

(19)



(11)

EP 3 629 322 A2

(12)

EUROPEAN PATENT APPLICATION

(43) Date of publication:
01.04.2020 Bulletin 2020/14

(51) Int Cl.:
G10D 13/02 (2020.01)

(21) Application number: **19199510.9**

(22) Date of filing: **25.09.2019**

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR
Designated Extension States:
BA ME
Designated Validation States:
KH MA MD TN

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(30) Priority: **25.09.2018 IT 201800008907**

(54) **DRUM**

(57) A drum (1) is provided comprising a sound box (2); a counter-disk (3) structurally separated from the sound box (2); a releasable securing bracket (4) of the

counter-disk (3) to the sound box (2); and tensioning means (5) suitable for securing a batter head (10) to said counter-disk (3) by tensioning said batter head (10).

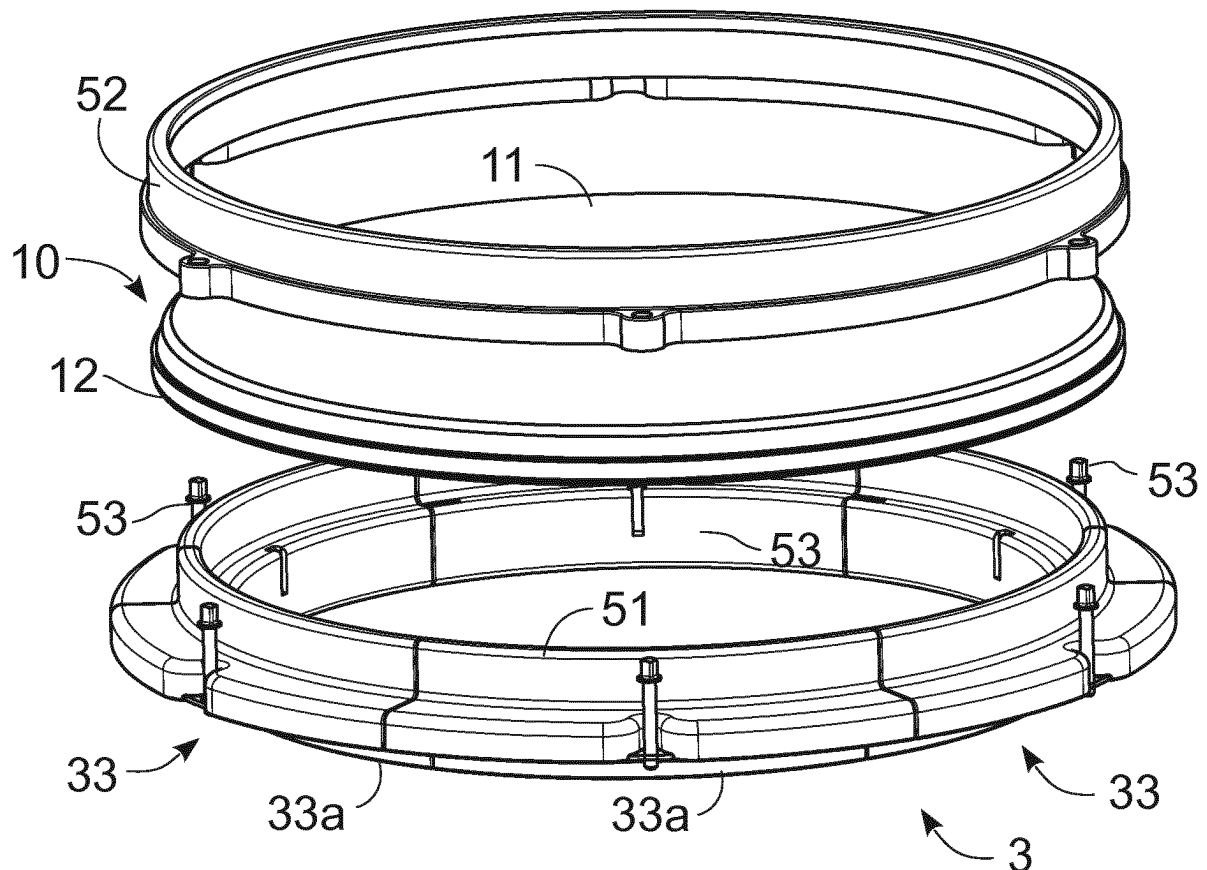


Fig. 3

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Description

[0001] The present invention relates to a drum of the type specified in the preamble of the first claim.

