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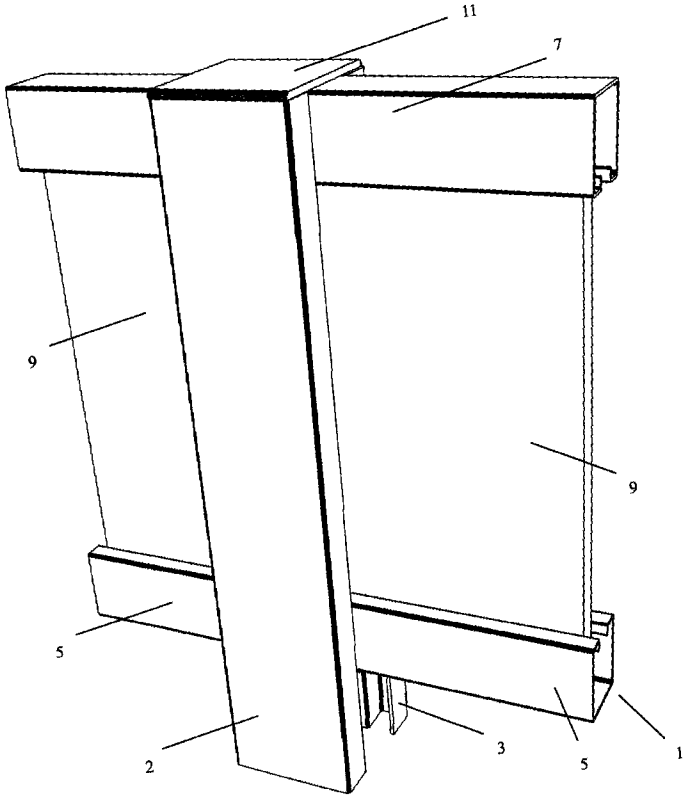
(54) Titre : SYSTEME DE CLOTURE
(54) Title: FENCE SYSTEM



(57) Abrégé/Abstract:
A fence system for receiving fence infill therein, wherein fence posts are arranged at selected locations along the fence as a first post and a second post. Upper and lower rails are positioned between the first post and the second post, to receive and restrict lateral movement of fence infill positioned therebetween, and are selectively movable and securable within the posts to permit vertical and angular adjustment of the upper rail and lower rail along the length thereof.

Abstract

A fence system for receiving fence infill therein, wherein fence posts are arranged at selected locations along the fence as a first post and a second post. Upper and lower rails are positioned between the first post and the second post, to receive and restrict lateral movement of fence infill positioned therebetween, and are selectively movable and securable within the posts to permit vertical and angular adjustment of the upper rail and lower rail along the length thereof

FENCE SYSTEM

The present invention relates to a fence system, and, more particularly, to an improved fence system which allows for the vertical and angular adjustment of fence rails during installation and on a periodic basis to accommodate for variances in ground contours, or to natural or unnatural movement of the earth over time, while, at the same time, eliminating and substantially inhibiting any rot of the fence infill.

BACKGROUND OF THE INVENTION

Natural wood rail and post fencing is one of the most common types of fence, the installation and design of which has not really been altered for many decades. When installing a fence, of the type having a plurality of posts with fence rails spanned therebetween, the fence posts are typically installed and positioned in holes drilled into the ground and then sealed in place with concrete poured into these holes, such that a substantial length of each post is below the ground surface. In this manner, sideways movement of the posts are therefore substantially prevented. Once a plurality of such posts are installed, the fence rails are typically spanned therebetween. However, typical conventional fences do not readily provide for easy installation when faced with placement over ground surfaces having variances in ground contours, without the potential for leaving significant gaps at a lower end of the fence, and/or adverse soil conditions preventing the precise location of these post bases. Typical fence systems do not allow for vertical or angular adjustment of a previously installed fence system, particularly when the ground contours

change over time with respect to, for example, erosion and/or frost conditions.

Moreover, traditional wooden fence posts and fence infill, over time, can be subject to rotting when exposed to weather conditions, which can weaken and compromise the fence structure.

It would therefore be advantageous to have an improved fence system which allows for more randomly placed posts, and elevation and angular adjustment of fence rails to accommodate variances in ground conditions, while, at the same time, substantially inhibiting any rot of the fence components.

It would also be advantageous to have an improved fence system which can be constructed and assembled without the use of nails when placement of the fence system occurs, and which can provide natural drainage of moisture by means of the vertical fence posts having portions thereof which are hollow. To this end, the present invention effectively addresses these needs.

SUMMARY OF THE INVENTION

The present invention provides the advantage of an improved fence system which eliminates rot of the vertical fence posts, and substantially inhibits rot of the fence system infill, when wood components are used.

The present invention also provides the advantage of an improved fence system which allows for the vertical and angular adjustment of fence rails to accommodate variances in ground contours, post locations and other situations effected by unpredictable soil conditions, and natural heaving of land due to frost or drought.

According to a broad aspect of an embodiment of the present invention, there is disclosed a fence system constructed and arranged to receive fence infill therein along a length of a fence, comprising a plurality of fence posts positioned at selected locations along the length of the fence, the posts being arranged at each of the selected locations as a first post and a second post; and an upper rail and a lower rail positioned between the first post and the second post, and constructed and arranged to receive and restrict lateral movement of the fence infill positioned therebetween, the upper rail and the lower rail being selectively movable along a length of the first post and the second post to permit vertical and angular adjustment of the upper rail and the lower rail.

According to another broad aspect of an embodiment of the present invention, there is disclosed a fence system constructed and arranged to receive fence infill therein along a length of a fence, comprising a plurality of fence posts positioned at selected locations along the length of the fence, the posts being arranged at each of the selected locations as a first post and a second post in opposed relationship to one another; an upper rail and a lower rail positioned between the first post and the second post, and constructed and arranged to receive and restrict lateral movement of the fence infill positioned therebetween; and a fence cap cover having a pair of longitudinally extending arms for covering upper ends of the first post and the second post, the arms being constructed and arranged for insertion within the first post and the second post, each of the arms having an adjustable securing mechanism thereon comprising an elongated slot and nut and bolt assembly, the nut and bolt assembly being movable within the elongated

slot to permit selected vertical and angular adjustment of the fence rails during installation of the fence.

According to another aspect of the present invention, there is provided a method for manufacturing a fence constructed and arranged to receive fence infill therein along a length of a fence, the method comprising providing a plurality of fence posts for positioning at selected locations along the length of the fence, the posts being constructed and arranged for positioning at each of the selected locations as a first post and a second post; providing an upper rail and a lower rail for positioning between the first post and the second post, constructed and arranged to receive and restrict lateral movement of the fence infill positioned therebetween; providing for the upper rail and the lower rail to be selectively movable along a length of the first post and the second post to permit vertical and angular adjustment of the upper rail and the lower rail.

BRIEF DESCRIPTION OF THE DRAWINGS

The embodiments of the present invention will now be described by reference to the following figures, in which identical reference numerals in different figures indicate identical elements and in which:

Figure 1 is a side perspective view of the fence system of the present invention;

Figure 2 is a side perspective view of the fence system of the present invention shown in Figure 1, illustrating an upper portion of the fence post in a cutaway view;

Figure 3 is a side perspective view of the fence system of the present invention shown in Figure 1, illustrating both upper and lower portions of the fence post in a cutaway view;

Figure 4 is an end view of the fence system of the present invention shown in Figure 1;

Figure 5 is an end view of the fence system of the present invention shown in Figure 1, illustrating portions of the fence posts in a cutaway view;

Figure 6 is a side perspective view of the fence system of the present invention, illustrating the fence posts encased in concrete;

Figure 7 is a bottom perspective view of the fence system of the present invention, illustrating the fence posts encased in concrete;

Figure 8 is a side perspective view of an alternative embodiment of the fence system of the present invention;

Figure 9 is an end perspective view of the fence system of the present invention shown in Figure 8, illustrating portions of each of the fence post in a cutaway view;

Figure 10 is a top view of one of the two fence post pieces for use in the fence system of the present invention;

Figure 11 is a side perspective view of a base component for use in the alternative embodiment of the fence system of the present invention shown in Figure 8.

Figure 12 is a top perspective view of a further embodiment of the present invention, illustrating an upper rail support bracket positioned between the posts; and

Figure 13 is a top perspective view of the embodiment of the present invention shown in Figure 12, illustrating the upper rail support bracket and supporting bracket positioned between the posts.

DETAILED DESCRIPTION OF THE INVENTION

The invention will be described for the purposes of illustration only in connection with certain embodiments; however, it is to be understood that other objects and advantages of the present invention will be made apparent by the following description of the drawings according to the present invention. While a preferred embodiment is disclosed, this is not intended to be limiting. Rather, the general principles set forth herein are considered to be merely illustrative of the scope of the present invention and it is to be further understood that numerous changes may be made without straying from the scope of the present invention.

The present invention and advantages thereof are highly dependent on the 2 piece post concept shown in **Figure 1**. Once these two pieces **2** and **3** (identical parts) are fastened together using the support brackets, it will be understood that the assembled result becomes a singular fence post.

The present invention consists of an improved fence system. Referring to **Figure 1**, there is shown components of the fence system, shown generally at **1** in accordance with a first exemplary embodiment of the present invention.

In this embodiment, as hereinafter described, upper rail **7** and lower rail **5** are mounted between opposed fence posts **2** and **3**, and are used for supporting, and retaining therein, fence infill **9** positioned therebetween, it being understood that each fence post along the length of the fence structure will have upper rails and lower rails positioned therebetween. Generally, the fence structure will comprise numerous opposed fence posts at selected locations along its length. Of course, each fence post can be secured in holes drilled into the ground and then sealed in place (as an example only) with concrete, as shown in **Figures 6** and **7**.

