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(54) **Titre : CONTENEUR DE TRANSPORT DE PRODUITS PRESENTANT EN PARTICULIER UNE FORME CYLINDRIQUE**
(54) **Title: CONTAINER FOR TRANSPORT OF PRODUCTS, ESPECIALLY IN THE FORM OF COILS**

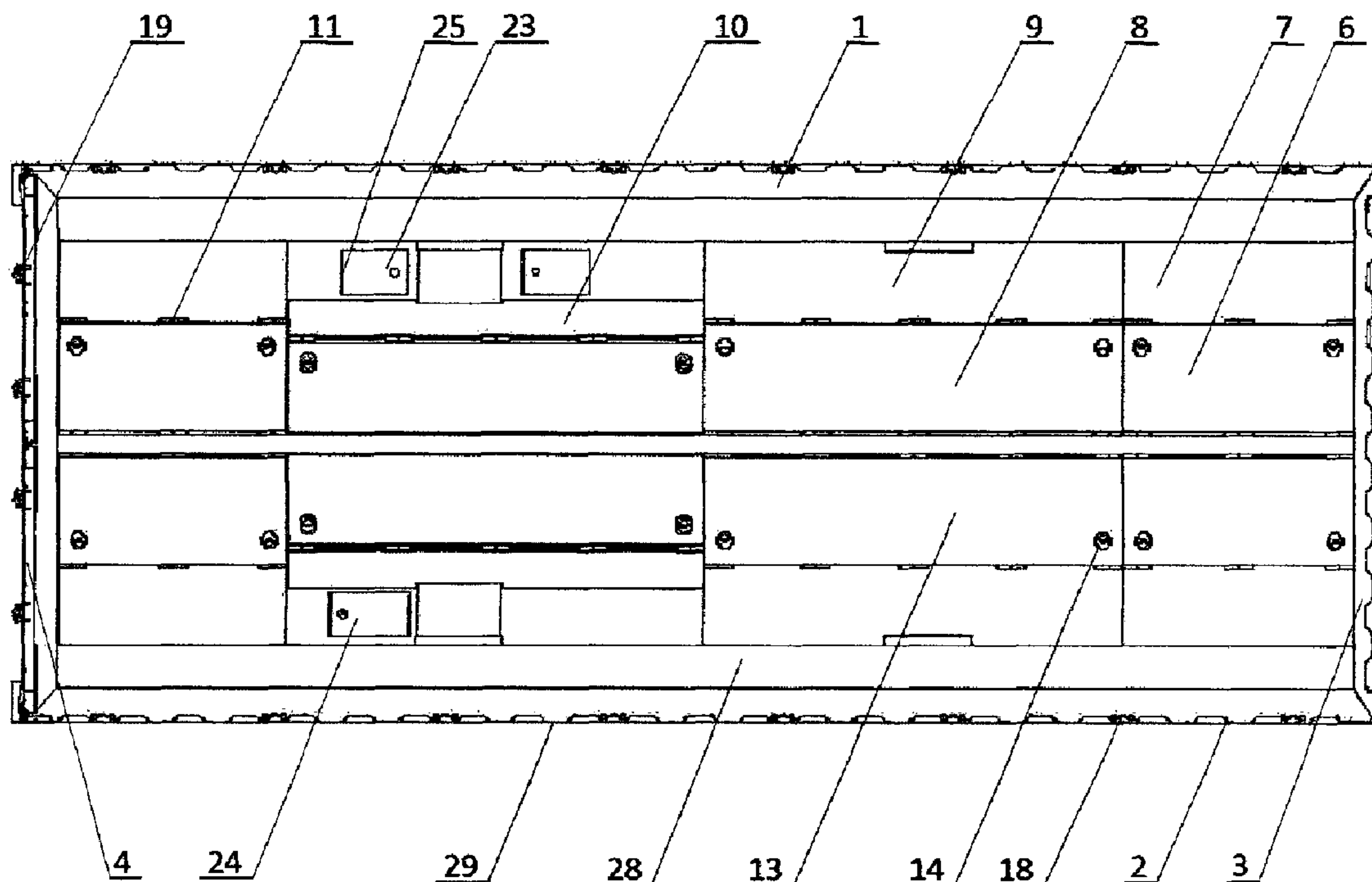


Fig.1

(57) **Abrégé/Abstract:**

The present invention is a container for the transport of products, particularly in the form of coils, comprising a floor (1), two side walls (2), a front wall (3), two doors (4) and a removable rigid roof (5) with a fastening mechanism. The floor (1) is equipped with



(57) Abrégé(suite)/Abstract(continued):

movable supports with a fastening mechanism, grouped in at least one pair, located along its longer axis of symmetry, opposite to each other. In the closed position, the supports form a horizontal plane with the floor (1), while in the open position, they form a trough. The pivoting support, forming part of one pair consists of a flap (6) connected to the flap support (7) or a wide flap (8) connected to the wide flap support (9) or (10). The flap (6) and the wide flap (8) are movably connected with the floor (1) by means of hinges (11) located on one of the edges, whereas the flap (6) and the wide flap (8) are connected movably by the other edge by means of hinges (11) with the flap support (7) or the wide flap support (9 and 10). The floor (1) is equipped with two grooves (12), parallel to each other, and running through the whole length of it situated on both sides of the long axis of symmetry of the floor (1) and located below the flap supports (7) or the wide flap supports (9 and 10) lying horizontally.

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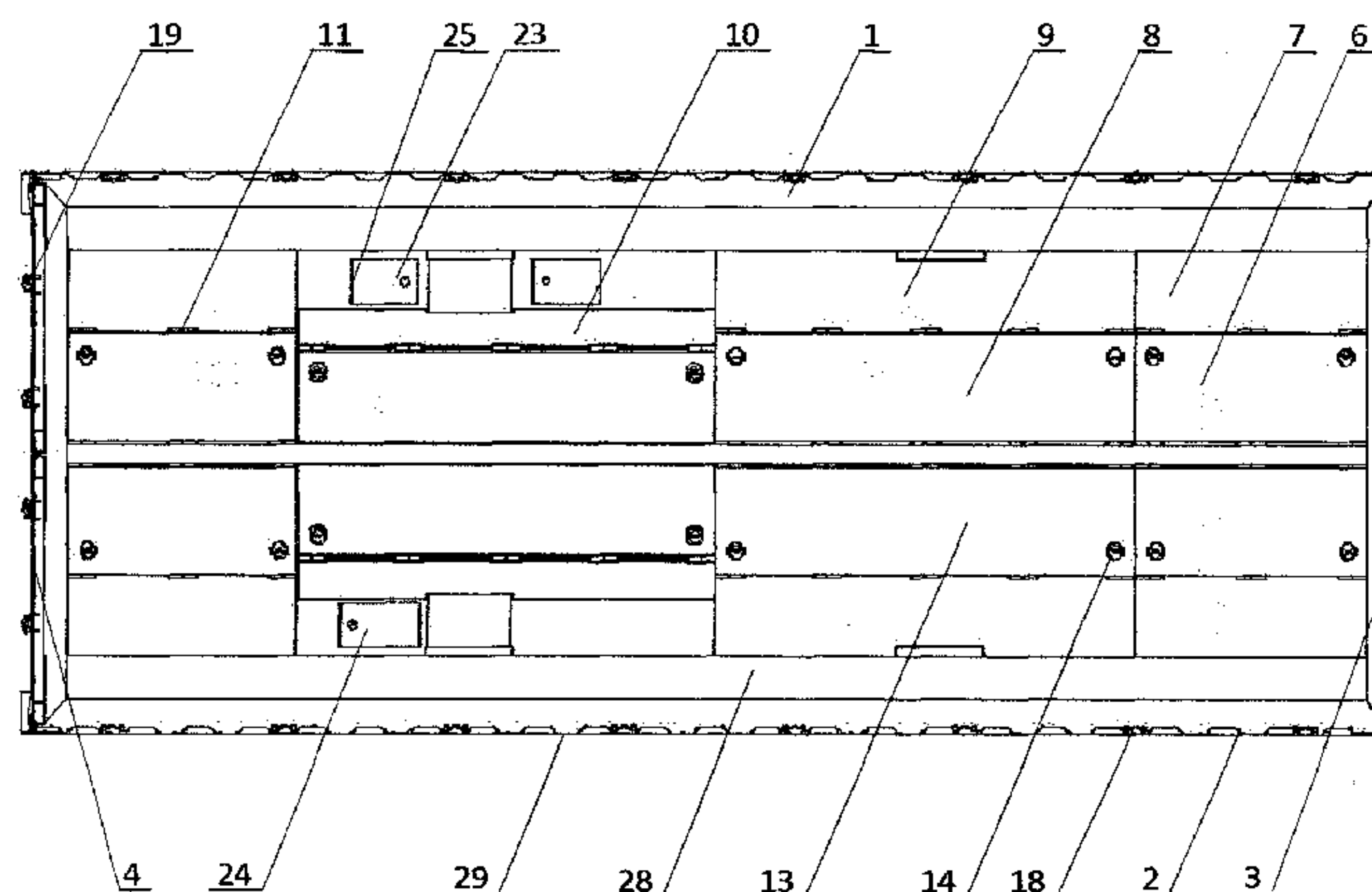


Fig.1

(57) **Abstract:** The present invention is a container for the transport of products, particularly in the form of coils, comprising a floor (1), two side walls (2), a front wall (3), two doors (4) and a removable rigid roof (5) with a fastening mechanism. The floor (1) is equipped with movable supports with a fastening mechanism, grouped in at least one pair, located along its longer axis of symmetry, opposite to each other. In the closed position, the supports form a horizontal plane with the floor (1), while in the open position, they form a trough. The pivoting support, forming part of one pair consists of a flap (6) connected to the flap support (7) or a wide flap (8) connected to the wide flap support (9) or (10). The flap (6) and the wide flap (8) are movably connected with the floor (1) by means of hinges (11) located on one of the edges, whereas the flap (6) and the wide flap (8) are connected movably by the other edge by means of hinges (11) with the flap support (7) or the wide flap support (9 and 10). The floor (1) is equipped with two grooves (12), parallel to each other, and running through the whole length of it situated on both sides of the long axis of symmetry of the floor (1) and located below the flap supports (7) or the wide flap supports (9 and 10) lying horizontally.

