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# (54) INFLATABLE CUSHION AND METHOD OF MAKING SAME

AUFBLASBARES KISSEN UND VERFAHREN ZUR HERSTELLUNG

COUSSIN GONFLABLE ET SON PROCEDE DE FABRICATION

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**DE-A- 1 486 391**
**GB-A- 1 093 212**

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## Description

The present invention relates to an inflatable cushion including a pair of flexible walls welded together at their edges, an inflation valve including a pair of flexible sheets welded together along two weld lines, said inflation valve being affixed to an internal face of one of said flexible walls by a welding line at a distance from said welded edges of said cushion, and opening to the outside of said cushion through an aperture provided in said one flexible wall to which said inflation valve is affixed to permit inflation of the cushion by insertion of an inflation tube or by a directed jet of air, said welding line surrounding said aperture and welding said one flexible wall and a first flexible sheet being adjacent thereto together.

Such an inflatable cushion may be used advantageously for packing articles of different dimensions and shapes by wedging same in a rigid box.

An inflatable cushion is already known from FR 2 686 322, in which the inflation walve located between two flexible walls forming the cushion is welded at: one of its ends to the two flexible walls at their edges, leaving an aperture of the conduit open to the outside for insertion of an inflation tube.

This known inflatable cushion comprises two flexible guide tabs that are needed for insertion of an inflation tube into the conduit. These flexible guide tabs project from one edge of the cushion and are welded at inflation valve to the edges of the flexible walls forming the cushion.

However, this known cushion has several disadvantages.

To begin with, it is required that an inflation tube be inserted into the interior of the conduit of the inflation valve of this known cushion. To insert such an inflation tube, it is necessary to first spread the flexible guide tabs. Thus, it becomes difficult: to realize an automatic insertion of the tube into the valve and it is not possible to inflate the cushion without inserting the inflation tube. Further, the insertion of the inflation tube into the cushion, via the conduit of the inflation valve, for inflating or deflating it, produces at the level of the opening to the outside of the conduit of the valve a tension, which acts upon the welded edges of the flexible cushion walls, this tension being capable of causing the edges to tear at this level.

Finally, the inflation valve of this cushion can be positioned only on one edge of the latter, which is sometimes difficult to realize, when the cushion has a complex shape, and which can become a disadvantage in the conception of a package with an inflatable cushion.

Another inflatable cushion is known from GB-A-1093212 in which the inflation valve comprises a pair of flexible plastic panels, one of which being welded to the inner face of one of the two flexible walls of the inflatable cushion, while the other one of said pair of flexible plastic panels being formed from a material which melts at a temperature higher than that of said wall or said one panel. The panels of the inflation valve are welded together at three of their edges, defining one open end. The manufacture of this known inflatable cushion requires at least two kinds of material due to the different melting temperatures, resulting in increased costs for purchasing and storing. Moreover severals welding lines are necessary for sealing one end of the inflation valve and for affixing it to an internal face of one of the flexible walls of the inflatable cushion.

Therefore, an object of the present invention is to provide an inflatable cushion of the above-mentioned kind, the manufacture of which is less complicated and less expensive.

To remedy to drawbacks of the precited state of art, the present invention proposes a new inflatable cushion in which the inflation valve is located such that the inflation tube could be automatically inserted into the interior of the inflatable cushion without producing tension upon the welded edges of the flexible cushion walls.

More particularly, according to the invention, the above problem is solved in that said two weld lines form a conduit open at both ends and that said welding line covers said two weld lines and includes outside the conduit the second flexible sheet.

Also, advantageously, in accordance with the complexity of shape of the cushion and its use, the aperture provided in said flexible wall to which said inflation walve is affixed, is placed in the appropriate region of said flexible wall.

In particular, according to an embodiment of the cushion object of the invention said aperture in said one flexible wall to which said inflation wall is affixed is located in an angle region of said cushion.

It is interesting to note that the insertion of the tube into the valve of the cushion according to the invention, for inflating or deflating it, acts in compression upon the welded edges of said flexible wall that contributes to held it bound.

