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(54) Title: PAD AND ASSEMBLY OF A HOLDER AND SUCH A PAD

(57) Abstract: A pad of the optionally flexible, disc-shaped/flat type filled with a product to be extracted such as ground coffee and/or a product to be dissolved such as a creamer, provided with an optionally flexible bottom sheet manufactured from, for instance, filtering paper and an optionally flexible top sheet manufactured from, for instance, filtering paper, the top sheet and the bottom sheet being interconnected at their longitudinal edges so that a covering with a circumferential sealing seam is formed, with the product situated between the top sheet and the bottom sheet, the bottom sheet and the top sheet each forming a filter which is at least virtually impermeable to the product and which is at least permeable to water, while an area of the covering is designed to be at least virtually impermeable to water, the area comprising, preferably, at least one annular sub-area covering at least a part of the sealing seam, and that the area extends outside the sealing seam at predetermined positions.



WO 2005/105609 A2

Title: Pad and assembly of a holder and such a pad.

The invention relates to a pad filled with a product to be extracted such as ground coffee and/or, optionally, a product to be dissolved such as a creamer for preparing a beverage, wherein the pad is designed in order that, in use, a liquid such as hot water can be fed under pressure to the pad for
5 extracting and/or dissolving the product, the pad being provided with an optionally flexible bottom sheet manufactured from, for instance, filtering paper and an optionally flexible top sheet manufactured from, for instance, filtering paper, the top sheet and the bottom sheet being interconnected at their longitudinal edges so that that a covering with a circumferential sealing
10 seam is formed with the product situated between the top sheet and the bottom sheet, the bottom sheet and the top sheet each forming a filter which is at least virtually impermeable to the product and which is at least permeable to water.

The invention also relates to an assembly of a pad and a holder in
15 which the pad is included, wherein the pad is filled with a product to be extracted such as ground coffee and/or, optionally, a product to be dissolved such as a creamer, while the pad is provided with a bottom sheet manufactured from, for instance, filtering paper and a top sheet manufactured from, for instance, filtering paper, the top sheet and the bottom sheet being
20 interconnected at their longitudinal edges in order that a covering with a circumferential sealing seam is formed, with the product situated between the top sheet and the bottom sheet, the bottom sheet and the top sheet each forming a filter which is at least virtually impermeable to the product and which is at least permeable to water, and wherein the holder is provided with
25 a bottom and, optionally, an upstanding sidewall, while in the bottom at least one outflow opening is provided, the pad resting on the bottom while the assembly is designed in order that, in use, a liquid such as hot water can be fed under pressure to the assembly for extracting the pad.

Such a pad and such an assembly are known per se, for instance from the European patent application EP 0 904 717. The known assembly comprises a pad which is filled with a product to be extracted for obtaining an extract and affords possibilities for reducing the risk of bypass and increasing the coffee-making efficiency. Bypass is understood to mean that a liquid such as hot water is fed under pressure to the assembly, of which hot water then at least a part flows around the product in the pad to, thereupon, leave the holder of the assembly via the at least one outflow opening. Such bypass has as a result that, when the pad has for instance been filled with a product to be extracted, the extract which is for instance collected in a cup, is mixed with hot water. This gives the extract an undesired strength. It is not desired to make allowance for such bypass because it is not known beforehand what amount of water will flow to the cup without this being pressed through the bed of the product in the pad. Further, the water has the tendency to choose the path of least resistance, i.e., the water has the tendency to flow through specifically those places of the bed where the bed is relatively thin. This entails that the water flows relatively less through the thicker parts of the bed, resulting in the coffee-making efficiency not being optimal. For this phenomenon too, a solution is given in the European patent application EP 0 904 717.

An unfavourable property of certain embodiments of the known assembly is that the pressure in the holder can rise when the outflow opening becomes clogged. The pressure rises because the beverage cannot leave the holder while hot water is fed under pressure to a top side of the holder.

The invention contemplates providing a pad allowing, if desired, for an assembly which provides a solution to the drawback mentioned with respect to the rising pressure. The invention also contemplates providing a pad which enables other problems to be solved and/or advantages to be provided as will be further described hereinafter.

The pad according to the invention is accordingly characterized in that one area of the covering is designed to be at least virtually impermeable

to water, wherein: - the area comprises at least one annular sub-area occupying at least a part of the sealing seam extending around the sealing seam, which area further extends outside the sealing seam at predetermined positions; - and/or the area comprises a plurality of sub-areas separate from
5 each other; and/or the area comprises at least one sub-area occupying at least a part of the sealing seam and a part of the covering outside the sealing seam. Such a pad can be advantageously used in a holder which is provided with a bottom and, optionally, an upstanding sidewall while in the bottom at least one outflow opening has been provided, the pad resting on the bottom while in
10 the bottom of the holder at least one pressure limit opening is provided. Here, the area of the covering covers the at least one pressure limit opening. If, in use, the holder is closed off with the aid of a lid, whereupon hot water is fed to the holder while moreover, for whatever reason, the outflow opening is clogged, the pressure in the inside space of the holder will not rise to extreme heights
15 because with a rising pressure, hot water and/or the beverage will be discharged via the at least one pressure limit opening. Here, the pressure limit opening and the pad function in combination as a safety valve, which will open when the pressure in the inside space will start to rise as a result of the outflow opening being clogged. Here, the pressure limit opening is covered by
20 the area of the covering which is impermeable to water. If the outflow opening is clogged, the pressure in the holder will rise while the pressure drop across the pad will become very small. The pad is no longer pressed firmly against the bottom. As a result of the rising pressure, the water having been pressed through the pad then flows under the area to the pressure limit opening. The
25 pressure limit opening will start discharging hot water and/or, optionally, the beverage when, for instance, the pressure in the inside space rises to a value above 2 atmosphere. The pressure will then increase no further. Here, for instance each of the sub-areas mentioned can cover a pressure limit opening. Also, as an alternative or in addition thereto, at the predetermined positions,
30 the area, optionally together with the annular sub-area, can cover a pressure

limit opening. Also, as an alternative, or in addition thereto, the annular sub-area itself can cover a pressure limit opening. The annular sub-area may further, alternatively or in addition thereto, have the function of reducing bypass and improving the coffee-making efficiency as will be further set forth
5 hereinbelow.

The invention therefore contemplates providing a pad which, at wish, gives an alternative solution to the problem of bypass. The invention further also contemplates providing a pad which, at wish, gives an alternative solution to improving the coffee-making efficiency.

10 If the area comprises the annular sub-area which occupies at least a part of the sealing seam, the bypass effect, if this should occur, will be reduced. As the area also extends outside the sealing seam at predetermined positions, at wish, additional advantages can be achieved.

Preferably, it holds that the annular sub-area comprises, at the
15 bottom sheet, an annular bottom sheet sub-area which extends inside (i.e. along) and outside the sealing seam. The bed of the product is often relatively thin at positions just outside the sealing seam. Here, the bed has a relatively low flow resistance to water flowing through the bed. This entails that the water tends to flow, to a relatively large extent, through this part of the bed.
20 As a result, the efficiency will not be optimal. As the area comprises an annular bottom sheet sub-area which also extends outside the sealing seam, the efficiency of the pad can be improved.

It is also possible that at the annular sub-area comprises, at the bottom sheet, an annular bottom sheet sub-area which extends along the
25 sealing seam and occupies at least a part of the sealing seam, while the area at the bottom sheet further comprises parts forming bulges at an inside edge of the bottom sheet sub-area outside the sealing seam. Here, the annular bottom sheet sub-area can reduce the bypass problem while, for instance, each bulge, optionally together with the annular bottom sheet sub-area, can cover the
30 pressure limit opening.

In particular, it further holds that the bottom sheet comprises an annular bottom sheet part of which first ring segments form part of the area of the covering and of which second ring segments do not form part of the area of the covering, the first and second ring segments together forming the annular bottom sheet part, while the annular bottom sheet part extends along the sealing seam and occupies at least a part of the sealing seam.

In particular, it further holds here that the top sheet comprises an annular top sheet part of which first ring segments form part the area of the top sheet and second ring segments do not form part of the area of the top sheet, the first and second ring segments of the annular top sheet part together forming the annular top sheet part, while the annular top sheet part extends along the sealing seam and occupies at least a part of the sealing seam. All this can be provided such that the first ring segments of the top sheet and the first ring segments of the bottom sheet, in combination, form the annular sub-area which occupies at least a part of the sealing seam.

In particular it holds that at the area at the bottom sheet comprises a first strip-shaped bottom sheet sub-area that extends along at least a part of a diameter of the bottom sheet. The first strip-shaped bottom sheet sub-area allows use of the pad in a holder with two separate discharge paths for the preparation of, for instance, two cups of the beverage. The holder may be provided with an inside space bound by a bottom and an upstanding sidewall. This inside space can be subdivided into two sub-spaces by means of a partition wall. On this partition wall, the first strip-shaped bottom sheet may rest. Each sub-space of the holder can be provided with at least one outflow opening. When, thus, hot water is fed to a top side of the holder, this hot water will be pressed through the pad. The beverage formed will then leave the pad and will divide itself, for the most part equally, over both sub-spaces.

The assembly according to the invention is characterized in that in the bottom, further, at least one pressure limit opening is provided while the bottom sheet of the pad is provided with at least one area which is

impermeable to water and which covers the at least one pressure limit opening.

If, in use, the holder is closed off with the aid of a lid, whereupon hot water is fed to the holder while, moreover, for whatever reason, the outflow opening is clogged, the pressure in the inside space of the holder will not rise to extreme heights because, with a rising pressure, hot water will be discharged to a surrounding outside the holder via the at least one pressure limit opening. Here, the pressure limit opening and the pad function in combination as a safety valve which will open when the pressure in the inside space will start to rise as a result of the outflow opening being clogged. Here, the pressure limit opening is covered by the area of the covering which is impermeable to water. If the outflow opening is clogged, the pressure in the holder will increase, while the pressure drop across the pad will then become very small. The pad is no longer firmly pressed against the bottom. The water that has been pressed through the pad then flows under the area to the pressure limit opening as a result of the increasing pressure. Then, the pressure limit opening will start discharging hot water when, for instance, the pressure in the inner space increases to a value above three atmosphere. The pressure will then rise no further. In particular, it further holds that the pad is provided with a plurality of indentations located at an outside edge of the sealing seam. In that case, with the assembly, the bottom of the holder is provided, preferably, with projections reaching into the indentations. In this manner, the pad can be positioned accurately at a desired, predetermined position in the holder such, for instance, that the area of the covering covers the at least one pressure limit opening. This accurate positioning is, for instance, particularly important when the pad is provided with the indentations for covering the pressure limit opening.

It is also possible that the sealing seam is provided with a plurality of openings which extend from a top side of the pad to a bottom side of the pad. Preferably, the openings are located in the area of the covering. With this

variant too, it holds for the assembly that it is preferred that the bottom of the holder be provided with projections reaching into the openings. For this variant too, it holds that thus, the pad can be accurately positioned at a predetermined position within the holder, the arrangement being such that
5 when, for instance, the holder is provided with the at least one pressure limit opening, this pressure limit opening is covered by the area of the covering.

Preferably, it further holds that a through-flow surface of the at least one pressure limit opening is greater than a through-flow surface of the at least one outflow opening. In this manner, when the pressure in the holder
10 starts rising as a result of a clogging of the outflow opening, the pressure can be reduced rapidly when the pressure limit opening opens. The fact is that the through-flow opening has a relatively great through-flow surface.

