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(54) **TEMPORARY SWITCH**

(57) A temporary switch (100) for directing rail traffic away from a primary track (200). The switch (100) comprises a pair of rails (1a, 1b) curving in the lateral direction, two frame beams (3a, 3b) arranged parallel to each other and spaced from each other by a distance corresponding to the track gauge of the primary track (200), and wherein the lower side of the frame beam (3a, 3b) comprises a concave cross-section for receiving a primary track rail

(300a, 300b). The frame beams (3a, 3b) are fastened to the pair of rails (1a, 1b) curving in the lateral direction and to each other such that the frame beam (3a) on the inner curve side extends from underneath the rail (1a) on the inner curve side to underneath the rail (1b) on the outer curve side, the temporary switch (100) being thus liftable over the rails of the primary track (200).

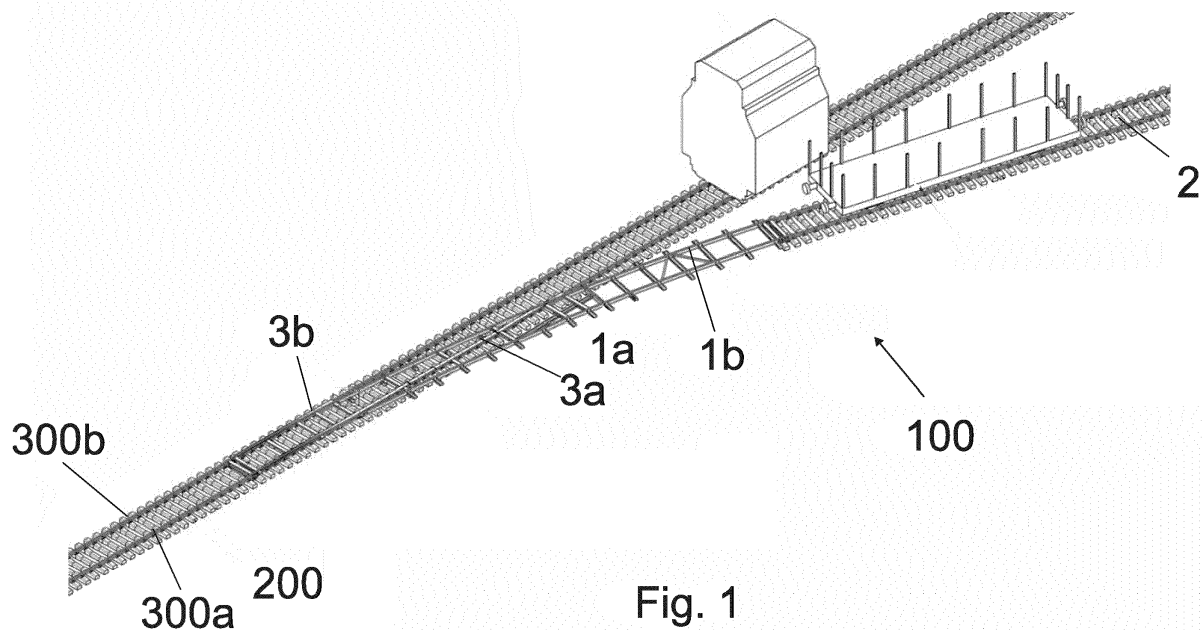


Fig. 1

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Description

Background

[0001] The invention relates to a temporary switch for directing rail traffic away from a primary track.

[0002] There are needs to direct rolling stock temporarily away from, or back to, a primary, operated track. Such needs involve for instance directing stock used for railway work, i.e. maintenance or construction of a track, to and away from the track, or for example for transporting material by rail to a construction site located in the vicinity of the track.

Short description

[0003] The temporary switch according to the invention is characterized in that the switch comprises

- a pair of rails curving in the lateral direction
- two frame beams arranged parallel to each other and spaced from each other by a distance corresponding to the track gauge of a primary track,
- a lower side of the frame beam comprises a concave cross-section for receiving a primary track rail,
- the frame beams are fastened to the pair of rails curving in the lateral direction and to each other such that the frame beam on the inner curve side extends from underneath the rail on the inner curve side to underneath the rail on the outer curve side, and that

the temporary switch is liftable over the primary track rails.

[0004] Other embodiments of the invention are characterized by the features set forth in other claims.

