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- (54) Benævnelse: **ANORDNING TIL FORMALING OG BLANDING AF URTER OG/ELLER TOBAK OG/ELLER
KRYDDERIER, FREMSTILLING OG FYLDNING AF CIGARETTER OG METODE TIL BRUG DERAFT**
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DESCRIPTION

[0001] The subject of the invention is a device for grinding and mixing of herbs and/or tobacco and/or spices, preparing and dispensing of cigarettes. The subject of the invention is also the method for the application of the device.

[0002] The state of the art includes the following solutions. South-Korean patent application no. KR101730333 B1 discloses a cigarette manufacturing apparatus including a tobacco leaf supply unit, a cutter unit to cut the tobacco leaves, and a cigarette production unit. The invention is also equipped with a pressurizing rod for pressurizing the supplied tobacco leaves, and a finishing rod for closing the tip of the packed tobacco after pressurization. The disadvantage of the solution is the size of the apparatus and the fact that the apparatus is not portable.

[0003] As customers show growing interest in self-made tobacco articles, many patents are disclosing kits and devices for home-made cigarette production. US patent application no. US6041921 A discloses a portable, foldable wallet-like kit for storing smoking apparatus including a storage unit for tobacco and accessories for manually making cigarettes. The invention does not have a grinder unit and the process of making the cigarettes is not automated.

[0004] The US patent application no. US2017035105 A1 describes a portable smoking utensil holder and kit. The holder can store and grind the tobacco leaves, and a built-in or a removable lighter is optionally included in the kit. According to the description, additional utensils may be stored within the utensil holder, such as picks or pipe. The device may have audio effects corresponding with the particular action being performed. However, the device is not able to fill or roll cigarettes.

[0005] The US patent application no. US9565972 B1 discloses a small sized portable grinder for herbs, coffee, tobacco, etc. The grinder can optionally host a storage unit to store the shredded tobacco. The device can be charged through a USB port. The grinder may also be equipped with lighting means. This device also does not offer a solution to properly mix the different ground herbs and fill them in a cigarette.

[0006] Another rechargeable electric herb grinder is described in US patent application no. US2010301806 A1. In the housing of the electric grinder several compartments are formed, and the compartments are attachable to each other along a separating joint. The portable device can be charged via a USB port or alternatively, adapters for wall power outlets and car power outlets/cigarette lighters can be utilized to provide the external power. This grinder device also cannot mix the ground herbs or fill cigarette cones. A similar device with the same disadvantage is disclosed in the utility model no. CN204032372 U, introducing a portable tobacco grinder having a cylindrical outer shell with storage functions.

[0007] An easy-to-use electric tobacco grinding device is disclosed in Chinese utility model no. CN201135126 Y. The transparent cover of the device enables inspection of the grinding process. This tobacco grinder has the same disadvantages not being able to mix the ground herbs and fill the cigarette cones.

[0008] The US patent application no. US2016000143 A1 introduces a smoking kit hidden in a toy, namely a bear-shaped figure. The inside of the toy consists of several compartments that can store, preserve, and grind tobacco. The invention is provided with a hollow outer case, the lower part of the mentioned outer case receives and stores the paper roll, tobacco, grinder and cooling tray. This device also lacks functions such as mixing the ground herbs or preparing cigarettes. The Chinese utility model no. CN203194527 U discloses a multi-functional cigarette holder including a tobacco reservoir. The device can optionally include a grinder and it is able to roll cigarettes, but only one cigarette at a time.

[0009] The US patent application no. US2015298135 A1 describes a device closest to the present invention. The said US patent discloses a grinding apparatus for tobacco to satisfy the need for hand-made and custom-made tobacco and related products. The device can store the ground tobacco and fill cigarette cones with it. The disadvantage of this invention is that it does not make precise filling possible. Furthermore, another disadvantage is that every step has to be started manually and that the device cannot mix the herbs properly.

[0010] US patent application no. US2014261471A1 relates to an apparatus and method for grinding material and depositing the ground material into cigarette papers. The invention does not include either a mixing unit or a mixing chamber and is not equipped with a motor. The grinder has a window for viewing the interior of the second grinding unit but dispensing of a cigarette is not possible through this window. The apparatus comprises a separator similar to a sieve, connected to the grinder and configured to receive the ground material and separate large ground material from small ground material. The invention is only able to handle one material, preferably tobacco, as it cannot mix more types of materials.

[0011] Many solutions in the prior art are able to grind various herbs but cannot mix the herbs properly or fill cigarette cones and roll cigarettes. The devices that have cigarette rolling functions require quite a lot user interaction along the process.

[0012] The problem to be solved is to avoid as many user interactions as possible from the process of making cigarettes and create said device. The device to be created is able to store, grind and mix herbs and/or tobacco and/or spices, fill multiple cigarette papers to prepare ready cigarettes, and dispense the cigarettes to the user with a single press of a button.

[0013] The purpose of the invention is to eliminate the faults of known solutions and to provide a compact, easy-to-use device for making ready cigarettes from herbs and/or tobacco and/or spices.

[0014] The inventive step is based on the recognition that it is advantageous to automate

every single step of a hand-made or hand-rolled cigarette including grinding herbs/spices/tobacco, mixing them properly and filling the mixed herbs into pre-rolled cigarette papers placed in tubes and also dispensing the ready cigarettes to the user.

[0015] The presented device has numerous advantages. The device reduces user interaction, as it can be operated by a single press of a button, and then the device grinds and mixes the herbs/spices/tobacco and fills the pre-rolled cigarette papers placed in the tubes and dispenses the ready cigarettes. Instead of a button, the device can be controlled through a user interface of a mobile application or software, which makes the use of the device even more convenient. Controlling the device through wireless connection, for example Bluetooth is also possible. Through such a user interface, the user can also monitor his or her smoking habits. Furthermore, the device can be equipped with safety measures, such as a child lock to prevent children to reach the content of the device, or the device can include a time lock to prevent too frequent use. As such, this aesthetically designed device can be a great help for someone in the way of quitting smoking. The device is chargeable and portable, and also has the advantage of being protected from total dust ingress and water spray from any direction. The device may also comprise a display for displaying all the necessary information such as time, status of power supply, the number of filled tubes, the weight of the herbs/spices/tobacco inside one of the chambers, etc. The tubes are removable for easy storage of the prepared cigarettes for portability.

[0016] According to the above purpose, the most general implementation form of the solution according to the invention is described in claim 1. The most general form of the procedure of use is described in claim 11. The individual implementation forms are described in the subclaims.

[0017] The solution in general is a device for grinding and mixing of herbs and/or tobacco and/or spices, preparing and dispensing of cigarettes, the device comprising a grinding chamber for holding and grinding the herbs and/or tobacco and/or spices, wherein the grinding chamber has a top, a plurality of tubes for holding pre-rolled cigarette papers and receiving ground herbs and/or tobacco and/or spices, a carousel, which is rotatable around a central axis and is located within carousel cover, the grinding chamber is equipped with a grinder unit, the grinder unit is connected to a motor, the motor being capable of driving the grinder unit, a tray for delivering the ground herbs and/or tobacco and/or spices into pre-rolled cigarette papers placed in one tube or in plurality of tubes, the tray is located above the carousel, a power supply connected to the motor, said power supply is located in a bottom cover, A feature of the invention is that the device further comprises a mixing chamber for mixing the herbs and/or tobacco and/or spices, which is located below the grinding chamber, a mixing unit located in the mixing chamber and connected to the motor via a drive shaft, at least one door on the carousel cover for dispensing one tube or a plurality of tubes with the filled pre-rolled cigarette paper, wherein the carousel comprises a plurality of tube holders for holding the tubes, the tray is located below the mixing chamber, the carousel cover is mounted on the bottom cover, the mixing chamber is mounted on the carousel cover, the grinding chamber is mounted on the mixing chamber.

[0018] In another implementation form, the grinder unit is equipped with at least two grinding gears, the grinder unit and/or the mixing unit is connected to a controlling unit for controlling the operation of the grinder unit and/or the mixing unit; the controlling unit is placed below the motor and/or the controlling unit is a wirelessly connected software or application and/or the controlling unit is a button or connected to a button located on the mixing chamber.

[0019] In a different embodiment, the mixing unit comprises a nozzle, the tray comprises at least one cone for accommodating the nozzle.

[0020] In another embodiment, the number of tube holders placed in the carousel is between 2-20, preferably ten; the number of tubes is equal or less than the number of tube holders in the carousel. In other embodiments the number of tube holders and tubes can be even more than twenty.

[0021] In another possible embodiment, the diameter of the tubes is 5-40 mm, preferably 10-24 mm; the length of the tubes is 5-20 cm, the maximum length preferably being 11 cm; the height of the carousel is equal or more than the length of the tubes. In other embodiments the diameter and the length of the tube can be even more. When preparing cigarettes with less herbs/tobacco/spices in it, it is also possible to use shorter tubes as well. The device makes it possible to prepare shorter and longer cigarettes at the same time, using different sizes of tubes in the carousel at the same time.

[0022] In a different embodiment, the top is removably connected to the grinding chamber and/or the top comprises a button. As an example, the top can be connected to the grinding chamber with a hinge.

[0023] In another possible embodiment, the grinding chamber and/or the mixing chamber and/or the carousel is equipped with a scale.

[0024] In another possible embodiment, the carousel is equipped with a vibrating element and/or a carousel motor, the carousel is driven by the carousel motor.