The invention will presently be further elucidated with reference to the drawing. In the drawing:

15 Fig. 1 shows a side view of a pad according to the invention;

Fig. 2a shows a bottom view of a first embodiment of a pad according to the invention;

Fig. 2b shows a top plan view of the pad according to Fig. 2a;

Fig. 3a shows a bottom view of a second embodiment of a pad
20 according to the invention;

Fig. 3b shows a top plan view of the pad according to Fig. 3a;

Fig. 4a shows a bottom view of a third embodiment of a pad according to the invention;

Fig. 4b shows a top plan view of the pad according to Fig. 4a;

25 Fig. 4c shows a top plan view of a fourth embodiment of a pad according to the invention;

Fig. 4d shows a top plan view of the pad according to Fig. 4c;

Fig. 5 shows a bottom view of a fifth embodiment of a pad according to the invention;

Fig. 6a shows a cross-section of a holder for including a pad according to the invention;

Fig. 6b shows a top plan view of the holder of Fig. 6a;

Fig. 7 shows a cross-section of a first embodiment of an assembly according to the invention comprising a holder according to Figs. 6a and 6b and a pad according to the invention, which is included in the holder;

Fig. 8a shows a cross-section of a second alternative embodiment of an assembly according to the invention;

Fig. 8b shows a top plan view of the holder according to Fig. 8a;

Fig. 9 shows a bottom view of a sixth embodiment of a pad according to the invention;

Fig. 10a shows a cross section of a third embodiment of an assembly comprising a holder and a pad according to the invention;

Fig. 10b shows a top plan view of the holder of Fig. 10a;

Fig. 11 shows a bottom view of a seventh embodiment of a pad according to the invention;

Fig. 12 shows a top plan view of a holder in which the pad according to Fig. 11 can be included;

Fig. 13 shows a side view of an eighth embodiment of a pad according to the invention;

Fig. 14 shows a fourth embodiment of an assembly according to the invention comprising two pads according to the invention and a holder in which the two pads have been included;

Fig. 15a shows a bottom view of a ninth embodiment of a pad according to the invention;

Fig. 15b shows a bottom view of a tenth embodiment of a pad according to the invention; and

Fig. 15c shows a bottom view of an eleventh embodiment of a pad according to the invention.

In Fig. 1, reference numeral 1 indicates a pad. In this example, the pad is designed in order that, in use, a liquid such as hot water can be fed under pressure to the pad for the purpose of being pressed through the pad. The pad 1 is filled with a product to be extracted such as ground coffee and/or
5 a product to be dissolved such as a creamer. The product can be extracted with a liquid such as, for instance, water or be dissolved in water. However, the invention does not preclude other liquids than water to be fed under pressure to the pad for extracting or dissolving the product. For instance, also milk can be fed for extracting the product such as, for instance, ground coffee. Milk can
10 also be fed for dissolving the product (such as for instance cocoa). The fact that the cocoa may not completely dissolve falls within the framework of this invention.

The product is indicated with reference numeral 2. The pad is provided with a preferably flexible bottom sheet 4 and a preferably flexible top
15 sheet 6. The top sheet and the bottom sheet are interconnected at their longitudinal edges in a manner known per se so that a covering 4, 6 with a circumferential sealing seam 8 is formed. The product 2 is situated between the top sheet and the bottom sheet in the covering formed by the top sheet and the bottom sheet. Both the top sheet and the bottom sheet each form a filter
20 which is, at least virtually, impermeable to the product and which is, as explained hereinabove, at least permeable to water.

An area 10 (represented in hatching) of the covering 4, 6 is designed to be at least virtually impermeable to water. This area comprises an annular sub-area 12 which occupies at least a part of the sealing seam 8 and which
25 area further extends outside the sealing seam 8 at predetermined positions.

A possible example of such an area 10 is discussed hereinbelow with reference to Fig. 2a and Fig. 2b. Fig. 2a shows a bottom view of the bottom sheet 4 of the pad of Fig. 1. For clarity's sake it is noted that the sealing seam 8 in this example has a width d_2 . In this example, the area 10 extends in any
30 case at the bottom sheet 4. The annular sub-area 12 of the area 10 comprises

at the bottom sheet an annular bottom sheet sub-area 14 having a width d_1 . The sealing seam 8 has a width d_2 which is smaller than the diameter d_1 . In this example, the annular bottom sheet sub-area 14 occupies the entire sealing seam 8 and extends over a distance d_1 minus d_2 along the bottom sheet 4 on positions 15 of the bottom sheet 4 located outside the sealing seam 8. Hence, the annular sub-area 12 extends outside the sealing seam 8 at predetermined positions 15 and occupies at least a part of the sealing seam 8. This part of the sealing seam extends around the sealing seam and is, consequently, also annular. In this example, this part forms the entire sealing seam. This entails that besides the sealing seam 8, also a part of the bottom sheet adjacent the product 2 is designed to be impermeable to water. Here, it may be so that the area 10 does not extend over the top sheet 6. Therefore, the area 10 comprises an annular sub-area 12, occupying at least one part of the, and in this example the entire, sealing seam. Further, the area 10 extends outside the sealing seam at predetermined positions. In this example, these positions 15 are defined by the part of the annular sub-area 12 which extends outside the sealing seam.

In this example, it holds that the top sheet 6 is designed to be at least virtually flat. It further holds that the bottom sheet 4 is of cup-shaped design, as is clearly visible in Fig. 1.

The pad according to Fig. 2a can for instance be included in a holder as shown in Fig. 6a. The holder 16 is provided with a bottom 18 and an upstanding sidewall 20. The holder 16 can for instance be designed as described in the European patent application EP 0 904 717. In the bottom 18, at least one outflow opening 22 is provided. In this example, the bottom 18 is composed of a horizontal, annular outside bottom part 24 and a dish-shaped inside bottom part 26. The inside bottom part 26 borders on an inside edge 28 of the outside bottom part 24 while the inside bottom part adjacent the outside bottom part extends downwards in a direction away from a side 30 of the holder. In the bottom, grooves 32 are provided, formed between projections 34,

the grooves extending from a position at a distance from the sidewall in a direction away from the sidewall.

In use, the pad according to Fig. 2a is placed in the holder, as shown in Fig. 7. In this example, the pad reaches adjacent the upstanding sidewall.

5 The holder with the pad 1 included therein is closed off by a lid 36. The lid 36 is provided at its inside with a plurality of hot water outlet openings 38. The lid is further provided with a water inlet 40 which is in fluid communication with the water outlet openings 38. In use, hot water is fed under pressure to the water inlet 40. The pressure may for instance be 0.7 bar. This hot water
10 flows via the outlet openings 38 into the inside space 17 of the holder. The water is thus fed under pressure to a top side of the pad 1. As the pad is provided with the bottom sheet sub-area 14 which is non-transmissive to water, water cannot leave the pad at these positions. In an annular part 15 of the bottom sheet sub-area 14, having a diameter $d1-d2$, and located just
15 outside the sealing seam 8, the height h (see Fig. 1) of the product 2, in this example the coffee bed, is relatively small. Here, the water that is pressed through the pad therefore experiences a relatively small flow resistance from the coffee. The result would be that relatively much water is pressed through this part of the coffee bed while this is the very part of the coffee bed that
20 comprises the least coffee. As a result, the coffee-making efficiency would decrease. Since, however, it holds that the bottom sheet sub-area 14 also renders the annular area 15 of the bottom sheet non-transmissive to water, the water cannot leave the pad at these positions, and a relatively large amount of water is prevented from passing through the relatively thin part of the coffee
25 bed. The coffee-making efficiency of the pad according to Fig. 2a is improved. It is also precluded that the water is pressed through the sealing seam 8 because in this example, the sealing seam 8 itself is also impermeable to water. The fact is that the annular sub-area 12 comprises, at the bottom sheet, the annular bottom sheet sub-area 14 occupying the entire sealing seam 8. As a
30 result thereof, the risk of bypass is reduced. Bypass is understood to mean that

water, fed to a top side of the pad, flows around the coffee bed to the outflow opening 22 of the holder.

In this example, water is also prevented from flowing around the pad to the outflow opening 22, since the pad, at the locations where, as a result of a pressure drop across the pad, it is pressed onto the bottom, it forms a seal
5 to water. Hence, in the present example, the bottom sheet sub-area 14 provides an additional guarantee against the risk of bypass and an extra guarantee for the improvement of the coffee-making efficiency.

In the example of the assembly of Fig. 7, in the bottom, further, a
10 number of pressure limit openings 42 are provided, providing a fluid communication between the inside space 17 and the surroundings 44 of the holder. The pressure limit openings 42 are each located partly in the outside bottom part 24 and partly in the inside bottom part 26. Hence, they are located on the inside edge 28. It further holds that each of the pressure limit
15 openings 42 is covered by the area 10 of the bottom sheet 4, in this example by the annular bottom sheet sub-area 14. All this entails the following advantage. If in the assembly of Fig. 7 the outflow opening 22 becomes clogged, when the water is fed to the water inlet 40 of the lid, the pressure in the inside space 17 of the holder will start rising rapidly when the coffee extract, which is pressed
20 through the pad 1, cannot leave the inside space 17 via the outflow opening 22. Further, the pressure drop across the pad will decrease so that the pad is no longer pressed against the bottom in an effective manner. It proves to be such that, with an increasing pressure of the liquid (coffee extract and/or water) in the inside space 17, the bottom sheet 14 no longer closes off the pressure limit
25 openings 42 so that the liquid can leave the inside space 17 via the pressure limit openings. As a result, a safety measure is built in, in order that the pressure in the inside space 17 cannot rise too much. In normal operation, when the outflow opening 22 is not blocked, as a result of the pressure drop across the pad, the bottom sheet and hence the part of the bottom sheet 4
30 which is non-transmissive to water will be pressed against the bottom. As a

result, the part of the bottom sheet which is non-transmissive to water will close off the pressure limit openings so that in that case, the coffee extract leaves the holder only via the outflow opening 22. In particular, it will hold that here, the outflow opening 22 is designed as, for instance, a nozzle. It holds
5 in this example that the size of the through-flow surface of the outflow opening 22 is smaller than the size of the through-flow surface of each of the pressure limit openings 42. If the holder were provided with a plurality of outflow openings 22, it holds that for instance the sum of the through-flow surfaces of the outflow openings 22 is smaller than the sum of the through-flow
10 surfaces of the pressure limit openings 42.

The pressure limit openings 42 can also each be provided entirely in the inside bottom part or in the outside bottom part of the holder. For the cooperation between pad and holder as regards the pressure limit openings, it is further not required that the area 10 comprises the annular sub-area 12. At
15 the bottom sheet, the area 10 needs only be present those specific positions for the pressure limit openings to be closed off. To this end, the area 10 may consequently be provided with a plurality of sub-areas, separate from each other, with each sub-area closing off one of the pressure openings, or wherein in any case a combination of the sub-areas closes off the pressure limit
20 openings. Fig. 15a shows a bottom side of a pad with such sub-areas 11, with each sub-area closing off a pressure limit area when the pad in this example is placed in the holder of Fig. 7. Thereto, each sub-area can have a size that is greater than the pressure limit opening which is closed off by the respective sub-area. Again, a side view of the pad according to Fig. 15 is shown in Fig. 1.
25 With the variant according to Fig. 15a, it also holds that the area comprises at least one (in this example four) sub-area(s) occupying at least a part of the sealing seam and a part of the covering outside the sealing seam.

If the pressure limit openings 47 lie completely in the inside bottom part 26, the sub-areas 11 can extend entirely along the bottom sheet 4 outside
30 the sealing seam 8 (Fig. 15b). If the pressure limit openings lie completely in

the outside bottom part 24, the sub-areas 11 can extend entirely along (within) the sealing seam of the bottom sheet 4 (Fig. 15c).

It is preferred that the surface of the sub-area 11 be greater than the surface of a pressure limit opening which is covered by the respective sub-
5 area 11. Each length of a diameter of a sub-area is for instance 50 – 150% greater than a corresponding diameter of a pressure limit opening.

With the pad according to Figs. 1 and 2a/2b it further holds that the sealing seam is provided with a plurality of indentations 46 located at an outside edge of the sealing seam. The indentations are situated in the area 10
10 of the bottom sheet 4. In this example, the area 10 of the bottom sheet as discussed hereinabove is formed by the bottom sheet sub-area 14. As can be seen in Figs. 6 and 7, it holds in this example that the bottom of the holder is provided with projections 47 reaching, in use, into the indentations 46. In this manner the pad can be accurately positioned in a desired position in the
15 holder. Such indentations can be used entirely analogously with the pad according to Fig. 15.

