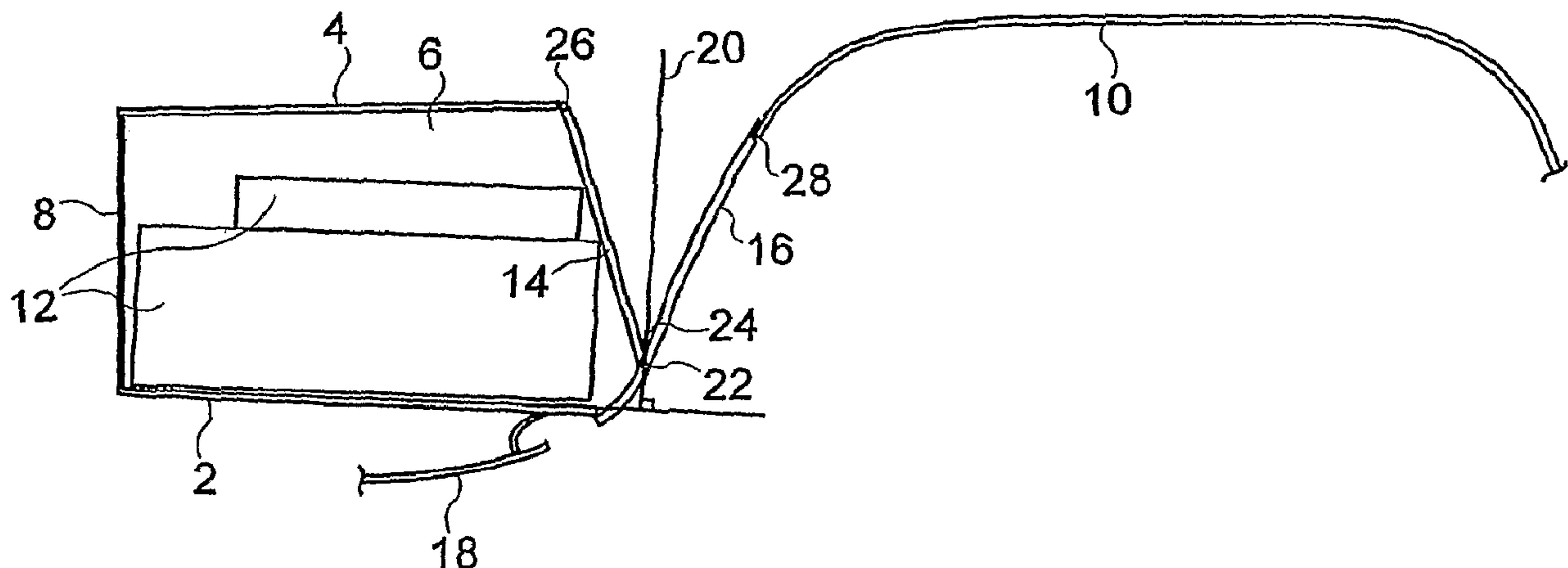




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(54) Titre : PORTE DE COFFRE A BAGAGES ET COFFRE A BAGAGES
(54) Title: LUGGAGE BIN DOOR AND LUGGAGE BIN



(57) Abrégé/Abstract:

The invention relates to a door and a luggage compartment and, more specifically, to an aircraft luggage compartment. The inventive luggage compartment comprises a compartment having an essentially-flat lower face (2) and a first flap (14) which, in the closed position, is inclined towards the interior of the luggage compartment in relation to a plane (20) that is perpendicular to the lower face (2) of the luggage compartment. The first flap (14) is mounted such as to pivot about a first axis (26). The compartment also comprises a second flap (16) which is disposed outside the first flap (14) in relation to the luggage compartment and which is articulated with the first flap (14). In the closed position, the second flap (16) extends from a lower edge of the luggage compartment to a ceiling edge (10).



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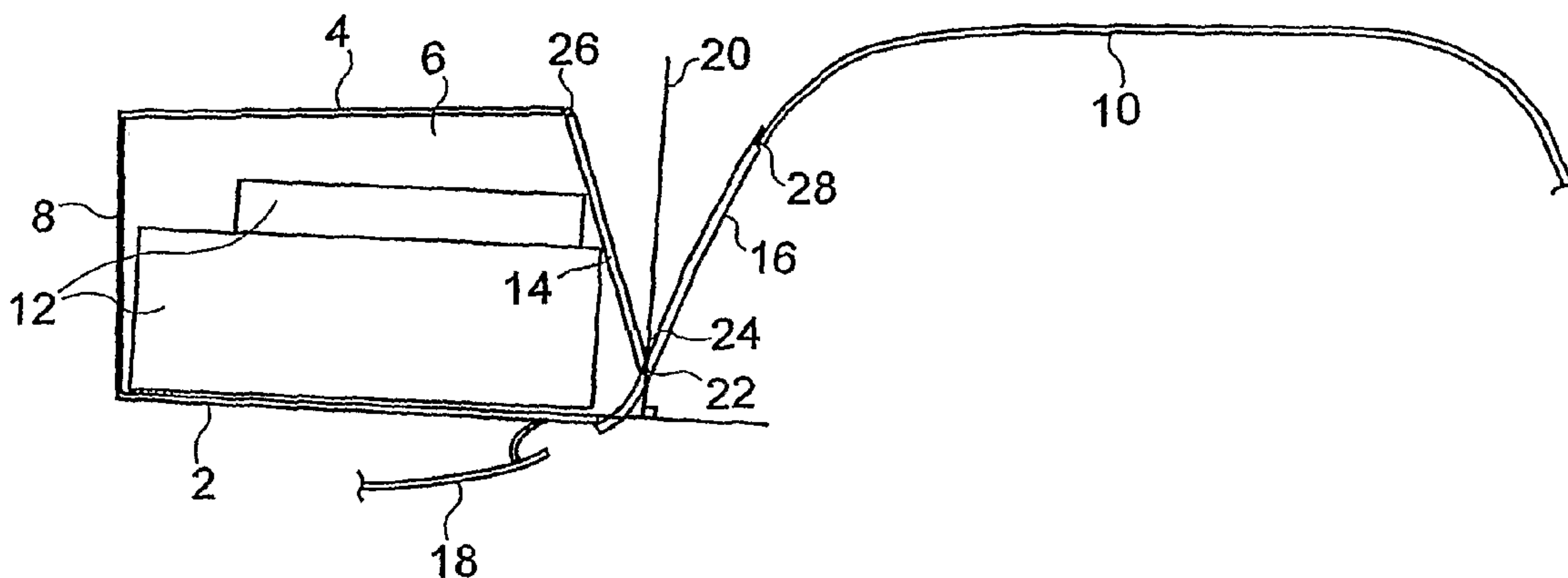
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(54) Title: LUGGAGE COMPARTMENT DOOR AND LUGGAGE COMPARTMENT

