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(54) **MACHINE FOR CONDITIONING PACKETS INSIDE PNEUMATICALLY INSULATED CHAMBERS**

MASCHINE ZUM BEHANDELN VON PAKETEN IN PNEUMATISCH ISOLIERTEN KAMMERN

MACHINE DE CONDITIONNEMENT DE PAQUETS A L'INTERIEUR DE CHAMBRES ISOLEES PAR
DE L'AIR COMPRI ME

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(56) References cited:
US-A- 1 589 452 **US-A- 3 545 983**
US-A- 4 658 566

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Description

TECHNICAL FIELD

[0001] The present invention relates to a package conditioning machine including pneumatically insulated chambers.

STATE OF THE ART

[0002] In the state of the art several types of automatic machines that seal the packets under vacuum or in controlled atmosphere are known.

[0003] The preamble of claim 1 is based on US-A-3 545 983.

[0004] These machines are divided into two categories: the first comprises those machines that have a big chamber inside which several packets are simultaneously conditioned; the second category includes machines that show a plurality of different small conditioning chambers, everyone conditioning a single packet.

[0005] As for the first category, the simultaneous conditioning of several packets requires highly voluminous structures, owing to the wide areas of accumulation and to the need to employ together several chambers for the loading, conditioning and unloading operations. Furthermore, inside the conditioning chamber the packets must be carefully placed in order to allow the action of multiple sealing jaws, that don't permit, even if regulated, the same precision on every single sealed packet.

[0006] The opening and the closing operations of the multiple chamber are committed to the lifting of a unique big cover. In the second type machine, though, every conditioning chamber has its own cover, its own cinematic motion and its own sealing jaws, and these machines thus prove to be complicates and expensive.

[0007] Said machines have moreover problems related to the overall dimensions, due to the opening and closing operations of covers and doors. The most pertinent prior art - USA- A-1.589.452 has a plurality of covers for the chambers of the turret ; it is therefore difficult to operate said device.

[0008] This invention represents an optimal solution to the specific problems of the above-described machines by designing a machine which is characterized by the features of claim 1.

DESCRIPTION

[0009] The invention is now disclosed in the following description, with reference to the attached drawings as a not binding example.

[0010] Figure 1 schematises a perspective view of the machine, which comprises a single cover for closing and opening different conditioning chambers set up in a revolving turret. It can be noticed that the opening and closing of the conditioning chambers is achieved by the revolving of the turret and not by the lifting of the cover.

This feature removes any radial or axial overall dimensions problem during the opening operation.

[0011] Figure 3 highlights the fact that the conditioning chambers are set up in a revolving turret with the mouths laying over the same flat surface.

[0012] Figure 4 highlights the fact that also the cover has the same plain surface as the turret beneath, and it can be noted that said cover is provided with a passage for the loading and unloading of the packets.

[0013] Figure 5 is an exploded view of the machine to highlight the configuration of the sealing strip (9) and of the elastic seal elements (10) inserted in the seat (11).

[0014] Figure 6 is a section of an open conditioning chamber because it is in front of the passage that allows the loading operation. It can be noticed that during this operation the adjacent chambers are pneumatically insulated.

[0015] Figure 7 is a section of the next conditioning chamber closed by the cover, in order to start the conditioning process.

[0016] Figure 8, 9, 10 and 11 indicate different phases of conditioning in the following chambers.

[0017] Figure 12 indicates the sealing operation of the packet inside the chamber that is still pneumatically insulated. It can be noticed that the sealing device is placed on the cover and it's only one for all the conditioning chambers.

[0018] Figure 13 is a section of a conditioning chamber that is open because, at the end of the conditioning cycle, it is again in front of the passage that allows the unloading operation.

[0019] Figure 14 and 15 show in section a variation of the machine equipped with similar conditioning chambers, but presenting also a bottom mouth and its cover to allow the operation of loading from above and unloading from below.

[0020] In the figures every single detail is marked as follows:

1 is a flat cover.

2 is a conditioning chamber.

2' is a conditioning chamber as 2 but presenting a lower mouth.

3 is a circular turret with a flat upper surface.

4 are the mouths of the conditioning chambers laying on the flat surface.

5 is the geometric surface on which the mouths of all the conditioning chambers lay.

6 is the lower surface of the cover.

7 is the loading and unloading passage of the upper cover

7' is the loading and unloading passage of the lower cover.

8 is the packet.

9 is the sealing with several branches connected to each other.

10 indicates the elastic seal elements inserted under the sealing.

11 indicates the seat of the sealing and of the elastic elements.

12 indicates the single sealing device of the packets applied to the cover.

