



Europäisches Patentamt
European Patent Office
Office européen des brevets



(11)

EP 1 632 338 A2

(12)

EUROPEAN PATENT APPLICATION

(43) Date of publication:
08.03.2006 Bulletin 2006/10

(51) Int Cl.:
B30B 9/22 (2006.01)

(21) Application number: **05380064.5**

(22) Date of filing: **06.04.2005**

(84) Designated Contracting States:
**AT BE BG CH CY CZ DE DK EE ES FI FR GB GR
HU IE IS IT LI LT LU MC NL PL PT RO SE SI SK TR**
Designated Extension States:
AL BA HR LV MK YU

(72) Inventor: **Najarro Santamaria, Juan**
26006 Logrono
La Rioja (ES)

(74) Representative: **Maldonado Jordan, Julia**
Linares, 7 Pta. 3
46018 Valencia (ES)

(30) Priority: **06.09.2004 ES 200402062**

(71) Applicant: **Maquinas y Herramientas la Rioja, S.L.**
26006 Logrono,
La Rioja (ES)

(54) **Vertical press for fruits, grapes and their derivatives of the pneumatic-cage type with a diaphragm**

(57) A vertical press for fruits of the pneumatic-cage type with a diaphragm.

It consists of a support (1) and a tray (3) which keeps centered a multi-perforated frustoconical cage (6), optionally covered with a anti-splash bag (400), and which houses the fruit to be pressed, the juice coming out through its multiple perforations and depositing on the tray (3), which may have a device for stripping the pressed paste.

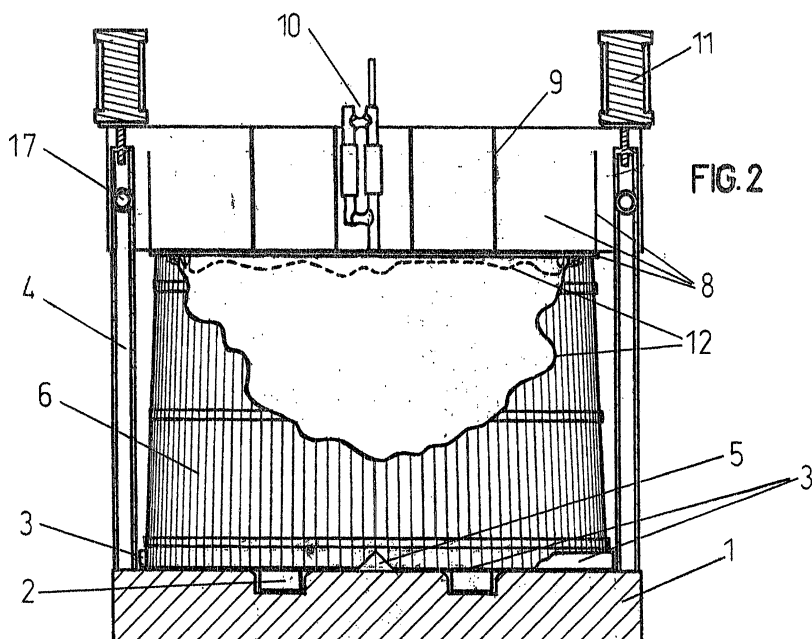
A lid (8), attached to two columns (4), movable by

means of two hydraulic cylinders (11) located on the columns (4), is arranged on the cage (6).

The mouth (15) of a balloon (12), which is inflated towards the bottom and walls of the cage (6), pressing the deposited fruit, is hermetically attached at the lower side of the lid (8).

A pressing control device (302) with a flow-metering valve (303) may be installed on the tray (3).

Two parallel rails of concealable rollers (301) carrying the tray (3) may be arranged at one or both sides of the press.



EP 1 632 338 A2

Description

OBJECT OF THE INVENTION

[0001] The invention consists in a vertical press for pressing fruits, grapes, and their derivatives by means of a pneumatic system with a diaphragm which enhances the quality of the products, optimizing to the maximum the operation of pressing of these.

[0002] The press operates by filling with air a bag or balloon of resilient material, arranged inside a cage with perforated walls and frustoconical shape, which upon expanding presses the fruits previously deposited in the cage, achieving a juice of better homogeneity and quality, increasing productivity and cleanup of the juices obtained in conventional presses.

[0003] Also, consistent improvements in a reinforced system of attachment of the diaphragm to the lid of the press, the arrangement of some diaphragm-gathering members, a member for facilitating stripping, a cage-covering bag, and a pressing control system are made.

BACKGROUND OF THE INVENTION

[0004] There are many types of presses for pressing grapes or other types of fruits on the market.

[0005] In pressing with vertical presses, conventional systems with a flat disk which descends inside the cage crushing the fruits have been mostly used, this disk being actuated by means of either a thread system or a hydraulic piston, such as is the case in the Spanish Utility Model with publication number ES 1,056,606U.

[0006] Due to this type of pressing being in parallel and fruit paste distribution randomly, on one hand, a series of solid and hard-packed paste blocks which do not allow the pressing to continue, and on the other hand, a series of pockets or spaces wherein part of the obtained must or juice go, are generated, a correct processing not being achieved; also, the necessary pressures so as to obtain an acceptable result have to be very high.

[0007] All this disadvantages are solved with the present invention, disclosed herein, a better must or juice being obtained at the lowest cost and with the greatest production as possible.

[0008] There are also several pneumatic diaphragm presses on the market, such as is the case of US patent number 5,081,921, EP number 0,791,921, or ES number 291,642, especially in horizontal arrangement instead of vertical, such as the one disclosed herein, which turn out to be of great complexity when it comes to filling and also discharging the product or its remainder, situation which is solved with the present invention.

[0009] Another disadvantage present in almost all current pressing systems occurs at the moment of emptying the pressed remains, given the solidity thereof due to these remains having been compressed at high pressures.

[0010] Improvements to be incorporated in the dia-

phragm press for facilitating the attachment, locking, and gathering of the diaphragm, facilitating stripping by means of a member inside the cage, and a cage-covering bag for preventing splashes, and a pressing process control system, are also shown in the present specification.

DESCRIPTION OF THE INVENTION

[0011] The novel, low cost, simple and easily adaptable pneumatic vertical cage press system object of the present invention is very useful and applicable to all types of processes of pressing fruits, grapes, and their derivatives, with a minimum maintenance cost.

[0012] The press object of present specification consists of a support, provided with two separate and parallel channels which house two U profiles.

