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(71) Demandeur/Applicant:
ERITOU, CHRIS, CA

(72) Inventeur/Inventor:
ERITOU, CHRIS, CA

(74) Agent: NELLIGAN O'BRIEN PAYNE LLP

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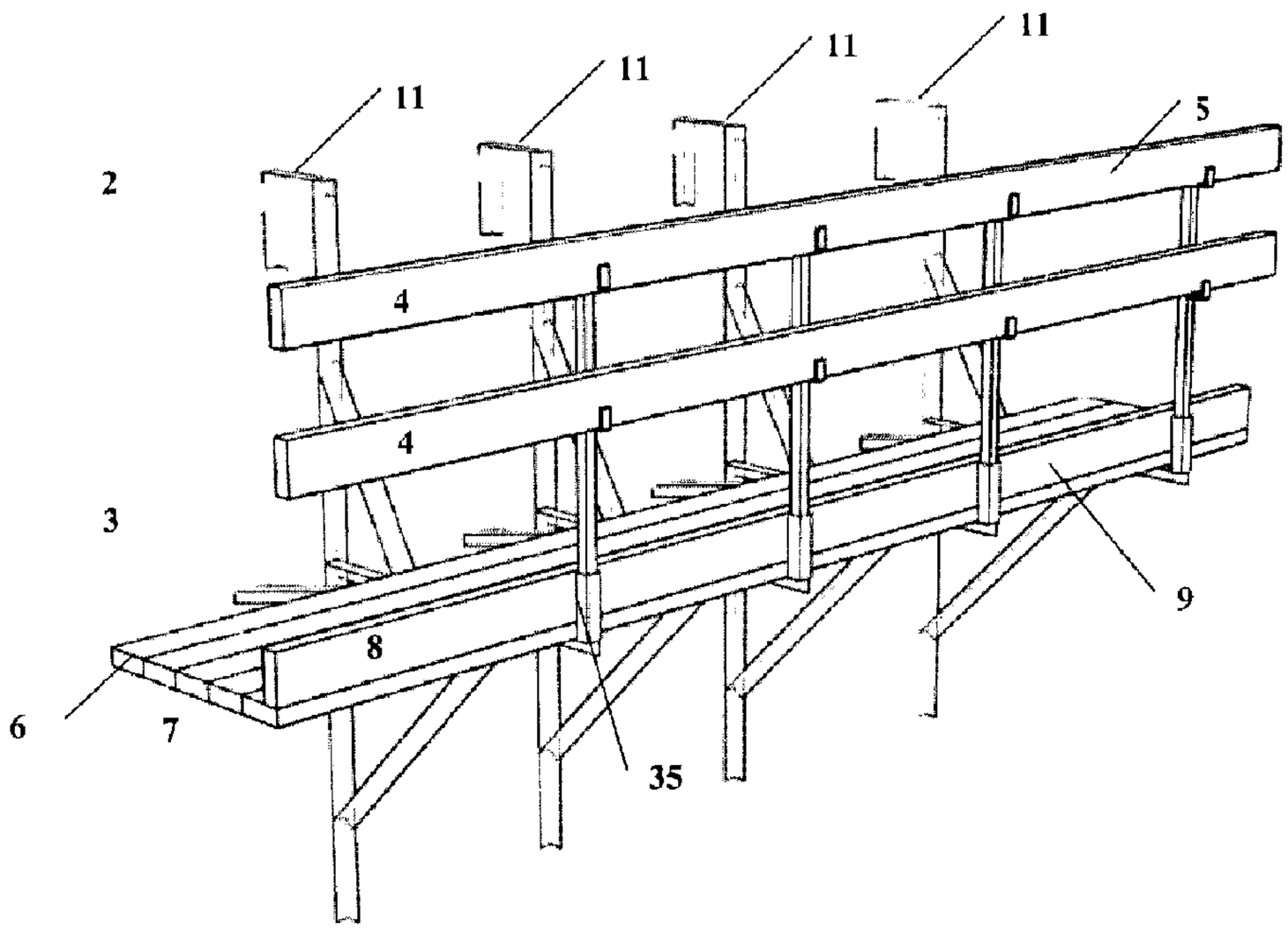


(57) Abrégé/Abstract:
A scaffolding system being suspended from the top edge of a wall is disclosed. It comprises two or more scaffoldings, each having an elongated member, a hanger portion attached to one end of the elongated member detachably engages to a top edge of a wall for suspending the elongated member therefrom. A base elongated member is detachably attached to the elongated member, extends perpendicularly from the surface of the wall for receiving planks to form a working platform. A sway elongated member is provided from the base elongated member and to contact against the surface of the wall for lateral support. First and second support members are further provided to the elongated member and support the base elongated member from the above and below the base elongated member. A guard rail post for forming guard railing; and a kick plate fastener for forming a kick guard are also provided to improve the workplace safety.

ABSTRACT

A scaffolding system being suspended from the top edge of a wall is disclosed. It comprises two or more scaffoldings, each having an elongated member, a hanger portion attached to one end of the elongated member detachably engages to a top edge of a wall for suspending the elongated member therefrom. A base elongated member is detachably attached to the elongated member, extends perpendicularly from the surface of the wall for receiving planks to form a working platform. A sway elongated member is provided from the base elongated member and to contact against the surface of the wall for lateral support. First and second support members are further provided to the elongated member and support the base elongated member from the above and below the base elongated member. A guard rail post for forming guard railing; and a kick plate fastener for forming a kick guard are also provided to improve the workplace safety.

Attorney Docket No. 32771-2

SCAFFOLDING SYSTEM

FIELD OF THE INVENTION

The present invention relates to a scaffolding system, and more particularly to a scaffolding system that is suspended from the top edge of a wall.

BACKGROUND OF THE INVENTION

Various scaffolding systems have been proposed for providing a temporary platform for working along a wall and/or roof lines. Many of which provide scaffolding systems that are suspended from the top edge of a wall.

For example, US Patent No. 3,510,097 to McCaleb (or "McCaleb"), US Patent No. 5,503,358 to Lapp (or "Lapp"), US Patent No. 5,524,727 to Yennie, Jr. (or "Yennie"), US Patent No. 6,422,339 to Wisler (or "Wisler") and US Patent Application Publication No. 2006/0243524 to Jarrell (or "Jarrell") disclose metal scaffolds mountable on a building wall. However, there are a number of shortcomings with these systems and apparatus, including, but not limited to, lack of safety guarding railing at the opposite side of the wall for preventing a worker from falling, and easily collapsible or detachable support preventing each scaffolding from swinging side way.

A number of improvements for aforementioned shortcomings have also been proposed for providing, among other things, safety guarding railings as shown in US Patent No. 5,829,549 to Flynn ("Flynn"), US Patent No. 5,878,838 to Lapp ("'838"), US Patent No. 6,003,631 to Knauth ("Knauth"), US Patent No. 6,503,280 to Smith et al. ("Smith"), US Patent No. 6,666,298 to Volkman ("Volkman"), US Patent No. 6,886,662 to Riley ("Riley"), US Patent Application Publication No. 2006/0060738 to Whittington et al. ("Whittington") and US Patent Application Publication No. 2006/0163001 to Pozell ("Pozell"). However, while the proposed systems provide some degree of safety to a worker working on the scaffolding from falling, they failed

to promote safer working environment to other workers working around or below these scaffolds because of large gap(s) at the guarding railing.

