

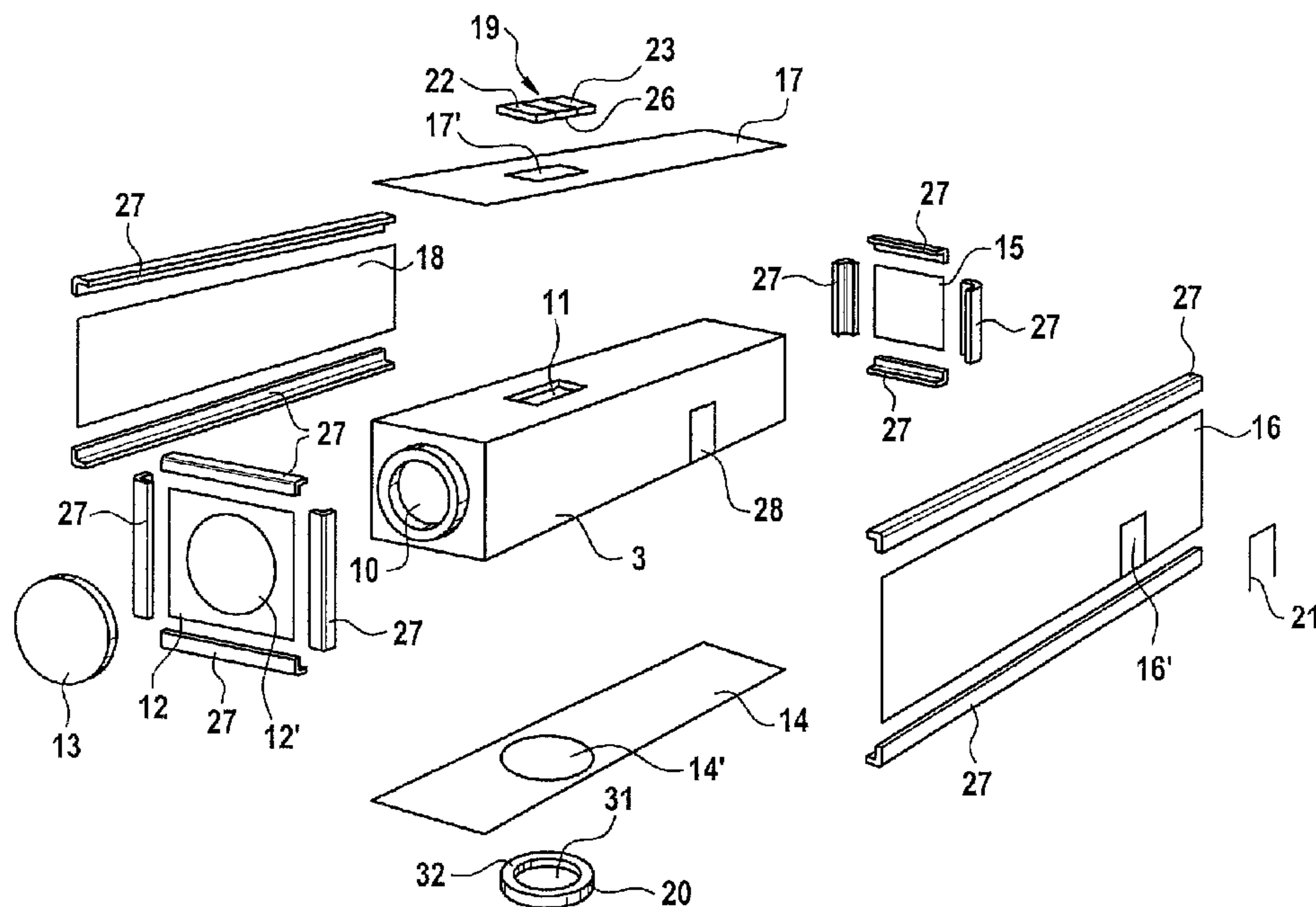


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(54) Titre : ENSEMBLE ENVELOPPE DE PROTECTION ET PROCEDE POUR EMBALLER UNE PIECE DE GRANDES DIMENSIONS

(54) Title: PROTECTIVE-CASE SET AND METHOD FOR PACKAGING A LARGE COMPONENT



(57) Abrégé/Abstract:

The invention relates to a method for packaging a large component (3) into a protective case, which has a first and second reclosable access (16', 11') and a plurality of protective-case parts (12, 13, 14, 15, 16, 17, 18), wherein the large component (3) has an access opening (28), comprising the following steps: providing prefabricated protective-case parts (12, 13, 14, 15, 16, 17, 18); attaching the protective-case parts (12, 13, 14, 15, 16, 17, 18) to the large component (3); welding the transitions between the protective-case parts (12, 13, 14, 15, 16, 17, 18); shrinking the protective case; and arranging the first reclosable access (16') in the protective case over the access opening (28). The packaging process is significantly accelerated compared to the known methods due to the prefabrication of the protective-case parts before the start of the method. Furthermore, the prefabrication provides the advantage that the prefabricated parts can be produced in series. As a result, the protective-case parts for several large components of the same type can be produced or purchased more cheaply.

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[Fortsetzung auf der nächsten Seite]