[0013] Said U profiles are located integral with a tray which rests on the support and is going to collect all the liquid from pressing, as the major base of a cage of frustoconical and multi-perforated surface, wherein the fruits, paste, grapes, or their derivatives are introduced so as to be pressed and to allow the squeezed juice or must to exit through its multiple perforations, is located on this tray in a centered fashion. Easy extraction and carrying of the tray and cage by means of a forklift is allowed with the U profiles.

[0014] The support has in its periphery two diametrically-arranged vertical columns which consist of two profiles rigidly joined to said support.

[0015] A lid reinforced on its upper portion, which closes the assembly and is joined to the upper portion of the vertical columns dividing the support, is arranged on top of the cage.

[0016] The inflation, safety, and vacuum mechanisms of the pressing system, and hydraulic cylinders for opening and closing the press are located on the lid.

[0017] A flexible balloon, which upon being inflated with the mechanisms indicated in the foregoing paragraph performs the pressing of the fruits, paste, grapes, or derivatives deposited inside the cage, is attached to the lower face of the lid.

[0018] The balloon is hermetically attached to the lid, as the mouth thereof is located in an assembly made up of a ring axially arranged on the lid, a second ring exterior and parallel to the foregoing and of lesser height, and a series of circular O sectors arranged between both circle-shaped rings and attached to the lid by means of screwed-on flanges.

[0019] The balloon, inside the cage, upon being inflated with air or another fluid, exerts a uniform, regular, and homogenous pressure on the paste and in turn in all directions.

[0020] A small pressure in the air or fluid is enough, such that the balloon exerts a unitary force directly on the paste even greater than any of the currently known and applied systems, in spite of the high pressures utilized by them, given that the section relationship between the balloon and the cylinders or threads of conventional

presses can be 100 to 1 or more.

[0021] The hydraulic cylinders allow the lid to rise, and with the balloon gathered, upon insufflating a vacuum, it will be possible to extract the tray and cage, replacing them for other clean ones, and thereby to continue with the production process.

[0022] Cleanup of the waste adhered to the walls of the cage after the pressing operation is a very simple operation thanks to the frustoconical shape of the cage walls, as the pulp does not lump against the wall itself and tends to strip by itself.

[0023] It is possible to use these parts described in their subdivisions so as to adapt them to a plurality of different applications, adapting them to those existing in the different production points.

[0024] Other advantages of this invention are the long durability, low costs, paste mobility, uniform distribution of pressures on the paste, totally adjustable process, and especially the safety achieved by working at low pressure, being also an uncomplicated and functional press.

[0025] It has also been devised so that it is easily adapted to other systems of similar characteristics.

[0026] Furthermore, this vertical press of the pneumatic cage type with a diaphragm or balloon may be improved with all or part of the following improvements in several portions of its mechanism in order to solve several disadvantages, thereby obtaining the best juice with the lowest cost, maintenance, and greater production as possible.

[0027] The balloon closure may be improved, preventing leaks and preventing that the gathering thereof is such that it gets caught and consequently is rendered useless or has to be replaced.

[0028] Thus, the balloon-gathering system may have a rigid device inside of it which holds the balloon in a given position, and an outer, resilient device which absorbs and gathers the remainder thereof preventing that the gathering is randomly carried out causing creases or distortions which may cause rupture thereof.

[0029] The balloon tends to adopt a cylindrical shape upon inflating, and when it deflates, the resilient member located in its central portion makes this central portion of the balloon the first one to be gathered, clearly demarcating the bellows-like crease, whereupon it marks where the first gathering is going to be carried out. Once the first gathering is marked, the following follow it.

[0030] The system of locking the resilient diaphragm or balloon to the press lid may be reinforced by means of placement of two concentric rings integral with the lid. The inner ring demarcates the contraction of the diaphragm and in turn has a rod peripherally attached in its central outer portion like a projection halfway up its height.

[0031] The outer ring is radially multi-perforated with threaded holes and houses through them a plurality of screws arranged for tightening the lock.

[0032] The resilient peripheral O cord of the mouth of the balloon passes through the outside of the inner ring,

going over its peripheral rod and attaching to it by means of the tension applied by the diaphragm material. Once the diaphragm is attached, a second resilient cord is mounted over it and against the inner ring and located underneath the peripheral rod of said ring.

[0033] The lock is completed with the arrangement of another ring, this time open, between the previously described assembly and the outer concentric ring.

[0034] The lock is attached by the action of the screws arranged on the outer ring and which press on the intermediate open ring. The opening of this ring allows the offset in development of the circle to be absorbed as the latter closes by the action of the screws.

[0035] A thin plate will be conveniently arranged in the opening of the ring so as to allow closure thereof without pinching the resilient cords. This open ring can be carried out in several parts.

[0036] The closure is achieved by plastic deformation of said resilient cords.

[0037] A guard in the shape of a conical ring, with the triple function of guiding the lid on the cage, protecting the locking system of the diaphragm or balloon, and concealing inside of it the balloon once drawn in, may be arranged integrally with the outer concentric ring.

[0038] In order to facilitate even more the emptying of the pressed remains, which sometimes cause problems due to the solidity which they have and by the latter having been compressed at high pressures, an additional device for stripping and emptying the pulp or stalks that remains as waste adhered to the cage walls after pressing the paste may be incorporated.

[0039] This stripping device consists of respective perforated angles or protuberances and is arranged on the liquid-collecting tray inside the cage. Thereby, centering the cage on the tray and draining the must or juice is allowed at the same time, and more importantly it causes a preferably V-shaped cavity or fissure which weakens the consistency of the compressed paste. Once the tray is extracted and the pressed paste being in suspension, the latter breaks easily thereby allowing the cage to be rapidly emptied, as said fissures act as a pre-cutting of the compressed paste cake inside the cage.

[0040] For the use of the press in places where there are no forklifts available and therefore a manual movement system for extracting and introducing the cages with their trays in the press is needed, an assembly of rollers, arranged from the outside as two parallel rails for the entry or exit of the tray in the press, may be arranged. Thereby, when the rollers are inside the latter and ready to start the pressing, they are concealed by positioning the cage and allowing the actual pressing operation, it being possible to arrange the rollers at both sides of the press so as to thus expedite the process of introduction in and extraction of the tray and cage from the press.

[0041] The outer rollers remain positioned with respect to the press, allowing the cage to be attached in its stand-by position.

[0042] The inner rollers are concealable by means of

a mechanical system linked to the process program indicating their concealment via a display while the actual pressing process is carried out.