13 indicates the conduits for the chambers' conditioning. 5

[0021] The clearness of the figures proves the simplicity of the machine and its building and application economy. It can be noticed, indeed, that the conditioning conduits and the sealing device doesn't require rotating distribution members because they are fixed directly onto the cover. 10

[0022] It must be also observed that the chambers, being unprovided of doors and their opening and closing mechanisms, turn out to be simpler and less obstructing. 15

[0023] The invention, that has been shown and described with reference to a possible way of realization, could be changed in several manners as far as the structural proportions and the technological choices of the building materials are concerned. 20

[0024] All those machines for conditioning the packets inside pneumatically insulated chambers, with the characteristics described, shown and hereinafter claimed, will be included in the basic principle of this invention. 25

Claims

1. Machine for conditioning packets inside a plurality of pneumatically insulated chambers (2), circumferentially distributed on a rotatable turret (3) and with their axes extending in a vertical direction and having openings (4) at their upper ends, said openings being sealably covered in a horizontal plane and an environmental conditioning means coupled to said chambers, characterised in that said machine comprises a single flat upper cover (1) extending in a horizontal plane, said single cover having an opening section (7) corresponding to different chambers, the opening section (7) being brought into alignment with said different chambers (2) upon rotation of said turret (3). 30
2. Machine according to claim 1, characterised by a sealing gasket (9) having sections that provide a seal for each chamber. 35
3. Machine according to claim 2, characterised in that there is provided an elastic member (10) which is sandwiched between the turret and the sealing gasket to continuously press the sealing gasket against the surface of the cover. 40
4. Machine according to claim 3, characterised in that said elastic member (10) is seated in a groove (11) of the turret (3). 45

5. Machine according to any of the preceding claims, characterised in that it further comprises a lower cover (1') sealingly engaging lower openings of the chambers (2'), said lower cover (1') also having an opening section (7') for different lower openings of said chambers (2').

6. Machine according to any of the preceding claims, characterised in that the upper cover is equipped with a packet sealing means (12). 10

Patentansprüche

1. Maschine zur Konditionierung von Paketen in einer Vielzahl von pneumatisch isolierten Kammern (2), welche auf einem rotierbaren Drehkopf bzw. Revolverkopf (3) entlang des Umfangs verteilt sind, wobei deren Achsen sich in vertikaler Richtung erstrecken und Öffnungen (4) an ihren oberen Enden aufweisen, wobei die Öffnungen in einer horizontalen Ebene auf versiegelnde Weise abgedeckt sind und eine Umgebungskonditioniereinrichtung mit den Kammern verbunden ist, **dadurch gekennzeichnet**, daß die Maschine eine einzelne, flache, obere Abdeckung (1), die sich in einer horizontalen Ebene erstreckt, umfaßt, wobei die einzelne Abdeckung einen mit verschiedenen Kammern korrespondierenden Öffnungsabschnitt (7) aufweist, wobei der Öffnungsabschnitt (7) mit den verschiedenen Kammern (2) bei der Rotation des Drehkopfes (3) ausgerichtet wird. 15
2. Maschine gemäß Anspruch 1, **gekennzeichnet durch** eine versiegelnde Abdichtung (9) mit Abschnitten, die eine Versiegelung für jede Kammer vorsieht. 20
3. Maschine gemäß Anspruch 2, **dadurch gekennzeichnet**, daß ein elastisches Bauteil (10) vorgesehen wird, welches zwischen dem Drehkopf und der versiegelnden Abdichtung eingeschoben ist, um die versiegelnde Abdichtung kontinuierlich gegen die Oberfläche der Abdeckung zu pressen. 25
4. Maschine gemäß Anspruch 3, **dadurch gekennzeichnet**, daß das elastische Bauteil (10) in einer Vertiefung (11) des Drehkopfes (3) sitzt. 30
5. Maschine gemäß mindestens einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet**, daß sie weiterhin eine untere Abdeckung (1') umfaßt, die in versiegelnder Weise die unteren Öffnungen der Kammern (2') miteinbezieht, wobei die untere Abdeckung (1') auch einen Öffnungsabschnitt (7') für verschiedene untere Öffnungen der Kammern (2') besitzt. 35

6. Maschine gemäß mindestens einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet**, daß die obere Abdeckung mit einer Paketversiegelungseinrichtung (12) ausgerüstet ist.

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Revendications

1. Machine de conditionnement de paquets à l'intérieur d'un grand nombre de chambres isolées par l'air comprimé (2), disposées sur une tête rotative ou d'une tourelle revolver (3) le long de la circonférence, et avec des axes s'étendant en direction verticale et présentant des orifices (4) aux extrémités supérieures, ces orifices étant couvertes d'une manière vitrifiante dans un plan horizontale et un dispositif de conditionnement d'ambiance étant lié à ces chambres, **caractérisée par le fait** que la machine saisit un unique couvercle plat s'étendant du côté supérieur (1) dans un plan horizontal, ce couvercle unique ayant une section d'orifice (7) correspondante avec les différentes chambres, et cette section d'orifice (7) étant positionnée en ligne avec ces différentes chambres (2) pendant la rotation de la tourelle rotative (3). 10 15 20 25
2. Machine suivant revendication 1, **caractérisée par** l'étanchement vitrifiant (9) ayant des sections, prévoyant la vitrification de chaque chambre. 30
3. Machine suivant revendication 2, **caractérisée par** la disposition d'un élément élastique (10) intercalé entre la tourelle rotative et l'étanchement vitrifiant afin de presser l'étanchement vitrifiant continuellement contre la surface du couvercle. 35
4. Machine suivant revendication 3, **caractérisée par** l'emplacement de cet élément élastique (10) dans un creux (11) de la tourelle rotative (3). 40
5. Machine suivant au moins une des revendications sus-indiquées, **caractérisée par** le fait d'avoir en plus de cela un couvercle du côté inférieur (1'), intégrant d'une manière vitrifiante les orifices inférieurs des chambres (2'), et ce couvercle inférieur (1') présentant également une section d'orifice (7') pour plusieurs orifices inférieurs de ces chambres (2'). 45
6. Machine suivant au moins une des revendications sus-indiquées, **caractérisée par** le fait que le couvercle supérieur sera équipé d'un dispositif de vitrification de paquets (12). 50