(54) Title: PROTECTIVE-CASE SET AND METHOD FOR PACKAGING A LARGE COMPONENT

(54) Bezeichnung : SCHUTZHÜLLENSATZ UND VERFAHREN ZUM VERPACKEN EINES GROSSBAUTEILS

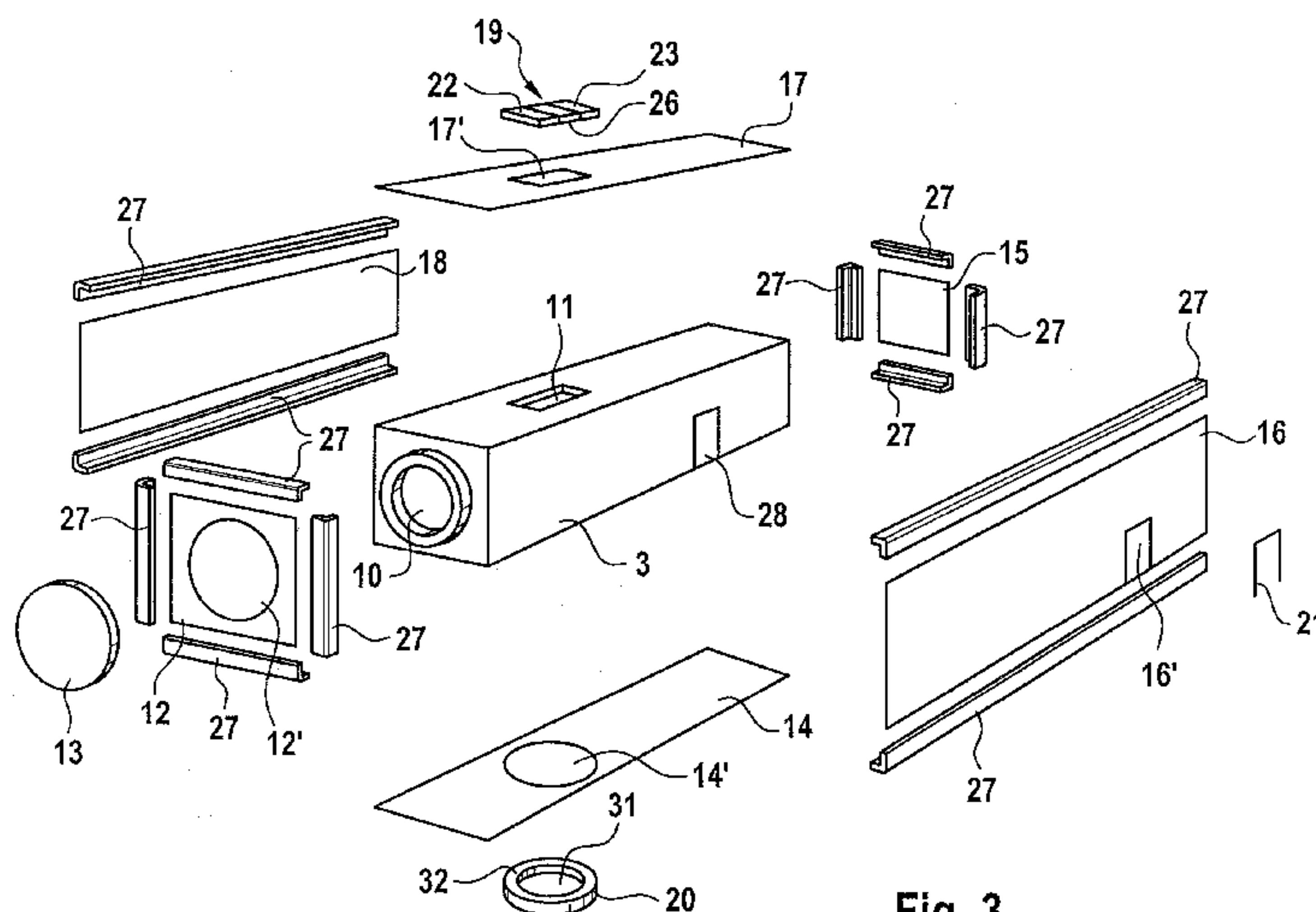


Fig. 3

(57) **Abstract:** The invention relates to a method for packaging a large component (3) into a protective case, which has a first and second reclosable access (16', 11') and a plurality of protective-case parts (12, 13, 14, 15, 16, 17, 18), wherein the large component (3) has an access opening (28), comprising the following steps: providing prefabricated protective-case parts (12, 13, 14, 15, 16, 17, 18); attaching the protective-case parts (12, 13, 14, 15, 16, 17, 18) to the large component (3); welding the transitions between the protective-case parts (12, 13, 14, 15, 16, 17, 18); shrinking the protective case; and arranging the first reclosable access (16') in the protective case over the access opening (28). The packaging process is significantly accelerated compared to the known methods due to the prefabrication of the protective-case parts before the start of the method. Furthermore, the prefabrication provides the advantage that the prefabricated parts can be produced in series. As a result, the protective-case parts for several large components of the same type can be produced or purchased more cheaply.

(57) Zusammenfassung:

[Fortsetzung auf der nächsten Seite]



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WO 2013/076201 A1**Erklärungen gemäß Regel 4.17:**

- *hinsichtlich der Identität des Erfinders (Regel 4.17 Ziffer i)*
- *hinsichtlich der Berechtigung des Anmelders, ein Patent zu beantragen und zu erhalten (Regel 4.17 Ziffer ii)*

Veröffentlicht:

- *mit internationalem Recherchenbericht (Artikel 21 Absatz 3)*

Die Erfindung betrifft ein Verfahren zum Verpacken eines Großbauteils (3) in eine Schutzhülle, die einen ersten und zweiten wiederverschließbaren Zugang (16', 11') und eine Mehrzahl von Schutzhüllenteilen (12, 13, 14, 15, 16, 17, 18) aufweist, wobei das Großbauteil (3) eine Zugangsöffnung (28) umfassend die Schritte: Bereitstellung von vorkonfektionierten Schutzhüllenteilen (12, 13, 14, 15, 16, 17, 18); Anbringen der Schutzhüllenteile (12, 13, 14, 15, 16, 17, 18) an dem Großbauteil (3); Verschweißen der Übergänge zwischen den Schutzhüllenteilen (12, 13, 14, 15, 16, 17, 18); Einschrumpfen der Schutzhülle; und Anordnen des ersten wiederverschließbaren Zugangs (16') in der Schutzhülle über der Zugangsöffnung (28) umfasst. Durch die Vorkonfektionierung der Schutzhüllenteile vor Beginn des Verfahrens wird der Verpackungsvorgang verglichen mit den bekannten Verfahren erheblich beschleunigt. Weiter bietet die Vorkonfektionierung den Vorteil, dass die vorkonfektionierten Teile in Serie hergestellt werden können. Dies hat zur Folge, dass die Schutzhüllenteile für mehrere Großbauteile gleicher Art günstiger hergestellt bzw. bezogen werden können.

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**Protective-case set and method for packaging a large
component**

5 The invention relates to a method for packaging large components and to a protective-case set.

10 Large components which are provided for long-term storage are subject to the effects of dirt, moisture and other environmental components at the storage facility. Said damaging effects result in corrosion and the formation of mould, as a result of which damage can be caused to the electrics. Additional devices which, for example, are to reduce the moisture inside the large components are also impaired by said effects. Long-term storage of large components does not only occur on land but also on ships when components are exported. As the export of large components is nowadays extremely common, the large components are frequently shipped by sea. It is known that the environmental conditions on the open sea allow non-protected constituents of the large components, such as for example bright metal surfaces, to corrode rapidly. Accordingly, there is a requirement for protective mechanisms which shield the large components from harmful effects.

25 Known methods include shrink-wrapping the large components in film, sharp edges being masked beforehand. In this case, the large components are wrapped with the film and the edges of the film are welded together. 30 During the further course of the method the film can be shrunk such that it abuts closely against the surface of the component. The result of this is that no contaminated air or moisture remains between the film and the surfaces to be protected. Disadvantages of said method are the high costs which arise as a result of the film having to be removed and disposed of prior to every transport 35

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operation, in particular in order to reach transport holders that arranged under the film. After the transport operation the shrink-wrapping with film has to be performed once again if further storage is provided. If
5 the shrink-wrapping is not carried out correctly, the method has the opposite effect to the one desired. As a result of incorrectly carried out shrink-wrapping, openings are created through which moisture and dust is able to penetrate into the interior of the large
10 component. Mould and rust are the results of this. In addition, insofar as the large component is stored in the open air, the film can become detached and fly off. The flying off of the film can have further consequences on third parties. In addition, the large component cannot be
15 maintained from inside when it has been shrink-wrapped. Every time the film is damaged, a new shrink-wrap operation has to be performed.

Consequently, the object underlying the invention is to
20 provide improved, more cost-efficient protection against harmful environmental influences and a possibility to maintain the large components when they are stored over the long term, stored in non-secured or non-electrified storage facilities and during transport.

25

The object is achieved by the features of the independent claims. Advantageous further developments are the object of the dependent claims.

30 The invention includes a method for packaging a large component into a protective case which comprises a first and a second reclosable access and a plurality of protective case parts, wherein the large component includes an access opening. The method includes the
35 following steps: prepare prefabricated protective case parts; attach the protective case parts to the large

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component; weld the transitions between the protective case parts; shrink the protective case; and arrange the first reclosable access in the protective case.

5 Some of the terminology used is explained below:

A large component is to be understood as a component of a large machine, in particular a wind energy plant, which comprises at least one access opening. In the majority of
10 cases the access opening is large enough to be a hatch for the entry of operating personnel. Typically, the overall linear dimension (sum of the length, width and height) of the large component is at least 5 meters. Examples of large components are the nacelle or the rotor
15 hub of the wind energy plant.

Pre-fabrication is to be understood as parts of the protective case which are cut to the measurement of the part surfaces of a large component to be covered. The
20 protective case part can be a single part or multiple parts. The pre-fabrication consequently also includes the cutting and the joining together (for example by means of adhesion) of a protective case part which is realized as a complex protective case part and can be provided, for
25 example, for the top surface and one or several side faces. If the parts have shrinkage characteristics, the dimensions are preferably chosen such that the parts comprise the dimensions of the part surfaces to be covered after shrinking. As a result, the protective case
30 can wrap the large component in a flutter-free manner.

As a result of the pre-fabrication of the protective case parts prior to the start of the method, the packaging operation is considerably accelerated compared to the
35 known methods. In addition, the advantage of the pre-fabrication is that the pre-fabricated parts are able to

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be produced in series. The result of this is that the protective case parts can be produced or used in a more favorable manner for several large components of the same type.

5

The effect of inserting reclosable accesses is, on the one hand, that maintaining the large components during storage is possible. On the other hand, transport devices on and/or in the large component can be reached from
10 outside even in the packaged state without the protective case being damaged. The large component can therefore be transported in the packaged state and after transport can continue to be stored in a secure manner.

