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CA 2448474 C 2006/12/12

(11)(21) 2 448 474

(12) BREVET CANADIEN
CANADIAN PATENT

(13) C

(22) Date de dépôt/Filing Date: 2003/11/07

(41) Mise à la disp. pub./Open to Public Insp.: 2004/05/08

(45) Date de délivrance/Issue Date: 2006/12/12

(30) Priorité/Priority: 2002/11/08 (DE202 17 411.5)

(51) Cl.Int./Int.Cl. *B65D 85/804* (2006.01),
B65D 17/00 (2006.01), *A47J 31/40* (2006.01),
B65D 81/00 (2006.01)

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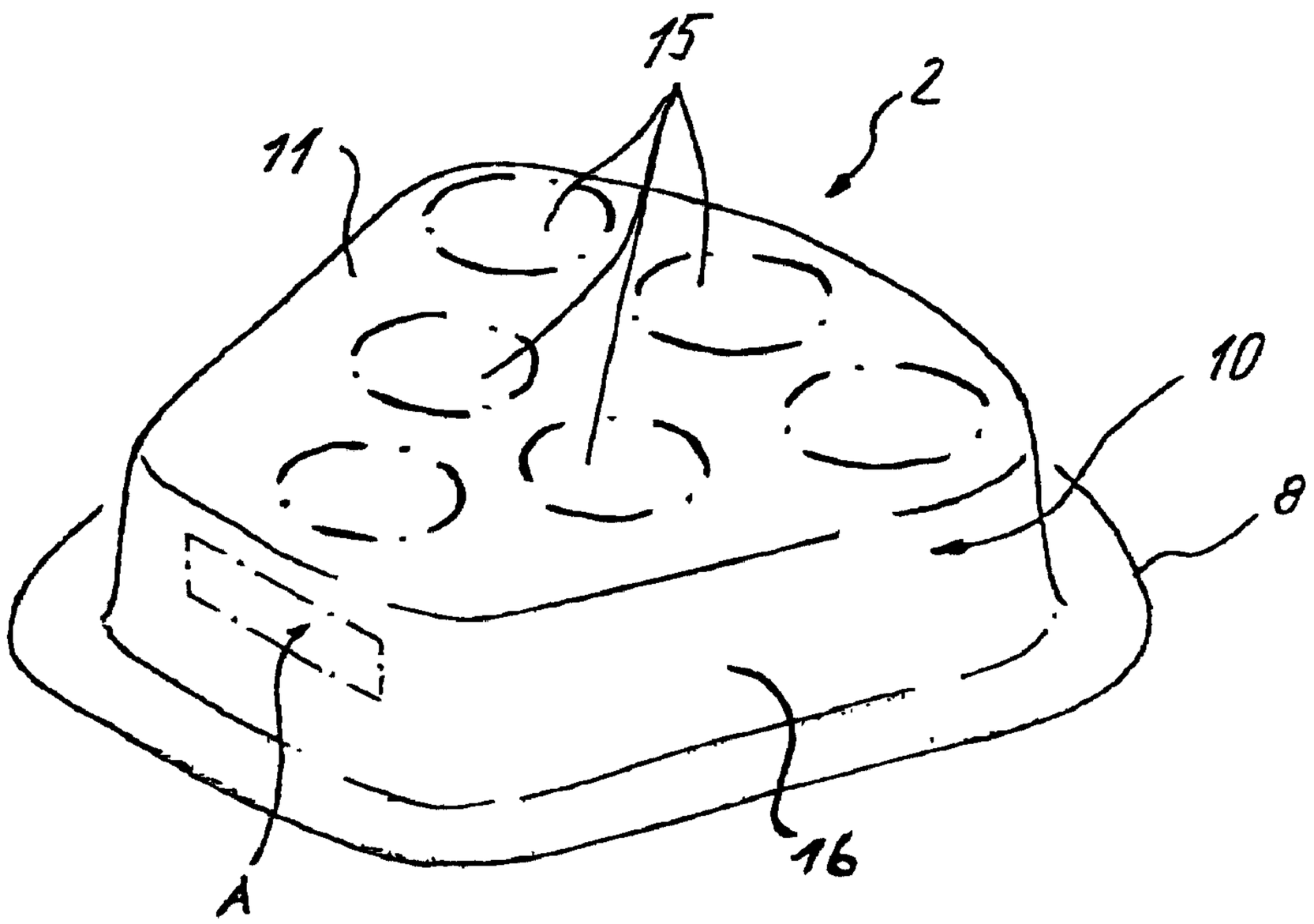
(54) Titre : CONDITIONNEMENT ET DISPOSITIF UNIPORTION PRODUISANT UNE BOISSON AROMATIQUE
(54) Title: SINGLE-SERVING PACKAGE AND DEVICE FOR PRODUCING AN AROMATIC BEVERAGE



(57) Abrégé/Abstract:
The invention is a single-serving package for producing an aromatic beverage, especially coffee, having a pot-like lower part with a base and a circumferential side wall with a lip that extends outward at the upper end of the side wall and parallel to the base surface. A lid rests upon the lip of the lower part and is connected to the latter, with at least the lower part consisting of a filtering-capable material. The single-serving package displays at least two opposing side walls running towards each other in the manner of a wedge.

ABSTRACT

The invention is a single-serving package for producing an aromatic beverage, especially coffee, having a pot-like lower part with a base and a circumferential side wall with a lip that extends outward at the upper end of the side wall and parallel to the base surface. A lid rests upon the lip of the lower part and is connected to the latter, with at least the lower part consisting of a filtering-capable material. The single-serving package displays at least two opposing side walls running towards each other in the manner of a wedge.

SINGLE-SERVING PACKAGE AND DEVICE FOR PRODUCING AN AROMATIC BEVERAGE

The present invention relates to a single-serving package as well as a device for single-serving production of an aromatic beverage, especially coffee. Such a device includes a brewing chamber for receiving a single-serving package filled with a flavour carrier, the brewing chamber consisting of a fixed part and a holding part for a single-serving package, which holding part can be moved relative to the fixed part into an open position and into a closed position. After the insertion of a single-serving package and the closing, the brewing chamber is sealed on all sides with the exception of an inlet for hot water for extraction of the flavour carrier and an outlet for the aromatic beverage.

Devices of the above-mentioned type as well as single-portion packages for application in such devices are known in a variety of embodiment forms and enjoy increasing popularity since, on the one hand, the number of so-called single households, for which such devices are especially intended, is growing, while irrespective of this, on the other hand these devices are used more and more willingly in multiple-person households for the quick, unproblematic preparation of only a single serving of an aromatic beverage, especially coffee.

Such devices are, in principle, relatively simple to operate.

The brewing chamber is opened from the closed position for the purpose of inserting a single-serving package, a single-serving package is placed into the brewing chamber, the brewing chamber is closed, and then a switch is used to initiate the brewing process.

After the successful brewing of an aromatic beverage, the single-serving package with the extracted flavour carrier can then be disposed of.

In order to achieve the best possible brewing result, it is important that the single-portion package be centered inside the brewing chamber such that the brewing water is conducted through the flavour carrier inside the single-portion package in the most waste-free manner possible, which is not always ensured, due to the designs, first, of the known devices, and second, of the single-serving packages used until now.