(54) Titre : PORTE DE COFFRE À BAGAGES ET COFFRE À BAGAGES

(57) **Abstract:** The invention relates to a door and a luggage compartment and, more specifically, to an aircraft luggage compartment. The inventive luggage compartment comprises a compartment having an essentially-flat lower face (2) and a first flap (14) which, in the closed position, is inclined towards the interior of the luggage compartment in relation to a plane (20) that is perpendicular to the lower face (2) of the luggage compartment. The first flap (14) is mounted such as to pivot about a first axis (26). The compartment also comprises a second flap (16) which is disposed outside the first flap (14) in relation to the luggage compartment and which is articulated with the first flap (14). In the closed position, the second flap (16) extends from a lower edge of the luggage compartment to a ceiling edge (10).(57) **Abrégé :** Une porte et un coffre à bagages selon l'invention concernent plus particulièrement un coffre à bagages d'aéronef. Un coffre à bagages selon l'invention comporte un compartiment avec une face inférieure (2) sensiblement plane et un premier volet (14) qui, en position de fermeture, est incliné vers l'intérieur du coffre à bagages par rapport à un plan perpendiculaire (20) à la face inférieure (2) du coffre à bagages. Le premier volet (14) est monté pivotant autour d'un premier axe (26). Ce coffre comporte un second volet (16) disposée à l'extérieur du premier volet (14) par rapport au coffre à bagages et articulée sur le premier volet (14). Le second volet (16) s'étend, en position de fermeture du coffre à bagages, depuis un bord inférieur du coffre à bagages jusqu'à un bord de plafond (10).

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LUGGAGE BIN DOOR AND LUGGAGE BIN

This invention relates to a baggage bin door, in particular for a baggage bin in an aircraft, as well as a corresponding baggage bin.

Generally, the cross section of a baggage bin in an aircraft has a more or less trapezoid shape, the large base of the trapezoid forming the lower face of the baggage bin. The lower portion of the baggage bin is longer in order to accommodate large pieces of baggage, while the upper portion is narrower in order to make it possible to secure a potential piece of baggage placed on top of another piece of baggage in the bin and to prevent its falling, in particular at the time of opening of the door of the baggage bin.

This trapezoid shape imposed by technical constraints is very restricting for defining the esthetics of the interior space of an aircraft cabin. As the baggage bins are situated just below the ceiling, the joining between the baggage bin and the ceiling forms an unsightly recess.

This invention then has as its purpose to provide a baggage bin door that makes it possible to give free rein for defining the form that the designers wish to impart to the interior space of the aircraft.

To this end, it proposes a baggage bin comprising a door allowing access to a compartment with a lower face having an area more or less plane in the vicinity of the door, the door having, in closing position, a first flap inclined toward the inside of the baggage bin in relation to a plane perpendicular to the more or less plane area of the lower face of the baggage bin, the said flap being mounted pivoting around a first axis.

Accordingly, in one aspect, the invention provides a baggage bin, comprising: a compartment having an opening; and a door to cover the opening and to allow access to said compartment via the opening; wherein said compartment has a lower face having a planar area near the door, wherein the door has, in a closed position, a first flap inclined toward an inside of the compartment in relation to a plane perpendicular to the planar area of the lower face of the compartment, said first flap being mounted pivoting around a first axis at an upper edge of the compartment that defines a top of the opening, wherein the door comprises a second flap arranged, in the closed position, outside the first flap in relation to the compartment such that

1a

the first flap and the second flap overlap in a lateral direction, and the second flap is articulated with the first flap, wherein the second flap is connected to the first flap at a lower portion of the second flap and the lower portion of the second flap contacts a lower edge of the compartment in the closed position, and wherein the second flap extends, in said closed position, from the lower edge of the compartment in a direction angled away from the inside of the compartment in relation to the plane perpendicular to the planar area of the lower face of the compartment.

According to this invention, the access door of the baggage bin furthermore comprises a second flap arranged outside the first flap in relation to the baggage bin and articulated with the first flap, and the second flap extends, in closing position of the baggage bin, from a lower edge of the baggage bin to a ceiling edge.

The first and second flaps of the above definition constitute, with other possible elements, a baggage bin door according to the invention. A baggage bin door of the prior art comprises only a single flap that generally also is referred to as a door or access door. The two flaps of the door of the baggage bin cooperate to close the baggage bin. One flap serves in particular to hold the piece(s) of

luggage in the luggage bin, while the other flap takes on the desired shape for achieving the desired esthetic effect. With such a door having two flaps, any external appearance can be achieved, while ensuring a good retention of the luggage inside the luggage bin.

In a luggage bin according to the invention, the second flap, in a preferred embodiment, is articulated with the first flap so as to be able to pivot in relation to this first flap around a second axis of pivoting substantially parallel to the first. In another embodiment, the two flaps can be folded down one onto the other in the opening position of the luggage bin and thus completely clear the opening of the luggage bin, facilitating access to the inside thereof.

In a variation of embodiment, the first flap closes the luggage bin only partially. This makes it possible in particular to incline the first flap more markedly in relation to the lower face of the luggage bin and thus be more effective for retention of the luggage in the bin.

In order to facilitate the handling of the door of the luggage bin, the latter advantageously also comprises means making it possible, at the time of opening thereof, to keep the second flap in contact with the said ceiling edge. The second flap then is, on the one hand, articulated with the first flap and on the other hand, guided on the edge of the ceiling. In this embodiment, the means making it possible to keep the second flap in contact with the edge of the ceiling comprise, for example, a spring acting so as to move the second flap away from the first flap. This spring advantageously is integrated into the articulation between the two flaps so as to limit its space requirement and better integrate it into the door.

In order to keep the flaps of the luggage bin according to the invention closed, locking means, for example, are arranged on the second flap.

This invention also relates to an aircraft cabin, characterized in that it comprises at least one luggage bin such as described above, as well as an aircraft comprising at least one such luggage bin.

Details and advantages of this invention will emerge more clearly from the description that follows, presented with reference to the attached schematic drawing, on which:

Figure 1 is a view in cross section of a luggage bin according to the invention in closed position.