[0043] Also, if continuous production of must, without overflowing the tray and without having to lengthen the pressing cycle if the juice or must has stopped being produced, is of interest, a pressing control system based on the production of juice by means of the insertion of a flow-metering valve located at the outlet of the tray may be incorporated. This valve, upon detecting the volume of must, sends a signal to the pressing program for the process to continue, or otherwise if a predetermined time lapses without detecting the must, it sends a signal for stopping the pressing program, thereby economizing the process and monitoring it.

[0044] Lastly, in order to prevent must splashes, especially at the times of startup, which are caused by jets making the juice to leave the tray, and also to prevent the juice from oxidizing early by an excessive time of exposure to the surrounding atmosphere, a must anti-splash and anti-oxidation device can optionally be installed consisting of a cover which covers the outside of the cage and remains attached to it.

[0045] The cover is made of a transparent material used with foods which allows the pressing process to be controlled and observed.

BRIEF DESCRIPTION OF THE DRAWINGS

[0046] The following figures are included so as to aid in the understanding of the invention:

Figure 1 represents a perspective view of the press object of the present invention.

Figure 2 represents the front view of the press according to a section through its symmetry plane containing the vertical columns of the press.

Figure 3 is a detail of the system of attachment of the balloon to the lid of the press according to the same sectional plane of Figure 2.

Figure 4 represents the front view of the press according to a section through its symmetry plane containing the alternative with a balloon-gathering device, the balloon being in its maximum inflation position.

Figure 5 represents the front view of the press according to a section through its symmetry plane containing the alternative with a balloon-gathering device, the balloon being in the contraction phase.

Figure 6 is a detail of the alternative system of reinforced attachment of the balloon to the lid of the press according to the same sectional plane of Figure 4.

Figure 7 represents the front view of the press according to a section through its symmetry plane incorporating the alternative of a stripping device.

Figure 8 represents the perspective view of the upper part of the stripping device.

Figure 9 represents the front view of the upper part

of the stripping device according to a section through its symmetry plane.

Figure 10 represents a perspective view of the press object of the present invention together with the carrying rollers and the pressing control device.

PREFERRED EMBODIMENT OF THE INVENTION

[0047] Next, a preferred embodiment of the invention is detailed, which will have to be understood in a wide and nonlimiting sense.

[0048] The press object of the present specification, made up of a support (1) serving as support or base for all the rest of the components of the press, is represented in Figures 1 and 2.

[0049] The support (1) is reinforced so as to withstand all the pressing stresses and is provided with two separate and parallel channels (2) in each of which a U profile is housed. A tray (3) which collects all the liquid from the pressing, splashes and overflowing of the squeezed juice, rests on the flat surface of the support (1). The support (1) will also have in its periphery two vertical columns (4), arranged diametrically and in a plane perpendicular to both channels (2), and which consist of two profiles rigidly joined to said support (1).

[0050] Said U profiles are located integral with the tray (3), on its lower portion, which allows the tray (3) to be easily extracted and carried by means of a forklift.

[0051] The tray (3) has stops (5) at the center of its upper surface which are intended for centering a cage (6) on top of it (3), as is represented in Figure 2.

[0052] Furthermore, the support (1) has two end stop rollers (7) located respectively in one of the ends of each channel (2) and at the same side of support (1), which facilitate positioning the tray (3)-cage (6) assembly on the support (1).

[0053] The cage (6) has a frustoconical and multi-perforated surface. Its major base is arranged resting on the tray (3) and centered in it, as already disclosed. The fruits, paste, grapes, or their derivatives are introduced in the cage (6) so as to be pressed, and the latter allows the squeezed juice or must to exit through its multiple perforations.

[0054] The vertical cylindrical wall of tray (3) may be of greater or smaller height, more or less enveloping the frustoconical surface of the cage (6).

[0055] A lid (8) joined to the upper portion of vertical columns (4) coming from the support (1) is arranged in the upper portion of cage (6). The lid (8) closes the assembly, not allowing the relative movement of the support (1), cage (6) and tray (3) during the squeezing or pressing process.

[0056] A series of reinforcements (9) providing great rigidity for supporting the pressing stress are arranged on the upper surface of the lid (8). The inflation, safety and vacuum mechanisms (10) and the supports of the hydraulic cylinders (11) allowing the press to be opened and closed, as well as the corresponding tie-downs for

carrying it, are also here.

[0057] The lower face of lid (8) with the attachment system of a flexible and rupture risk-free balloon (12), which will be the one in charge of the actual pressing of the fruits, paste, grapes, or derivatives deposited in the cage (6), is seen in figure 3.

[0058] The system of attachment of the balloon (12) to the lid (8) will consist of a ring (13) arranged axially on the lid (8) and near the periphery thereof, which will demarcate the inwards contraction of said balloon (12).

[0059] Another ring (14) of lower height is arranged parallel and externally to the ring (13). The contour of the mouth of balloon (12), which consists of an O cord (15) bordering the mouth thereof, will be located between both rings (13, 14). A series of circular O sections (16), arranged forming a circle and attached to the lid (8) by means of screwed-on flanges, is arranged on this O cord (15) and between both rings (13, 14).

[0060] Thereby, a regular and uniform pressure is caused between the rings (13, 14), O cord (15) of the balloon, and the circular O sections (16), which thus perform a complete seal of the balloon (12) against the lid (8).

[0061] The balloon (12), upon being inflated with air or another fluid, exerts a uniform, regular, and homogenous pressure on the paste and in turn in all directions.

[0062] The hydraulic cylinders (11), resting on the lid (8), rest their axes on the end of columns (4). By releasing the attachments (17) of the columns (4) with the lid (8), the cylinders (11) cause the lid (8) to rise, and if vacuum has been insufflated in the balloon (12), and thus it has been gathered, there will be enough space to allow the tray (3) and cage (6) to be extracted in a lateral or vertical, if withdrawal of the lid (8) has been completed by means of the aid of a crane or the like, fashion. Thereby, it is possible to replace the cage (6) and tray (3) with other clean ones and continue with the production process.

[0063] The way of operation of the press is observed in detail in figure 2. The attachment systems (17) of the lid (8) to the columns (4) of the press are withdrawn; the cylinders (11) rising the lid (8) are actuated, thereby allowing the press to be partially opened. The lid (8) and cage (6) are separated, the vacuum maneuver having been previously carried out on the balloon (12) by means of actuating the vacuum valve (10), whereupon, the balloon (12) or bag is gathered to the minimum volume (represented in dashed lines).

