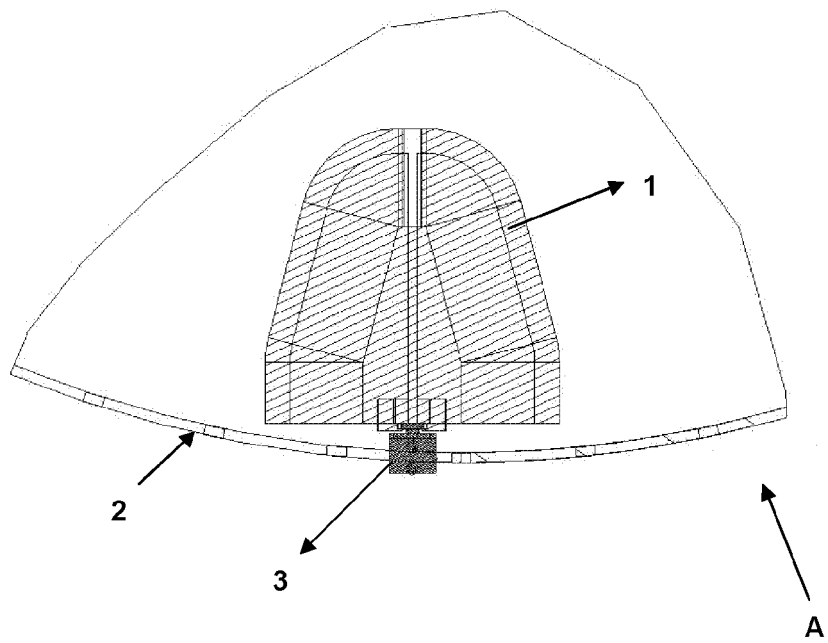


Figure 3

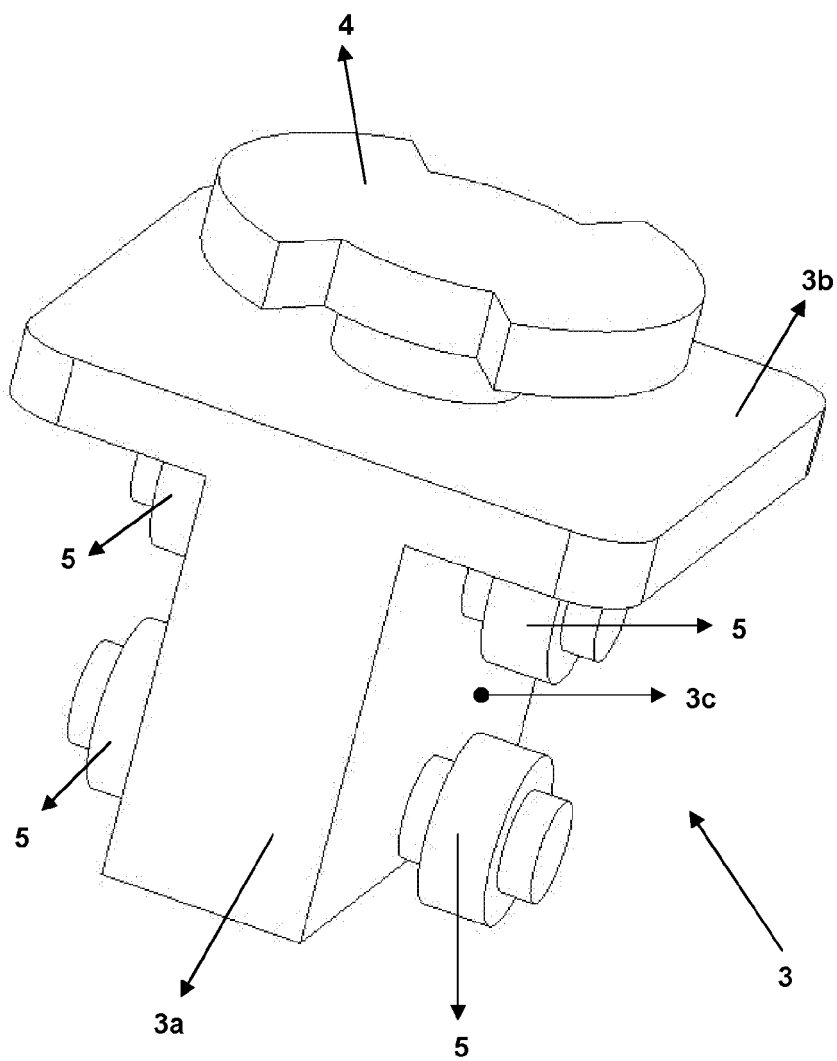


Figure 4

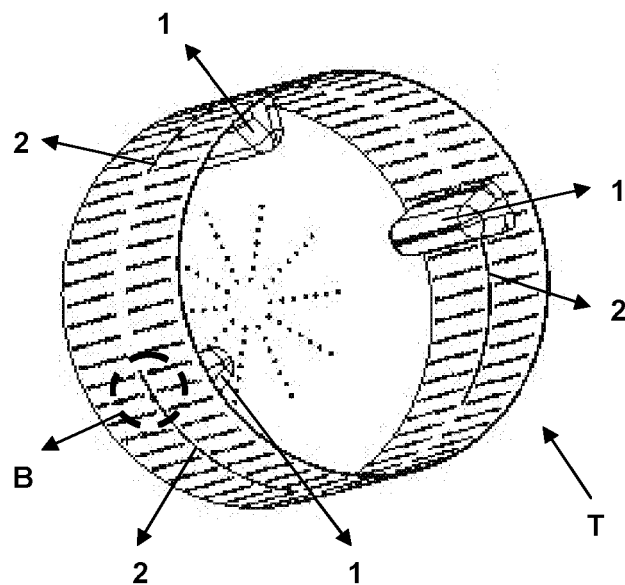