**WO 2013/180586 A1**

Container for transport of products, especially in the form
of coils

The present invention is a container for the transport of products, especially in the form of coils, designed to be moved by cranes, forklift trucks, overhead cranes, or container carriers.

A container for transport of various products including those of a circular cross-section, in which the floor is equipped with deflected covering plates is known from the American patent application US2003106822. In the closed position the flaps form one plane with the floor, allowing transport of products on pallets, or having a stable basis. In the open position the flaps reveal cavities located in the floor of the container, which provide two points of support for oval objects located horizontally. If the object has a large diameter, the points of support are provided by deflected flaps which, in the open position, form an extension of a cavity in the floor. The disadvantage of the solution, according to the invention, is that the floor of the container must be thick in order to provide enough space for sufficiently deep cavities. Therefore, while maintaining the standard external dimensions of the container, the amount of space available inside is reduced.

In patent application WO2008107626 a container holding a floor adapted to carry cylindrical objects is shown. The container is equipped with sets of pivoting supports in the floor. The supports can be arranged perpendicularly or parallel to the longer axis of symmetry of the floor. In the closed position the supports form one plane with the floor, while in the open position they form a trough in the shape of an inverted isosceles trapezium which provides

three points of support for oval objects. In the present solution, the mechanism locking the supports in the open and closed positions is in the floor, directly under the support. The container is also equipped with a rigid, removable roof, so that products can be loaded and unloaded from the container also by a cranes or a high lift forklift truck. In view of the fact that the supports for oval objects are narrow, the line of contact with the object is short. Thus, to ensure a high stability of a transported oval object, it is necessary to use at least two pairs of supports. In the case of a short object, the distance between each pair of supports may be too large for such an object to be held by two sets of supports. Furthermore, a system locking the supports in the closed and open positions, due to the relatively small dimensions on which large forces act in the case of heavy loads, is subjected to rapid wear.

The aim of the invention is to elaborate a container having a floor adapted to transport cargo on pallets, free-standing, and cylinder-shaped objects such as steel coils, which provides high stability for the transport of objects, irrespective of their length, while still being resistant to mechanical damage.

The essence of the solution according to the invention is a container for the transport of products, particularly in the form of coils, comprising the floor, two side walls, a front wall, two doors with a lock, and a removable rigid roof with a fastening mechanism, where the floor is equipped with at least one pair of pivoting supports with a locking system, grouped in at least one pair, placed along its longer axis of symmetry, opposite to each other, which, in the closed position, form one horizontal plane with the

floor, while in the raised position they form a trough. The solution is characterized in that the pivoting support, being a part of one pair, is made up of a flap connected to the flap support or a wide flap connected to the wide flap support. The flap and the wide flap are movably connected to the floor by means of hinges located on one of their edges. In addition, the flap and the wide flap are movably connected, by the other edge, to the flap support or to the wide flap support by hinges. The floor has two grooves, parallel to each other and running through its whole length, located on both sides of the longer axis of symmetry of the floor. The grooves are lying horizontally under the flap supports or wide flap supports.

Preferably, the flap and the wide flap and the flap support and the wide flap supports are in the shape of a rectangular. The floor has preferably two pairs of flaps and two pairs of flap supports of corresponding width, that are on the shorter ends of the floor, and between them there are two pairs of wide flaps and wide flap supports of corresponding width. The flap and the flap support are narrower than the wide flap and the wide flap supports. Preferably, the flap and the flap support have three hinges each, and the wide flap and the wide flap supports have five hinges each. The flap and the wide flap are equipped with two oval handles. In addition, the flap and the wide flap are equipped with an anti-slip layer. The anti-slip layer is made of rubber. Preferably, the fastening mechanism on the roof consists of two locking bars positioned perpendicularly to the longer edges of the roof. On the roof edges, butting the side walls, the front wall, and the beam there is a sheet rubber gasket. Preferably, on the upper side of the roof there are two large handles located along the longer axis of symmetry of the roof, the

holes of the handles being parallel to the longer edges of the roof and four small handles located at the longer edges of the roof, the holes of the handles being perpendicular to those edges. Preferably, the lock of each door leaf consists of two locking bars. At the edges of the doors there is a sheet rubber gasket. Each door leaf preferably has a latch hook. Each of the side walls has two attachment mechanisms for the roof, which are connected to the locking bars. Each of the side walls has a door hold compatible with the catch hook. Preferably, the floor is equipped with small hinged rectangular flaps, located on opposite sides of the longer axis of symmetry of the floor, the flaps being mounted on strap hinges and are placed under the flap supports lying horizontally and/or wide flap supports. The floor has two rectangular through holes placed under its usable layer, parallel to the shorter axis of symmetry of the floor, the spacing of the holes being identical to the spacing of the two large handles situated on the roof. On each of the side walls, under the upper edge, there are two air holes. Preferably, the usable layer of the floor is made of a flat sheet. The fill of the door frame structure consists of a flat sheet with moulded sections while the fill of the structure of the side walls, the front wall, and the roof is made of a trapezoidal sheet, where the roof surface in the area extending between its longer edges, where the big and small handles are positioned, is made of a flat sheet. Preferably, the fill of the roof frame structure is a flat sheet with moulded sections. On each side wall, along its upper and lower edges, eight small handles are located. Above the upper edge of the door there is a beam which is detachably connected to the side walls. Preferably, on the corners of the container structure there

are corner fittings. Preferably, on the corners of the container structure there are corner fittings.

An advantage of the invention is to provide a container which is adapted to carry objects on pallets, free-standing, and oval objects such as steel coils. The solution according to the invention makes the carrying of oval objects of different lengths possible. In the case of transport of short coils, only one support to stabilize may be used and the rest of the floor may be left flat. This allows to maximize the container surfaces. A long line of contact of a cylindrical object with a support ensures more friction and thus greater object stability in the case of moving the container. In addition, the anti-slip layer mounted increases friction. Furthermore, a large area of support consisting of a flap and flap support increases its resistance to mechanical damage. Also the simple system of connection of individual elements of the support makes the assembly and disassembly as well as replacement of defective parts its easy.

The object of the invention in the example of execution is shown in the drawing, in which Figure 1 illustrates a horizontal cross-section of a container, Figure 2 - a perspective view of the container, Figure 3 - a partial longitudinal section of the container, Figure 4 shows a view from the top of the container, showing the roof, Figure 5 is a cross-sectional view of the raised container flaps, Figure 6 illustrates the wide flap, Figure 7 illustrates the first support of the wide flap, Figure 8 - the second support of the wide flap Figure 9 - the flap, Figure 10 - the flap support, Figure 11 - part of the vertical section of the flap, Figure 12 illustrates the leaf of the door, Figure 13 is a horizontal sectional view

of the container illustrating the floor with the flaps and flap supports removed.

In the example of execution, the container for cargo transport, especially coils, has a floor 1, two side walls 2, the front wall 3, two doors 4 and a removable rigid roof 5. Floor 1 is equipped with four pairs of folding supports, which are arranged along its longer axis of symmetry. In the open position, a pair of supports creates an inverted isosceles trapezoid, which provides two or three points of support for a cylindrical object. The floor has two pairs of supports, each pair consisting of two rectangular flaps 6 opposite to each other, and two pairs of rectangular flap supports 7. The supports are located on the shorter ends of floor 1. Between them there are two pairs of supports, one of which consists of two opposite, wide, rectangular flaps 8 and wide, rectangular flap supports 9, while the other pair consists of two wide, rectangular flaps 8 and wide rectangular flaps supports 10. Flaps 6 and wide flaps 8 are connected to floor 1, along two lines, parallel to its longer axis of symmetry, by hinges 11 located on one of their edges. With the other opposite edge of flap 6 and wide flap 8 they are connected to flap supports 7 and wide flap supports 9 and 10, also by means of hinges. Each of the flaps 6 and flap supports 7 has three hinges each 11, whereas wide flaps 8 and wide flap supports 9 and 10 have five hinges each 11. Flaps 6, wide flaps 8, flap supports 7 and wide flap supports 9 and 10 consist of a steel frame made of channel sections on which a 5 mm thick flat steel plate 28 is mounted. Throughout the length of floor 1, on both sides of its centre of symmetry, there are two grooves 12. If the supports are closed, grooves 12 are covered by flap supports 7, and wide flap supports 9 and 10. However, when the supports are raised to create a trough, the edges

of the flap supports 7, and wide flap supports 9, 10, opposite to the edge with hinges 11, are placed in grooves 12. A single, open support takes the shape of a triangle with three acute angles. Flaps 6 and wide flaps 8 are covered with an anti-slip layer 13, which is made of vulcanized rubber. Each of flaps 6 and wide flaps 8 has two oval-shaped handles 14 located near the edge being in contact with flap supports 7 and wide flap supports 9 and 10. Handles 14 make the lifting of a support easy. Roof 5 of the container has a mechanism fastening it to side walls 2, consisting of two locking bars 15, parallel to each other, which are placed perpendicularly to the longer axis of roof 5. Locking bars 15 are mounted to the outer surface of roof 5. The edges of roof 5 being in contact with side walls 2, front wall 3 and beam 30 are equipped with sheet rubber gasket 16 which seals slits and protects products inside the container against adverse weather. On the upper side of roof 5 there are two large handles 17. They are located along the longer axis of symmetry of roof 5. Openings of large handles 17 have a rectangular shape and are parallel to the longer edges of roof 5. This arrangement of large handles 17 makes it possible to transport the roof with a forklift truck quickly. In addition, on roof 5, there are four small handles 18. They are placed at the longer side edges of roof 5 parallel to the holes of big handles 17. This arrangement of small handles 18 makes it the transport of the roof possible using chains, ropes, or shackle ropes. At the upper and lower edges of each side wall 2 there are small handles 18 eight pieces of which are placed at each of those edges. Each door leaf 4 is identical in size and is equipped with a closure consisting of two locking bars 19. In addition, on the edges of door leaf 4 there is a sheet rubber gasket