[0064] By using, for example, a forklift, the tray (3) jointly with the cage (6) can be extracted from the press so as to proceed to fill the cage (6) with the corresponding fruits, paste, grapes, or their derivatives.

[0065] By again using the forklift, the tray (3) with the cage (6) is placed on the support (1), centering the tray (3)-cage (6) assembly with the stops (5) and carrying out a physical stop with end stop rollers (7) arranged on the support (1).

[0066] By again actuating cylinders (11), the lid (8) is lowered closing cage (6), the attachment members (17) of the lid are placed against the columns (4).

[0067] The pressing, carried out by means of inflating the balloon (12), shown in solid lines in figure 2, is regulated by means of a programmable pressure translator as regards the air, pressure, time and cycles.

[0068] The press operates until completing the process, while another tray and cage are being prepared with the corresponding product to be pressed for when the pressing under way finishes.

[0069] Again, once the pressing process is complete, emptying of the bag or balloon (12) is carried out, whereupon the latter is gathered at a minimum volume, and going on to release the attachment systems (17) of the lid (8) to the columns (4) and actuate the hydraulic cylinders (11) so as to separate the lid (8) from the cage (6) and thereby allow the cage (6) to be extracted and replace it by the already prepared one in order to repeat the production process.

[0070] Once the tray (3) and cage (6) are out, they are separated by means of lifting the cage (6), and emptying of the pulp or stalks remaining as waste adhered to its walls is carried out. For this, the most diverse cleaning systems are used, turning out to be a very simple operation thanks to the frustoconical shape of the cage walls. The frustoconical walls prevent the pulp or stalks from hard-packing against the wall itself, as the pulp tends to strip by itself.

[0071] An improved alternative system of gathering the diaphragm or balloon (12) is shown in Figures 4 and 5, consisting of a rigid device (41) inside of it which holds the balloon (12) in a given position, and an outer, resilient device (42) which absorbs and collects the remainder thereof preventing that the gathering is randomly carried out with distortions which may cause rupture of the balloon, as can be seen in Figure 5.

[0072] An alternative system of reinforced fixing of the balloon (12) to the press lid (8) with two concentric rings (113, 114) integral with the lid (8) is shown in Figure 6.

[0073] The balloon (12) is attached to the inner ring (113) by passing the resilient peripheral O cord (123) of the mouth through the outside of this inner ring (113) and going over the peripheral rod (120) arranged in the peripheral portion of the outer central portion of the ring, being attached to it by means of the tension applied by the actual material of the diaphragm (12). A second resilient cord (124) is arranged over the balloon (12), against the inner ring (113) and located underneath the peripheral rod (120).

[0074] The outer ring (114) is radially multi-perforated with threaded holes (121) and ran through by screws (122) arranged for tightening the lock.

[0075] The lock is carried out by arranging an open ring (125) between the mouth assembly of the balloon (12) fixed to the inner ring (113) and the outer concentric ring (114). This open ring (125) is pressed by means of the screws (122) arranged on the outer ring (114).

[0076] A conical ring (126) for guiding the lid (8) on the cage (6), while protecting the locking system of the diaphragm (12), is arranged on the outer concentric ring

(114).

[0077] Respective perforated protuberances or angles (201, 202) for stripping and emptying the pulp and which are arranged on the tray (3) are represented in Figures 7, 8 and 9, allowing the cage (6) to be centered on the tray (3), as represented in Figure 7.

[0078] These angles or protuberances (201, 202) drain the juice and cause a V-shaped cavity or fissure on the compressed paste which weakens the consistency of the compressed paste, said fissures acting as a pre-cutting of the compressed paste cake inside the cage (6).

[0079] An assembly of rollers (301) extracted and arranged outside the press as two parallel rails for the introduction and extraction of the tray (3) in the press has been arranged in Figure 10. The rollers (301) may be concealed and positioned inside the press by placing the tray (3) and the cage (6) inside of it, leaving the assembly ready to start the pressing.

[0080] The rollers (301) are concealable by means of a mechanical system linked to a process program indicating their concealment by means of a control display located in a pressing control device (302) of the press.

[0081] This control device (302) controls the production of juice by means of the insertion of a flow-metering valve (303) in the tray (3), which sends a signal to the pressing program for continuing with or stopping the process.

[0082] Lastly, the arrangement of a must anti-splash and anti-oxidation cover (400) which covers the outside of the cage (6) can be also seen in Figure 10.

[0083] The cover (400) is made of a transparent material used with foods which allows the pressing process to be controlled and observed.

Claims

1. A vertical press for fruits, grapes, and their derivatives, of the pneumatic-cage type with a diaphragm, **characterized in that** said diaphragm consists in a balloon (12) housed inside the cage (6) of perforated frustoconical walls of the press, hermetically attached to the upper lid (8) thereof and inflatable towards the bottom of the cage (6).
2. A press according to claim 1, **characterized by** support (1) provided with two separate and parallel channels (2) housing two U profiles integral to a tray (3) which rests on said support (1), on which the major base of said cage (6) of frustoconical and multi-perforated surface is located in a centered fashion. The support (1) has on its periphery two vertical columns (4), diametrically arranged on a plane perpendicular to the channels (2). The lid (8), reinforced on its upper portion and joined by means of attachments (17) to the upper portion of the vertical columns (4) which start from the support (1), is located on the cage (6). The inflation, safety and vacuum mechanisms (10)

of the pressing system and hydraulic cylinders (11) for opening and closing the press are located on the lid (8).

3. A press according to previous claims, **characterized in that** said hermetic attachment of the balloon (12) to the lid (8) is carried out by placing the mouth (15) of said balloon (12) in an assembly made up by a ring (13) axially arranged on the lid, a second ring (14) exterior and parallel to the foregoing and of lesser height, and a series of circular O sectors (16) arranged between both circle-shaped rings (13, 14) and attached to the lid (8) by means of screwed-on flanges.
4. A press according to claim 2, **characterized in that** the tray (3) has stops (5) of attachment of the cage (6) at the center of its upper surface.
5. A press according to claim 2, **characterized in that** the support (1) has two end stop rollers (7) located respectively in one of the ends of each channel (2) and at the same side of support (1).
6. A press according to claims 1 or 2, **characterized in that** said hermetic attachment of the balloon (12) to the lid (8) is carried out through the attachment of the resilient peripheral O cord (123) of the mouth of the balloon to the outside of an inner ring (113) integral with the lid (8), which has a rod (120) peripherally attached in its central outer portion like a projection halfway up its height and which is passed over by the mouth of the balloon. A second resilient cord (124) is mounted over the mouth of the balloon and against the inner ring (113) and located underneath the peripheral rod (120) of said ring (113). The foregoing assembly is pressured by an open ring (115) which is in turn pressured by a plurality of screws (122) housed in the threaded holes (121) located in the periphery of an outer ring (114) integral with the lid (8) and concentric with the inner ring (113).
7. A press according to the previous claim, **characterized in that** a conical ring (126) is integrally arranged on the outer concentric ring (114).
8. A press according to claim 6 or 7, **characterized in that** said open ring (115) can be embodied in several parts.
9. A press according to the previous claim, **characterized in that** a thin plate is arranged in the openings of the open ring (115).
10. A press according to any of the previous claims, **characterized in that** the balloon (12) has a gathering system with a rigid device (41) inside of it and in the bottom thereof which holds it in a given posi-

tion, and an outer, resilient device (42) in its middle area which absorbs and gathers the remainder thereof.