With reference to **Figures 5** and **9**, the upper rail **7** positioned between fence posts **2** and **3** rests on, and is supported by, securing blocks **35** and **37**, which are interconnected with a nut and bolt assembly **17** inserted through longitudinally extending arms of fence cap cover **11**, as will be later described. With reference to **Figure 9**, lower rail **5** rests on, and is supported by, supporting bracket **25** which is mounted and interconnected to the fence posts, on each opposed end thereof, with a nut and bolt assembly **17** inserted laterally through mounting blocks **39** positioned within each of opposed fence posts **2** and **3**. Once the nut and bolt assembly has been tightened, supporting bracket **25** can then securely support lower rail **5**. Further, with respect to the upper rail **7**, once the nut and bolt assembly has been tightened, securing blocks **35** and **37**

move inwardly to tightly engage the fence infill **9** positioned between opposed fence posts **2** and **3**, thus inhibiting and restricting lateral movement of the fence infill **9** within the fence structure when faced with elements such as wind.

In an exemplary embodiment, the fence posts **2** and **3** and the upper rail **7** and lower rail **5** are comprised of aluminum extrusion material, though it will be understood that there could be numerous variations that could be utilized, as would be readily apparent to one skilled in the art. For example, such extrusion material could comprise, but is not limited to, plastic PVC, steel or various composites. With reference to **Figure 4**, the upper rail **7** and the lower rail **5** will each have a horizontal surface **19** and a pair of opposed side walls **21** interconnected with the horizontal surface **19**. With respect to the upper rail **7**, these sidewalls **21** extend downwardly from the horizontal surface **19**, while with respect to lower rail **5**, these sidewalls **21** extend upwardly from the horizontal surface **19**. In an exemplary embodiment, these sidewalls **21** are J-shaped side walls, distal ends of which define a channel **23** (as shown in **Figure 9**) along a length of each of the upper rail **7** and the lower rail **5**, within which the fence infill **9** are positioned. It will be understood that there could be numerous variations as to the shape of the distal ends of the side walls **21** that could be utilized, provided that there is an opening to receive the fence infill, as would be readily apparent to one skilled in the art.

Of course it will also be understood that the horizontal surface **19** of the upper rail **7** will comprise the upper surface of the horizontally extending fence structure, as can be seen in **Figures 1** and **2**, while the base portion of the lower rail **5** will comprise the lower surface of the horizontally extending fence

structure, upon which fence infill **9** rests. Moreover, it will also be understood that there could be numerous variations as to the type of fence infill **9** utilized. For example, vertically positioned wooden rails could be used or aluminum panel sheets (each of which are shown in **Figure 2**), or other types of materials, as would be understood by one skilled in the art.

With reference to **Figures 2** and **3**, there can be seen a perspective view of the fence system of the present invention shown in **Figure 1**, illustrating portions of a fence post in cutaway views. In **Figure 2**, it can be seen that the fence system further comprises a fence cap cover **11** which is designed to cover each of opposed fence posts **2** and **3**. As noted previously, and with further reference to **Figures 5** and **9**, fence cap cover **11** will have opposed longitudinally extending arms **13, 27** which are designed to be inserted and positioned within an upper end of the fence posts **2** and **3**, connecting them together.

Distal ends of the lateral arms **13, 27** each define an elongated slot **15** therein, which is operably able to receive the nut and bolt assembly **17** for the upper rail **7**. In this manner, when encountering variances in ground contours during installation of the fence system of the present invention, the nut and bolt assembly **17** can be adjusted or moved within elongated slot **15** to a selected desired position, and then secured, so as to allow for the vertical and angular adjustment of the upper rail **7** to accommodate variances in ground contours during installation (or to accommodate for periodic desired adjustment over time as ground conditions or fence conditions change) which is an important advantage of the present invention. Likewise, the supporting bracket **25** can be rotated to permit selective positioning of supporting bracket **25** to allow

the lower rail **5** positioned thereon to be adjusted to attain a generally parallel relationship with any vertical adjustment effected to the upper rail **7**. In this manner, over time, adjustment of the fence height can be undertaken as ground contours change (for example, as fence posts do move in the earth). Of course, the upper rail and the lower rail can each also be pivoted to provide for angular adjustments of each of the upper rail and lower rail, if desired and as necessary. Since most all conventional fencing systems have no adjustment system available to them, this is another important advantage of the present invention.

With reference to **Figure 10**, which is a top view of each of the posts and its construction, the posts further comprise a base portion **51** having opposed first **53** and second **55** inner walls interconnected with the base portion **51** to define a receiving opening **57** therebetween. First and second end walls (**47**, **49**, respectively) are also interconnected with the base portion **51** at outmost ends of the base portion **51**. In this manner, a first channel **59** is created between the first end wall **47** and the first inner wall **53**, and a second channel **61** is created between the second end wall **49** and the second inner wall **55**. As **Figure 10** illustrates a top view, it will be understood that each of the base portion **51** and each of the walls noted above will extend along a complete vertical length of the posts **2,3** as shown in figure 1. In this manner, interior portions of the posts **2,3** due to the presence of the receiving opening **57** and the first channel **59** and second channel **61** therein, will be at least partially hollow. This prevents water from collecting within the system. It will also be understood that more than one support bracket for the posts **2,3** can be mounted if desired.

With respect to the placement of the fence cap cover **11** onto upper surfaces of the posts **2, 3** (and with reference to **Figures 3** and **5)**, the fence cover cap **11** further comprises abutment members **31, 33** integrally connected to an outside surface of each of the arms **13, 27**, whereby, when the fence cover cap **11** is inserted and positioned to cover the posts **2, 3**, arm **13, 27** is inserted into the receiving opening **57** of post **2** and arm **27** is inserted into the receiving opening **57** of post **3** (as shown in **Figure 5**). As the fence cover cap **11** continues to be inserted into the receiving openings **57**, the abutment members **31, 33**, are inserted into position to substantially cover the receiving opening **57** between the first **53** and second **55** inner walls. In this manner, by virtue of the placement of arms **13, 27** and abutment members **31, 33** in receiving openings **57** within the posts **2, 3**, lateral movement of the posts **2, 3** is substantially inhibited.

In another exemplary embodiment of the present invention, and with reference to **Figures 12** and **13**, which illustrates a top perspective view of an upper rail support bracket **69** for supporting upper rail **7** (not shown) positioned between posts **2,3** it can be seen that flanged portions **63, 65** of the upper support bracket assembly abut outside surfaces of the opposed first **53** and second **55** inner walls, and can be selectively movable and then secured in position within the receiving opening **57** (as seen in **Figures 10** and **12**) of each of the first post **2** and the second post **3** to permit vertical adjustment of the upper rail support bracket **69** along the length of the posts. All that is required is untightening of nut and bolt assembly **67**, movement of the upper rail support bracket **69** to the desired position along the posts, then retightening of the nut and bolt assembly **67**.

In a further embodiment of the present invention, shown in **Figures 8** and **11**, the fence system can further comprise a base stand **41**, having two vertical insertion members **43** and **45**, which can be inserted into, respectively, lower ends of the posts **2**, **3**, as shown in **Figure 8**. More specifically, insertion members **43**, **45** would be inserted into the receiving openings **57** within each of the posts **2**, **3**. As these insertion members **43**, **45** are inserted from the lower end of posts **2**, **3**, they do not contact any of arms **13**, **27** or abutment members **31**, **33**, as shown in **figure 5** which are positioned towards an upper end within posts **2**, **3**, in the receiving openings **57**. However, in this manner, insertion members **43**, **45**, once inserted, also serve to further inhibit and restrict lateral movement of the posts **2**, **3** within the fence structure. Furthermore, in this manner of construction, it should be noted that base stand **41** would be connected to an existing surface (such as concrete), by means of securing bolts or the like drilled through the base stand.

It will be apparent to those skilled in this art that various modifications and variations may be made to the embodiments disclosed herein. Other embodiments consistent with the present invention will become apparent from consideration of the specification and the practice of the invention disclosed therein.

Accordingly, the specification and the embodiments are to be considered exemplary only, with a true scope of the invention being disclosed by the following claims.

THE EMBODIMENTS OF THE INVENTION IN WHICH AN EXCLUSIVE PROPERTY OR PRIVILEGE IS CLAIMED ARE DEFINED AS FOLLOWS:

1. A fence system constructed and arranged to receive fence infill therein along a length of a fence, comprising:

a plurality of fence posts positioned at selected locations along the length of the fence, each post being arranged at each of the selected locations as a first post and a second post defining a receiving opening there between, wherein the first post and the second post further comprise a base portion, and opposed first and second inner walls defining a longitudinal slot and being interconnected with the base portion;

an upper rail and a lower rail positioned between the first post and the second post, and constructed and arranged to receive and restrict lateral movement of the fence infill positioned there between; and

an upper support bracket and a lower support bracket mounted and interconnected between the first post and the second post, and supporting the upper rail and the lower rail, respectively, wherein the support brackets further comprise first and second nut and bolt assemblies engageable with the first post and the second post, respectively;

the first and the second nut and bolt assemblies being movable with the longitudinal slots to a selected position and then secured to the first and the second inner walls of the first post and the second post, respectively, to permit the upper rail and the lower rail to be selectively movable within the receiving

opening of each of the first post and the second post to permit vertical and angular adjustment of the upper rail and the lower rail along a length of the first post and the second post.

2. The fence system of claim 1, wherein the fence posts and the upper rail and lower rail comprise extrusion material.

3. The fence system of claim 1, wherein the first and the second inner walls are J-shaped side walls.

4. The fence system of claim 1, wherein the first post and the second post are in opposed relationship to one another.

5. The fence system of claim 1, wherein the system further comprises a fence cap cover for covering and interconnecting upper ends of the first post and the second post.