15 The large components packaged using said method comprise an interior that is closed in an air-tight manner such that no dirt and no moisture are able to penetrate. As a result, a risk of corrosion, mold and damage is extensively avoided. In addition as a result, the
20 electrics of the components are protected and remain fully operable even in the case of long-term storage. Neither is the operation of additional devices such as, for example, moisture-absorbing substances which can be arranged in the interior of the large component,
25 disturbed by the environmental influences.

In an advantageous manner, the method includes the fixing of the protective case parts with adhesive tape and/or tightening straps during the attaching procedure. The
30 advantage of this is that the protective case part does not slip and repeats of the attaching operation are able to be avoided in this way. The method is much more cost-efficient as a result.

35 In addition, it is advantageous to provide the protective case with a draining device at the lowest

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position. As a result, condensation water is prevented from collecting in the interior of the large component. As a result of the draining device, which is realized in the simplest case as a slot, the condensation water can
5 flow out of the protective case such that no damage occurs to the large component.

In an advantageous manner the protective case parts are realized as films. Films are easy to handle and can be
10 welded together. As a result, using simple means it is not only possible to produce a protective case in the assembly building but also even directly in the storage location of the large component. The films preferably shrink in a biaxial manner, i.e. the films shrink
15 uniformly in both film directions. The protective case abuts directly against the surface of the component after the shrinking procedure. As a result, dirt and moisture are no longer able to pass to the component. The shrunk film does not flutter and is consequently exposed to less
20 risk of damage. Over and above this, possible transport in the packaged state is made easier as there is no obstruction or danger to the environment as a result of film parts fluttering or flying around.

25 The reclosable access of the protective case that is arranged over the access opening of the large component is advantageously realized as a zip fastener. The opening of the zip fastener makes it possible, with the large component in the packaged state, to pass through the
30 protective case into the interior of the large component without damaging the protective case. It is also possible to provide a Velcro fastener instead of a zip fastener. Maintenance work can be carried out inside the packaged large component in this way.

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In an advantageous manner, a rigid roof covering is provided as the reclosable access for a roof opening of the large component. The advantage of a rigid roof covering is simple handling. The roof covering is reclosable and enables access to the roof opening of the packaged large component. As a result of its solid design it provides protection for an interior that is arranged below the roof opening. Objects which fall onto the roof covering are consequently not able to penetrate said roof covering and fall into the interior of the large component. It has several components. The first component is a central part. Two flap doors are arranged to the side of the central part in the plane thereof. The roof covering is arranged on the protective case over the roof opening of the large component. In this case, the central part is fixed to the large component. In an expedient manner, the central part and/or the individual flap doors are pulled from inside against the roof covering in each case by means of separate tightening straps. The advantage of this is that the opening of the flap doors or the removing of the complete roof covering from the interior of the large component can be carried out without the roof covering or the roof of the large component needing to be entered for that purpose. A passage through the protective case to the roof opening of the large component is formed as a result of opening the flap doors. In an expedient manner, the roof covering is a second reclosable access.

It is further advantageous for the roof covering to comprise seals. The contact faces between the roof covering and the protective case are sealed against ingress of moisture as a result of said seals.

In an advantageous manner, the roof covering consists of aluminum. It is consequently light and nevertheless

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provides a high degree of stability. The transporting and the attaching of the roof covering are simplified by said characteristics. In addition, aluminum under normal storage conditions is not subject to any considerable
5 corrosion.

In a further advantageous embodiment, the roof covering comprises struts and zip fasteners which are welded into the protective case. Velcro fasteners can also be
10 provided in place of the zip fasteners. The struts are arranged on opposite edges of the roof opening and overlap it. They are welded into the protective case with the large component. The protective case is stabilized as a result of the struts over the roof opening such that
15 the danger of tearing open the protective case if objects impact against it is reduced. Zip fasteners or Velcro fasteners are attached to the protective case over the corners of the roof opening. A passage through the protective case to the roof opening of the large
20 component is formed by opening the fasteners.

Moisture-absorbing elements can preferably be placed in the interior of the stored large component. The risk of corrosion through moisture is reduced even further as a
25 result.

The provision of edge reinforcing means on the edges of the large component provides the advantage that, on the one hand, the protective case will not be damaged and, on
30 the other hand, the edges are protected against damage in transit. In addition, the danger of injury to personnel who participate in transport or packaging operations is reduced as a result of this measure. Over and above this, protruding parts of the large component, this possibly
35 being load fastening points for hoisting equipment, are masked to avoid damage to the protective case.

As a rule, further cutting measures for adapting the size of the protective case parts are not necessary. To this end, the pre-fabricated protective case parts are preferably dimensioned such that they do not project beyond the contour of the respective side (in the case of complex protective case parts even of several sides) of the large component any further than corresponds to the capacity of the shrinkage. It is ensured as a result that without further cutting measures the protective case fits in a close and flutter-free manner purely as a result of shrinking.

If the large component comprises a possibility for coupling with other large components on its under surface, it is advantageous to provide a bottom cover on the protective case for shielding the coupling. Said bottom cover can be realized in the form of a continuous tub-shaped protective tarpaulin which shields dirt and moisture from the interior of the large component and from the coupling point. A shipping crate, on which the large component is mounted by means of its coupling possibility, can be provided for the transport and storage of the large component. For storage, said shipping crate is placed into the bearing cover, as a result of which shielding of the under surface of the large component is ensured. The bearing cover ensures over and above this that no liquids, in particular oil, can pass out of the nacelle into the environment.

In addition, the invention relates to a set for forming a protective case for large components, the protective case comprising an access opening as well as a plurality of protective case parts. The protective case is suitable for carrying out the method according to the invention.

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The invention will be explained below with reference to the accompanying drawing, in which a wind energy plant is shown as an advantageous exemplary embodiment, in which:

5 figure 1: shows a schematic representation of a wind energy plant;

10 figures 2a,b: show a schematic representation of a nacelle from an angle of view from below and above;

15 figure 3: shows an exploded view of the prefabricated protective case parts, the nacelle and the roof covering;

figure 4: shows a schematic representation of a packaged nacelle;

20 figure 5: shows a detail of the surface of the nacelle with a schematic representation of a roof covering with the flap doors open; and

25 figures 6a,b: show a detail of the surface of the nacelle with a schematic representation of an alternative roof covering of struts and zip fasteners, prior to and after attaching the film.

30 The invention is explained by the example of large components of a wind energy plant 1 provided for long-term storage. As large components said wind energy plant includes a tower 2 which consists of several segments, a nacelle 3 which is rotatably mounted on said tower and on the end face of the nacelle 3, a rotatably mounted rotor with rotor blades 5 arranged on a rotor hub 4. The
35 nacelle 3 is the large component to be packaged in the

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present case. In its interior, said nacelle comprises a plurality of electronic components and brightly ground metal surfaces at the coupling points to the tower 2 and to the rotor hub 4. The nacelle 3 has to be protected specifically during storage and transport for this reason.

On its end face the nacelle 3 includes an opening 10 through which is guided a shaft (not shown) which bears the rotor. The opening 10 comprises bright metal surfaces at its edge. In addition, the nacelle 3 comprises a roof opening 11 on its top surface, an access opening 28 on one of its sides and on its under surface an azimuth bearing arrangement 24 for coupling with the tower 2. In the exemplary embodiment shown, the access opening 28 is provided on a side face; it can be realized just as well as a crane hatchway and arranged on the under surface of the nacelle 3. The opening 10 and the azimuth bearing arrangement 24 have to be protected against moisture and dirt during transport and storage in order to avoid corrosion and damage. The protective case is utilized for this purpose.

Figure 3 shows prefabricated parts of the protective case 12, 13, 14, 15, 16, 17, 18 in a first embodiment. They consist of shrink film. Each of the parts 12, 14 -18 covers a side of the nacelle 3, the dimensions and form of the parts being matched to the side to be covered. The term matched refers to the fact that they do not protrude beyond the contour of the respective side any further than corresponds to the shrink ability.