[0025] In another implementation form, the device further comprises a display preferably placed on the bottom cover.

[0026] The general application of the invention includes the steps of adding herbs and/or tobacco and/or spices to the grinding chamber, grinding said herbs and/or tobacco and/or spices with the grinder unit, placing pre-rolled cigarette papers into one tube or in plurality of tubes, forwarding the ground herbs and/or tobacco and/or spices to the carousel and filling at least one pre-rolled cigarette paper with the ground herbs and/or tobacco and/or spices. The feature of the general method is that after grinding and before forwarding the ground herbs and/or tobacco and/or spices to the carousel the method further includes the steps of forwarding the ground herbs and/or tobacco and/or spices to the mixing chamber, and then

mixing the ground herbs and/or tobacco and/or spices with the mixing unit in the mixing chamber thus creating a mixture, after filling at least one pre-rolled cigarette paper with the mixture, the method further continues with the steps of rotating the carousel around the central axis to move one or more tubes with the filled pre-rolled cigarette papers to at least one door, and then dispensing said one or more tubes with the filled pre-rolled cigarette papers through one or more doors. Filling might mean filling fully or also filling partially. The carousel can rotate with or without the tray.

[0027] Another feature of the method may be that it further includes the steps of controlling the operation of the grinder unit and/or the mixing unit with controlling unit, and setting the speed of mixing unit and/or grinder unit with the controlling unit.

[0028] Another feature of the method may be that after dispensing one or more tubes with the filled pre-rolled cigarette papers, the method continues with grinding the remaining herbs and/or tobacco and/or spices in the grinding chamber with the grinder unit.

[0029] The method may further include the step of stopping the grinder unit when the mixing chamber is full.

[0030] Another different feature of the method may be that after filling at least one pre-rolled cigarette paper with the mixture, it further includes the step of compressing said mixture in at least one pre-rolled cigarette paper and/or vibrating at least one tube with the vibrating element.

[0031] Another possible feature of the method may be that it further includes the step of measuring the weight of the herbs and/or tobacco and/or spices placed in the grinding chamber and/or the weight of the mixture in the mixing chamber and/or the weight of the mixture filled in the pre-rolled cigarette papers.

[0032] The invention is presented in more detail by examples of implementation, using drawings. On the following drawings,

Figure 1 shows the exploded-view of one embodiment of the device,

Figure 2 shows the perspective view of one embodiment,

Figure 3 shows the details of the carousel,

Figure 4 shows a tube in side-view,

Figure 5 shows the carousel in side-view,

Figure 6 shows a perspective view of the grinding chamber and the grinder unit,

Figure 7 shows a section drawing of the grinding chamber and the grinder unit,

Figure 8 shows a perspective view of the grinder unit,

Figure 9 shows a magnified detail of the mixing unit,

Figure 10 shows a section drawing of the mixing chamber and the mixing unit, and

Figure 11 shows a perspective view of the mixing chamber and the mixing unit.

[0033] Figure 1 is the exploded-view of one embodiment of the device illustrating all major elements of it. Top 1 is the cover of the grinding chamber 2, which can be filled with e.g. herbs, spices or tobacco. Optionally, between the top 1 and the grinding chamber 2 seals can be used to make the device odor proof, and also to preserve the aromas of the herbs/spices/tobacco (hereinafter herbs). Top 1 may be equipped with a button. On the bottom of the grinding chamber 2 there is a grinder unit 3 located to cut or grind the herbs. Under the grinder unit 3 a mixing unit 4 is located to properly mix the ground herbs. The mixing unit 4 is placed in a mixing chamber 5, where the ground and mixed herbs are stored. Preferably the capacity of the grinding chamber 2 and the mixing chamber 5 is similar. Below the mixing chamber 5 a tray 6 is installed. The tray 6 is designed to have several cones 21. The cones 21 help transferring the ground and mixed herbs to pre-rolled cigarette papers 17 in one tube 9 or into a plurality of tubes 9. The tubes 9 are held by the tube holders 14 located in the carousel 10. The carousel 10 is placed in carousel cover 8. According to this embodiment the carousel cover 8 is equipped with one door 7 where the loaded cigarettes are dispensed. In other embodiments the carousel cover 8 can be equipped with more than one door 7. The door 7 can be made of transparent materials for enabling the user to inspect the filling process. Below the carousel 10 a carousel motor 23 is placed to drive the carousel 10. The carousel motor 23 is powered by a power supply 12 and is able to rotate the carousel 10 around the central axis 16. The device includes another motor 11 for driving and rotating the gears of the grinder unit 3 and the mixing unit 4 through drive shaft 15. The motor 11 is powered by a power supply 12 that can be a battery, a rechargeable battery, etc., and is located below the carousel 10 and the carousel motor 23. Below the motor there is a controlling unit 24, which can be equipped with Bluetooth communication tool thus making wireless controlling possible. The controlling unit 24 controls the operation of the grinder unit 3 and/or the mixing unit 4, but the controlling unit 24 might also be a wirelessly connected software or application and/or a button located on the mixing chamber 5. For easier and more precise filling, the grinding chamber 2 and/or the mixing chamber 5 and/or the carousel 10 can be equipped with a scale 22. In this embodiment the scale 22 is located below the controlling unit 24. The scale is also able to measure the exact amount of herbs used in the process and to be filled into the tubes 9. Sensors may also be applied to make more precise filling possible. On the bottom cover 13 there is a display 25 located for displaying necessary information such as time, status of power supply 12, the number of filled tubes 9, the weight of the herbs/spices/tobacco inside one of the chambers, etc. From the bottom side, the device is closed by a bottom cover 13. The bottom cover 13 covers the motor 11 and the carousel motor 23, the controlling unit 24, the scale 22 and the power supply 12. The top 1, the grinding chamber 2, the mixing chamber 5, the carousel cover 8 and the bottom cover 13 are connected, so these parts are forming the outer shell of the

device. The connecting elements can be disconnected from one another for easier maintenance and cleaning, for example by rotating. The connecting elements can be equipped with seals for the device to be odor proof. The device can also be equipped with at least one button to start an action such as grinding or mixing or a series of actions, for example from grinding to filling the tubes with herbs. The device can also include a child lock mechanism for safety reasons. Further embodiments of the device may include indicator lights to show the progress and/or the status of the power supply 12 and/or the amount of the remaining herbs. Display 25 and indicator lights can be used at the same time. Instead of indicator lights, notifications may also be forwarded to the user interface as well through wireless communication.

[0034] Figure 2 shows the perspective view of the embodiment of Fig. 1. The outer shell of the device is formed by the top 1, the grinding chamber 2, the mixing chamber 5, the carousel cover 8 and the bottom cover 13, where each part is connected to the neighboring parts. Figure 2 illustrates the step when a tube 9 is being dispensed through the door 7 of the carousel cover 8. After the tube 9 is dispensed with the at least partially filled pre-rolled cigarette paper 17 in it, the user can take the cigarette out of the tube 9, or take the whole tube 9 and use the tube 9 as a portable storage of the cigarette. The tube 9 is being held by a tube holder 14. The display 25 is also illustrated on this drawing, the display 25 is on the bottom cover 13 for displaying information to the user.

[0035] Figure 3 shows the details of the carousel 10 having ten tubes 9. The carousel 10 has tube holders 14 for holding and moving the tubes 9. One tube holder 14 holds one tube 9. The tube holder 14 can move a tube 9 to the door 7 and then dispense a tube 9 through the door 7 once the pre-rolled cigarette paper 17 placed in the tube 9 is at least partially filled, and optionally shook and/or compressed, and the tube holder 14 moves with the tube 9. The number of tubes 9 being held by tube holders 14 can vary between one and twenty, preferably between two and twenty, but can be even more too. The number of tubes 9 is equal or less than the number of tube holders 14. In the embodiment shown on the drawings there are ten tubes 9 held by ten tube holders 14. Above the tubes 9 there is a ring-shaped tray 6, the tray 6 is placed between the mixing chamber 5 and the carousel 10. The tray 6 comprises at least one cone 21. The embodiment shown on this figure has ten cones 21. The tubes 9 are able to accommodate said cones 21, and the filling process is done through those cones 21. More pre-rolled cigarette papers placed in the tubes 9 may be filled at the same time but are preferably filled one by one. The tray 6 and the carousel 10 can rotate around central axis 16.

[0036] Figure 4 is the side-view of a tube 9, when a pre-rolled cigarette paper 17 is placed in said tube 9. The pre-rolled cigarette paper 17 may have the shape of a cone or a duct. Placing pre-rolled cigarette paper 17 in the tubes 9 makes it possible to precisely prepare and then dispense a ready cigarette containing any spices, herbs or tobacco in a very short time. The tube 9 may have a cap for closing said tube 9, and the shape of the tube 9 can be cone or a duct. The diameter of the pre-rolled cigarette paper 17 is usually between 5-30 mm, preferably 10-28 mm, but can be even more. The length of the pre-rolled cigarette paper 17 is usually between 84-280 mm but can also be longer.