16, which seals slits and protects products inside the container against adverse weather. On each leaf of door 4 there is latch hold 20. When door 4 is full open, latch holds 20 are held by door holds 21, located on side walls 2. This prevents spontaneous closing of door 4. On each of the side walls 2 there are two attachment mechanisms of the roof 22, which are connected to locking bars 15 located on roof 5. Disconnected attachment mechanisms of the roof 22 with locking bars 15 make disconnection of roof 5 from the rest of the container possible. At the upper and lower edges of each side wall 2 there are eight small handles 18. On each side wall 2 there are two air holes 27, placed at the upper corners. Floor 1 has seven small rectangular hinged flaps 23 and two small hinged flaps 24. Small flaps 23 and 24 are mounted on strap hinges 25. Small flaps 23 in relation to small flaps 24 are located on opposite sides of the longer axis of symmetry of floor 1. Small flaps 23 are obscured by, lying horizontally, flap supports 7 and wide flap supports 9 and 10. Small flaps 24 are obscured by, lying horizontally, wide flap supports 9 and 10. Floor 1 has two rectangular through holes 26 placed under the usable layer. Holes 26 extend through the entire width of floor 1, parallel to its shorter axis of symmetry. The spacing of holes 26 is the same as the spacing of big handles 17. Holes 26 make transport of the container with a forklift truck possible. The structure of the container is made of welded steel shapes. The usable layer of floor 1 is made of 5 mm thick flat steel 28. The fill of the skeleton structure of doors 4 is made of 4 mm thick flat steel 28 with moulded sections. The fill of the skeleton structure of side walls 2, front wall 3 and roof 5 is made 2 mm thick trapezoidal steel 29. Furthermore, the surface of roof 5, on the area extending between its longer edges, where the

big handles 17 and small handles 18, are placed, is made of flat sheet 28. Side walls 2 are connected to each other above door 4 by means of removable beam 30. At each of the corners of the container steel structure there are corner fittings 31, so that the container can be moved by means of container carriers and overhead cranes. In the example of execution, the container is 20 feet long.

Patent claims

1. A container for the transport of products, especially in the form of coils, comprising a floor, two side walls, a front wall, two doors with a lock, and a removable rigid roof with a fastening mechanism, where the floor is equipped with pivoting supports with a interlock, grouped in at least one pair, located along its longer axis of symmetry, opposite to each other which, which in the closed position, form a horizontal plane with the floor, while in the raised position they form a trough, characterized in that the pivoting support being part of one pair consists of a flap (6) connected to a flap support (7) or a wide flap (8) connected to a wide flap support (9) or (10), where the flap (6) and the wide flap (8) are movably connected to the floor (1) by means of hinges (11) located on one of its edges, moreover, the flap (6) and the wide flap (8) are connected movably by its other edge, by means hinges (11), to the flap support (7) or the wide flap support (9 and 10) whereas the floor (1) is equipped with two grooves, parallel to each other and extending throughout its length (12), positioned on both sides of the longer axis of symmetry of the floor (1)), located below the flap supports lying horizontally (7) or the wide flap supports (9 and 10).
2. The container according to claim 1, characterized in that the flap (6) and the wide flap (8) and the flap support (7) and the wide flap supports (9 and 10) have a rectangular shape.
3. The container according to claim 1, characterized in that the floor (1) has two pairs of flaps (6) and two pairs of flap supports of a corresponding width (7),

which are located on the shorter ends of the floor (1), whereas between them there are two pairs of wide flaps (8) and pairs of wide flap supports of a corresponding width (9 and 10), where the flap (6) and the flap support (7) are narrower than the wide flap (8) and the wide flap supports (9) and (10).

4. The container according to claim 1, characterized in that the flap (6) and the flap support (7) have three hinges each (11), whereas the wide flap (8) and the wide flap supports (9 and 10) have five hinges each (11).
5. The container according to claim 1, characterized in that the flap (6) and the wide flap (8) are equipped with two oval handles (14).
6. The container according to claim 1, characterized in that the flap (6) and the wide flap (8) are equipped with an anti-slip layer (13).
7. The container according to claim 6, characterized in that the anti-slip layer (13) is made of rubber.
8. The container according to claim 1, characterized in that the fastening mechanism on the roof (5) consists of two locking bars (15) positioned perpendicularly to the longer edges of the roof (5).
9. The container according to claim 1, characterized in that on the roof edges (5) there is a sheet rubber gasket (16) butting the side walls (2), the front wall (3) and the beam (30).
10. The container according to claim 1, characterized in that on the upper side of the roof (5) there are two large handles (17) placed along the long axis of symmetry of the roof (5), the holes of the handles being parallel to the longer edges of the roof (5) and four small handles (18) located at the longer edges of

the roof (5), the holes of the handles being perpendicular to those edges.

11. The container according to claim 1, characterized in that the lock of each door leaf (4) consists of two locking bars (19).
12. The container according to claim 1, characterized in that on the edges of the doors (4) there is a sheet rubber gasket (16).
13. The container according to claim 1, characterized in that each door leaf (4) has a latch hook (20).
14. The container according to claim 1 or 8, characterized in that each of the side walls (2) has two attachment mechanism for the roof (22) which are connected to the locking bars (15).
15. The container according to claim 1, characterized in that each of the side walls (2) has a door hold (21) compatible with the latch hook (20).
16. The container according to claim 1, characterized in that the floor (1) is equipped with small hinged rectangular flaps (23) and (24) located on opposite sides of the longer axis of symmetry of the floor (1), the flaps being mounted on strap hinges (25) and are placed under the flap supports lying horizontally (7) and/or wide flap supports (9 and 10).
17. The container according to claim 1, characterized in that the floor (1) has two rectangular through holes placed under its usable layer (26) parallel to the shorter axis of symmetry of the floor (1), the spacing of the ports being identical to the spacing of the two large handles (17) situated on the roof (5).
18. The container according to claim 1, characterized in that on each of side walls (2), under the upper edge, there are two air holes (27).

19. The container according to claim 1, characterized in that the usable layer of the floor (1) is made of a flat sheet (28).
20. The container according to claim 1, characterized in that the fill of the door frame structure (4) consists of a flat sheet (28) with moulded sections while the fill of the structure of the side walls (2), the front wall (3) and the roof (5) is made of a trapezoidal sheet (29), where the roof surface (5) in the area extending between its longer edges, where the big (17) and small handles are positioned (18), is made of a flat sheet (28).
21. The container according to claim 1, characterized in that the fill of the roof frame structure (5) consists of a flat sheet (28) with moulded sections.
22. The container according to claim 1, characterized in that on each side wall (2) along its upper and lower edges, eight small handles are located (18).
23. The container according to claim 1, characterized in that above the upper edge of the door (4) there is a beam (30) which is detachably connected to the side walls (2).
24. The container according to claim 1, characterized in that on the corners of the container structure there are corner fittings (31).