[0002] As is well known, the drum is a percussion instrument of the membranophone class and emits a sound by means of the vibration of a taut membrane, called a resonating membrane, amplified by a sound box.

[0003] A known drum comprises the resonating membrane, a sound box; a rim suitable for enclosing the membrane between the rim and the sound box; and braces that are suitable for tensioning the skin by pressing the rim against the sound box and conveniently distributed along the perimeter of the rim so as to even out the tension. The braces consist of a bolt or screw that can be inserted into the rim and engaged to the sound box so that the threading can be used to vary the distance between the rim and the box and thus adjust the tension of the skin.

[0004] The prior art described has a few major drawbacks.

[0005] A first important drawback is the large dimensions of a drum and, therefore, the difficulties involved in transporting and handling a drum.

[0006] In fact, the well known drums require special transport to be transported without altering the tension of the membrane, due to the difficulties in adjusting the skin (precise alignment of the rim to the sound box, correct adjustment of the braces, and, therefore, of the tension of the membrane).

[0007] In this context, the technical task underlying the present invention is to devise drum that is capable of substantially overcoming at least some of the above-mentioned drawbacks.

[0008] Within the scope of said technical task, one of the invention's major purposes is to obtain a drum that is easy and practical to transport.

[0009] The technical task and the specified purposes are achieved by means of drum as claimed in the appended claim 1. Examples of preferred embodiments are described in the dependent claims.

[0010] The characteristics and advantages of the invention are clearly evident from the following detailed description of preferred embodiments thereof, with reference to the accompanying drawings, in which:

Fig. 1 shows, in scale, a drum according to the invention;

Fig. 2 shows, in scale, a drum set according to the invention;

Fig. 3 shows, in scale, an exploded view of Fig. 2; and

Fig. 4 shows, in scale, an exploded view of a component of Fig. 3.

[0011] In this document, the measures, values, shapes, and geometric references (such as perpendicularity and parallelism), when used with words like "about" or other similar terms such as "approximately" or

"substantially", are to be understood as except for measurement errors or inaccuracies due to production and/or manufacturing errors and, above all, except for a slight divergence from the value, measure, shape, or geometric reference with which it is associated. For example, these terms, if associated with a value, preferably indicate a divergence of not more than 10% of the value.

[0012] Furthermore, when used, terms such as "first", "second", "higher", "lower", "main" and "secondary" do not necessarily identify an order, a priority relationship, or a relative position, but can simply be used to more clearly distinguish the different components from each other.

[0013] The measurements and data provided herein are to be considered as performed in ICAO International Standard Atmosphere (ISO 2535), unless otherwise indicated. With reference to the figures, the drum according to the invention is indicated as a whole by the numeral **1**.

[0014] The drum **1** identifies a class of musical instruments in which sound is produced by the vibration of a tense batter head **10** that is suitable for being struck in order to produce sound.

[0015] The drum **1** defines a longitudinal axis **1a**.

[0016] The drum **1**, as shown in Fig. 1, may comprise a batter head **10**.

[0017] The batter head **10** comprises a skin **11** suitable for defining the percussion surface and a ring **12** integral with, and on the perimeter of, the skin **11**. The batter head may be of a known type.

[0018] The drum **1** comprises a sound box **2** or a harmonic box.

[0019] The sound box **2** is suitable for exploiting the resonance to increase the intensity of the sound produced and/or characterizing the timbre of it.

[0020] The sound box **2** may be of a known type.

[0021] The drum **1** comprises a counter-disk **3** structurally separated from the sound box; at least one securing bracket **4** between the counter-disk **3** and the sound box **2** that can be released; and tensioning means **5** suitable for securing the batter head **10** to the counter-disk **3** by tensioning said batter head **10**.

[0022] The counter-disk **3**, shown in Fig. 4, has a ring form for engaging the sound box.

[0023] In particular, it is suitable for being placed between the sound box **2** and the clamping means **5**.

[0024] The counter-disk **3** defines a channel **3a**, conveniently arched, for engaging the sound box **2** to the same counter-disk **3**. The channel **3a** is substantially circular. For this purpose, it comprises a first edge **31** and a second edge **32** that, between them, delimit said channel **3a**.