Further features, objets and advantages will be evident from the following detailed description of the prefered embodiments of the present invention taken in conjunction with the accompanying drawings, in which :

- Figure 1 is a partial plan view of a cushion in accordance with the invention, in a deflated state,
- Figure 2 is an plan view of a first embodiment of the inflation valve of the inflatable cushion in accordance with the invention, into which an inflation tube is inserted,
- Figure 3 is a plan view of a second embodiment of the inflation valve of the inflatable cushion in accordance with the invention, into which an inflation tube is inserted.

Shown in Figure 1 is an inflatable cushion compris-

ing two walls 10 of a hot or high-frequency weldable, flexible plastic, which are welded together at their edges along a weld line 12 defining the peripheral edge of the cushion. This inflatable cushion comprises an inflation valve 20 consisting of two sheets 21, 22 of a hot or high-frequency weldable, flexible plastic (see Figures 2, 3), which are welded together along two essentially parallel weld lines 24, so as to form a conduit 23 for an inflation tube 30 that is open at both ends. The inflation valve 20 is welded to one internal face of one of flexible cushion walls 10, at a distance from weld line 12 of the cushion, and opens to the outside of the latter through an aperture 11 which is provided in flexible wall 10, to which valve 20 is welded.

The weld seam 13 of inflation valve 20 on the flexible cushion wall 10 describes a circle, which surrounds aperture 11 that is provided in flexible wall 10, leaving flexible sheets 21, 22 of inflation valve 20 open at the level of conduit 23, so as to permit the insertion of an inflation tube 30 into the interior of the cushion through aperture 11 and conduit 23.

Shown in Figure 2 is a first embodiment of an inflation valve 20. According to this embodiment, the flexible sheets 21, 22 forming the inflation valve 20 are of different lengths.

These sheets 21, 22 are arranged side by side and welded together along weld lines 24, so that at one end of conduit 23 of inflation valve 20, the transverse edges 21a, 22a of flexible sheets 21, 22 are offset from one another in the axial direction of the valve. At the other end, the edges 21b, 22b of sheets 21,22 overlie one another. This inflation valve is positioned in the interior of the inflatable cushion (see Figure 1), so that the flexible sheet 22 of inflation valve 20 with its edge 22a set back from edge 21a of the other flexible sheet 21, is positioned adjacent to the internal face of flexible cushion wall 10, to which the inflation valve is affixed, the offset edge 22a being adjacent to an edge of aperture 11 that is provided in said flexible wall 10.

The weld seam 13 of inflation valve 20 on wall 10 is such that on one portion of circle 13a, wall 10 and sheet 21 including forward edge 21a are welded together, that on two portions of circle 13b arranged on both sides of conduit 23, flexible wall 10 and thin sheets 21, 22 are welded together, and that over the width 13c of conduit 23, only wall 10 and adjacent sheet 22 are welded together, while leaving the other sheet 21 forming the valve detached, so as leave the conduit open.

To make an inflatable cushion in accordance with the invention, as shown in Figure 1, which comprises an inflation valve as shown in Figure 2, and in which two flexible walls 10 are peripherally welded together, the following steps are carried out:

a) - A resist 26 is provided in conduit 23 of inflation valve 20 at its end which corresponds with transverse edges 21a,22a of offset flexible sheets 21, 22;

b) - The inflation valve 20 is placed against the internal face of flexible cushion wall 10, so that flexible sheet 22 with its set back edge 22a is positioned adjacent to the internal face of flexible wall 10, and that the end of conduit 23 provided with resist 26 is positioned at the aperture 11 provided in flexible wall 10;

c) - The inflation valve 20 is welded to flexible wall 10 along welding line 13, which surrounds aperture 11 of flexible wall 10, and which covers resist 26.

The resist 26 may be made in the form of an individual tab of silicon or even paper. In this instance, the resist 26 is pulled out of conduit 23 through aperture 11 in flexible wall 10, after the welding step (c) of the foregoing process.

According to a variant of this method, the resist 26 is formed by printing an insulating material, such as, for example, a fast-drying varnish, on one of the opposite internal faces of sheets 21, 22 forming the inflation valve. This printing occurs in step (a) of the above-described method. When welding valve 20 to flexible wall 10, this resist 26 allows, in an advantageous manner, to leave the two sheets 21, 22 of the valve separated from one another at conduit 23, so as to thus permit the insertion of a flexible inflation tube into the interior of this valve. A major feature of this invention is that the construction of valve 20 is such that a directed let of air from an air nozzle (not shown) can be aimed at the outer end of the conduit 23 and this jet of air will open the conduit 23 and inflate the cushion without the necessity of inserting an inflation tube into the conduit 23. This feature permits automatic inflation or very fast manual inflation.