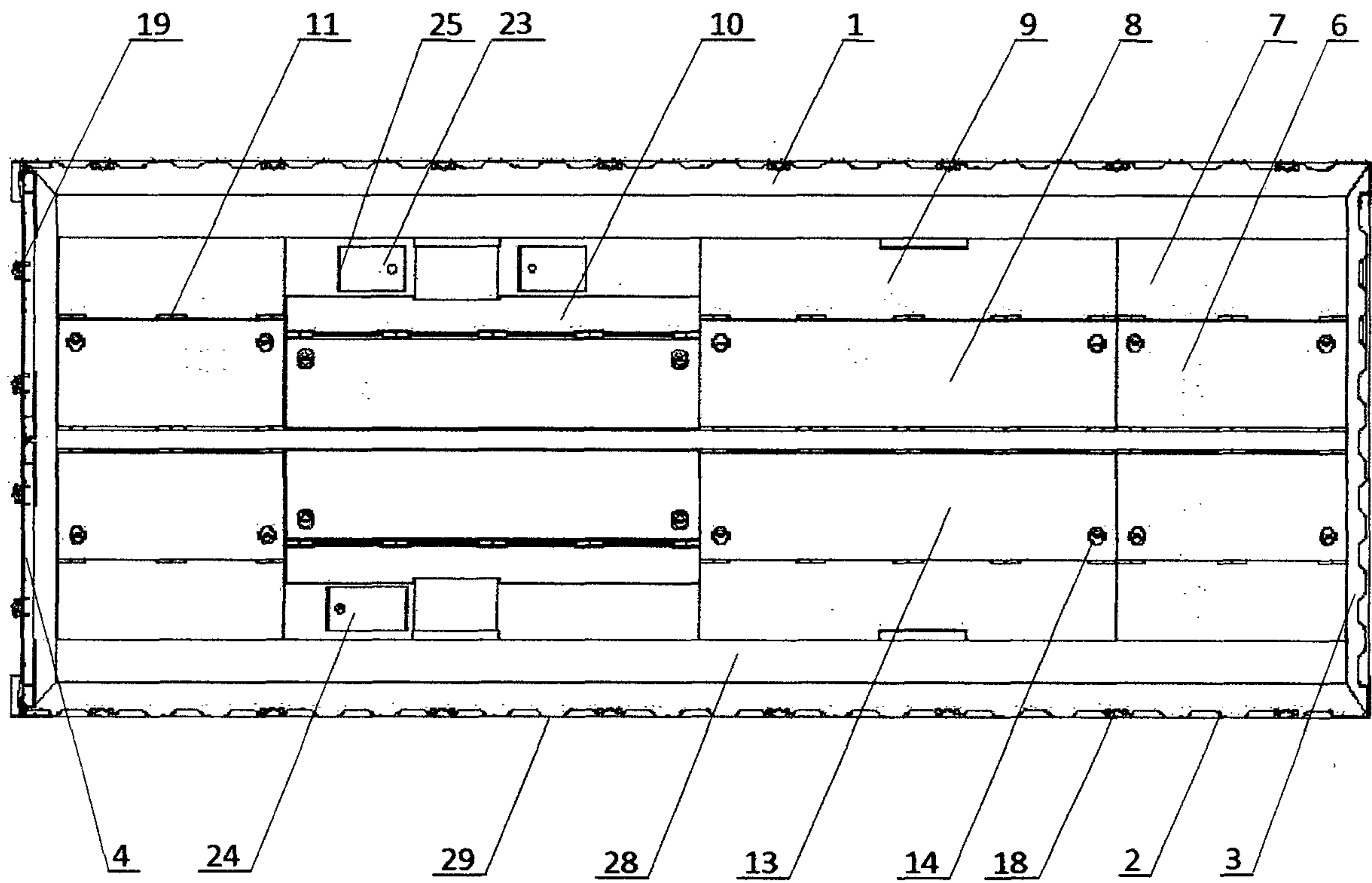


Fig.1

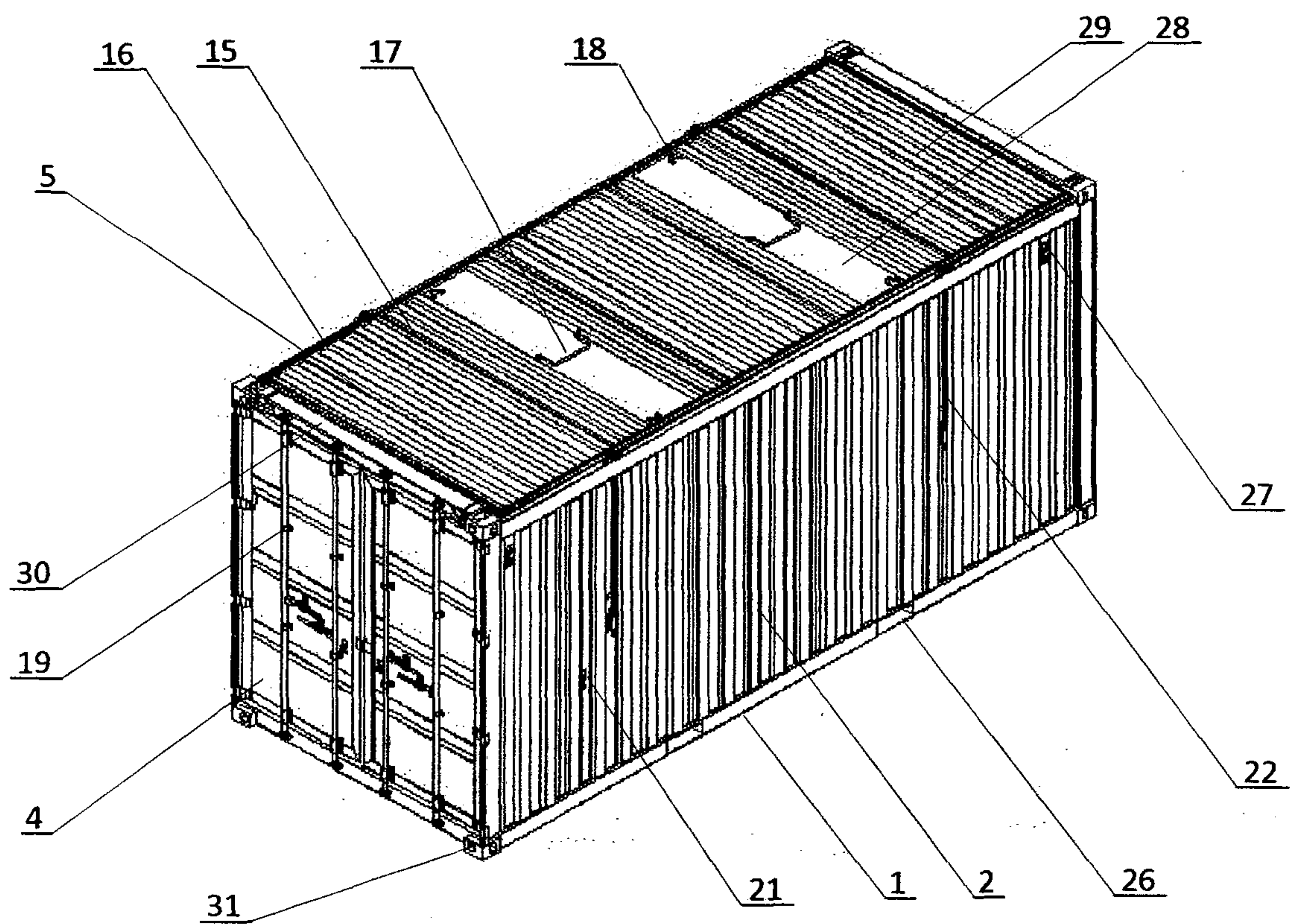


Fig.2

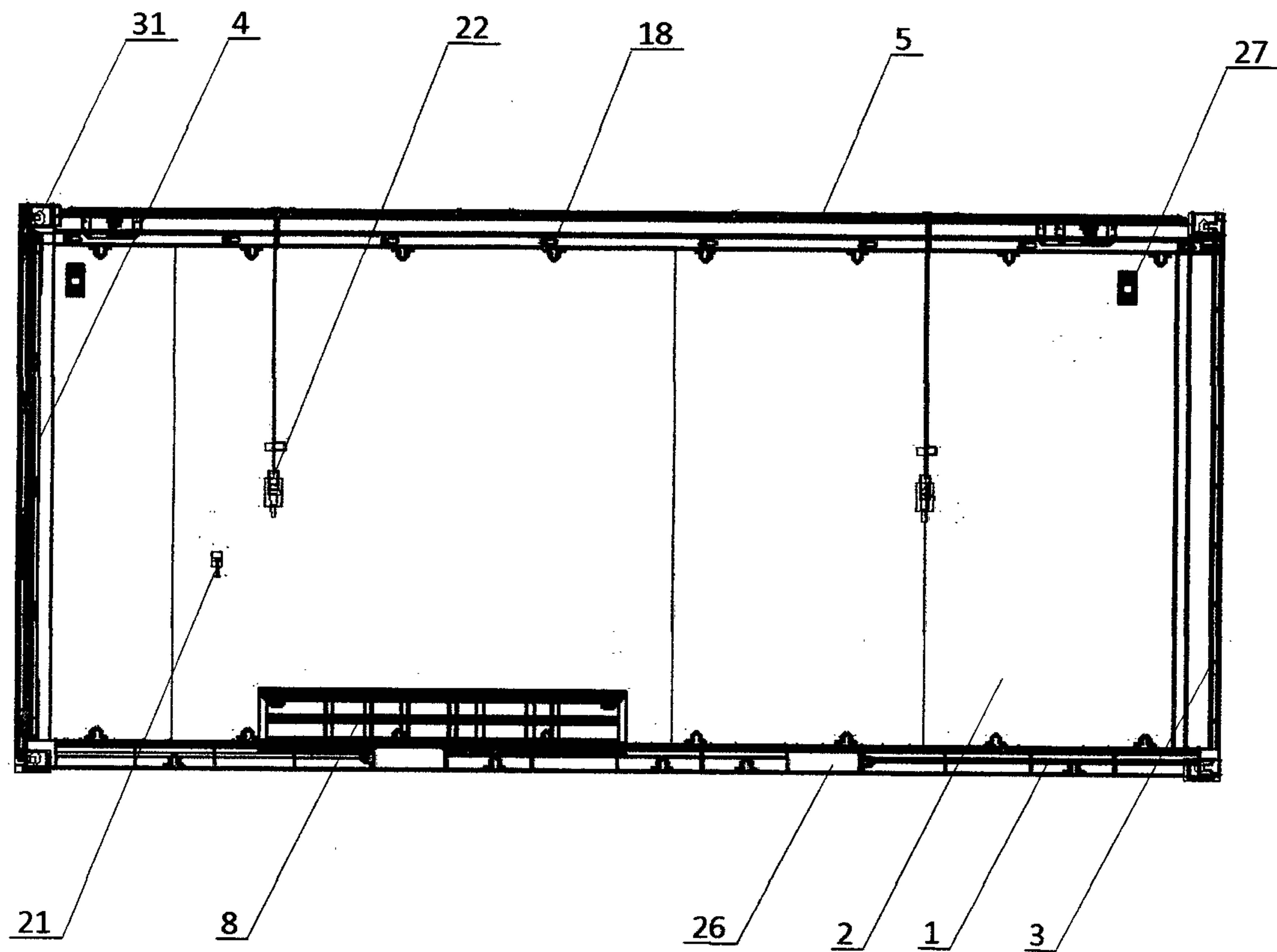