Therefore, there is a long felt need for an alternative or improved scaffolding apparatus that would replace or would provide an improvement to one or more of the shortcomings of the prior art apparatus.

SUMMARY OF THE INVENTION

The present invention relates to a scaffolding system, and more particularly to a scaffolding system that is suspended from the top edge of a wall.

According to one aspect of the invention, it provides a scaffolding system, comprising at least two scaffolding apparatus, each of the scaffolding apparatus comprising (i) an elongated member having a wall interfacing side and a work space interfacing side; (ii) a hanger portion attached to the elongated member at one end thereof, detachably engages to a top edge of a wall for suspending the elongated member therefrom; (iii) a base elongated member having first and second ends, the first end of the base elongated member detachably attached to the work space interfacing side of the elongated member and extending perpendicularly from the surface of the wall; (iv) a sway elongated member having first and second ends, the first end of the sway elongated member detachably and rotatably attached to the base elongated member, and the second end of the sway elongated member abut against the surface of the wall for lateral support for at least one direction; and (v) first and second support members detachably attached to the work space interfacing side of the elongated member and further detachably attached to the base elongated member, the first support member holds the base elongated member from above and the second support member holds the base elongated member from below to maintain the base elongated member at a position perpendicular to the surface of the wall. The scaffolding system may further comprise a guard rail post detachably attached to the second end of the base elongated member and extending upwardly, substantially perpendicular to the base elongated member and horizontal to the elongated member, said guard rail post having fastener for fastening a plank for forming guard rail. Yet,

the scaffolding system may further comprise a kick plate fastener for fastening a plank for forming kick guard railing.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention will now be described in more detail with reference to the accompanying drawings, in which:

Figure **1** illustrates a front perspective view of a roof scaffolding system of the present invention;

Figure **2** illustrates another front perspective view of the roof scaffolding system of the present invention;

Figure **3** illustrates a side elevation view of the scaffolding bracket;

Figure **4** illustrates a side elevation view of the scaffolding bracket without guard railing;

Figure **5** illustrates a cross-section view at section **V-V** as shown in Figure **3** of an elongated member of the scaffolding bracket;

Figure **6** illustrates a side elevation view of the hanger portion of the scaffolding bracket;

Figure **7** illustrates a top elevation view of the scaffolding system of the present invention;

Figure **8** illustrates a front elevation view of the elongated member of the scaffolding bracket; and

Figure **9** illustrates a perspective view of the elongated member and kick plate fastener of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

Figure **1** shows a perspective view of a preferred embodiment of the present invention, a scaffolding system **10**, being suspended from the top edge **2** of a wall **3**. The scaffolding system **10** includes four (4) scaffolding brackets or scaffolding apparatus **11**; however, the scaffolding system **10** may include at least two (2) scaffolding brackets **11** or could include more than four (4) scaffolding brackets **11**. As a person ordinary skilled in the pertinent art would understand that, to extend the size or length of the scaffolding system **10** for a job, one may simply add more scaffolding brackets **11**. In a preferred embodiment of the present invention, maximum spacing between scaffolding brackets **11** would be about 6 feet or in accordance with the safety standard or code where applicable. The scaffolding system **10** further comprises one or more sheet or plank members **6** for forming a work platform **7**, one or more sheet or plank members **4** for forming the guard railing **5**, and one or more sheet or plank member(s) **8** for forming a kick guard railing **9**. In a preferred embodiment of the present invention, the plank member **8** is 2" x 4" lumber.

Figure **2** shows a perspective view of the scaffolding system **10** without any sheet or plank members **4**, **6** and **8**.

Figure **3** shows a side elevation view of the scaffolding bracket **11**. Each scaffolding bracket **11** comprises an elongated member **12**, which, when in use, extends vertically along the surface of the wall **3** to interface therewith. In the preferred embodiment of the present invention, the elongated member **12** is a steel angle or alloy; however, the elongated member **12** may be channel, rectangular tube, bar or like. The scaffolding bracket **11** comprises a hanger **13** at the one end of the elongated member **12**, for detachably engaging to the top edge **2** of the wall **3** (not shown in Fig. **3**). The hanger **13** is attached to the end of the elongated member **12** permanently or detachably. The hanger **13** has sufficient width to accommodate various wall thicknesses, and preferably, it is about 6 inches or wider, more preferably, 6 3/8 inches or wider. The scaffolding bracket **11** further comprises a base elongated member **14** detachably attached to the elongated member **12** at a position thereon. In the preferred embodiment of the present invention, the base elongated

member **14** is a steel angle or alloy; however, the base elongated member **14** may be channel, rectangular tube, bar or like. The base elongated member **14**, when in use, extends outwardly from the elongated member **12** and being orthogonal to the elongated member **12** for receiving a plank or timber deck (not shown) for forming a work surface thereon. The scaffolding bracket **11** further comprises a first support member **15** and second support member **16**, each of which detachably attached from the elongated member **12** to a point on the base elongated member **14**. In the preferred embodiment of the present invention, the length of the elongated member **12** is about 8 feet and the base elongated member is about 4 feet in length. The first support member **15** is attached to the elongated member **12** at about 2 feet toward the hanger **13**, and is attached to the base elongated member **14** at about 1 foot (or about 12 inches) from the point where the base elongated member **14** is attached to the elongated member **12**. The second support member **16** is connected to the elongated member **12** at its one end at about 3 feet from the point where the base elongated member **14** is attached to the elongated member **12**, away from the hanger **13**, and to the distal end of the base elongated member **14**. As it can be seen from Figure **2**, the first support member **15** forms a triangle with portions of the elongated member **12** and the base elongated member **14**, and the second support member **16** forms another triangle with portions of the elongated member **12** and the base elongated member **14** to provide structural strength for the work surface provided on the base elongated member **14**. In particular, the first support member **15** supports the base elongated member **14** from above and the second support member **15** supports the base elongated member **14** from below to complement each other. Figure **4** shows a side elevation view of the scaffolding bracket **11**, very similar to what is shown in Figure **3**, however, without guarding rail.

Figure **5** shows a cross section view of the elongated member **12** at section **V-V** shown in Figure **3**. In a preferred embodiment of the present invention, the shape or cross section of the elongated member **12** is angled or L-shaped, having a wall interfacing side **31** that interfaces with the wall **3** and a work space interfacing side **32** substantially perpendicular to the wall interfacing side **31** so that the work space interfacing side **32** extends substantially perpendicularly from the surface of the wall **3**. In a preferred embodiment of the present invention, the wall interfacing side **31** is

substantially in contact with the wall **3** along and through the length of the elongated member **12**.