Figures 2 and 3 are views corresponding to Figure 1, the luggage bin being in an intermediate opening position,

Figure 4 is a view in cross section of a luggage bin according to the invention in completely open position,

Figure 5 is a perspective view of a luggage bin according to the invention in closed position,

Figure 6 is a perspective view of a luggage bin according to the invention in open position, and

Figures 7 and 8 illustrate, in perspective, the placement of luggage in the luggage bin of Figures 5 and 6.

A luggage bin according to the invention usually comprises a lower face 2, an upper face 4 and, between the lower face 2 and the upper face 4, two lateral walls 6 and a back wall 8. Access to the luggage bin is accomplished through the face opposite the back wall which is equipped with a door.

The luggage bin depicted in the drawings is in an aircraft cabin, above the seats (not depicted) located in this cabin, beneath the ceiling of the latter. A ceiling wall 10 is depicted on the Figures.

The lower face 2 of the luggage bin is intended to accommodate one (or more) piece(s) of luggage 12. In the embodiment depicted, the lower face 2 is a plane face. It is inclined slightly in relation to the horizontal so as to facilitate taking the luggage 12 out of the luggage bin.

The lateral walls 6, the back wall 8 and the upper face 4 define the volume of the luggage bin. These walls can be walls specific to the luggage bin, as depicted here. They may also be walls common with other elements such as, for example, another luggage bin. The back 8, for example, also can be the lateral wall of the aircraft cabin, in particular for luggage bins located above seats arranged near such a lateral wall. As for the upper face 4, it can be a part of the ceiling of the aircraft cabin.

The luggage bin depicted in the drawings is closed by a door having two flaps: a first flap 14 and a second flap 16.

The second flap 16 constitutes the visible portion of the door of the luggage bin for the user who is placing a piece of luggage 12 in the luggage bin or removing it therefrom. This second flap 16 connects the lower face 2 of the luggage bin to the ceiling wall 10 of the aircraft cabin. The shape of this second

flap 16 can be adapted to the esthetics that one wishes to impart to the interior of the aircraft cabin. This flap thus preferably produces an esthetically harmonious connection between a streamlining 18 generally situated beneath a luggage bin—and usually integrating comfort elements such as lighting, air vents, etc.—and the ceiling wall 10.

The first flap 14 is arranged between the second flap 16 and the storage volume of the luggage bin. This first flap 14 is visible only when the luggage bin is open. It is intended in particular to hold the luggage 12 in its place in order to prevent the luggage 12 from falling out of the luggage bin, in particular at the time of opening of the door, by holding the luggage 12 inside the bin. This first flap 14 also is useful in the case where, as depicted on Figures 1 to 4, a small piece of luggage 12 is on top of another piece of luggage 12. It is clearly apparent (Figure 1) that in the absence of the first flap 14, the small upper piece of luggage 12 might well slide as far as the second flap 16 and topple over. On opening of the door, the passenger then would be hit by his luggage 12. The first flap 14 makes it possible to effectively prevent such a fall.

The first flap 14 is of a substantially plane overall shape. It is inclined in relation to the lower face 2 of the luggage bin toward the inside of the bin, when the luggage bin is in closed position. Thus, the angle formed by the plane containing the lower face 2 and the plane containing the first flap 14 is less than 90°. For example, in the case where the first flap 14 is not plane, it can be provided that this first flap 14 is placed, in the closing position of the door of the luggage bin, inside a dihedron formed, on the one hand by the lower face 2, and on the other hand by a plane 20 perpendicular to the lower face 2 and passing through the lower edge 22 of the first flap 14 (cf. Figure 1).

The first and second flaps 14 and 16 are articulated with respect to one another at the lower edge 22 of the first flap 14. This articulation can be implemented, for example, by a hinge connecting the two flaps. It allows the pivoting of one flap in relation to the other around a substantially horizontal first axis 24.

The first flap 14 also is articulated around a second axis 26, parallel to the first axis 24. This second axis 26, also horizontal, corresponds for example, as depicted in the drawings, to the upper edge of the first flap 14. The articulation can be implemented at the upper face 4 of the luggage bin. In the example

depicted, this articulation is effected more specifically at the free end of the upper face 4 of the luggage bin. This articulation could, in another embodiment, be implemented at the ceiling of the aircraft cabin.

In the position depicted on Figure 1, corresponding to the closed position of the door of the luggage bin, the two flaps 14 and 16 form substantially a dihedron in relation to the first axis 24. One of the flaps is arranged essentially on one side of the plane 20 perpendicular to the lower face 2 of the luggage bin, while the other flap is arranged essentially on the other side of this perpendicular plane 20.

The first flap 14 does not necessarily extend over the entire height of the luggage bin in the closing position of the latter, as is the case for the preferred embodiment depicted in the drawings. A space can be left between the edge 22 of the first flap 14 and the lower face 2 of the luggage bin. This space then is closed by the lower portion of the second flap 16. This embodiment makes it possible to incline the first flap toward the inside of the luggage bin without excessively encroaching on the interior volume of this bin. In such a case, a locking mechanism (not depicted) making it possible to keep the door in its closed position, is provided on the lower portion of the second flap 16. Such a locking mechanism is known to the individual skilled in the art and is not described here.

In order to implement the connection between the second flap 16 and the ceiling wall 10, the upper edge of the second flap 16 comprises a rabbet 28, visible in particular on Figures 2 to 4, accommodating, in closing position of the door of the luggage bin, the edge of the ceiling wall 10 positioned toward the luggage bin.

Figures 1 to 4, 4 to 1 respectively, illustrate the opening and closing, respectively, of the door described above.

As already mentioned, Figure 1 depicts the door in its closing position. The luggage 12 rests on the lower face 2. The second flap 16 on the one hand comes to rest at its upper edge and its rabbet 28 on the corresponding edge of the ceiling wall 10, and on the other hand its lower edge is held by the locking mechanism in the immediate vicinity of the free edge of the lower face 2 of the luggage bin. As for the first flap 14, it is held between its two articulations, one connecting it to the second flap 16 and the other to the free edge of the upper face of the luggage bin.

In order to open the luggage bin, the locking mechanism is activated by releasing the second flap 16. A dual movement then is produced.

According to a first movement, the first flap 14 and the second flap 16 pivot in relation to one another around the first axis 24, reducing (at the time of opening of the door) the angle α formed between the two flaps. According to a second movement, the first flap 14 pivots around the free edge of the upper face 4, that is, around the second axis 26.

These two movements are simultaneous. In the course thereof, the outer face, that is, the visible face, of the second flap 16 remains in contact with the free edge of the ceiling wall 10, which free edge becomes situated in the rabbet 28 in closed position of the door of the luggage bin.