Figure 5

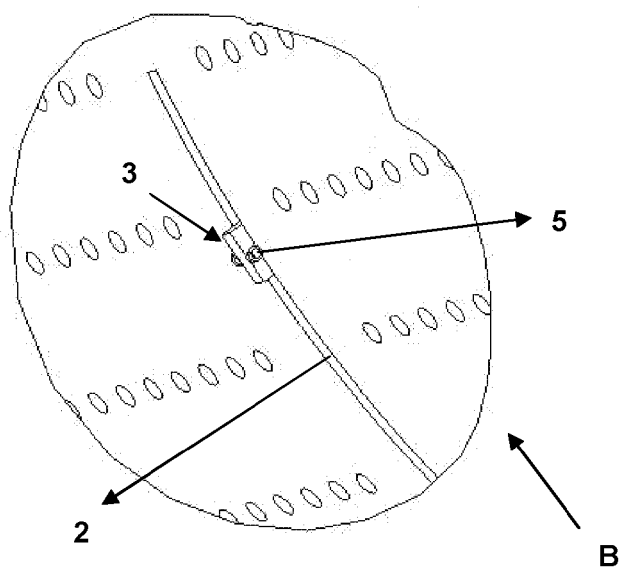


Figure 6

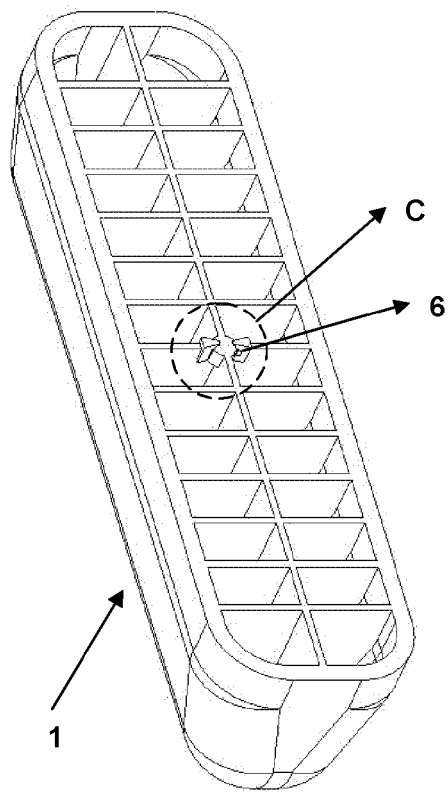


Figure 7

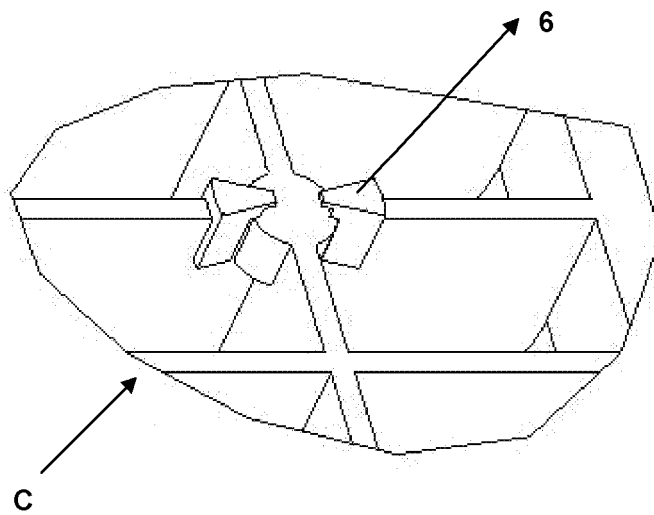