Instead of having indentations 46, or in combination with indentations 46, the pad according to Fig. 2a, 2b or according to Fig. 15 can also be provided with a plurality of fixing openings 48 extending from a top
20 side of the pad to a bottom side of the pad. The fixing openings 48 are situated in the sealing seam 8. In this example, with the pad according to Fig. 2a/2b, it further holds that the fixing openings are situated in the area 10 of the bottom sheet, i.e. in the bottom sheet sub-area 14.

With a pad having fixing openings, use can be made of a holder as
25 shown in Fig. 8 and Fig. 8b. The holder of Fig. 8 corresponds to a large extent to the holder according to Figs. 6 and 7 with this distinction that the holder according to Fig. 8 is not provided with projections 47 but, instead thereof, is provided with projections 50 extending, in use, through the fixing openings 48 of the pad. The projections 50 are projections of the bottom 18 of the holder.
30 More in particular, the projections 50 are been provided at the outside bottom

part 24. In particular it further holds that the projections 50 have a diameter which is somewhat greater than the diameter of the fixing openings 48 so that the projections 50 can reach into the fixing openings 48 in a more or less clamping manner. In this manner too, it is guaranteed that the pad is
5 positioned in the holder at a desired position before the holder is closed off with the aid of the lid 36 for the preparation of, in this example, coffee, as is discussed with reference to Fig. 7. With the pad according to Fig. 15, the fixing opening 48 also ensure that when the projections reach into the fixing
10 openings, the pad is positioned in the holder according to Figs. 8a/8b such that the sub-areas 11 cover the pressure limit openings 42. The fixing openings of the pad of Fig. 15 can cooperate with the projections of the holder according to Figs. 8a, 8b. It will be clear that the fixing openings of the pad of Fig. 15 have to be arranged rotated through 45 degrees in the plane of the drawing relative to the pad so that they are located at the sub-areas 11 in order that the pad
15 can also be used in the holder according to Figs. 6a and 6b

As stated, the top sheet 6 of the pad according to Fig. 2a can be designed so as to be of, merely, filtering paper, with the area 10 not extending as far as the top sheet. However, as shown in Fig. 2b, it is also possible that the annular sub-area 12 comprises an annular top sheet sub-area 14' having a
20 similar diameter d_1 as discussed in relation to Fig. 2a. It therefore holds here that the annular top sheet sub-area 14' also occupies the entire sealing seam 8. Furthermore, the annular top sheet sub-area reaches outside the sealing seam, more particularly so over a distance d_1-d_2 as can be seen in Fig. 2b.

If the top sheet is designed as discussed with reference to Fig. 2b,
25 the bottom sheet sub-area 14 can, if desired, be omitted. Here, use can be made of a holder as shown in Fig. 6a.

As shown in Fig. 3a, it may also be such that the annular bottom sheet sub-area 14 occupies only a part of the sealing seam 8. In the example of Fig. 3a, the annular bottom sheet sub-area 14 occupies a first annular seam
30 part 52 of the sealing seam 8. The sealing seam 8 comprises a second annular

seam part 54 which embraces the first annular seam part 52 and does not form part of the area 10 of the bottom sheet 6 which is at least virtually water impermeable. For the pad according to Fig. 3a it holds that this too can be provided with indentations 46 and/or fixing openings 48 as discussed in relation to Fig. 2a. Preferably, the fixing openings 48 extend in the first annular seam part 52. The area 10 may, again, not extend over the top sheet 6 as discussed in relation to Fig. 2a. However, it is also possible that the area 10 comprises, at the top sheet 6, an annular top sheet sub-area 14' reaching outside the sealing seam 8. Here, it holds in particular that the annular top sheet sub-area 14' covers a part of the sealing seam 8. The annular top sheet sub-area 14' then occupies, for instance, a fifth annular seam part 52' of the sealing seam 8. The sealing seam further comprises a sixth annular seam part 54' which does not form part of the area 10 of the top sheet which is at least virtually impermeable to water. The sixth annular seam part embraces the fifth annular seam part.

Naturally, the pad of Fig. 1 can also be provided with the bottom sheet according to Fig. 2a and the top sheet according to Fig. 3b. It is also possible that the pad of Fig. 1 is provided with the bottom sheet according to Fig. 3a and the top sheet according to Fig. 2b. Such variants are all possible. In the example of Fig. 3a, the fixing opening is provided in the first annular seam part 52. However, this is not necessary. They could also have been provided in the second annular seam part 54.

The pad of Fig. 1 could also be provided with a bottom sheet according to Fig. 4a and a top sheet as shown in Fig. 4b.

The bottom sheet of Fig. 4a comprises an annual bottom sheet part 60, of which first ring segments 62 form part of the area 10 of the covering, and of which second ring segments 64 do not form part of the area 10 of the covering. The first and second ring segments 62, 64 together form the annual bottom sheet part 60. As can be seen in Fig. 4a, one segment 62 of the first segments 62 borders on both sides on segments 64 of the second

segments 64. The annular bottom sheet part 60 occupies at least a part of the sealing seam 8. In this example, the annular bottom sheet part occupies the entire sealing seam 8. Furthermore, it holds that the annular bottom sheet part 60 extends inside and outside the sealing seam 8. This appears from the fact that the annular bottom sheet part has a width which is equal to d_1 while the sealing seam has a width which is equal to d_2 , with d_2 being smaller than d_1 (see Fig. 4a).

The top sheet 6 of the pad according to Fig. 4a can be designed as shown in Fig. 4b. The top sheet 6 comprises an annular top sheet part 60'. The annular top sheet part 60' comprises first ring segments 62', forming part of the area 10 of the top sheet 6, and second ring segments 64' not forming part of the area 10 of the top sheet. The first and second ring segments 62', 64' together form the annular top sheet part 60'. The annular top sheet part 60' extends along the sealing seam 8 and occupies at least a part of the sealing seam 8. Further, entirely analogously to what is described with reference to Fig. 4a, it holds that one segment 62' of the first segments 62' of the annular top sheet part 60' borders, on both sides, on segments 64' of the second segments 64' of the annular top sheet part 60'. In this example, the annular top sheet part 60' occupies the entire sealing seam 8. It further holds that the annular top sheet part extends both inside and outside the sealing seam. This can, again, be understood now that the thickness d_1 of the sealing seam is smaller than the thickness d_2 of the top sheet part 60'.

The top sheet and the bottom sheet are interconnected such that the segments 64 lie opposite the segments 62' while the segments 62 lie opposite the segments 64'. The segments 62 and 62' then provide, in combination, the annular sub-area 12 of the covering which occupies at least a part of the, and in this example the entire, sealing seam and which area further extends outside the sealing seam at predetermined positions.

The pad according to Figs. 4a and 4b has a side view as shown in Fig. 1 and can, again, be provided with indentations 46 and/or fixing openings 48 as discussed hereinabove.

With all this being analogous to what is discussed with reference to Figs. 3a and 3b, as shown in Fig. 4c, the annular bottom sheet part 60 can occupy only a part of the sealing seam 8. Here, the annular bottom sheet part 60 occupies, for instance, a third annular seam part 66 of the sealing seam 8. The sealing seam 8 further comprises a fourth annular seam part 68 embracing a third annular seam part 66 and not forming part of the area 10 of the bottom sheet which is at least virtually impermeable to water. The top sheet 6 can be built up entirely analogously to what is discussed with reference to Fig. 4c. For the top sheet 6 of Fig. 4d it holds that the annular top sheet part 60' occupies a part of the sealing seam 8. The annular top sheet part occupies a seventh annular seam part 66' of the sealing seam 8. The sealing seam further comprises an eighth annular seam part 68' which embraces the seventh annular seam part and does not form part of the area of the top sheet which is least virtually impermeable to water. For the pad according to Figs. 4c and 4d too, it holds that the segments 64 and 62' lie opposite each other and that the segments 62 and 64' lie opposite each other in order to thus form a pad of which a side view corresponds to that shown in Fig. 1. Here, too, it holds that the segments 62 and 62', in combination, form the annular sub-area 12 of the covering, having the property that this annular sub-area occupies at least a part of the sealing seam, while, moreover, this annular sub-area provides that, further, the area 10 extends outside the sealing seam at predetermined positions. The pad according to Figs. 4c and 4d too can be provided with indentations and/or fixing openings as discussed hereinabove.

In Fig. 5, an alternative embodiment of a bottom sheet 4 of the pad 1 of Fig. 1 is shown. The annular sub-area 12 comprises at the bottom sheet an annular bottom sheet sub-area 70 which extends along the sealing seam and occupies at least a part of the sealing seam. In this example, the annular

bottom sheet sub-area 70 occupies the entire sealing seam 8 and, as to this, is comparable to the annular bottom sheet sub-area 14 of Fig. 2a. In Fig. 2a, the annular bottom sheet sub-area 14 also had the property that it reached outside the sealing seam 8. This is not the case with the variant according to Fig. 5.

5 Instead thereof, the area 10 further comprises, at the bottom sheet, parts forming bulges 72 at an inside edge 74 of the bottom sheet sub-area 70 outside the sealing seam. The bulges 72 are therefore the earlier mentioned parts of the area 10 extending outside the sealing seam at predetermined positions. Here, it holds therefore that the width d1 of the annular bottom sheet sub-
10 area 70 is equal to the width d2 of the sealing seam 70.

The top sheet of the pad of Fig. 5 can comprise an area 10 similar to the bottom sheet 4 of Fig. 5. A top plan view of such a sheet will therefore be identical to the bottom view of the bottom sheet 4.

In this example, the pad according to Fig. 5 can, again, be provided
15 with fixing openings 48 and/or indentations 46. If such a pad is placed in the holder according to Fig. 6b such that the projections 50 fall into the fixing openings 48 and/or such that the projections 47 fall into the indentations 46, the annual sub-area 70 of the bottom sheet and the bulges 72 of the bottom sheet ensure that the pressure limit openings 42 are covered. During normal
20 use, the pressure limit openings 42 are therefore closed off by areas of the covering which are impermeable to water. In use therefore, the water will be pressed through the pad 1 whereupon the coffee extract can leave the pad via the outflow opening 22. Only when the pressure in the inside space of the holder starts to rise to an extreme degree, if, for instance, the outflow
25 opening 22 is clogged, the liquid will leave the inside space via the pressure limit openings 42 as discussed hereinabove. If the pad were placed in the holder such that the projections 50 do not fall into the fixing openings 48, the possibility exists that the bulges do not (partly) close off the pressure limit openings 42. The fixing openings prevent this problem. The fixing openings of
30 the pad of Fig. 5 can cooperate with the projections of the holder according to

Figs. 6a, 6b. It will be clear that the fixing openings of the pad of Fig. 5 must be arranged rotated through 45° in the plane of the drawing relative to the pad so that they are situated at the bulge 7 in order that the pad can also be used with the holder according to Figs. 8a and 8b.

5 In Fig. 9, again, an alternative embodiment of the pad according to Fig. 1 is shown, while Fig. 9, again, shows a bottom view of the bottom sheet 4. Here too, it holds that an area 10 of the covering is designed to be at least virtually impermeable to water while the area comprises at least one annular sub-area occupying at least a part of the sealing seam. In this example, the
10 annular sub-area comprises at the bottom sheet an angular bottom sheet sub-area 14 coinciding with the sealing seam 8. Further, the area 10 extends outside the sealing seam 8 at predetermined positions 76. If, as in Fig. 2a, these predetermined positions were defined by those parts 15 of the annular bottom sheet sub-area extending outside the sealing seam, in Fig. 9, these
15 parts or positions 76 are defined by a first strip-shaped bottom sheet sub-area 78 which extends at least along a part of the diameter 80 of the bottom sheet 4. The ends 82 of the first strip-shaped bottom sheet sub-area 78 are located in or, in this example, are adjacent to a part of the sealing seam. The pad comprising the bottom sheet of Fig. 9 can, again, have a side view as
20 shown in Fig. 1. The top sheet can, again, have any embodiment as discussed hereinabove. The top sheet may also have a top plan view as discussed with reference to the bottom view of Fig. 9.