Referring back to Figure **3**, in a preferred embodiment of the present invention, the elongated member **12** further comprises a set of holes **40** on the work space interfacing side **32** for detachably attaching the first support member **15** thereto by a fastening means, for example, bolts and nuts (not shown). The elongated member **12** yet further comprises a set of holes **50** on the work space interfacing side **32** for detachably attaching the base elongated member **14** thereto by a fastening means. The elongated member **12** yet further comprises a set of holes **60** on the work space interfacing side **32** for detachably attaching the second support member **16** thereto.

The base elongated member **14** comprises a receiver **17** at its distal end for detachably receiving guard rail post **18**. When installed, the guard rail post **18** extends upwardly, from the receiver **17**, and substantially in parallel to the elongated member **12**. The guard rail post **18** provides a fastener **19** for fastening a plate or plank **4** for forming a guard railing **5**. In a preferred embodiment of the present invention, the fasteners **19** are brackets for receiving plates or planks **4** for forming guard railing **5**. The fastener **19** may be situated inner or outer side from the work space of the scaffolding system **10**. In a preferred embodiment of the present invention, the fasteners **19** are placed outer side of the guard rail post **18**. While it is not shown, various other fasteners can be used to provide substantially the same feature. For example, the fastener **19** can be screws or bolts for attaching the plank against the guard rail post **18**, Velcro ® fasteners or similar (i.e. placing Velcro on the plank **5** and the corresponding one on the guard rail post **18**), or belt may be used. The guard rail post **18** further comprises a kick plate fastener **35** for receiving plates or planks **8** for forming a kick guard railing **9**. In a preferred embodiment of the present invention, the kick plate fastener **35** further provides a screw hole **36** for fastening the plate or plank **8** by a screw (not shown) through the hole **36**. The kick guard railing **9** provides further safety measure to a work place, preventing equipment or smaller materials from accidentally falling from the work surface on the scaffolding system **10**.

Referring to Figure **7**, the scaffolding bracket **11** further comprises a sway elongated member **20** for lateral support to prevent the scaffolding bracket **11** from swinging laterally when it is installed on the wall **3**. The sway elongated member **20** is detachably and rotatably attached to the base elongated member **14** at one end and extends against the wall **3** at the other end of the sway elongated member **20**. Preferably, the sway elongated member **20** is angled to maintain that the base elongated member **14** extends outwardly from the wall **3** substantially perpendicular thereto. In a further preferred embodiment of the present invention, the scaffolding bracket **11** has one sway elongated member **20** to preventing its sway in one direction. By combining another scaffolding bracket **11** with the sway elongated member **20** that prevents the sway on the other direction, these cooperates to prevent swaying as the scaffolding system **10** as a whole.

Figure **6** shows a side elevation view of the hanger **13**, having a first elongated member **13a**, having first and second ends. The first end of the first elongated member **13a** is attached to near or at the end of the elongated member **12**, and extends therefrom, perpendicular to the elongated member **12**. The second end of the first elongated member is connected to a second elongated member **13b** substantially parallel to the elongated member **12** to form reversed U-shape for receiving the top edge of the wall **3**. The length or gap between the elongated member **12** and the second elongated member **13b** of the hanger **13** is sufficiently wide to accommodate wall width of a building. In a preferred embodiment of the present invention, such width is about 6", thus the length of the second elongated member **13a** between the elongated member **12** and the second elongated member **13b** of the hanger **13** may be about 6-3/8".

Now referring to Figure **8**, the elongated member **12** of the scaffolding bracket **11** further comprises one or more fastening means for fastening the elongated member on to the surface of the wall **3**. In a preferred embodiment of the present invention, the wall interfacing side **31** of the elongated member **12** comprises a plurality of holes **70** for receiving screws or nails (not shown). For example, one may secure the elongated member **12** to the wall **3** by nailing or screwing the elongated member **12** through the plurality of the holes. In a further preferred embodiment of the present invention, the elongated member **12** comprises four (4) holes, a first one near the

hanger **13**, second one just above the point where the base elongated member **14** is attached to, third one just therebelow, and fourth one near or below where the second support member **16** is attached to the elongated member **12**.

Figure **9** shows a perspective view of the base elongated member **14** having a kick plate fastener **35** at the end of the base elongated member **14** for receiving a plank (not shown) to form a kick guard for improving the safety of the work place by preventing items from the scaffolding system **10** by a worker kicking such items. In a preferred embodiment of the present invention, the plank is a 2" x 4" lumber. The kick plate fastener **35** is situated to create a sufficient gap (for example 1-1/2 inch or so for receiving a 2" x 4" lumber) from the receiver **17**. Alternatively, the kick plate fastener **35** may be an independent part that engages with the receiver **17** or may be an integral part of the guard rail post **18**. Furthermore, the kick plate fastener **35** is one way for fastening a plank; however, various other fastening means can be used to provide substantially the same feature. For example, the fastening means can be screws or bolts for attaching the plank against the guard rail post **18**, Velcro ® fasteners or similar (i.e. placing Velcro on the plank and the corresponding one on the guard rail post **18**), or belt may be used.

It is to be understood that the embodiments and variations shown and described herein are merely illustrations of the principles of this invention and that various modifications may be implemented by those skilled in the art without departing from the spirit and scope of the invention.

Attorney Docket No. 32771-2

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

1. A scaffolding system, comprising:

at least two scaffolding apparatus, each of said scaffolding apparatus comprising:

(i) an elongated member having a wall interfacing side and a work space interfacing side;

(ii) a hanger portion attached to one end of the elongated member, detachably engages to a top edge of a wall for suspending the elongated member therefrom;

(iii) a base elongated member having first and second ends, the first end of the base elongated member detachably attached to the work space interfacing side of the elongated member, extends substantially perpendicularly from the surface of the wall;

(iv) a sway elongated member having first and second ends, the first end of the sway elongated member detachably attached to the base elongated member, and the second end of the sway elongated member contact against the surface of the wall for lateral support to the scaffolding apparatus; and

(v) first and second support members detachably attached to the work space interfacing side of the elongated member and further detachably attached to the base elongated member, the first support member holds the base elongated member from above and the second support member holds the base elongated member from below to maintain the base elongated member at substantially perpendicular to the surface of the wall.

2. The scaffolding system as recited in claim 1 further comprises a guard rail post detachably attached to the second end of the base elongated member, extends upwardly, substantially perpendicular to the base elongated member and horizontal to

the elongated member, said guard rail post having a fastener for fastening a plank for forming guard railing.

3. The scaffolding system as recited in claim 2 wherein the fastener is a bracket attached to the guard rail post for receiving the plank.

4. The scaffolding system as recited in claim 2 further comprises a kick guard fastener situated near the second end of the base elongated member for fastening a plank for forming a kick guard.

5. The scaffolding system as recited in claim 4, wherein the kick guard fastener is a kick guard bracket for receiving the plank.

6. The scaffolding system as recited in any one of claims 1 to 5, wherein the elongated member is angled steel bar.

7. The scaffolding system as recited in any one of claims 1 to 5, wherein the wall interfacing side of the elongated member comprises means for securing the wall interfacing side to the surface of the wall.