[0037] Figure 5 shows the carousel 10 in side-view. As seen on the previous figure, the carousel 10 has tube holders 14 for holding the tubes 9. The embodiment shown on this drawing has ten tube holders 14 and ten tubes 9, and furthermore includes a vibrating element 18 located below the carousel 10 for vibrating the tubes 9, thus shaking the herbs/spices/tobacco in the tubes 9. The vibrating element 18 can be driven by the carousel motor 23. Above the carousel 10 one can see the tray 6 having cones 21 for transferring the mixed and ground herbs/spices/tobacco into one or a plurality of pre-rolled cigarette papers 17 placed in the tubes 9. The diameter of the tubes 9 is 5-40 mm, preferably 10-24 mm, but can be even more; the length of the tubes 9 is 5-20 cm, but can be even more, the maximum length preferably being 11 cm. The height of the carousel 10 is equal or more than the length of the tubes 9.

[0038] Figure 6 and figure 7 show the grinding chamber 2 and the grinder unit 3, while figure 8 shows a perspective view of the grinder unit 3. The grinder unit 3 is equipped with at least two gears 19 and has blades or grinding teeth inside. The grinder unit 3 is connected to the motor 11 through the mixing unit 4 and the drive shaft 15 of the motor 11. The grinder unit 3 is located below the grinding chamber 2, said grinding chamber 2 is capable of holding the herbs/spices/tobacco before grinding them. The grinding chamber 2 may have a removable top cover and might be equipped with a button. The herbs/spices/tobacco fall from the grinding chamber 2 to the grinder unit 3 to be ground, and then the ground herbs/spices/tobacco fall to the mixing chamber 5.

[0039] Figure 9 shows detail A, which is a magnified detail of the mixing unit showing the grinder transmission between the grinder unit 3 and the mixing unit 4. The mixing chamber 5 is also shown on the drawing.

[0040] Figure 10 and 11 give a closer look of the mixing chamber 5 and the mixing unit 4. The mixing unit 4 mixes the herbs and/or tobacco and/or spices properly. The mixing chamber 5 is located below the grinding chamber 2, and holds similar amount of herbs/spices/tobacco as loaded above in the grinding chamber 2. In essence, ideally, all herbs/spices/tobacco gets ground at the same time to ensure a perfect proportional mix of the different herbs/spices/tobacco put in grinding chamber 2. However, in case there is more herbs/spices/tobacco in the grinding chamber 2 than the capacity of the mixing chamber 5, it is advisable to be more cautious and add the herbs/spices/tobacco to the mixing chamber 5 in more portions, or, when the mixing chamber 5 is full, stopping the grinding process automatically so that no more herbs/spices/tobacco fall into the mixing chamber 5. Then the grinding process can be started again when the mixing chamber 5 is empty again, or when one or more tubes 9 are already filled. The filling can also mean filling partially. The mixing unit 4 is located in the mixing chamber 5 and is connected to the motor 11 via the drive shaft 15 of said motor 11. The mixing unit 4 comprises a nozzle 20, which can be accommodated by a cone 21 of the tray 6. The filling process is being fulfilled through said nozzle 20. In another embodiment, the mixing chamber 5 could have a transparent window for watching the mixture.

[0041] The steps of the method for the application of the device are as follows. Firstly, the user may open the top 1 and fill the grinding chamber 2 with selected herbs such as cannabis, and/or tobacco and/or spices. Any combination of those is possible. After closing the top 1, the device grinds the herbs and/or tobacco and/or spices with the grinder unit 3. The grinder unit 3 has grinding teeth or blades for this purpose and is located below the grinding chamber 2. The grinder unit 3 is operated by the motor 11. The grinding can start at a press of a button, or in some embodiments grinding can be initiated through wireless connection for example by software or a mobile application. After grinding the ground herbs and/or tobacco and/or spices fall into the mixing chamber 5, where the mixing unit 4 properly mixes the herbs and/or tobacco and/or spices. When the mixing chamber 5 is full, the grinder unit 3 automatically stops grinding. When the level of the mixed herbs and/or tobacco and/or spices (hereinafter mixture) reduces in the mixing chamber 5, the grinding starts again automatically. The process of mixing can start automatically after grinding or be initiated by separate user interaction, for example by pushing a button, or by closing the grinding chamber 2 with the top 1, or by instructing the mixing unit 4 with the controlling unit 24. The speed of the grinder unit 3 and/or the mixing unit 4 may be set and may be changed with a controlling unit 24. The mixture is stored in the mixing chamber 5, ready to be used for filling. Before performing the next step, which is the filling, it is necessary to place as many pre-rolled cigarette papers 17 into as many tubes 9, as many cigarettes the user would like to prepare. The process of filling the pre-rolled cigarette papers 17 placed in the tubes 9 can be started by user interaction, and the user can indicate the amount of cigarettes or joints to be filled from one to the maximum capacity of the device. In the embodiment of Fig. 1 the maximum capacity at the same time is ten cigarettes. When filling the pre-rolled cigarette papers 17 placed in the tubes 9 it is possible to fill them only partially, for example by halving the amount of herbs and/or tobacco and/or spices. For this reason, the user can also use shorter tubes 9; or additional sensors for sensing when to stop the filling of the pre-rolled cigarette papers 17 in the normal sized tubes 9. The user interaction can be a press of a button or a command through a wireless communication by software or mobile application, or an instruction from the controlling unit. Once the filling process is initiated, the mixture is loaded into one or more pre-rolled cigarette papers 17 placed in the tubes 9. In one embodiment the device can only load one tube 9 at a time, then if more cigarettes have to be filled, the carousel motor 23 rotates the carousel 10, so after one pre-rolled cigarette paper in one tube 9 is filled, an empty tube 9 with an empty pre-rolled cigarette paper 17 inside is rotated below the cone 21 of the tray 6. The rotation continues till the selected amount of tubes 9 is properly and at least partially filled. Depending on the purpose, the tray 6 and the carousel 10 can rotate together or separately. In other embodiments the tray 6 has more cones 21, preferably the amount of cones 21 and tubes 9 are the same, allowing the carousel 10 and the tray 6 rotating together, and thus the selected amount of tubes 9 can be filled simultaneously. After filling, the device ejects the filled tubes 9 with the ready cigarettes inside through the door 7 of the carousel cover 8. If more than one tube 9 was filled, the device dispenses the tubes 9 one-by-one in sequence by rotating the carousel 10. Dispensing another filled tube 9 may also be initiated by pushing a button. The carousel 10 is driven by the carousel motor 23 or the motor 11, which are powered by the power supply 12. Optional steps, like measuring the weight of the herbs and/or tobacco and/or spices placed in the grinding chamber 2 and/or the weight of the mixture in the mixing chamber

5 and/or the weight of the mixture filled in the pre-rolled cigarette papers 17; or compressing the mixture in at least one pre-rolled cigarette paper 17 and/or vibrating at least one tube 9 with the vibrating element 18 is also possible. The method can be started over from grinding automatically. When the grinding chamber 5 becomes empty, the user may add any herbs and/or tobacco and/or spices, and then the process can start again from the beginning. The different steps of the process can be performed and started automatically or by user's interaction as well.

[0042] The invention is not restricted to the above-described embodiment. In addition to the above examples, the invention may be implemented within the scope of protection in other forms, the scope of protection being defined by the appended claims.

REFERENCES CITED IN THE DESCRIPTION

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**ANORDNING TIL FORMALING OG BLANDING AF URTER OG/ELLER TOBAK OG/ELLER
KRYDDERIER, FREMSTILLING OG FYLDNING AF CIGARETTER OG METODE TIL BRUG
DERAF**

Patentkrav

1. Anordning til formaling og blanding af urter og/eller tobak og/eller krydderier, samt fremstilling og fyldning af cigaretter, hvor anordningen omfatter

et formalingskammer (2) som indeholder og formaler urter og/eller tobak og/eller krydderier, kendetegnet ved, at formalingskammeret (2) har en top (1),

flere rør (9) der indeholder allerede rullet cigaretpapir (17) og som bruges til fyldning med formalede urter og/eller tobak og/eller krydderier,

en karrusel (10), der kan dreje sig omkring en midterakse (16) og er placeret under en karruseldækning (8),

formalingskammeret (2) er udstyret med en formalingsenhed (3), formalingsenheden (3) er forbundet med en motor (11), hvilken motor (11) kan drive formalingsenheden (3), en bakke (6) til indlevering af de formalede urter og/eller tobak og/eller krydderier i allerede rullet cigaretpapir (17), der er placeret i et rør (9) eller i flere rør (9), hvor bakken (6) er placeret oven for karrusellen (10),

en strømforsyning som er (12) tilsluttet motoren (11), hvor fornævnte strømforsyning (12) sidder under en dækning i bunden (13),

kendetegnet ved, at karruseldækningen (8) er installeret på bunddækningen (13),

kendetegnet ved, at den videre omfatter

et blandingskammer (5) til blanding af urter og/eller tobak og/eller krydderier, som er placeret under formalingskammeret (2),

en blandingsenhed (4) placeret i blandingskammeret (5) og tilsluttet motoren (11) via en drivaksel (15),

mindst én låge (7) på karruseldækningen (8) til fyldning af et rør (9) eller flere rør (9) med fyldt allerede rullet cigaretpapir (17), kendetegnet ved, at

karrusellen (10) omfatter flere rørholdere (14) til at holde rørene (9), bakken (6) er placeret under blandingskammeret (5),

blandingskammeret (5) er monteret på karruseldækningen (8),

formalingskammeret (2) er monteret på blandingskammeret (5).