In many cases, particular attentiveness on the part of the user of such a device is required, namely with respect to an extremely careful placing of the single-serving package into the brewing chamber. When attentiveness is lacking, the single-serving package may be laid into the brewing chamber in an imperfectly centered manner, the consequence of which is that a portion of the brewing water flows through the brewing chamber while bypassing, to a certain degree, the flavor carrier, and thus does not participate in the extraction process. The result is a

poor beverage.

The present invention is based on the task of creating a single-serving package and a device of the generic type that ensure an optimal brewing result with extremely simple handling. Further, the single-serving package should be characterized, on the one hand, by a problem-free handling and a stability adequate for practical use, and on the other hand, by the possibility of a comparatively low-cost production.

Accordingly, the invention provides a single-serving or portion package for making an aromatic beverage which comprises a dish-shaped lower part having a bottom presenting a bottom surface, and a circumferential side wall extending from the bottom and including an outwardly extending edge at an upper end thereof. The dish-shaped lower part comprises a material having filtering capabilities, and the circumferential side wall includes a front wall, a rear wall, and two oppositely located side walls extending substantially between the front wall and the rear wall with the side walls converging in a wedge-shaped manner. The outwardly extending edge extends parallel to the bottom surface. A lid lies on the edge of the lower part and is bonded to it.

The invention also provides an apparatus for a portioned making of an aromatic beverage from a portion package filled with an aromatic carrier, wherein the portion package includes a circumferential side wall having a wedge shape and a tapered frontal region. The apparatus comprises a brewing chamber for receiving the portion package, wherein the brewing chamber comprises a stationary part and a receiving part for receiving the portion package. The receiving part is movable relative to the stationary part between an open position and a closed position, wherein in the closed position of the receiving part, a portion package inserted in the receiving part is sealable on all sides with the exception of an inlet for hot water for extracting the aromatic carrier and an outlet for the aromatic beverage. The receiving part includes a wedge-shaped inserter for receiving the tapered, frontal region of the wedge-shaped portion package. The stationary part has an end region opposite the inserter, the end region including an abutment adapted to engage the portion package, wherein the wedge-shaped inserter and the apartment cooperate to position the portion package in a predetermined position within the brewing chamber when the receiving part is in the closed position.

The single-serving package displays at least two opposing side walls that run toward each other in a wedge-shaped manner, and thus possesses a wedge-shaped outline. The single-serving package comprises a pot-like lower part having a base, a circumferential side wall, a lip that extends outward at the upper end of the side wall and parallel to the base surface, as well as a lid that rests on the lip of the lower part and connects to the latter.

Such a single-portion package, by virtue of its wedge shape that is of course adapted to the geometrical form of the brewing chamber of a device according to the invention, is ideally suited to precisely-fitting placement into a predetermined position in a corresponding brewing chamber.

Through a compression of the side wall, the entire single-serving package acquires a relatively high stability, which is increased still further through the circumferential and outward-extending lip. This lip likewise forms a reinforced and stiffened region of the single-serving package through the placed-on lid section and the connection. Thus, the single-serving package can be handled with ease and, due to the above-mentioned shape of the brewing chamber, can to some extent be automatically centered inside the brewing chamber by being finally and securely pushed into the slot provided for this purpose, during the closing of the brewing chamber.

If the side wall of the single-serving package is watertight-sealed to the greatest extent possible, the risk is avoided that, during the brewing process, brewing water could follow any path except that through the flavour carrier located inside the single-serving package.

A consistently good brewing result is the necessary and desirable consequence of this design.

Advantageously, the single-serving package is implemented such that its tapering, front region is flattened, i.e. the wedge-shaped single-serving package does not come to a point. The flattened area can be made large enough that a relatively large surface is available for the gripping of a puller or throw-off tool. With an appropriately large contact surface between the single-serving package, on the one hand, and a puller or throw-off tool on the other hand, a high surface stress is avoided, so that the mechanical throwing-off of the single-serving package can be reliably carried out without danger of destruction of the single-serving package.

Preferably, the lower part and/or the lid are produced from a filtering-capable plastic fleece or plastic/paper mixture suitable for mass production.

The device according to the invention includes a holding part having a wedge-shaped insert for the narrowing, front region of a single-serving package that is likewise wedge-shaped in outline, which insert overlaps a projecting lip region of the single-serving package, the fixed part being provided with a stop in its end region lying opposite the insert, by means of which stop a single-serving package is fixed in a predetermined insertion position when the brewing chamber is closed.

The design of the brewing chamber of a device according to the invention having the above-specified features ensures that a single-serving package, when the brewing chamber is closed, always assumes an exactly-centered and predetermined position, even when the user has not exercised the necessary care during the placing of the single-serving package into the holding part. That is to say, due to the design of the brewing chamber, when the latter is closed the wedge-shaped single-serving package is shifted into

its predetermined position without the assistance of the user; this can be ensured through the wedge-like shape of, on the one hand, the brewing chamber and, on the other hand, the single-serving package

Since the holding part is provided with an insert as well as an undercut for overlapping a projecting lip region of the single-serving package, upon the opening of the brewing chamber after the successful brewing of an aromatic beverage, the single-serving package is held firmly in the insert and therefore cannot remain stuck to the fixed part of the brewing chamber through adhesive forces, so that disruptions of the process of disposal of the extracted single-serving package are avoided.

Advantageously, the fixed part of the brewing chamber can be provided with an apparatus for pulling or stripping off an extracted single-serving package during the opening of the brewing chamber.

As already mentioned, an adhering of the extracted single-serving package to the fixed or stationary part of the brewing chamber is reliably prevented, so that an automatic throwing off of the extracted single-serving package by mean of a throw-off device is always possible without problem or trouble.

Further features of the invention are the object of the additional dependent claims.

An embodiment example of the invention is represented in the accompanying drawings and is described in detail in the following.

The drawings show:

Fig. 1: a schematically represented section through a closed brewing chamber, accommodating a single-serving package, of a device according to the invention

Fig. 2: a section, corresponding to Fig. 1, through the opened brewing chamber

Fig. 3: a horizontal section through the brewing chamber according to Figs. 1 and 2

Fig. 4: a side view of a single-serving package according to the invention for application in a brewing chamber according to Figs. 1 – 3

Fig. 5: a perspective representation of the single-serving package according to Fig. 4

Fig. 6: a plan view of the single-serving package according to Figs. 4 and 5 with the base surface of a brewing chamber shown in outline

Fig. 7: a front view of a part of the device according to the invention for producing an aromatic beverage

Fig. 8: a perspective view of the device of Fig. 7 with opened brewing chamber

Shown in Figs. 1 – 3 in greatly enlarged representation is a brewing chamber in a device, not further shown, for the single-serving production of an aromatic beverage, especially coffee.

The production of said aromatic beverage takes place through the use of a single-serving package 2, which is inserted into the brewing chamber 1 designed for it.

Since in the context of the present invention only the design of the brewing chamber 1 and the design of the single-serving package 2 are of interest, the representation of details of the device for production of an aromatic beverage was dispensed with.

The brewing chamber 1 consists in essence of a fixed part 3 and a holding part 4 that is movable with respect to the latter; the holding part 4 is intended to accommodate in an essentially interlocking manner the above-mentioned single-portion package 2.

In the represented embodiment example, the movable holding part 4 is arranged so that it can be moved or displaced with respect to the fixed part 3 of the brewing chamber 1, from a closed position as shown in Fig. 1 into an opened position according to Fig. 2.