The protective case part 17 is intended for the top surface of the large component 3. It includes, in a first embodiment shown in figure 5, a cutout at the point at which it would cover the roof opening 11. In this

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embodiment, the roof opening 11 is closed by a roof covering 19 which includes a central part 26 and two flap doors 22, 23. The flap doors 22, 23 are arranged on the side of the roof covering 19 in the plane of the central part 26. If the flap doors 22, 23 are closed, the entire roof covering 19 forms a planar surface. In order to prevent the flap doors 22, 23 from slipping and opening in an unwanted manner, the central part 16 and the flap doors 22, 23 are connected to fastening points (not shown) located in the interior of the nacelle 3 in each case by means of tightening straps 33. By loosening individual or several tightening straps 33, the roof covering 19 can simply be opened or completely removed out of the nacelle 3. It is consequently no longer necessary to enter the roof of the nacelle 3 for this purpose. A passage to the interior of the nacelle 3 is formed when the flap doors 22, 23 are opened. Hoisting equipment is then able to be guided through said passage and fastened to the respective load fastening points of the nacelle. In addition, the roof covering 19 comprises seals 25 which produce air-tight contact with the protective case. The ingress of dirt and moisture is prevented as a result.

In a second embodiment of the protective case shown in figures 6a and 6b, the roof covering 19 is realized in the form of several struts 29 which are arranged over the roof opening 11. The protective case part 17 in said embodiment does not comprise a cutout at the position which is arranged over the roof opening 11. The two ends of the struts 29 are arranged in each case at different edges of the roof opening 11 and are welded into the protective case with the large component 3. The struts 29 support the part of the protective case arranged over the roof opening 11. This reduces the risk of damage to the protective case if it is loaded at said position. Zip

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fasteners (or Velcro fasteners) 30 are added at the positions of the protective case which are arranged above the corners of the roof opening 11 in order to obtain a passage through the protective case to the roof opening
5 11.

The method for packaging a nacelle 3 will now be explained below.

10 In a first step the prefabricated protective case parts 12, 13, 14, 15, 16, 17, 18 are prepared. The prefabricated parts 12 - 18, as already mentioned, are matched to the dimensions and the form of the individual part surfaces of the nacelle 3. The protective case parts
15 are pre-fabricated such that, in the state attached to the nacelle 3, they but against one another by way of their edges. Separate parts 13 of the protective case are fabricated for protruding elements, such as, for example, the edge of the opening 10. Recesses 12', 14' are formed
20 in the protective case parts 12, 14 for said elements.

The edges of the nacelle 3 are masked in an expedient manner before the protective case parts 12 - 18 are attached to the nacelle 3. This occurs by attaching edge
25 reinforcing means 27. Said edge reinforcing means can be realized as a combination of adhesives tapes and foam materials. Over and above this, in particular load fastening points on the roof of the nacelle 3 and other protruding parts of a facing of the nacelle 3 are masked
30 in order to avoid damage to the protective case and to its protective case parts 12 to 18.

The protective case parts 12 - 18 are then attached in a further step. To this end, the individual parts are
35 initially fixed to the nacelle 3 one after another. The edges of the protective case parts 12 - 18 are then

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welded together. The welding has to be carried out very carefully so that no openings remain in the seams. It is particularly advantageous when the protective case parts 12 to 18 are cut or are assembled from individual parts to form a complex protective case part in such a manner that several sides of the nacelle 3 are covered by way of one complex protective case part. Once the welding of the protective case parts 12 - 18 has been completed, the protective case is shrunk by means of a heat source. The heat source can be a hot air fan. The high temperature causes the protective case to shrink and abut closely or in a flutter-free manner against the nacelle 3.

The reclosable accesses 19, 21 are then inserted into the protective case. In the first embodiment of the protective case, the reclosable accesses 19, 21 are realized as zip fastener 21 and as rigid roof covering 19. The zip fastener 21 is attached after the shrinking of the protective case and is arranged around the access opening 28 such that an opening of the zip fastener 21 forms a passage into the nacelle 3. In this connection, it is insignificant whether the passage is arranged in a side face of the nacelle or as a crane hatchway in the bottom of the nacelle 3.

The roof covering 19 is inserted into a cutout 17' of the protective case part 17 over the roof opening 11. In the case of a further embodiment (not shown), the roof covering 19 can also be chosen to be sufficiently large compared to the cutout 17' in such a manner that it is sufficient just to place the roof covering 19 onto the cutout 17' without fitting the roof covering 19 precisely into the cutout 17'. The central part 26 is fastened to the nacelle 3 by means of tightening straps 33 at fastening points inside the nacelle 3 such that the roof covering 19 is pulled against the roof of the nacelle 3

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and is not able to slip. By opening the flap doors 22 and 23, load fastening points which are arranged in the interior of the nacelle 3 can be reached through the roof opening 11. Hoist equipment can be fastened to the load fastening points in this manner such that the nacelle 3 is able to be lifted.

In addition, the roof covering 19 comprises seals 25 which, when arranging the roof covering 19 on the roof opening 11, are arranged between the protective case and the roof covering 19. In this case, they are lightly compressed and form an air-tight transition between the roof covering 19 and the surface of the nacelle. This prevents ingress of moist air and protects the interior of the nacelle 3 against further environmental influences. In addition, the roof covering 19 is produced of aluminum. The advantage of the roof covering 19 of aluminum is that it is dimensionally stable. As a result of the dimensional stability, the protective case does not need any support at said position on account of the nacelle 3 lying below it.

If the method is carried out with the second embodiment of the protective case, prior to attaching the protective case part 17 the ends of the struts 29 are arranged in each case at different edges of the roof opening 11. They form a framework which bears the film of the protective case part 17 that is arranged over the roof opening 11. Once the protective case part 17 has been attached, the struts 29 are welded into the protective case with the large component 3. In addition, zip fasteners 30 are attached to the protective case above the corners of the roof opening 11.

A bottom cover 20 is provided for additional protection of the base of the nacelle 3. Said bottom cover is tub-

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shaped and comprises a bottom 31 and an edge 32. The nacelle 3 is arranged in the bottom cover 20 with its shipping crate mounted in the region of the azimuth bearing arrangement 24. In this case, the edge 32 is
5 arranged around the azimuth bearing arrangement 24 and the bottom 31 is arranged under it. The bottom cover 20 and the protective case, in this case, abut sealingly against one another.

10 As an additional measure against damage by moisture, the protective case is provided at its lowest point with a draining device. Should condensation water collect inside the large component 3, it will flow to the lowest point and there flow out through the draining device without
15 moist air or dirt being able to pass into the interior of the nacelle. Simple and effective corrosion protection is consequently ensured.

A further improvement of the protection against moisture
20 is achieved by moisture-absorbing substances being distributed inside the large component 3. Drying the air inside the large component 3 is ensured in this manner.

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Claims

1. A method for packaging a large component into a protective case which comprises a first and a second
5 reclosable access and a plurality of protective case parts, wherein the large component includes an access opening, said method including the following steps:
- 10 prepare prefabricated protective case parts;
attach the protective case parts to the large component;
weld the transitions between the protective case parts;
shrink the protective case; and
arrange the first reclosable access in the protective case
15 above the access opening.
2. The method as claimed in claim 1, wherein the protective case parts are fixed while being attached to the large component.
- 20 3. The method as claimed in any one of claims 1 and 2, wherein the lowest position of the protective case is provided with a draining device.
- 25 4. The method as claimed in any one of claims 1 to 3, wherein the protective case parts are realized as films which preferably shrink in a biaxial manner.
5. The method as claimed in any one of claims 1 to 4,
30 wherein a zip fastener is provided as a reclosable access.
6. The method as claimed in claim 5, wherein the zip fastener is not arranged until after the shrinking.

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7. The method as claimed in any one of claims 1 to 6, wherein the protective case parts are shrunk as a result of heating.

5 8. The method as claimed in any one of claims 1 to 7, wherein a roof covering of rigid material is arranged in an overlapping manner as a second reclosable access for a roof opening of the large component and the roof covering includes a first and a second flap door, wherein the flap
10 doors form a passage through the protective case to the roof opening.