2. Anordningen i overensstemmelse med patentkrav 1, **kendetegnet ved, at** formalingsenheden (3) er udstyret med mindst to formalingsgear (19), formalingsenheden (3) og/eller blandingsenheden (4) er tilsluttet en styringsenhed (24) til styring af betjeningen af formalingsenheden (3) og/eller blandingsenheden (4); styringsenheden (24) er placeret under motoren (11) og/eller styringsenheden (24) er en trådløst tilsluttet

software eller applikation og/eller styringsenheden (24) er en knap eller tilsluttet en knap, der sidder på blandingskammeret (5).

3. Anordningen i overensstemmelse med patentkrav 1 eller 2, **kendetegnet ved, at** blandingsenheden (4) omfatter a dyse (20), bakken (6) omfatter mindst en kegle (21) til at rumme dysen (20).

4. Anordningen i overensstemmelse med hvilket som helst af patentkrav 1-3, **kendetegnet ved, at** antallet af rørholdere (14) placeret i karussellen (10) er 2-20, helst 10; antallet af rør (9) er lig med eller mindre end antallet af rørholdere (14) i karussellen (10).

5. Anordningen i overensstemmelse med hvilket som helst af patentkrav 1-4, **kendetegnet ved, at** rørene (9) diameter er 5-40 mm, helst 10-24 mm; længden på rørene (9) er 5-20 cm, hvor længden helst skal være maksimalt 11 cm; højden på karussellen (10) er lig med eller større end længden på rørene (9).

6. Anordningen i overensstemmelse med hvilket som helst af patentkrav 1-5, **kendetegnet ved, at** toppen (1) er aftageligt forbundet med formalingskammeret (2) og/eller toppen (1) omfatter en knap.

7. Anordningen i overensstemmelse med hvilket som helst af patentkrav 1-6, **kendetegnet ved, at** formalingskammeret (2) og/eller blandingskammeret (5) og/eller karussellen (10) er udstyret med en vægt (22).

8. Anordningen i overensstemmelse med hvilket som helst af patentkrav 1-7, **kendetegnet ved, at** karussellen (10) er udstyret med et vibrerende element (18) og/eller en karruselmotor (23), karussellen (10) drives af karusselmotoren (23).

9. Anordningen i overensstemmelse med hvilket som helst af patentkrav 1-8, **kendetegnet ved, at** den yderligere omfatter en skærm (25) helst placeret på bunddækningen (13).

10. Anordningen i overensstemmelse med hvilket som helst af patentkrav 1-9, **kendetegnet ved, at** rørene (9) er aftagelige, så cigaretterne er flytbare, og er udstyret med hætter.

11. Metoden til anvendelse af anordningen i overensstemmelse med patentkrav 1, herunder trin til tilførsel af urter og/eller tobak og/eller krydderier til formalingskammeret (2),
formaling af disse urter og/eller tobak og/eller krydderier med formalingsenheden (3),
placering af allerede rullet cigaretpapir (17) i et rør (9) eller i flere rør (9), fremsendelse af formalede urter og/eller tobak og/eller krydderier til karussellen (10) og fyldning af mindst ét allerede rullet cigaretpapir (17) med de formalede urter og/eller tobak og/eller krydderier,
kendetegnet ved, at efter formaling og før fremsendelse af de formalede urter og/eller tobak og/eller krydderier til karussellen (10) omfatter metoden yderligere trin til fremsendelse af de formalede urter og/eller tobak og/eller

krydderier til blandingskammeret (5) og derefter blanding af de formalede urter og/eller tobak og/eller krydderier ved hjælp af blandingsenheden (4) i blandingskammeret (5), så der dannes en blanding, efter fyldning af mindst ét allerede rullet cigarettepapir (17) med blandingen fortsætter metoden yderligere med trin til drejning af karussellen (10) omkring midteraksen (16) for at flytte et eller flere rør (9) med det fyldte allerede rullede cigarettepapir (17) til mindst én låge (7) og derefter fylde ovennævnte et eller flere rør (9) med det fyldte allerede rullede cigarettepapir (17) gennem en eller flere låger (7).

12. Metoden i overensstemmelse med patentkrav 11, **kendetegnet ved, at** den yderligere omfatter trin til at stoppe formalingsenheden (3), når blandingskammeret (5) er fuldt, yderligere et trin til at styre betjeningen af formalingsenheden (3) og/eller blandingsenheden (4) med styringsenheden (24) og indstille hastigheden for blandingsenheden (4) og/eller formalingsenheden (3) ved hjælp af styringsenheden (24).

13. Metoden i overensstemmelse med patentkrav 11 eller 12, **kendetegnet ved, at** efter fyldning af et eller flere rør (9) med det fyldte allerede rullede cigarettepapir (17) fortsætter metoden med formaling af de resterende urter og/eller tobak og/eller krydderier i formalingskammeret (2) med formalingsenheden (3).

14. Metoden i overensstemmelse med hvilket som helst af patentkrav 11-13, **kendetegnet ved, at** efter fyldning af mindst ét allerede rullet cigarettepapir (17) med blandingen, omfatter den yderligere et trin til komprimering af ovennævnte blanding i mindst ét allerede rullet cigarettepapir (17) og/eller vibration af mindst ét rør (9) med det vibrerende element (18).

15. Metoden i overensstemmelse med hvilket som helst af patentkrav 11-14, **kendetegnet ved, at** den yderligere omfatter et trin til måling af vægten af urter og/eller tobak og/eller krydderier placeret i formalingskammeret (2) og/eller vægten af blandingen i blandingskammeret (5) og/eller vægten af den blanding, der er fyldt i det allerede rullede cigarettepapir (17).