[0025] The first edge **31** is suitable for being used inside the sound box **2** when the counter-disk **3** is engaged to it.

[0026] The second edge **32** is suitable for being used outside the sound box **2** when the counter-disk **3** is engaged to it.

[0027] In this document the terms radial and axial iden-

tify a direction and a length that is respectively perpendicular and parallel to the longitudinal axis 1a.

[0028] The edges 31 and 32 mainly extend along the longitudinal axis 1a. Specifically, the first edge 31 has an axial extension substantially greater than the axial extension of the second edge 32.

[0029] The channel 3a is suitable for housing an edge of the base of the sound box 2. In particular, it is suitable for engaging said edge of the base of the sound box 2, preferably by interference. For this purpose, the radial distance between the edges 31 and 32 and, therefore, the radial width of the channel 3a is substantially no greater than the radial thickness of the sound box 2.

[0030] The counter-disk 3 comprises a plurality of modules that can be secured together in a conveniently firm manner.

[0031] Each module comprises a base 33 and connections 34 suitable for securing the base 33 between two adjacent bases 33 allowing the formation of the counter-disk 3.

[0032] The base 33 defines a sector of the channel 3a and a portion of each of said edges 31 and 32.

[0033] The base 33 may comprise a central body 33a and a central body 33a reinforcement 33b.

[0034] The central body 33a is made of polymeric material or wood.

[0035] The reinforcement 33b may be metallic.

[0036] Each connection 34 is suitable for securing a base 33 to a second base 33 preferably so that it can be released. It comprises a plate, suitably metallic, suitable for engaging to a connection 34 plate of an adjacent module 3. The engagement between said plates may be interlocking or using screws, bolts, or other similar solutions.

[0037] An exploded view of the modules is shown in Fig. 4.

[0038] Optionally the counter-disk 3 and, in particular, one of the modules comprises a coupling, not shown in the figure, suitable for allowing the fastening of a microphone or other instrument to the counter-disk 3.

[0039] The coupling is suitable for allowing the fastening of said instrument on the opposite side to the tensioning means 5 and, therefore, to the batter head 10.

[0040] The at least one securing bracket 4 is suitable for securing the counter-disk 3 to the sound box 2 firmly, allowing a passage of vibrations between the counter-disk 3 and the sound box 2 and, therefore, the resonance of the sound box 2.

[0041] The drum 1 preferably comprises a securing bracket 4 for each module.

[0042] A securing bracket 4 may be suitable for creating a fastening between the counter-disk 3 and the sound box 2 mechanically or, preferably, magnetically. It therefore comprises an attachment 41 that is integral with the sound box 2 and a magnet 42 suitable for securing, by magnetic attraction, the box 2 to the counter-disk 3.

[0043] The magnet 42 may be movable with respect to the attachment 41, and the securing bracket 4 may

comprise an actuator suitable for moving the magnet 42 with respect to the attachment 41 by varying the portion of the magnet 42 protruding from the attachment 41 between an active position, in which it can be engaged to the counter-disk 3, and an inactive position, in which it protrudes from the attachment 41 to a lesser extent than in the active position, so as not to be able to engage the counter-disk 3.

[0044] The actuator defines a direction of movement of the magnet 42 along a direction preferably substantially parallel to the longitudinal axis 1a.

[0045] It may be manual and, for example, a screw or other similar mechanism suitable for allowing the musician to manually move the actuator and, therefore, the magnet 42. Alternatively, the actuator is automatic and preferably electric and, therefore, requires a power supply, such as a battery. For example, it can be controlled by the operator via wireless control or, alternatively, it can be controlled by means of a special button.

[0046] The magnet 42 is suitable for engaging the base 33 and, more specifically, the reinforcement 33b.

[0047] It should be noted that in order to create a magnetic binding 4 between the counter-disk 3 and the sound box 2, the counter-disk 3 and, in particular, at least one of the modules is at least partially ferromagnetic. The base 33 and, more specifically, the reinforcement 33b is preferably ferromagnetic and in view of the sound box 2.

[0048] The tensioning means 5 are suitable for clamping the batter head 10 on the counter-disk 3 without engaging the sound box 2 and, therefore, leaving the same sound box 2 completely unloaded.

[0049] They are suitable for securing and tensioning the batter head 10 engaging the base 33 and, to be precise, the reinforcement 33b by unloading their forces onto it.