Figure 8

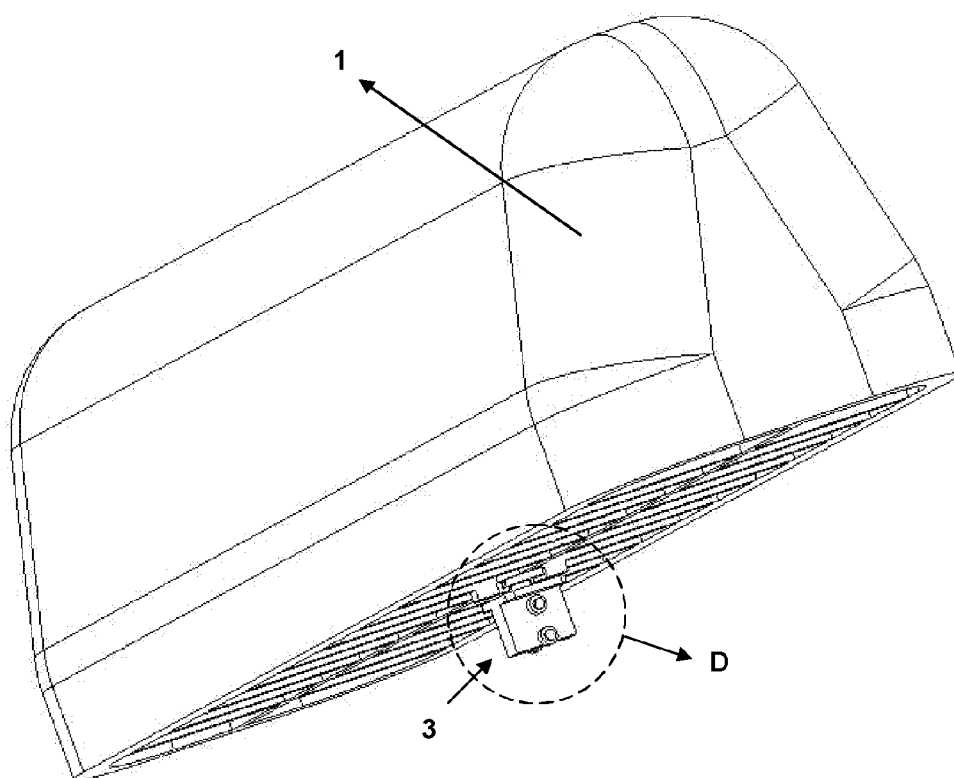


Figure 9

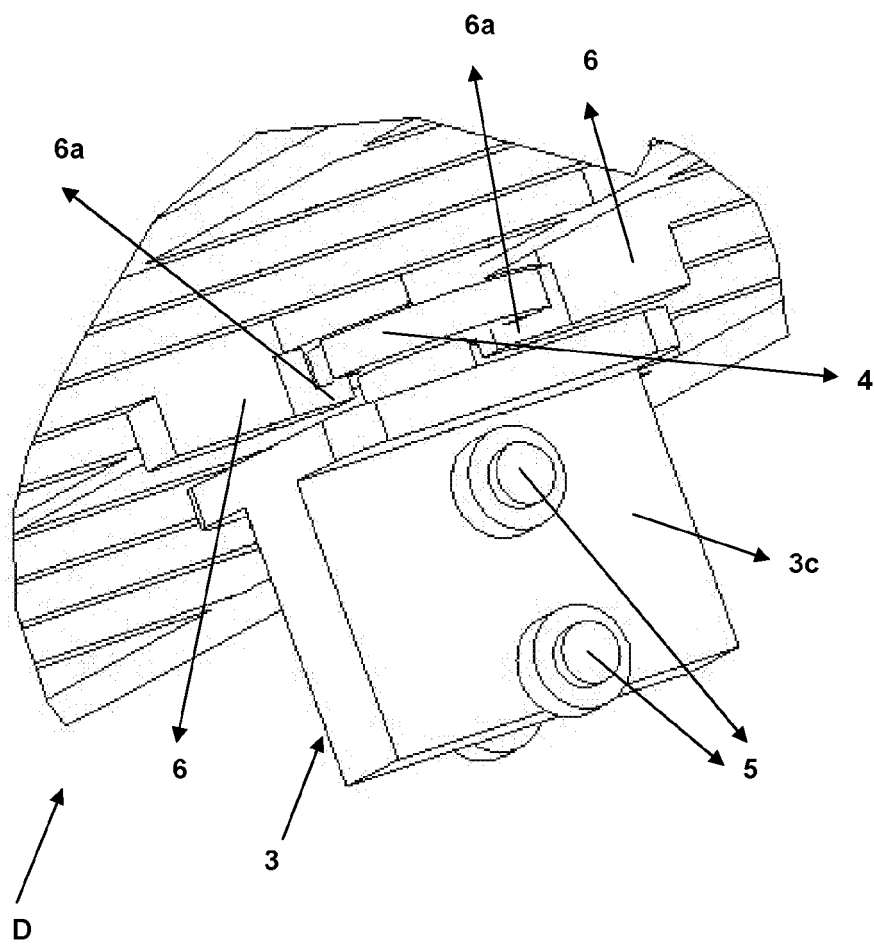


Figure 10