Shown in Figure 3 is another embodiment of an inflation valve of the inflatable cushion in accordance with the invention. In this embodiment, the flexible sheets 21, 22 forming this valve have the same dimensions. These sheets 21, 22 are superposed and welded together along welding lines 24, so as to form conduit 23. One of these flexible sheets 22 includes here a circular opening 25, which is located at one end of conduit 23 between the two welding lines 24. This inflation valve is located in the interior of the flexible cushion in accordance with the invention, so that flexible sheet 22 with opening 25 is adjacent to the internal face of flexible wall 10, to which the inflation valve is attached, with opening 25 being opposite aperture 11 provided in flexible wall 10. In this instance, the thin sheets 21, 22 and flexible wall 10 are welded along a circular portion surrounding the two overlaid apertures 11, 25, and covering the two welding lines 24 that form conduit 23. It should be noted that at conduit 23, only the flexible wall 10 and thin wall 22 adjacent to the inflation valve are welded together, whereas the other thin sheet 21 remains detached, so that an inflation tube 30 can be inserted or a directed air jet can pass therethrough. As one will note, a common characteristic of the inflation valves shown in Figures 2 and 3

is that the welding lines 24 of flexible sheets 21, 22 are locally spaced apart from one another, so that the conduit 23 of flexible inflation tube 30 that is created by welding lines 24 has a widening, which is located at a distance from the free end of the conduit placed in the interior of the cushion. This has the advantage that, when the inflation of the cushion is stopped and the tube 30 is still partially engaged in conduit 23, the two flexible sheets 21, 22 rest against one another due to a distortion that is caused in the vicinity of the free end of the conduit in the widening, so as to obstruct immediately the conduit and to thus prevent a partial deflation of the cushion. Once inflated, the inflatable cushion of this invention has advantageously a double seal at aperture 11 in flexible wall 10.

A first seal is formed by the valve itself, which is self-closing by the two flexible sheets 21, 22 overlying one another.

A second seal is ensured by sealingly applying flexible sheet 21 of the inflation valve, which is outermost with respect to flexible wall 10, to aperture 11, so as to obstruct same. It is understood that the present invention is by no means limited to the embodiments described and illustrated therein, but that a person skilled in the art will be able to conceive any variant within the scope of the appended claims.

## Claims

1. An inflatable cushion including a pair of flexible walls (10) welded together at their edges (12), an inflation valve (20) including a pair of flexible sheets (21, 22) welded together along two weld lines (24) said inflation valve (20) being affixed to an internal face of one of said flexible walls by a welding line (13) at a distance from said welded edges (12) of said cushion, and opening to the outside of said cushion through an aperture (11) provided in said one flexible wall (10) to which said inflation valve is affixed to permit inflation of the cushion by insertion of an inflation tube or by a directed jet of air, said welding line (13) surrounding said aperture (11) and welding said one flexible wall and a first flexible sheet (22) being adjacent thereto together,
   characterized in
   that said two weld lines (24) form a conduit (23) open at both ends, one end of which communicating with the aperture (11) and that said welding line (13) covers said two weld lines (24) and includes outside the conduit (23) the second flexible sheet (21).

2. An inflatable cushion according to claim 1, characterized in that at one end of said conduit (23) of said inflation valve (20), the transverse edges (21a, 22a) of said flexible sheets (21, 22) forming said valve are shifted from each other, said flexible sheet (22) including the inner edge (22a) being adjacent to the internal face of said one flexible wall to which said inflation valve (20) is affixed, said inner edge being located in the vicinity of the edge of said aperture (11) provided in said one flexible wall (10).

3. An inflatable cushion according to claim 1, characterized in that said inflation valve (20) includes an aperture (25) formed in one of said flexible sheets (22) which is located adjacent to the internal face of said one flexible wall (10) to which said inflation valve is affixed, said aperture (25) being located at one end of said conduit (23), between the welding lines (24) forming said conduit, and facing said aperture (11) provided in said one flexible wall (10) to which said inflation valve (20) is affixed.

