United States Patent [19]

Rossi

[11] **3,767,114**

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[54] **DEVICE FOR RETAINING RAILS OF MINIATURE TRAINS**

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[52] **U.S. Cl.** ..... **238/10 E**

[51] **Int. Cl.** **A63h 19/00**

[58] **Field of Search** ..... 238/10 E, 10 F; 46/1 K; 104/60

[56] **References Cited**

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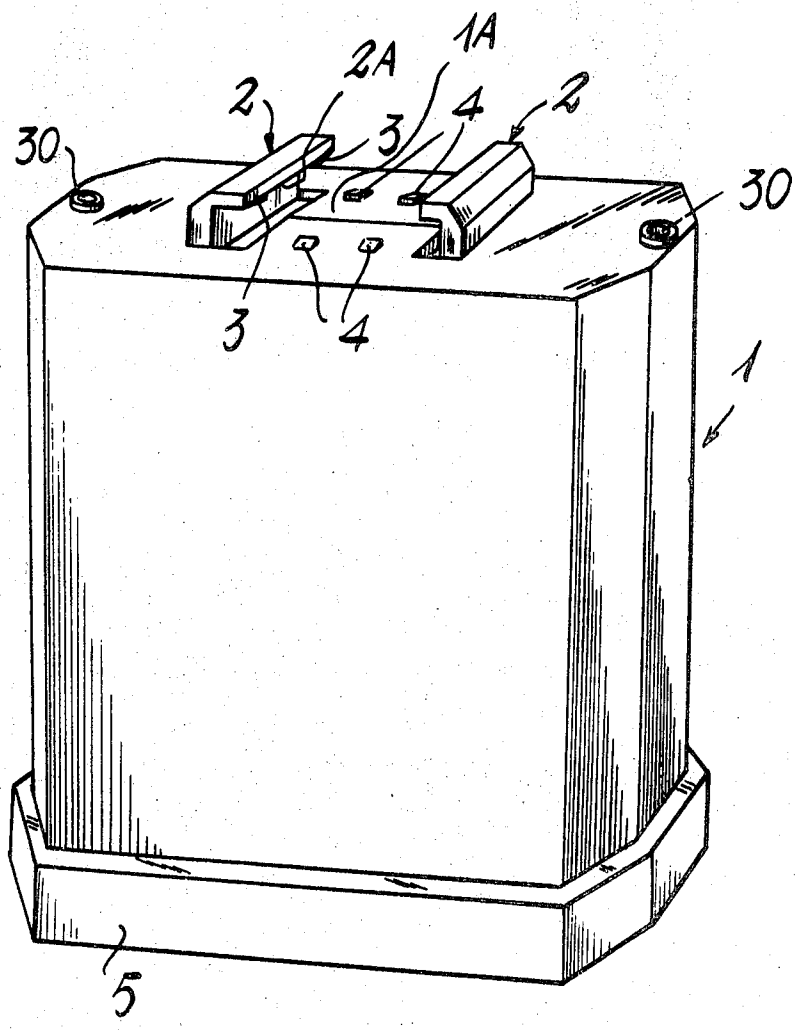
[57] **ABSTRACT**

A device for supporting rail sections for miniature trains to obtain viaducts or grades, comprising pillars having at their upper ends spaced hook like extensions provided with engaging fingers for engaging cooperating hook like extensions at the ends of the rail sections.