55

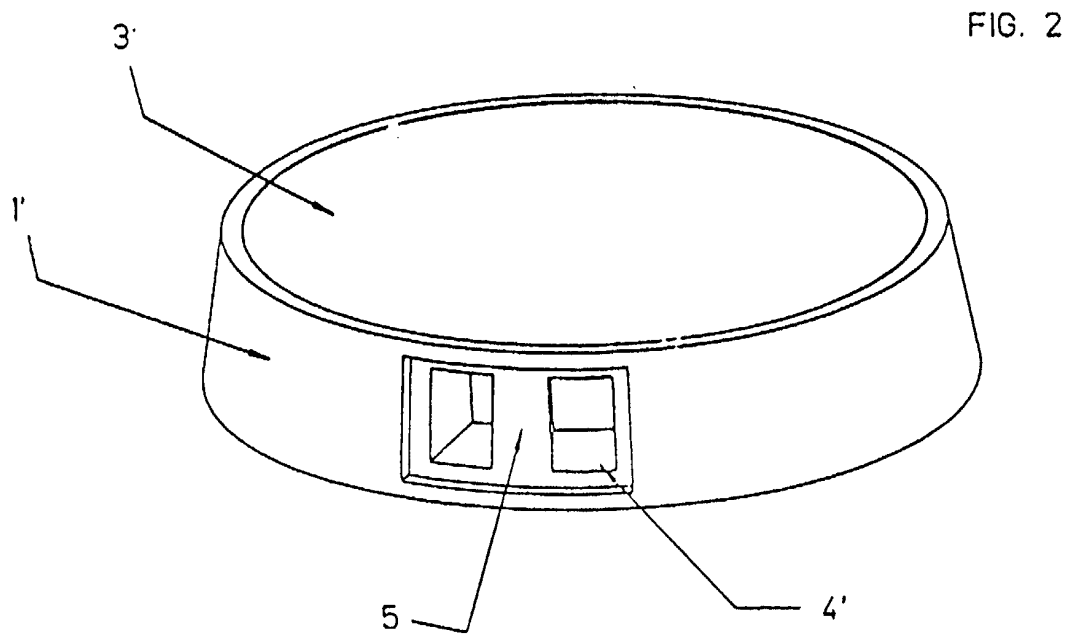
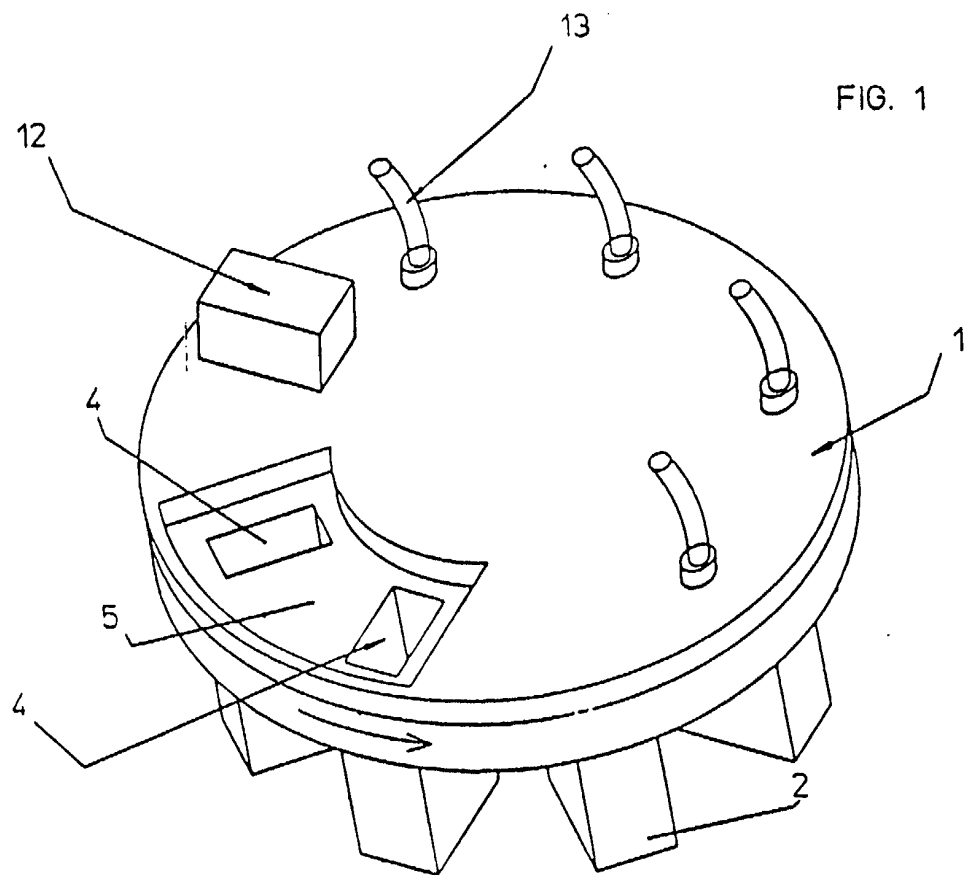