[0050] The tensioning means 5 may comprise an annular edge 51 axially integral with and protruding from the counter-disk 3 on the opposite side of the sound box 2; a rim 52 suitable for enclosing the skin 11 against the annular edge 51 and the ring 12 against the counter-disk 3; and braces 53 suitable for engaging the counter-disk 3 by pressing the rim 52 and consequently the ring 12 towards the counter-disk 3 so as to tension the skin 11.

[0051] The braces 53 are suitable for engaging the base 33 and, preferably, the reinforcement 33b.

[0052] They can be screws.

[0053] The tensioning means 5 may be of a known type.

[0054] The operation of the drum 1, previously described in structural terms, is as follows. When the drum 1 has to be mounted, the musician first composes the counter-disc 3, engaging the bases 33 to each other by means of the connections 34. Then the musician fastens the batter head 10 to the counter-disk 3 and, to be precise, rests the skin 11 on the annular edge 51 and the rim 52 on the ring 12, so that the skin 11 is enclosed between the rim 52 and the edge 51, and the ring 12 between the rim 52 and the counter-disk 3.

[0055] Finally, the musician engages the braces 53 to the reinforcement 33b by adjusting the skin 1 to the desired tension.

[0056] The drum 1 is completed by inserting an edge of the sound box 2 into the channel 3a and bringing one or more of the securing brackets 4 into the active position so as to make the set integral with the sound box 2 (Fig. 2-3), the set consisting of the counter-disk 3, the batter head 10, and the tensioning means 5.

[0057] Finally, when the musician wishes, for example, to store or transport the drum 1, s/he can simply inactivate one or more of the securing brackets 4 by separating said set from the sound box 2 without altering the desired tension of the batter head 10. The drum 1, according to the invention, achieves important advantages.

[0058] In fact, unlike known drums, the drum 1 is much more practical.

[0059] This aspect is determined, in the first instance, by its having introduced a counter-disk 3 that is structurally separated from the sound box to which the batter head 10 is secured, allowing the separation of the batter head 10 from the sound box 2 without altering the bracing of the skin 11.

[0060] Therefore, the drum 1 can be separated into two parts (a hollow cylinder, i.e. the sound box 2, and the set consisting of the counter-disk 3, the batter head 10, and the tensioning means 5) allowing easier transport and handling of the drum 1.

[0061] In addition, said two-piece separation of the drum 1 reduces the stress on the sound box, thus increasing its service life.

[0062] Other advantages are the fact that the tensioning means 5 release their forces onto the reinforcement 33b, i.e. onto a component specially designed to withstand such stresses, ensuring the longer life of the drum 1.

[0063] The current systems, despite being efficient and accurate in the process of bracing and tuning, are not designed for frequent detachment of the skins, making this process slow and cumbersome.

[0064] The ability to quickly detach the skins would allow a reduction in the overall dimensions of the instrument during transport, providing the possibility of adopting a "Russian doll" configuration during the storage phases by arranging the drums concentrically.

[0065] Today's quick-release systems are complex and expensive and are not a solution that can be implemented on any battery model.

[0066] The invention is susceptible of variations falling within the scope of the inventive concept as defined by the claims.

[0067] For example, the attachment 41 can be integral with the counter-disk 3 and, therefore, the magnet 42 can be used to engage the sound box 2 and in particular the ferromagnetic plugs of the sound box 2.

[0068] In another example, the drum 1 may have a resonating membrane suitable for being placed on the opposite side of the batter head 10 with respect to the

sound box 2. In this case, the drum 1 may comprise an additional counter-disk that is also structurally separated from the box 2; an additional securing bracket suitable for securing the additional counter-disk to the sound box 2; and additional tensioning means suitable for securing the resonating membrane to the additional counter-disk by tensioning the same resonating membrane.

[0069] The additional counter-disk may be substantially similar to the counter-disk 3 described above.

[0070] The additional securing bracket may be substantially similar to the securing bracket 4 described above.

[0071] The additional tensioning means may be substantially similar to the tensioning means 5 described above.

[0072] These examples may be mutually implemented.

[0073] In this context all the details may be replaced with equivalent elements and the materials, shapes and dimensions may be as desired.

