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Commercial vehicle body

The invention relates to a commercial vehicle body of the type outlined in the introductory part of claim 1.

Commercial vehicle bodies of the type specified above
5 having load securing elements and systems are known and come in many designs. For example, a known approach is to provide slot-in boards on the vehicle, e.g. between vehicle rungs, or combination fixing rails provided respectively with cut-outs to enable blocking bars, straps, wall
10 elements and similar extending transversely to the cargo space floor to be secured therein. Another known approach is to secure blocking bars to lateral fixing rails of the cargo space floor to which lashing straps can in turn be attached parallel with the direction of travel but also
15 diagonally to the longitudinal central axis of a commercial vehicle body. Another known approach is to recess mounting orifices in the cargo space floor into which upright support rods can be inserted.

20 The disadvantage of all these load securing arrangements and load securing systems for securing loads at the rear is that they require a specific type of commercial vehicle body, for example to enable slot-in boards to be provided. Such slot-in boards may be provided on commercial vehicle
25 bodies having movable side curtains but these slot-in boards are undesirable due to laborious handling, additional weight and the additional devices needed to fit them.

30 If vertically extending support rods have to be fitted, the cargo space floor must be equipped in a structurally

complex manner with corresponding fixing rails which have to be recessed in the cargo space floor at a distance from one another. This is likewise complex.

5 Commercial vehicle bodies of the type specified above are known from US 4,795,208 A, DE 10 2014 104 428 A1 and US 4,861,094 A. The disadvantage which all the commercial vehicle bodies known from these documents have is that load
10 securing elements have to be manufactured resulting in increased production costs, in addition to which they cannot simply be connected to fastener receiving means of a fixing rail without additional means.

EP 2 835 282 A1 discloses a commercial vehicle body having
15 a movable load securing device where the load securing device for fitting a securing means extends on an external beam. A carriage is mounted on the external beam for moving the load securing device along the spar. In this instance, the load securing element cannot be secured in a specific
20 operating position.

The objective of this invention is to provide a load securing system based on a simple design which may be fitted on the commercial vehicle body by an operator and
25 secured in a chosen position whilst requiring simple manual handling.

To achieve this objective, the commercial vehicle body based on the type specified above is distinctive due to the
30 fact that the load securing element can be secured to the fastener receiving means of the external beam by means of a locking element, the locking element being provided in the form of a clamping brake.

Accordingly, a load securing system for a commercial vehicle body is provided which can be fitted with only a few manual manoeuvres if necessary to secure the load. The load securing element of this load securing system extends in a simple manner from the fixing rail to the top external beam, which merely has to be widened in a structural manner so that it in turn has a corresponding fastener receiving means for this load securing element.

In this context, this load securing element may be provided in the form of a lashing strap, for example, with a corresponding hook-shaped connecting element which can be inserted in corresponding receiving means of the fixing rail on the cargo space floor. This fixing rail may be provided in a conventional manner as the metal strip laterally bounding the cargo space which has a number of fixing orifices disposed at a distance from one another in which a fixing hook can be inserted. The load securing element may in turn be provided as a vertical connection, e.g. in the form of a strap, but also as a profiled section, made from a metal or a non-metal material for example, or made from a glass or carbon fibre reinforced plastic, whether it be a rectangular section or alternatively an oval or rounded section, for example. Securing the load securing element to the commercial vehicle body means that it does not necessarily have to be tightly tensioned in its installation position. In the case of intrinsically rigid sections, for example, tensioning is not absolutely necessary. Straps also do not necessarily need to be tightly tensioned. Instead, the load securing element merely has to be connected in such a way that when secured, a force-fitting or positively fitting connection of the

load securing element to the commercial vehicle body is established. A mounting arrangement with a certain amount of play in the load securing element itself and/or in the connection system is therefore also possible. For this, the
5 skilled person is familiar with a number of possible solutions in terms of connection systems.

The load securing element can be secured to a fastener receiving means of the external beam by means of a locking
10 element. In this context, the locking element is provided in the form of a clamping brake which can be secured in the device position with very little effort in terms of manual manoeuvres. The locking element may also have a latch
15 element or catch element which locates in a predefined latching means or catch receiving means. The latching means or the catch receiving means may extend in the longitudinal direction of the external beam across a shorter or longer section so that the load securing element can be secured in
20 different positions, thereby imparting a high degree of variability to the system.