[0005] Inventive embodiments are also set forth in the description and drawings of this application. The inventive content disclosed in the application may also be defined in another way besides that described in the following claims. The inventive content may also consist of several individual inventions, especially if the invention is considered in light of the disclosed or implicit sub-functions or in terms of the benefits or categories of benefits provided. In that case, some of the features disclosed in the following claims may be unnecessary for individual inventive ideas. The features of different embodiments of the invention may be applied in connection with other embodiments within the scope of the basic inventive idea.

Short description of the figures

[0006] The invention is disclosed in more detail in the accompanying drawings, in which

Fig. 1 schematically illustrates one temporary switch arranged on a primary track as a perspective view, Fig. 2 schematically illustrates the temporary switch of Fig. 1 arranged on the primary track as a top view,

Fig. 3 schematically illustrates one temporary switch as a top view,

Fig. 4 schematically illustrates one detail of a temporary switch as a top view, and

Fig. 5 schematically illustrates another detail of a temporary switch as a top view.

[0007] For clarity purposes, the invention is illustrated in the figures in a simplified form. Like parts are indicated with the same reference numerals in the figures.

Detailed description

[0008] Fig. 1 schematically illustrates one temporary switch 100 arranged on a primary track 200 as a perspective view, while Fig. 2 illustrates a corresponding top view.

[0009] The temporary switch 100 comprises a pair of rails curving in the lateral direction, including rails 1a, 1b.

The temporary switch 100 directs rail traffic coming from the bottom left in the figure away from the primary track 200 to a side track 2.

[0010] The temporary switch 100 further comprises two frame beams 3a, 3b arranged parallel to each other and spaced from each other by a distance corresponding to the track gauge of the primary track 200. A lower side of the frame beam 3a, 3b comprises a concave cross-section sized such that a primary track rail 300a, 300b may be fitted in said concave cross-section. This way, the frame beams 3a, 3b hold the temporary switch 100 over the primary track 200 and prevent or at least limit a lateral movement between the temporary switch 100 and the primary track.

[0011] The frame beams 3a, 3b are fastened to the pair of rails 1a, 1b curving in the lateral direction and to each other such that the frame beam 3a on the inner curve side extends from underneath the rail 1a on the inner curve side to underneath the rail 1b on the outer curve side. The mechanical structure of the temporary switch 100 is sized such that it is liftable as one piece over the primary track rails 300a, 300b, and vice versa, it is liftable as one piece away from the primary track 200. This way, the temporary switch 100 may be moved quickly to and away from the primary track 200. By using the temporary switch 100 according to the invention, disturbances and delays occurring in the operation of the track may be reduced to a substantial degree.

[0012] Fig. 3 schematically illustrates one temporary switch as a top view. In one embodiment the temporary switch 100 comprises one or more adjustment supports 4 arranged to support the temporary switch rail 1b on the outer curve side. It should be noted that the adjustment supports may also be used for supporting the rail 1a on the inner curve side. In the embodiment illustrated in Fig. 3 the adjustment support 4 comprises a substantially horizontal beam 5, transverse relative to the rail, secured to a suitable point of the rail 1b by a pressure joint. The adjustment support 4 may further comprise height ad-

justment elements, such as screw adjustment, one or more wedges or a shim by which the temporary switch 100 can be supported against an embankment or the like. The adjustable and removable adjustment supports 4 facilitate the fitting of the temporary switch, regardless of the shape, size, positioning and material of railroad ties of the primary rail.

[0013] According to one idea the temporary switch 100 comprises at least one additional segment 6 comprising additional segment rails 7a, 7b. The additional segment 6 is removably connectable to the rails of the temporary switch at their end 8a, 8b curving away from the primary track. By means of the additional segment 6, the distance of the side track 2 from the primary track 200 may be increased without, however, increasing the size of the temporary switch 100. Thus, installing the temporary switch 100 is simple and does not require excessively heavy-duty cranes.

[0014] Fig. 5 illustrates one embodiment for fastening the additional segment 6. Accordingly, the pair of rails of the temporary switch comprises guide means 18 and the pair of rails of the additional segment comprises their counterpart means 19. In the embodiment of the figure the guide means 18 is a locating pin and the counterpart means 19 is a counterpart hole receiving the guide pin. The guide means 18 and the counterpart means 19 are arranged for aligning the pairs of rails so as to make their connecting easier and quicker.