11. A press according to any of the previous claims, **characterized in that** it incorporates a stripping device consisting of perforated angles or protuberances (201, 202) arranged on the tray (3) and inside the cage (6). 5
- 10
12. A press according to any of the previous claims, **characterized in that** it has an assembly of rollers (301) carrying the tray (3), arranged at one or both sides of the press from the outside as two parallel rails. 15
13. A press according to the previous claim, **characterized in that** the rollers are concealable by means of a mechanical system linked to the process program. 20
14. A press according to any of the previous claims, **characterized in that** it incorporates a pressing control device (302) based on the production of juice by means of the insertion of a flow-metering valve (303) located at the outlet of the tray (3). 25
15. A press according to any of the previous claims, **characterized in that** it incorporates a cover (400) covering the outside of the cage (6). 30
16. A press according to the previous claim, **characterized in that** said cover (400) is made of a transparent material used with foods. 35

40

45

50

55

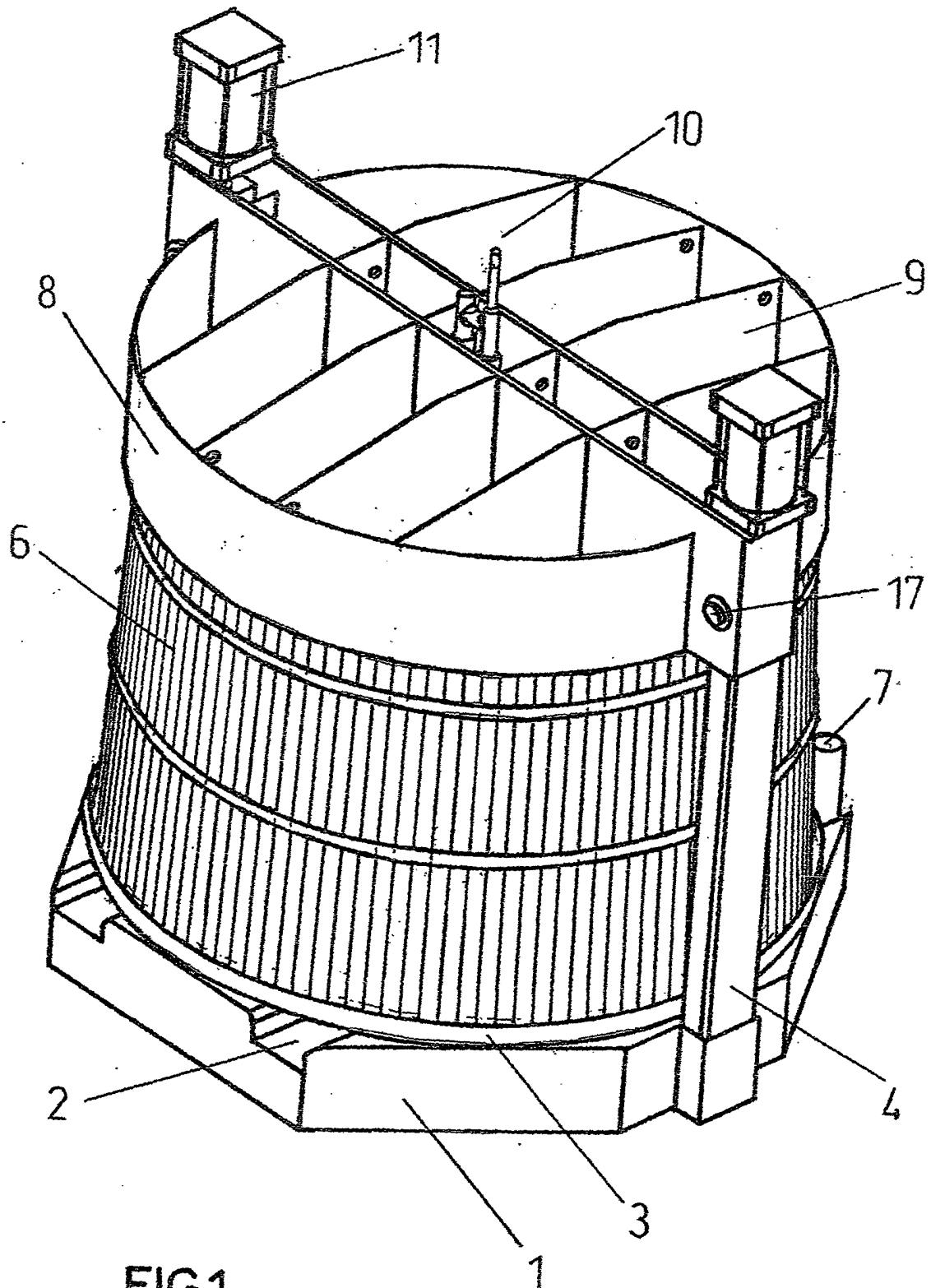
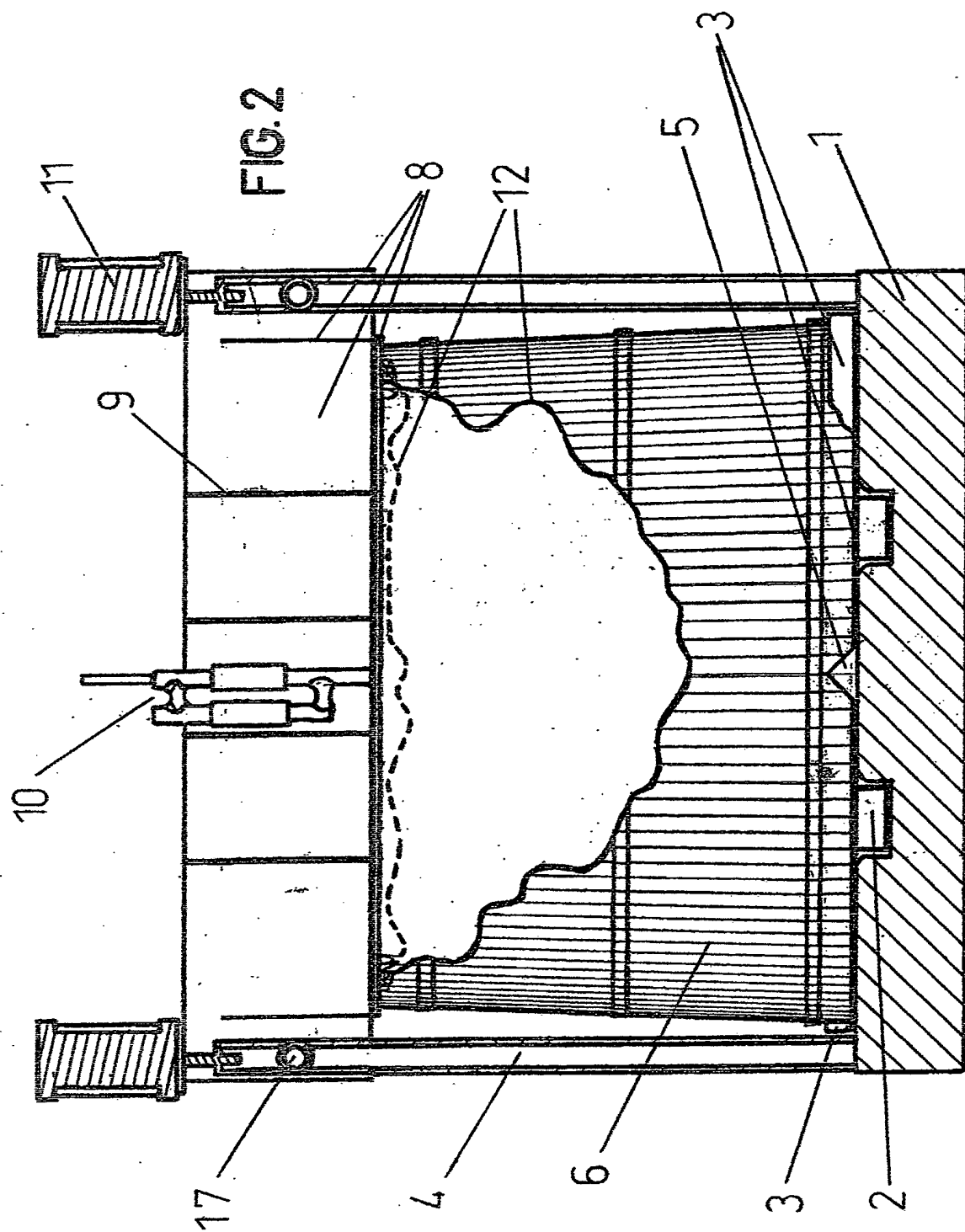