DRAWINGS

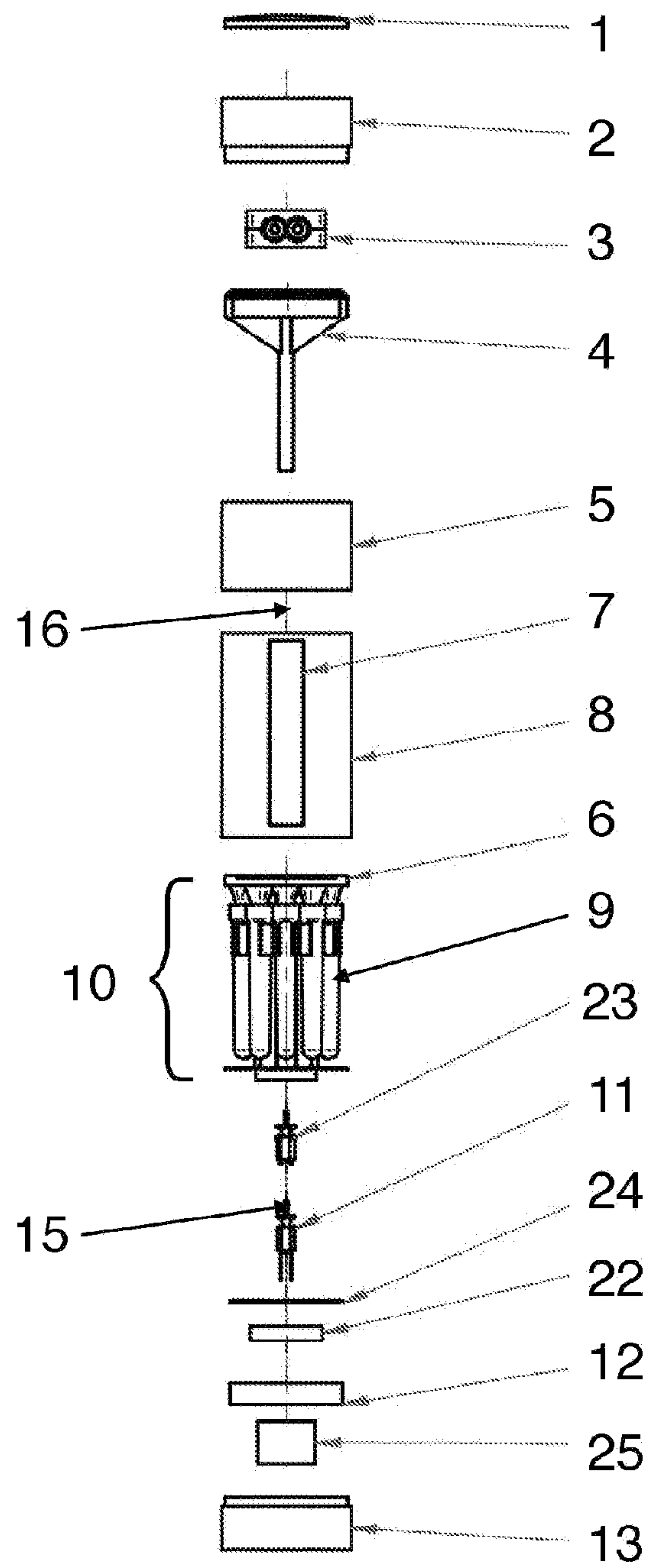


Fig. 1

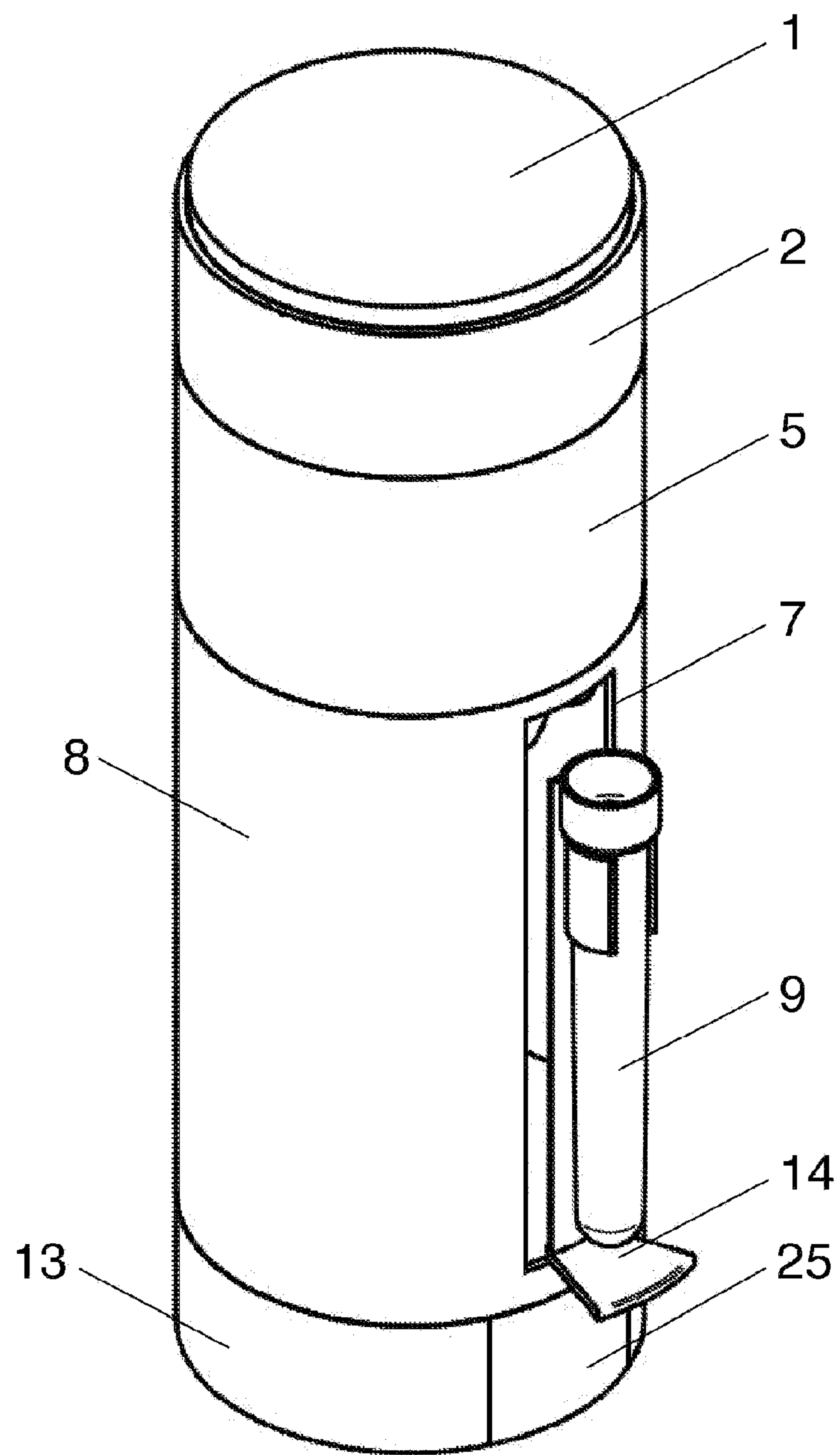


Fig. 2

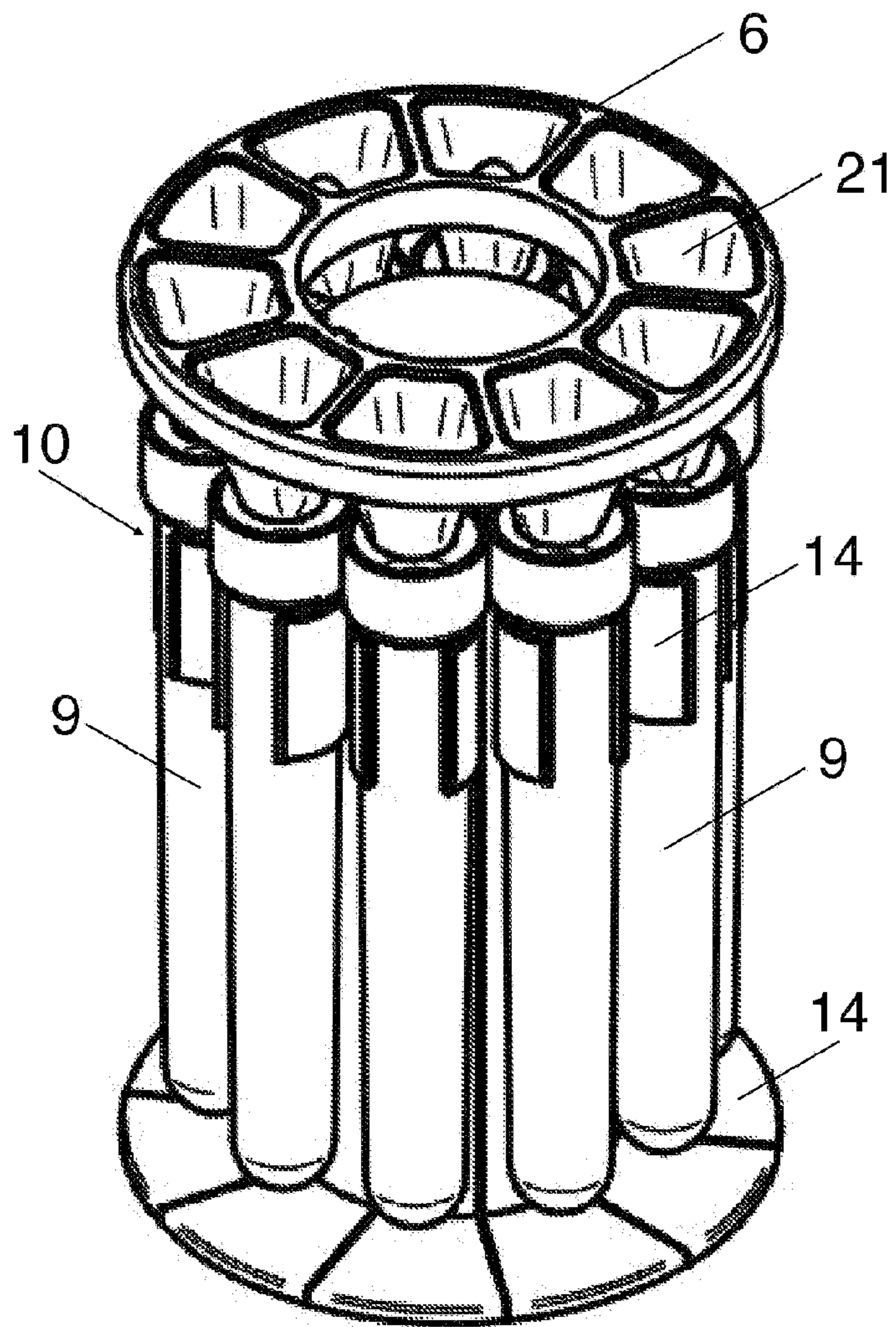