6. The fence system of claim 1, wherein the first post and the second post further comprise a first and second end wall interconnected with the base portion at outmost ends of the base portion, and having a first channel between the first end wall and the first inner wall, and a second channel between the second end wall and the second inner wall, each of the base portion and the walls extending along a length of the fence posts.

7. The fence system of claim 6, wherein the first and the second inner walls are J-shaped side walls.

8. A fence system constructed and arranged to receive fence infill therein along a length of a fence, comprising:

a plurality of fence posts positioned at selected locations along the length of the fence, each post being arranged at each of the selected locations as a first post and a second post in opposed relationship to one another, wherein the first post and the second post further comprise a base portion, and opposed first and second inner walls defining a longitudinal slot and being interconnected with the base portion;

an upper rail and a lower rail positioned between the first post and the second post, and constructed and arranged to receive and restrict lateral movement of the fence infill positioned therebetween;

a plurality of fence cap covers corresponding to the plurality of fence posts, each fence post cover being configured to cover upper ends of the first post and the second post, each of the cap covers further comprising a pair of longitudinally extending arms constructed and arranged for insertion within the first post and the second post, each of the arms having an elongated slot therein; and

first and second adjustable securing mechanisms supporting the upper rail, each comprising a nut and bolt assembly being selectively movable within a respective elongated slot to a selected position and then secured to the first and second inner walls of the first post and the second post to allow for selected vertical and angular adjustment of the upper rail.

9. The fence system of claim 8, wherein the system further comprises at least one pair of securing blocks which are interconnected with the nut and bolt assembly, the blocks being positioned below the upper rail and inside the first post and the second post, and movable from an open position to a closed position in engagement with the upper rail.

10. The fence system of claim 8, wherein the system further comprises at least one supporting bracket mounted and interconnected between the first post and the second post, and beneath the lower rail.

11. The fence system of claim 10, wherein the at least one supporting bracket further comprises the nut and bolt assembly, the nut and bolt assembly being movable within the elongated slot to permit selective movement of the at least one supporting bracket to permit the lower rail positioned thereon to be adjusted to attain a substantially parallel relationship with any vertical and angular adjustment effected to the upper rail.

12. The fence system of claim 8, wherein the first post and the second post further comprise a first and second end wall interconnected with the base portion at outmost ends of the base portion, and having a first channel between the first end wall and the first inner wall, and a second channel between the second end wall and the second inner wall, each of the base portion and the walls extending along a length of the posts.

13. The fence system of claim 12, wherein the longitudinal slot of the first post is constructed and arranged to receive one of the arms of one of the fence cap covers, and the longitudinal slot of the second post is constructed and arranged to receive another of the arms of another of the fence cap covers.

14. The fence system of claim 8, wherein the fence cap covers further comprise an abutment member integrally connected to an outside surface of each of the arms, whereby, when the fence cap covers are inserted to cover the first post and the second post, the abutment member substantially covers the longitudinal slot between the inner walls so as to inhibit and restrict lateral movement of the first post and the second post.

15. A method for manufacturing a fence constructed and arranged to receive fence infill therein along a length of a fence, the method comprising:

providing a plurality of fence posts for positioning at selected locations along the length of the fence, the posts being constructed and arranged for positioning at each of the selected locations as a first post and a second post defining a receiving opening therebetween;

providing the first post and the second post with a base portion, and opposed first and second inner walls defining a longitudinal slot and being interconnected with the base portion;

providing an upper rail and a lower rail for positioning between the first post and the second post, constructed and arranged to receive and restrict lateral movement of the fence infill positioned therebetween;

providing an upper support bracket and a lower support bracket mounted and interconnected between the first post and the second post, and supporting the upper rail and the lower rail, respectively, wherein the support brackets further comprise first and second nut and bolt assemblies engageable with the first post and the second post, respectively;

the first and the second nut and bolt assemblies being movable within the longitudinal slots to a selected position and then secured to the first and the second inner walls of the first post and the second post, respectively, to permit the upper rail and the lower rail to be selectively movable within the receiving opening of each of the first post and the second post to permit vertical and angular adjustment of the upper rail and the lower rail along a length of the first post and the second post.

16. The method for manufacturing the fence of claim 15, further comprising the step of providing each of the upper rail and the lower rail with a base portion and a pair of opposed side walls interconnected with the base portion, distal ends of which define a channel along a length of each of the upper rail and the lower rail for receiving the fence infill therein.