In the opened position according to Fig. 2, a single-serving package 2 can easily be inserted into the holding part 4. After the single-serving package 2 has been placed into the holding part 4, the latter is moved back into the closed position and, by whatever method, sealed outwardly on all sides with the exception of a water inlet for supplying the brewing water and an outlet for the aromatic beverage produced.

A detailed representation of said inlet for hot water is dispensed with, as is a representation of the outlet for the aromatic beverage.

It is fundamental, in the context of the present invention, that the holding part 4 displays a wedge-shaped insert 5 for the single-serving package 2, likewise wedge-shaped in its base, and that this insert, in the support region 6 of the brewing chamber 1, is provided with an undercut 7 for the overlapping of a protruding lip 8 of the single-serving package 2, and that the fixed part 3 of the brewing chamber 1, in its end region opposite to the insert 5, is provided with a stop 9, by means of which the single-serving package 2 is fixed in a predetermined final position inside the brewing chamber 1 when the latter is closed.

Figs. 1 and 3 show very clearly that the single-serving package 2 is laid onto the support region 6 of the holding part 4 and can be already partially inserted by its peripheral lip 8 into the undercut 7 of the insert 5. Obviously, this is made considerably easier by the wedge shape of the insert 5 as well as the wedge shape of the single-serving package 2. During the closing of the brewing chamber 1 through appropriate movement of the holding part 4, the single-serving package 2 is brought into contact with the stop 9 of the fixed part 3 of the brewing chamber 1 and if necessary pushed still further into the insert 5. In other

words, the user need not be concerned with an absolutely correct placement of the single-serving package 2 inside the brewing chamber 1 because this correct placement will occur, as it were, automatically through the fact that the stop 9 will in any case move the single-serving package 2 into a predetermined position inside the brewing chamber 1. Thus, the single-serving package 2 is always effortlessly centered within the brewing chamber 1, the term "centered" in this context meaning that the single-serving package 2 always assumes a position inside the brewing chamber 1 that is optimal for the brewing process.

This is important because care should be taken that practically all of the hot water arriving in the brewing chamber should be forced to pass exlusively through the single-serving package 2 and not partially run past the single-serving package 2 at the outer sides of the latter.

In addition, by means of the undercut 7 of the holding part 4 it is ensured that the single-serving package 2 cannot adhere to the fixed part 3, but rather, when the brewing chamber 1 is opened, it is always detached from the fixed part 3 since, as mentioned above, the single-serving package 2 is held firmly by the holding part 4 or rather the insert 5 of the holding part 4.

Figs. 4 – 6 show, in several views, the single-serving package 2 already referred to repeatedly.

The single-serving package 2 consists in essence of a pot-like lower part 10 having a base 11 and a circumferential side wall 12 with a lip 13 that extends outward at the upper end of the side wall 12 and parallel to the base surface, and of a lid 14, which after the filling of the pot-like lower part 10 with a flavour carrier is placed onto the above-mentioned lip 13 and connected to this lip 13. The single-serving package 2 displays two side walls 16 that run towards each other in a wedge-like manner, which side walls give the single-serving package a wedge-shaped outline.

The lower part 10 of the single-serving package 2 is produced from a filtering-capable plastic fleece or plastic/paper mixture and preferably manufactured by the deep-drawing method. Here, the region of the side wall 12 is largely sealed in a watertight manner. This sealing of the side wall, on the one hand, contributes significantly to the stabilization of the entire single-serving package 2 and, on the other hand, ensures that no brewing water can exit through the side wall 12 in an undesired manner.

The lid 16 is likewise advantageously produced from a filtering-capable plastic fleece or a plastic/paper mixture. The connecting of the lid 14 to the lip 13 of the lower part 10 takes place preferably by means of a sealing.

Through the superimposed material layers of the lip 13 and the lid 14 is formed the lip 8 (see Figs. 1 and 2) that engages the undercut 7 of the holding part 4.

As can be seen in particular in Figs. 1 and 2, the circumferential side wall 12 of the single-serving package 2, starting from the lid 14, is tapered conically at the angle α.

The corresponding bearing region 5a of the holding part 4 is correspondingly beveled, so that an additional fixing of the single-serving package 2 in the holding part 4 results.

The stop 9 of the fixed part 3 of the brewing chamber 1 is provided with a corresponding beveling at the angle β, so that this stop 9 also makes contact over its full surface with the adjacent side wall 12 of the single-serving package 2.

Through the various tightly-sealed regions of the single-serving package 2, in particular the considerable sealing of the side walls 12 and a sealing of the circumferential lip 8, the single-serving package 2 acquires a stability that not only considerably improves the handling, packing and transporting of the single-serving package 2, but also, as already explained above, contributes to a very secure and stable positioning of the single-serving package 2 inside the brewing chamber 1.

All in all, the brewing chamber 1 and the single-serving package 2 are optimally matched to each other, so that a operator of the device according to the invention, when using a single-serving package 2 according to the invention, need not exercise increased attentiveness in order to achieve an optimal brewing result.

In Fig. 5 it is shown that in the region of the flattened narrow side of the single-serving package 2 a relatively large surface A is available for the attachment of a puller or the like; by virtue of the size of this surface, a relatively low specific surface stress is produced during the pulling off or throwing off of the single-serving package 2. A destruction of the single-serving package 2 during the throwing off is thus, for all practical purposes, reliably prevented.

In addition, Fig. 5 shows that the base 11 of the single-serving package 2 can be provided with regions 15 whose permeability to water is higher than the remaining region of the base 11. This can be achieved by producing the lower part 10 with different densities of the material in the region of the base 11. The same can be correspondingly true of the lid 14. If the single-serving package 2 is provided with especially water-permeable regions 15, these should be appropriately arranged such that these regions 15 lie immediately underneath corresponding water-delivery openings inside the brewing chamber 1. Through this means, a controlled, uniform saturation of the flavour carrier inside the single-serving package 2 can be significantly promoted.

Shown in Figs. 7 and 8 is a device for producing an aromatic beverage, which device displays a brewing chamber 1 into which a single-serving package 2 can be placed. The device comprises a holding part 4 and, movable relatively to this, a wedge-shaped insert 5 for the single-serving package 2, which is likewise wedge-shaped in its outline. The insert 5 is provided with a support surface 6 that extends around the single-serving package 2 in a C-shaped manner, on which support surface is arranged an undercut 7 for the overlapping of a projecting lip 8 of the single-serving package 2. Upon the closing of brewing chamber 1, the single-serving package 2 is pressed against a rear stop 9, which moves the

single-serving package 2 into a predetermined position within the brewing chamber 1. The single-serving package is thus accommodated in the brewing chamber so as to be centered in an interlocking manner.

For removal of a used single-serving package 2, a downward-projecting puller 18 is provided on the holding part 4. Through the movement of the insert 5 in an outward direction, the puller 18 reaches with a crosspiece through a slot 19 within the side wall of the insert 5 and presses against the side wall, adjacent to the slot 19, of the single-serving package 2, until the single-serving package 2 is displaced from the support surface 6 and falls downward or is fed to a disposal station. Other mechanisms for removal of the single-serving package 2 from the support surface 6 can also be used.

In the represented embodiment example, the design includes a pot-like lower part 10 as well as a lid 14. It is of course also possible to "overturn" the single-serving package and design a pot-like upper part having a flat base.