4. An inflatable cushion according to any one of claims 1 to 3, characterized in that said aperture in said one flexible wall to which said inflation wall is affixed is located in an angle region of said cushion.

5. An inflatable cushion according to any one of claims 1 to 4, characterized in that, in the inflated condition, it provides at said aperture (11) provided in said one flexible wall (10) a first seal established by the mutual engagement of said pair of flexible sheets (21, 22) of said inflation valve, and a second seal established by the engagement of one of said flexible sheets of said inflation valve with said aperture (11) so as to obstruct same.

6. A method for manufacturing an inflatable cushion according to claim 2, wherein

   a) the flexible walls (10), positioned one against the other, are peripherally welded together,

   b) the flexible sheets (21, 22) are welded together along two weld lines (24) to form an inflation valve (20), having a conduit (23) open at both ends,

   c) providing an interference member (26) in said conduit (23) of said inflation valve (20), at the end of said conduit (23) corresponding to the shifted transverse edges (21a, 22a) of said flexible sheets (21, 22),

   d) positioning said inflation valve (20) against the internal face of one of said flexible walls (10) provided with an aperture (11) in such manner that said flexible sheet (22) of said valve including the inner edge (22a) is located adjacent to the internal face of said flexible wall (10), and that the open end of the conduit (23), comprising said inner edge (22a) and said interference member (26), is located at said aperture (11) and communicates therewith,

e) welding said inflation valve (20) to said flexible wall (10) along a welding line (13) which surrounds that aperture (11) of said flexible wall (10) and extends across said interference member (26), said welding line (13) including outside the conduit (23) the second flexible sheet (21) and said interference member (26) preventing inside the conduit (23) the two flexible sheets (21, 22) from being welded together.

**7.** A method according to claim 6, characterized in that said interference member (26) is made of an individual tab in an insulating material, and it further includes a final step of extracting said interference member (26) from said conduit (23) via said aperture (11) of said flexible wall (10).

**8.** A method according to claim 6, characterized in that said step a) further includes the printing of an insulating material on one of said opposite internal faces of said flexible sheets (21, 22) forming said inflation valve (20) at the end of said conduit (23) corresponding to said shifted transverse edges (21a, 22a), in order to form said interference member (26).

**Patentansprüche**

**1.** Aufblasbares Kissen mit einem Paar flexibler Wände (10), die an ihren Rändern (12) zusammengeschweißt sind, und mit einem Aufblasventil (20), das ein Paar flexibler Folien (21, 22) aufweist, die längs zweier Schweißlinien (24) zusammengeschweißt sind, und das (20) an einer Innenseite einer der flexiblen Wände durch eine Schweißnahtlinie (13) in einem Abstand von den geschweißten Rändern (12) des Kissens befestigt ist und zur Außenseite des Kissens durch eine Öffnung (11) öffnet, die in der besagten einen flexiblen Wand (10), an der das Aufblasventil befestigt ist, ausgebildet ist, um ein Aufblasen des Kissens durch Einsetzen eines Aufblasrohrs oder durch einen gerichteten Luftstrahl zu ermöglichen, wobei die Schweißnahtlinie (13) die Öffnung (11) umgibt und die besagte eine flexible Wand und eine an dieser anliegende, erste flexible Folie (22) zusammenschweißt, dadurch gekennzeichnet, daß die zwei Schweißlinien (24) einen an beiden Enden offenen Kanal (23) ausbilden, wobei eines der Enden mit der Öffnung (11) in Verbindung steht, und daß die Schweißnahtlinie (13) die zwei Schweißlinien (24) überdeckt und außerhalb des Kanals (23) die zweite flexible Folie (21) mit enthält.

**2.** Aufblasbares Kissen nach Anspruch 1, dadurch gekennzeichnet, daß an einem Ende des Kanals (23) des Aufblasventils (20) die querverlaufenden Ränder (21a, 22a) der flexiblen Folien (21, 22), die das Ventil ausbilden, gegeneinander versetzt sind, wobei die flexible Folie (22), die den inneren Rand (22a) aufweist, an der Innenseite der besagten einen flexiblen Wand liegt, an der das Aublasventil (20) befestigt ist, und wobei der innere Rand in der Nähe des Randes der Öffnung (11) angeordnet ist, die in der besagten einen flexiblen Wand (10) ausgebildet ist.