[0015] Fig. 4 schematically illustrates one detail of the temporary switch as a top view. Firstly, it can be seen that in the embodiment illustrated in the figure, the cross-sectional profile of the frame beam 3a, 3b may be a U-profile at least along part of the length of the frame beam. In one other embodiment the cross-sectional profile of the frame beam 3a, 3b comprises an L-profile. One purpose of the frame beams 3a, 3b is to hold the temporary switch 100 laterally in the right place relative to the primary track 200.

[0016] According to one idea the temporary switch 100 comprises fastening means 9 for removably fastening the temporary switch 100 to the primary track 200. In Fig. 4 the fastening means 9 are arranged in the vicinity of the tip of the temporary switch 100, i.e. the point where the temporary switch 100 receives rolling stock coming from the primary track. The fastening means 9 may of course be arranged at more than one point of the temporary switch 100.

[0017] In the embodiment illustrated in Fig. 4 the fastening means 9 include an upper beam 10 fastened under both of the rails 1a, 1b of the pair of rails of the temporary switch, and a lower beam 11 arranged under the rails of the primary track 200. The length of the lower beam is selected so as to be arrangeable under the pair of rails of the primary track such that it extends at least under both of the rails 300a, 300b of the primary track. The fastening means 9 further comprise coupling means 12 arranged to couple the upper beam 10 to the lower beam 11 alongside the primary track rail 300a, 300b. In the

embodiment illustrated in the figure the fastening means 9 comprise two coupling means 10. The coupling means 12 are arranged to be fastened to the upper and lower beams between the primary track rails 300a, 300b.

[0018] In the embodiment illustrated in the figure the coupling means 12 comprise an upper fastening pin 13 fitted through the upper beam 10, a lower fastening pin 14 fitted through the lower beam 11, and threaded tightening pins 15 fitted through both ends of the fastening pins 13, 14 with nuts 16. The beams 10, 11 may be tightened by means of the tightening pins 15 and the nuts 16 against the primary track rails 300a, 300b so as to fasten the temporary switch 100 to the primary track.

[0019] According to one idea the temporary switch 100 is arrangeable over different-sized rails, such as over rails of, for example, 54kg and 60kg. To compensate for rail size differences, one or more height adjustment plates 17 may be arranged under the frame beam 3a, 3b, i.e. between the frame beam and the primary track rail 300a, 300b. By adding or removing the height adjustment plates 17, the temporary switch 100 can be adapted for different-sized rails. In one embodiment the height adjustment plate 17 is at least substantially equally long as the corresponding frame beam 3a, 3b.

[0020] In some cases the features disclosed in this application may be used as such, regardless of the other features. On the other hand, the features disclosed in this application may be combined as necessary to form various combinations.

[0021] The purpose of the drawings and the related description is only to explain the idea of the invention. It is obvious for a person skilled in the art that the invention is not limited to the embodiments disclosed above, illustrating the invention by way of some examples, but many modifications and various applications of the invention are possible within the scope of the inventive idea defined by the following claims.

References

[0022]

1a, 1b	temporary switch rail
2	side rail
3a, 3b	frame beam
4	adjustment support
5	adjustment support beam
6	additional segment
7a, 7b	additional segment rail
8a, 8b	rail end
9	fastening means
10	upper beam
11	lower beam
12	coupling means
13	upper fastening pin
14	lower fastening pin
15	tightening pin
16	nut

17	height adjustment plate
18	guide means
19	counterpart means
100	temporary switch
200	primary track
300a, 300b	primary track rail

Claims

1. A temporary switch (100) for directing rail traffic away from a primary track (200), the switch (100) comprising

- a pair of rails (1a, 1b) curving in the lateral direction,
- two frame beams (3a, 3b) arranged parallel to each other and spaced from each other by a distance corresponding to the track gauge of the primary track (200),
- the lower side of the frame beam (3a, 3b) comprises a concave cross-section for receiving a primary track rail (300a, 300b),
- the frame beams (3a, 3b) are fastened to the pair of rails (1a, 1b) curving in the lateral direction and to each other such that the frame beam (3a) on the inner curve side extends from underneath the rail (1a) on the inner curve side to underneath the rail (1b) on the outer curve side, and that

the temporary switch (100) is liftable over the rails of the primary track (200).