FIG. 3

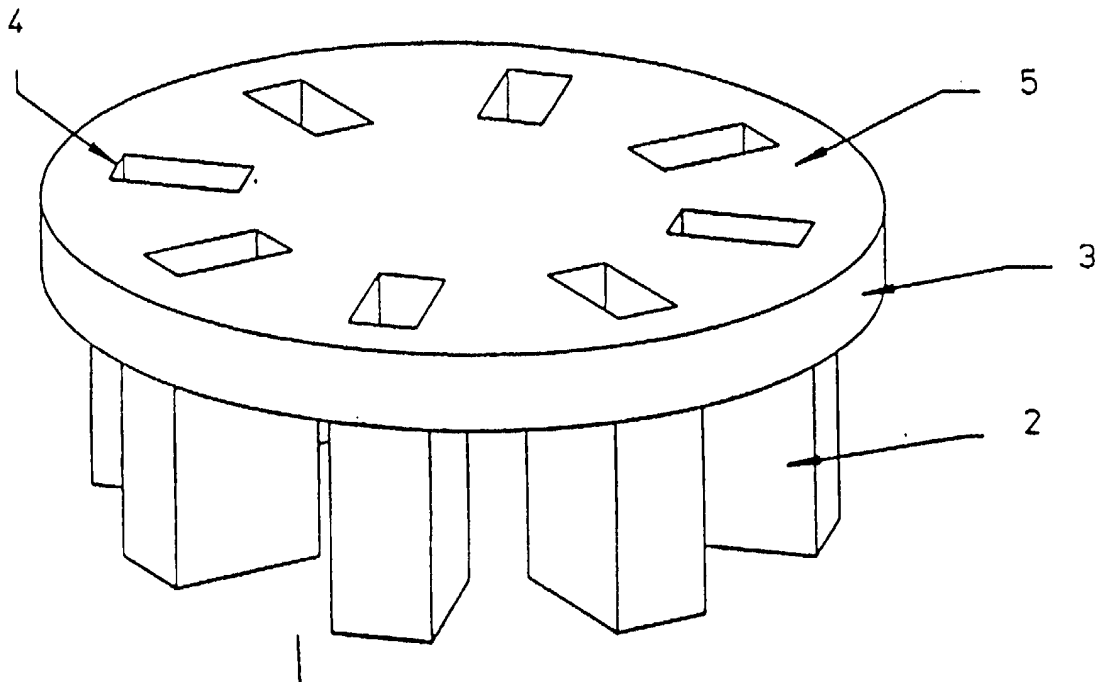


FIG. 4

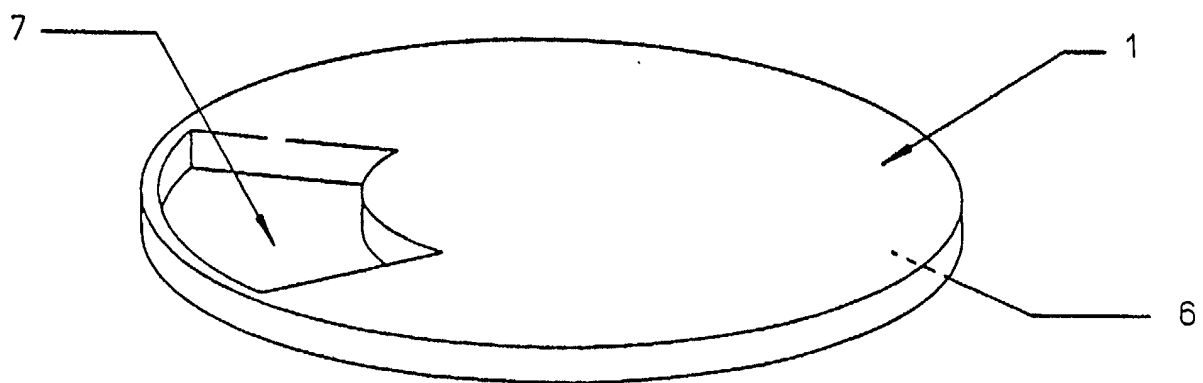


FIG. 5