This load securing element may be attached to the fixing rail by means of a second tensioning element, for example a
25 lashing strap. Additional tensioning elements are of advantage especially in situations where the load securing element is not connected to the external beam in a force-fitting or positively fitting arrangement. The tensioning elements may then additionally absorb the load securing
30 forces in and/or opposite the direction of travel. The tensioning elements may be fastened to the fixing rail in the bottom region of the vehicle body, to the external beam disposed in the upper region of the vehicle body, to a lockable middle rung and/or to the roof construction.

The fastener receiving means in the external beam is preferably provided in the form of a guide mechanism. A track or a rail may be used as a guide mechanism, for example. A number of guide mechanisms may be provided for this purpose, which may be arranged in sections or also continuously. A carriage, having one or two castors for example, or a castorless slide element may be moved along the entire longitudinal extension of the guide element, for example, so that the load securing element may be positioned at any point of the external beam. When the load securing element is then connected to the fastener receiving means of the fixing rail, the load securing element can be tensioned by the tensioning element, for example via the external beam. In this context, the tensioning element preferably extends in a diagonal orientation to a fastener receiving means of the fixing rail at a specific distance from the fastener receiving means into which the load securing element is hooked. The middle rung serving as the load securing element may then be connected in a force-fitting or positively fitting arrangement to the commercial vehicle body via a locking means. In this context, the tensioning element may be of any design which enables the load securing forces to be absorbed. To this end, it may be provided in the form of a lashing strap, lashing rope or lashing chain. However, the load securing forces may also be absorbed by intrinsically rigid solid bodies used as a tensioning element. Due to their intrinsic rigidity, such tensioning elements do not necessarily have to be connected to the commercial vehicle body in a tightly tensioned arrangement. For a system without tight tensioning, a rigid solid body might be a clamping rod used as a clamping element, for example. The

tensile tensioning element may be mounted backlash-free by means of a tensioning device such as a ratchet, for example. Intrinsically rigid tensioning elements may also be connected to the commercial vehicle body by means of other
5 fastener means.

The carriage is preferably configured so that it also has a brake device. It may be designed so as to become active, and to do so automatically, when the load securing element
10 is tensioned via the tensioning element or via the load securing element itself.

The load securing element in turn has receiving means, e.g. eyelets, keyholes and similar retaining devices or fastener
15 receiving means in order to provide other load securing elements transversely to the longitudinal extension of the cargo space floor. It is preferable to provide such an additional load securing element extending transversely to the cargo space floor as a support element. It may be a
20 support element in the form of a grid of lashing straps, for example, which can be fastened to corresponding holding means or receiving means on two mutually opposite load securing elements. It is also possible to insert dimensionally stable cross-connections such as metal
25 crossbars, for example.

Overall, therefore, a commercial vehicle body having a load securing system is proposed which can be deployed in an extremely flexible manner but which is extremely simple in
30 terms of design and hence also low in terms of cost.

Reference may be made to other dependent claims, the description below and the drawings for further explanation. The drawings illustrate the following:

- 5 Fig. 1 part of an exemplary embodiment of a commercial vehicle body based on the invention, illustrating a fixing rail in the cargo space floor, an external beam disposed at a distance therefrom and a load securing system disposed in between;
- 10 Fig. 2 part of an exemplary embodiment of a load securing system with a first option for providing an attachment to the external beam;
- 15 Fig. 3 a diagram similar to Fig. 2 with a load securing element and an alternative option for providing an attachment to the external beam having a brake device;
- 20 Fig. 4 a side view of the external beam with another alternative option for providing an attachment of the load securing element to the external beam with an automatically operating brake device;
- 25 Fig. 5 a diagram similar to Fig. 1 with an alternative exemplary embodiment of a load securing element.

Only parts of the commercial vehicle body that are necessary to provide a clear understanding of the invention
30 are illustrated in the drawings. The same parts are denoted by the same reference numbers in the individual drawings.

Fig. 1 illustrates part of a commercial vehicle body 1 having a cargo space floor 2 adjoined by a lateral fixing rail 3 which has various holes 4 as fastener receiving means. In the top lateral corner region, the commercial vehicle body has an external beam 5. Side walls may extend between the cargo space floor 2 and the external beam 5 but also side curtains and similar parts which also bound a cargo space. At the top, a roof may adjoin the external beam 5 and this may also be provided in the form of a sliding tarpaulin roof, for example. The external beam 5 in turn has a continuous fastener receiving means 6 which is provided in the form of a track in the embodiment illustrated as an example. A carriage 7 with two castors 8 may run in this track 6 and thus be pushed. This carriage has a fixing eyelet 9 to which a load securing element 10 in the form of a strap can be attached. This strap acting as a load securing element 10 is therefore slidably attached to the external beam 5. A hanging hook 11 is provided at the end of the load securing element facing the cargo space floor 2 which can be hooked into a fastener receiving means 4 of the fixing rail. In order to reliably tension the load securing element 10, a tensioning element 12 is provided in addition, likewise provided in the form of a lashing strap in the embodiment illustrated as an example and likewise having a fastening hook 11 at its end facing the fixing rail 3 which is also hooked into a fastener receiving means 4 of the fixing rail 3. However, it is at a certain distance from the load securing element 10 so that this lashing strap 12 extends in a diagonal orientation from the external beam 5 to the fixing rail 3. The load securing element 10 in turn has eyelets 13 as fastener elements for load supporting elements 14 and 15 extending transversely above the cargo space floor 2 which