2. The temporary switch according to claim 1, wherein the cross-sectional profile of the frame beam (3a, 3b) comprises a U-profile.

3. The temporary switch according to claim 1, wherein the cross-sectional profile of the frame beam (3a, 3b) comprises an L-profile.

4. The temporary switch according to any of the preceding claims, comprising fastening means (9) for fastening to the primary track (200), the fastening means (9) including:

- an upper beam (10) fastened under both of the rails (1a, 1b) of the pair of rails of the temporary switch,
- a lower beam (11) arranged under the primary track rails (300a, 300b), the length of the lower beam selected such that it extends at least under both of the rails (300a, 300b) of the primary track,
- coupling means (12) arranged to couple the upper beam (10) to the lower beam (11) alongside the rails of the primary track.

5. The temporary switch according to claim 4, wherein

the coupling means (12) are arranged to be fastened to the upper and the lower beam (10, 11) between the primary track rails (300a, 300b).

6. The temporary switch according to claim 4 or 5, wherein the coupling means (12) comprise

- an upper fastening pin (13) fitted through the upper beam (10),
- a lower fastening pin (14) fitted through the lower beam (11),
- threaded tightening pins (15) fitted through both ends of said fastening pins (13, 14), and
- nuts (16) to be fitted onto the thread of the tightening pins (15) so as to tighten the beams (10, 11) against the primary track rails (300a, 300b).

7. The temporary switch according to any of the preceding claims, comprising one or more adjustment supports (4), the adjustment support arranged under the rail (1b) on the outer curve side, and wherein the fixing point of the adjustment support (4) to said rail is moveable.

8. The temporary switch according to any of the preceding claims, comprising a height adjustment plate (17) arranged removably under the frame beam (10, 11), the temporary switch (100) being adaptable for different-sized rails by adding or removing said plate (17).

9. The temporary switch according to any of the preceding claims, comprising an additional segment (6) comprising a pair of rails (7a, 7b) for being removably connectable to an end (8a, 8b) of the pair of rails of the temporary track curving away from the primary track.

10. The temporary switch according to claim 9, wherein the pair of rails of the temporary switch comprises guide means (18) and the pair of rails of the additional segment comprises their counterpart means (19), the guide means and the counterpart means (18, 19) being arranged for aligning said pairs of rails.