FIGURE 1

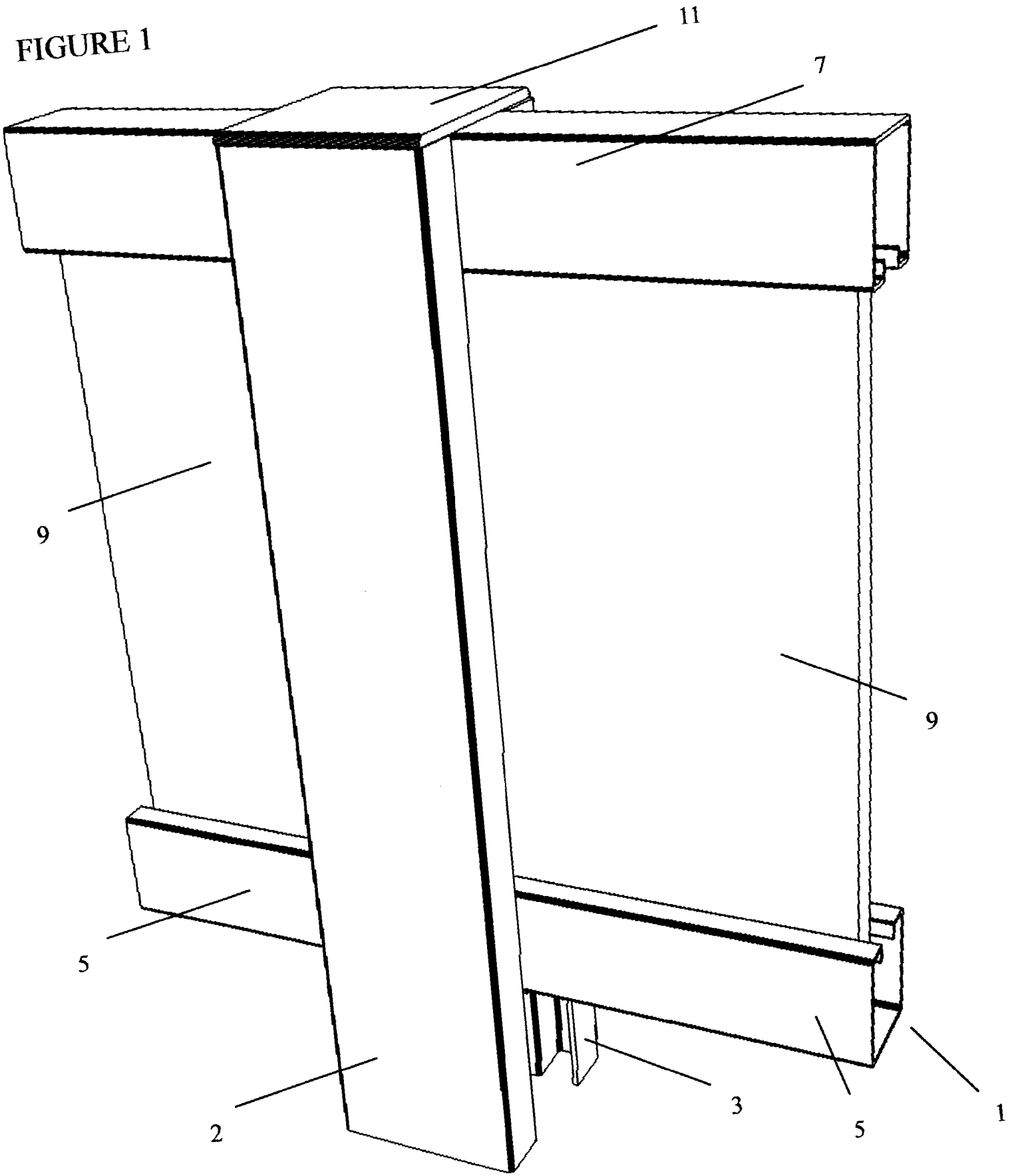


FIGURE 2

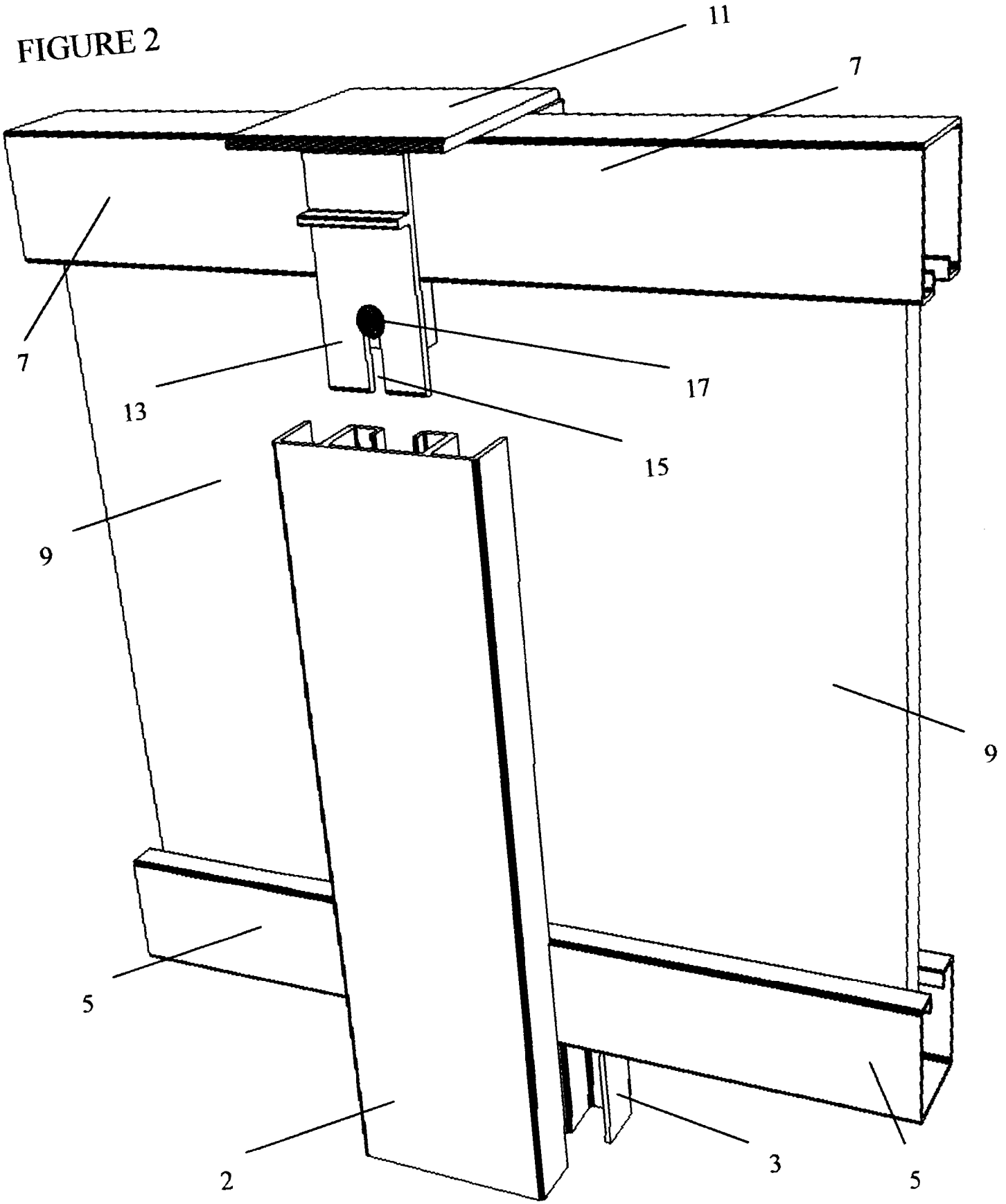


FIGURE 3

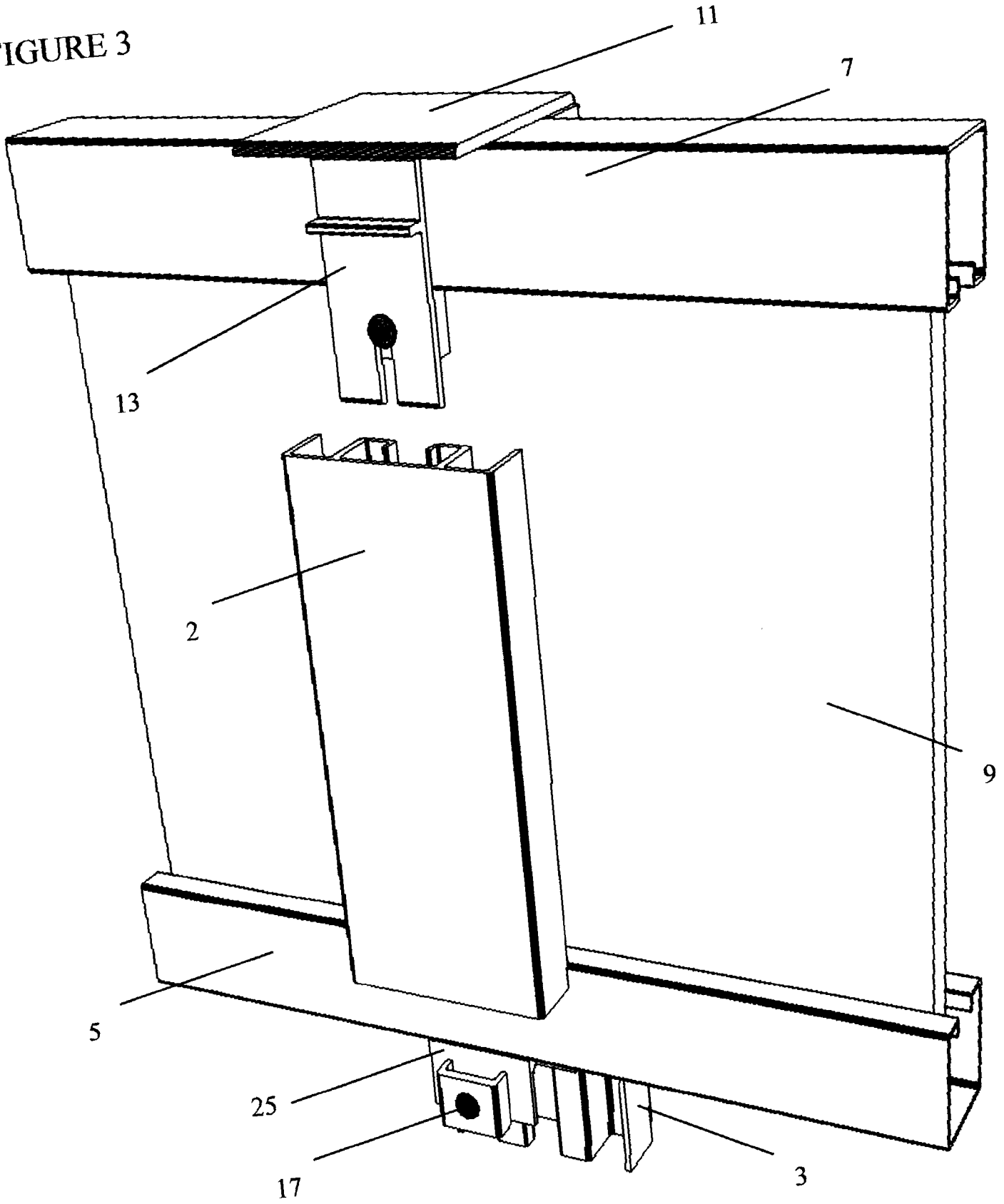