9. The method as claimed in claim 8, wherein the roof covering includes seals for sealing the roof opening.

15

10. The method as claimed in claims 8 or 9, wherein the roof covering is realized of aluminum.

11. The method as claimed in any one of claims 1 to 7,
20 wherein struts and zip fasteners are arranged as a second reclosable access for a roof opening of the large component, wherein the struts connect different edges of the roof opening and are welded into the protective case, wherein the opened zip fasteners form a passage through the
25 protective case to the roof opening.

12. The method as claimed in any one of claims 1 to 11, wherein prior to attaching the protective case parts, edge reinforcing means are attached to the edges of the large
30 component and/or protruding parts on the nacelle are masked.

13. The method as claimed in any one of claims 1 to 12, wherein the pre-fabricated protective case parts are
35 dimensioned such that they do not project beyond the

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contour of the respective sides of the large component any further than corresponds to the capacity of the shrinkage.

14. The method as claimed in any one of claims 1 to 13,
5 wherein the protective case comprises a bottom cover in the form of a tub-shaped tarpaulin.

15. The method as claimed in any one of claims 1 to 14,
10 wherein the protective case is flutter-free in the shrunk state.

16. A protective-case set for a large component having an access opening, said protective-case set including a plurality of protective case parts from a shrinkable
15 material as well as a reclosable access for the access opening,

wherein

20 the protective case parts are prefabricated and on their edges transitions are provided to the respectively adjacent protective case parts of the set, in such a manner that, in the attached and shrunk state, they surround the large component completely.

25

17. A protective case for a large component, wherein said protective case is formed from the set as claimed in claim 16 in the shrunk state.

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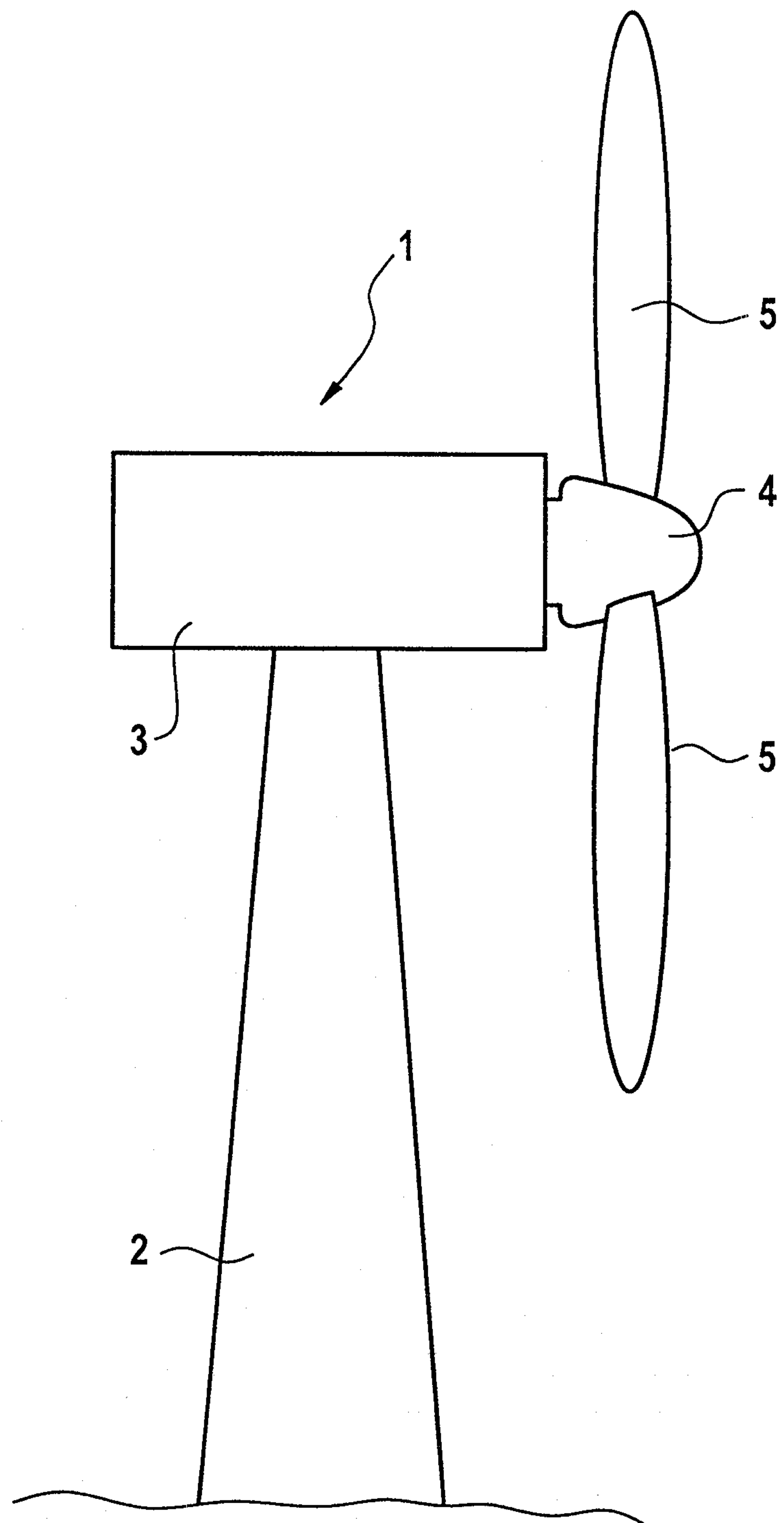


Fig. 1

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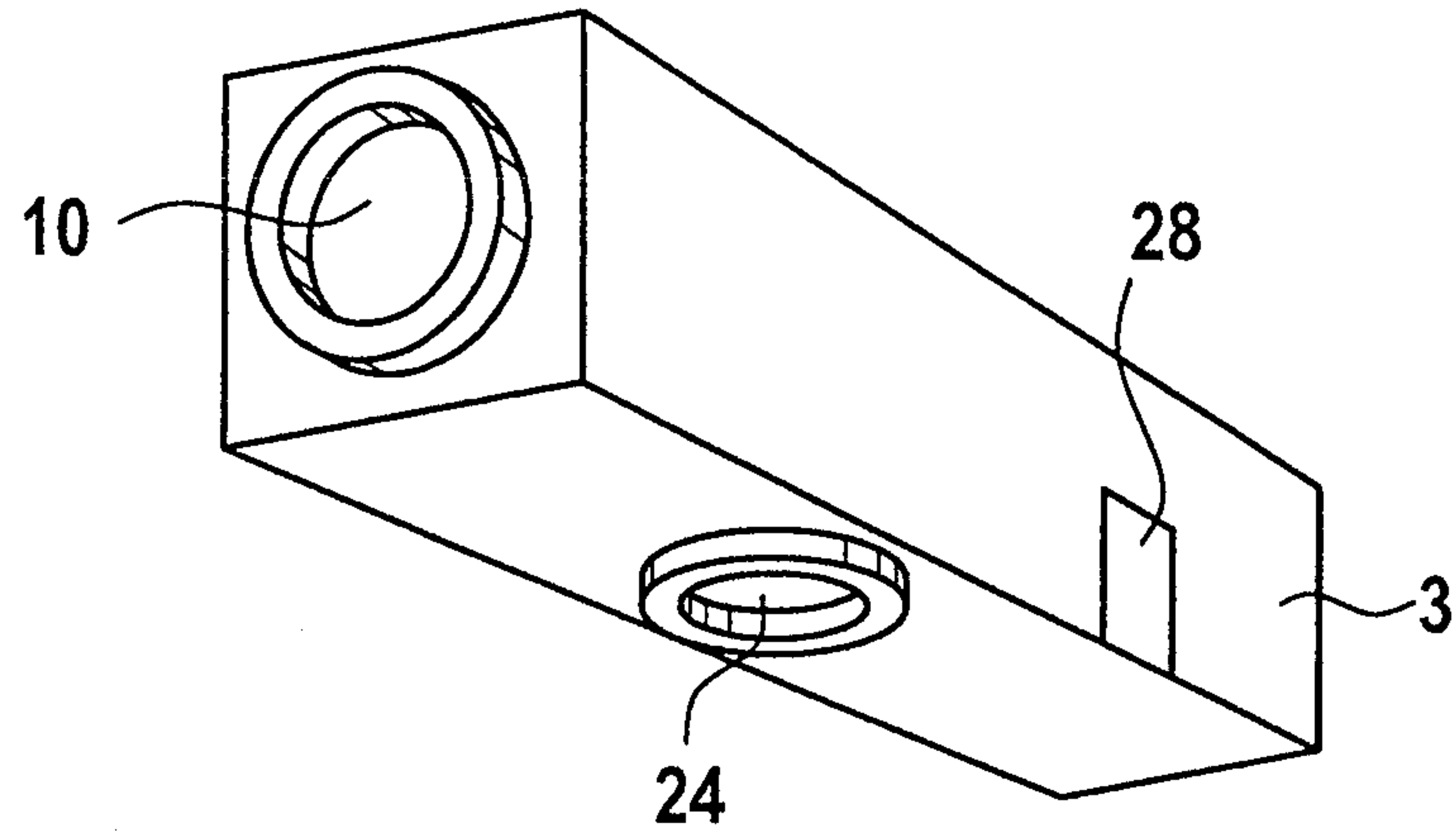