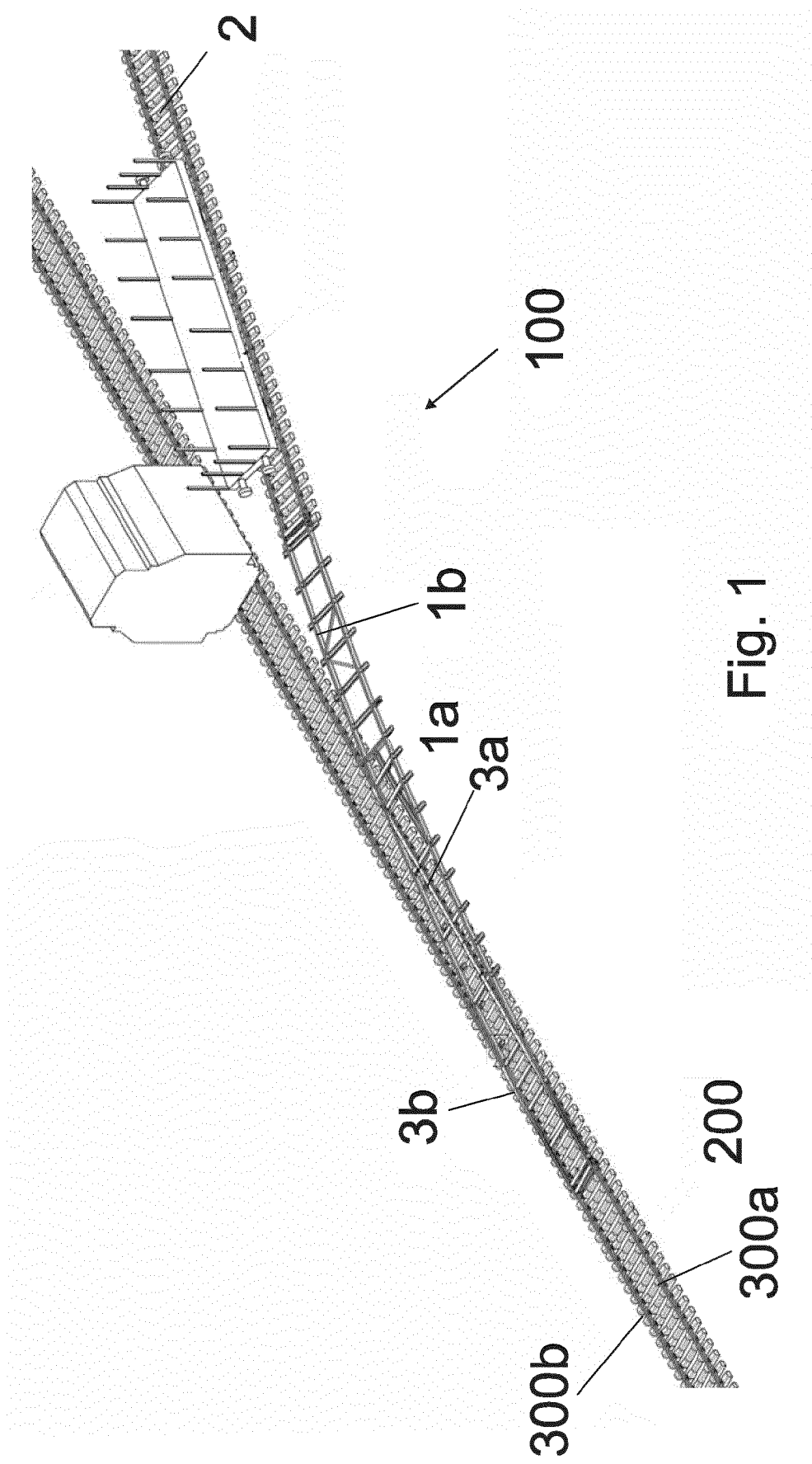
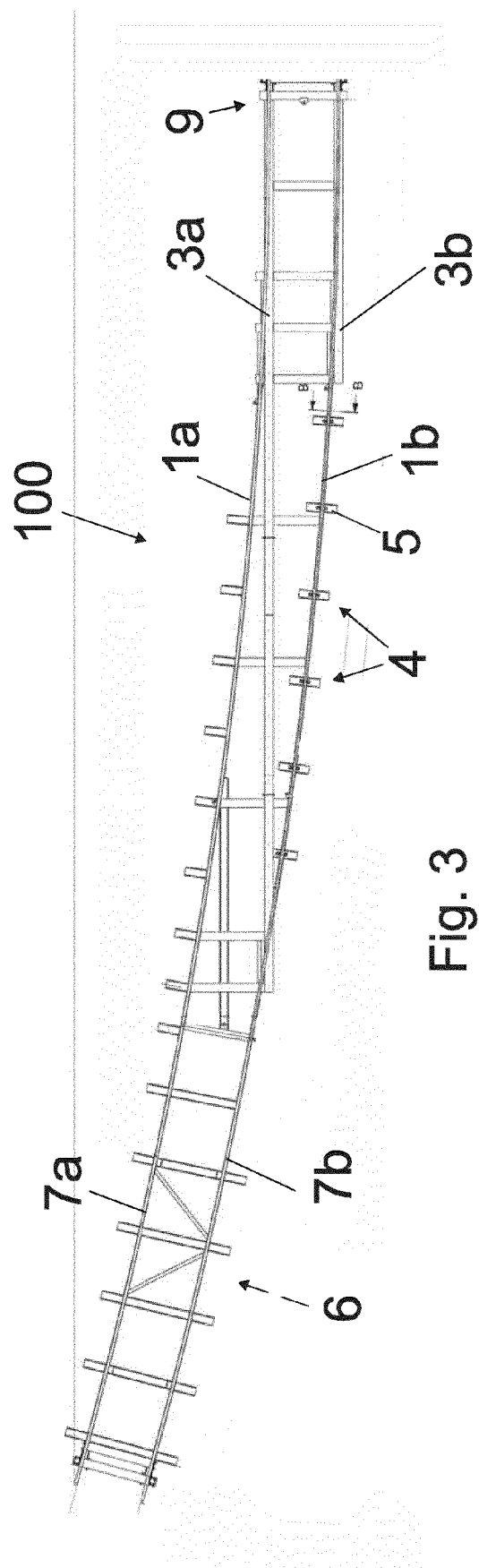