Fig.3

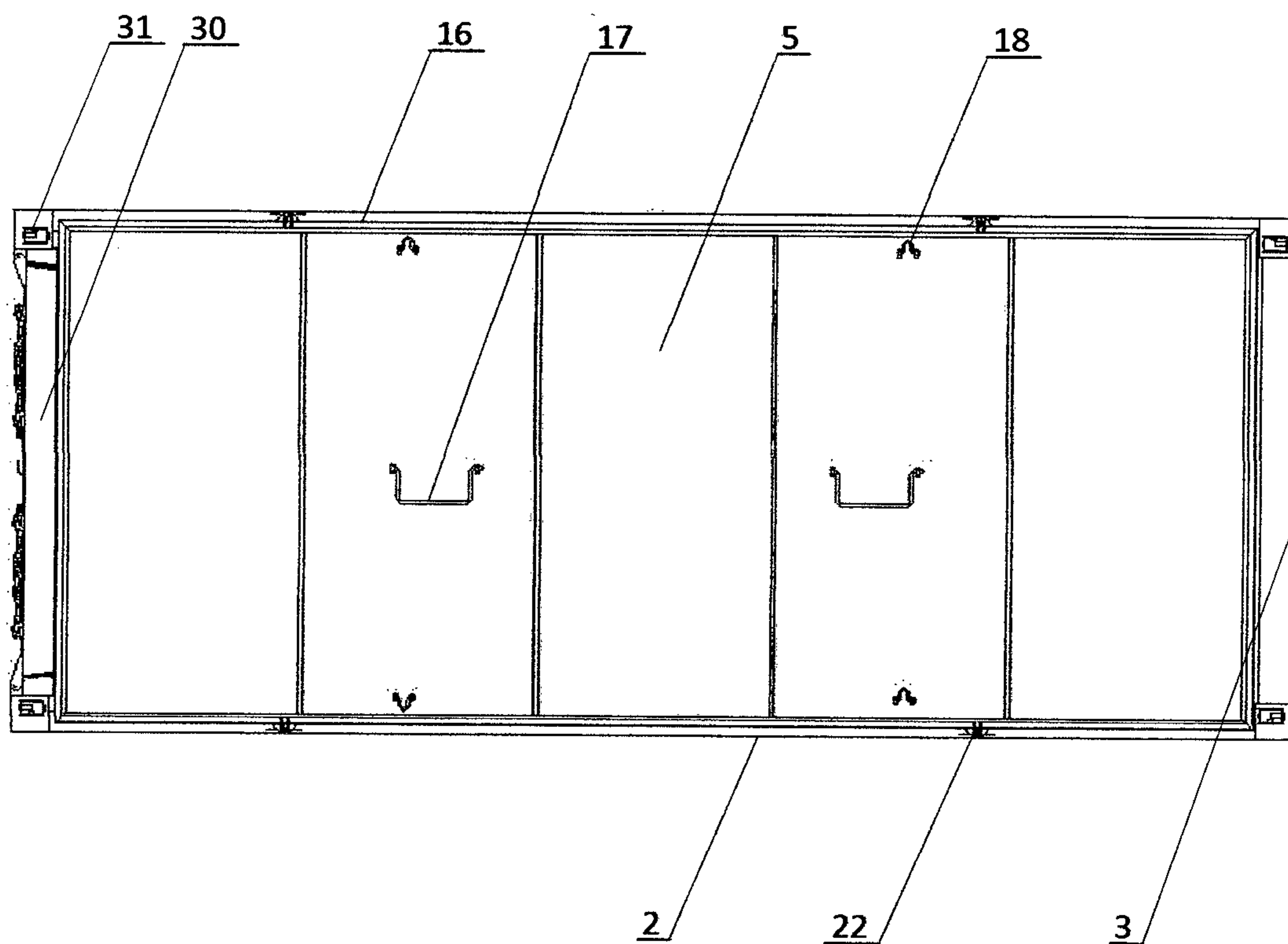


Fig.4

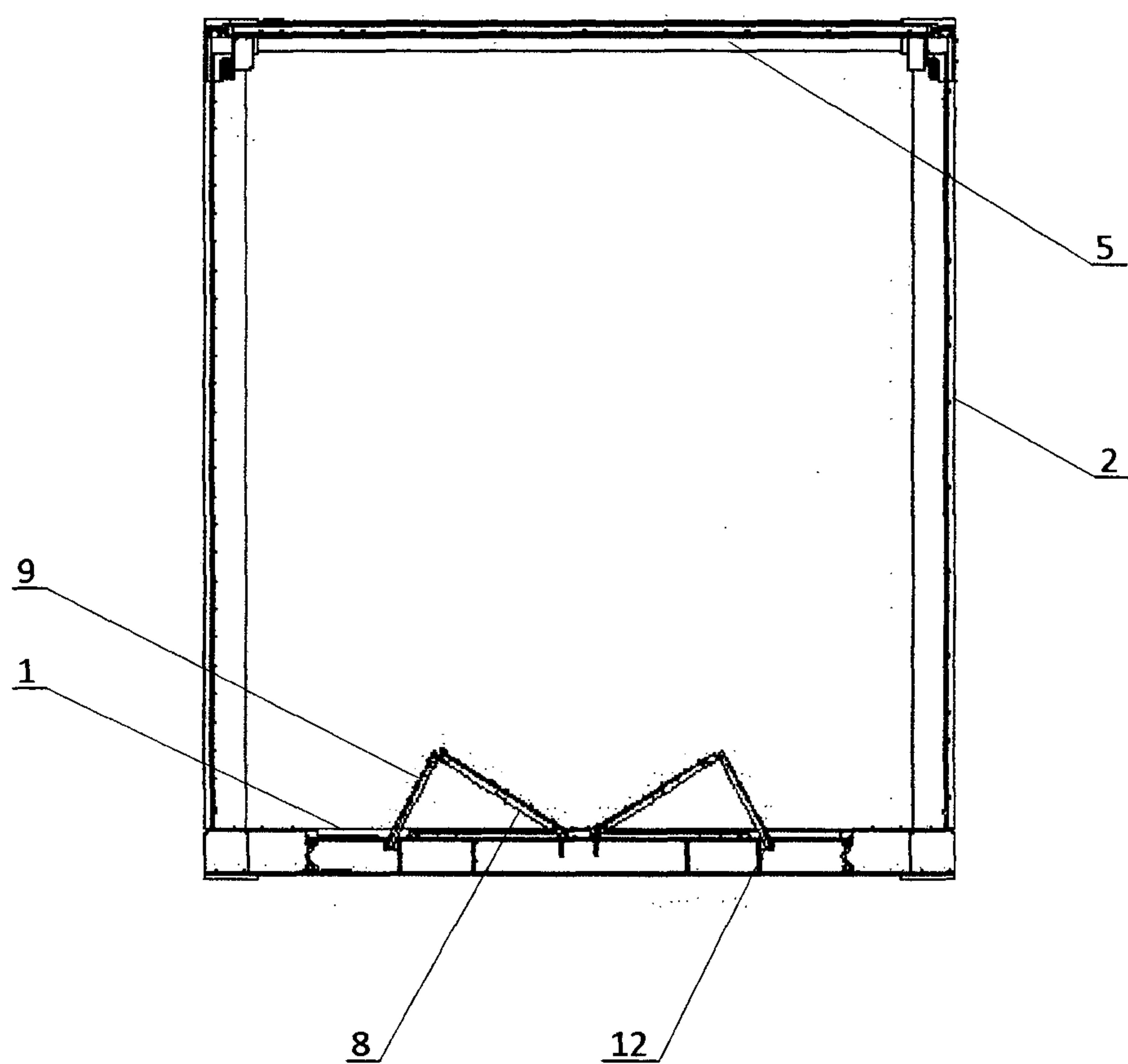


Fig.5

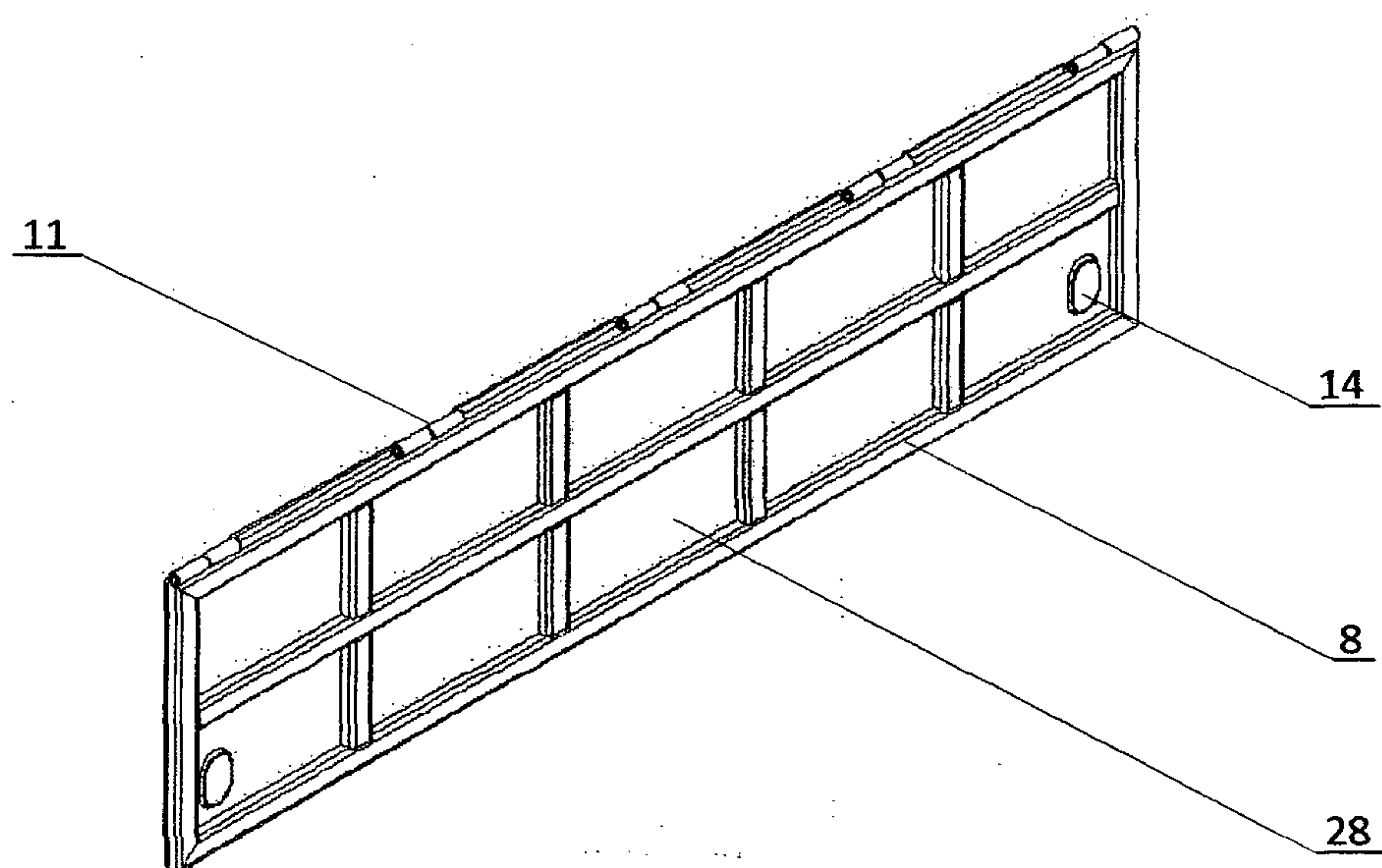


