

(19)



(11)

**EP 1 811 085 A2**

(12)

**EUROPEAN PATENT APPLICATION**

(43) Date of publication:  
**25.07.2007 Bulletin 2007/30**

(51) Int Cl.:  
**E01B 26/00 (2006.01)**

(21) Application number: **07075042.7**

(22) Date of filing: **15.01.2007**

(84) Designated Contracting States:  
**AT BE BG CH CY CZ DE DK EE ES FI FR GB GR  
 HU IE IS IT LI LT LU LV MC NL PL PT RO SE SI  
 SK TR**  
 Designated Extension States:  
**AL BA HR MK RS**

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(30) Priority: **19.01.2006 NL 1030956**

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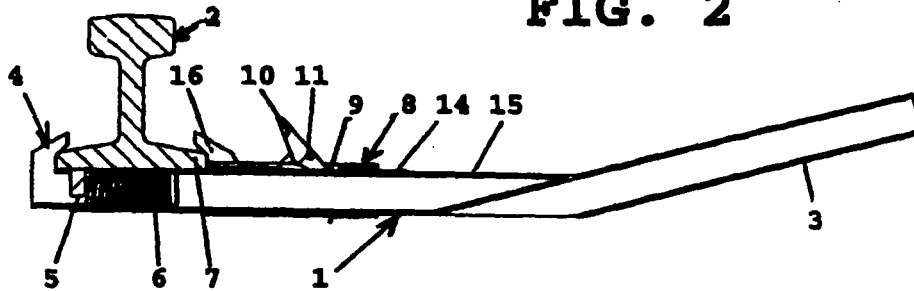
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**(54) Device for securing a safety construction to a rail**

(57) Device for securing a safety construction to a rail (2), comprising an elongated portion, such as a tube (1), that can be slid underneath the rail. The free end of the tube (1) has a hook-shaped portion (4) that grips across the foot (7) of the rail (2). A bush (8) is slidably mounted on the tube and has at least one lip (16) that can grip across the foot (7) of the rail (2) and has a slot

(9) in its upper surface, holding a pivotably mounted cam (10) that can cooperate with a tothing (14) which is mounted in or on the upper surface (15) of the tube. Cam (10) and tothing (14) are designed and mounted such, that the cam and thus the bush (8) can be locked in the position in which the lip (16) is located above the foot of the rail.

**FIG. 2**



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## Description

**[0001]** The invention relates to a device for securing a safety construction to a rail, said device having an elongated part, as in the shape of a tube, that can be slid underneath the rail, the free end of said tube being provided with a hook-shaped part which might grip across one side of a rail foot, a bush being slidably, but not rotatably, positioned on said tube at a distance from said hook-shaped part and being provided with a lip which might grip across the other side of the rail foot, means being present for locking said bush on said tube.

**[0002]** Such a device is known by EP-A-0 708 204 and serves for mounting a safety construction, such as in the shape of a fencing, to a rail. This fencing is employed for protection of the railroad workers. Obviously said construction has to be suitable for use on different widths of the foot of a rail.

**[0003]** In case of said known construction various means are described which are suitable for locking said bush on said tube. Said means has to be operated by hand which takes relatively much time during which no train will be allowed to pass the track concerned.

**[0004]** Now the object of the invention is to provide a device in which deviations in the width of the rail foot can be easily compensated and which device can be mounted very quickly.

**[0005]** To said end, according to the invention, the upper surface of said bush, as seen in its mounted position, is provided with a pivotably connected cam which can cooperate with a tothing mounted in or on the upper surface of said tube, said cam and tothing being arranged such, that said cam and thus said bush can be locked in the position in which the lip, connected to said bush, is positioned above the foot of said rail.

**[0006]** After the tube has been slid underneath the rail and has been pulled back a little so that the hook-shaped part at the end thereof is situated above the rail foot, the bush can be slid across the tube and towards the rail foot. This can be done quickly while during this displacement, the cam snaps across the teeth and will abut against one tooth of the tothing in an end position of the bush. This prevents the bush from making a backward movement. This allows a considerable reduction of the time during which the railway can not be used.