FIGURE 4

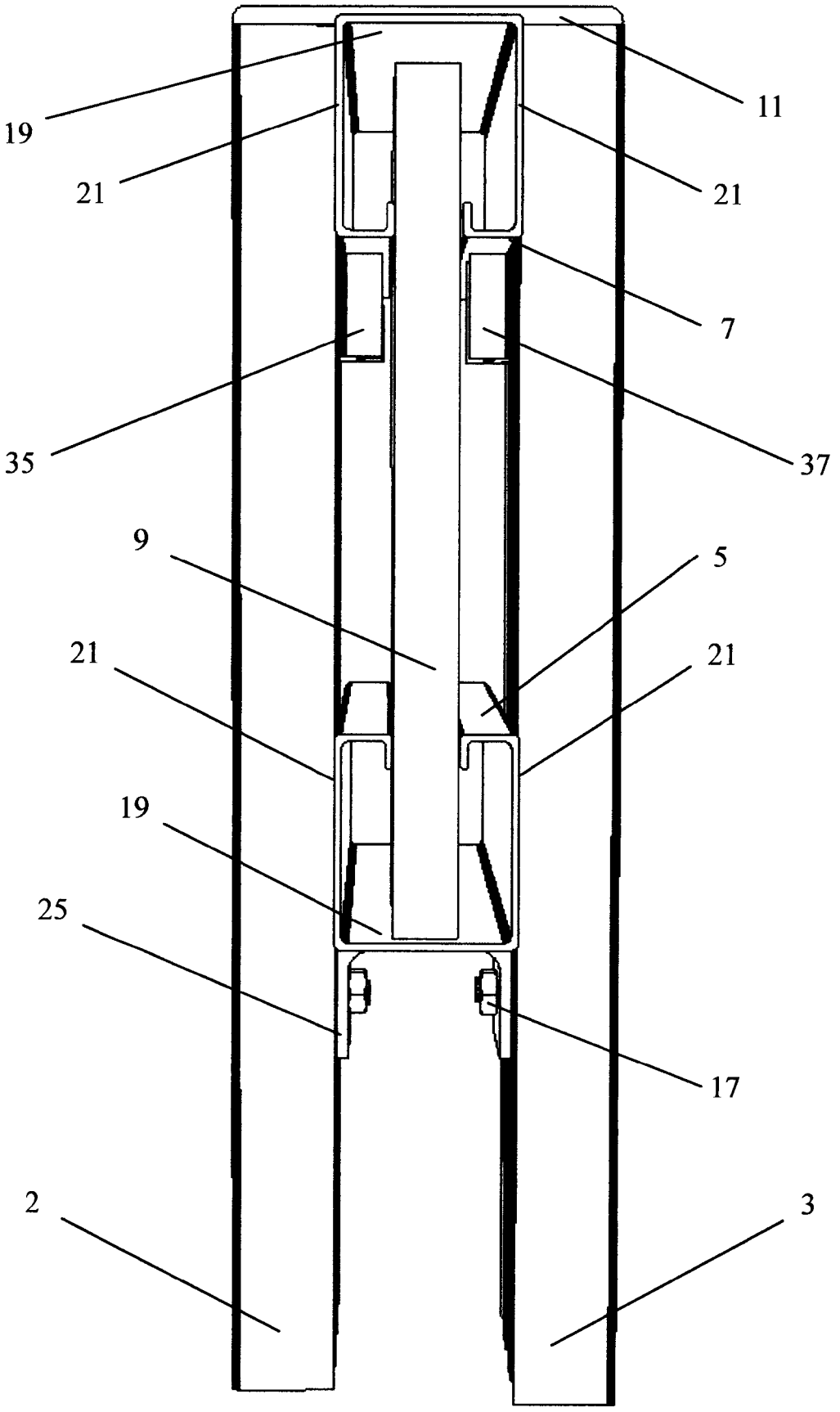


FIGURE 5

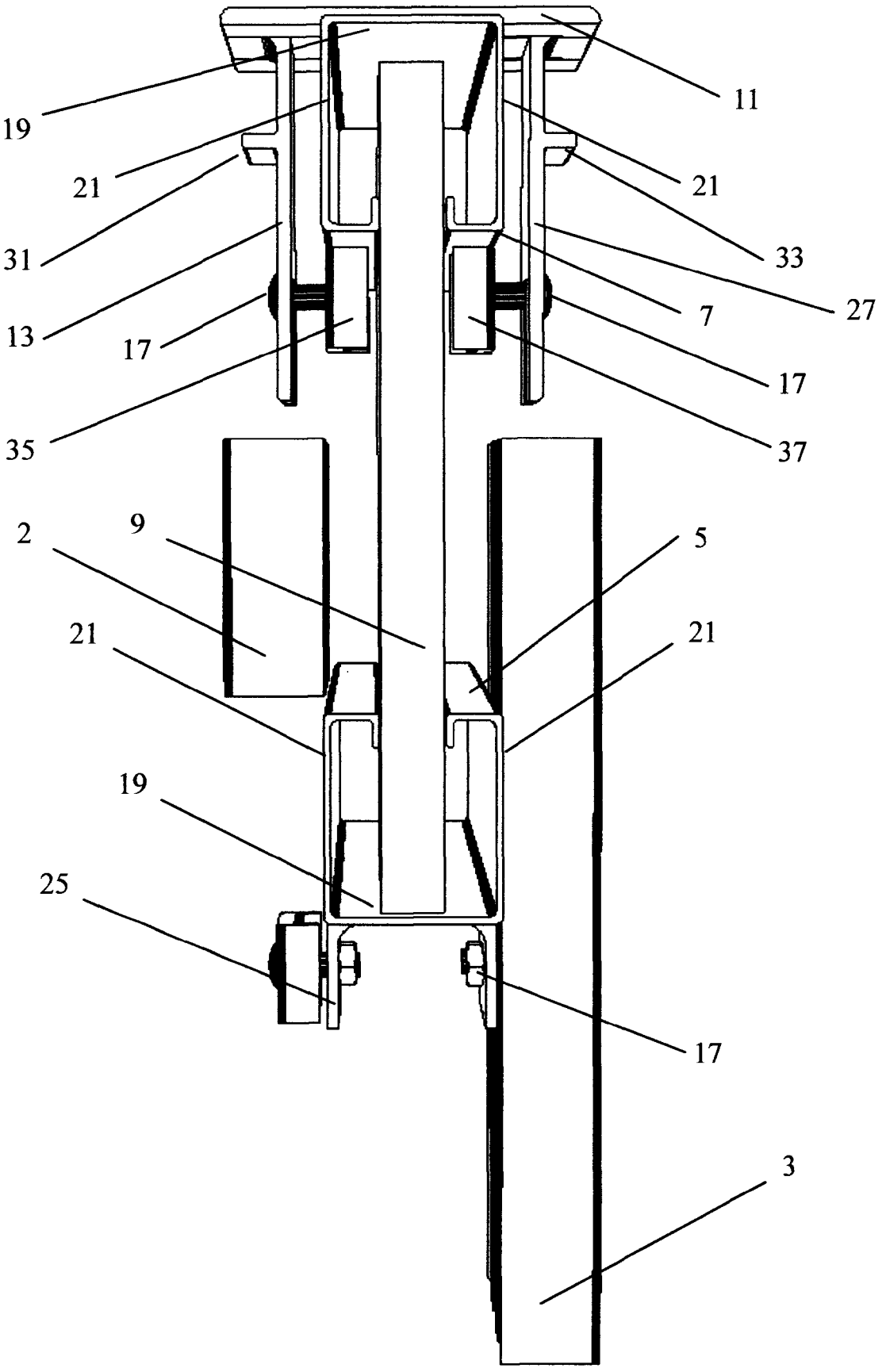


FIGURE 6

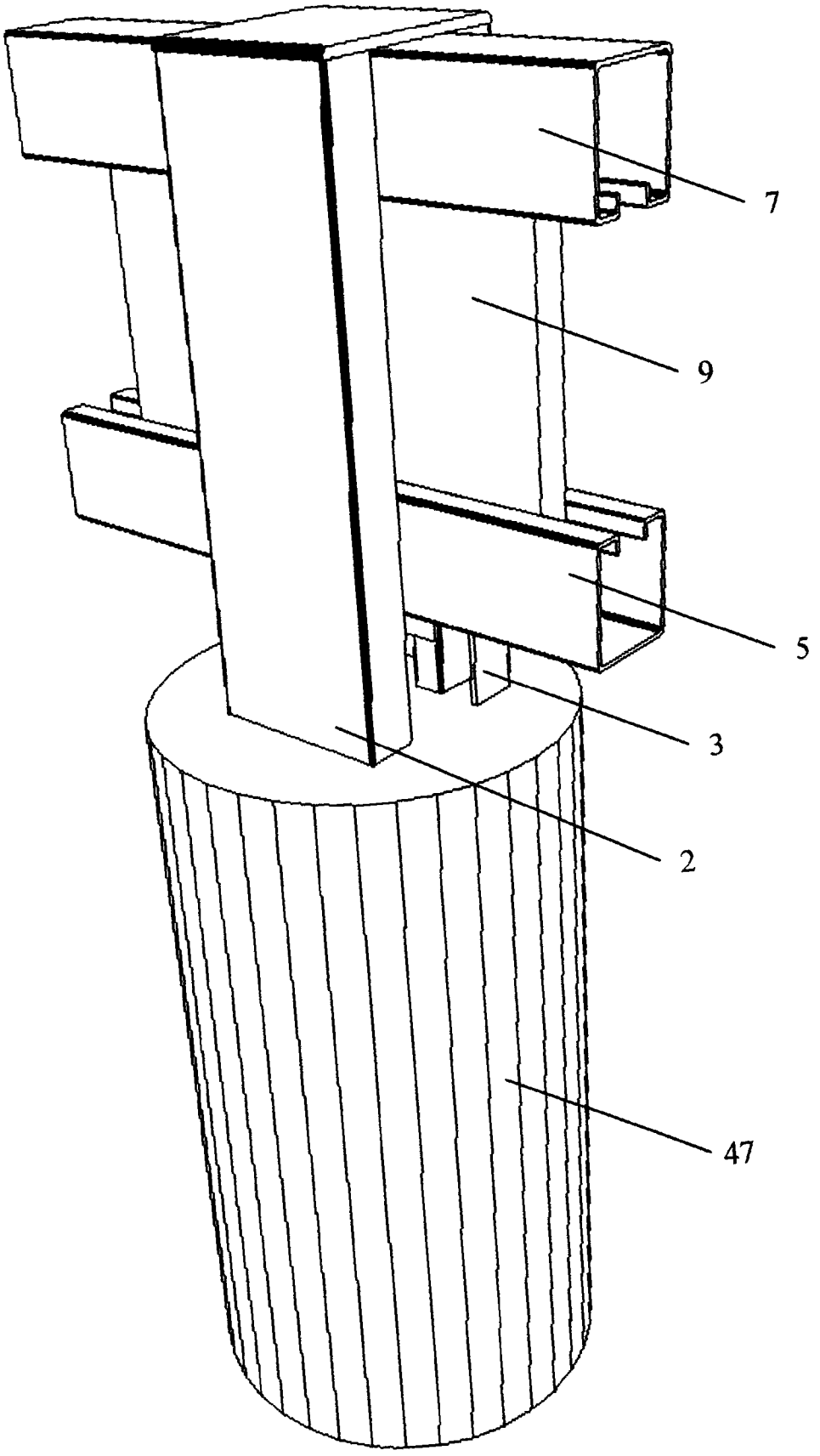