 The pad comprising the bottom sheet of Fig. 9 can, again, be provided with indentations 46 and/or fixing openings. The pad of Fig. 9 can, for
25 instance, be utilized in a pad holder 84 as shown in Fig. 10a. Fig. 10b shows a top plan view of the pad holder 84. In Fig. 10a, in addition to a cross-section of the pad holder 84, it is also shown how the pad according to Fig. 9 is included in the holder 84, while the projections 50 of the holder reach into the fixing openings 48. The holder 84 is provided with a bottom 18 and an upstanding
30 sidewall 20 which, in combination, bound an inner space 17 of the holder. Once

more, the bottom is composed of an outside bottom part 24 and an inside bottom part 26. In the bottom, a first outlet opening 22 and a second outlet opening 22' are provided. Between the outlet openings 22 and 22', the holder is provided with an upstanding edge (partition wall) 86 while a top side 88 of the upstanding edge is lower than the outside bottom part 24. If the pad of Fig. 1, which is provided with the bottom sheet of Fig. 9, is placed into the holder 84, the first strip-shaped bottom sheet sub-area of 78 will come to rest on top of the upstanding edge 86. Thereupon, the assembly of pad and holder is closed off with the aid of a lid 36 as described hereinabove. It is further noted that the upstanding edge 86 in fact subdivides the inside space 17 of the holder 84 in an inner space 19 and 19', while the inside space 19 is provided with the outflow opening 22 and the inner space 19' is provided with the outflow opening 22'.

When, hereupon, hot water is fed under pressure to the water inlet 40, the water will be pressed via the upper sheet through the coffee bed. The thus formed coffee extract will be supplied in at least virtually equal parts to the outflow opening 22 and the outflow opening 22', respectively. Here, the first strip-shaped bottom sheet sub-area 76 forms a seal with the upstanding edge 86, thereby contributing to the coffee extract being equally divided over both outflow openings 22 and 22'. In the holder of Fig. 10a, the upstanding edge 86 can also be omitted. In that case, too, the strip-shaped bottom sheet sub-area 78 will contribute to the coffee extract being equally divided over both outflow opening is 22 and 22'.

In Fig. 11, an alternative embodiment of a bottom sheet 4 of the pad according to Fig. 1 is shown. Here, parts corresponding with Fig. 9 are provided with the same reference numerals. Furthermore, the bottom sheet according to Fig. 11 is provided with a second strip-shaped bottom sheet sub-area 78' belonging to the area 10, extending along at least a part of the diameter 80' of the bottom sheet 4. Again, it holds that the ends 82' of the second strip-shaped bottom sheet sub-area extend into or border on a part of the sealing seam 8. It further holds that the first strip-shaped bottom sheet

sub-area 78 and a second strip-shaped bottom sheet sub-area 78' include an angle different from zero which, in this example, is at least virtually equal to 90°. It therefore holds that in this example, a first strip-shaped bottom sheet sub-area and the second strip-shaped bottom sheet sub-area intersect. The pad of Fig. 11 can be used in a holder, a top plan view of which is shown in Fig. 12. The holder of Fig. 12 corresponds, broadly, to the holder according to Fig. 10a. However, it holds that the holder according to Fig. 12 is provided with a first upstanding edge 86 and a second upstanding edge 86'. The first and second upstanding edges 68, 68' include an angle which corresponds to the angle which is included by the first strip-shaped bottom sheet sub-area 78 and the second strip-shaped bottom sheet sub-area 78'. In this manner, the inside space 76 of the holder is subdivided into four inside spaces 19, 19', 19" and 19'''. In the bottom, per sub-space 19 – 19'', one outflow opening 22 – 22''' is provided. If the pad of Fig. 11 is placed in the holder of Fig. 12, with the projections 50 again reaching into fixing opening 48, the first strip-shaped bottom sheet sub-area 78 will rest on top of the upstanding edge 86 while the second strip-shaped bottom sheet sub-area 78' will rest on the upstanding edge 86'. The holder of Fig. 12 is filled with the pad according to Fig. 11 and is closed off with a lid as shown in Fig. 10a in order that the coffee extract that is formed is distributed equally over the outflow openings 22 - 22'''. The operation hereof is entirely analogous to that as discussed in relation to Fig. 10. In the holder of Fig. 12, the upstanding edges 86, 86' can also be omitted. In that case, too, the strip-shaped bottom sheet sub-areas 78, 78' contribute to the coffee extract being distributed equally over the four outflow openings.

In each of the embodiments outlined hereinabove, it holds that the top sheet 6 is of flat design. In each of the embodiments outlined hereinabove, the bottom sheet is of cup-shaped design. However, it is also possible that the pad is designed to be at least virtually mirror symmetrical relative to a flat plane V through the sealing seam. A side view of such a pad is shown in Fig. 13.

In this example, the pads described hereinabove are filled with approximately 7 g of ground coffee. Then, such a pad is suitable for preparing approximately one consumption of coffee, that is to say 1 cup of coffee. With the embodiments of the pads as described hereinabove with reference to Fig. 1, it is further very well possible to simultaneously prepare two cups of coffee. All this is discussed with reference to Fig. 14. Fig. 14 shows a holder 16' in which two pads are included. The holder is provided with a bottom 18 comprising an inside bottom part 26 and an outside bottom part 24 as discussed hereinabove. The first pad 1 is positioned resting with its bottom sheet on the bottom. Here, the sealing seam 8 of the pad will reach over the outside bottom part 24. Further, a second pad 1', which is identical to the pad 1, is placed upside down on top of the pad 1. For the second pad 1' it therefore holds that it rests with its top sheet 6 on the top sheet 6 of the first pad 1. The assembly of Fig. 14 is further provided with a lid 36' for closing off the holder 16'. The lid 36' is provided, at the inside, with a bottom 90 having at least one water outlet opening 92. The bottom 90 of the lid is composed of a horizontally directed annular outside bottom part 92 and a dish-shaped inside bottom part 94 adjacent the inside edge 96 of the outside bottom part. Adjacent the outside bottom part, the inside bottom part extends upwards in a direction away from a side of the lid. The result is that the pad 1', as shown in Fig. 14, is included, at least virtually, in a space enclosed by the dish-shaped inside bottom part 94. Here, the annular outside bottom part 24 of the holder lies opposite the annular outside bottom part 94 of the lid 36'. The two sealing seams 8 of the two pads 1, 1' are situated (optionally not clamped, as in this example) between the outside bottom parts of the holder and the lid. When, with the apparatus according to Fig. 14, hot water is fed to water inlet 40, this water will be pressed through the two pads 1, 1' whereupon the coffee extract will leave the holder via the outlet opening 22. In this example, the amount of water that is fed to the water inlet 40 will be approximately twice as large as the amount discussed in relation to Figs. 7 and 8a. It further appears that the

pads, which are each provided with the area 10, cooperate such that the risk of bypass is strongly reduced and the coffee-making efficiency is optimized.

According to the invention, with the assembly according to Fig. 14, each of the pads can also not be provided with the areas 10. More in general, it then holds
5 that the assembly comprises two pads and one holder while the pads are each provided with a flat top sheet and a bottom sheet which are interconnected adjacent their longitudinal edges, while the pads are filled with a product to be extracted and/or a product to be dissolved, the two pads being included in the holder, the holder being provided with a bottom and an upstanding sidewall
10 while in the bottom at least one outflow opening is provided, a first pad of the pads resting with its bottom sheet on the bottom and a second pad of the two pads resting with its top sheet on the top sheet of the first pad.

For each of the exemplary embodiments outlined hereinabove it holds that the area of the bottom sheet can be realized in various manners. For
15 instance, the bottom sheet can consist of a nonwoven material which has undergone a heat treatment in the area. It is also possible that the bottom sheet comprises a coating which has undergone a heat treatment in the area of the bottom sheet. This coating may then have been applied to both an outside of the bottom sheet (this is the side of the bottom sheet forming the outside of
20 the pad) and an inside of the bottom sheet. It is also possible that the area of the bottom sheet comprises a coating which is at least virtually impermeable to water. This coating may, again, be applied both to the inside of the bottom sheet and to the outside of the bottom sheet. In each of these examples, the bottom sheet itself may have been manufactured from filtering paper. It is
25 further possible that the bottom sheet is manufactured from, for instance, filtering paper and that the area of the bottom sheet comprises an additional film which has been applied to the filtering paper at the inside and/or at the outside of the bottom sheet. Here, this additional film is of the type that is at least virtually impermeable to water. It is also conceivable that the bottom
30 sheet is manufactured from a material that is at least virtually impermeable

to water, which has been perforated for obtaining a filter. At the location where the perforation is missing, the bottom sheet is provided with the area 10 mentioned. Whatever holds for the bottom sheet, holds entirely analogously for the top sheet. For instance, the top sheet too can comprise a nonwoven

5 material which has undergone a heat treatment in the area. This top sheet can be combined with a similar type of bottom sheet or with a different type of bottom sheet, to be formed into a pad. Thus, the top sheet may have been manufactured from the non-woven material which has undergone a heat

10 treatment in the area while the bottom sheet is manufactured from a material which is at least virtually impermeable to water and which is perforated for obtaining a filter. Each of these combinations is a possibility. The top sheet too can therefore be provided with a coating which, in the area of the top sheet, has undergone a heat treatment. It is also conceivable that the area of the top

15 sheet comprises a coating which is at least virtually impermeable to water. It is also possible that the area of the top sheet comprises an additional film applied to the filtering paper at an inside and/or at an outside of the pad and which is at least virtually impermeable to water. It is also possible that the top

20 sheet is manufactured from a material which is at least virtually impermeable to water which is perforated for obtaining a filter. In each of the embodiments described hereinabove, it holds that the pad is of the flexible type. This means that in this example, the product in the pad has not been compressed to form a solid whole and hence has some freedom of movement within the covering and that the covering is not rigid. The pad may however be provided with a

compressed product.

25 In the embodiments outlined hereinabove it therefore holds that the covering is designed to be flexible. This has the advantage that, in use, the pad can adjust to the shape of the holder as a result of which the pad will link up well to the bottom of the holder so that the above-outlined cooperation between pad and holder can be realized in an optimal manner. When it further holds

30 that the product has not been compressed, this has as an advantage that the

product itself can adjust relatively rapidly to the shape of the holder. This will be somewhat more difficult when, conversely, the product *has* been compressed, and will typically only occur if hot water is fed to the pad.

However, it is preferred that the pad is designed to be flexible. When
5 the pad is designed to be flexible, this entails that the covering is of flexible design and that furthermore, the product has not been compressed.

It could be so that the sealing seam and/or the areas have more rigid properties than the rest of the pad. In that example, it holds that the covering outside the sealing seam is designed to be at least substantially flexible. When
10 the areas too are flexible, it then holds that the covering outside the sealing seam is designed to be flexible, and when the areas are rigid (not flexible) it holds that the covering outside the sealing seam is designed to be substantially flexible. In that case too, the above-outlined use of the various embodiments of the pad can be realized well. In particular, it holds that the surface of the
15 predetermined positions where the area extends outside the sealing seam is relatively small with regard to the surface of the covering outside the sealing seam and outside the area. Relatively small is for instance understood to mean that the surface of the predetermined positions where the area extends outside the sealing seam is smaller than 50% of the surface of the covering outside the
20 sealing seam and outside the area. In particular, the percentage is smaller than 40 percent and, preferably, smaller than 25 percent. If, in that case, the area were to have the property that it is more rigid than the rest of the covering, it has been achieved that in use, the pad as a whole can still take the shape of the holder as described hereinabove. Taking the shape is understood
25 to mean, inter alia, that the pad as such already has a shape that fits the holder well, but because the pad is for instance substantially not rigid, but at least substantially flexible, the pad can still, at a level of details, differ from the shape of the holder and can thus, in use, adjust its shape.

The fact that it is preferred that the covering is designed to be at
30 least substantially flexible, entails, for instance, that the bottom and top sheet

are each manufactured from a flexible material such as filtering paper, and that the area has properties such that also there, where the area is present, the covering remains not rigid but flexible, i.e. relatively easily deformable and bendable. Here, the sealing seam is also flexible.