8. The scaffolding system as recited in claim 7, wherein the means for securing the wall interfacing side of the elongated member to the surface of the wall comprise a plurality of holes for receiving nails or screws.

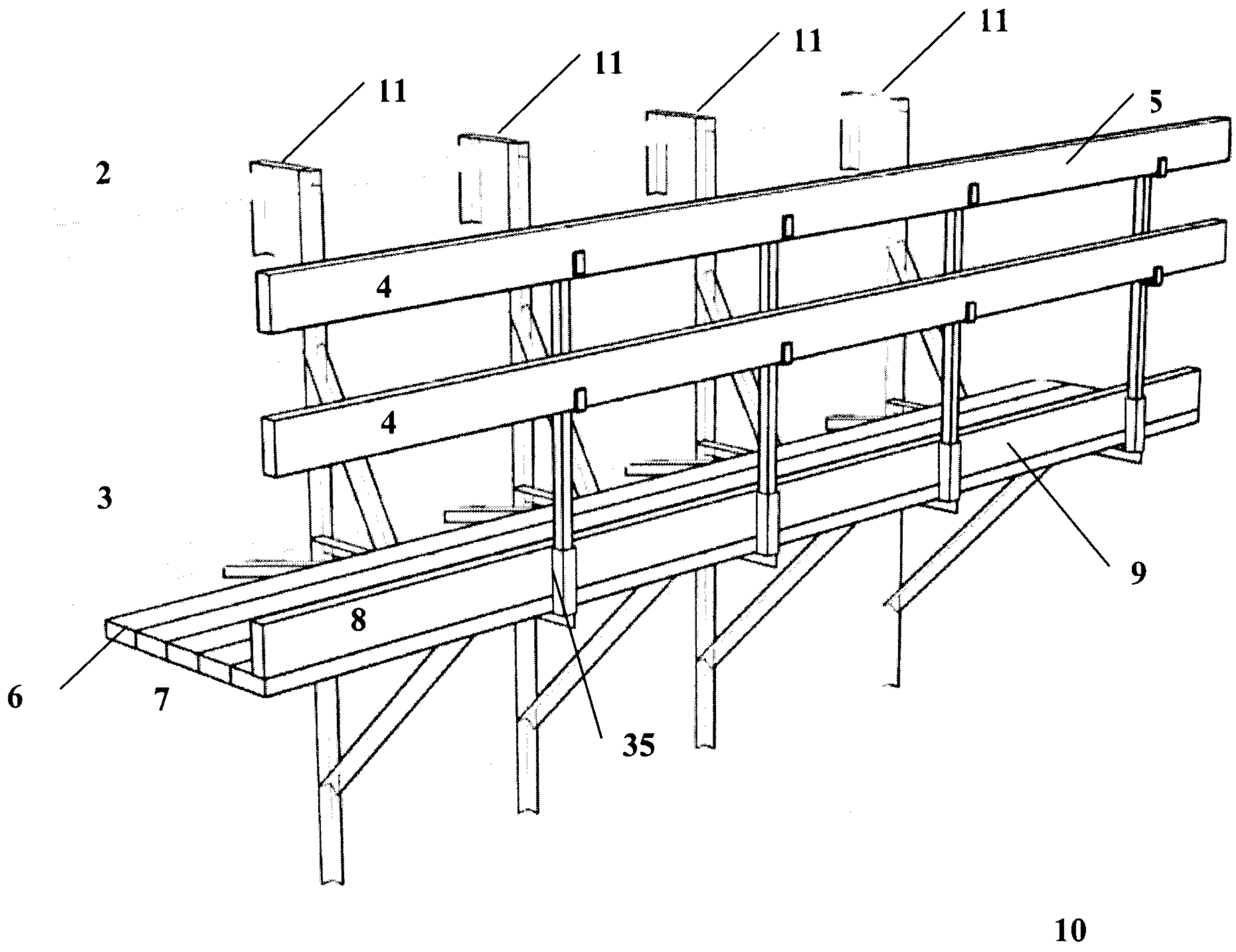


Figure 1

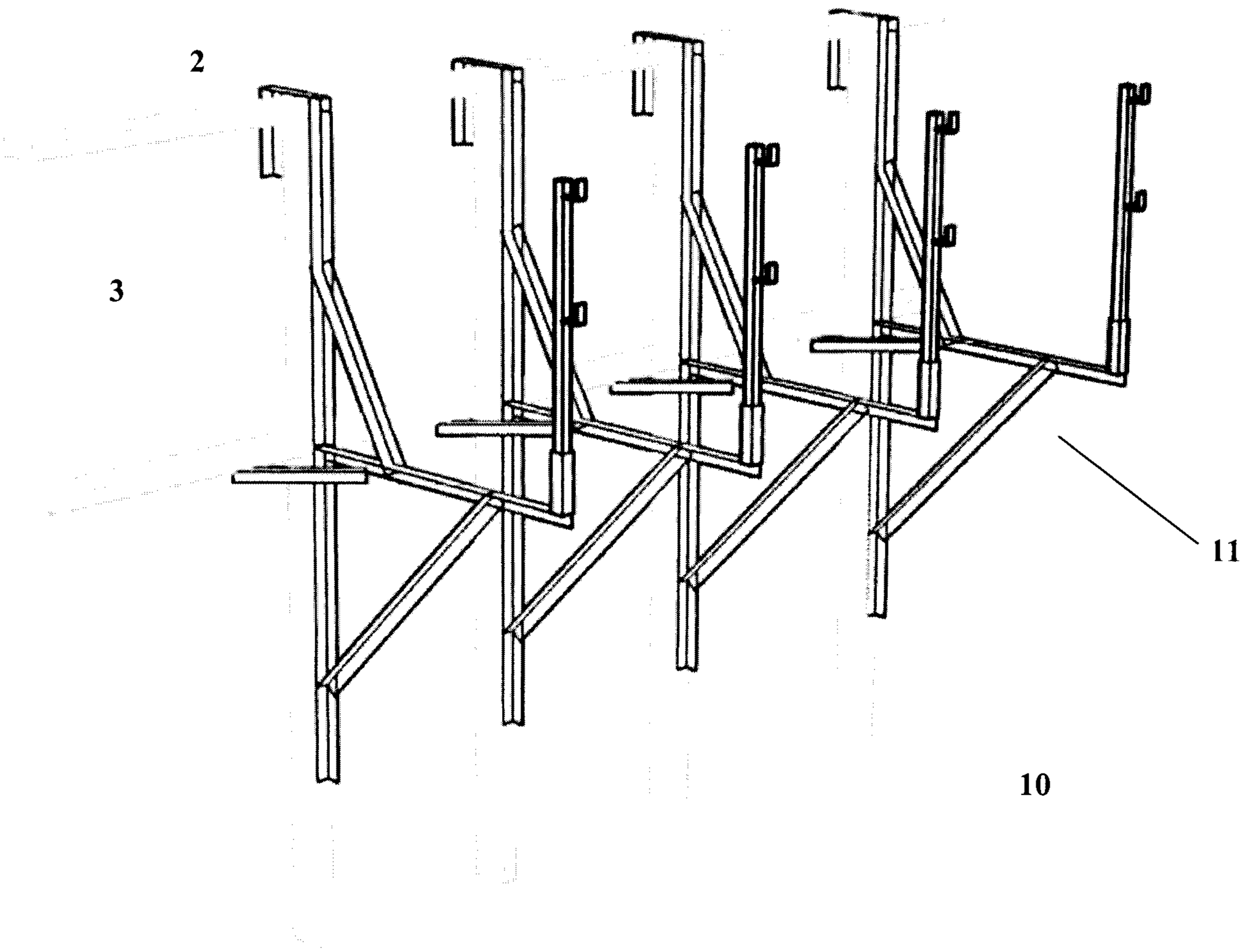