FIGURE 7

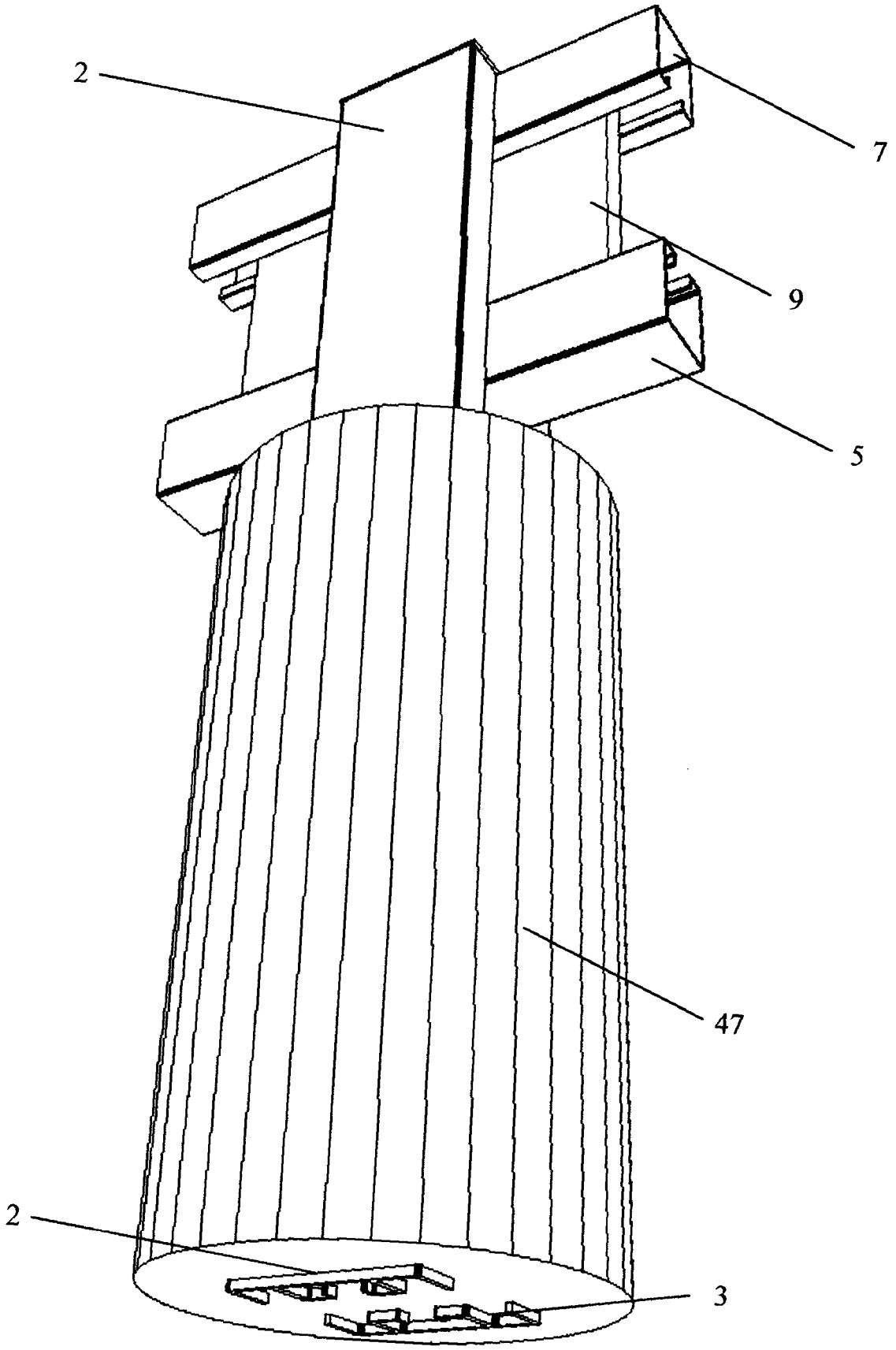


FIGURE 8

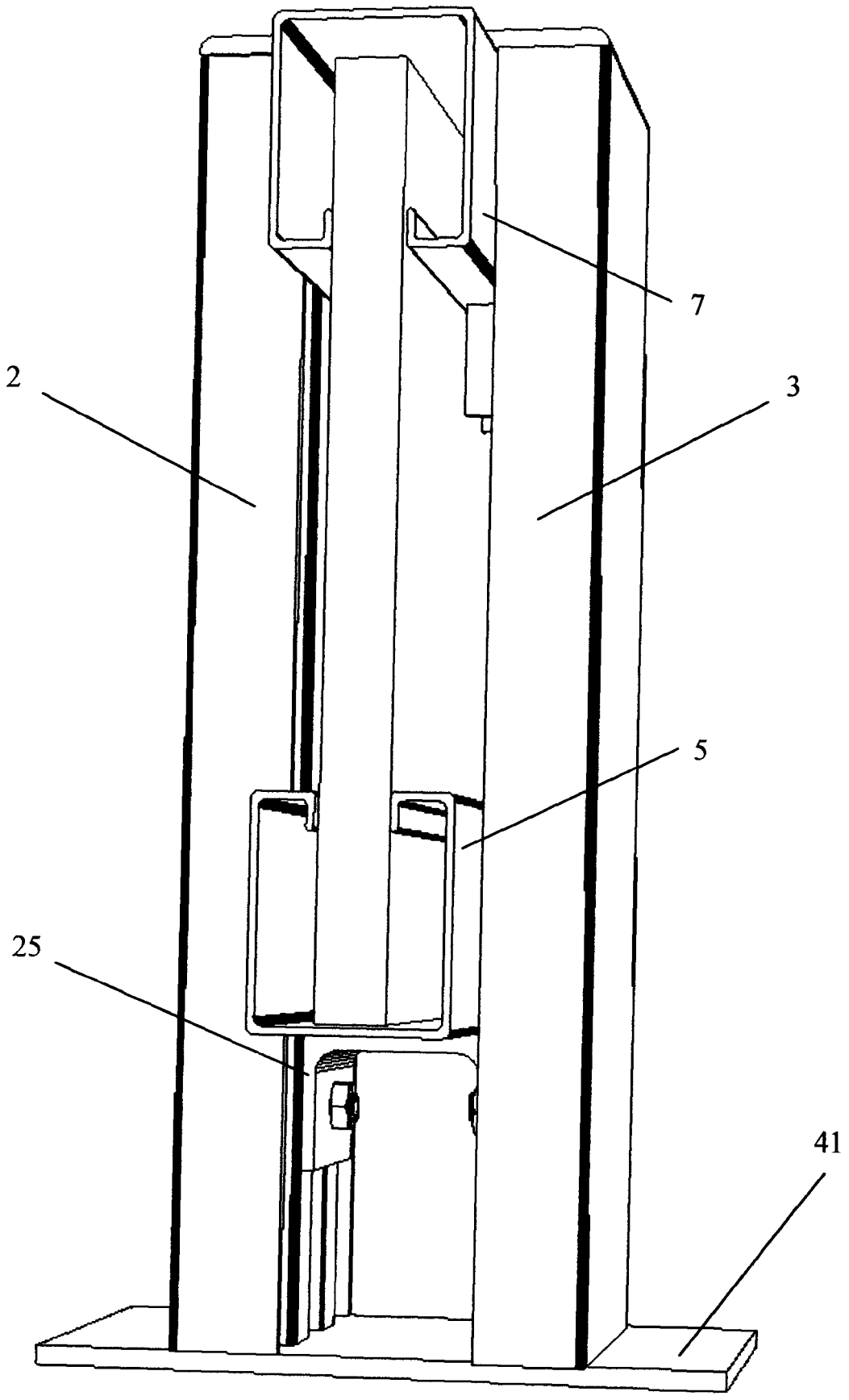


FIGURE 9

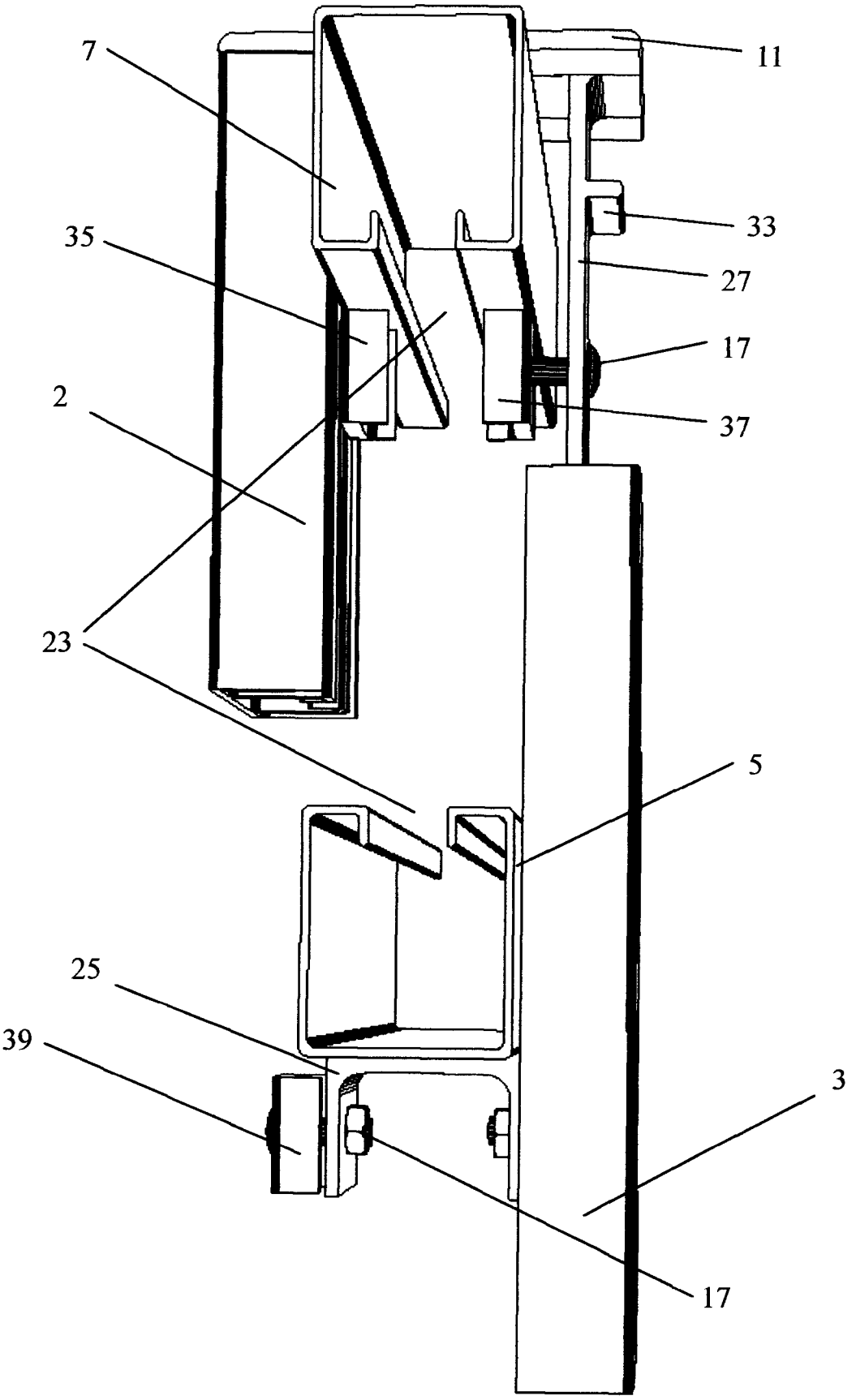