FIG.1



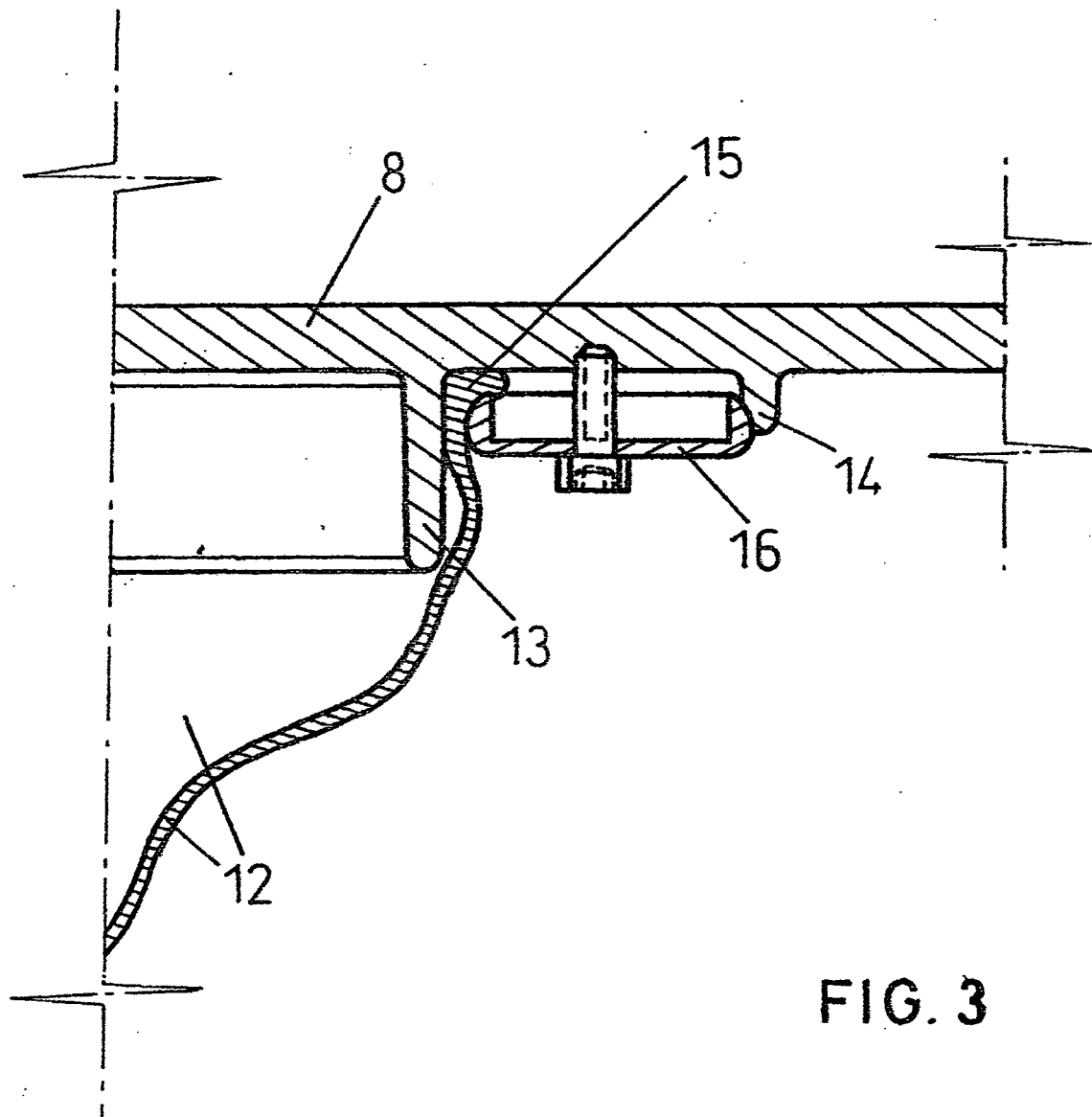


FIG. 3

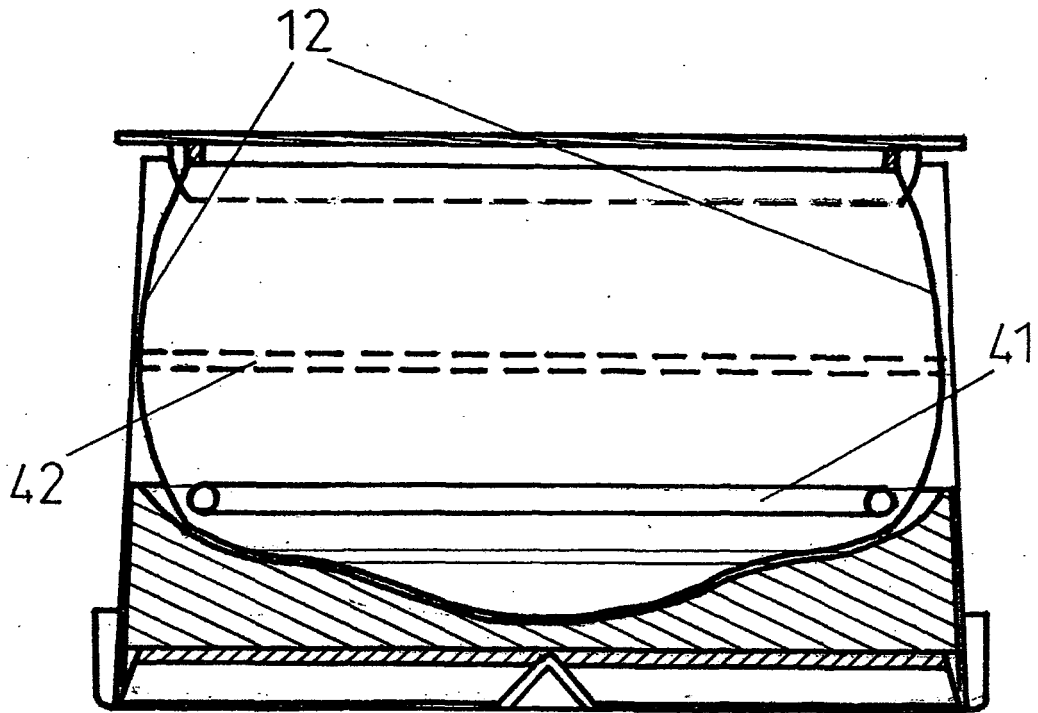


FIG. 4