CLAIMS:

1. A portion package for making an aromatic beverage, comprising:

dish-shaped lower part having a bottom presenting a bottom surface, and a circumferential side wall extending from the bottom and including an outwardly extending edge at an upper end thereof, the lower part comprising a material having filtering capabilities, the circumferential side wall including a front wall, a rear wall, and two oppositely located side walls extending substantially between the front wall and the rear wall, the side walls converging in a wedge-shaped manner, and the edge extending parallel to the bottom surface; and

a lid lying on the edge of the lower part an being bonded thereto.

2. The portion package according to claim 1, wherein a region of the side wall of the lower part is compressed to be substantially impervious to water.

3. The portion package according to claim 2, wherein the edge together with a region of the lid lying on the edge is compressed approximately to the same degree as the circumferential side wall to be substantially impervious to water.

4. The portion package according to claim 1, wherein at least one of the lid and the lower part comprises one of a non-woven plastic and a plastic/paper mixture each of which have filtering capabilities.

5. The portion package according to claim 1, wherein the lid is bonded to the edge by a sealing process.

6. The portion package according to claim 1, wherein at least one of the bottom of the lower part and the lid includes regions having a water permeability that is greater than a water permeability of portions of the bottom and the lid, respectively, which lie externally of the regions.

7. The portion package according to claim 6, wherein the portions of the bottom and the lid, respectively, are compressed relative to the regions.

8. The portion package according to claim 1, wherein the circumferential side wall of the lower part tapers at an angle α from the lid in the direction of the bottom.

9. An apparatus for a portioned making of an aromatic beverage from a portion package filled with an aromatic carrier, the portion package including a circumferential side wall having a wedge shape and a tapered frontal region, the apparatus comprising:

a brewing chamber for receiving the portion package, the brewing chamber comprising a stationary part and a receiving part for receiving the portion package, the receiving part being movable relative to the stationary part between an open position and a closed position, wherein in the closed position of the receiving part, a portion package inserted in the receiving part is sealable on all sides with the exception of an inlet for hot water for extracting the aromatic carrier and an outlet for the aromatic beverage, the receiving part including a wedge-shaped inserter for receiving the tapered, frontal region of the wedge-shaped portion package, the stationary part having an end region opposite the inserter, the end region including an abutment adapted to engage the portion package, wherein the wedge-shaped inserter and the abutment cooperate to position the portion package in a predetermined position within the brewing chamber when the receiving part is in the closed position.

10. The apparatus according to claim 9, wherein the portion package has a projecting edge region, and the inserter includes a supporting region for the portion package and an undercut in the supporting region for covering the projecting edge region of the portion package when the portion package is inserted in the receiving part.

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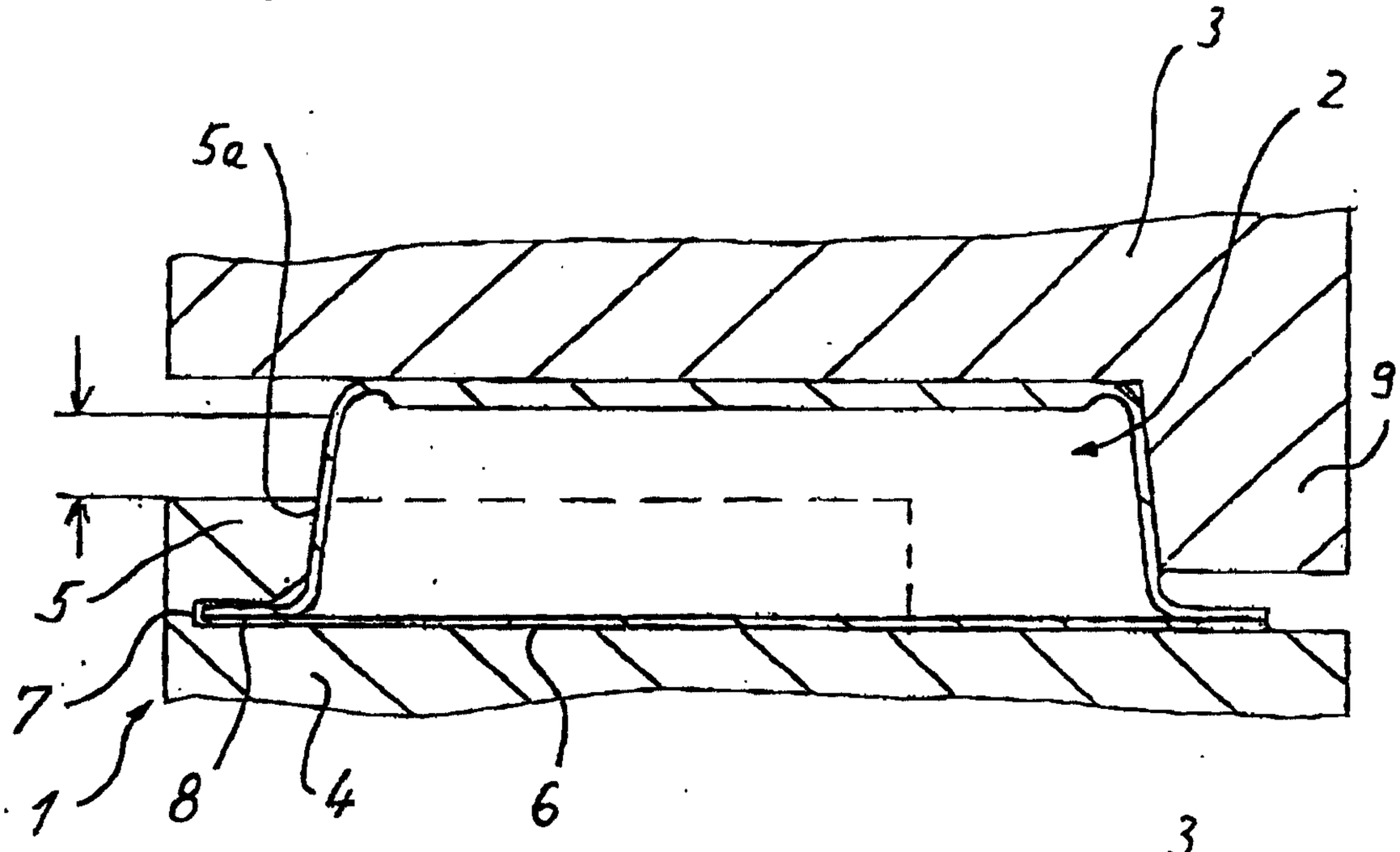
Fig. 1