5 Preferably, it also holds for each of the outlined embodiments that the top sheet outside the sealing seam rests on the product, at least substantially. This allows the pad to be suitable to be placed in a holder while the liquid, more in particular the hot water, is fed under pressure to the holder for the purpose of being pressed through the holder. If the top sheet were not
10 to substantially rest on the product, in use, the top sheet could tear and the pad is unsuitable, or less suitable, to be used under pressure.

 It is preferred that the pad be filled with a product to be extracted such as, for instance, ground coffee or tea. In that case, the pad may, optionally, further be filled with a product to be dissolved such as a creamer,
15 cocoa or other substances such as flavourings, colorants etc.

 Further, the pressure limit openings can be provided entirely in the outside bottom part and/or entirely in the inside bottom part. Also, instead of being circular, the pads can have a different shape such as oval, n-angular (N greater than or equal to three), et cetera. Annular is therefore also understood
20 to include these shapes. Such variants are each understood to fall within the framework of the invention.

Claims

1. A pad filled with a product to be extracted such as ground coffee and/or, optionally, a product to be dissolved such as a creamer for preparing a beverage, wherein the pad is designed in order that, in use, a liquid such as hot water can be fed under pressure to the pad for extracting and/or dissolving the product, the pad being provided with an optionally flexible bottom sheet manufactured from, for instance, filtering paper and an optionally flexible top sheet manufactured from, for instance, filtering paper, the top sheet and the bottom sheet being interconnected at their longitudinal edges so that a covering with a circumferential sealing seam is formed with the product situated between the top sheet and the bottom sheet, the bottom sheet and the top sheet each forming a filter which is at least virtually impermeable to the product and which is at least permeable to water, characterized in that one area of the covering is designed to be at least virtually impermeable to water wherein:- the area comprises at least one annular sub-area occupying at least a part of the sealing seam extending around the sealing seam, which area further extends outside the sealing seam at predetermined positions; - and/or the area comprises a plurality of sub-areas separate from each other; - and/or the area comprises at least one sub-area occupying at least a part of the sealing seam and a part of the covering outside the sealing seam.
2. A pad according to claim 1, characterized in that the annular sub-area comprises, at the bottom sheet, an annular bottom sheet sub-area which extends inside and outside the sealing seam.
3. A pad according to claim 2, characterized in that the annular bottom sheet sub-area occupies the entire sealing seam.
4. A pad according to claim 2, characterized in that the annular bottom sheet sub-area occupies a part of the sealing seam.

5. A pad according to claim 4, characterized in that the annular bottom sheet sub-area occupies a first annular seam part of the sealing seam.
6. A pad according to claim 5, characterized in that the sealing seam comprises a second annular seam part which embraces the first annular seam part and does not form part of the at least virtually water impermeable area of the bottom sheet.
7. A pad according to claim 1, characterized in that the annular sub-area comprises at the bottom sheet an annular bottom sheet sub-area which extends along the sealing seam and occupies at least a part of the sealing seam, while the area further comprises, at the bottom sheet, parts forming bulges at an inside edge of the bottom sheet sub-area outside the sealing seam.
8. A pad according to any one of the preceding claims, characterized in that the area comprises, at the bottom sheet, a first strip-shaped bottom area sub-area which extends along at least a part of a diameter of the bottom sheet.
9. A pad according to claim 8, characterized in that the ends of the first strip-shaped bottom sheet sub-area are located in or are adjacent to a part of the sealing seam.
10. A pad according to claim 8 or 9, characterized in that the area of the bottom sheet comprises a second strip-shaped bottom sheet sub-area which extends along at least a part of a diameter of the bottom sheet.
11. A pad according to claim 10, characterized in that the ends of the second strip-shaped bottom sheet sub-area are located in or are adjacent to a part of the sealing seam.
12. A pad according to claim 11, characterized in that the first strip-shaped bottom sheet sub-area and the second strip-shaped bottom sheet sub-area include an angle different from zero.
13. A pad according to claim 12, characterized in that said angle is approximately equal to 90 degrees.

14. A pad according to any one of claims 10 – 13, characterized in that the first strip-shaped bottom sheet sub-area and the second strip-shaped bottom sheet sub-area intersect.
15. A pad according to any one of the preceding claims, characterized in
5 that the bottom sheet comprises an annular bottom sheet part, of which first ring segments form part of the area of the covering and of which second ring segments do not form part of the area of the covering, the first and second ring segments together forming the annular bottom sheet part, while the annular bottom sheet part extends along the sealing seam and occupies at least a part
10 of the sealing seam.
16. A pad according to claim 15, characterized in that one segment of the first segments borders, on both sides, on segments of the second segments.
17. A pad according to claim 16, characterized in that the annular bottom sheet part occupies the entire sealing seam.
- 15 18. A pad according to claim 16, characterized in that the annular bottom sheet part occupies only a part of the sealing seam.
19. A pad according to claim 18, characterized in that the annular bottom sheet part occupies a third annular seam part of the sealing seam.
20. A pad according to claim 19, characterized in that the sealing seam
20 comprises a fourth annular seam part which embraces the third annular seam part and does not form part of the at least virtually water impermeable area of the bottom sheet.
21. A pad according to claim 15, characterized in that the annular bottom sheet extends inside and outside the sealing seam.
- 25 22. A pad according to claim 1, characterized in that the area comprises, at the top sheet, an annular top sheet sub-area extending inside and outside the sealing seam.
23. A pad according to claim 22, characterized in that the annular top sheet sub-area occupies the entire sealing seam.

24. A pad according to claim 22, characterized in that the annular top sheet sub-area covers a part of the sealing seam.

25. A pad according to claim 24, characterized in that the annular top sheet sub-area occupies a fifth annular seam part of the sealing seam.

5 26. A pad according to claim 25, characterized in that the sealing seam comprises a sixth annular seam part which embraces the fifth annular seam part and does not form part of the at least virtually water impermeable area of the top sheet.

10 27. A pad according to claim 1, characterized in that the annular sub-area comprises, at the top sheet, an annular bottom sheet sub-area extending along the sealing seam while the area further comprises, at the top sheet, parts forming bulges at an inside edge of the top sheet outside the sealing seam.

15 28. A pad according to any one of the preceding claims, characterized in that the top sheet comprises an annular top sheet part of which first ring segments form part of the area of the top sheet and second ring segments do not form part of the area of the top sheet, the first and second ring segments of the annular top sheet part together forming the annular top sheet part while the annular top sheet part extends along the sealing seam and occupies at
20 least a part of the sealing seam.

29. A pad according to claim 28, characterized in that one segment of the first segments of the annular top sheet part borders, on both sides, on segments of the second segments of the annular top sheet part.

30. A pad according to claim 28, characterized in that the annular top
25 sheet part covers the entire sealing seam.

31. A pad according to claim 28, characterized in that the annular top sheet part occupies a part of the sealing seam.

32. A pad according to claim 31, characterized in that the annular top sheet part covers a seventh annular seam part of the sealing seam.

33. A pad according to claim 32, characterized in that the sealing seam comprises an eighth annular seam part which embraces the seventh annular seam part and does not form part of the area of the top sheet which is at least virtually impermeable to water.

5 34. A pad according to claim 28, characterized in that the annular top sheet part extends inside and outside the sealing seam.

35. A pad according to claim 1, characterized in that the plurality of areas separate from each other extends each partly inside (along) and partly outside the sealing seam.

10 36. A pad according to claim 1, characterized in that the plurality of areas separated from each other each extend inside (along) the sealing seam.

37. A pad according to claim 1, characterized in that the plurality of areas separated from each other each extend outside the sealing seam.

15 38. A pad according to any one of the preceding claims, characterized in that the sub-areas extend at the bottom sheet of the covering.

39. A pad according to any one of the preceding claims, characterized in that the bottom sheet comprises a non-woven material which has undergone a heat treatment in the area.

20 40. A pad according to any one of the preceding claims, characterized in that the bottom sheet comprises a coating which has undergone a heat treatment in the area of the bottom sheet.

41. A pad according to any one of the preceding claims, characterized in that the area of the bottom sheet comprises a coating which is at least virtually impermeable to water.

25 42. A pad according to any one of the preceding claims, characterized in that the area of the bottom sheet comprises an additional film which is applied to the filtering paper at the inside and/or at the outside of the pad and which is at least virtually impermeable to water.

43. A pad according to any of the preceding claims 1 – 38, characterized in that the bottom sheet is manufactured from a material that is at least virtually impermeable to water, which is perforated for obtaining a filter.

44. A pad according to any one of the preceding claims, characterized in
5 that the top sheet comprises a non-woven material which has undergone a heat treatment in the area.

45. A pad according to any one of the preceding claims, characterized in that the top sheet comprises a coating which has undergone a heat treatment in the area of the top sheet.

10 46. A pad according to any one of the preceding claims, characterized in that the area of the top sheet comprises a coating which is at least virtually impermeable to water.

47. A pad according to any one of the preceding claims, characterized in that the area of the top sheet comprises an additional film which is applied to
15 the filtering paper at the inside and/or at the outside of the pad and which is at least virtually impermeable to water.

48. A pad according to any one of the preceding claims 1- 43, characterized in that the top sheet is manufactured from a material that is at least virtually impermeable to water, which is perforated for obtaining a filter.

20 49. A pad according to any one of the preceding claims, characterized in that the sealing seam is provided with a plurality of indentations located at an outside edge of the sealing seam.

50. A pad according to any one of the preceding claims, characterized in that the sealing seam is provided with a plurality of openings which extend
25 from a top side of the pad to a bottom side of the pad.

51. A pad according to claim 49, characterized in that the indentations are located in the area of the bottom sheet.

52. A pad according to claim 50, characterized in that the openings are located in the area of the bottom sheet.

53. A pad according to claims 22 and 49, characterized in that the indentations are located in the area of the top sheet.
54. A pad according to claims 22 and 50, characterized in that the openings are located in the area of the top sheet.
- 5 55. A pad according to any one of the preceding claims, characterized in that the bottom sheet is designed to be at least substantially cup-shaped.
56. A pad according to any one of the preceding claims, characterized in that the top sheet is designed to be at least virtually flat.
57. A pad according to claim 55, characterized in that the pad is
10 designed so as to be at least virtually mirror symmetrical relative to a flat plane through the sealing seam.
58. A pad according to any one of the preceding claims, characterized in that the covering outside the sealing seam is designed to be at least substantially flexible.
- 15 59. A pad according to any one of the preceding claims, characterized in that the covering is designed to be flexible.
60. A pad according to any one of the preceding claims, characterized in that the pad is designed to be flexible.
61. A pad according to any one of the preceding claims, characterized in
20 that the surface of the predetermined positions where the area extends outside the sealing seam is relatively small with regard to the surface of the covering outside the sealing seam and outside the area.
62. A pad according to any one of the preceding claims, characterized in that the top sheet outside the sealing seam rests, at least substantially, on the
25 product.
63. An assembly of a pad and a holder in which the pad is included, wherein the pad is filled with a product to be extracted such as ground coffee and/or, optionally, a product to be dissolved such as a creamer, the pad being provided with a bottom sheet manufactured from, for instance, filtering paper
30 and a top sheet manufactured from, for instance, filtering paper, the top sheet

and the bottom sheet being interconnected at their longitudinal edges so that a covering with a circumferential sealing seam is formed, with the product situated between the top sheet and the bottom sheet while the bottom sheet and the top sheet each form a filter which is at least virtually impermeable to the product and which is at least permeable to water, the holder being provided with a bottom and, optionally, an upstanding sidewall while in the bottom at least one outflow opening is provided, the pad resting on the bottom, while the assembly is designed in order that, in use, a liquid such as hot water can be fed under pressure to the assembly for extracting the pad, characterized in that in the bottom, further, at least one pressure limit opening is provided, the bottom sheet of the pad being provided with at least one area which is impermeable to water and which covers the at least one pressure limit opening.

64. An assembly according to claim 63, characterized in that the pad reaches over the bottom adjacent the upstanding sidewall.