Figure 2

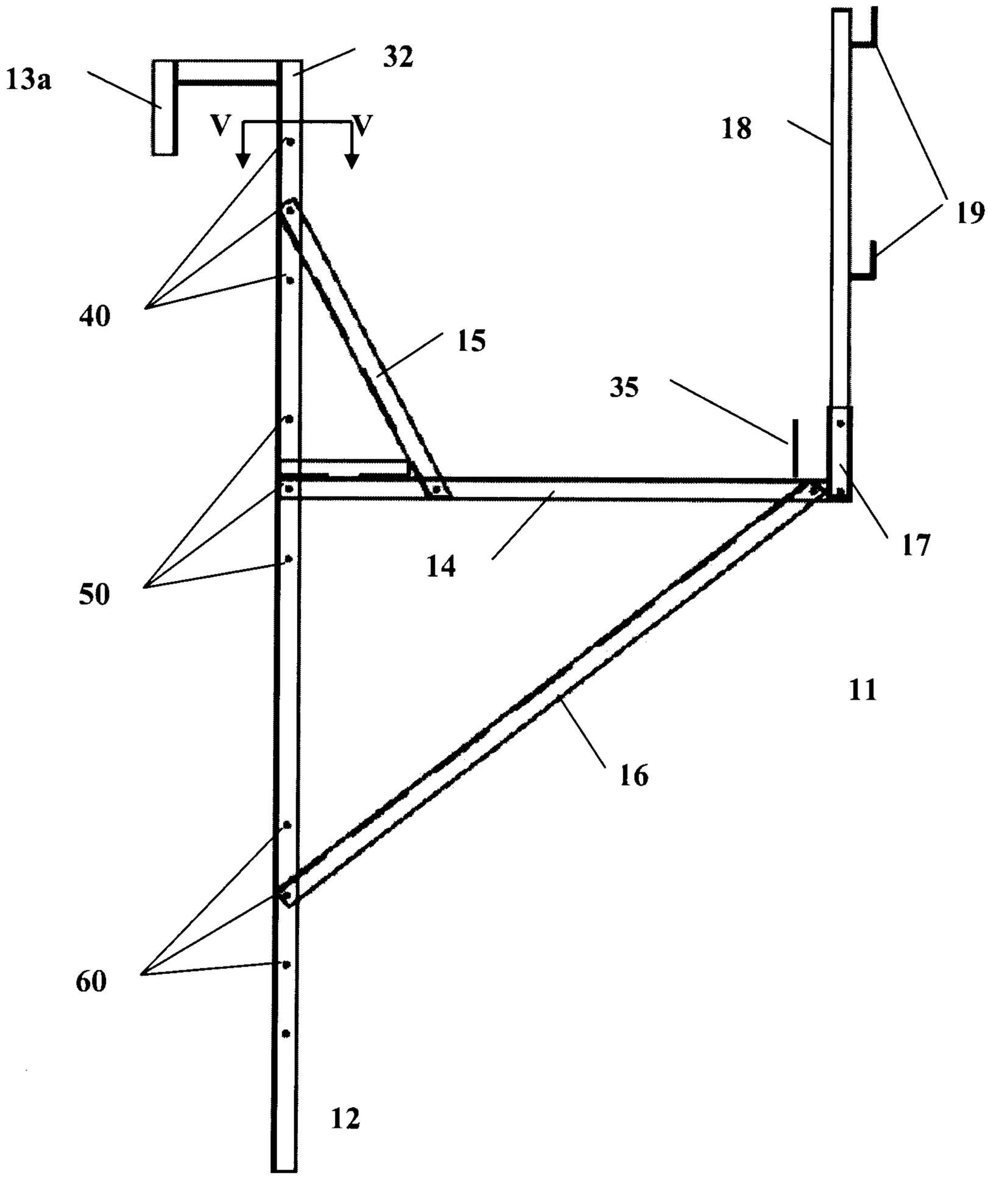


Figure 3

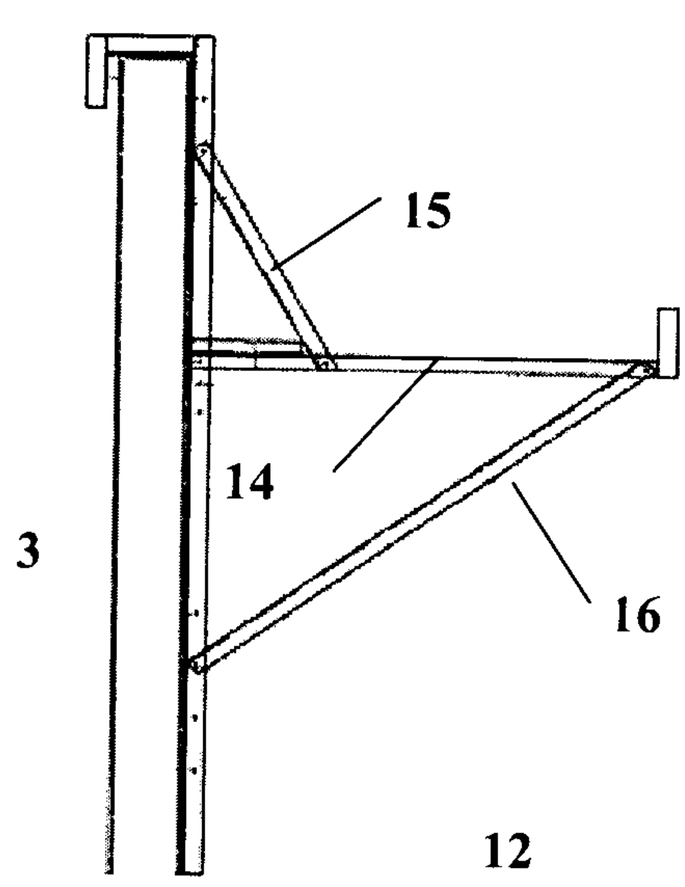


Figure 4

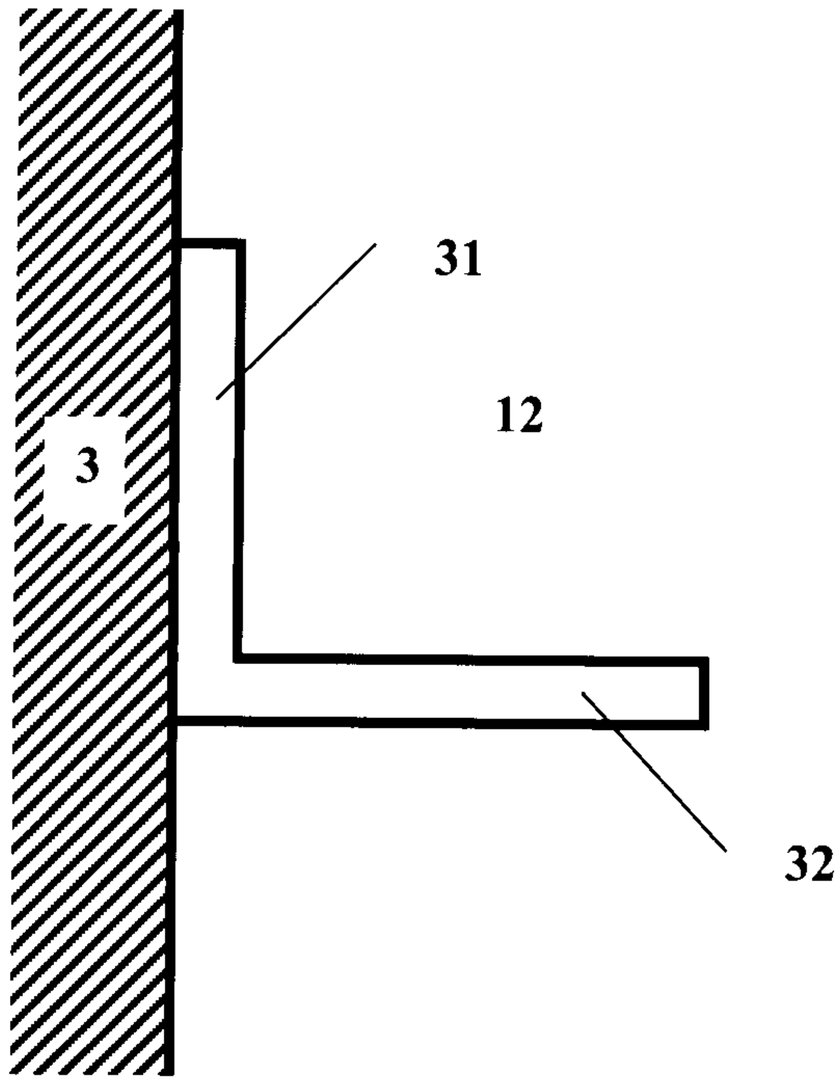