FIGURE 10

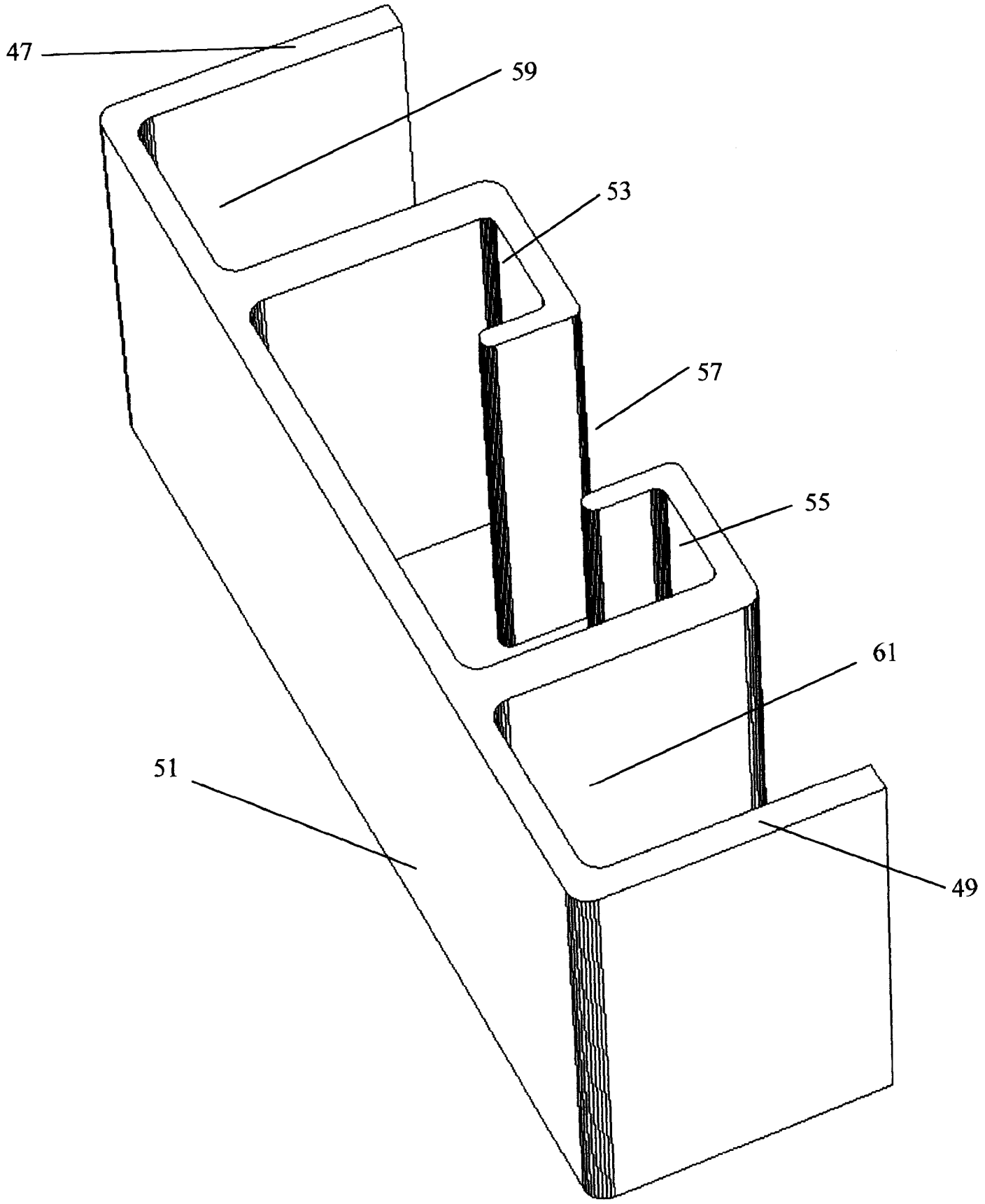


FIGURE 11

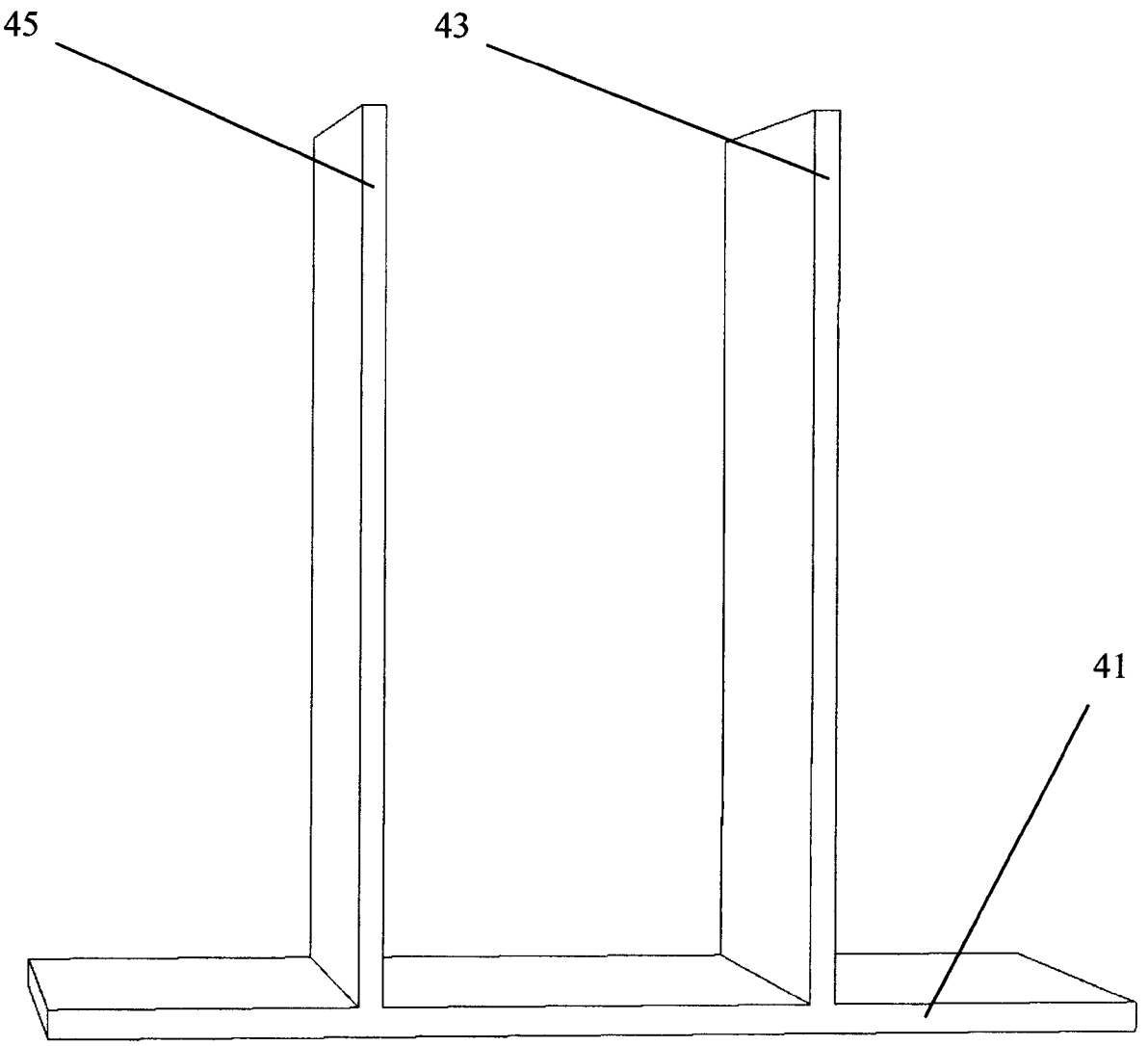


FIGURE 12

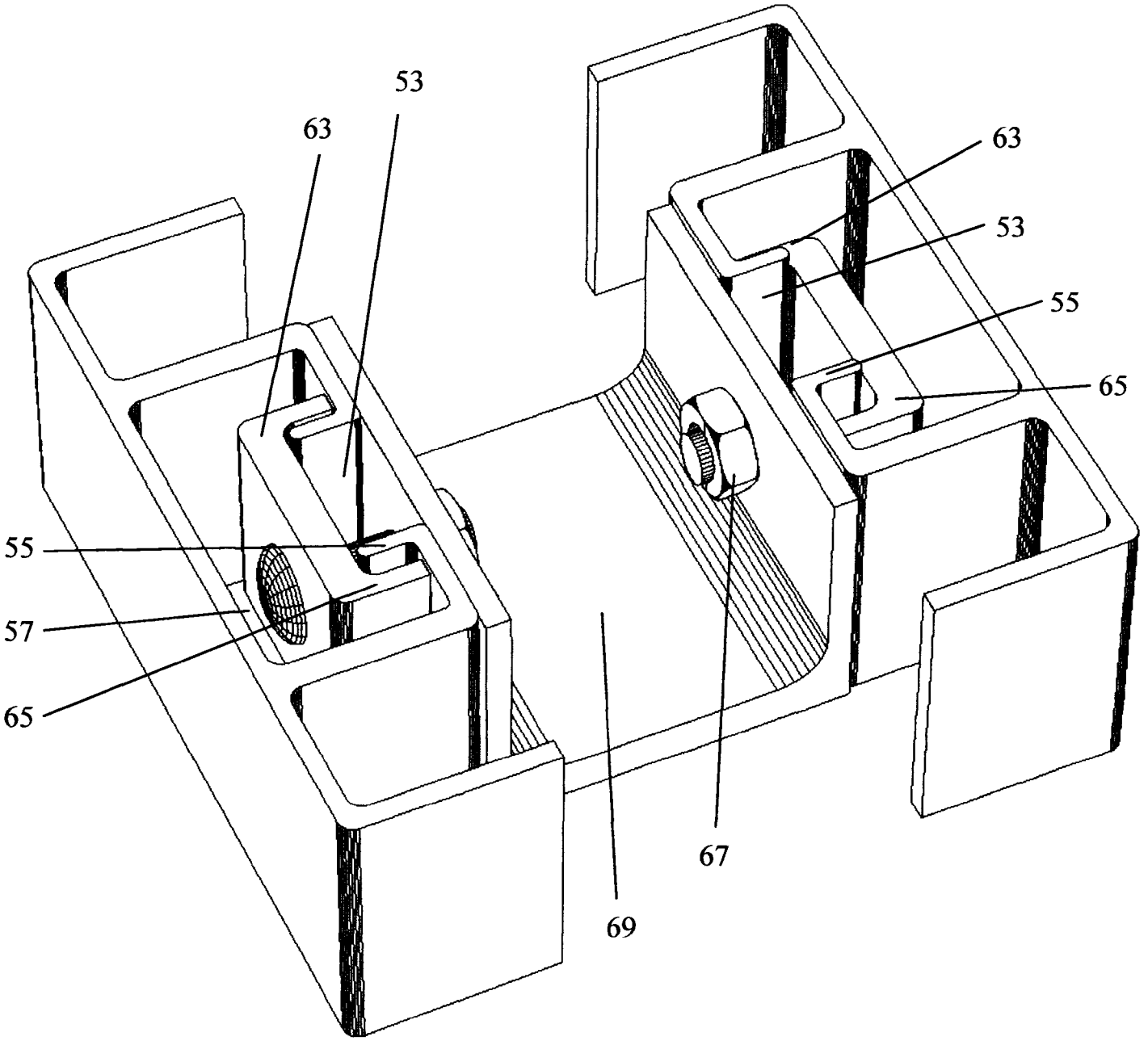