Fig. 2a

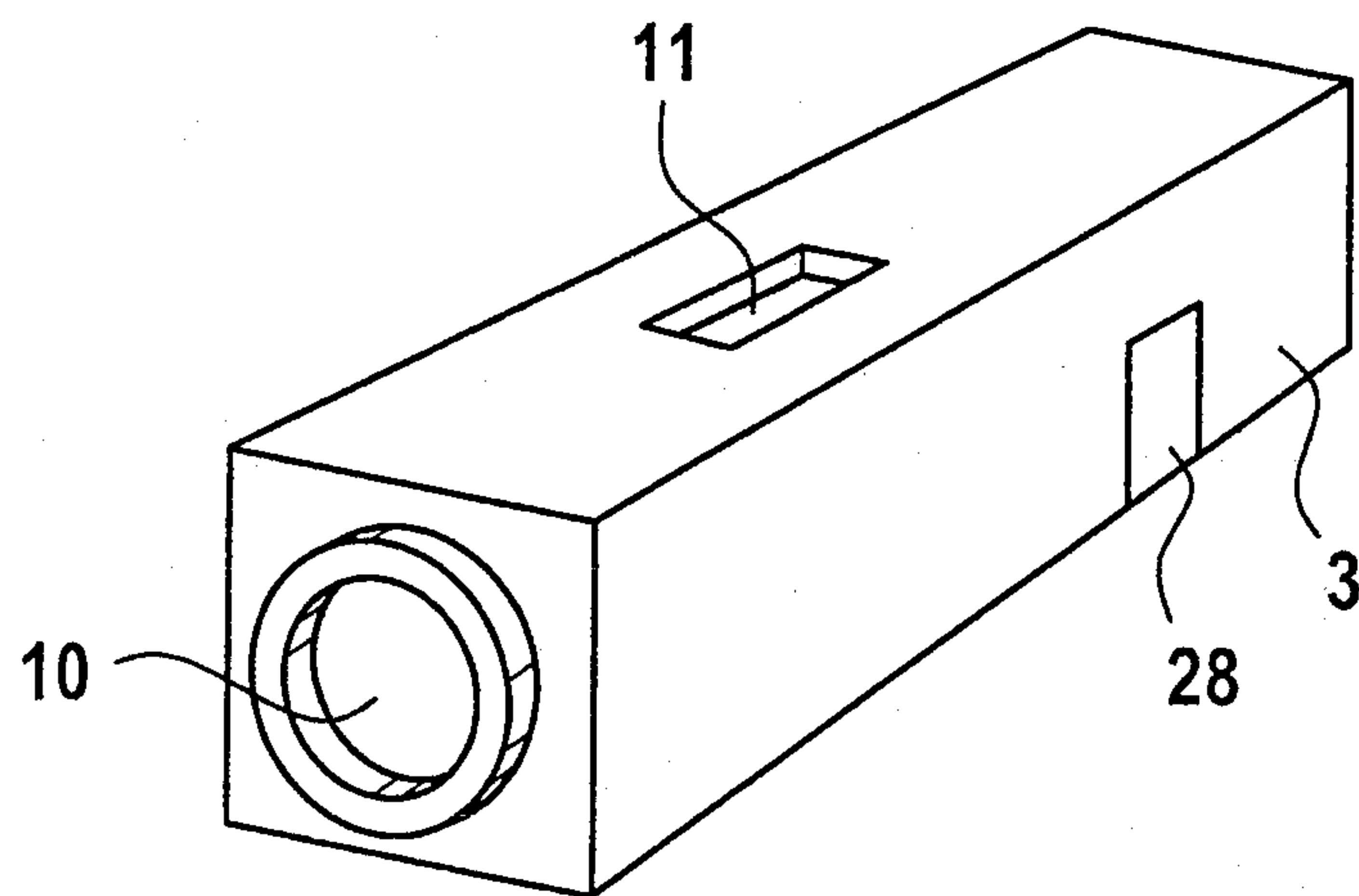


Fig. 2b

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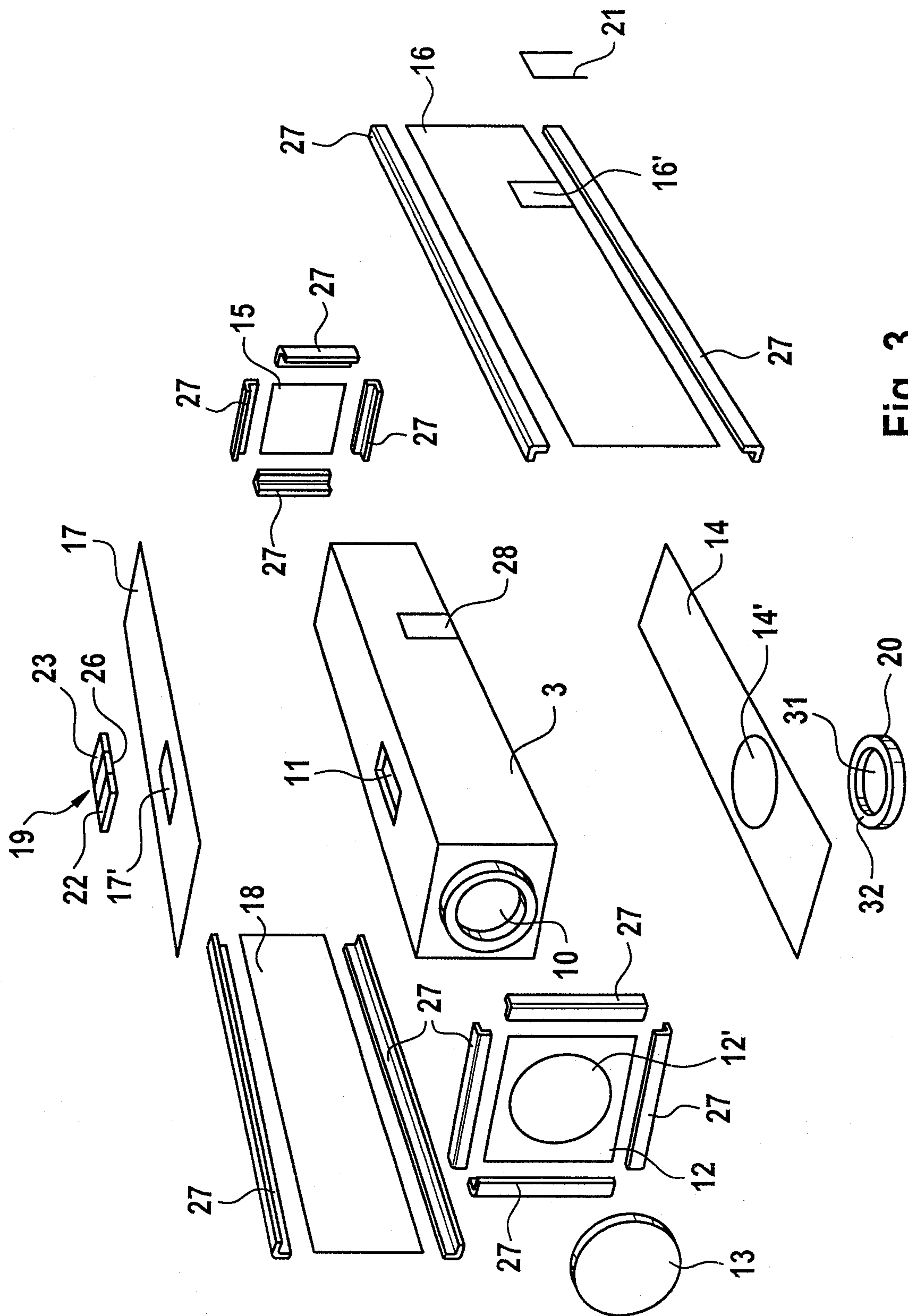