Figure 5

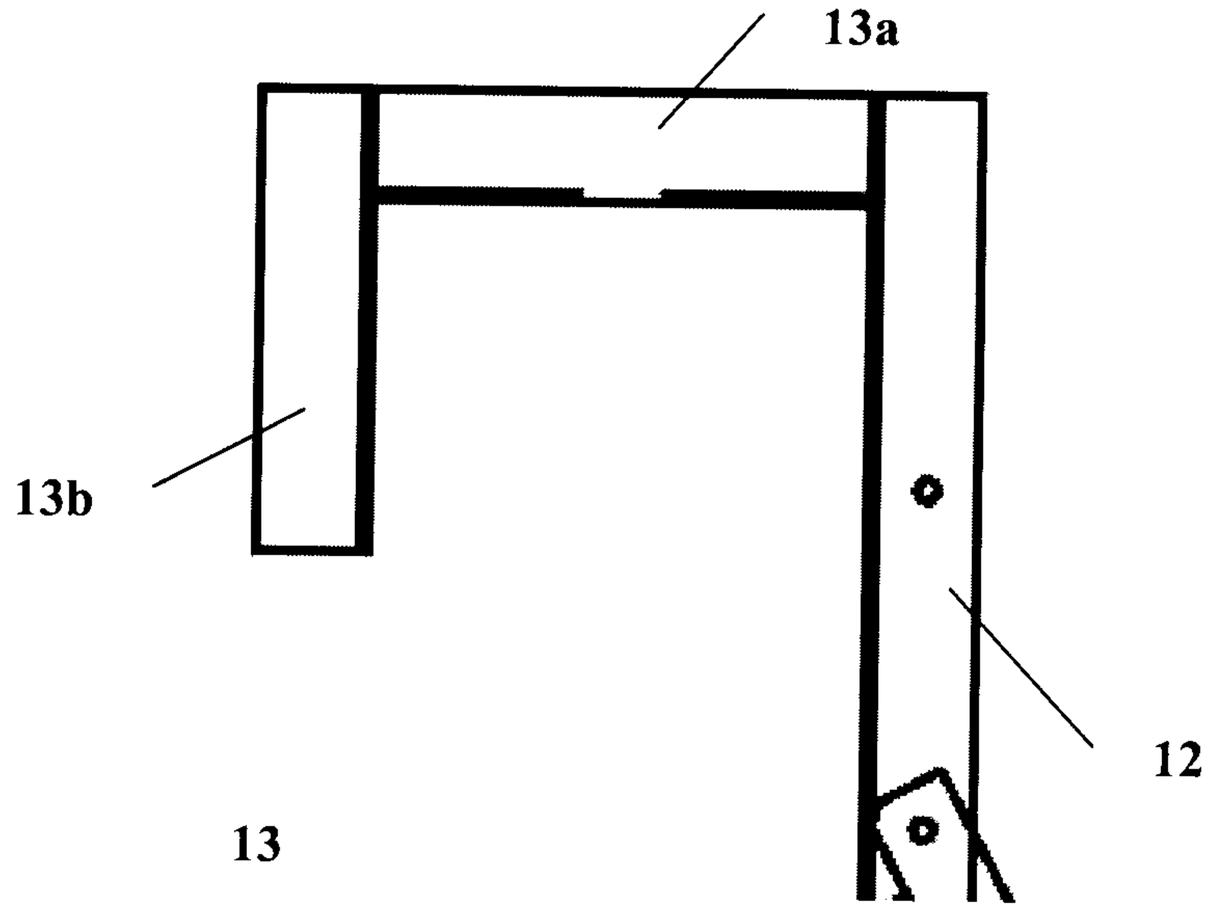


Figure 6

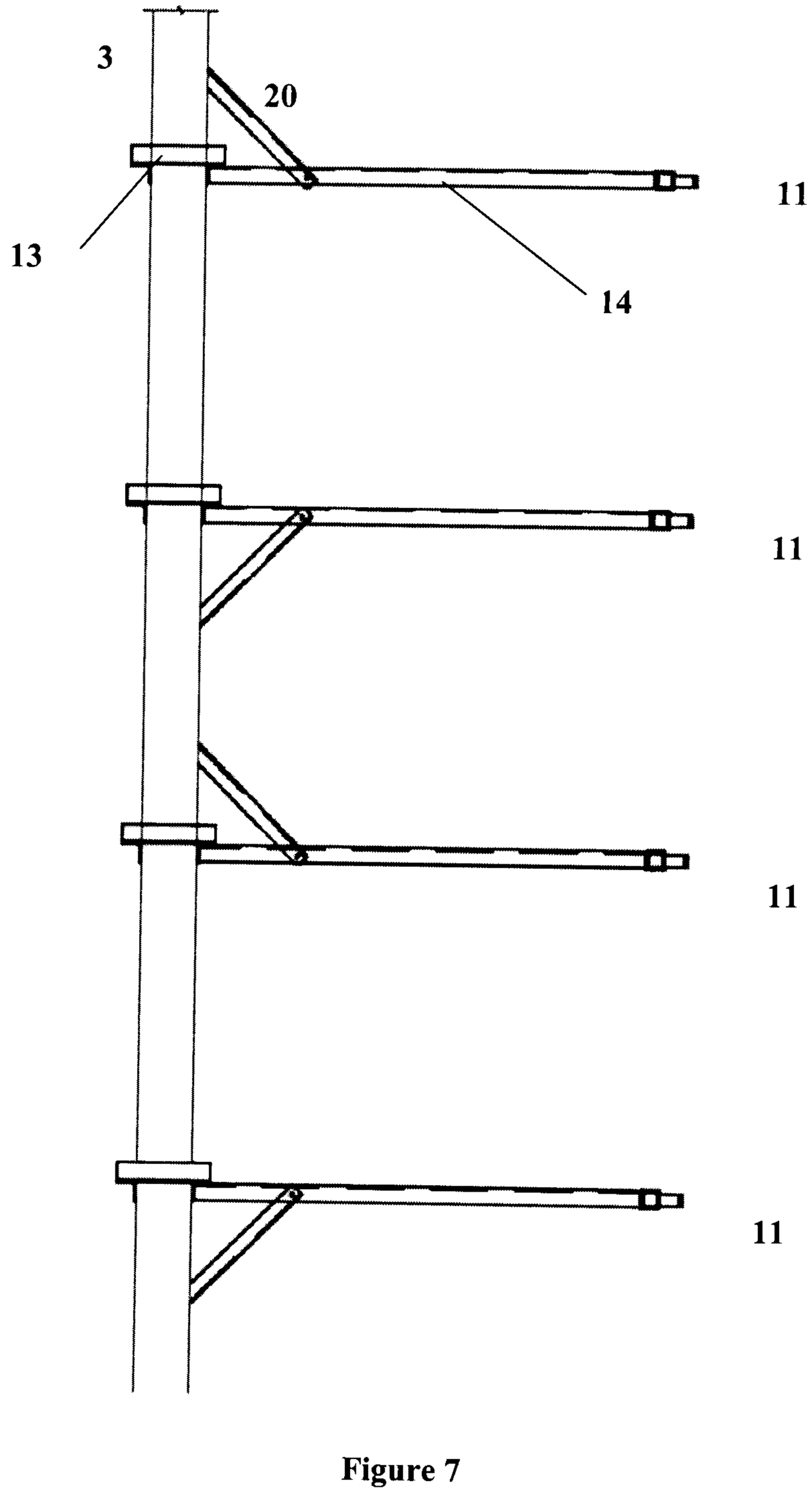


Figure 7

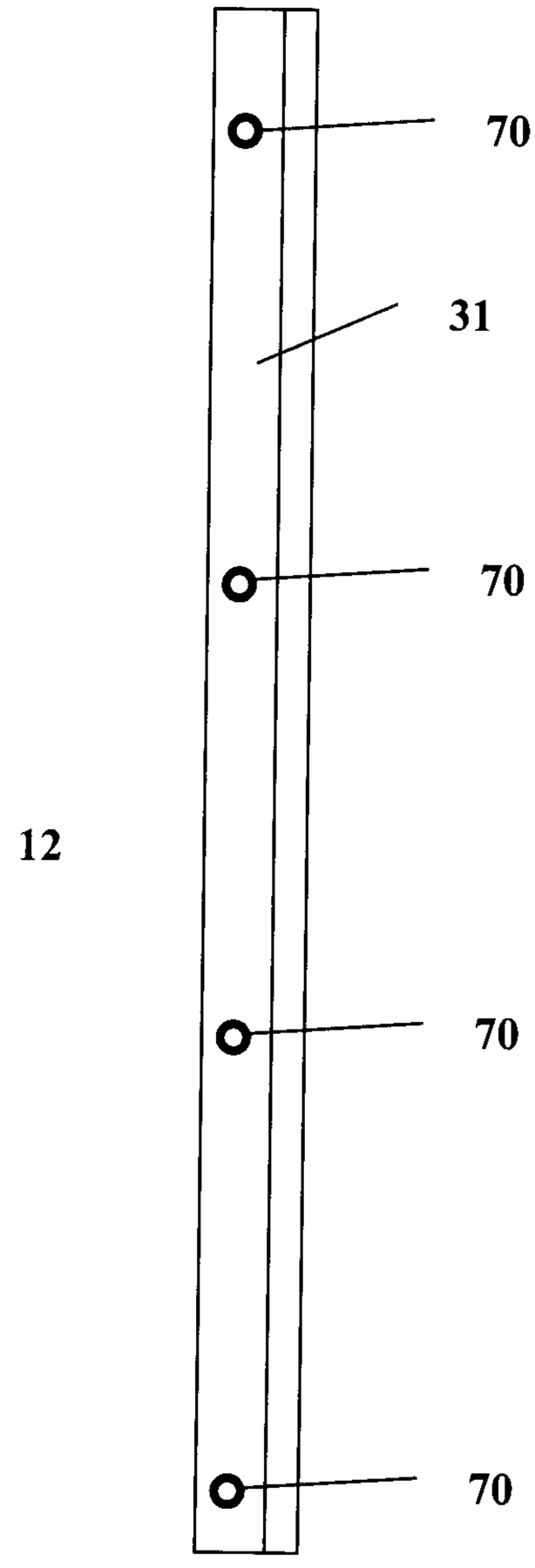