Claims

1. A drum (1) comprising:
 - a sound box (2);
 - and **characterized in that** it comprises
 - a counter-disk (3) structurally separated from said sound box (2);
 - at least one releasable securing bracket (4) of said counter-disk (3) to said sound box (2); and
 - tensioning means (5) suitable for securing a batter head (10) to said counter-disk (3) by tensioning said batter head (10).
2. The drum (1) according to claim 1, wherein said at least one securing bracket (4) is suitable for forming a magnetic binding between said counter-disk (3) and said sound box (2).
3. The drum (1) according to at least one preceding claim, wherein said counter-disk (3) comprises a plurality of mutually securable modules.
4. The drum (1) according to claim 3, wherein said module comprises bases (33) each of which is suitable for engaging said tensioning means (5) and said at least one fastening (4) and connections (34) suitable for securing each of said bases (33) between two adjoining of said bases (33).
5. The drum (1) according to claim 4, wherein each of said bases (33) comprises a central body (33a) and a reinforcement (33b) of said central body (33a).
6. The drum (1) according to claim 4, wherein said securing bracket (4) is suitable for securing said coun-

ter-disk (3) to said sound box (2) by engaging said reinforcement (33b).

7. The drum (1) according to at least one claim 4-5,
wherein said tensioning means (5) are suitable for
securing a batter head (10) to said counter-disk (3)
by engaging said reinforcement (33b). 5
8. The drum (1) according to at least one preceding
claim, wherein said counter-disk (3) comprises an
engaging channel (3a) of said sound box (2) to said
counter-disk (3). 10
9. The drum (1) according to claim 8, wherein said
channel (3a) is suitable for engaging said sound box
(2) by interference. 15

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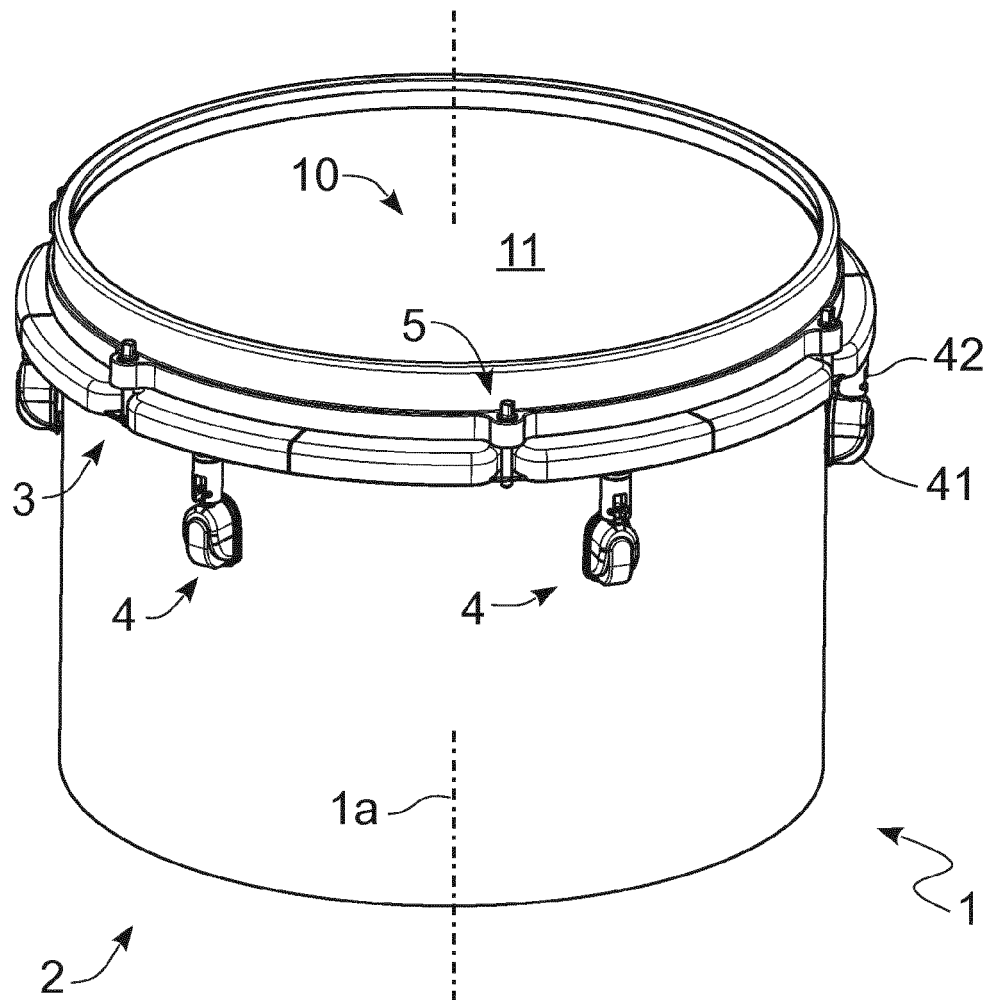