**[0007]** It will be obvious that for the movement of said bush towards the rail a person need not be present in the direct neighbourhood of said rail.

**[0008]** It is possible to shape the cam and to pivotably connect it to the bush in such a way, that gravity causes it to fall into the tothing. However, free rotation of the cam might be counteracted, such as by dirt, for example.

**[0009]** As regards to that, according to the invention it can be provided for, that said cam extends through a slot in the upper plane in said bush and is operated by a draw spring, which is connected to said bush and said cam in such a way that the cam will take up a stable position in both positions.

**[0010]** The successive teeth of the tothing on the tube will be spaced-apart across a certain, although small distance. This might cause that the clamping of the device on the rail foot is less stable than desirable.

5 **[0011]** As regards to this, according to the invention it can be provided for, that said hook-shaped part coupled to the free end of the tube has a sliding portion, which is slidably mounted in the tube and is pulled into the tube by a spring, until a part of said sliding portion projecting radially from the tube is pulled against a stop connected to said tube.

10 **[0012]** Since said hook-shaped part need only be displaced across a small distance, to wit basically across a distance being smaller than the distance between two teeth of the tothing, the spring between sliding portion and tube is able to exert a relatively large force. Further, the sliding portion can be caused to be displaced only across the required distance. This will give an appropriate connection of the tube to the rail.

15 **[0013]** Here, it can be provided for, that the bush has two spaced-apart hooks that can grip across the rail, and that a magnet has been mounted between the hooks, that can abut the rail. This allows for further simplification of mounting.

20 **[0014]** The invention is further explained by way of an embodiment, illustrated in the drawing, in which:

Fig. 1 illustrates a plan view of a device according to the invention mounted on a rail;

30 Fig. 2 illustrates a cross-section of the device from fig. 1 along the line II - II;

Fig. 3 and 4 illustrate perspective views from the two sides of the rail illustrated in figures 1 and 2 with the device mounted on it.

35 **[0015]** The device illustrated in the drawing first comprises a tube 1, in this case having a rectangular cross-section, extending outwards from rail 2 and being connected to a fencing not illustrated, being the safety device for the railway, through an extension 3.

40 **[0016]** At the free end of the tube 1 is a hook-shaped portion 4 that is provided with a sliding portion 5 which is slidably received in the tube and is pulled inwards into the tube by a spring 6. The distance across which said sliding portion 5 can move is only small, to wit not greater than the distance between two teeth of the tothing described here after. Hook-shaped portion 4 extends across the foot 7 of rail 2.

45 **[0017]** At the other side of the rail 2, a bush 8 is slidably mounted on the tube 1. The bush is provided with a slot 9 which holds a cam 10, which is pivotable around a shaft 11, which is supported by lips 12 protruding upwards from the bush 8.

50 **[0018]** As illustrated in figure 4 in particular, a spring 13 can extend between the cam 10 and the bush 8, so that the spring will pull the cam to the two extreme positions. The spring 13 might be omitted if the cam 10 is designed such, that due to its weight it will be moved to

the position illustrated in the drawing, in which it engages the tothing 14.

**[0019]** The cam 10 is provided with an edge that can abut a tooth of tothing 14, which is arranged in the upper surface 15 of said tube 1.

**[0020]** Bush 8 is further provided with two hooks 16 that can grip across the base 7 of the rail 2.

**[0021]** As explained earlier, when using the device, tube 1 is slid underneath the rail 2 until the hook-shaped portion 4 is located behind the foot 7 of the rail 2. Hook-shaped portion 4 will then be pulled across the foot 7 and after that the bush 8 is slid towards the rail 2, until the hooks 16 extend across the foot 7 of the rail 2.

**[0022]** Additionally, it is possible to mount a magnet 18 between the hooks 16 of the bush 8. When sliding the bush 8 towards the rail 2, the magnet 18 will abut the rail 2, causing the bush to be kept in place. This can facilitate the mounting of the device.