Fig.6

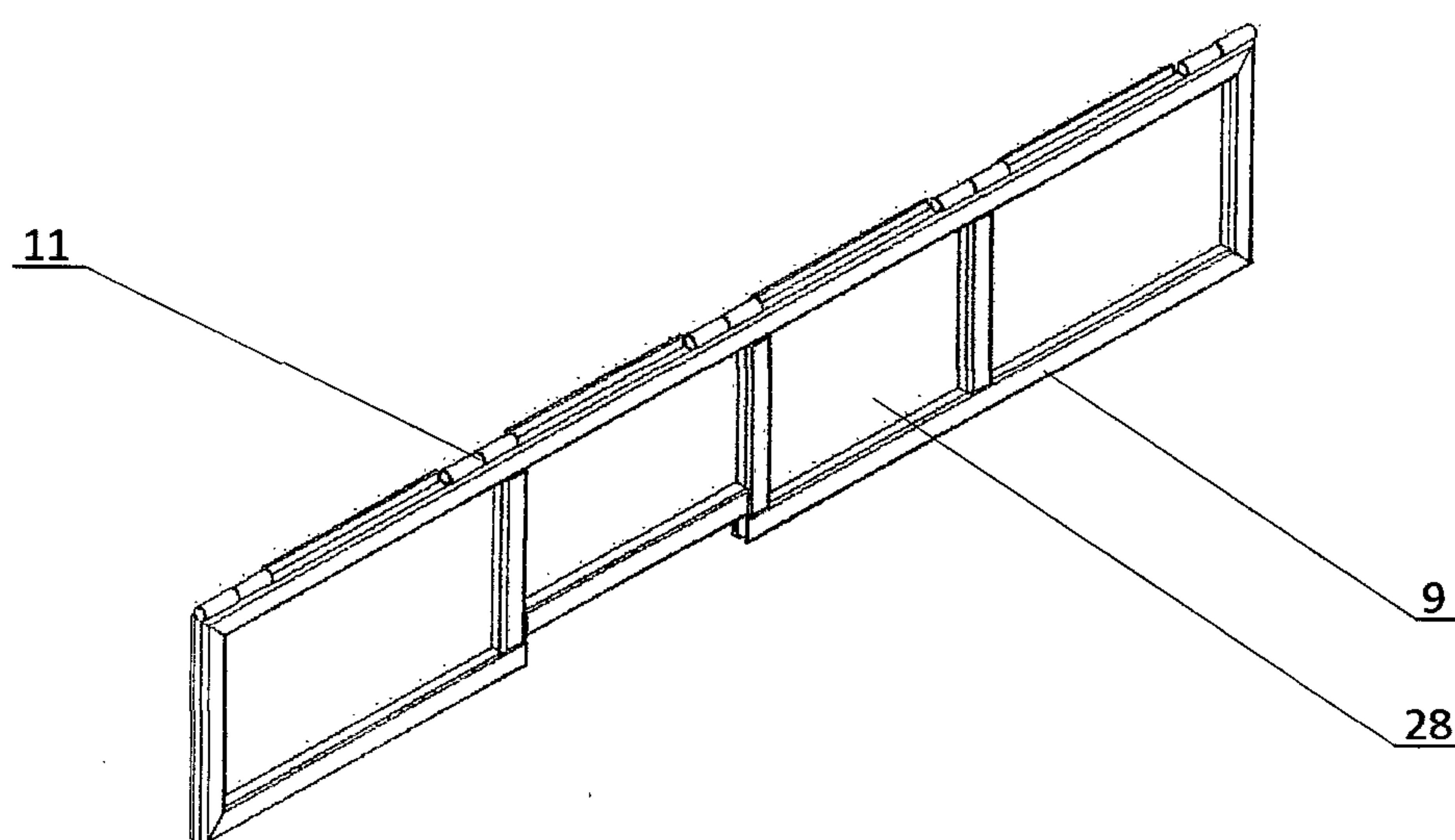


Fig.7

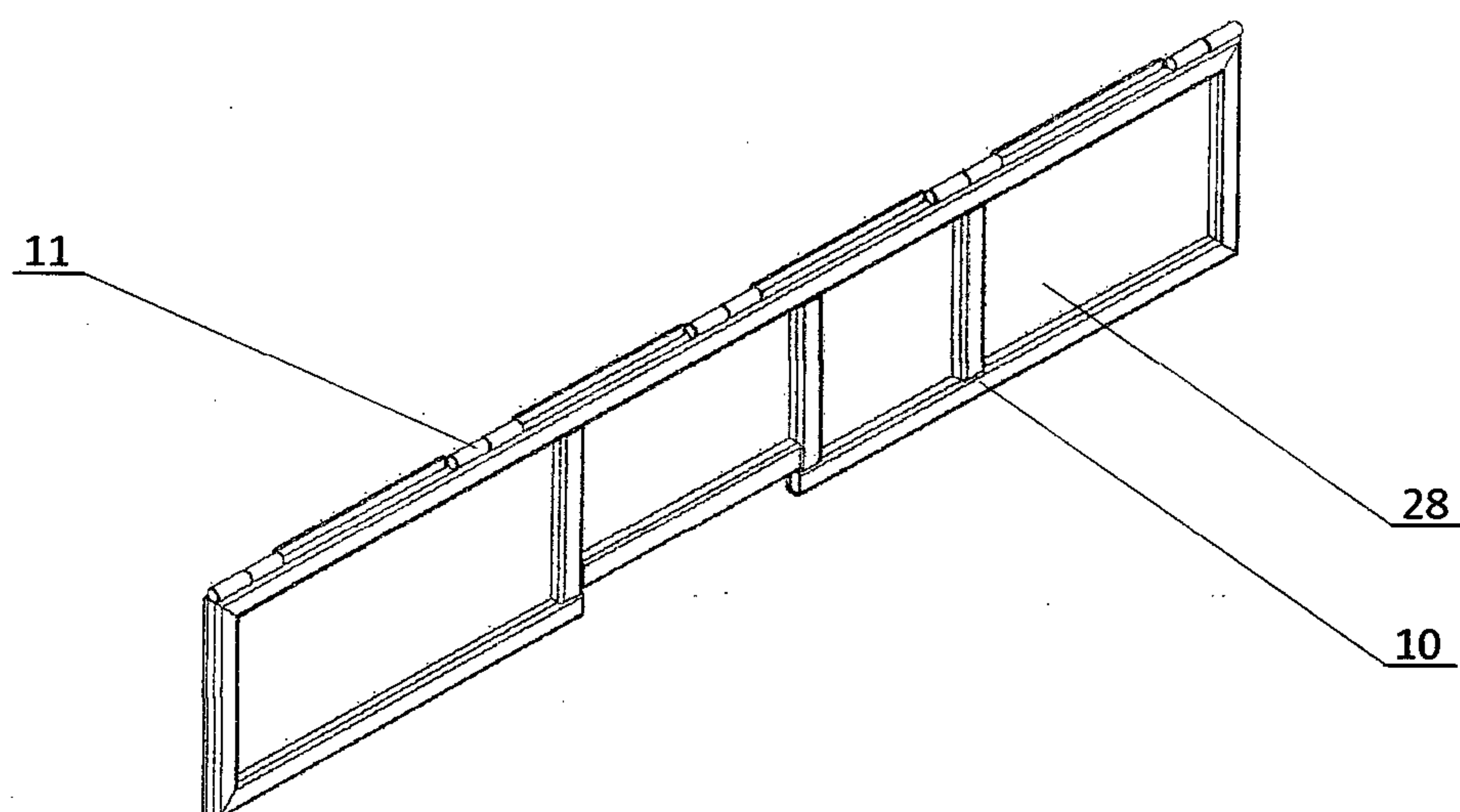


Fig.8

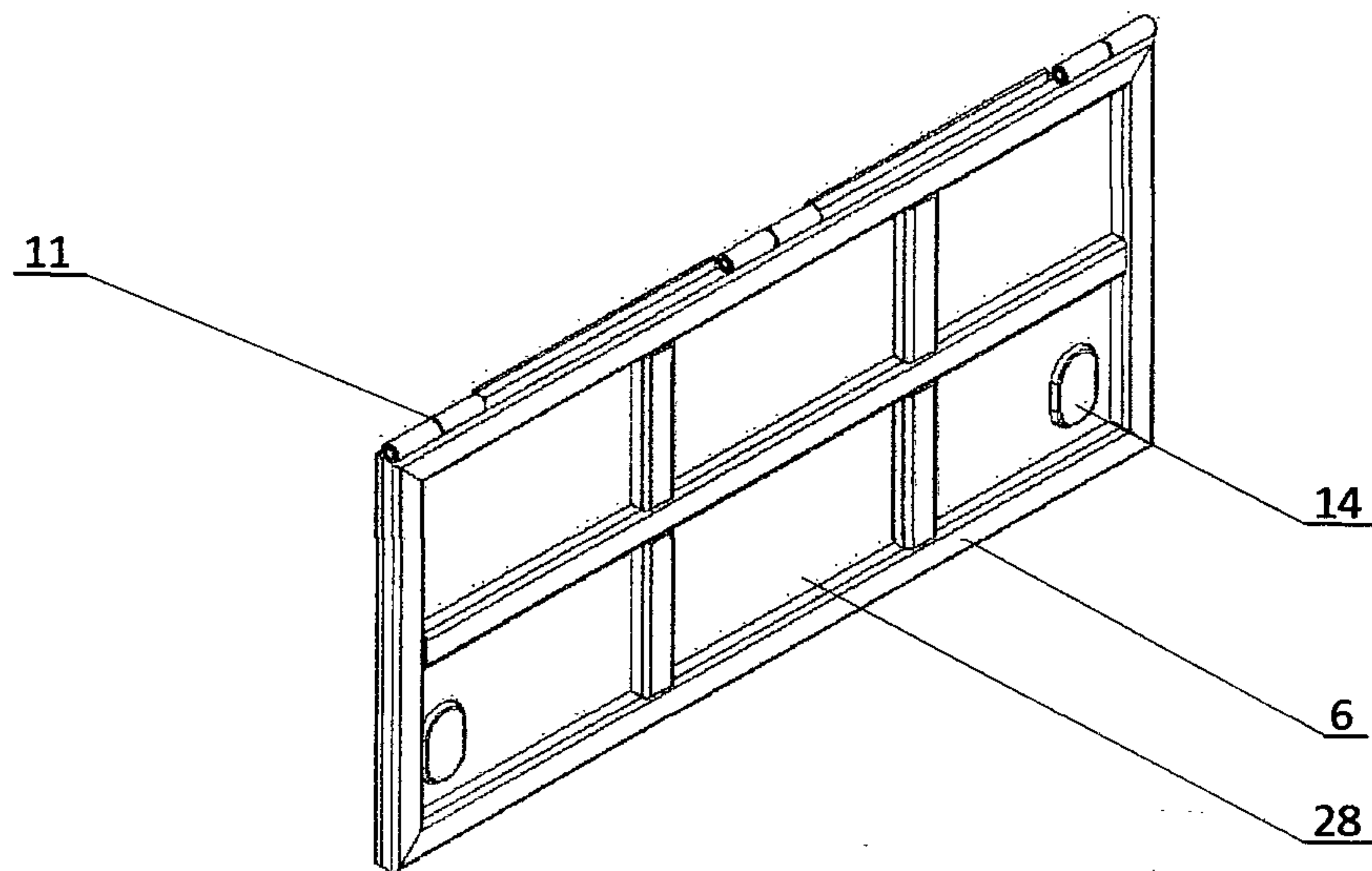