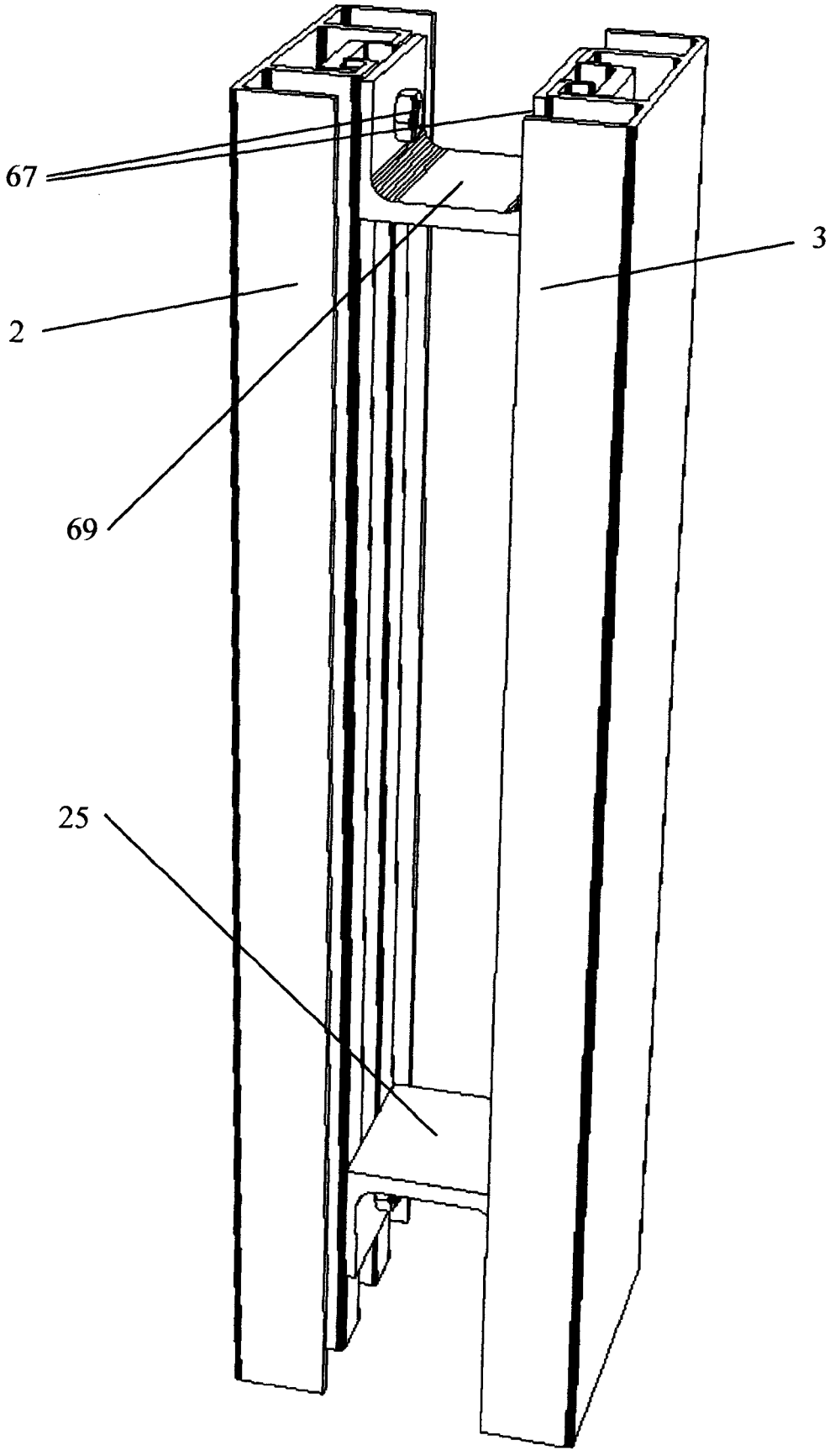
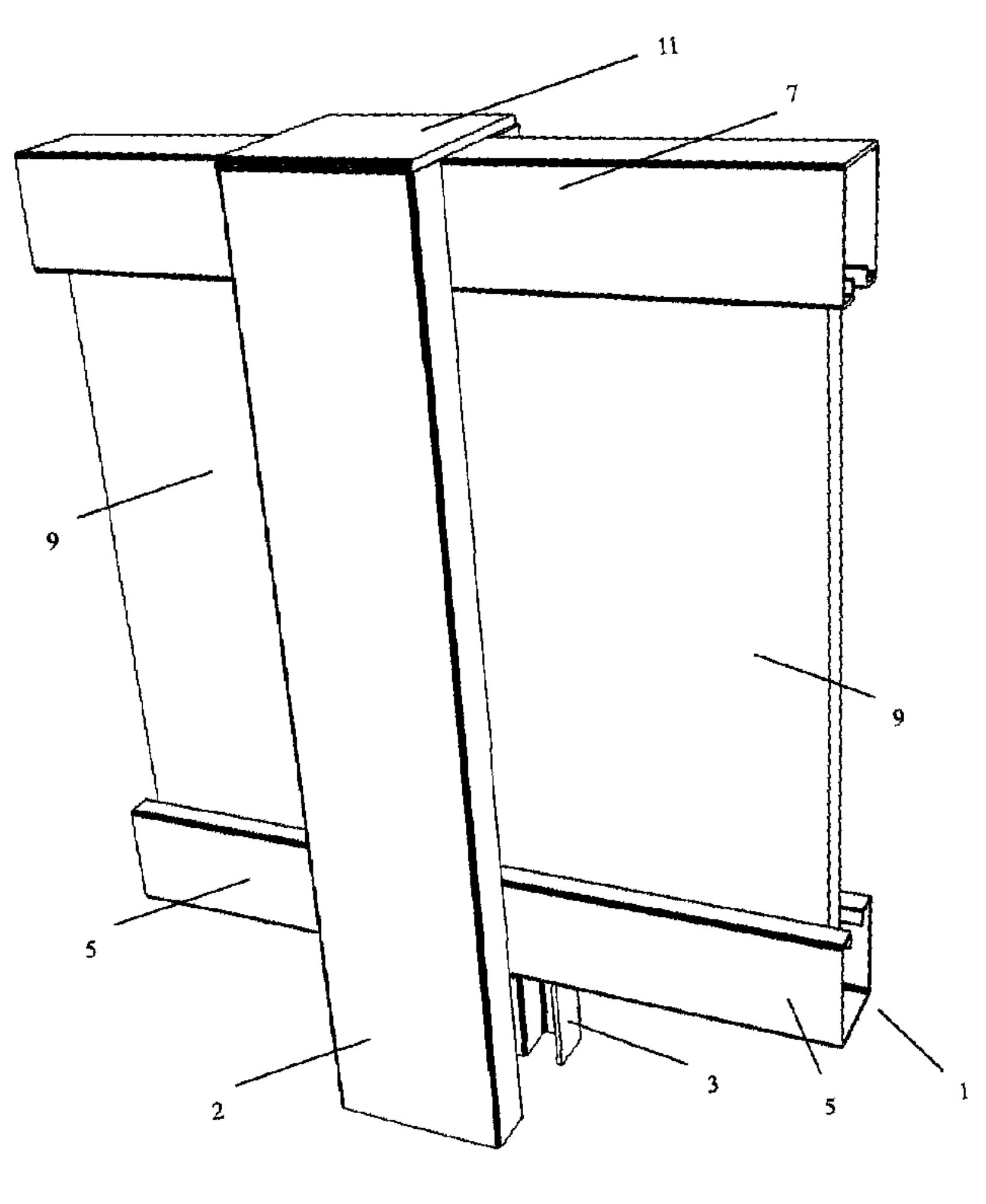


FIGURE 13

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