**3.** Aufblasbares Kissen nach Anspruch 1, dadurch gekennzeichnet, daß das Aufblasventil (20) eine Öffnung (25) aufweist, die in einer der flexiblen Folien (22) ausgebildet ist, die an der Innenseite der besagten einen flexiblen Wand (10) liegt, an der das Aufblasventil befestigt ist, wobei die Öffnung (25) an einem Ende des Kanals (23) zwischen den den Kanal bildenden Schweißlinien (24) angeordnet und der Öffnung (11) zugewandt ist, die in der besagten einen flexiblen Wand (10) ausgebildet ist, an der das Aufblasventil (20) befestigt ist.

**4.** Aufblasbares Kissen nach einem der Ansprüche 1 bis 3, dadurch gekennzeichnet, daß die Öffnung in der besagten einen flexiblen Wand, an der das Aufblasventil befestigt ist, in einem Eckbereich des Kissens angeordnet ist.

**5.** Aufblasbares Kissen nach einem der Ansprüche 1 bis 4, dadurch gekennzeichnet, daß es im aufgeblasenen Zustand an der in der besagten einen flexiblen Wand (10) ausgebildeten Öffnung (11) eine erste Dichtung, die durch das gegenseitige Aneinanderliegen des Paars flexibler Folien (21, 22) des Aufblasventils ausgebildet ist, und eine zweite Dichtung bildet, die durch das Anliegen einer der flexiblen Folien des Aufblasventils an der Öffnung (11) ausgebildet ist, so daß diese versperrt ist.

**6.** Verfahren zur Herstellung eines aufblasbaren Kissens nach Anspruch 2, wobei

a) die flexiblen Wände (10), die aneinanderliegend angeordnet sind, längs des Umfangs zusammengeschweißt werden,

b) die flexiblen Folien (21, 22) längs zweier Schweißlinien (24) zusammengeschweißt werden, um ein Aufblasventil (20) zu bilden, daß einen an beiden Enden offenen Kanal (23) aufweist,

c) ein Unterbrechungsteil (26) in dem Kanal (23) des Aufblasventils (20) an dem Ende des Kanals (23) vorgesehen wird, das den versetzten querverlaufenden Rändern (21a, 22a) der flexiblen Folien (21, 22) entspricht.

d) das Aufblasventil (20) an der Innenseite einer der flexiblen Wände (10), die mit einer Öffnung (11) versehen ist, derart angeordnet wird, daß die flexible Folie (22) des Ventils, die den inneren Rand (22a) aufweist, an der Innenseite der flexiblen Wand (10) anliegt, und daß das offene Ende des Kanals (23), das den inneren Rand (22a) und das Unterbrechungsteil (26) aufweist, an der Öffnung (11) liegt und mit dieser in Verbindung steht,

e) das Aufblasventil (20) an die flexible Wand (10) längs einer Schweißnahtlinie (13) angeschweißt wird, die die Öffnung (11) der flexiblen Wand (10) umschließt und sich quer über das Unterbrechungsteil (26) erstreckt und in die (13) außerhalb des Kanals (23) die zweite flexible Folie (21) mit aufgenommen ist, wobei das Unterbrechungsteil (26) innerhalb des Kanals (23) ein Zusammenschweißen der zwei flexiblen Folien (21, 22) verhindert.

**7.** Verfahren nach Anspruch 6, dadurch gekennzeichnet, daß das Unterbrechungsteil (26) aus einer einzelnen Lasche aus einem Isoliermaterial hergestellt wird und daß es ferner einen letzten Schritt des Herausziehens des Unterbrechungsteils (26) aus dem Kanal (23) über die Öffnung (11) der flexiblen Wand (10) aufweist.

**8.** Verfahren nach Anspruch 6, dadurch gekennzeichnet, daß der Schritt a) ferner das Drucken eines Isoliermaterials auf eine der einander gegenüberliegenden Innenseiten der flexiblen, das Aufblasventil (20) bildenden Folien (21, 22) an dem Ende des Kanals (23) aufweist, das den versetzten querverlaufenden Rändern (21a, 22a) entspricht, um das Unterbrechungsteil (26) auszubilden.