Fig.9

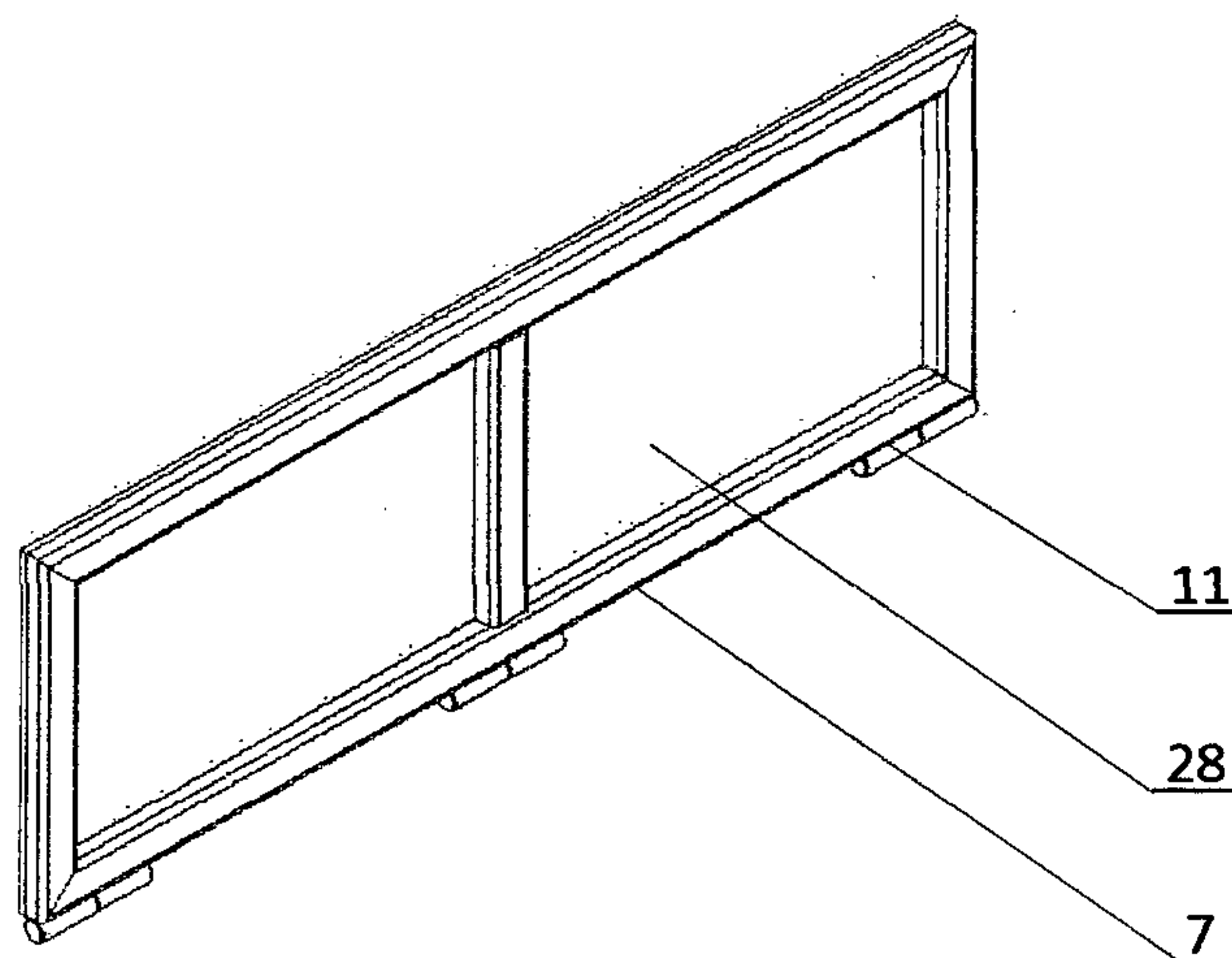


Fig.10

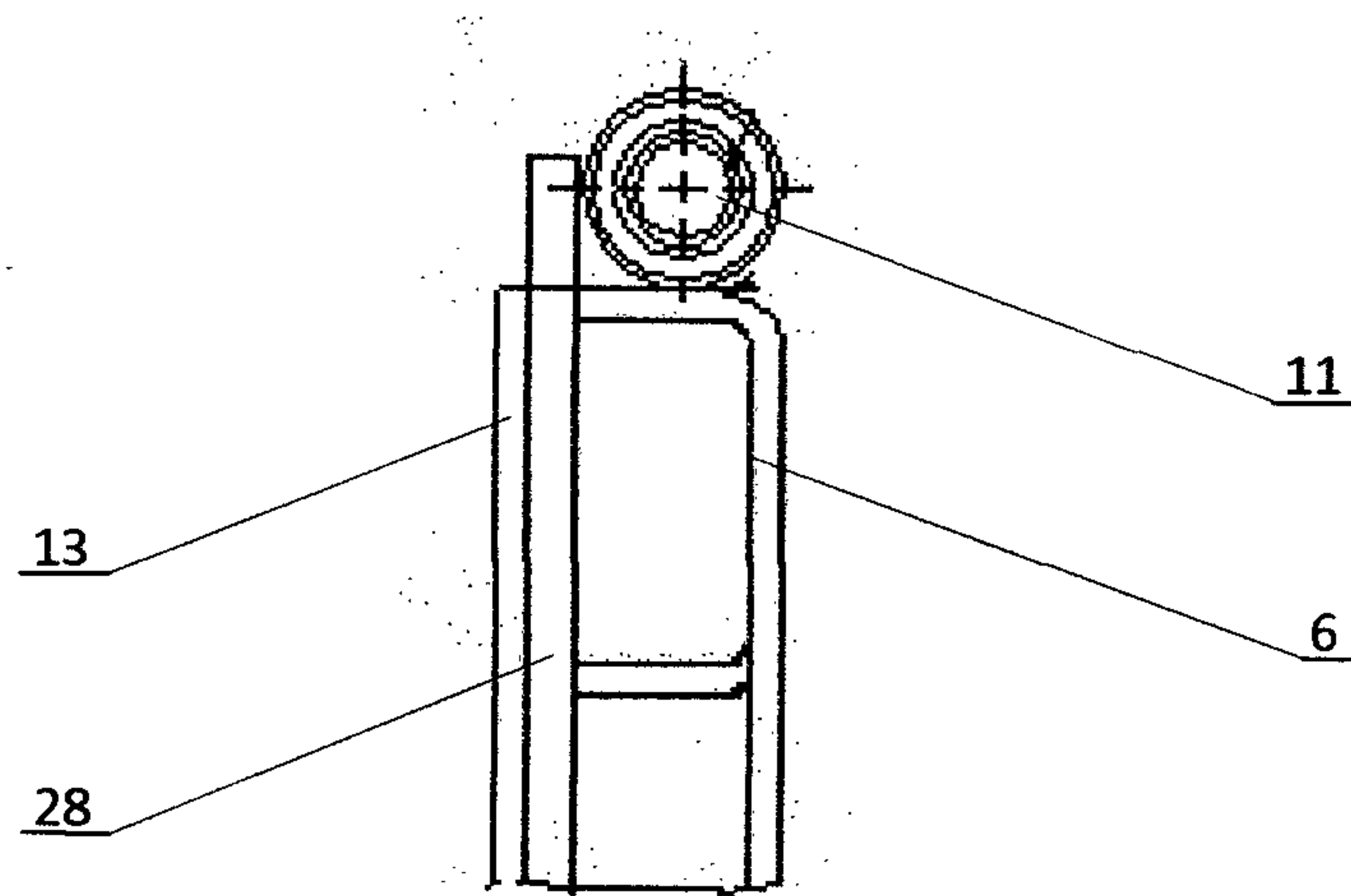


Fig.11