65. An assembly according to claim 63 or 64, characterized in that the bottom is composed of a horizontal, annular outside bottom part and a dish-shaped inside bottom part which borders on an inside edge of the outside bottom part, the inside bottom part adjacent the outside bottom part extending downwards in a direction away from a side of the holder.

66. An assembly according to claim 65, characterized in that the at least one pressure limit opening extends at least in the outside bottom part.

67. An assembly according to claim 66, characterized in that the at least one pressure limit opening also extends into the inside bottom part.

68. An assembly according to any one of the preceding claims 63 – 67, characterized in that the sealing seam is provided with a plurality of indentations located at an outside edge of the sealing seam and that the bottom of the holder is provided with projections reaching into the indentations.

69. An assembly according to any one of the preceding claims 63 – 67, characterized in that the sealing seam is provided with a plurality of openings which extend from a top side of the pad to a bottom side of the pad, and that the bottom of the holder is provided with projections reaching into the
5 openings.

70. An assembly according to any one of claims 63 – 69, characterized in that the holder is provided with a plurality of pressure limit openings which are each covered by the at least one area.

71. An assembly according to claims 63 – 70, characterized in that the
10 holder is provided with a plurality of pressure limit openings and that the area is provided with a plurality of sub-areas which, in combination, cover the pressure limit openings.

72. An assembly comprising two pads according to claim 56 and one
15 holder in which both pads are included, the holder being provided with a bottom and, optionally, an upstanding sidewall while in the bottom at least one outflow opening is provided, the first pad of the pads resting with its bottom sheet on the bottom, a second pad of the two pads resting with its top sheet on the top sheet of the first pad.

73. An assembly according to claim 72, wherein the assembly is further
20 provided with a lid for closing off the holder, the lid being provided at its inside with a bottom which is provided with at least one water supply opening for feeding hot water to the holder, the bottom of the lid being composed of a horizontally directed annular outside bottom part and a dish-shaped inside bottom part which borders on an inside edge of the outside bottom part, while
25 the inside bottom part adjacent the outside bottom part extends upwards in a direction away from the side of the lid.

74. An assembly according to claim 73, characterized in that the annular outside bottom part of the holder lies opposite the annular outside bottom part of the lid.

75. An assembly according to claim 74, characterized in that the two sealing seams of the two pads are situated between the outside bottom parts of the holder and the lid.
76. A pad of the assembly according to any one of claims 63 – 71.
- 5 77. An assembly comprising two pads and a holder, wherein the pads are each provided with a flat top sheet and a bottom sheet which are interconnected adjacent their longitudinal edges, the pads being filled with a product to be extracted and/or a product to be dissolved while the top sheet and the bottom sheet are impermeable to the product and are at least
- 10 permeable to water, the two pads both being included in the holder while the holder is provided with a bottom and, optionally, an upstanding sidewall, in the bottom at least one outflow opening being provided, a first pad of the pads resting with its bottom sheet on the bottom and a second pad of the two pads resting with its top sheet on the top sheet of the first pad.