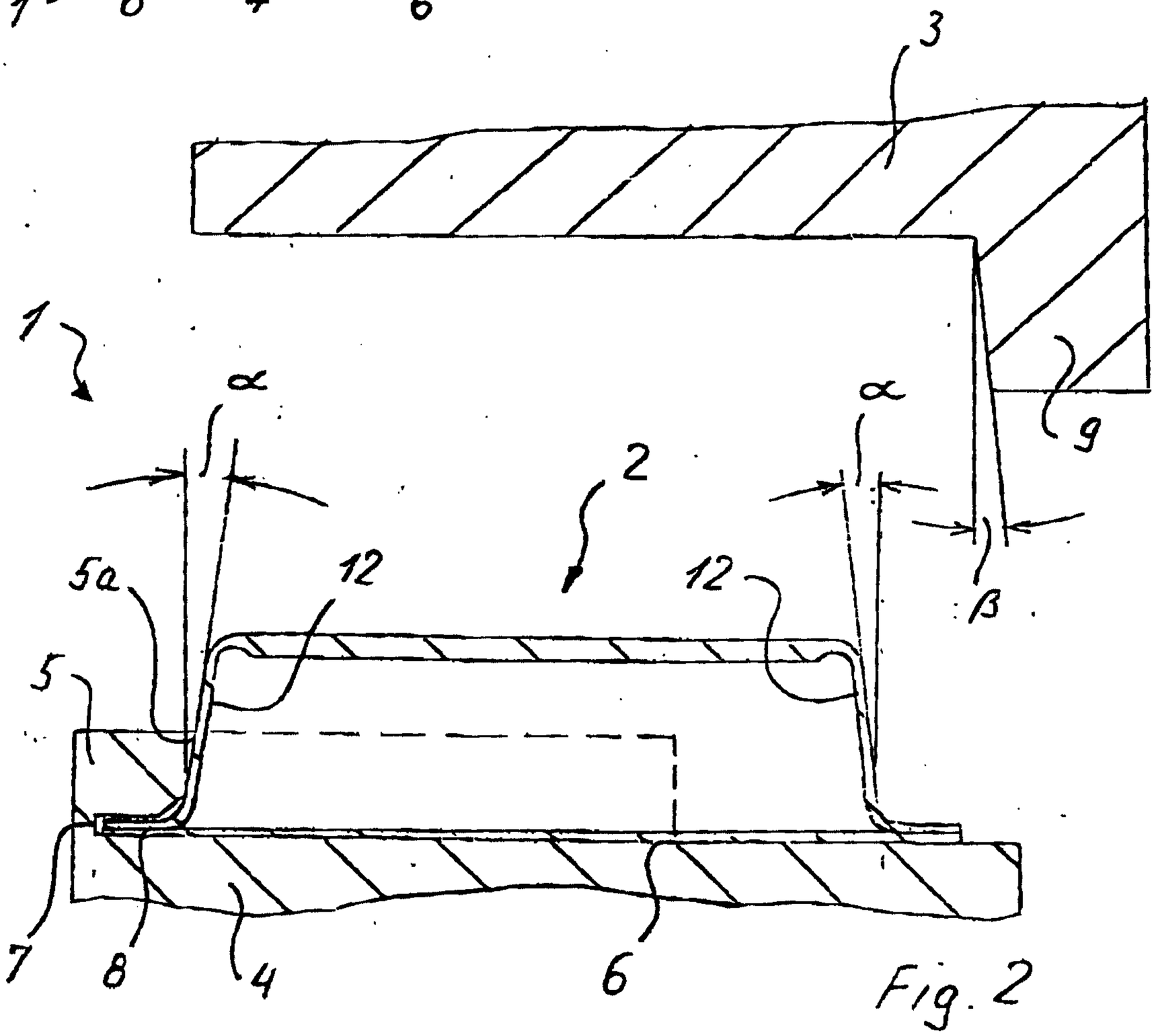


Fig. 2

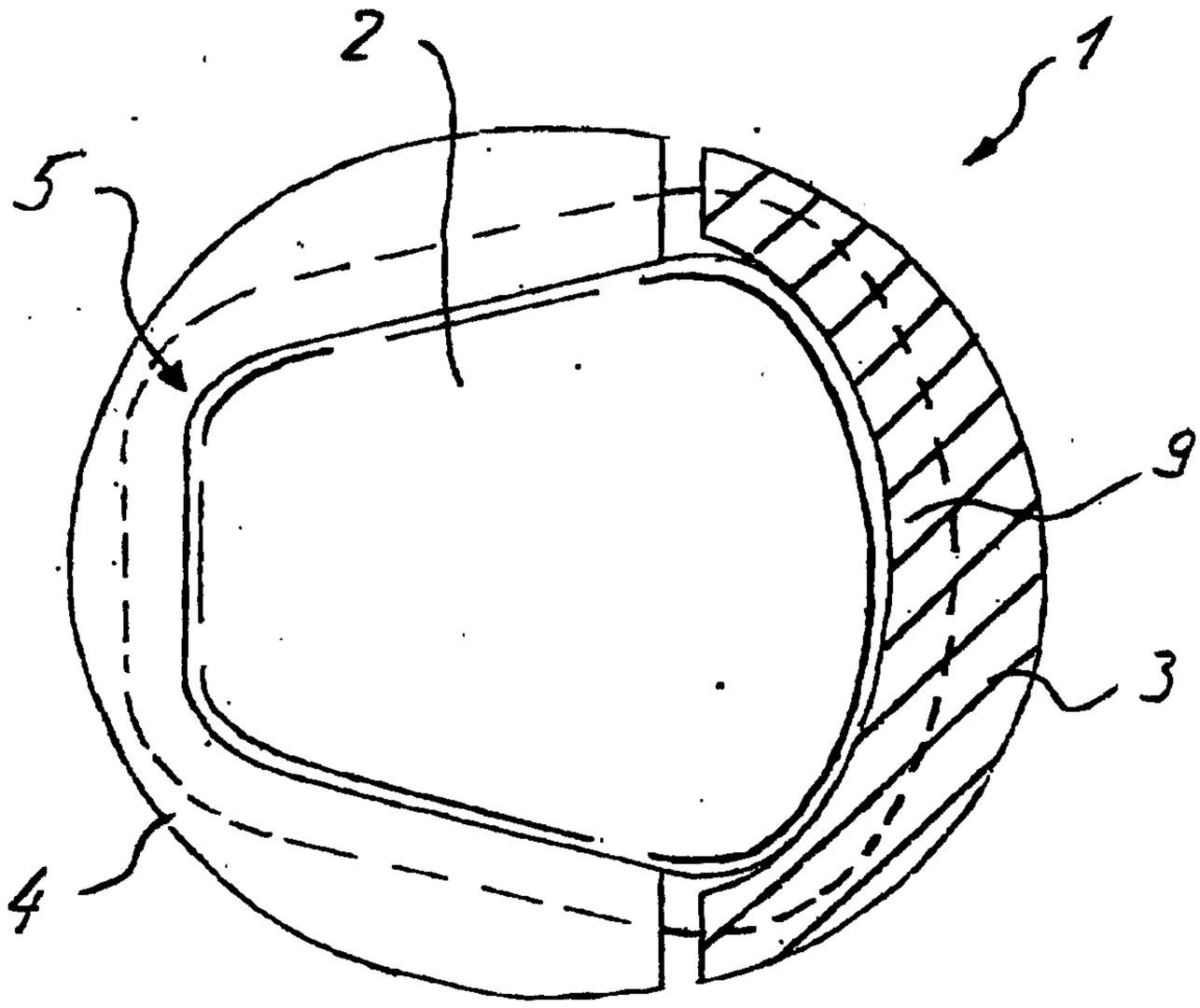
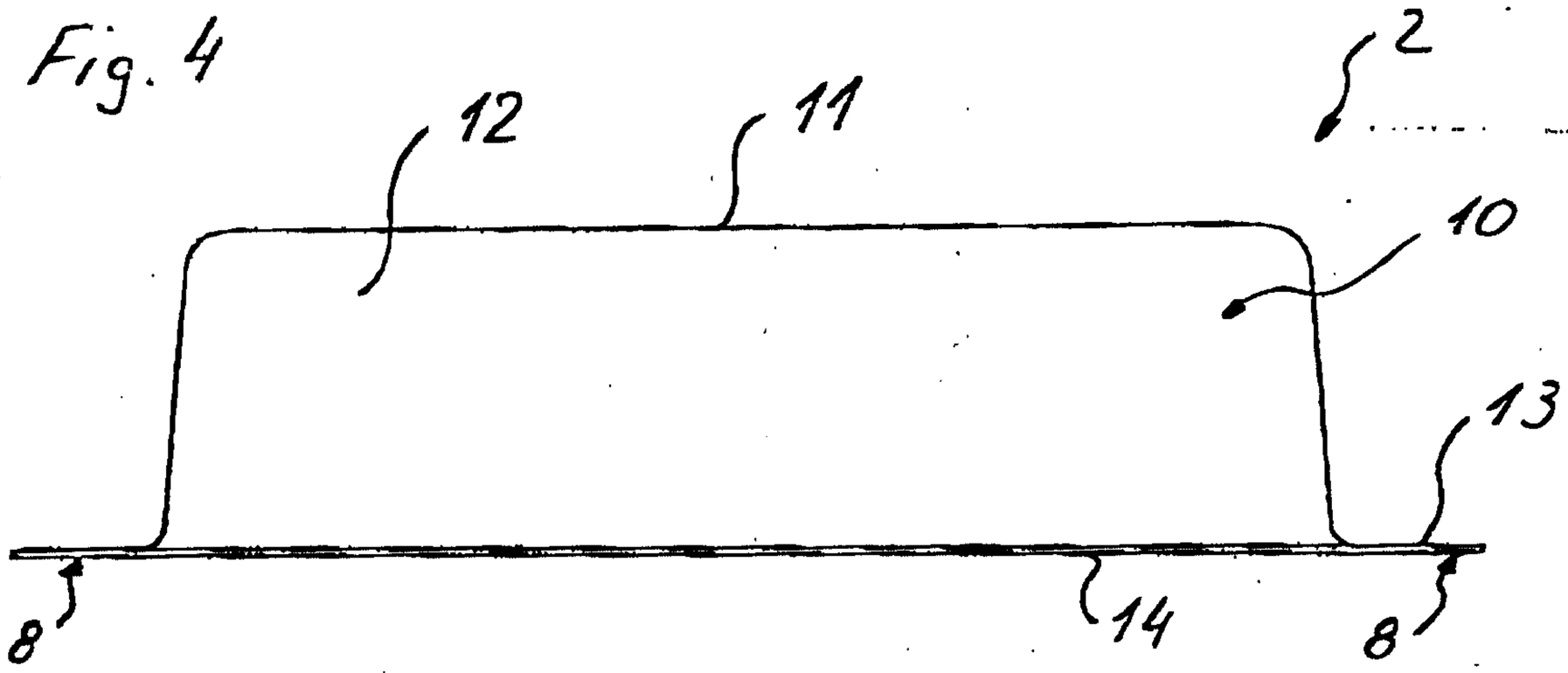