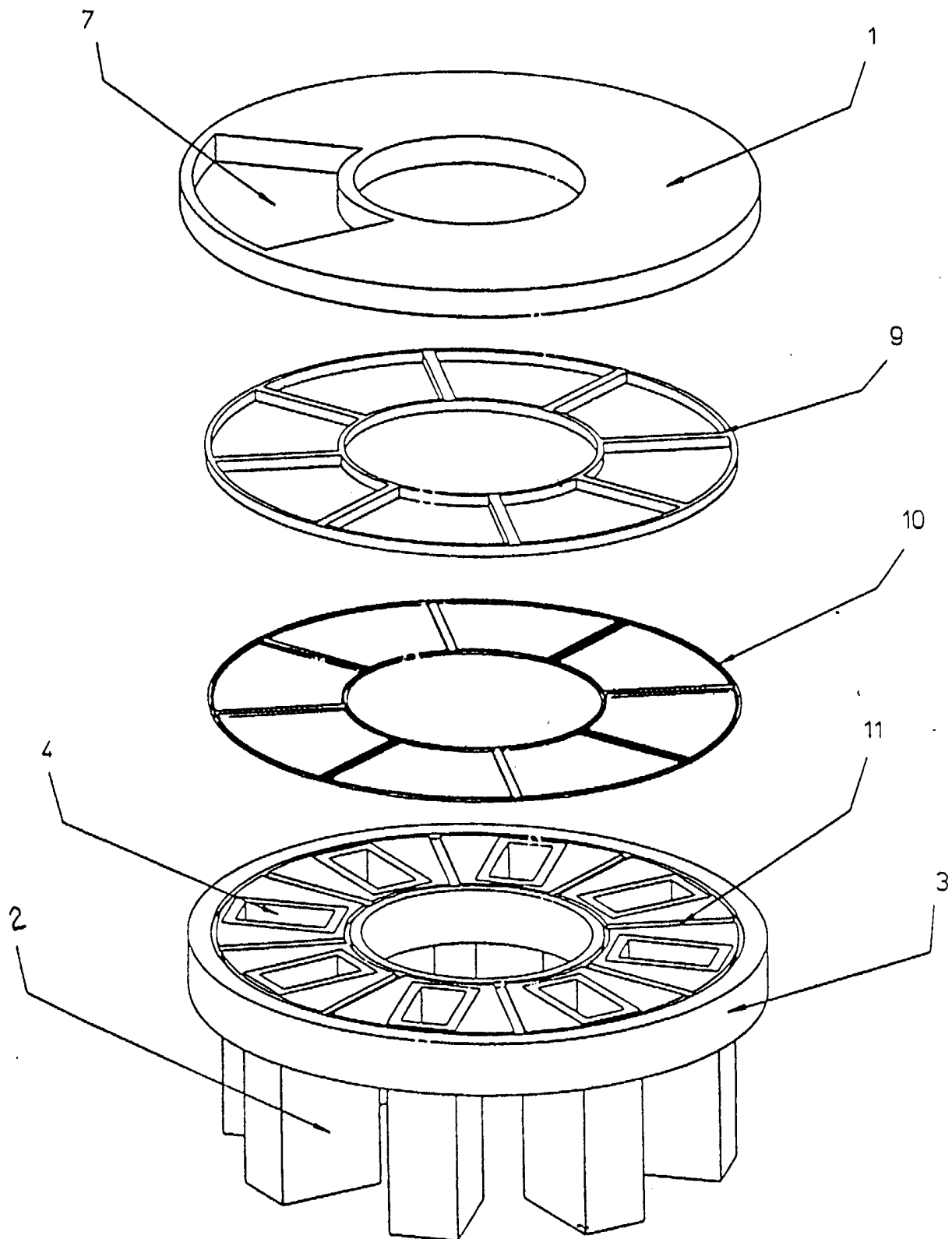


FIG. 6

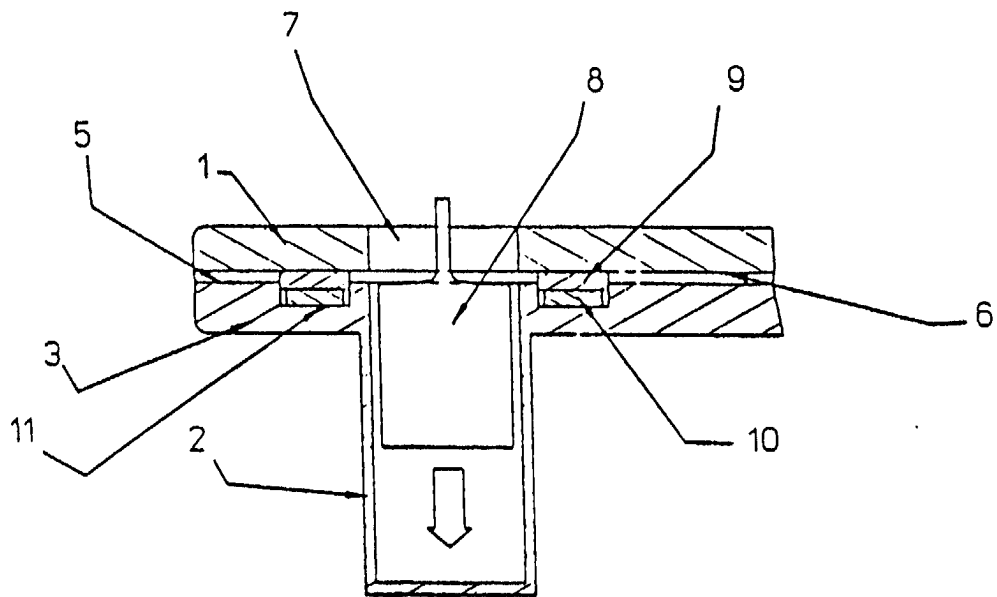


FIG. 7

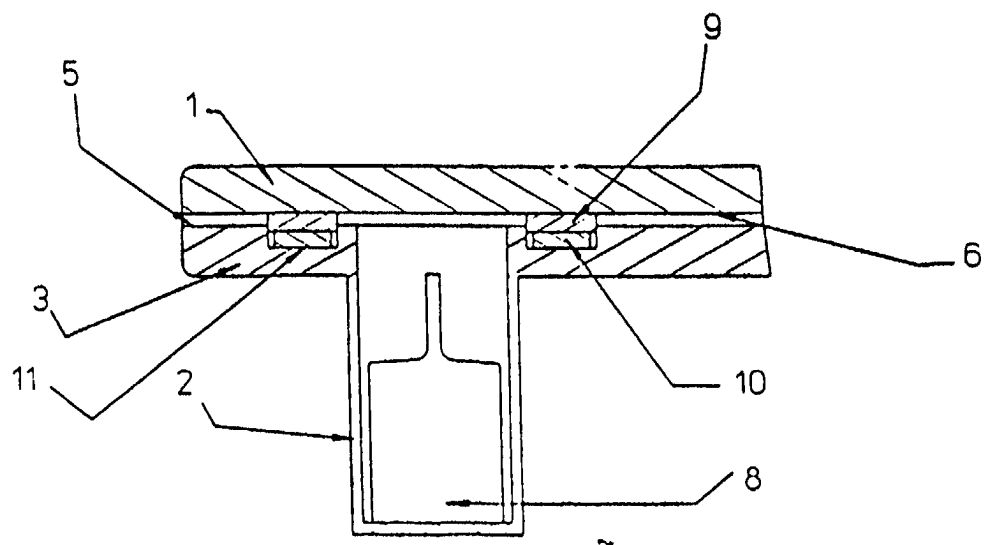