7 Claims, 11 Drawing Figures



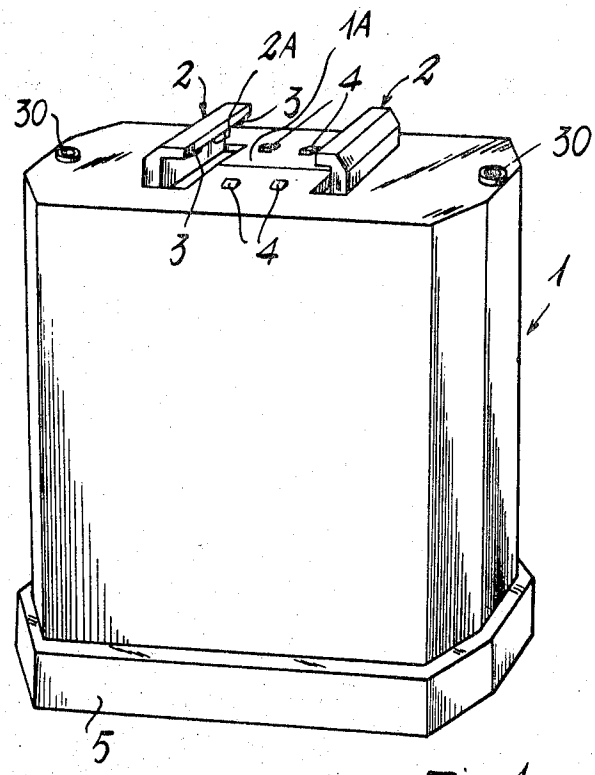


Fig. 1

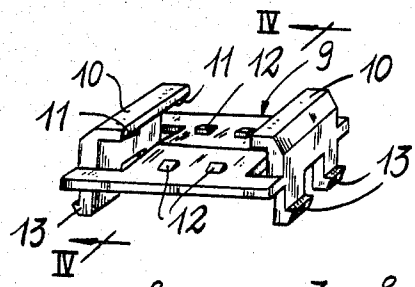


Fig. 3

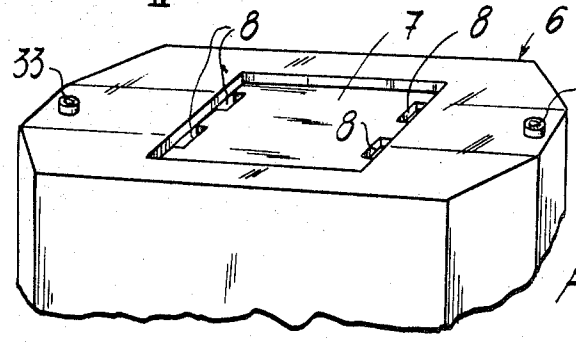


Fig. 2

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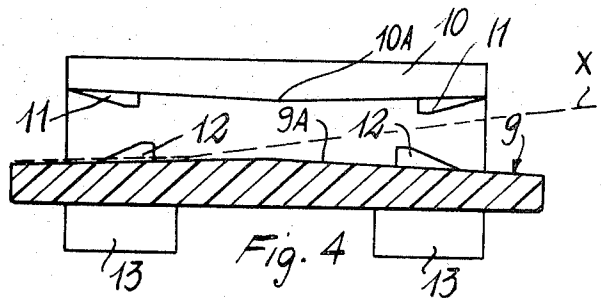