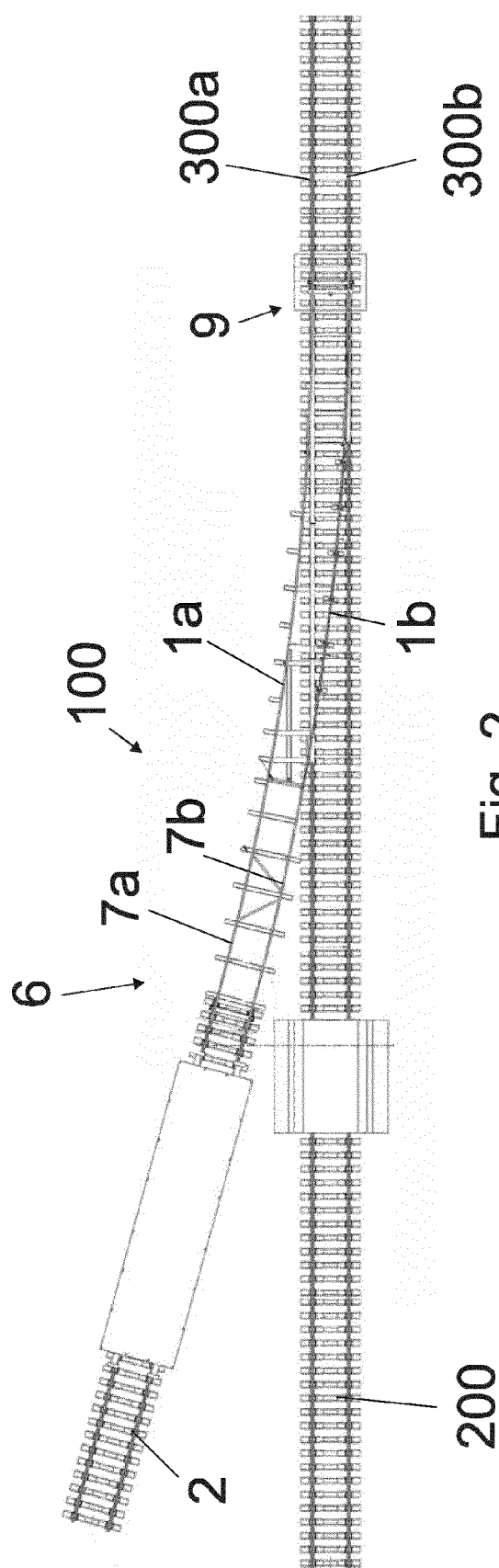