**Revendications**

**1.** Coussin gonflable comportant deux parois souples (10) soudées l'une à l'autre à leurs bords (12), une valve de gonflage (20) qui comporte deux feuilles souples (21, 22) soudées l'une à l'autre le long de deux lignes de soudage (24), la valve de gonflage (20) étant fixée à une face interne de l'une des parois souples par une ligne de soudage (13) à une certaine distance des bords soudés (12) du coussin, et débouchant à l'extérieur du coussin par un orifice (11) formé dans la première paroi souple (10) à laquelle est fixée la valve de gonflage pour permettre le gonflage du coussin par insertion d'un tube de gonflage ou par un jet d'air dirigé, la ligne de soudage (13) entourant l'orifice (11) et soudant la première paroi souple à une première feuille souple (22) qui lui est adjacente, caractérisé en ce que :

les deux lignes de soudage (24) forment un conduit (23) qui est ouvert à ses deux extrémités et dont une première extrémité communique avec l'orifice (11), et la ligne de soudage (13) recouvre les deux lignes de soudage (24) et comprend, à l'extérieur du conduit (23), la seconde feuille souple (21).

**2.** Coussin gonflable selon la revendication 1, caractérisé en ce que, à une première extrémité du conduit (23) de la valve de gonflage (20), les bords transversaux (21a, 22a) des feuilles souples (21, 22) formant la valve sont décalés mutuellement, la feuille souple (22) comprenant le bord interne (22a) qui est adjacent à la face interne de la première paroi souple à laquelle est fixée la valve de gonflage (20), le bord interne étant placé au voisinage du bord de l'orifice (11) placé dans la première paroi souple (10).

**3.** Coussin gonflable selon la revendication 1, caractérisé en ce que la valve de gonflage (20) comporte un orifice (25) formé dans l'une des feuilles souples (22) qui est adjacente à la face interne de la première paroi souple (10) à laquelle est fixée la valve de gonflage, l'orifice (25) étant placé à une première extrémité du conduit (23), entre les lignes de soudage (24) formant le conduit, et étant tourné vers l'orifice (11) formé dans la première paroi souple (10) à laquelle est fixée la valve de gonflage (20).

**4.** Coussin gonflable selon l'une quelconque des revendications 1 à 3, caractérisé en ce que l'orifice formé dans la première paroi souple à laquelle est fixée la valve de gonflage se trouve dans une région d'angle du coussin.

**5.** Coussin gonflable selon l'une quelconque des revendications 1 à 4, caractérisé en ce que, à l'état gonflé, il forme, à l'orifice (11) placé dans la première paroi souple (10), un premier joint étanche établi par le contact mutuel des deux feuilles souples (21, 22) de la valve de gonflage, et un second joint étanche établi par le contact de l'une des feuilles souples de la valve de gonflage avec l'orifice (11) afin que celui-ci soit bouché.

**6.** Procédé de fabrication d'un coussin gonflable selon la revendication 2, dans lequel :

a) les parois souples (10) placées l'une contre l'autre sont soudées mutuellement à leur périphérie,

b) les feuilles souples (21, 22) sont soudées mutuellement le long de deux lignes de soudage (24) pour la formation d'une valve de gonflage (20) ayant un conduit (23) ouvert à ses deux extrémités,

c) un organe de contact (26) est placé dans le conduit (23) de la valve de gonflage (20), à l'extrémité du conduit (23) qui correspond aux bords transversaux décalés (21a, 22a) des feuilles souples (21, 22),

d) la valve de gonflage (20) est positionnée contre la face interne de l'une des parois souples (10) ayant un orifice (11) tel que la feuille souple (22) de la valve ayant le bord interne (22a) est adjacente à la face interne de la paroi souple (10), et l'extrémité ouverte du conduit (23) ayant le bord interne (22a) et l'organe de contact (26) est placé à l'orifice (11) et communique avec lui,

e) la soupape de gonflage (20) est soudée à la paroi souple (10) le long d'une ligne de soudage (13) qui entoure l'orifice (11) de la paroi souple (10) et s'étend sur l'organe de contact (26), la ligne de soudage (13) comprenant l'extérieur du conduit (23), la seconde feuille souple (21) et l'organe de contact (26) empêchant le soudage mutuel des deux feuilles souples (21, 22) à l'intérieur du conduit (23).