Fig. 4

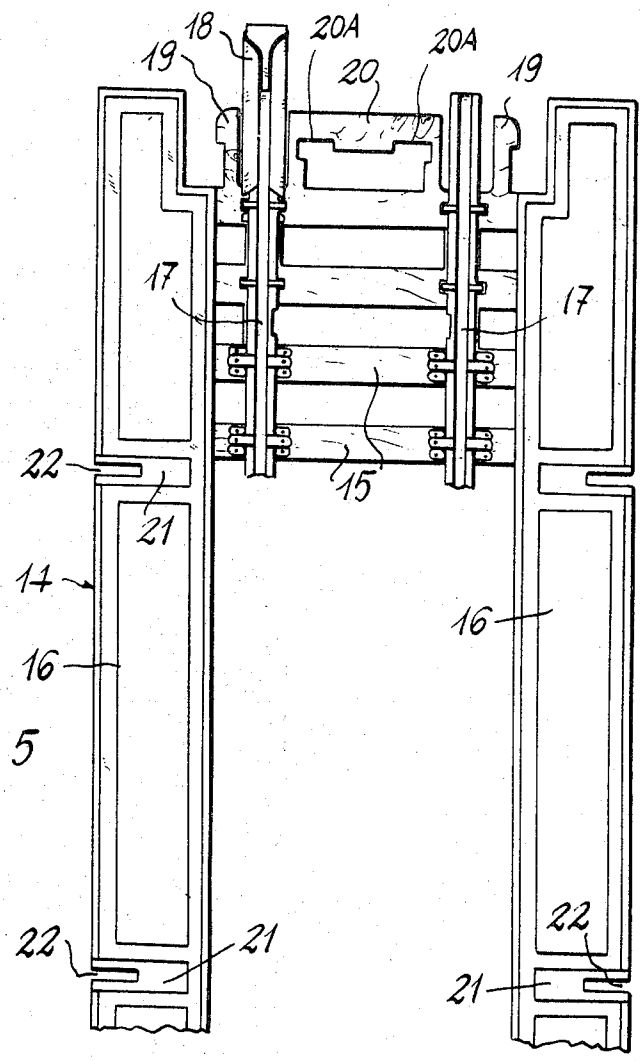

Fig. 5

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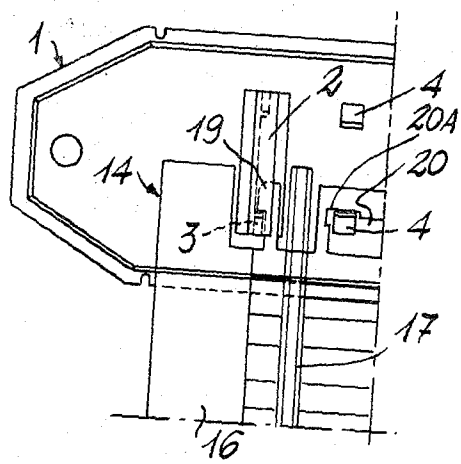

Fig. 6

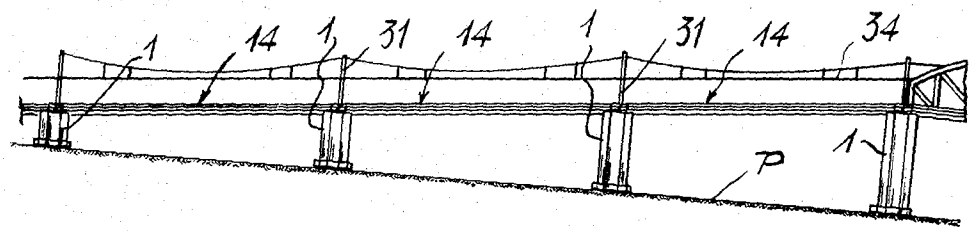

Fig. 7

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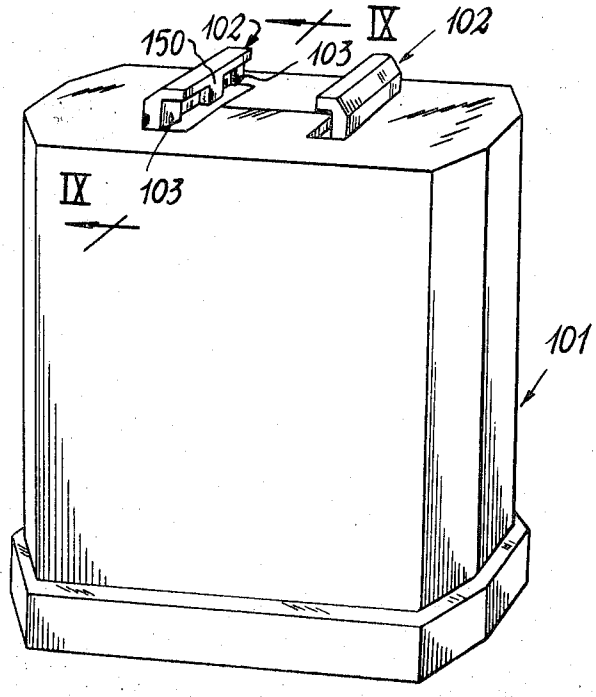

Fig. 8

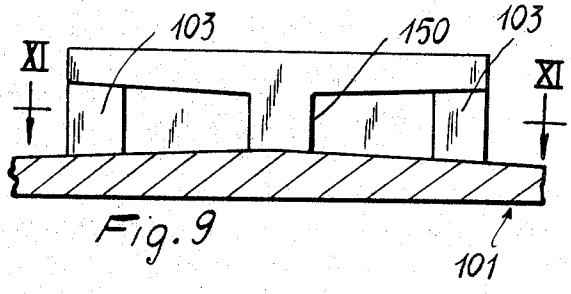

Fig. 9

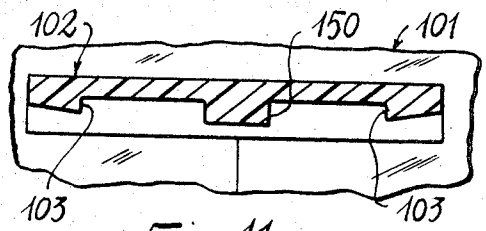

Fig. 11

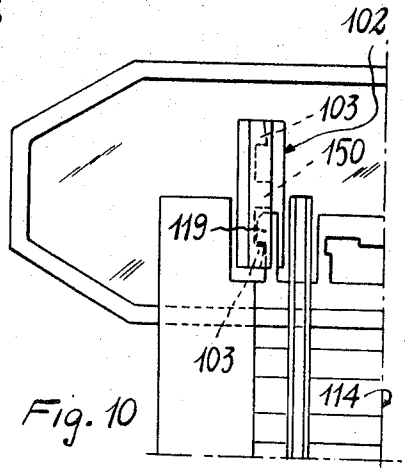

Fig. 10

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DEVICE FOR RETAINING RAILS OF MINIATURE TRAINS

This invention relates to a device for retaining rails of miniature (toy or model) trains.