are connected via hooks 16. Accordingly, these load supporting elements 14 and 15 form a grid which extends transversely above the cargo space floor 2. Due to the plurality of fastener receiving means 4 in the fixing rail 3 and due to the design of the fastener receiving means 6 in the form of the track on the external beam 5, the load securing element 10 together with the load supporting elements 14 and 15 and the tensioning element 12 can be positioned at virtually any point of the cargo space floor in order to support cargo in the longitudinal direction of the commercial vehicle body.

The connection of the load securing element 10 to the external beam 5 is illustrated in more detail again in Fig. 2, with the track 6, the carriage 7 and the castors 8. Based on an otherwise identical design, a brake device 17 is additionally provided for the carriage 7 in this instance. The embodiment illustrated as an example in Fig. 4 is also similar. In this instance, the brake device 17 is configured so that when the load securing element 10 is tensioned, a head 17.1 is pushed into a recess, thereby securing the carriage 7 to prevent a movement.

Based on an otherwise identical design to the embodiment illustrated as an example in Fig. 1, the load securing element 10 illustrated as an exemplary embodiment in Fig. 5 is provided in the form of a metal rectangular section. This metal rectangular section has keyholes as fastener receiving means 13 in which metal crossbars 18 extending transversely above the cargo space floor 2 are inserted as supporting elements in this instance.

P A T E N T K R A V

1. Erhvervskøretøjskarosseri (1) med et lastrum som er tilvejebragt oven for et last-
 rumsgulv (2), hvor der på begge sider af lastrumsgulvet (2) er tilvejebragt en yderbom (5)
 som strækker sig i den langsgående retning af erhvervskøretøjskarosseriet (1) med højde-
 5 afstand til lastrumsgulvet (2), og lastrumsgulvet (2) omfatter fastgørelsesskinner (3) som
 hver især er forsynet med fastgørelsesoptageelementer (4) som begrænser lastrumsgulvet
 (2) sidemæssigt eller er indbygget i dette, og med en lastsikringsanordning som omfatter
 mindst ét lastsikringselement (10) som kan fastgøres på mindst én af fastgørelsesoptage-
 elementerne (4) af en fastgørelsesskinne (3), hvor hver yderbom (5) omfatter et fastgørel-
 10 sesoptageelement (6) til fastgørelse af et lastsikringselement (10) som strækker sig fra
 fastgørelsesskinnen (3) til yderbommen (5), således at dette lastsikringselement (10)
 strækker sig fra fastgørelsesskinnen (3) til yderbommen (5) som er tilvejebragt med af-
 stand til lastrumsgulvet (2), **kendetegnet ved, at** lastsikringselementet (10) kan
 sættes fast på fastgørelsesoptageelementet (6) af yderbommen (5) via et låseelement
 15 (17), hvor låseelementet (17) er udformet som klemmebremse, og hvor klemmebremsen
 overføres fra en inaktiv-driftsstilling til en bremsende driftsstilling ved spænding af lastsik-
 ringselementet (10) til fastgørelsesskinnen (3), yderbommen (5), en arreterbar midterst-
 iver og/eller tagkonstruktionen.

2. Erhvervskøretøjskarosseri (1) ifølge krav 1, **kendetegnet ved, at** hver
 20 yderbom (5) omfatter en styreindretning som strækker sig mindst områdevist langs yder-
 bommen (5) som fastgørelsesoptageelement (6), i hvilken lastsikringselementet (10) kan
 fastgøres over en løbevogn (7).

3. Erhvervskøretøjskarosseri (1) ifølge krav 2, **kendetegnet ved, at** løbe-
 vognen (7) af lastsikringselementet (10) omfatter et glideelement eller mindst én løberulle
 25 (8).

4. Erhvervskøretøjskarosseri (1) ifølge et af kravene 1 til 3, **kendetegnet
 ved, at** lastsikringselementet (10) overfører lastsikringskræfter til erhvervskøretøjskarosse-
 riet i og/eller imod kørselsretningen via et yderligere spændeelement (12).