Fig. 1

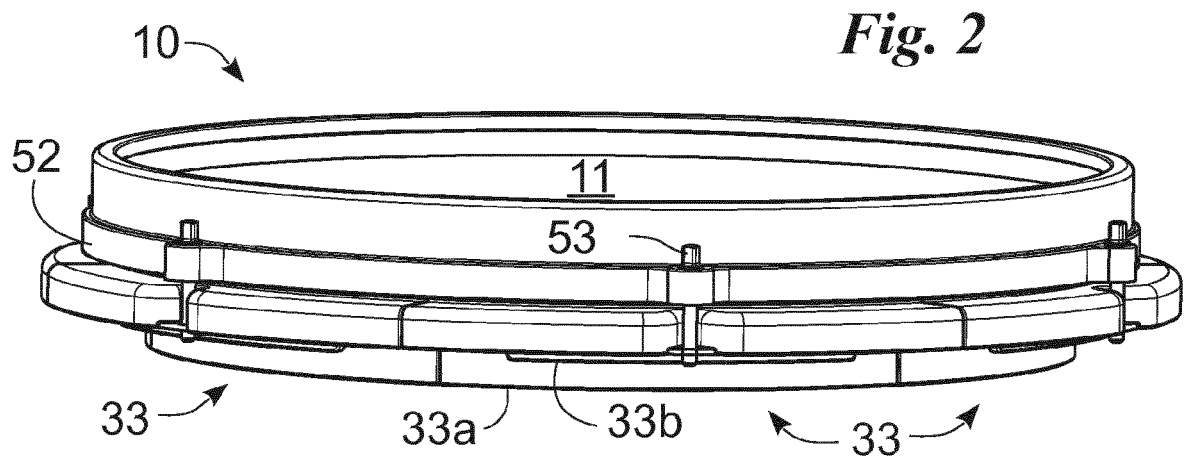


Fig. 2

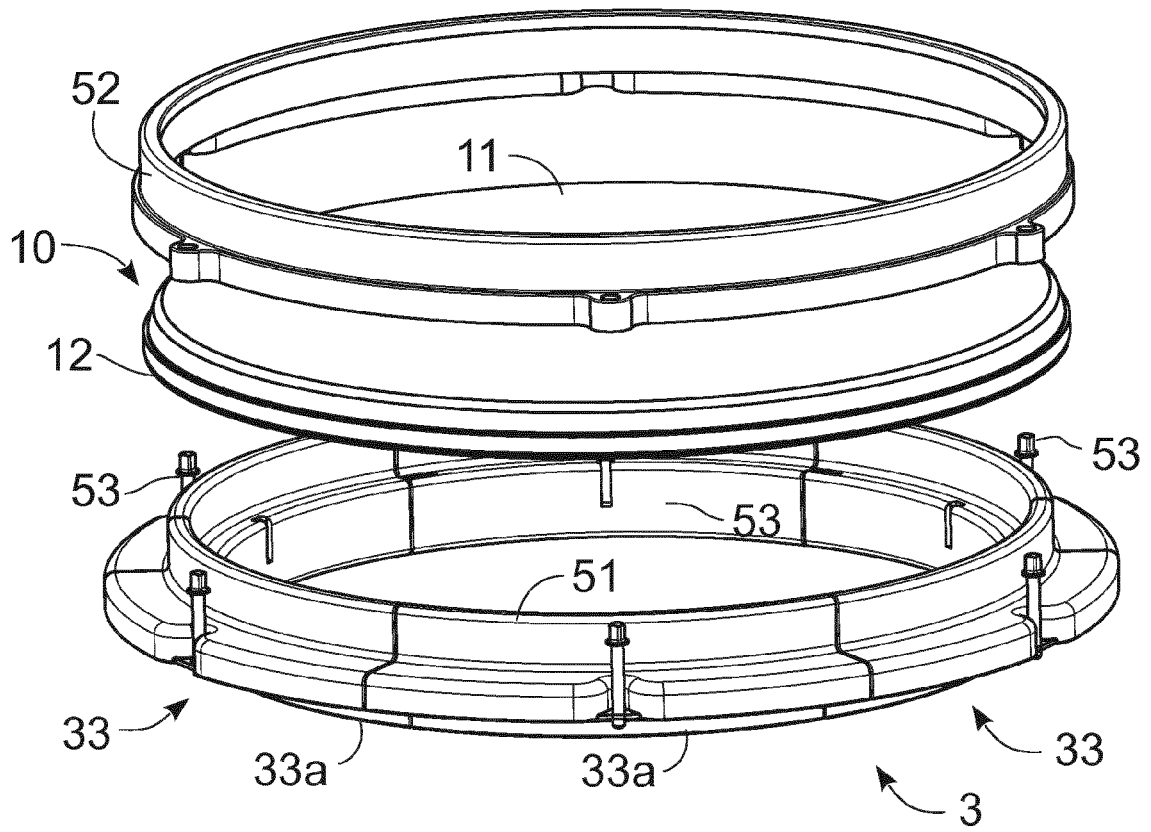