Fig. 3

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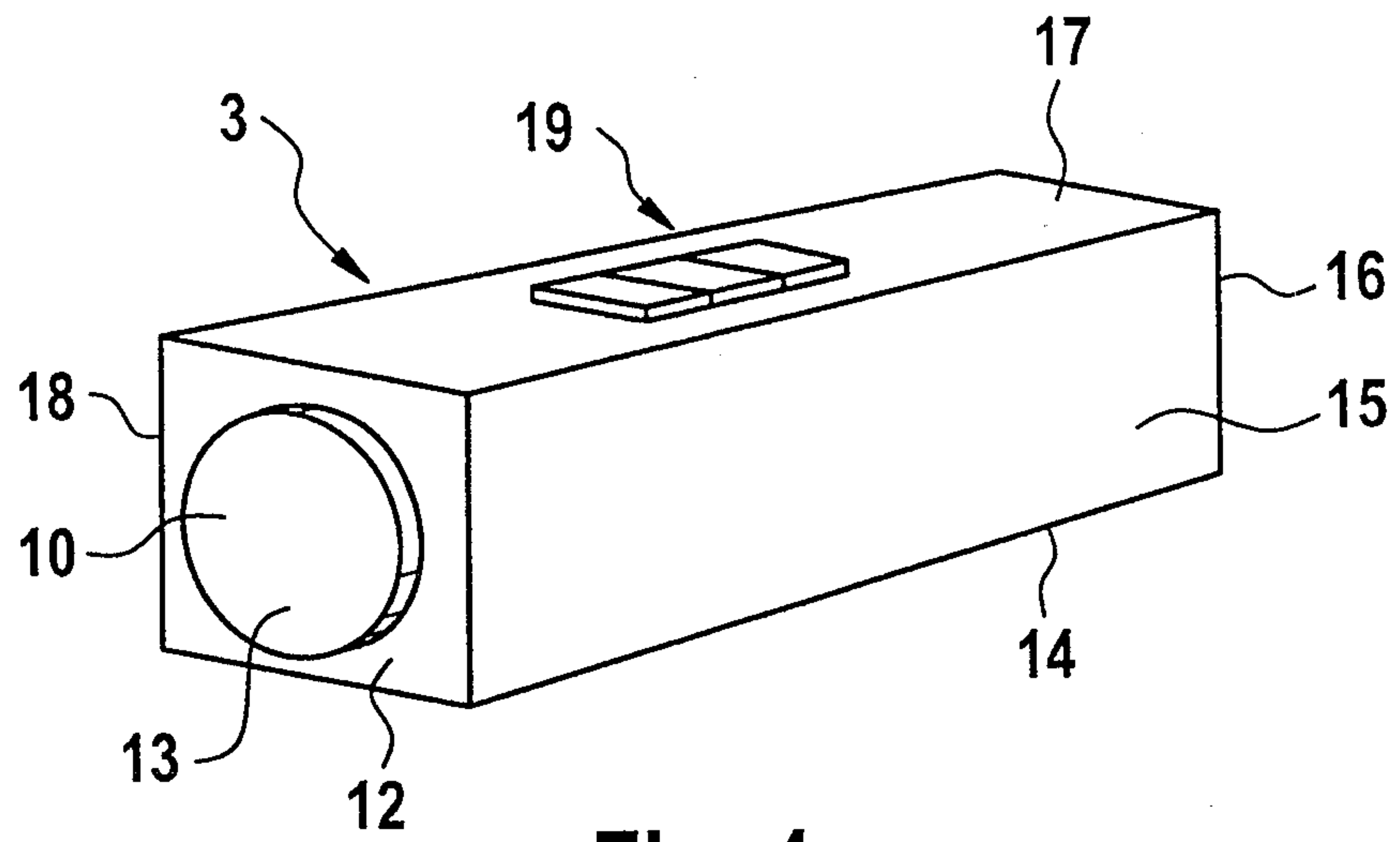