5. Erhvervskøretøjskarosseri (1) ifølge krav 4, **kendetegnet ved, at** lastsik-
 30 ringselementet (10) kan fastgøres på et yderligere fastgørelsesoptageelement (4) af fast-
 gørelsesskinnen (3), yderbommen (5), en arreterbar midterstiver og/eller tagkonstruktio-
 nen via spændeelementet (12).

6. Erhvervskøretøjskarosseri (1) ifølge krav 4 eller 5, **kendetegnet ved, at**
 spændeelementet (12) er udformet som spændegjord, spændereb, spændekæde eller
 35 spændestang.

7. Erhvervskøretøjskarosseri (1) ifølge et af kravene 4 til 6, **kendetegnet
 ved, at** spændeelementet (12) er forsynet med en spændeindretning.

8. Erhvervskøretøjskarosseri (1) ifølge et af kravene 1 til 7, **kendetegnet
 ved, at** spændeelementet (12) angriber lastsikringselementet (10) i området af forbindel-
 40 se af lastsikringselementet (10) på fastgørelsesoptageelementet (6) af yderbommen (5) og

i den monterede driftsstilling strækker sig i diagonal orientering til fastgørelsesskinnen (3) af lastrumsgulvet (2), yderbommen (5), en arreterbar midterstiver og/eller tagkonstruktionen.

5 **9.** Erhvervskøretøjskarosseri (1) ifølge et af kravene 1 til 8, **k e n d e t e g n e t ved, at** lastsikringselementet (10) er fastgjort mod en bevægelse på erhvervskøretøjskarosseriet (1).

10. Erhvervskøretøjskarosseri (1) ifølge et af kravene 1 til 9, **k e n d e t e g n e t ved, at** lastsikringselementet (10) er udformet som spændegjord.

10 **11.** Erhvervskøretøjskarosseri (1) ifølge et af kravene 1 til 10, **k e n d e t e g n e t ved, at** lastsikringselementet (10) er udformet som en profil.

12. Erhvervskøretøjskarosseri (1) ifølge krav 11, **k e n d e t e g n e t ved, at** lastsikringselementet (10) er udformet som en rektangulær profil.

15 **13.** Erhvervskøretøjskarosseri (1) ifølge et af kravene 1 til 12, **k e n d e t e g n e t ved, at** lastsikringselementet (10) omfatter fastgørelseselementer (13) til at arrangere laststøtteelementer (14, 15) som strækker sig på tværs oven for lastgulvet.

14. Erhvervskøretøjskarosseri (1) ifølge krav 13, **k e n d e t e g n e t ved, at** laststøtteelementerne (14, 15) er udformet som et støttenet med gitternetelementer som strækker sig på tværs, diagonalt og/eller vertikalt i forhold til lastrumsgulvet.

20 **15.** Erhvervskøretøjskarosseri (1) ifølge et af kravene 1 til 14, **k e n d e t e g n e t ved, at** lastsikringselementet (10) omfatter optageelementer til at arrangere yderligere laststøtteelementer (14, 15).

16. Erhvervskøretøjskarosseri (1) ifølge et af kravene 2 til 15, **k e n d e t e g n e t ved, at** låsningen af løbevognen (7) sker via formluttende låseelementer.