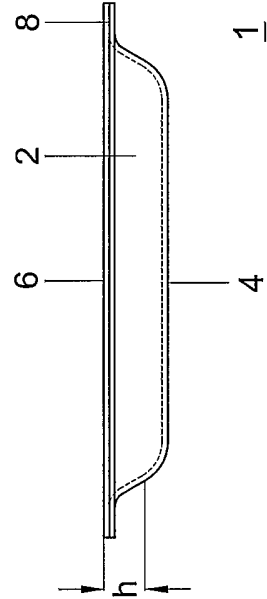


Fig. 1

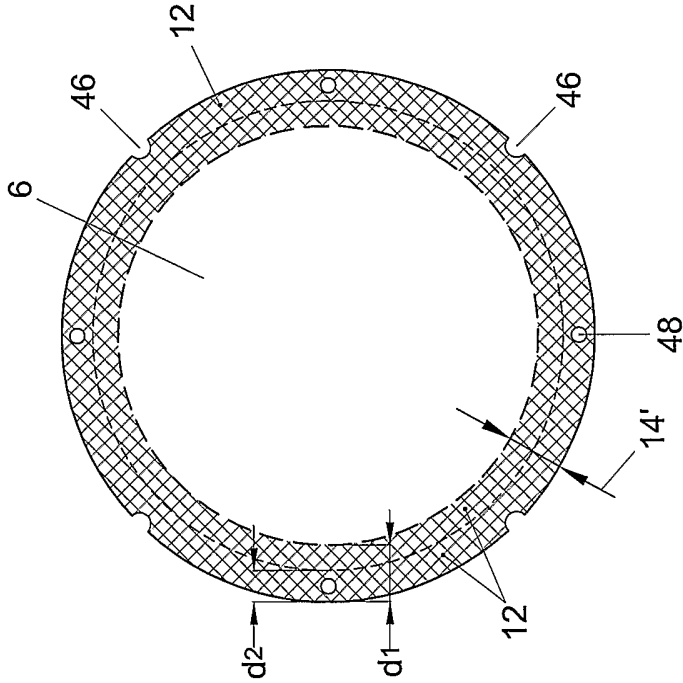


Fig. 2b

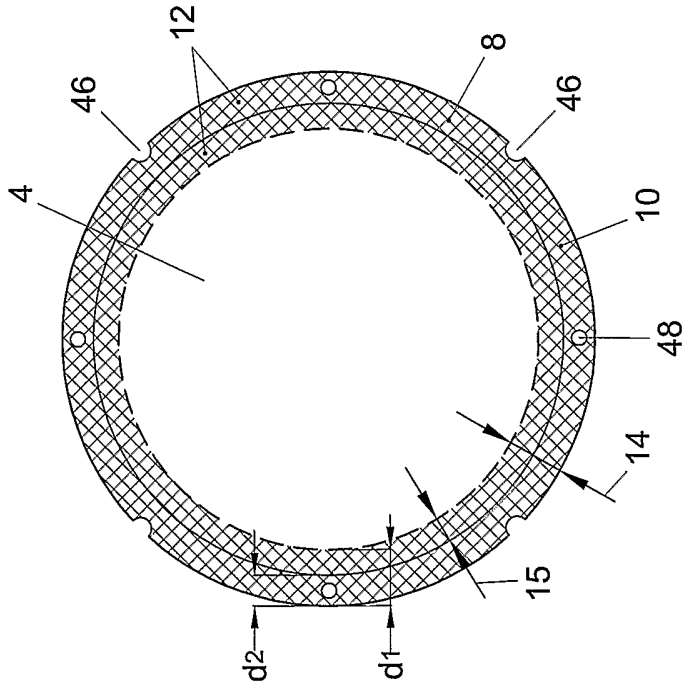


Fig. 2a

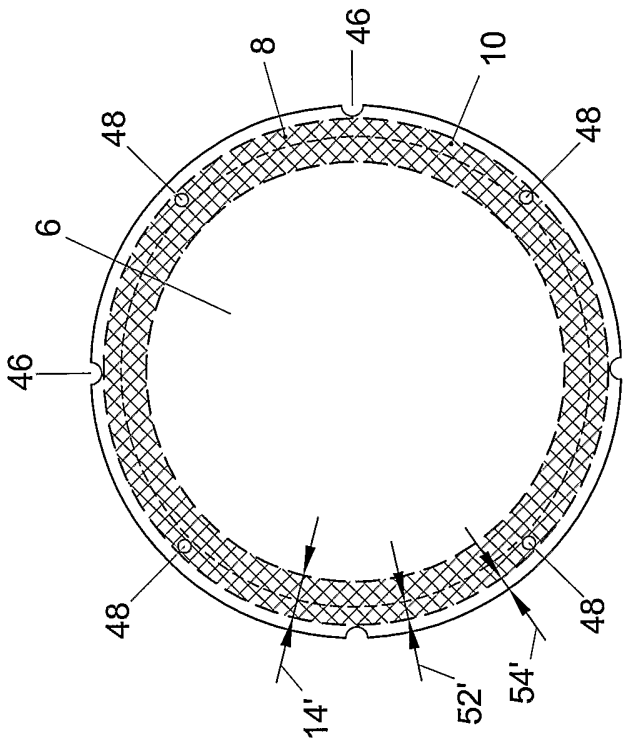


Fig. 3b

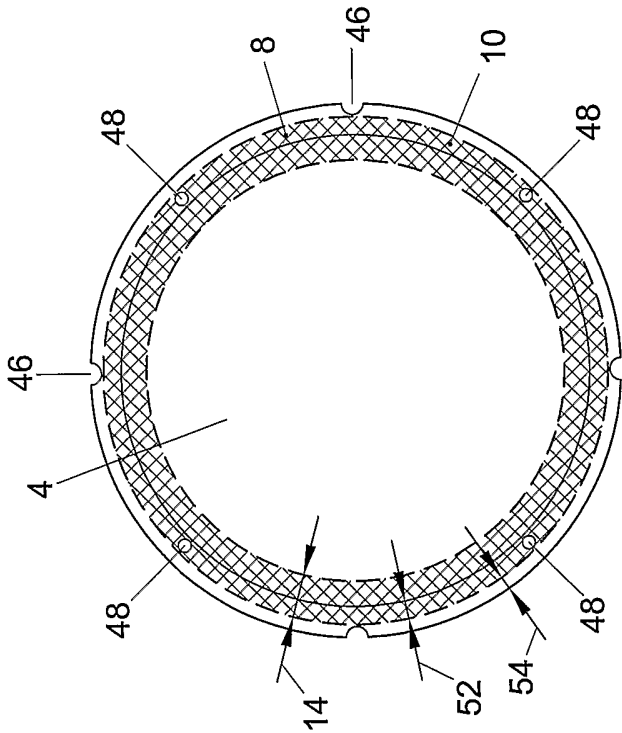


Fig. 3a

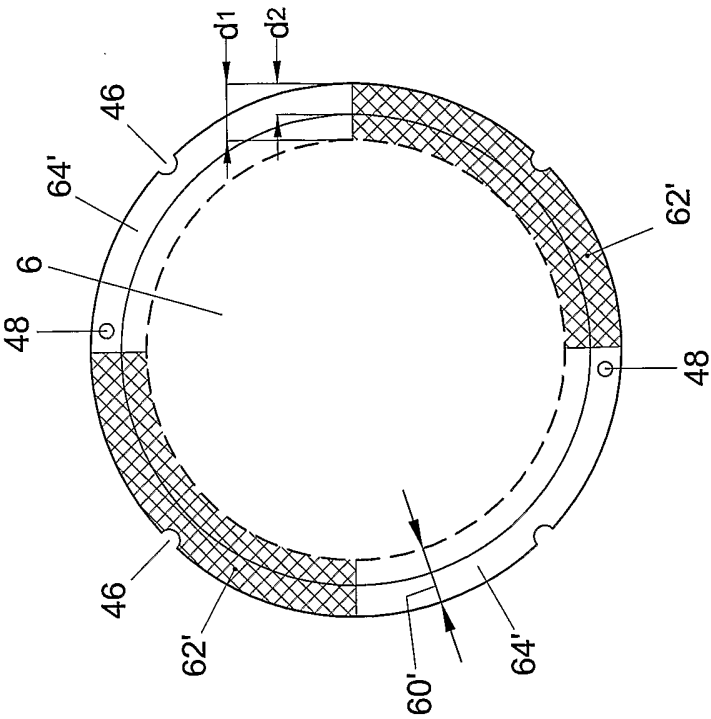


Fig. 4b

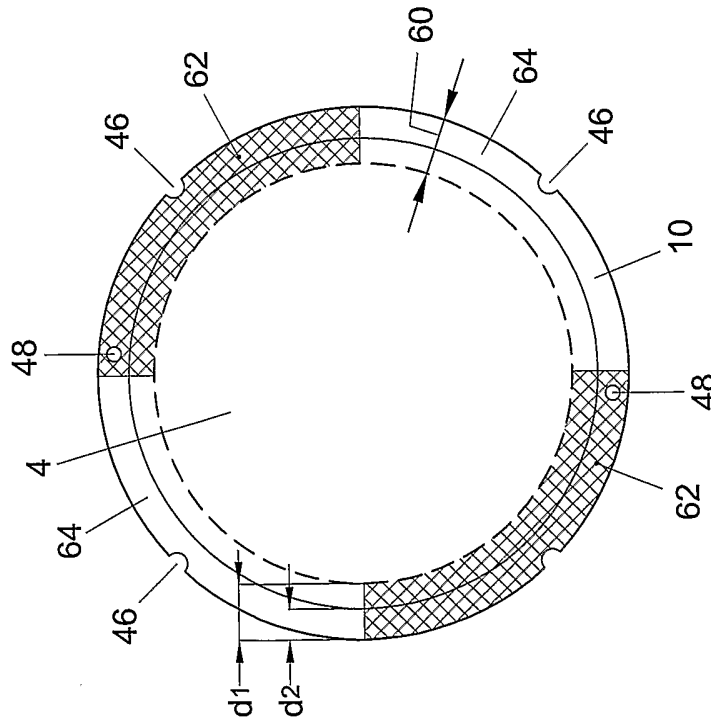


Fig. 4a

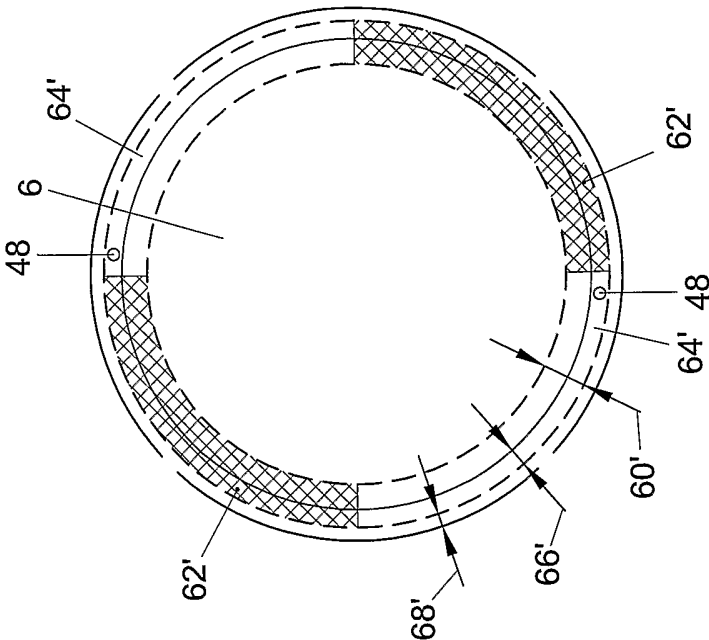


Fig. 4d

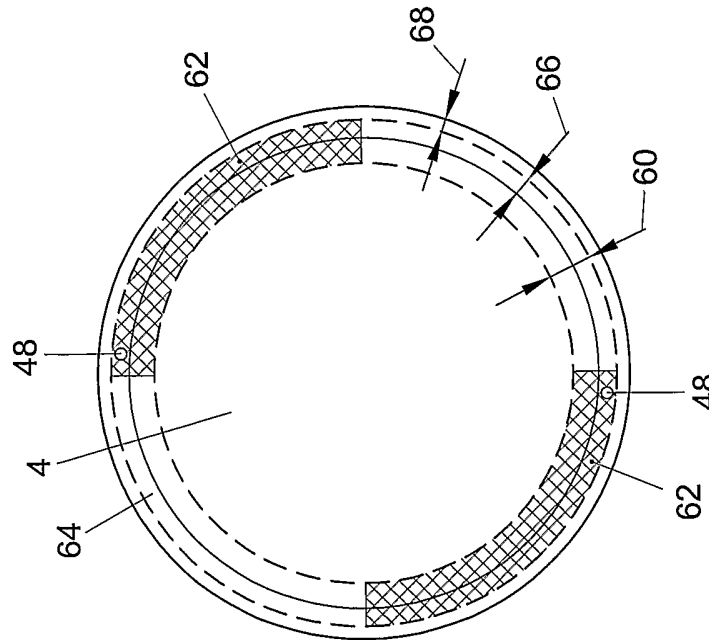


Fig. 4c

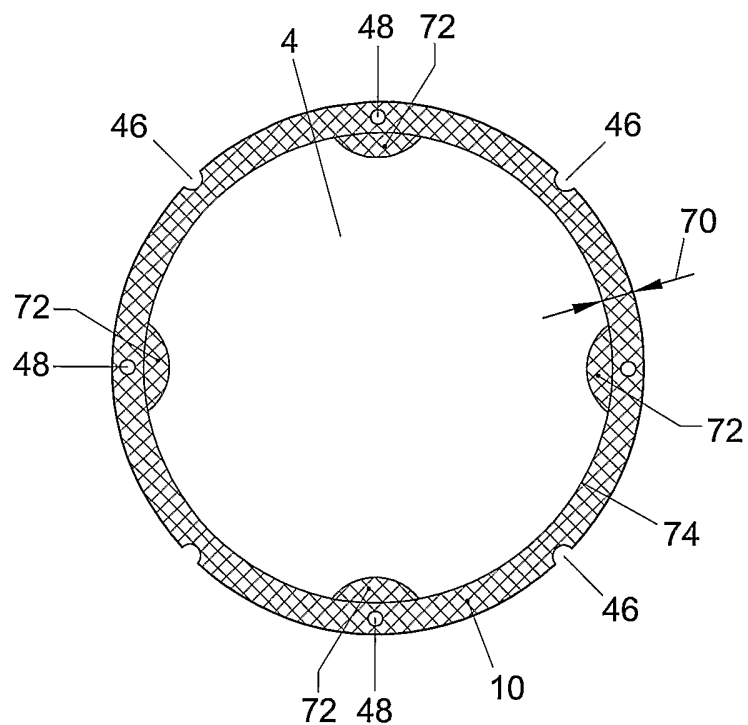


Fig. 5

6/12

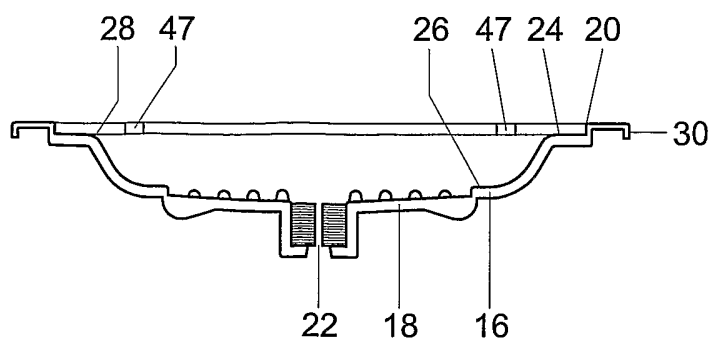


Fig. 6a

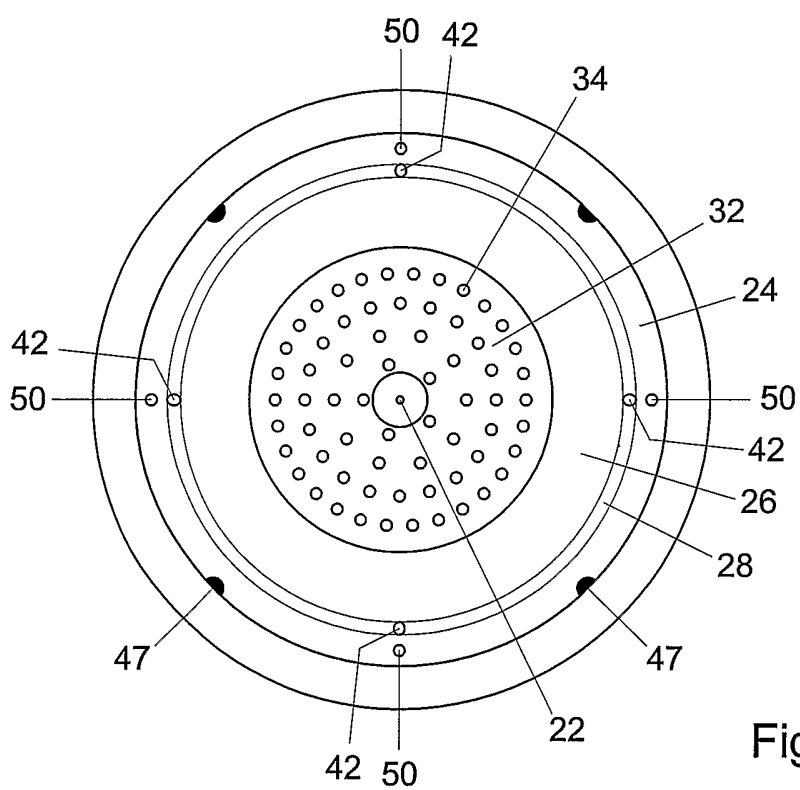