More particularly, the invention relates to a device for maintaining at interconnecting condition the rails and pillars supporting the rails and used for providing inclines (that is lengths inclined with respect to the horizontal plane), as well as horizontal banked lengths (or viaducts).

It is known that to build bridges and viaducts in miniature train systems, such pillars are used as those imitating the actual ones. These pillars carry track lengths combined with structures resembling in some cases bridge girders. Such an approach exhibits the drawback that, particularly at the inclines, the interfitted track lengths tend to disconnect at the train passage. Moreover, the connection with the pillars is unstable or at least unreliable.

The object of the present invention is to provide a simple device allowing to obtain, in the circuit along which the train travels, inclines or lengths inclined relative to the horizontal plane (gradients and downgrades), as well as horizontal banked lengths (viaducts), in which the track lengths and pillars are sufficiently firmly combined, without giving rise to discontinuities in the route, capable of adversly affect the train running.

These and still other objects, which will become more evident from following detailed description, are attained by a coupling device which is essentially characterized in that, at at least one end of a track length, means are provided for release engagement with countermeans at the upper end of a member preferably resembling a pillar.

These and other particular features of the device according to the present invention will become more apparent from the following description disclosing an exemplary embodiment of the device according to the invention, with reference to the accompanying drawings, in which:

FIG. 1 is a perspective view showing a pillar carrying at its top the counter-means for the release engagement with a track length;

FIG. 2 is a perspective view showing the upper section of a pillar different from that in FIG. 1;

FIG. 3 is a perspective view showing a plate applicable to the top portion of the pillar in FIG. 2 and provided with the counter-means for the release engagement;

FIG. 4 is an enlarged sectional view taken on line IV—IV of FIG. 3;

FIG. 5 is a plan view showing a rectilinear track length, provided with the engaging means at the ends thereof, only one of which is shown;

FIG. 6 is a plan view showing a detail relative to the coupling between the track in FIG. 5 and the pillar in FIG. 1;

FIG. 7 shows an incline length, that is a track carried by pillars as that in FIG. 1; but having different heights, whereby the track is somewhat inclined relative to the horizontal plane;

FIG. 8 is a perspective view similar to FIG. 1, showing a pillar provided with modified engagement countermeans;

FIG. 9 is an enlarged partly sectional view taken on line IX—IX for the pillar in FIG. 8;

FIG. 10 is a fragmentary plan view showing a track coupled to the pillar in FIGS. 8 and 9; and

FIG. 11 is a fragmentary sectional view taken on line XI—XI in FIG. 9.

Referring to FIG. 1, it will be seen that a pillar 1 is shown therein, integrally made of plastics material and comprising at the top two substantially hook-shaped extensions 2. Each of the extensions 2 have on the inner side two wedge-like fingers 4, to be discussed about in the following. At the bottom, said pillar 1 comprises an enlarged base 5 which can receive the top of another pillar when desiring to increase the height thereof. At the top, pillar 1 also has two holes 30, in which the standard posts 31 of the overhead line 34 for electric locomotive supply are inserted (see FIG. 7).

The embodiment of FIGS. 2 and 3 relates to a second type of pillar, designated at 6, made of plastics material and intended to be used with a member 9 which is accordingly release coupled to the top of pillar 6 and provided with engagement countermeans, just as those indicated at 2, 3 and 4 in FIG. 1.

At the top, said pillar 6 has a recess 7, at which there are two pairs of rectangular apertures 8 thoroughly passing through the top wall of said pillar 6.

The member 9, also integrally made of plastics material, such as polystyrene, is release applicable to the top of pillar 6 at the seat or recess 7. To this end, there are at the bottom two pairs of hook- like projections 13. Said member 2 has two hook-like extensions 10 corresponding to the extnesions 2 for pillar 1. Each of the extensions 10 also have two wedge-like engaging fingers 11 corresponding to fingers 3; between the two extensions 10 there are two pairs of wedge-like fingers 12 corresponding to fingers 4 in FIG. 1.