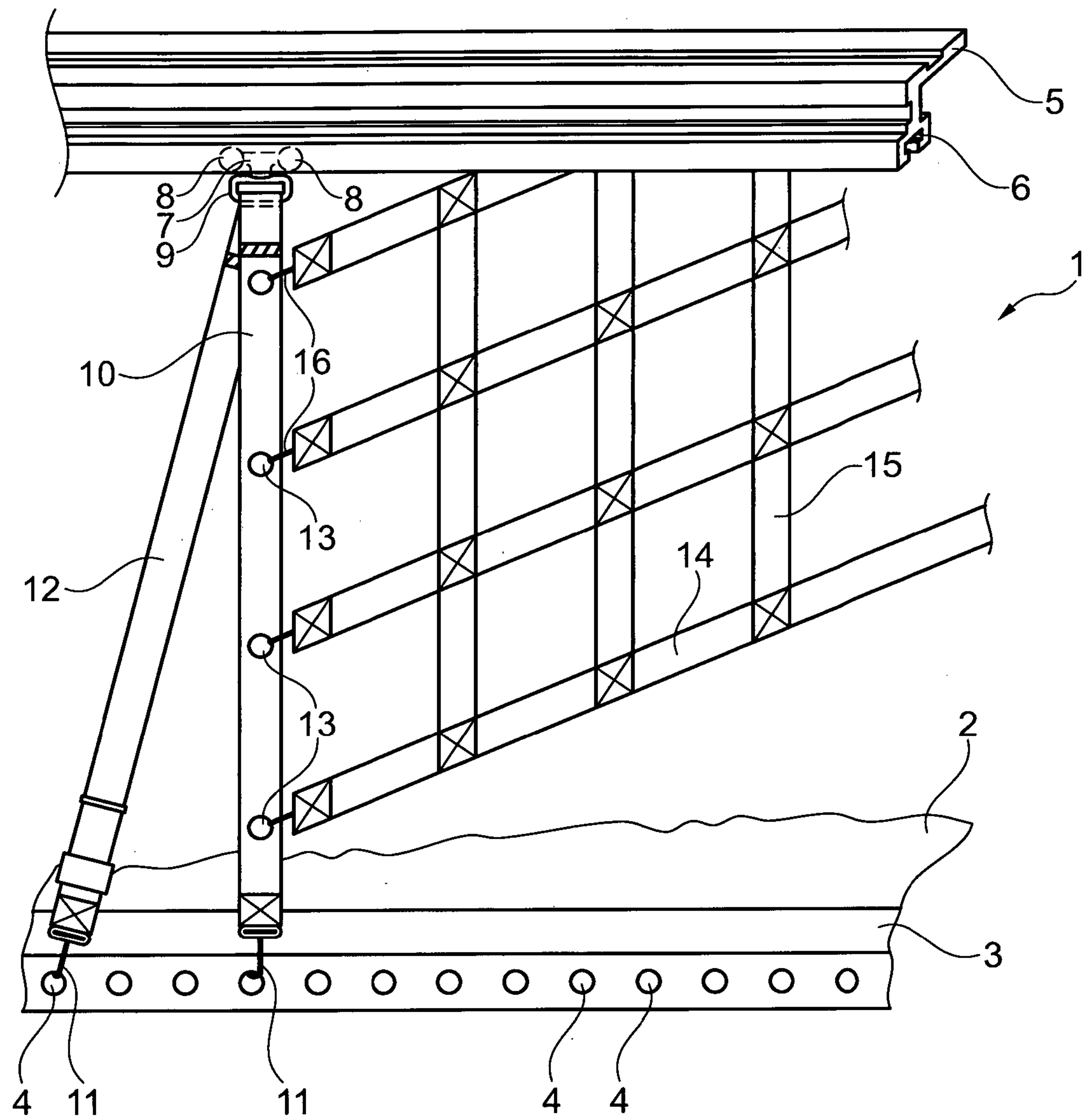


Fig. 1