Fig. 3

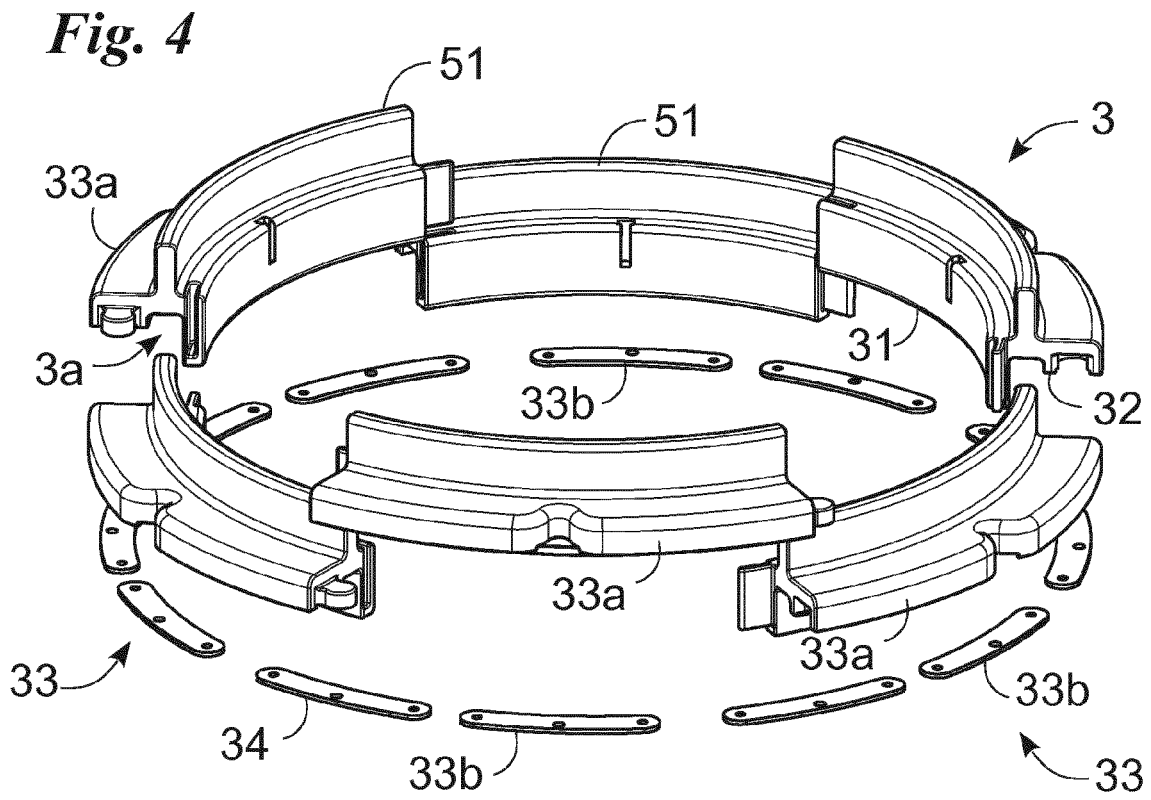


Fig. 4