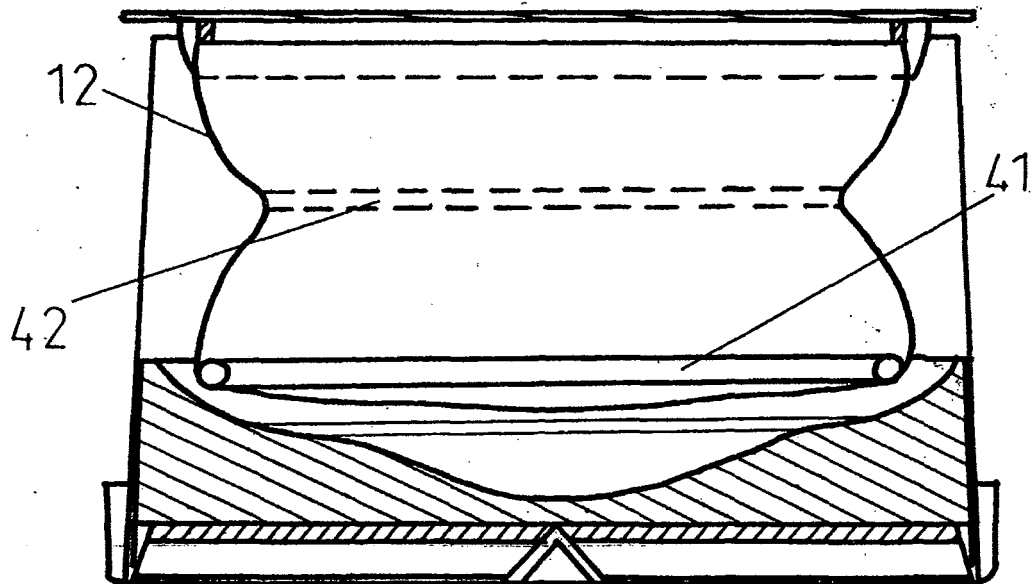
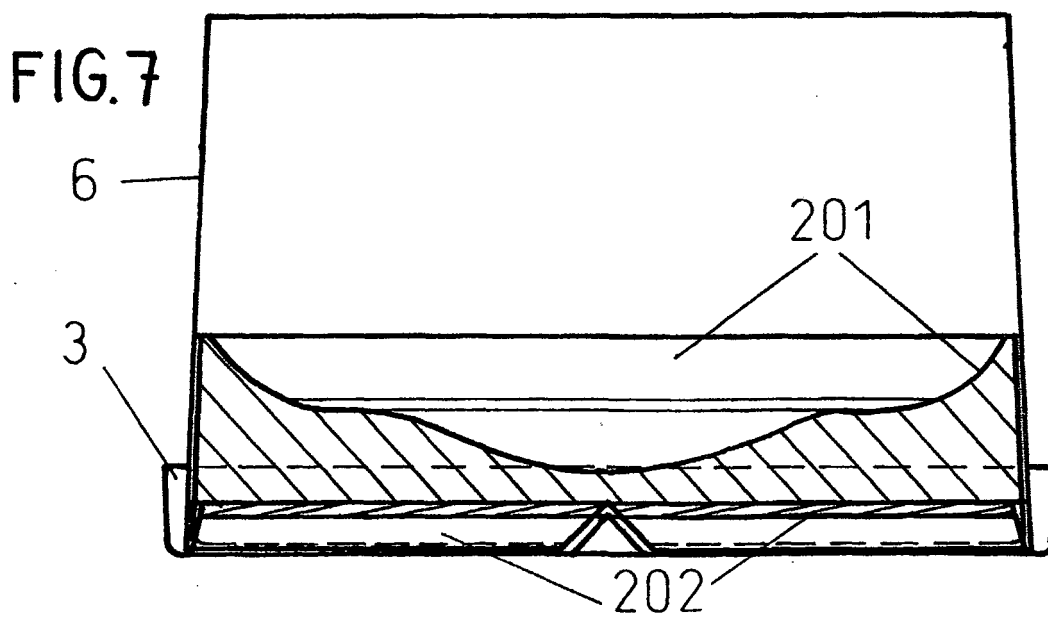
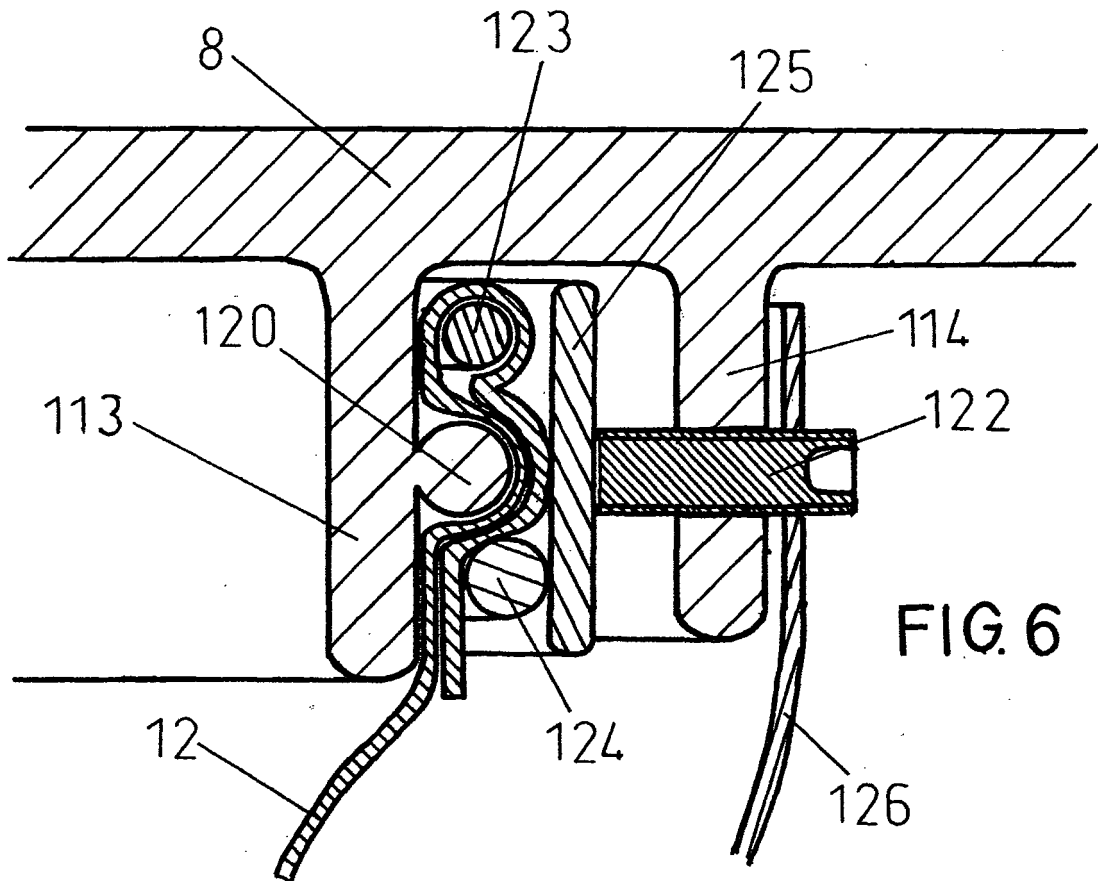