In order to maintain the contact between the second flap 16 and the edge of the ceiling wall 10, elastic means are provided between the two flaps to keep them apart from one another. Such means are not depicted in the drawings. They can be integrated, for example, at the first axis of articulation 24. Different means also can be provided. Other means also can be considered to maintain the contact between the second flap 16 and the ceiling wall. Thus, for example, guidance means can be provided on the edge of the ceiling wall 10, the second flap 16 being equipped with complementary means.

At the time of opening of the door, as illustrated on the Figures, the second flap 16 folds onto the first flap 14. The opening movement of the door is stopped when the two flaps are one against the other and come to butt against the edge of the ceiling wall 10. The opening then is maximal. As the two flaps are one against the other, the opening thus is as large as if there were only one flap (and therefore a standard door of the prior art).

The closing of the door of the luggage bin is implemented in reverse manner from the opening described above and is easily deduced therefrom.

Figures 5 to 8 show the luggage bin of Figures 1 to 4 in perspective. It is noted on these Figures that, on the one hand the second flap 16, the only visible portion of the door of the luggage bin in the closed position of the latter, makes it possible to conceal the luggage bin esthetically and, on the other hand, the door according to the invention in no way hampers the removal (or the placement) of a piece of luggage in the luggage bin. In the closed position of the door, the first flap 14, not visible from the outside, holds the luggage 12 in the luggage bin. The

first flap 14 also is effective when two pieces of luggage, of smaller size than the one depicted, are placed one on top of the other. The first flap 14 then limits the sliding of the luggage located on top in the direction of the door of the luggage bin.

When the door described above is in its open position, it comes to be retracted toward the ceiling, thus clearing the opening for handling the luggage intended to be positioned in the corresponding luggage bin.

This invention is not limited to the preferred embodiment described above and to the variations cited. It also relates to all the variations of embodiment within the reach of the individual skilled in the art, in the context of the claims below.

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. A baggage bin, comprising:
a compartment having an opening; and
a door to cover the opening and to allow access to said compartment via the opening;

wherein said compartment has a lower face having a planar area near the door,

wherein the door has, in a closed position, a first flap inclined toward an inside of the compartment in relation to a plane perpendicular to the planar area of the lower face of the compartment, said first flap being mounted pivoting around a first axis at an upper edge of the compartment that defines a top of the opening,

wherein the door comprises a second flap arranged, in the closed position, outside the first flap in relation to the compartment such that the first flap and the second flap overlap in a lateral direction, and the second flap is articulated with the first flap,

wherein the second flap is connected to the first flap at a lower portion of the second flap and the lower portion of the second flap contacts a lower edge of the compartment in the closed position, and

wherein the second flap extends, in said closed position, from the lower edge of the compartment in a direction angled away from the inside of the compartment in relation to the plane perpendicular to the planar area of the lower face of the compartment.

2. The baggage bin according to claim 1, wherein the second flap is articulated with the first flap so as to be able to pivot in relation to said first flap around a second axis of the pivoting that is parallel to the first axis.

3. The baggage bin according to claim 1, wherein the first flap only partially closes the opening of the compartment.

4. The baggage bin according to any one of claims 1 to 3, characterized in that the baggage bin moreover comprises means making it possible, at the time of opening thereof, to keep the second flap in contact with a ceiling edge.
5. The baggage bin according to claim 4, characterized in that the means making it possible to keep the second flap in contact with the ceiling edge comprise a spring acting so as to move the second flap away from the first flap.
6. The baggage bin according to claim 5, characterized in that the spring is integrated into the articulation between two doors.
7. The baggage bin according to any one of claims 1 to 6, characterized in that a locking means is arranged on the second flap.
8. Aircraft cabin, characterized in that it comprises at least one baggage bin according to any one of claims 1 to 7.
9. Aircraft, characterized in that it comprises at least one baggage bin according to any one of claims 1 to 7.
10. The baggage bin according to claim 1, wherein, in the closed position, an angle between the second flap and the lower face of the compartment is greater than 90° .
11. The baggage bin according to claim 1, wherein, as the door moves from the closed position to an open position, an angle between the first flap and the second flap decreases.

12. The baggage bin according to claim 1, wherein, as the door moves from the closed position to an open position, the second flap remains in contact with a ceiling edge.