**7.** Procédé selon la revendication 6, caractérisé en ce que l'organe de contact (26) est formé d'une patte individuelle réalisée dans un matériau isolant, et le procédé comporte en outre une étape finale d'extraction de l'organe de contact (26) du conduit (23) par l'orifice (11) de la paroi souple (10).

**8.** Procédé selon la revendication 6, caractérisé en ce que l'étape a) comporte en outre l'impression du matériau isolant sur l'une des faces internes opposées des feuilles souples (21, 22) formant la valve de gonflage (20) à l'extrémité du conduit (23) qui correspond aux bords transversaux décalés (21a, 22a) afin que l'organe de contact (26) soit formé.

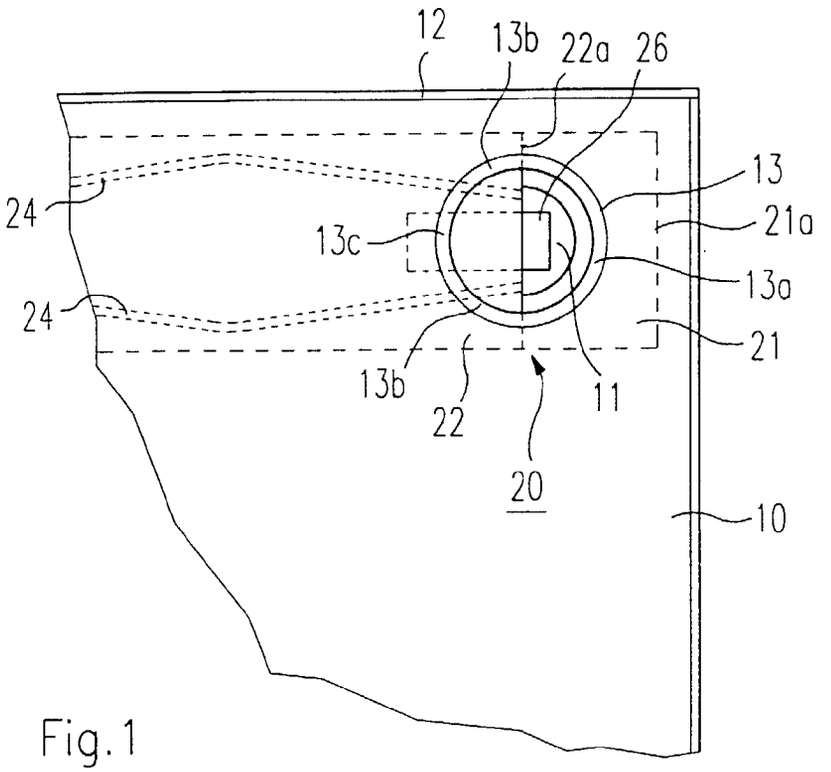


Fig.1

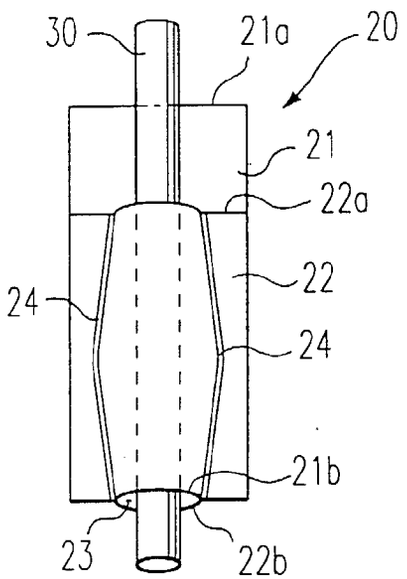


Fig.2

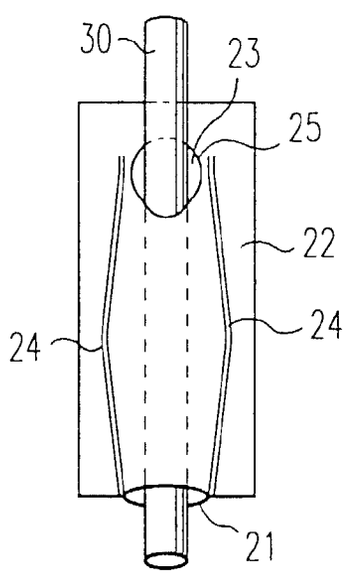


Fig.3