FIG. 5



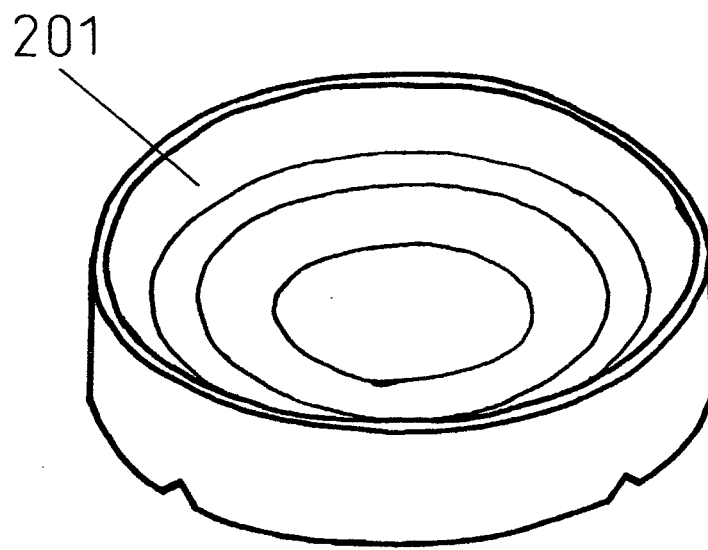


FIG. 8

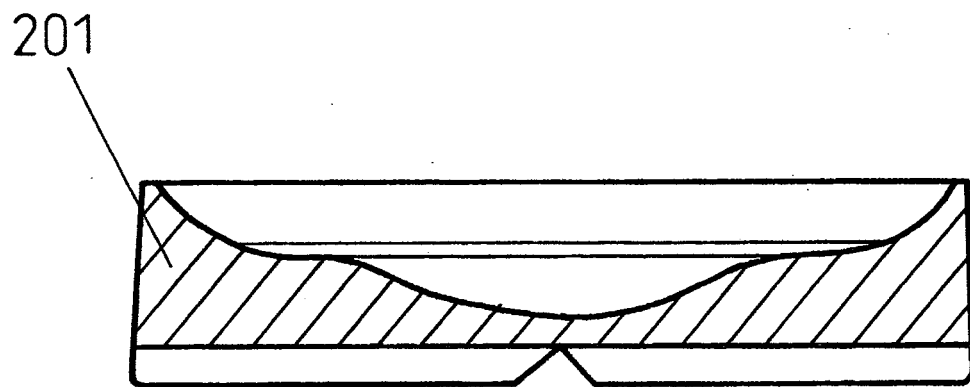


FIG. 9