FIG. 8

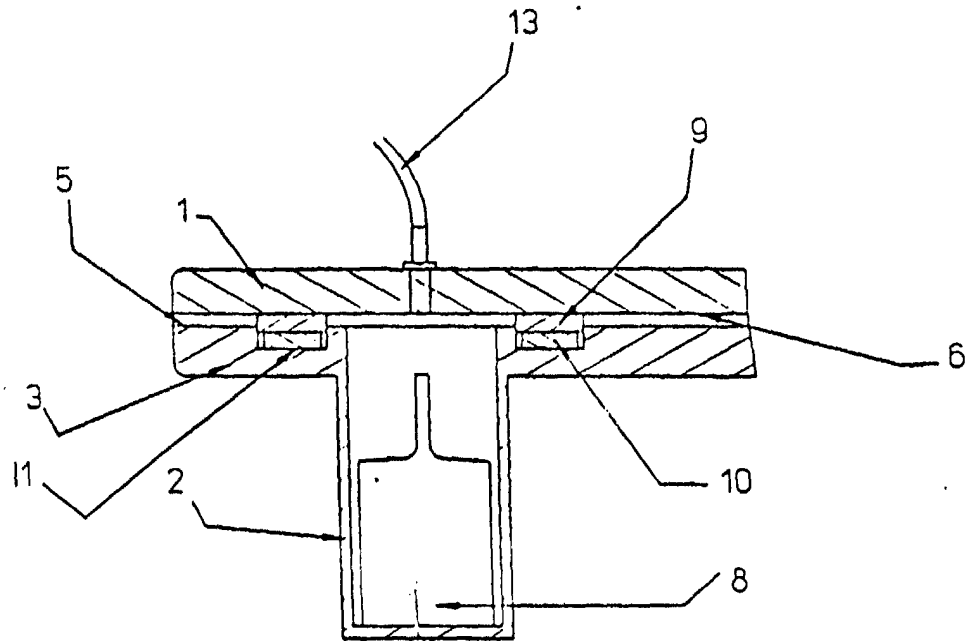


FIG. 9

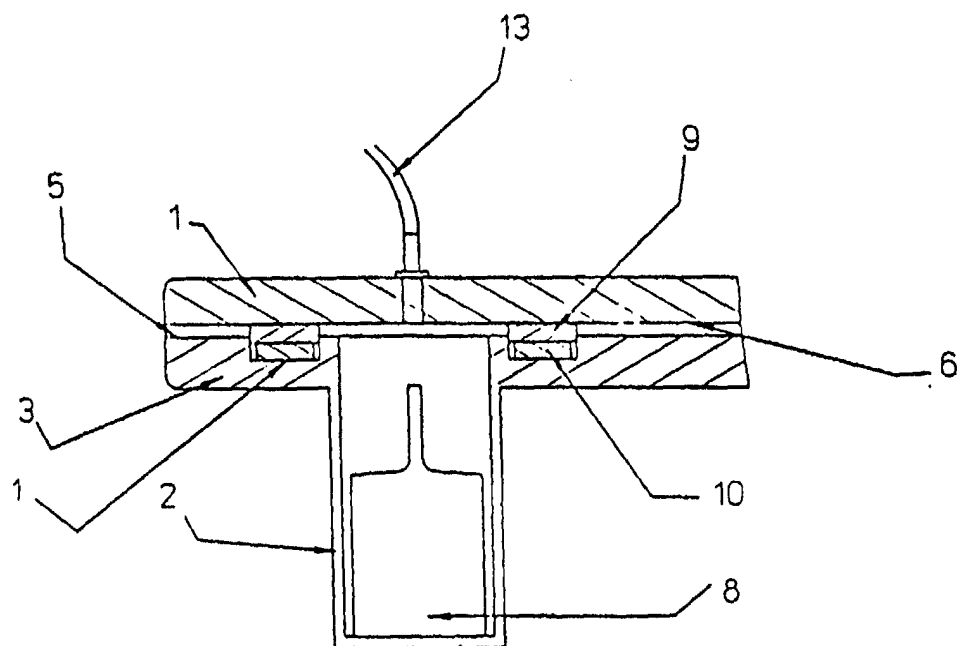


FIG. 10