Fig. 3

Fig. 4



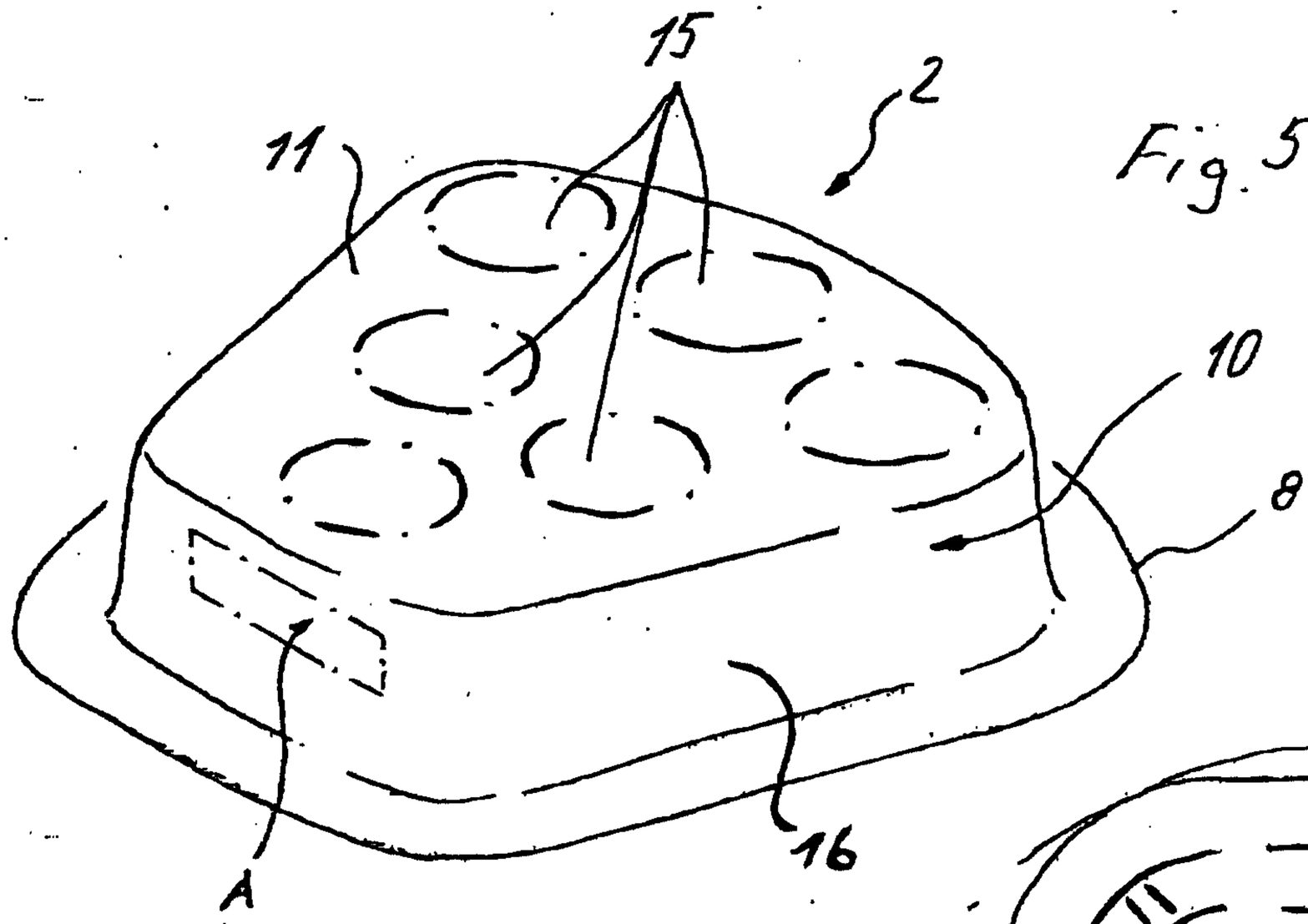


Fig. 5

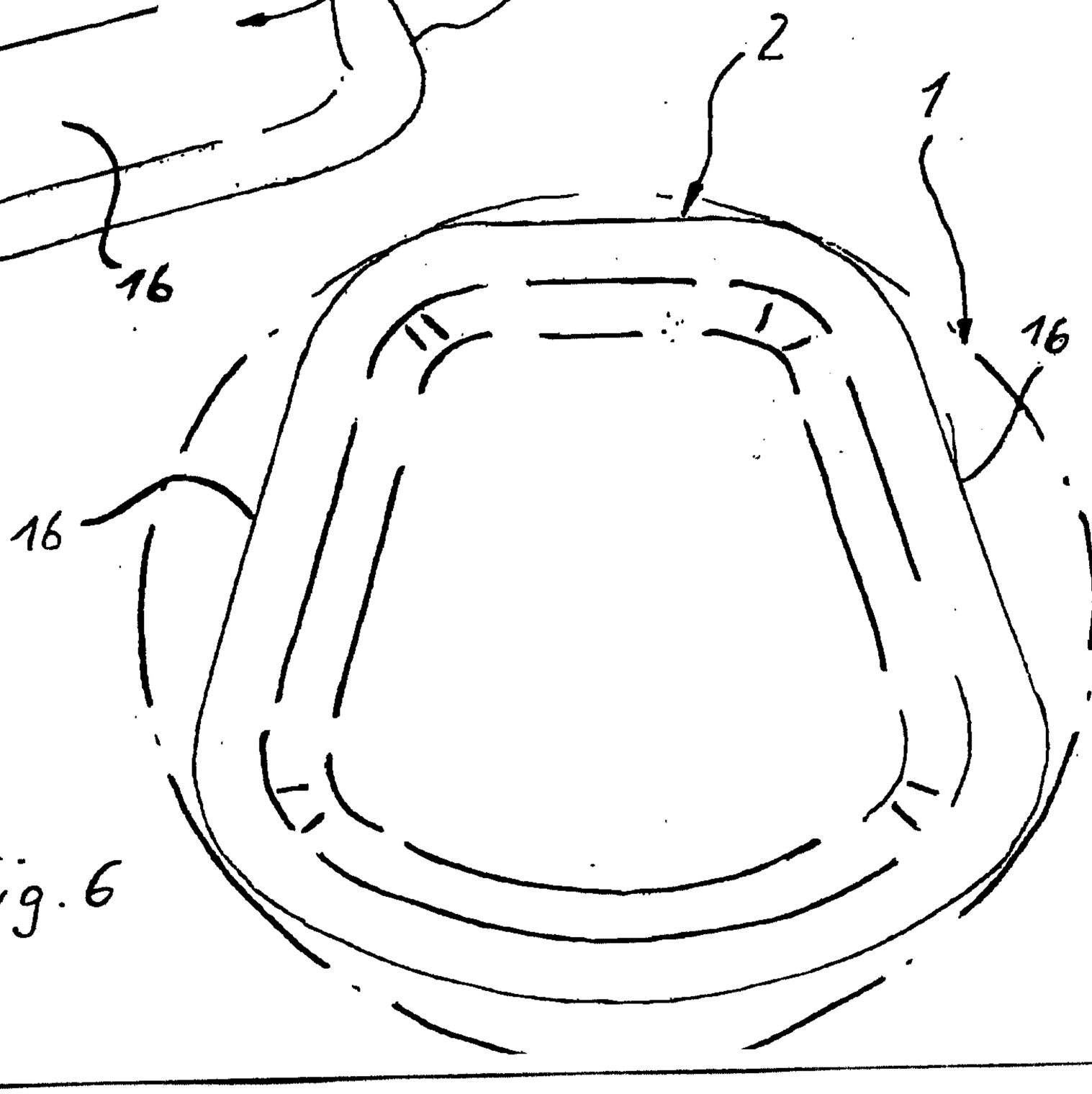