Fig. 3

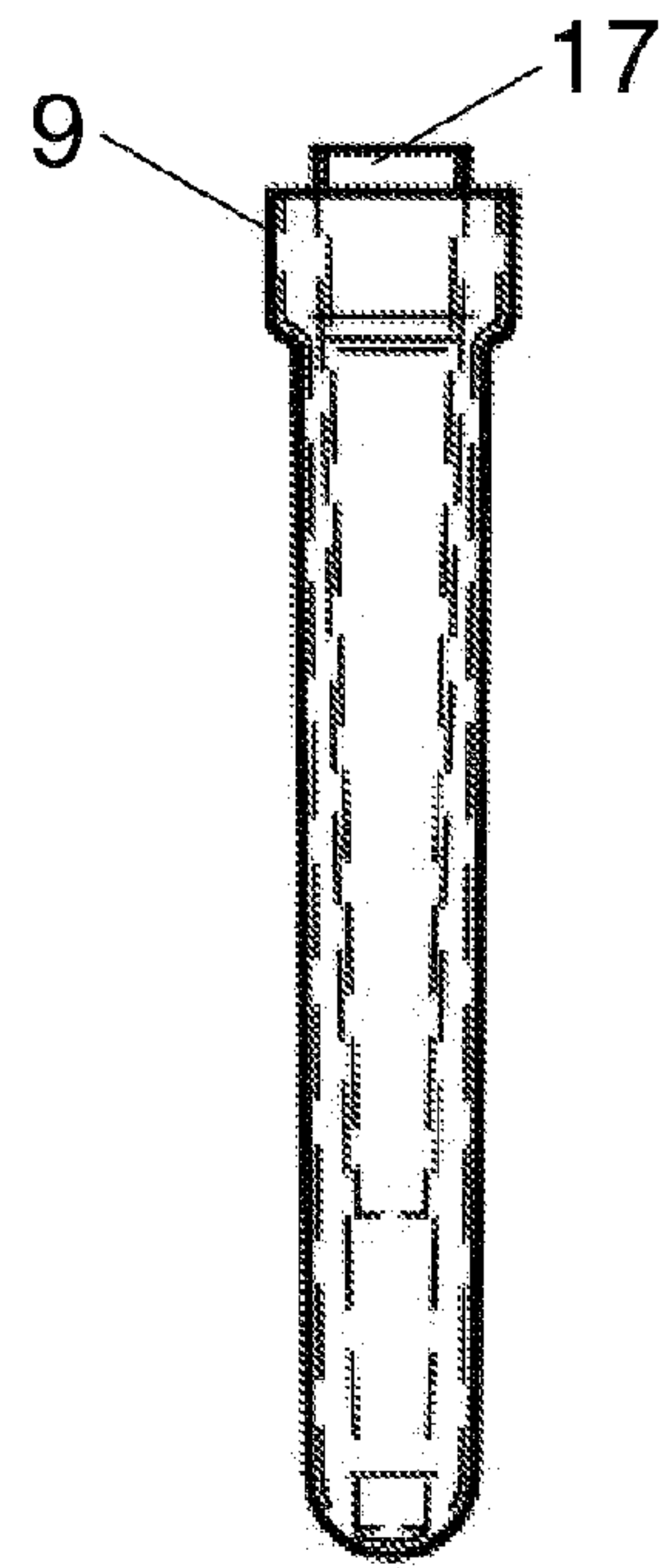


Fig. 4

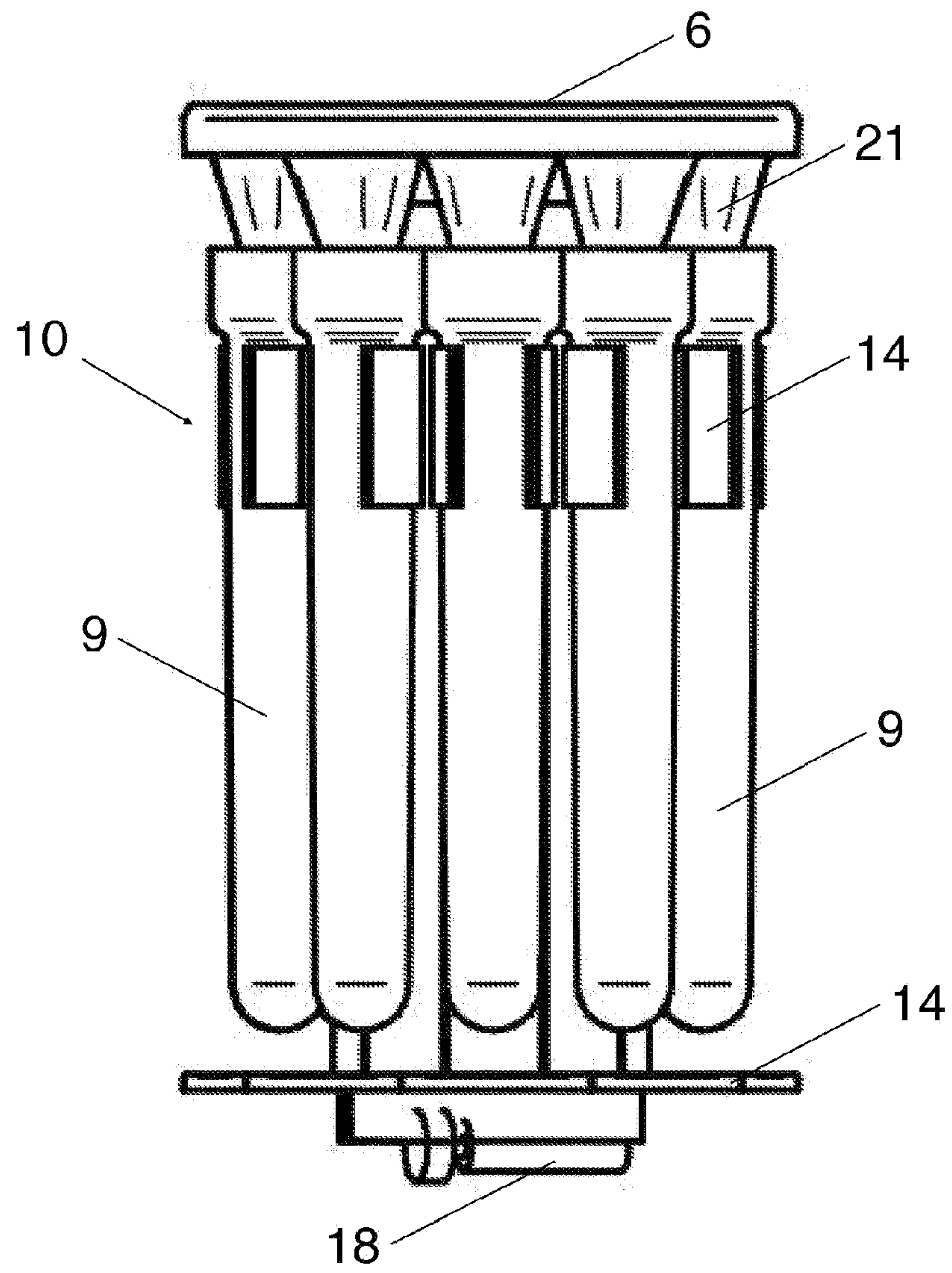


Fig. 5

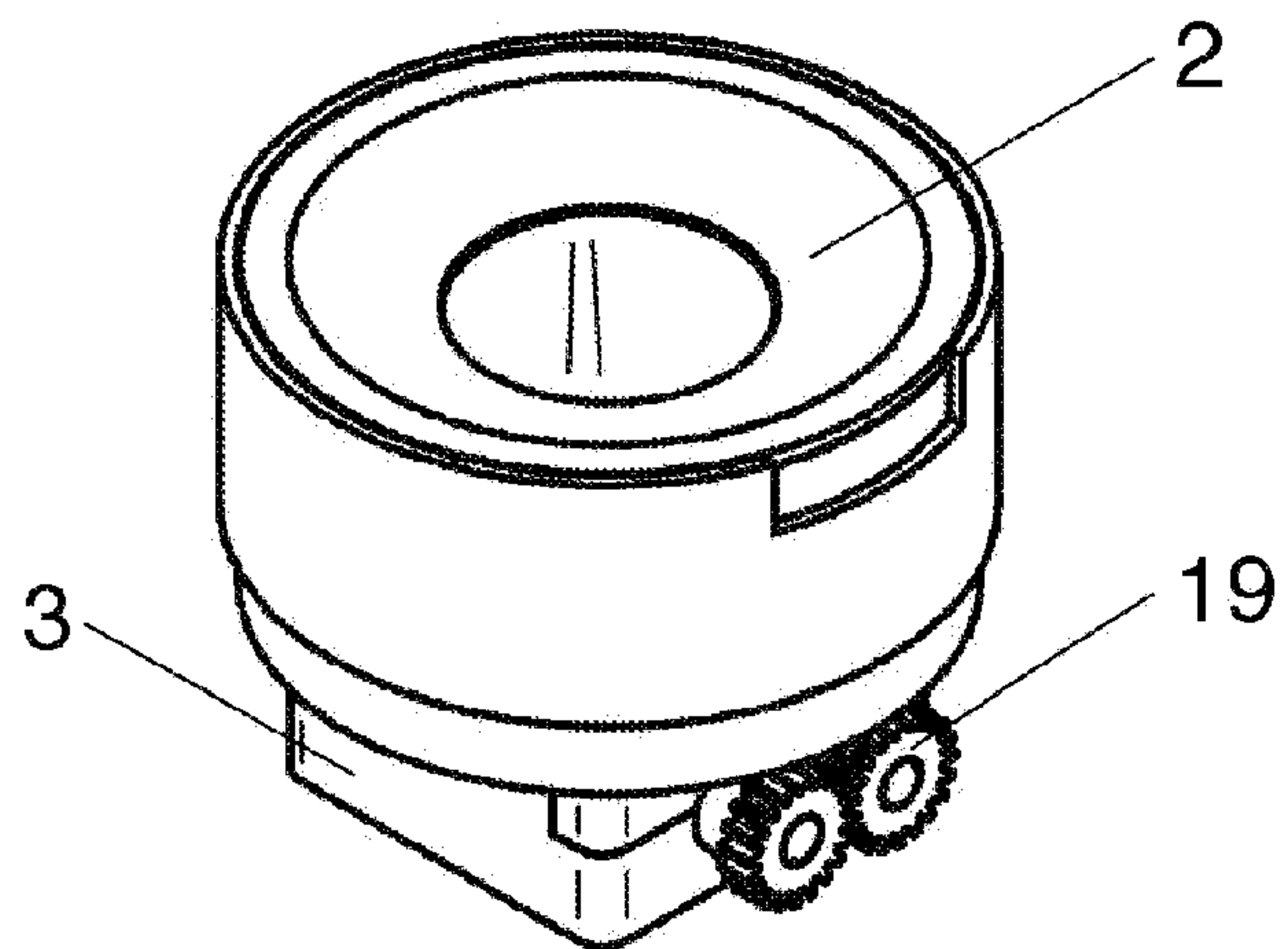