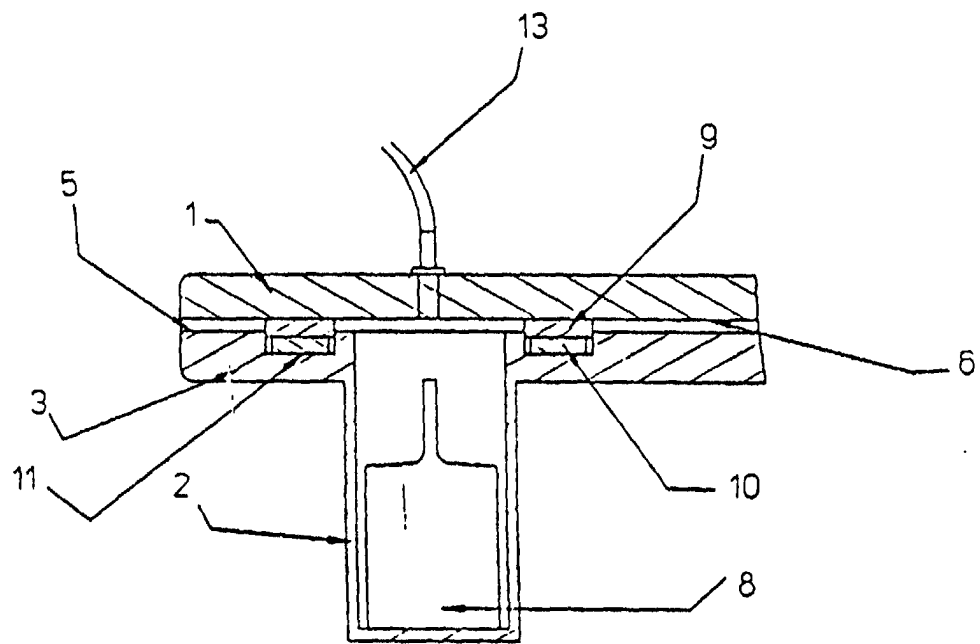


FIG. 11

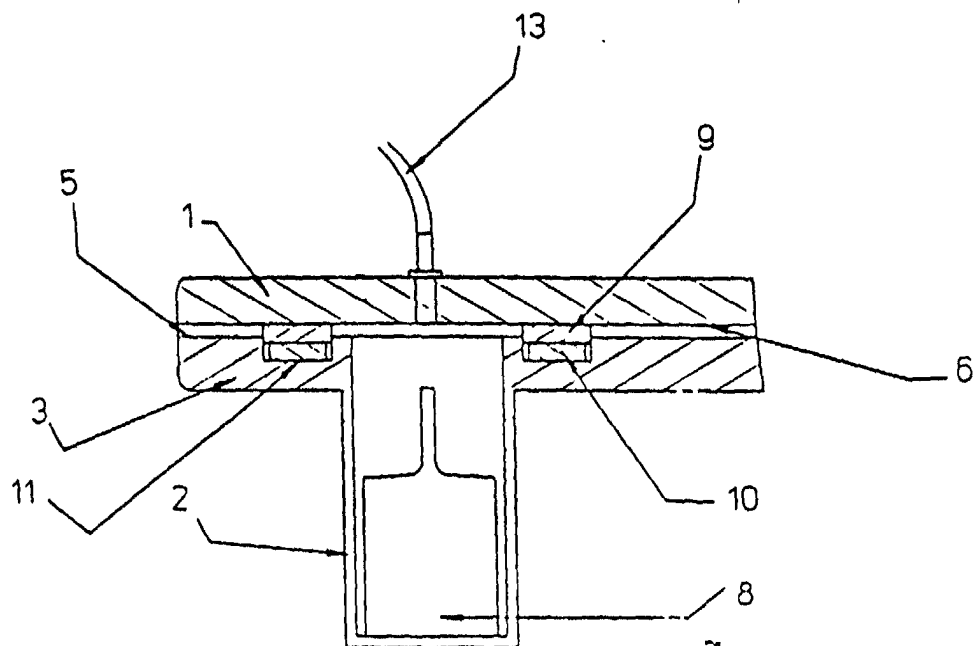


FIG. 12

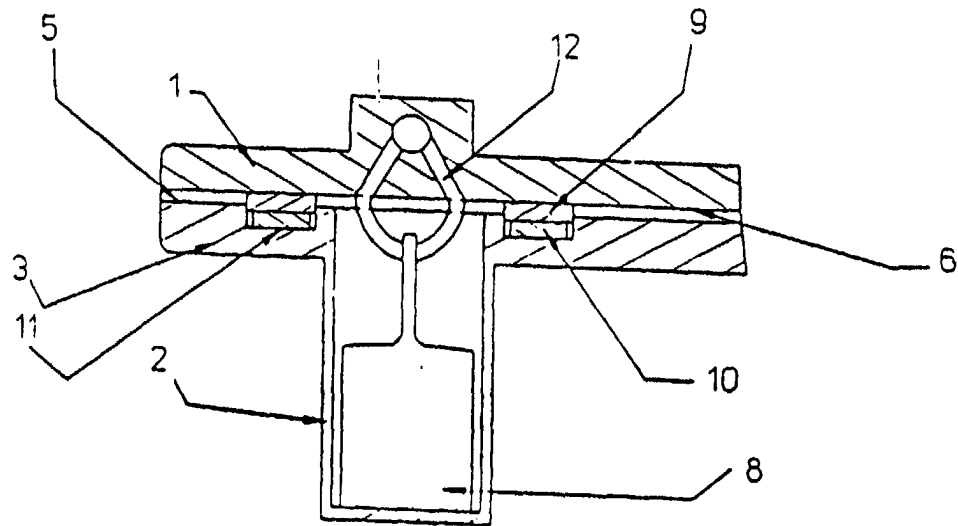