Fig. 6

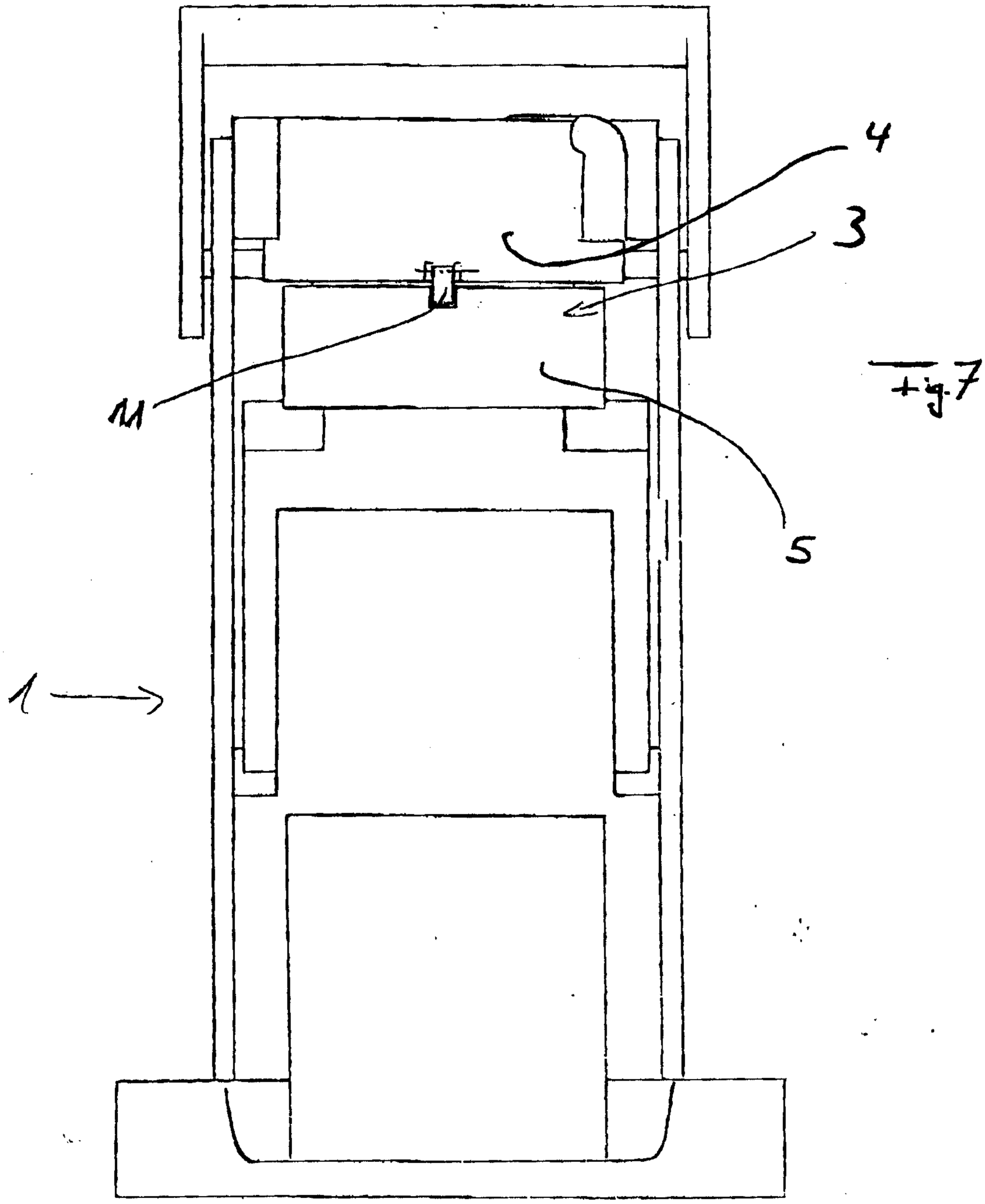
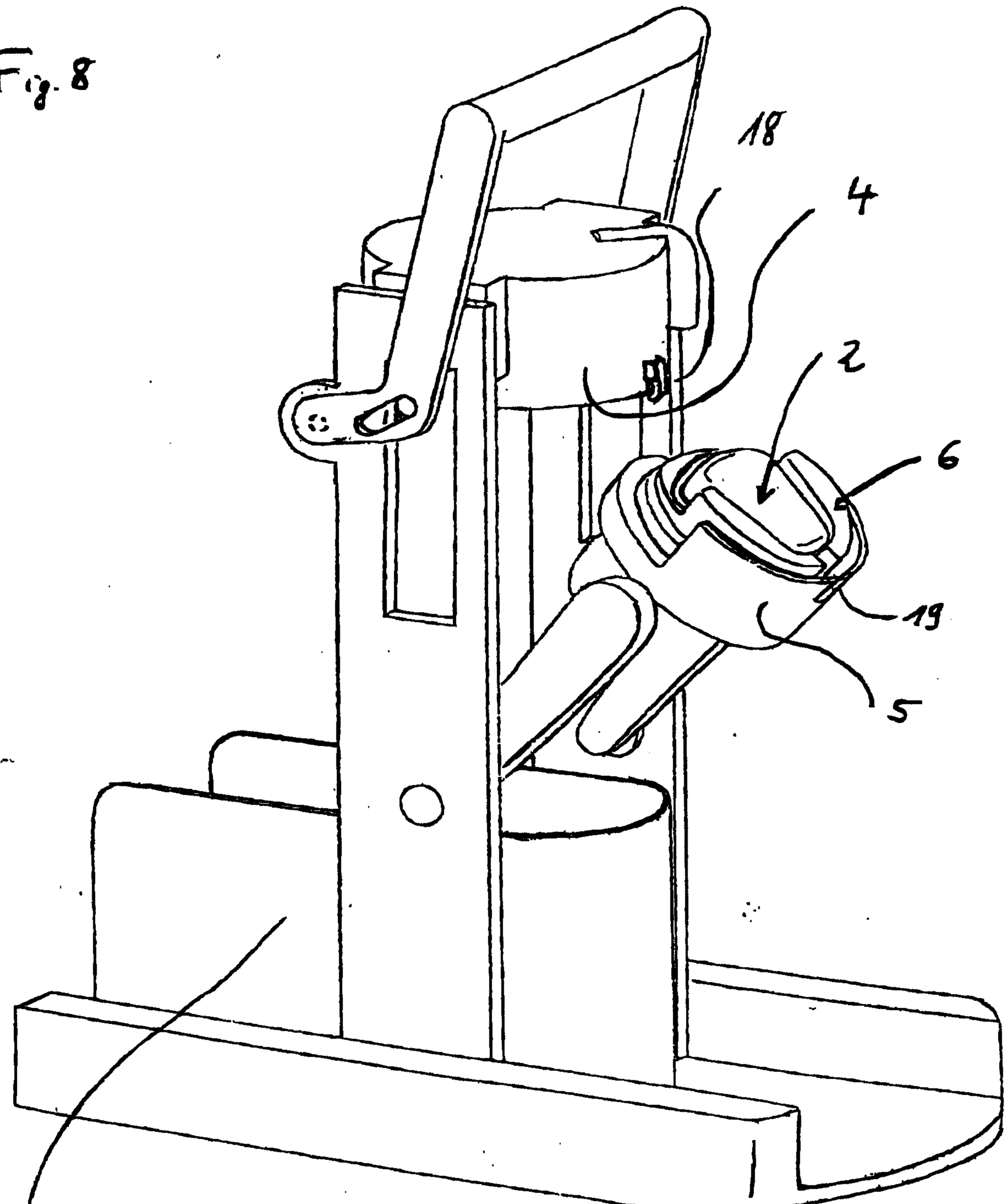