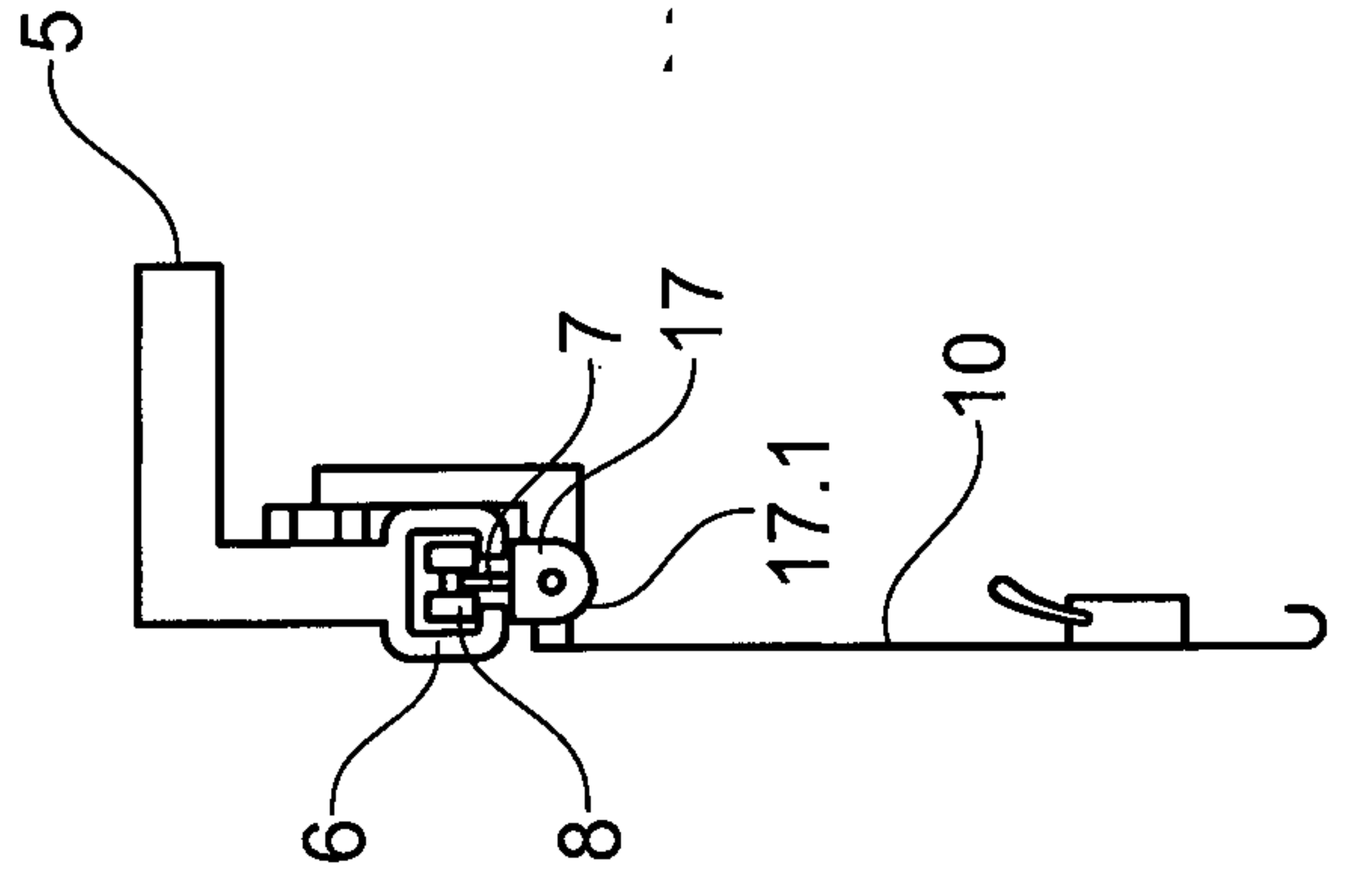


Fig. 2

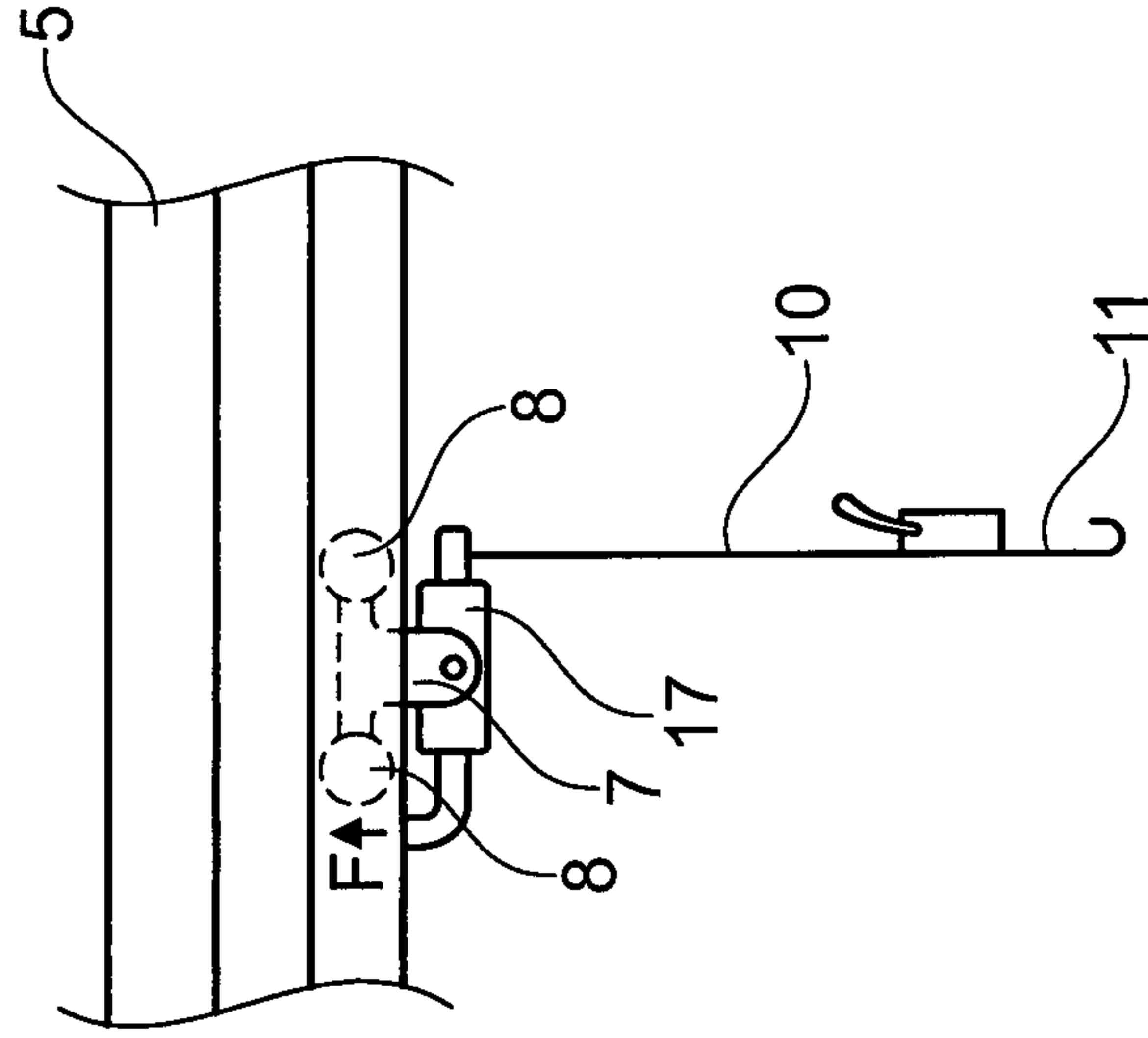