Fig. 1



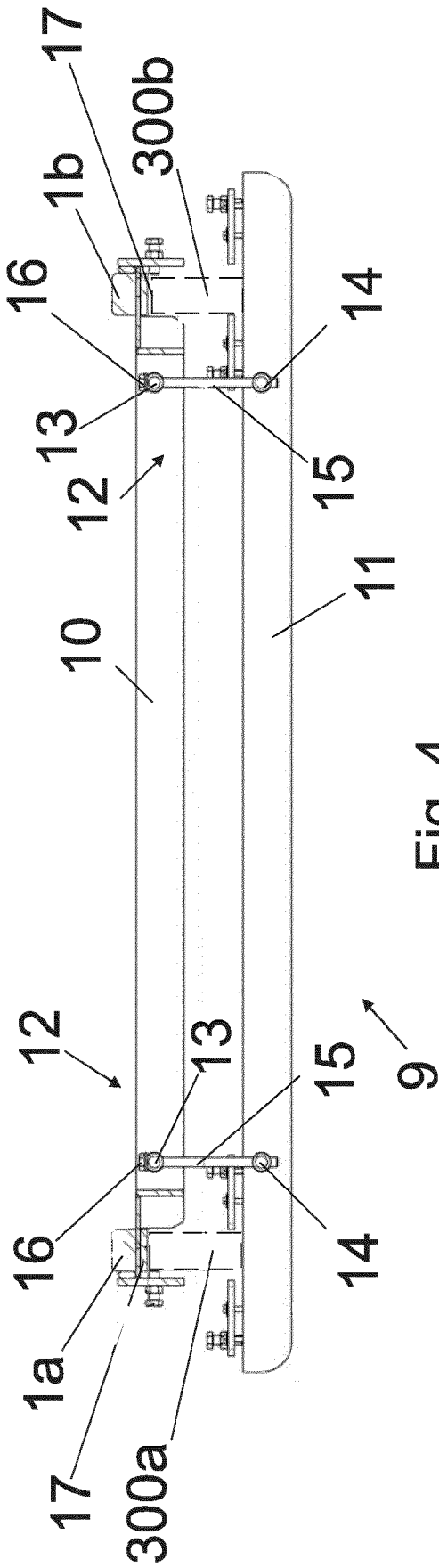


Fig. 4

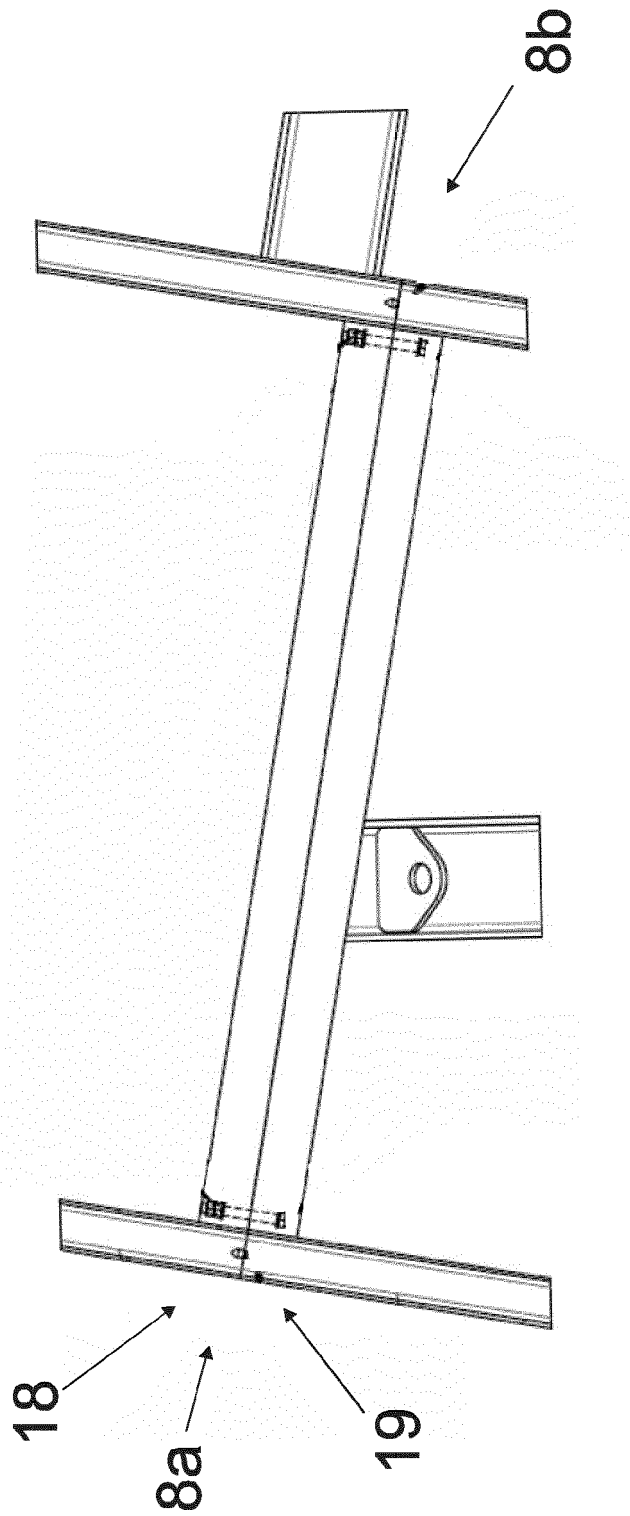


Fig. 5



EUROPEAN SEARCH REPORT

Application Number
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DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 15 July 2019	Examiner Movadat, Robin
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**ANNEX TO THE EUROPEAN SEARCH REPORT
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15-07-2019

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