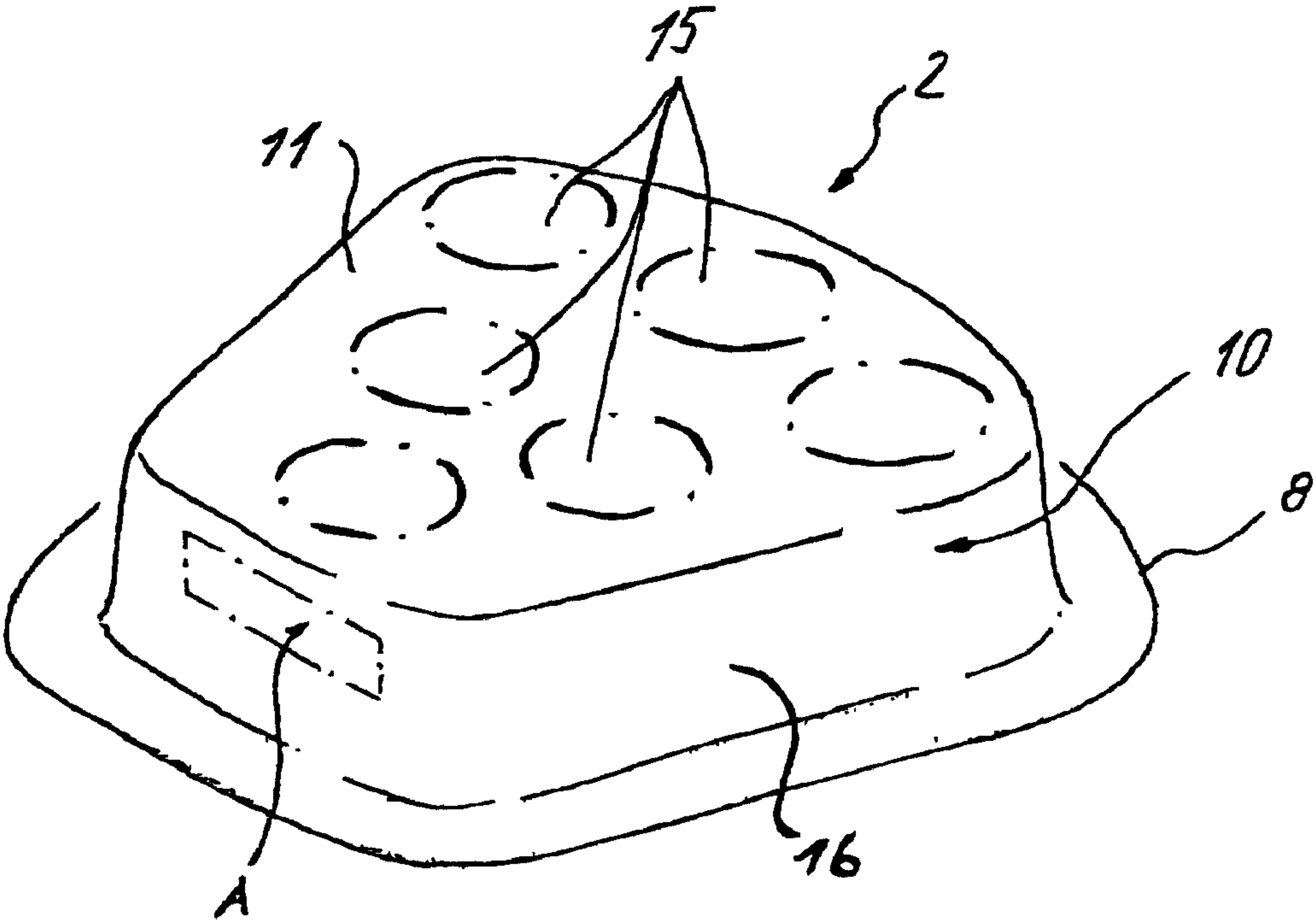


Fig. 7

Fig. 8

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