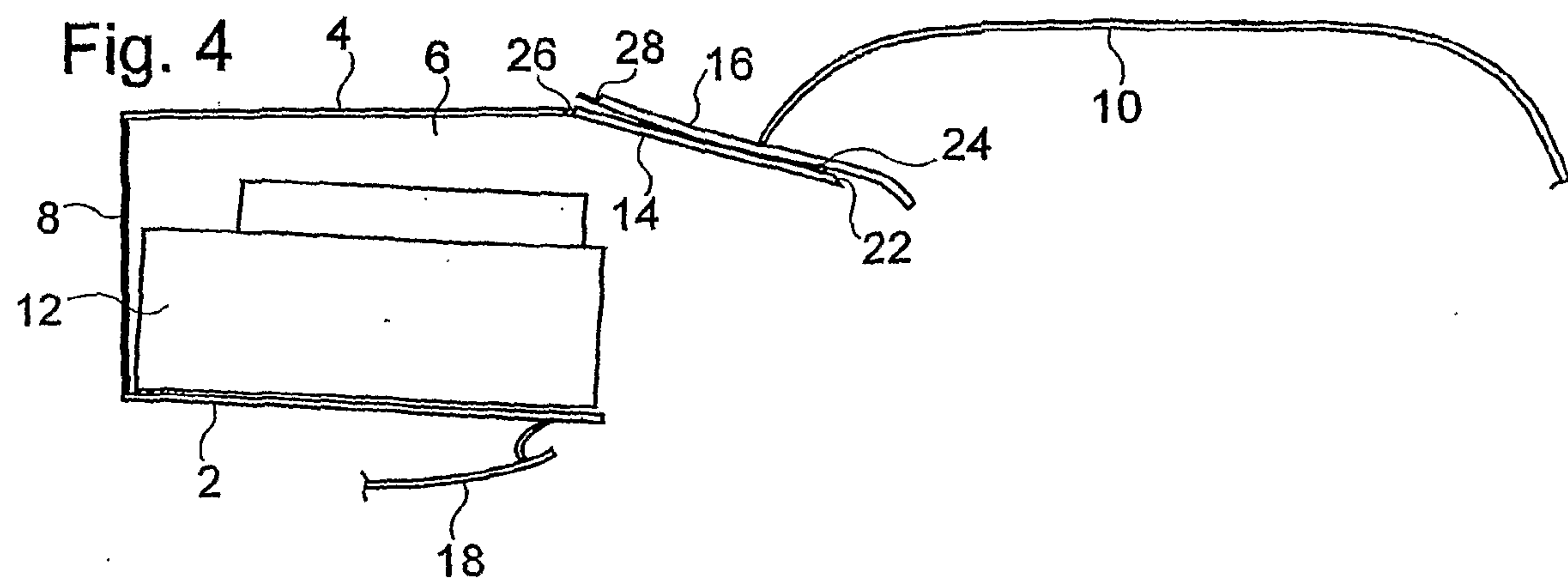
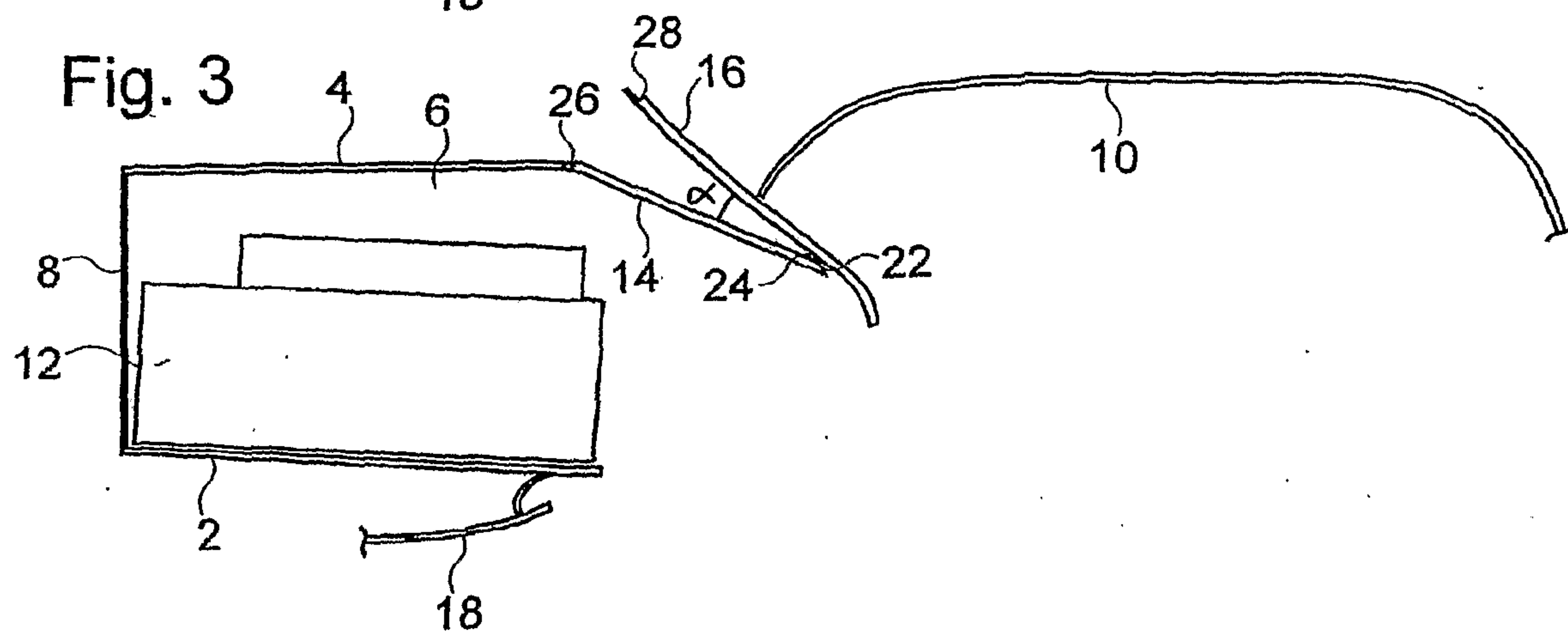
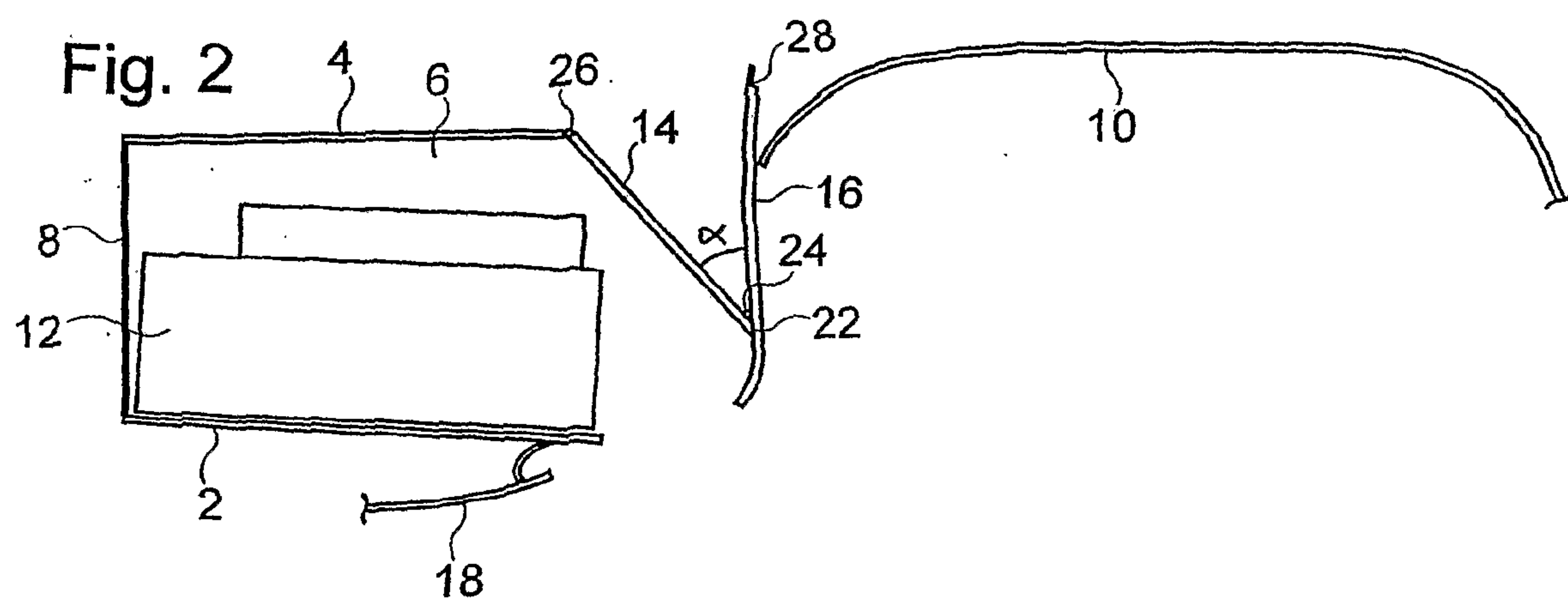
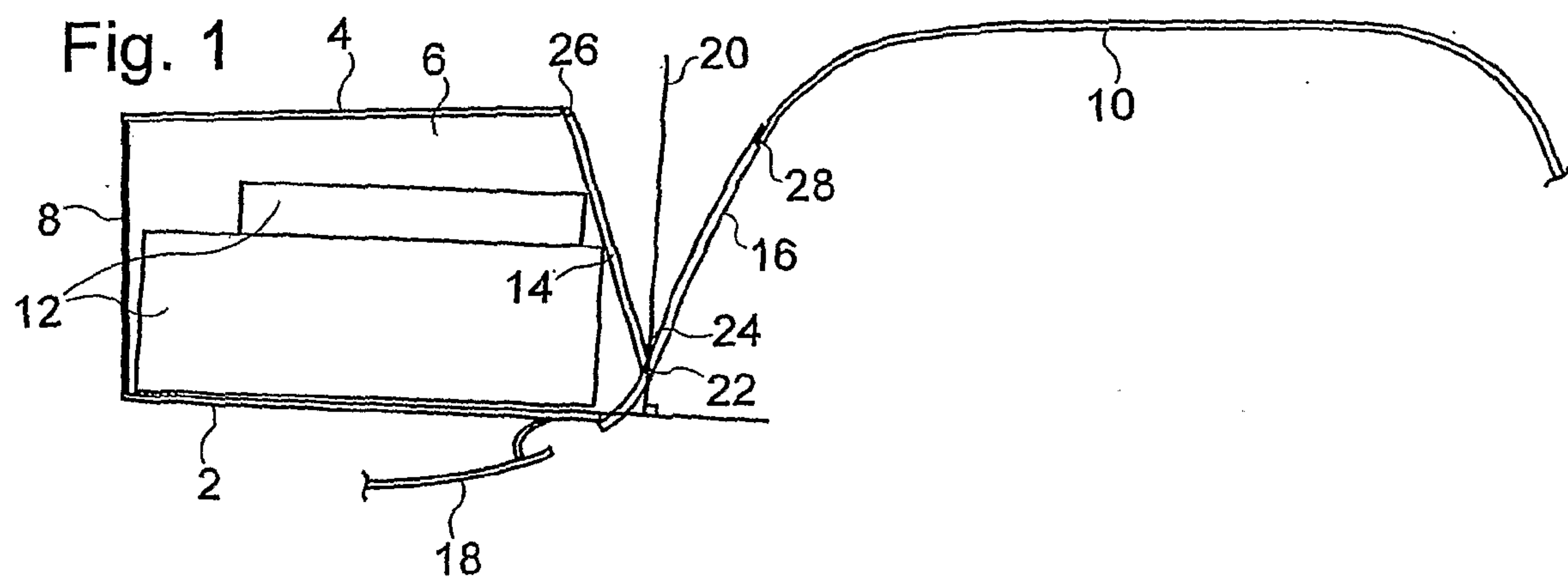
13. The baggage bin according to claim 1, wherein the second flap includes a rabbet at an end of the second flap to contact a ceiling edge in the closed position.