Fig. 3

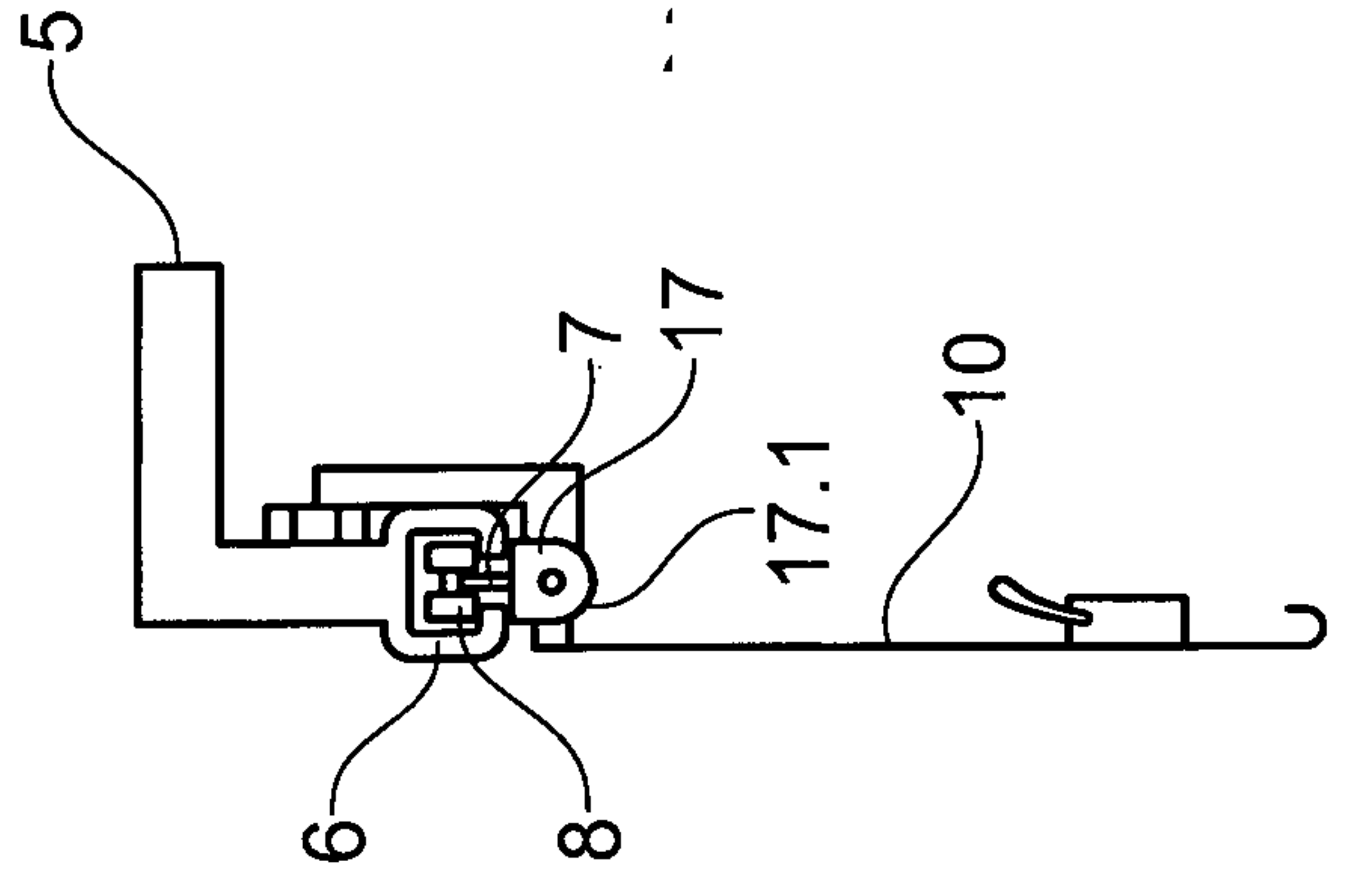