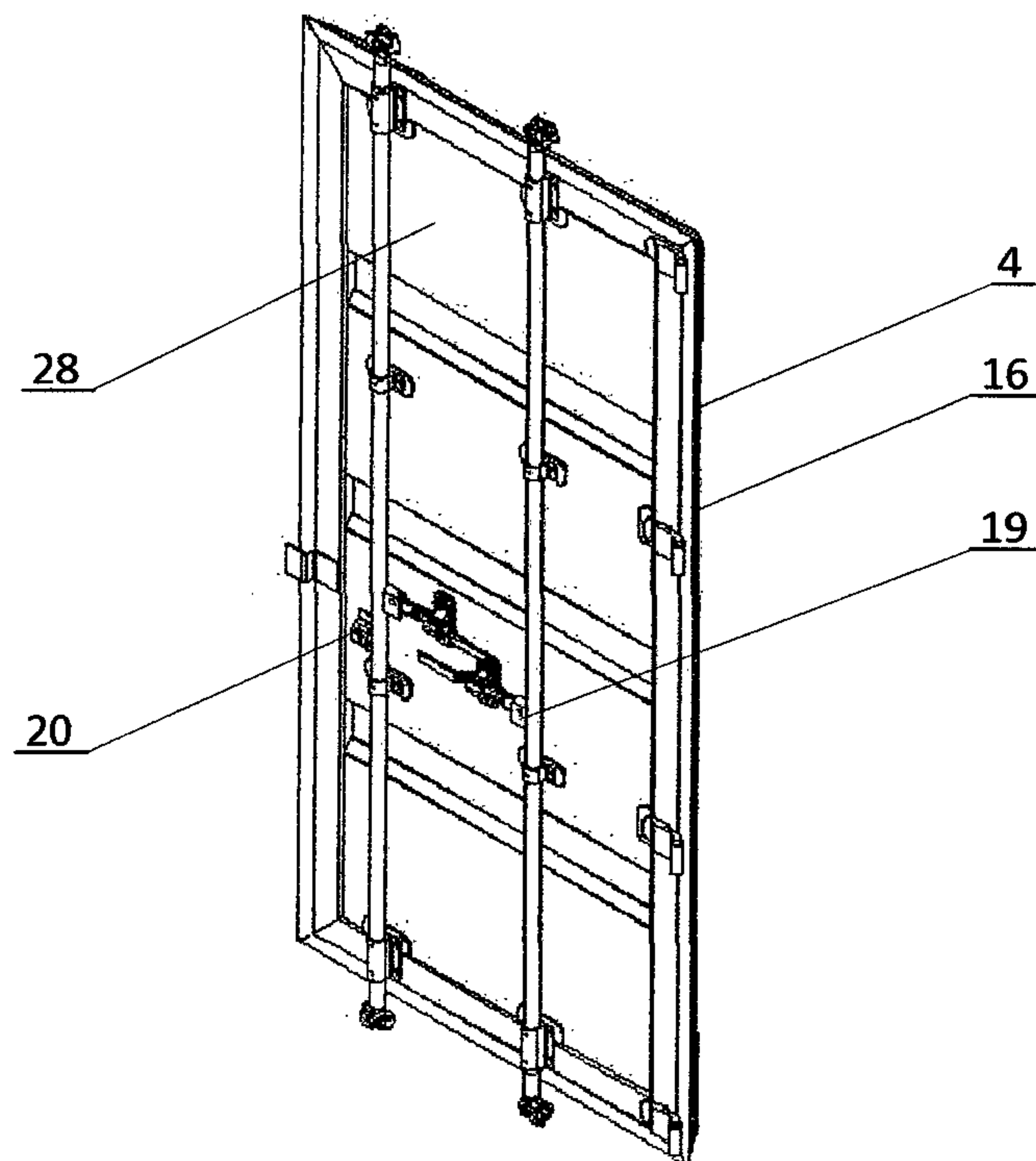


Fig.12

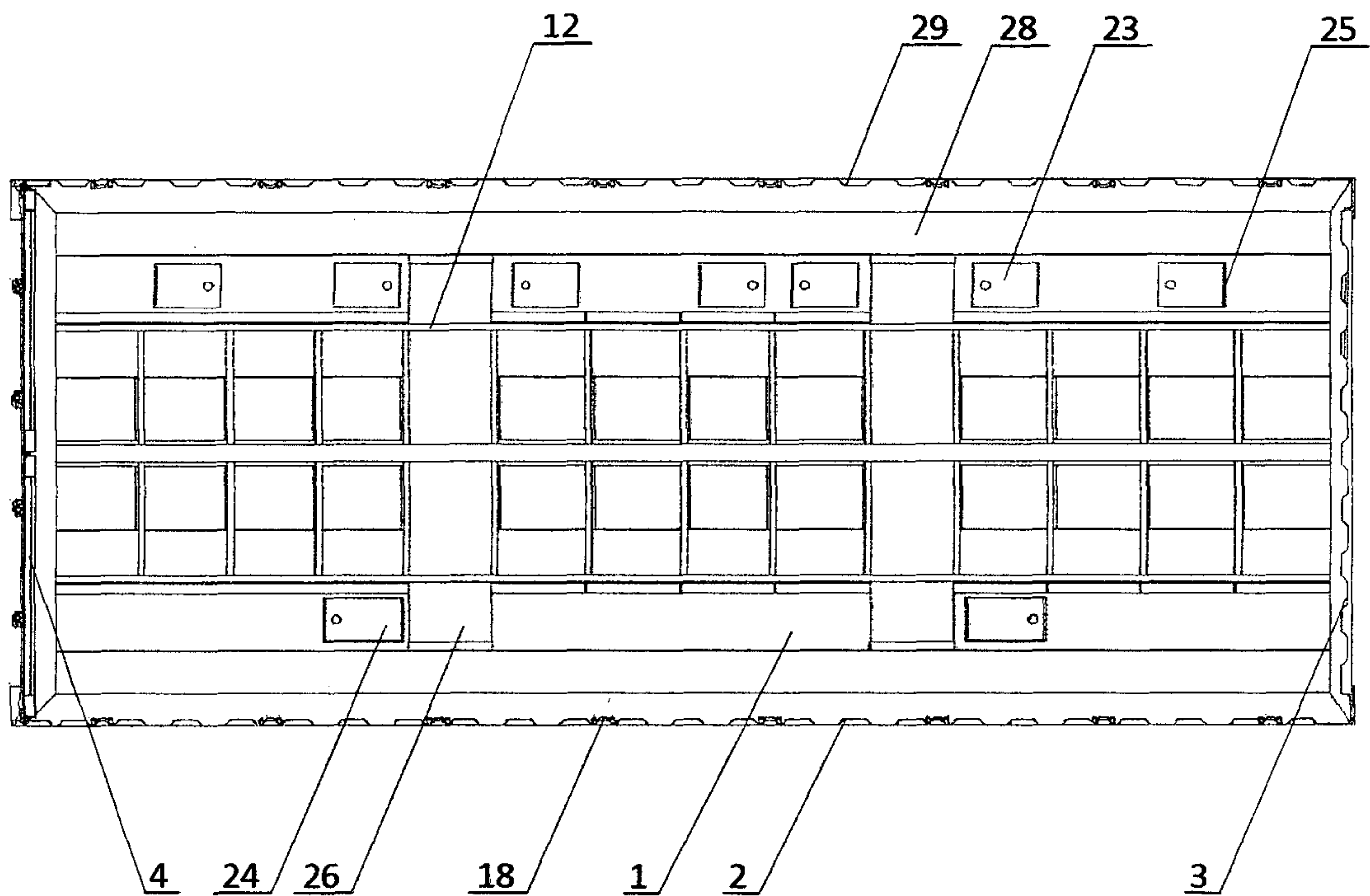


Fig.13

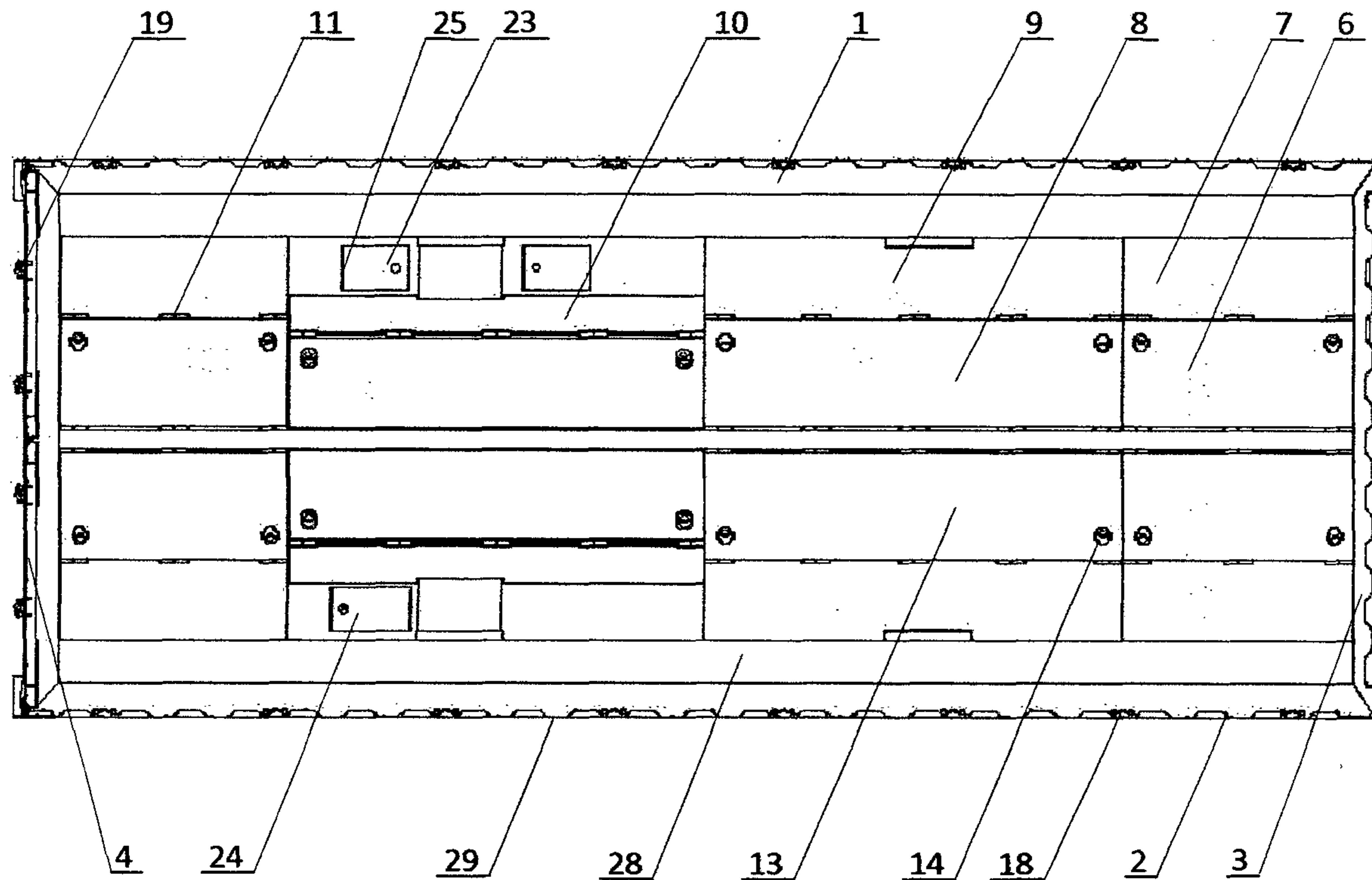


Fig.1