14. The baggage bin according to claim 1, wherein an overall shape of the first flap is planar.

15. The baggage bin according to claim 14, wherein, in the closed position, an angle between the planar first flap and the lower face of the compartment is less than 90° .

16. The baggage bin according to claim 1, wherein the first flap is connected to the second flap at a bottom edge of the first flap.

1/3



2/3

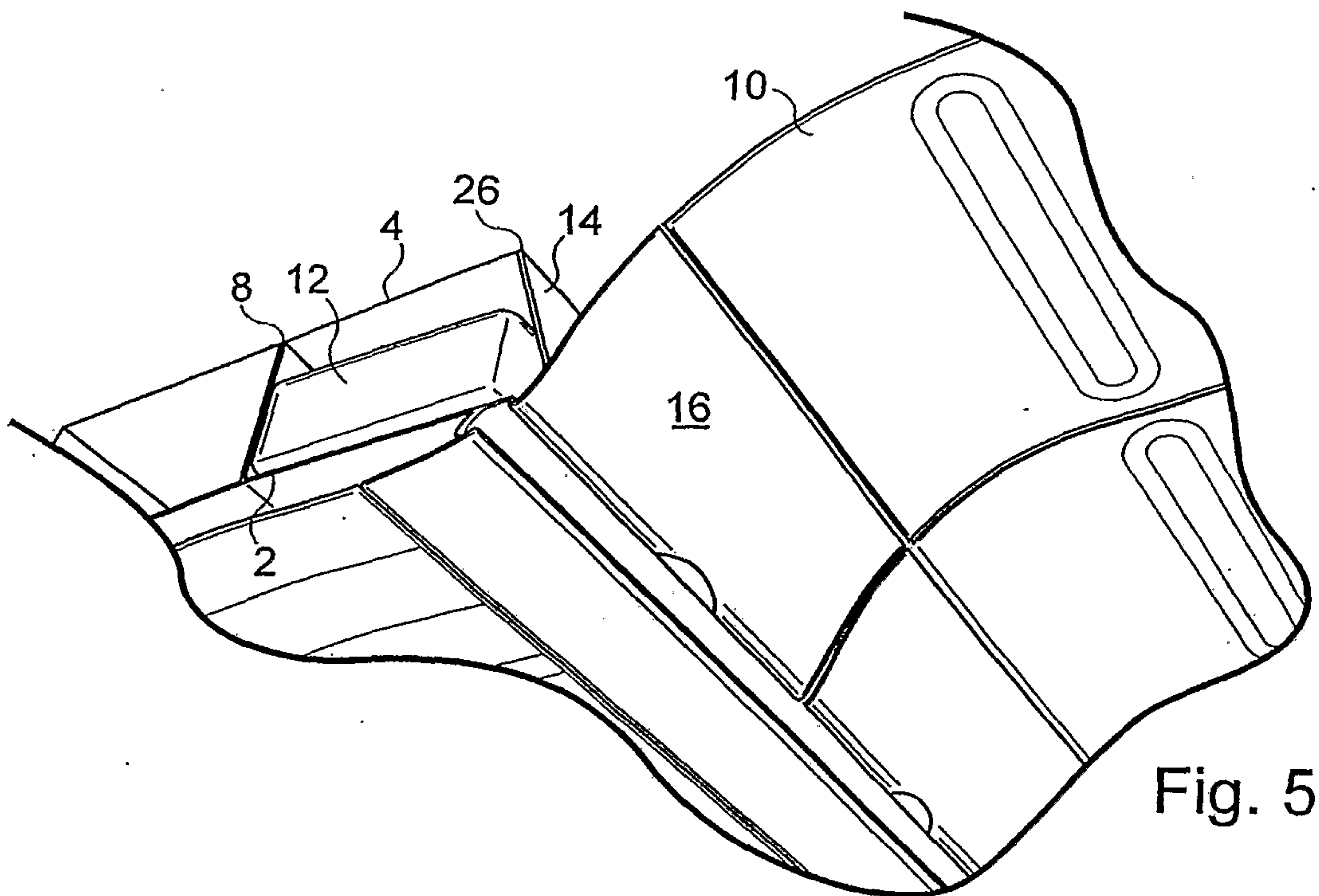


Fig. 5

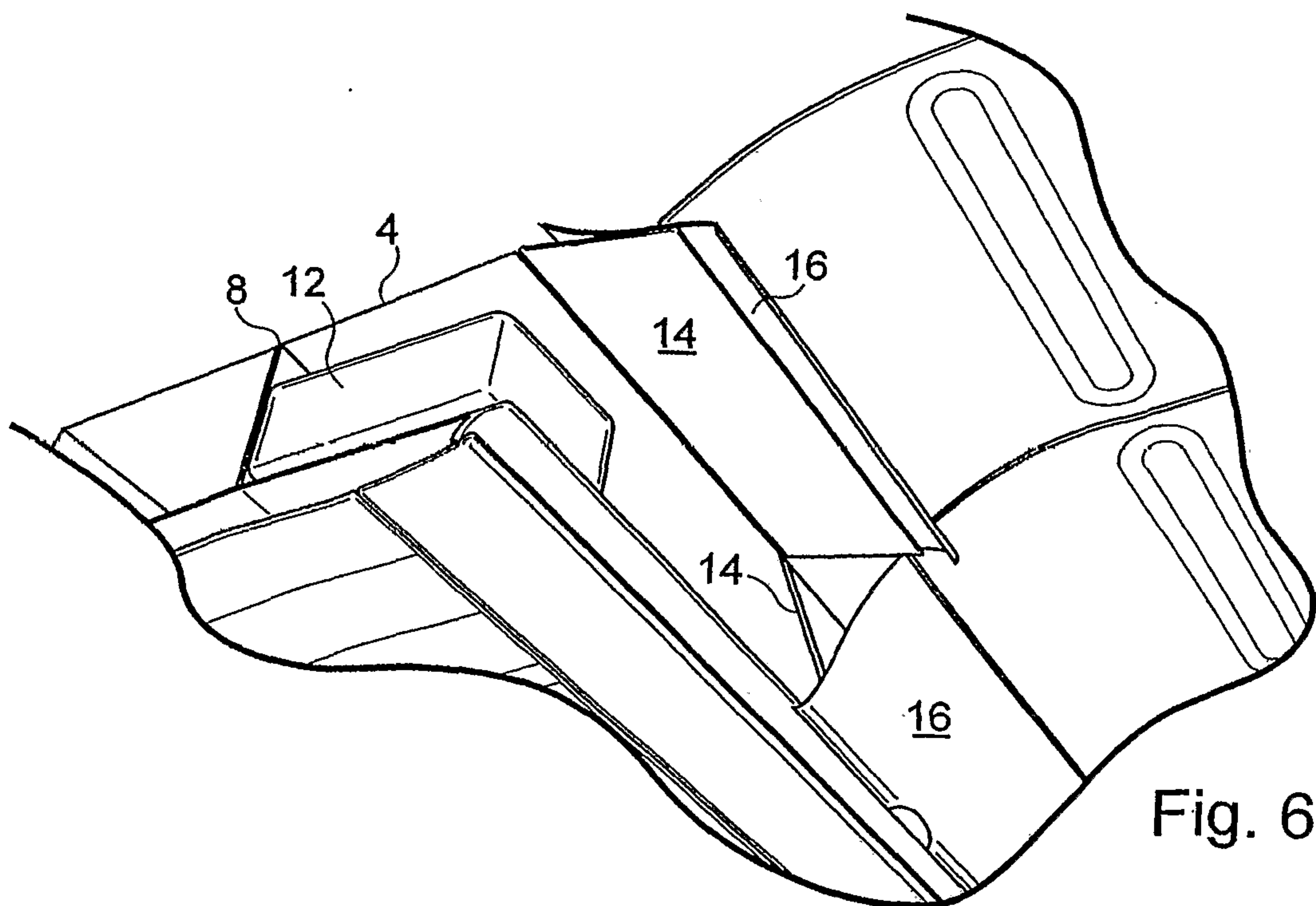


Fig. 6

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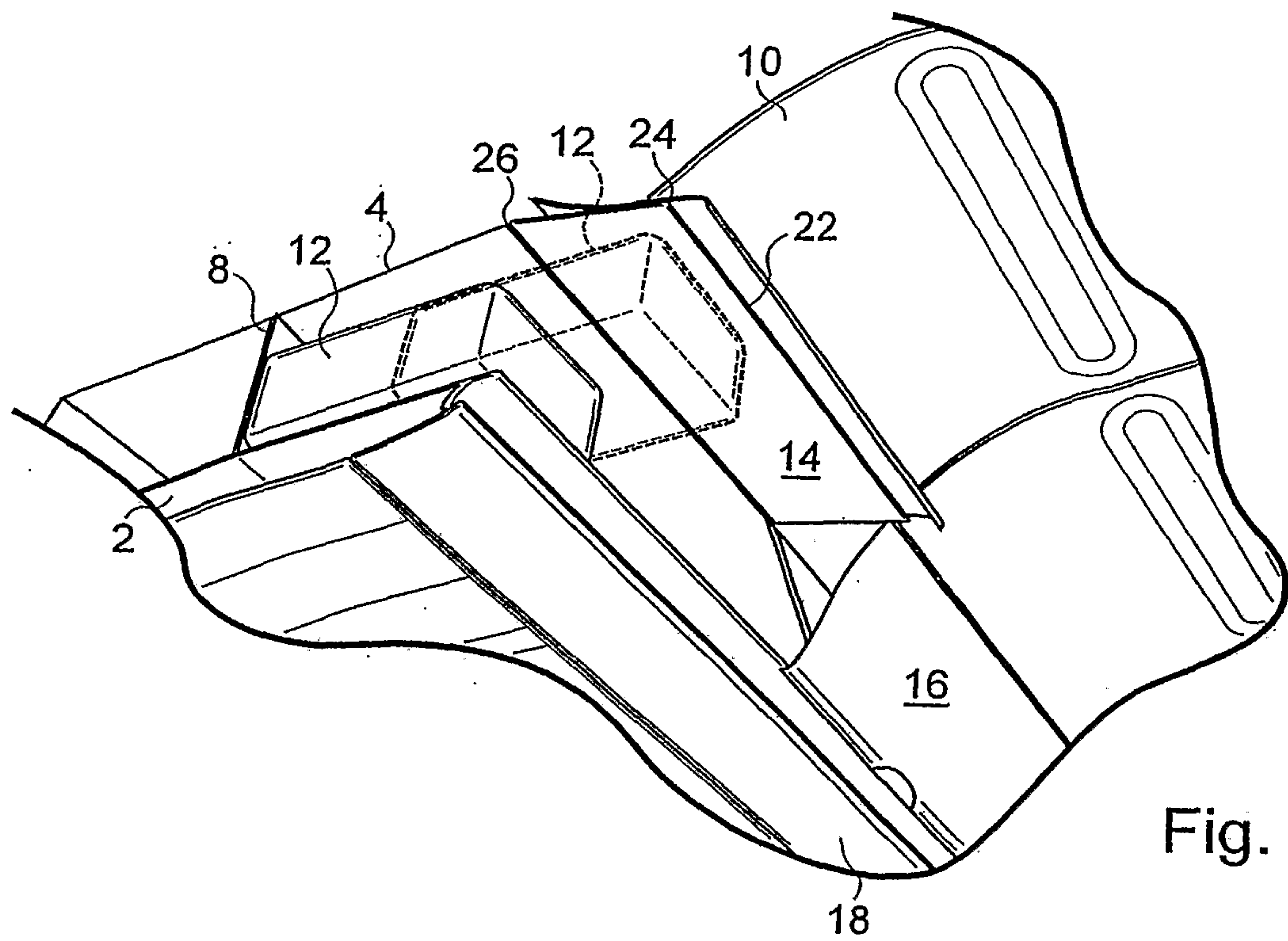


Fig. 7

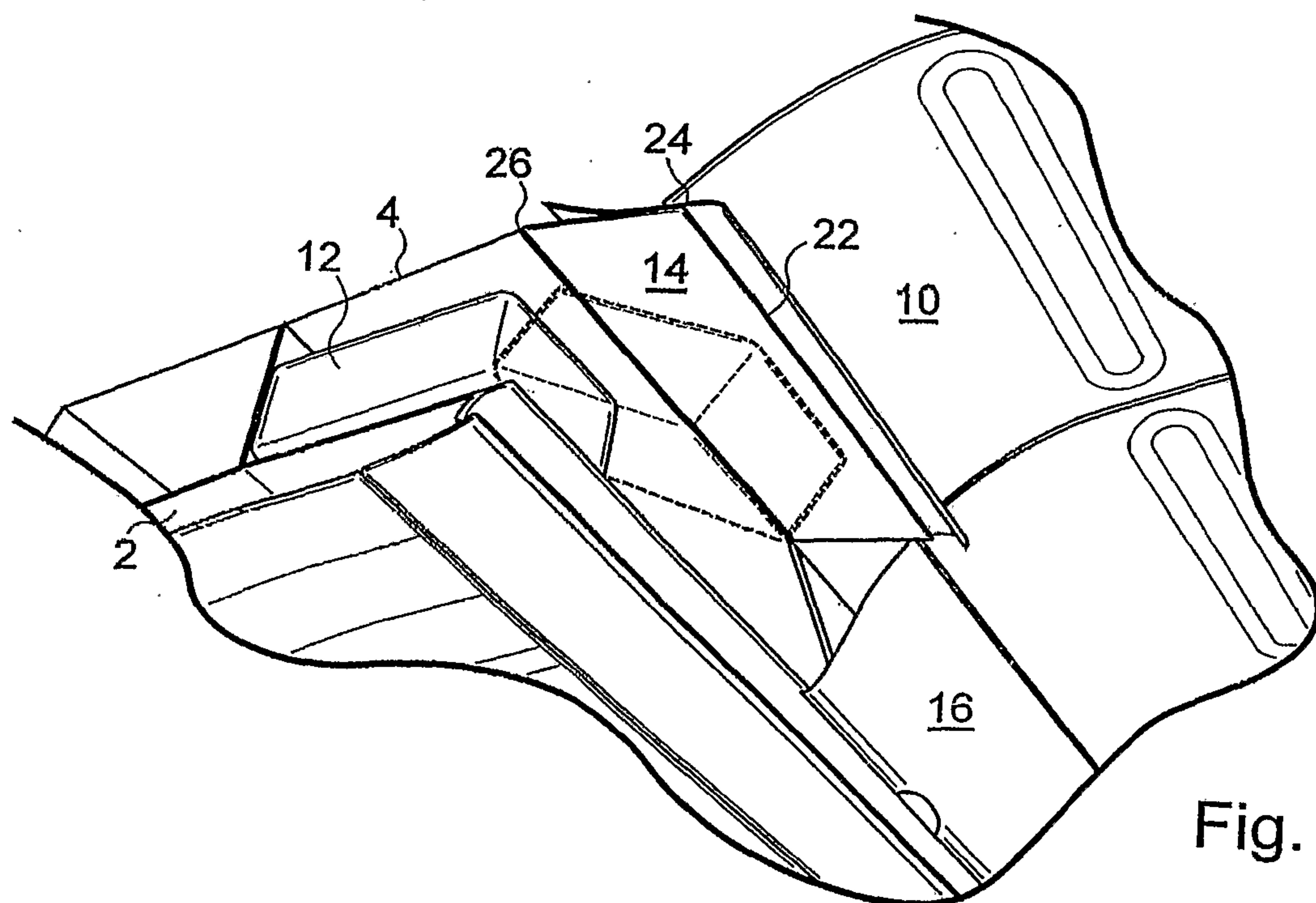


Fig. 8