Fig. 4

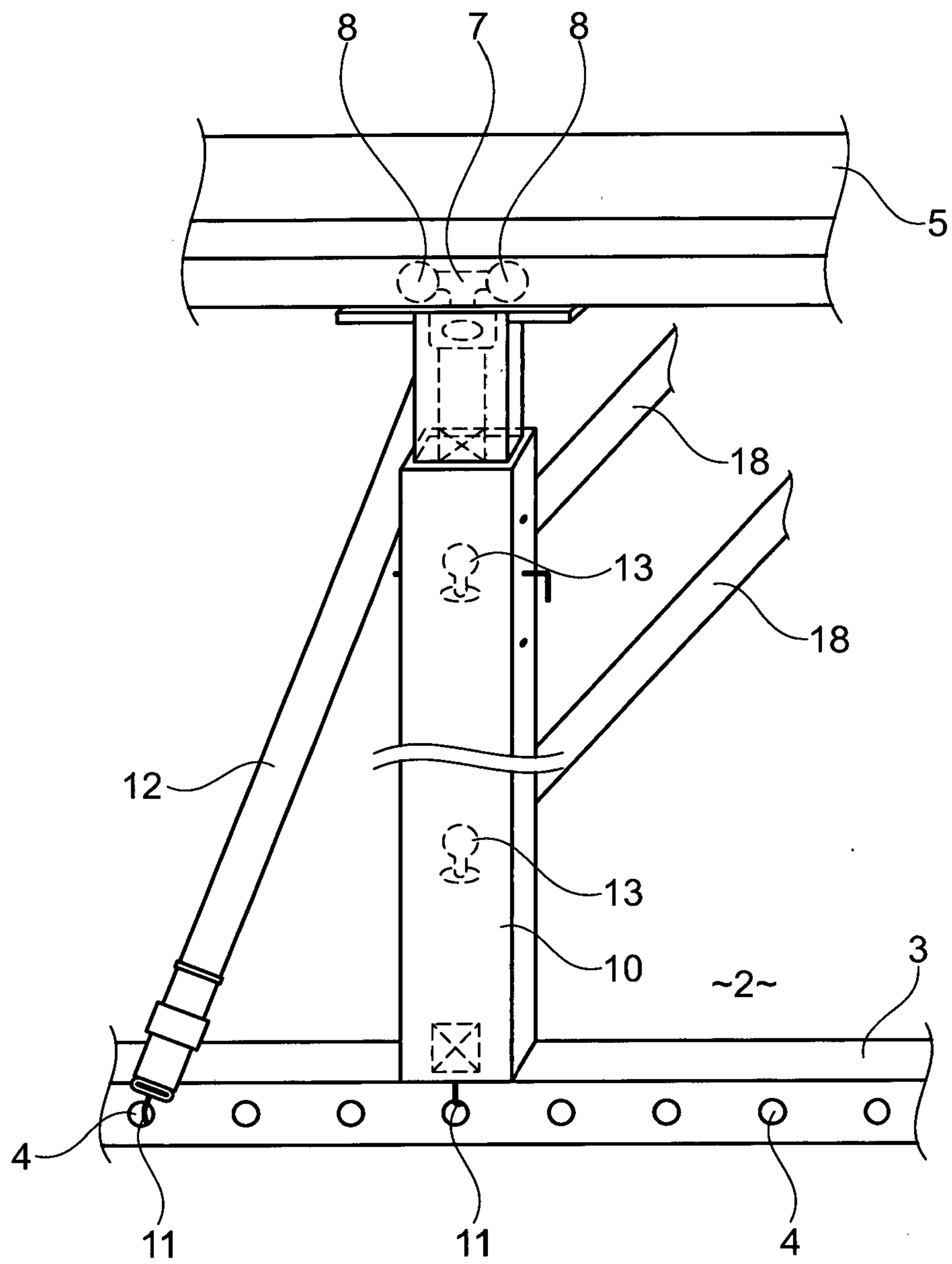


Fig. 5