Fig. 6

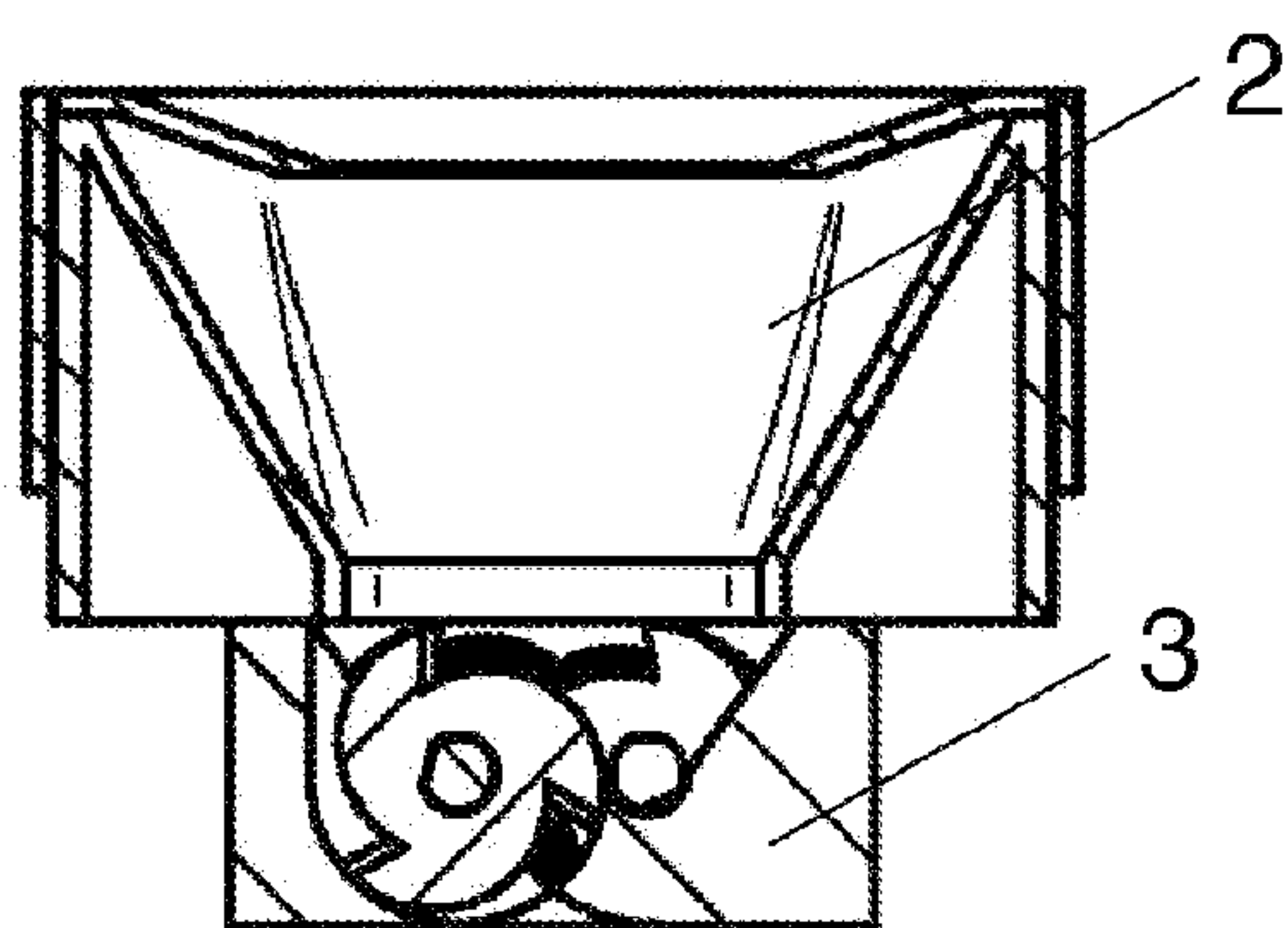


Fig. 7

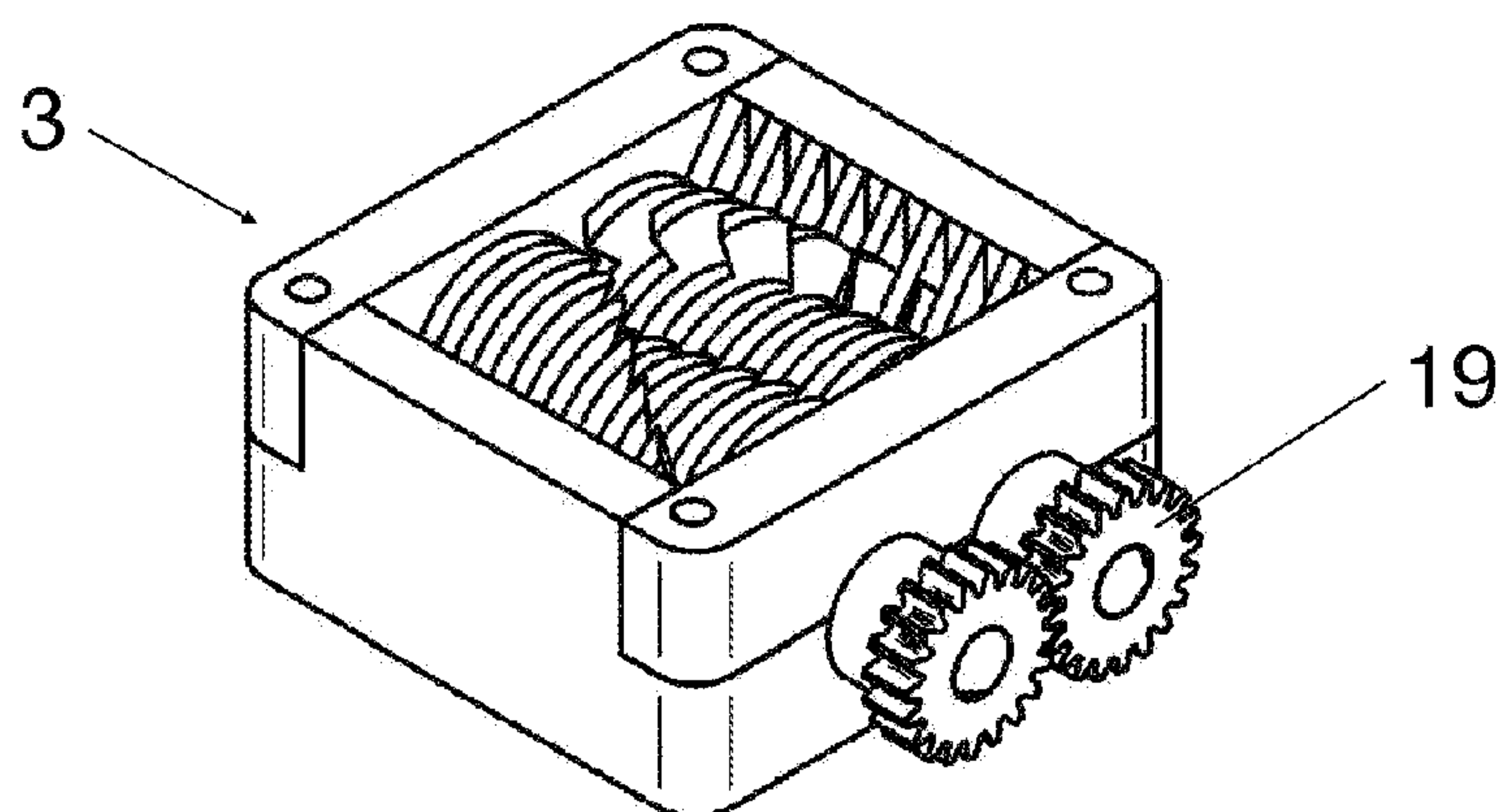
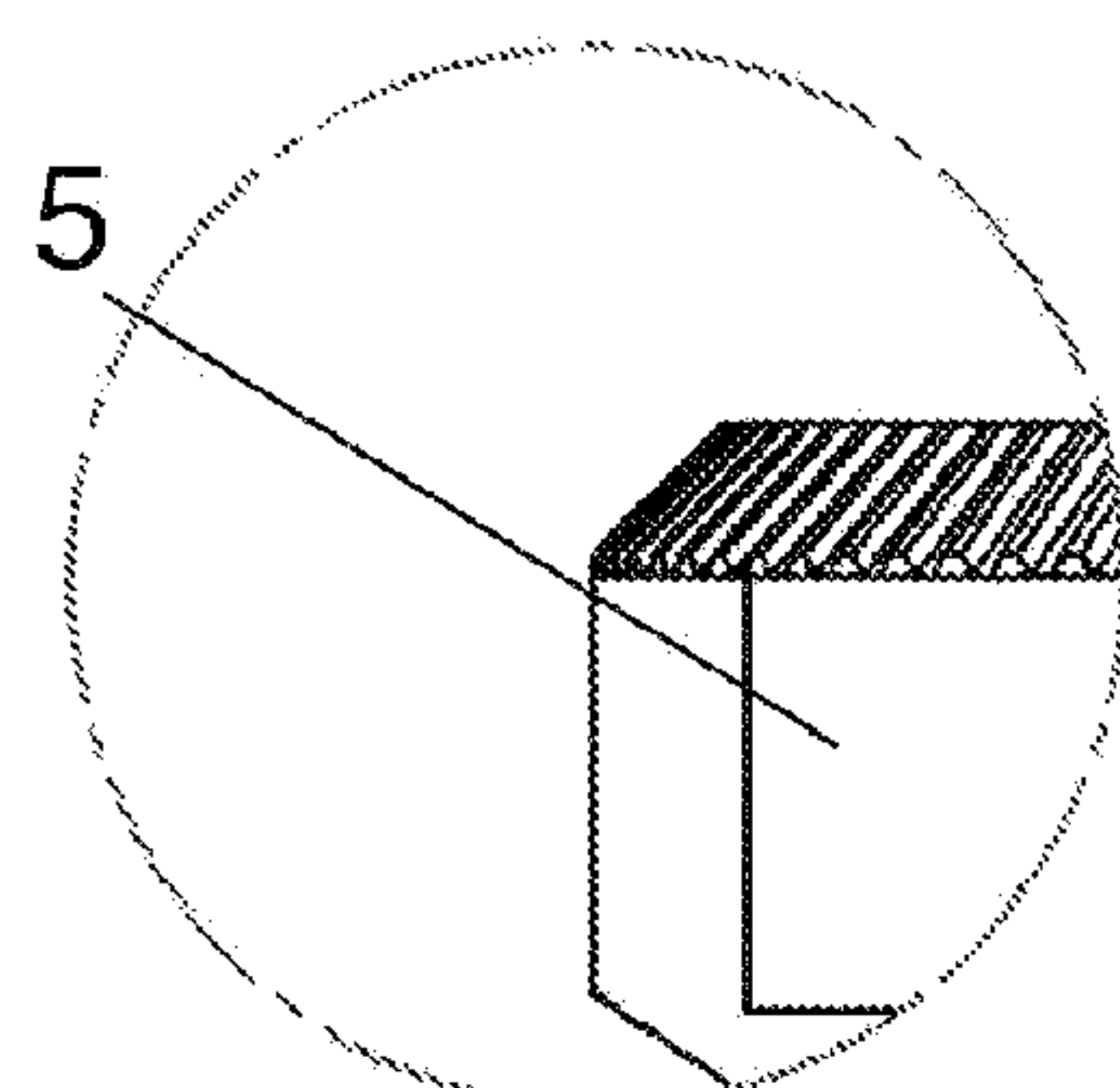