**[0023]** On displacement of the bush 8, the cam 10 will snap across the tothing 14, possibly tensioned by the spring 13. In the end position of bush 8, the edge of the cam 10 is positioned behind a tooth of tothing 14 and the bush can not be pulled back.

**[0024]** When demounting the device, the cam 10 will be pivoted to the other position and be maintained in this position by the spring 13 so that the bush 8 can be slid and its teeth 16 will be released from the foot 7 of the rail 2. Then, the tube can be slid towards the rail 2 until the hook-shaped portion 4 is free from the foot 7 and can be pulled out from underneath the rail 2.

**[0025]** In order to enable easy handling of the various parts, their sides have been provided with pins 17 that can be engaged by suitable tools.

**[0026]** It will be obvious, that only one possible embodiment of a device according to the invention has been illustrated in the drawing and has been described above and that many modifications can be made without leaving the inventive idea, as this is indicated in the claims.

## Claims

1. Device for securing a safety construction to a rail (2), said device having an elongated part, as in the shape of a tube (1), that can be slid underneath the rail, the free end of said tube (1) being provided with a hook-shaped part (4) which might grip across one side of a rail foot (7), a bush (8) being slidably, but not rotatably, positioned on said tube (1) at a distance from said hook-shaped part (4) and being provided with a lip (16) which might grip across the other side of the rail foot (7), means being present for locking said bush (8) on said tube, **characterized in that** the upper surface of said bush (8), as seen in its mounted position, is provided with a pivotably connected cam (10) which might cooperate with a tothing (14) mounted in or on the upper surface of said tube (1), said cam (10) and tothing (14) being arranged such,

that said cam and thus said bush (8) can be locked in the position in which the lip (16), connected to said bush, is positioned above said foot (7) of the rail (2).

2. Device according to claim 1, **characterized in that** said cam (10) extends through a slot (9) in the upper plane in said bush (8) and is operated by a draw spring (13, which is connected to said bush (8) and said cam (10) in such a way that the cam (10) will take up a stable position in both positions.

3. Device according to claim 1 or 2, **characterized in that** said hook-shaped part (4) coupled to the free end of the tube (1) has a sliding portion (5), which is slidably mounted in the tube (1) and is pulled inwards into the tube (1) by a spring (6), until a part of said sliding portion (5) projecting radially from the tube (1) is pulled against a stop connected to said tube (1).

4. Device according to one of the preceding claims, **characterized in that** the bush (8) has two spaced-apart lips (16) that can grip across the rail foot (7), and that a magnet (18) has been mounted between the hooks (16), that can abut the rail (2).