Fig. 6b

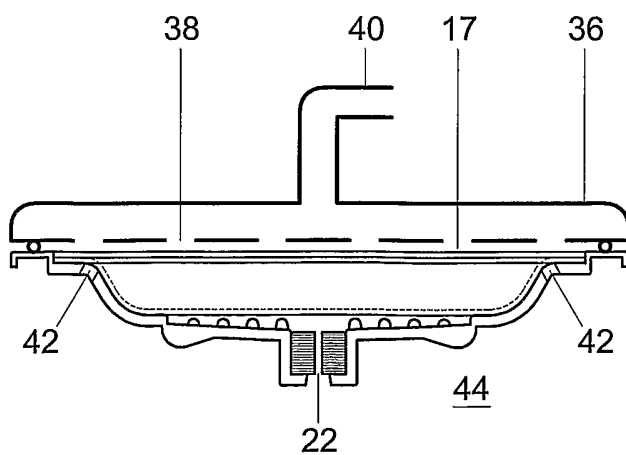


Fig. 7

7/12

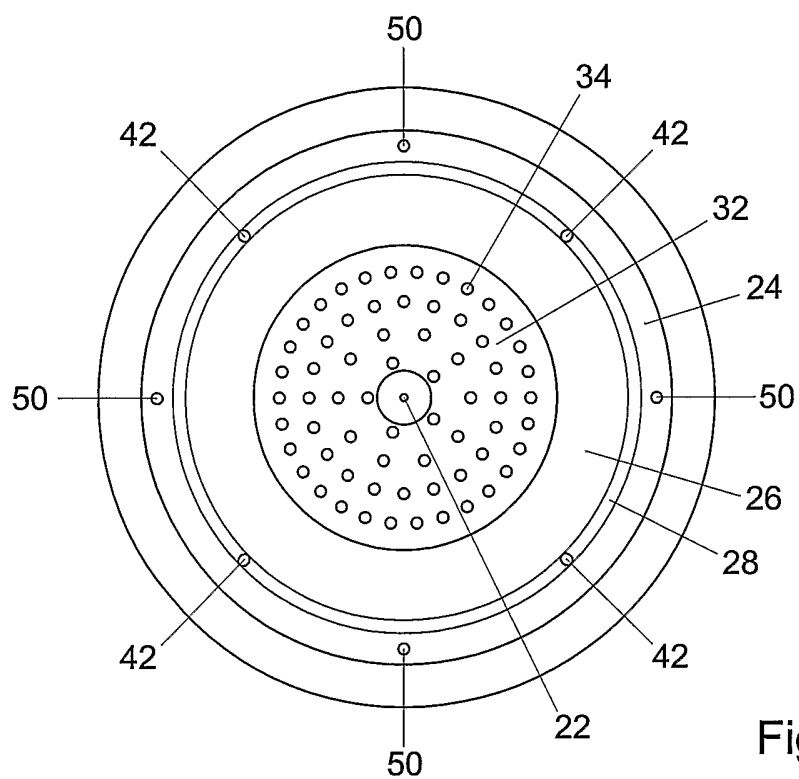


Fig. 8b

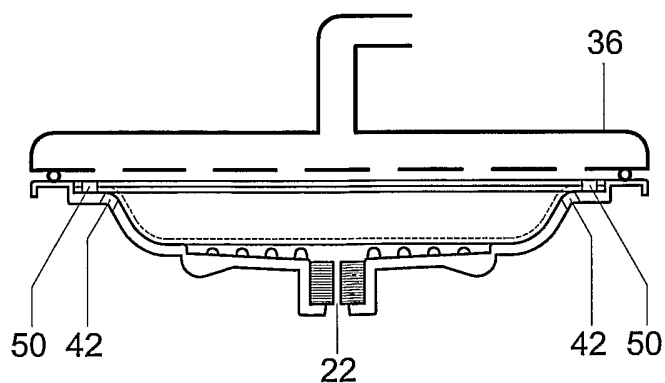


Fig. 8a

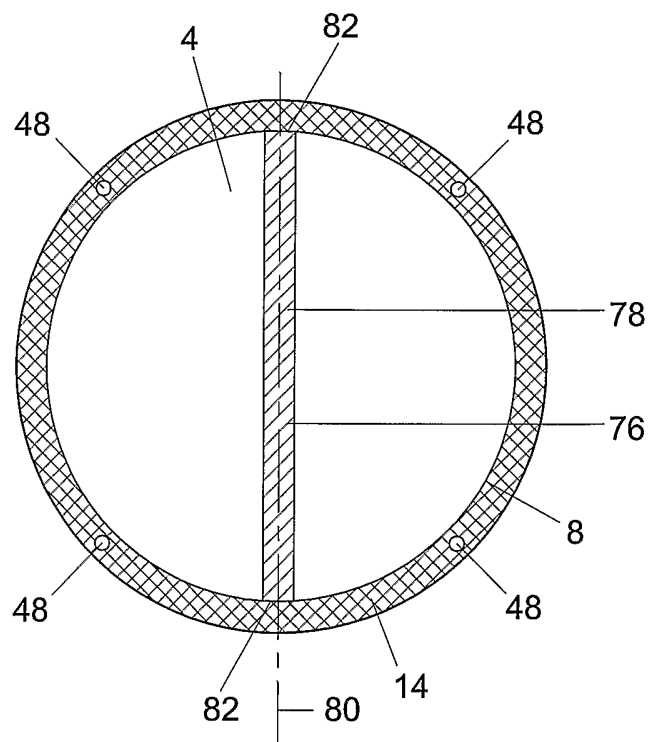


Fig. 9

10/12

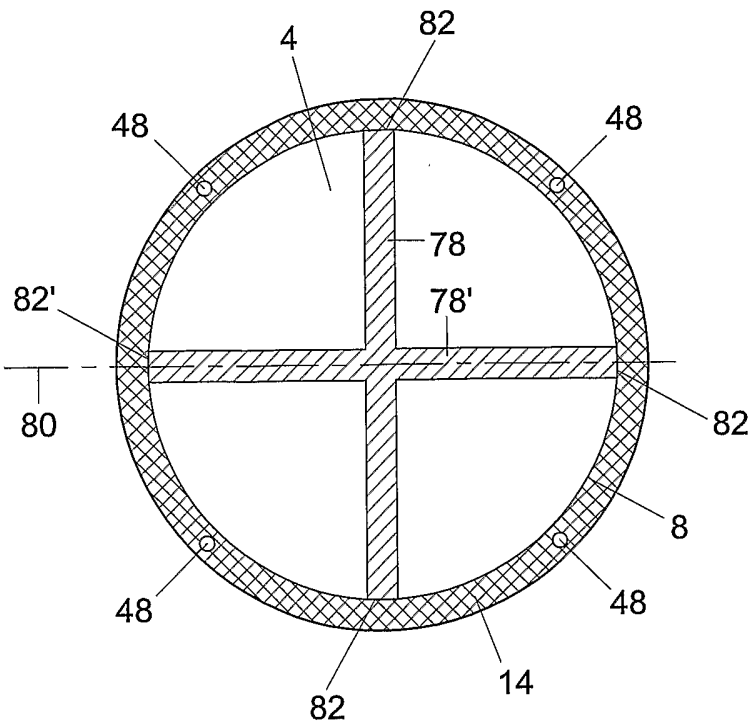


Fig. 11

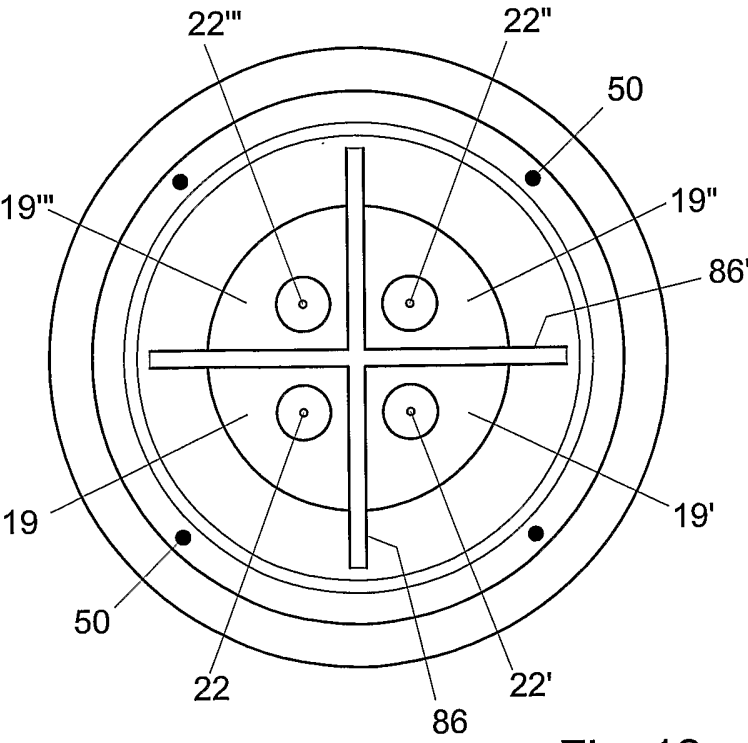


Fig. 12

11/12

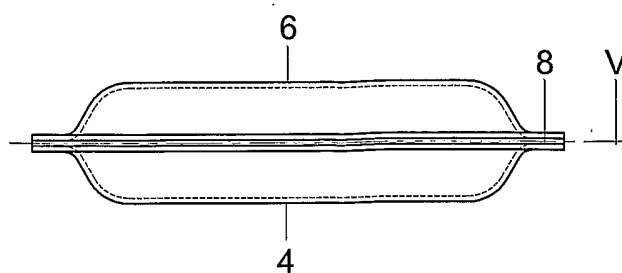


Fig. 13

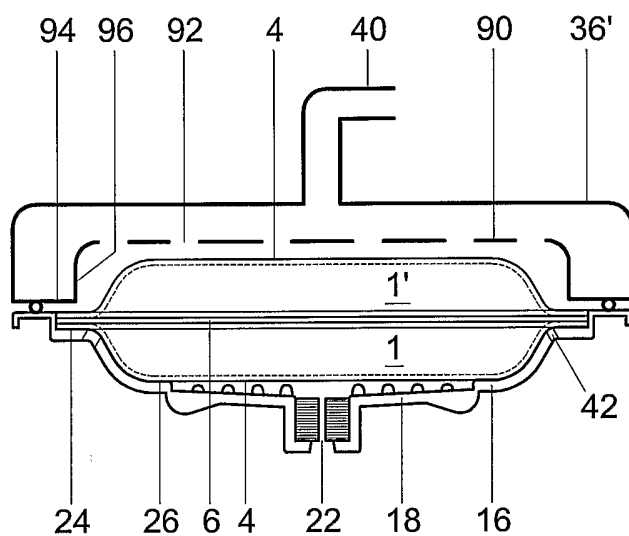


Fig. 14

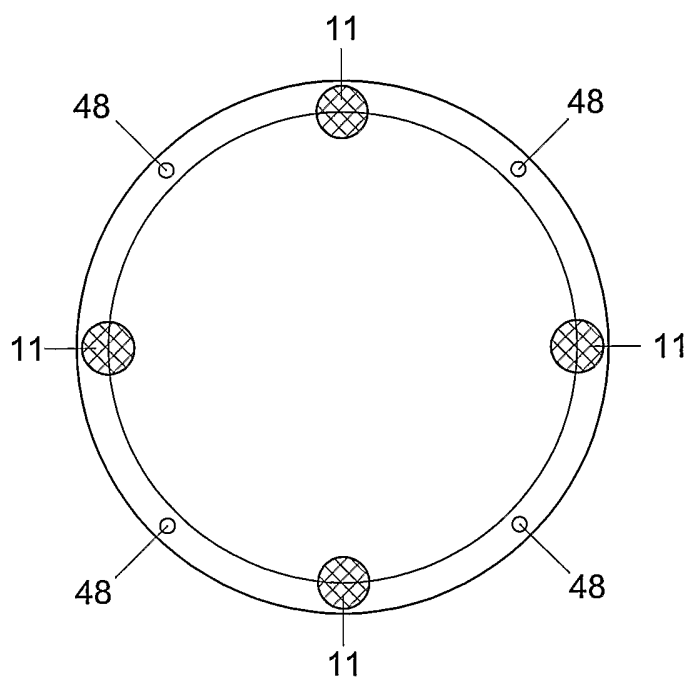


Fig. 15A

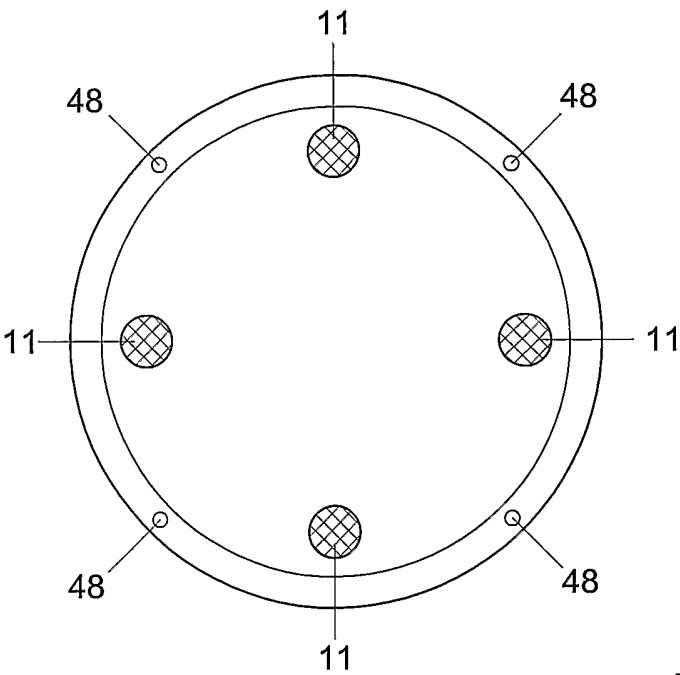


Fig. 15B

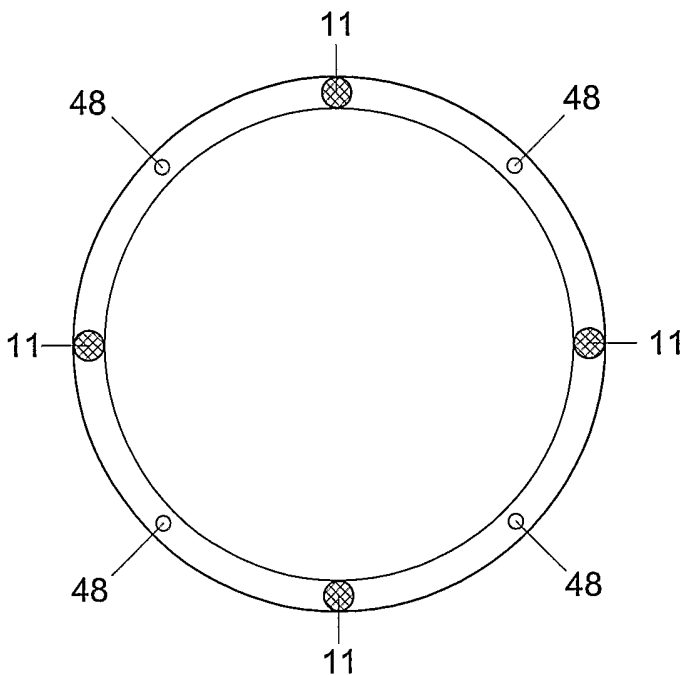


Fig. 15C