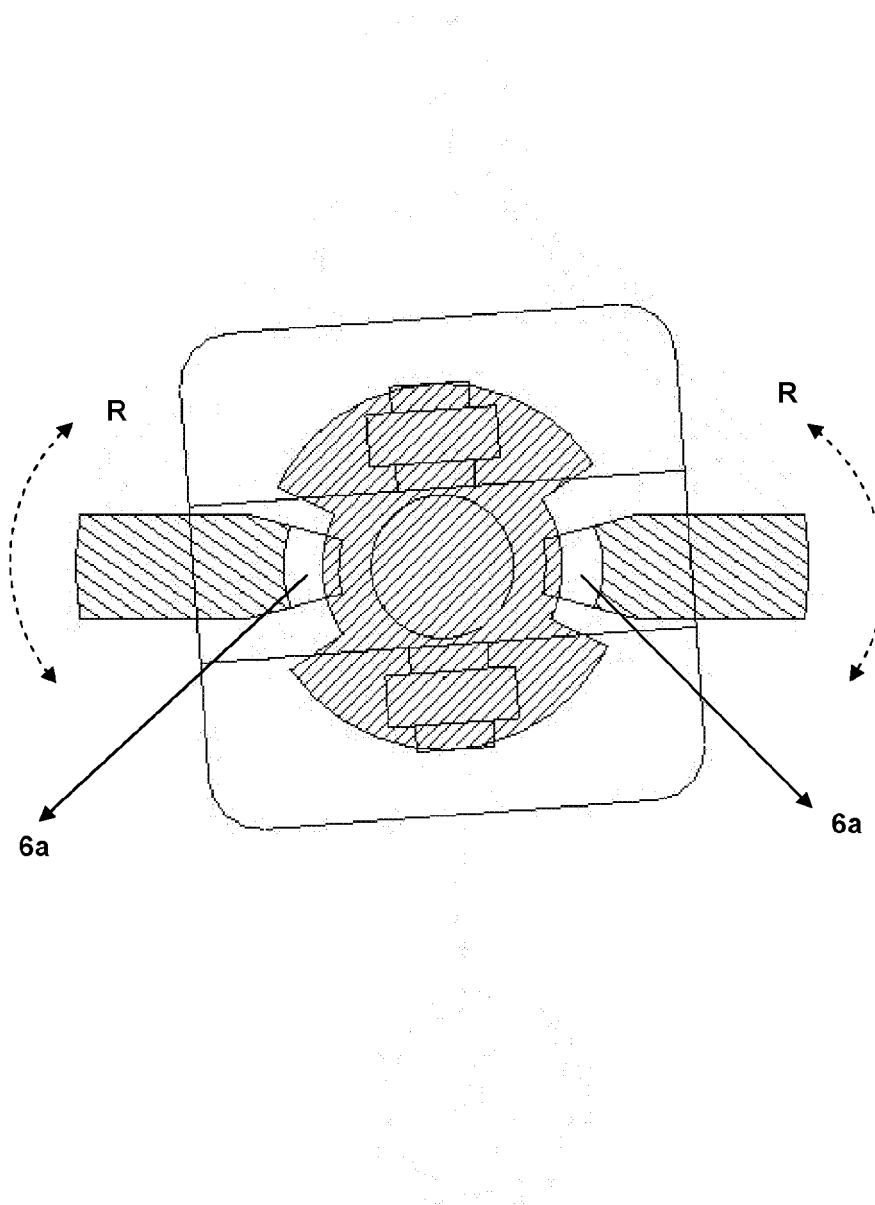


Figure 11

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

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