FIG. 2

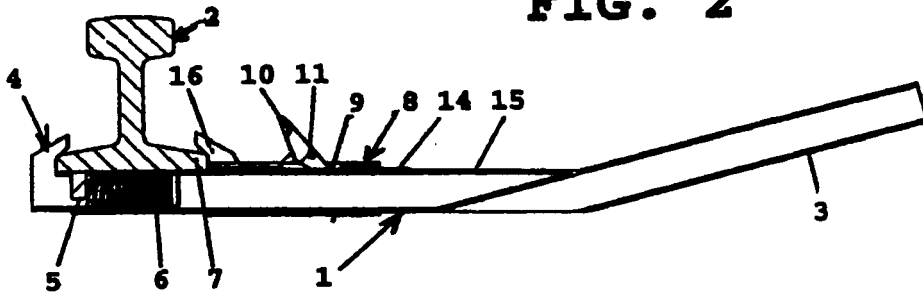


FIG. 1

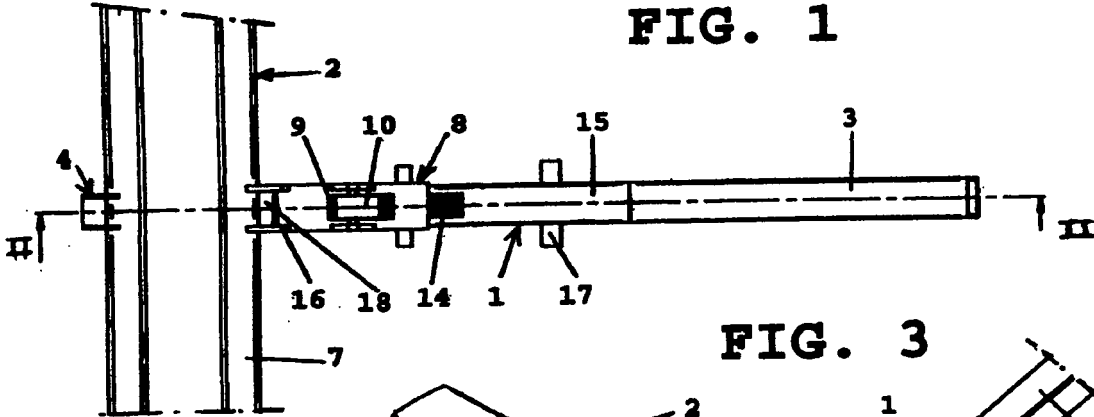


FIG. 3

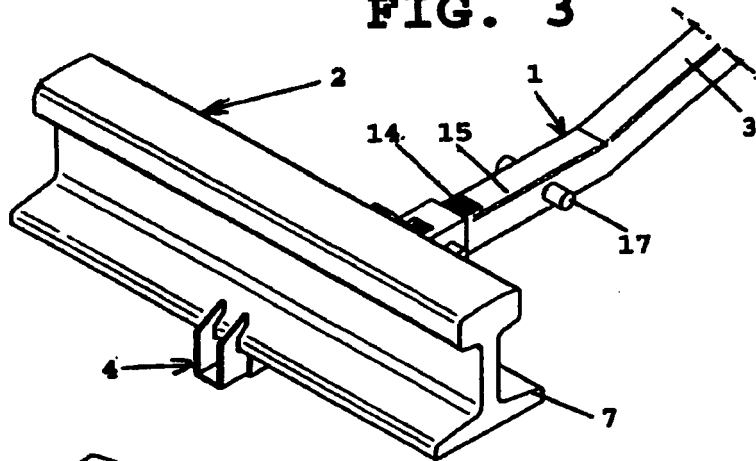
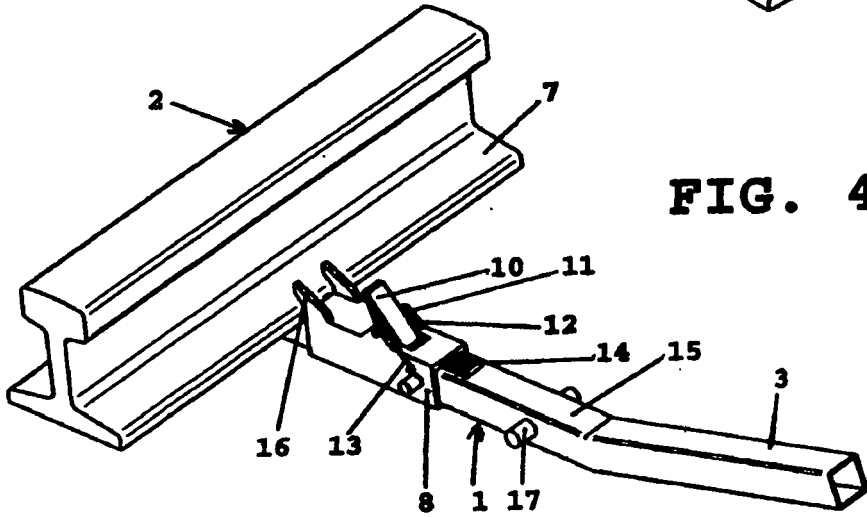


FIG. 4



**REFERENCES CITED IN THE DESCRIPTION**

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**Patent documents cited in the description**

- EP 0708204 A [0002]