Fig. 8



Detail A

Fig. 9

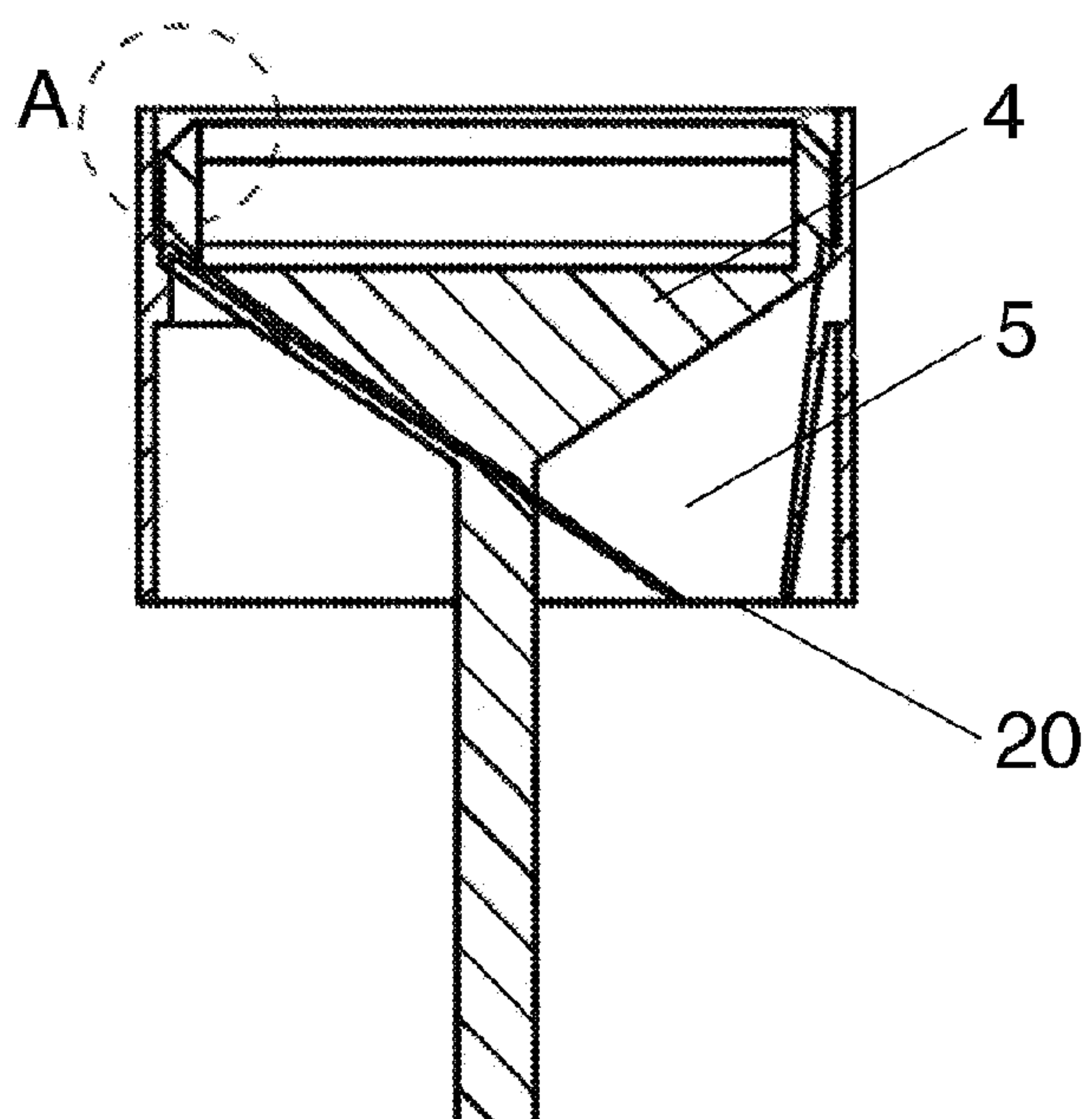


Fig. 10

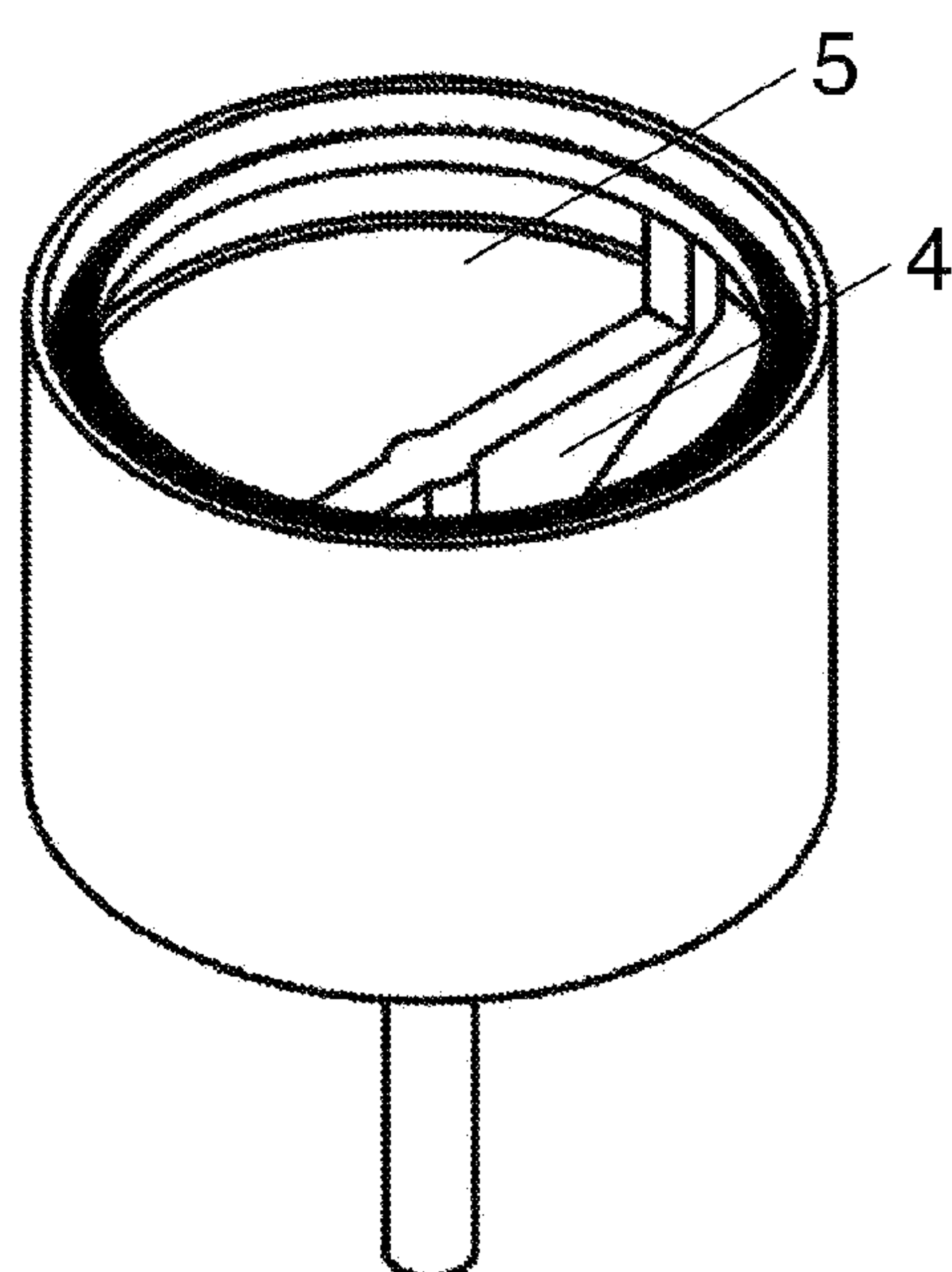


Fig. 11