FIG. 13

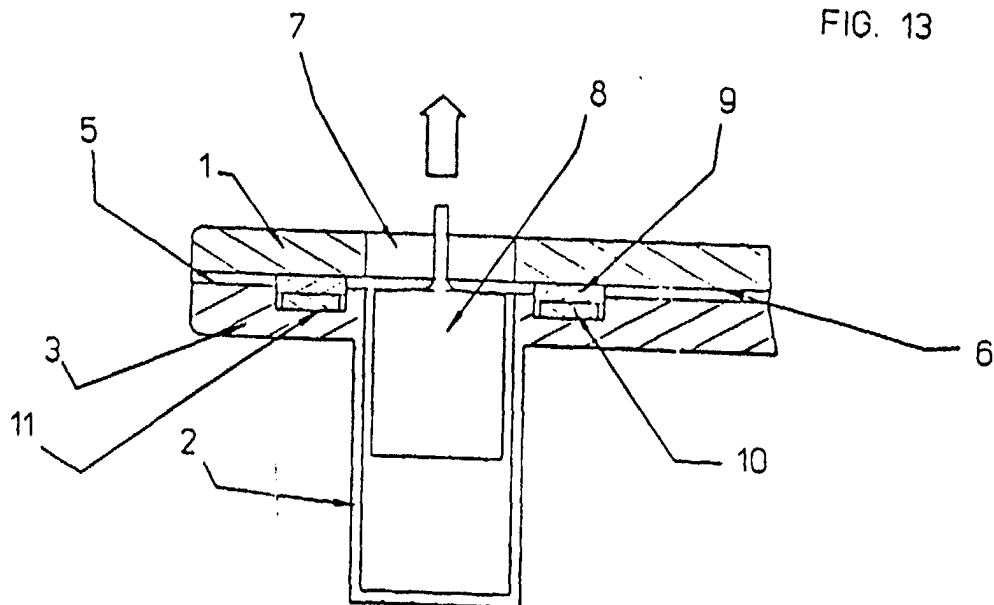


FIG. 14

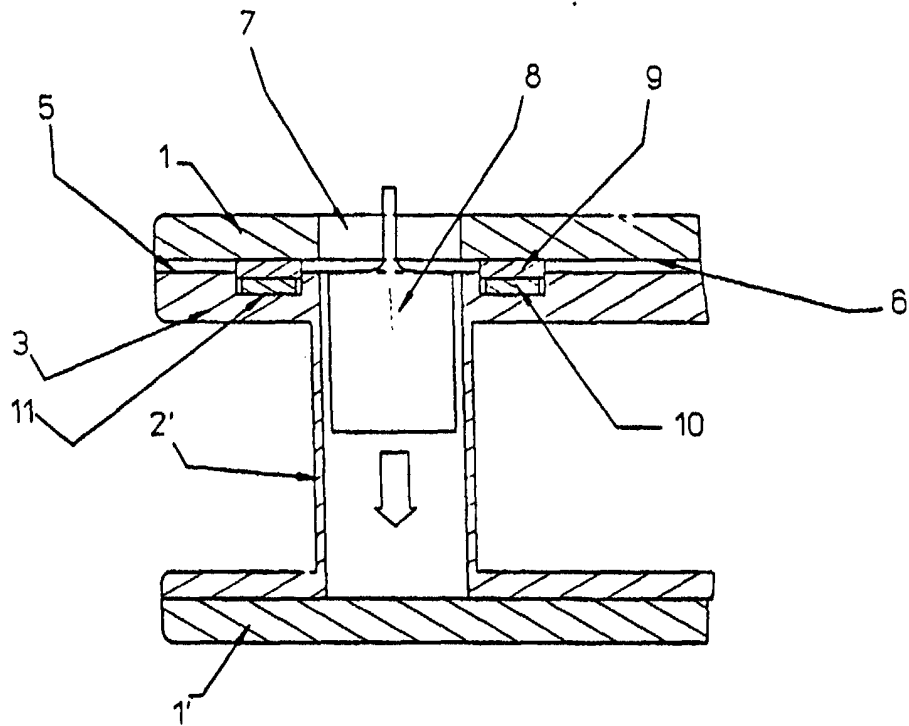


FIG. 15