Fig. 4

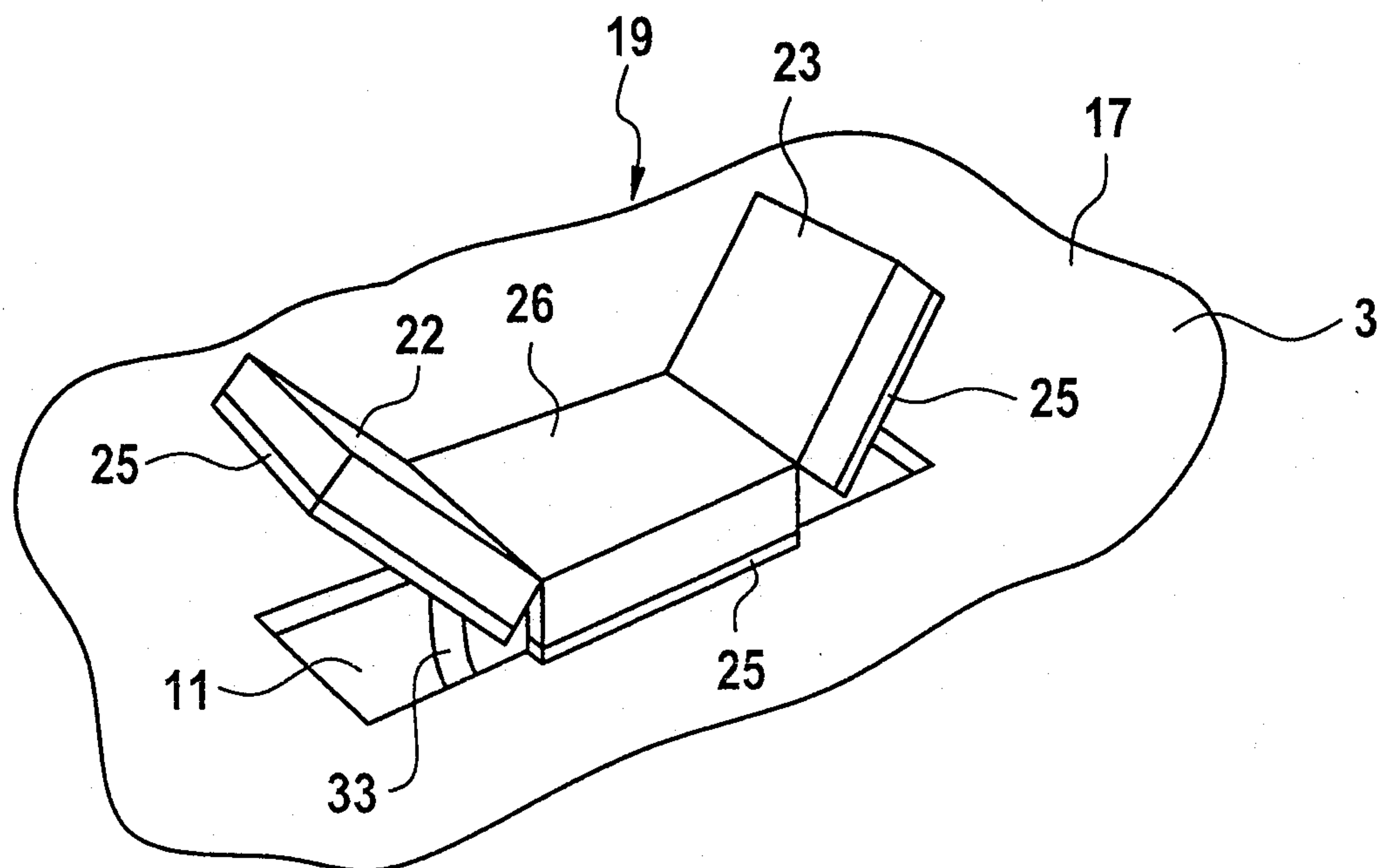


Fig. 5

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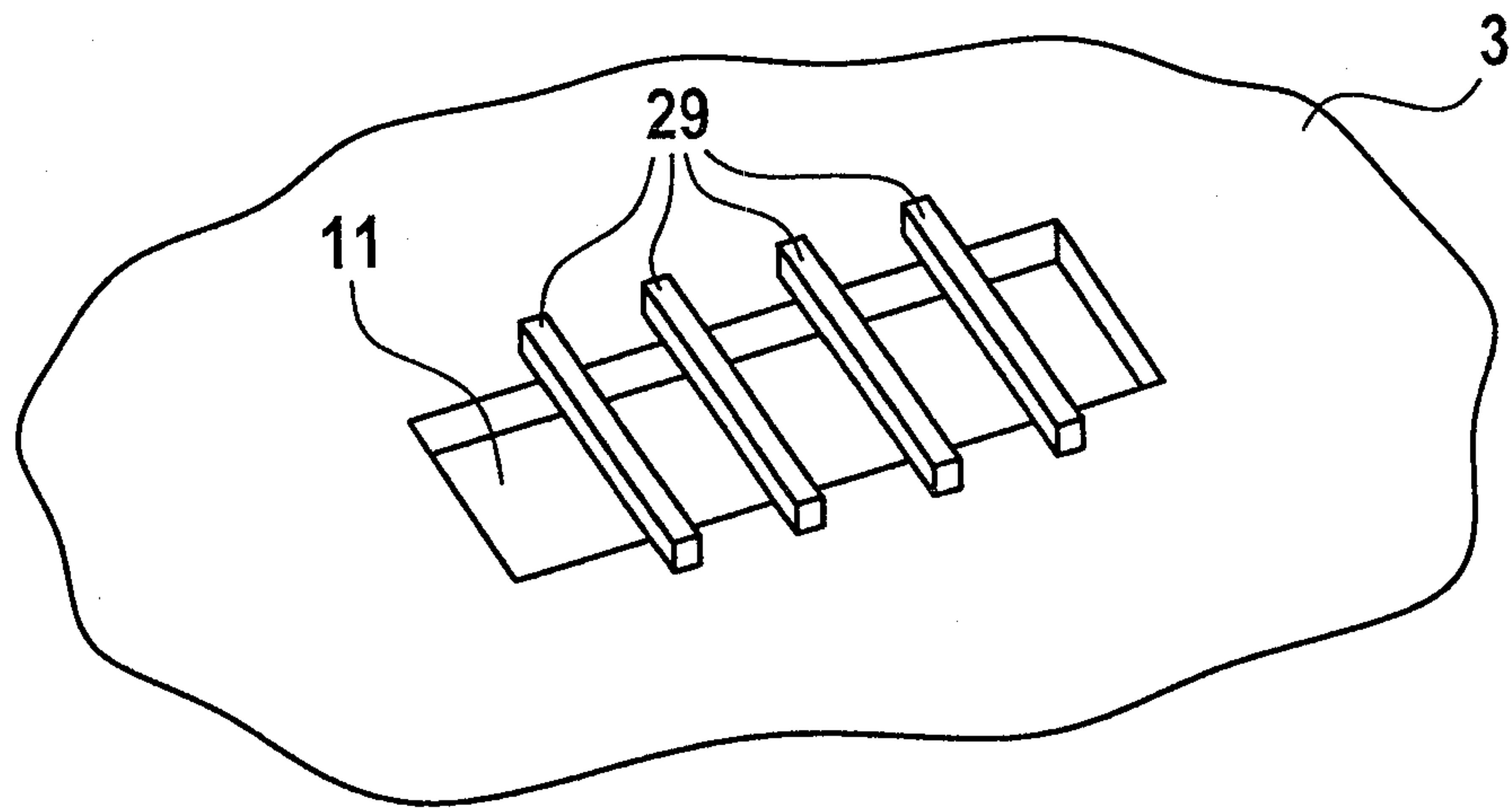


Fig. 6a

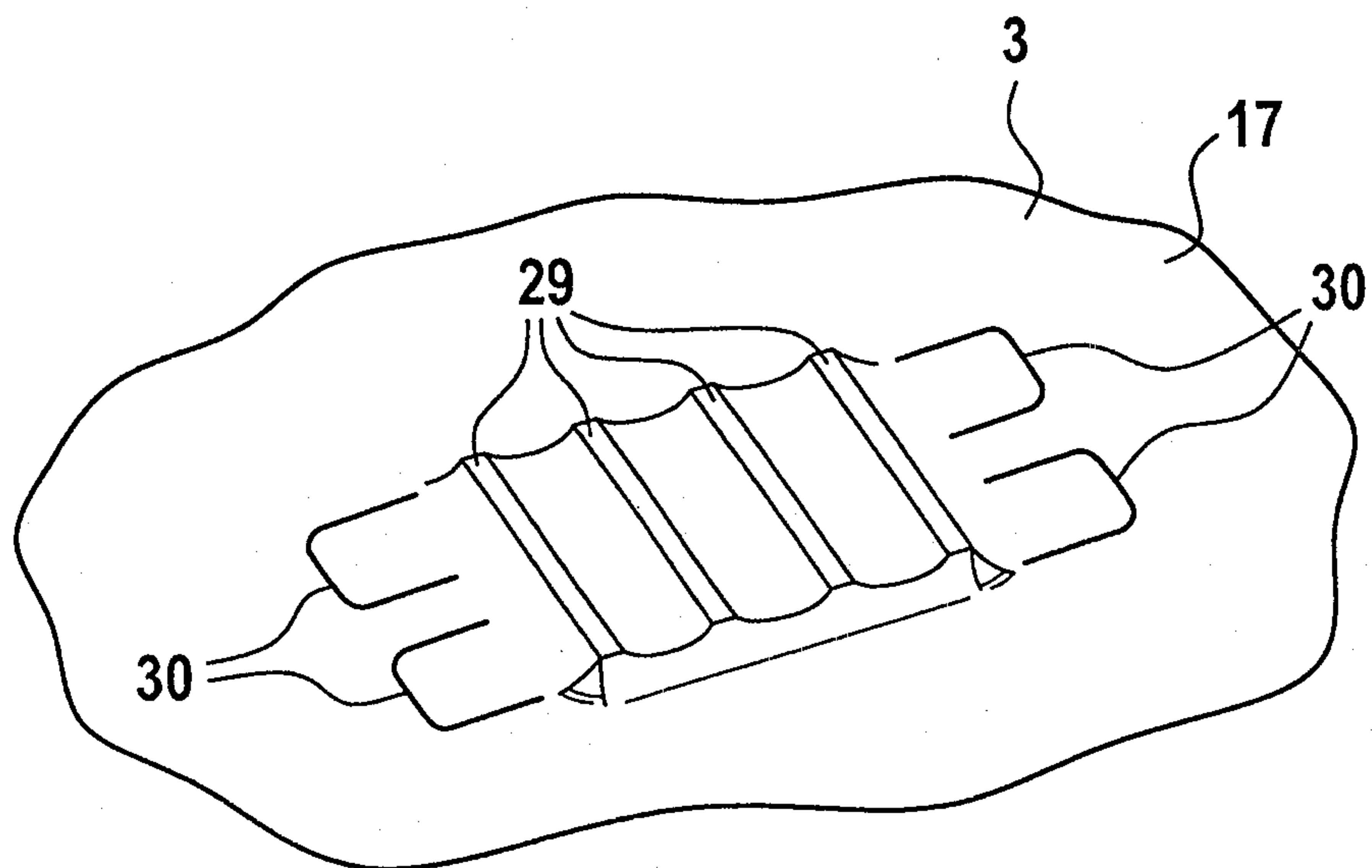


Fig. 6b