Figure 8

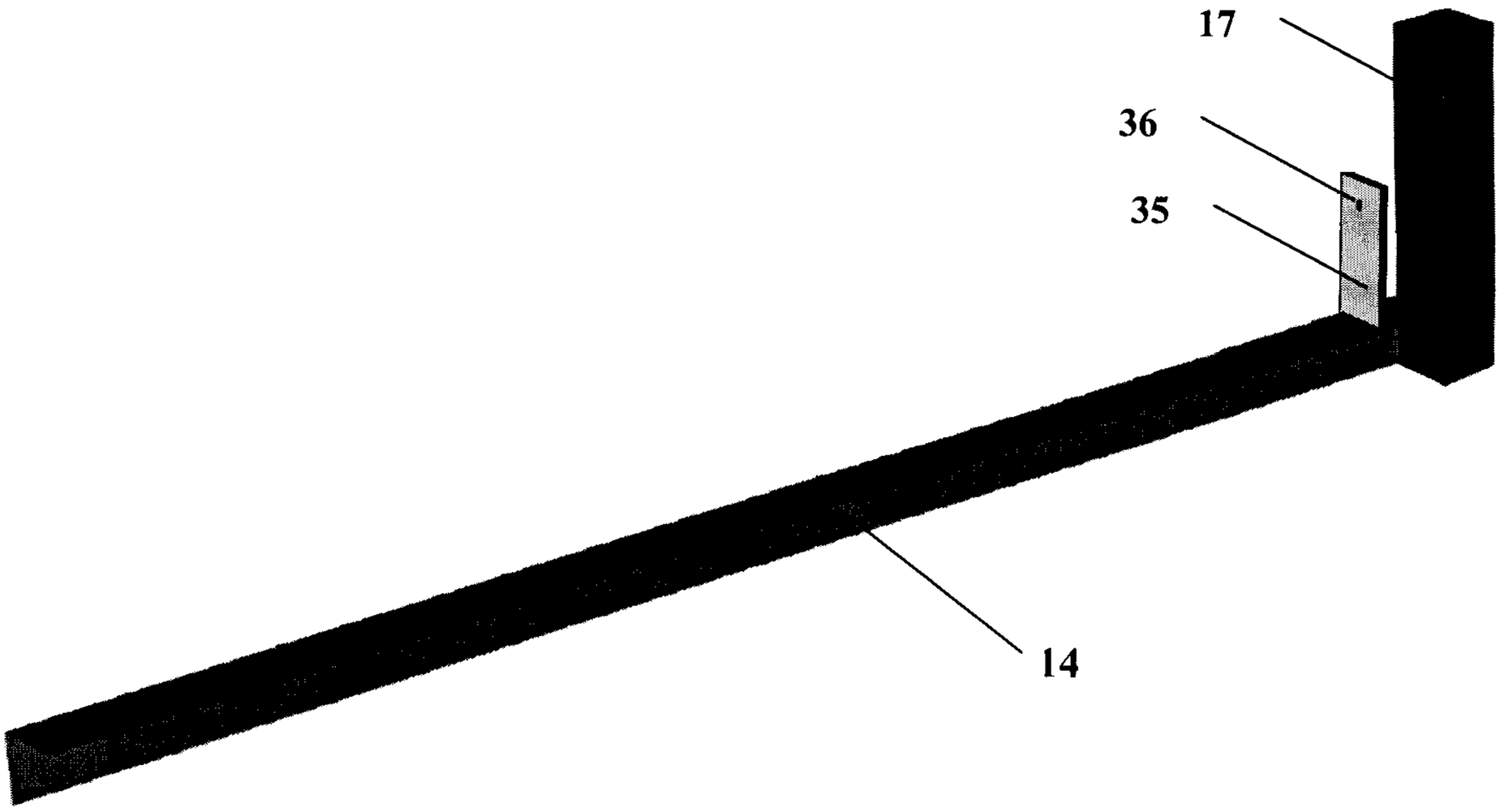
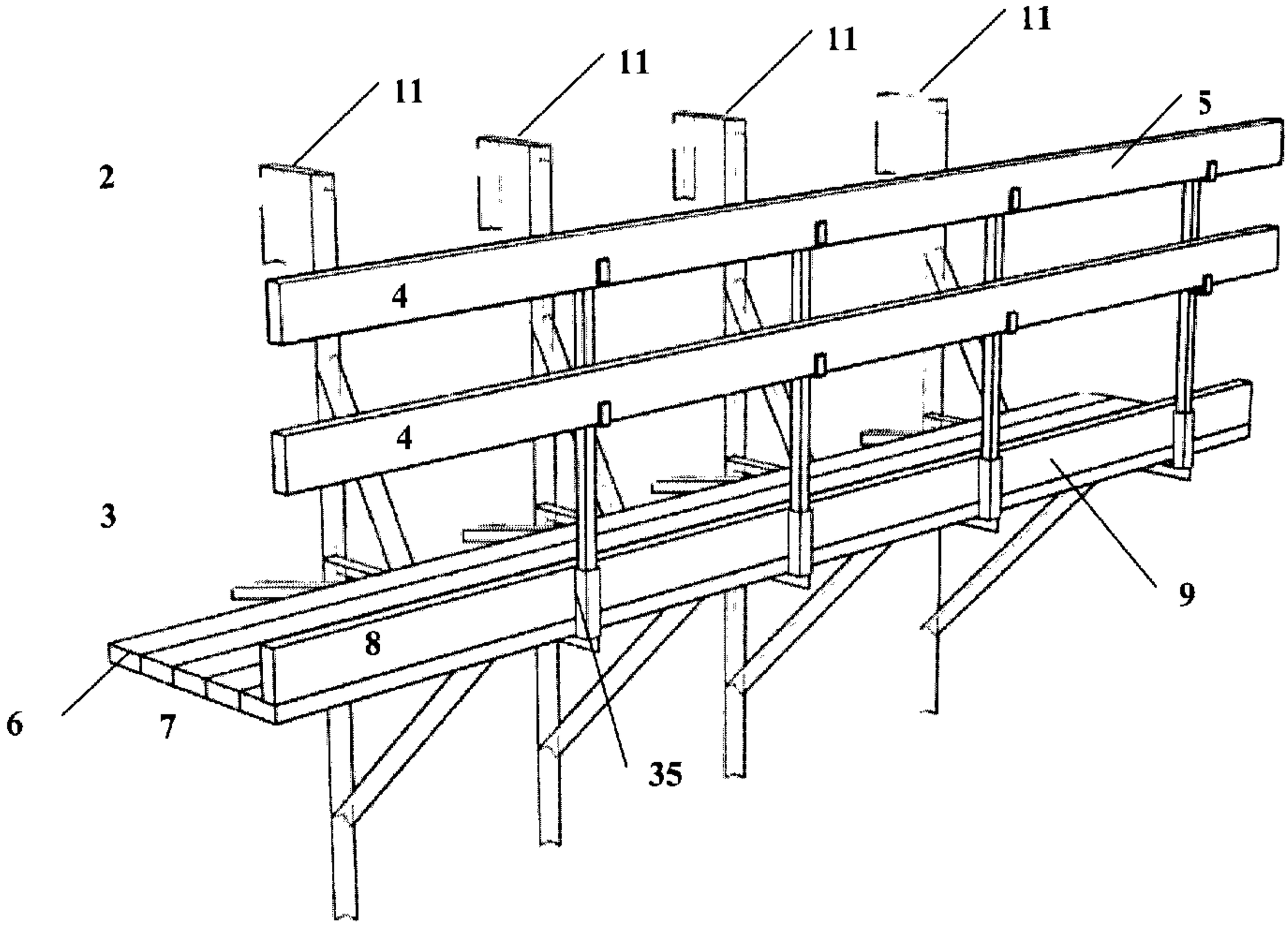


Figure 9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