To apply the member 9 to pillar 6, the two pairs of hook-like projections 13 are threaded into the holes 8. That is, each of the projections 13, owing to some elasticity in the material, will enter a corresponding hole 8, whereupon the four projections 13 release arrange at conditions to maintain the member 9 bonded to pillar 6.

It should be noted that, where inclines are concerned, the track lengths connected to the pillars may take a given inclination with respect to the horizontal, that is to form an angle other than 90° relative to the vertical axis of the pillar, it is contemplated, as clearly shown in FIGS. 1 and 4, that the upper face 1A of pillar 1 or 9A of member 9 is formed of two surfaces inclined to each other, which is the case also for the lower faces 2A and 10A of the extensions 2 and 10. Thus, the track can be disposed as shown by way of example by the broken lines X in FIG. 4.

In FIG. 5 a rectilinear track length is shown, which length could also be curved, and which at the two opposite ends thereof is provided with engaging means for cooperation with those at the pillar end.

This track length includes a support integrally made of plastics material comprising, as shown in FIG. 5, ties 15 and strips 16 on both sides thereof, the latter representing footbridges for imaginary pedestrians. Two metal rails 17 are bonded to the plastics material support.

In interconnecting the two track lengths, such as that shown at 14, the ends of rails 17 for the two track lengths are threaded in two known guide elements 18 relating to the two track lengths, respectively.

At each of its ends, the track length **14** has two coupling extensions **19** oppositely directed and an aperture **20** internally of the extensions **19**, provided with two enlargements **20A** on one side.

The track length **14** can be connected by one of its ends to a pillar **1**, or to member **9** carried by pillar **6**, as shown in FIG. **6**. This is accomplished by exerting an axial thrust on the track length after placing it at the beginning of the passage defined by the extensions **2** or **10**. It will be seen that fingers **4** (only one of which is shown in FIG. **6**) insert in the two enlargments **20A**, while the two extensions **19** engage an inner step of fingers **3**.

Similarly, another end of a further track length **14** can be connected to pillar **1** and at the same time said end is bonded to the first track length **14**. That is, the two track lengths are restrained to each other by two ends thereof and at the same time will engage said coupling fingers **3** and **4**.

By a set of pillars **1** and **5** of different heights, as schematically shown in FIG. **7**, an incline or a track inclined relative to the horizontal plane P can be provided.

In said FIG. **7** three track lengths **14** are shown and interconnected at the tops of pillars **1**.

As apparent, by using a number of pillars **1** of the same height, an horizontal track (such as a bridge) can be provided; for example, at the righthand side (as seen in FIG. **7**), a bridge would commence, that is a horizontal track length carried by pillars **1** of the same height.

Said FIG. **7** also shows poles **31** applied to pillars **1** (as above described), as well as the overhead line **34** carried by said poles.

Pillars **6** of a same height can be used in different ways. For example, pillars **1** can be threaded on pillars **6** to provide increased heights for the track. In such a case, members **9** need not be connected to pillars **6**.

Pillars **6** can also be used without pillars **1**, that is pillars **6** could also carry directly the tracks; in such a case, pillars **6** are connected with members **9** which, including parts **10** with engaging fingers **11** and **12** just like those directly provided on pillars **1**, are used for connection with the tracks, connection which is carried out as above described with reference to FIG. **6**.

Of course, common track length, or without said side strips or footbridges, can also be applied to the above described pillars **1** and **6**. A modified embodiment for the countermeans provided at the top end of a pillar (directly provided thereon, or a member corresponding to that in FIG. **3** which is coupled to the pillar in FIG. **2**) is shown in FIGS. **8, 9, 10** and **11**. The same reference numerals plus **100** have been used in said figures to designate like or corresponding parts.

In this variant, the hook-like extensions **102** have wedge-like engaging fingers **103** on the inner side walls of the extensions, instead of the downward facing side of the latter. Moreover, fingers **4** are dispensed with. Internally of extensions **102** there is a vertical rib **150**. As shown in FIG. **10**, the connection between the track length **114** and pillar is provided herein through the hook-like extensions **102** and engagement of members **119** with fingers **103**.

What is claimed is

1. A device for retaining track lengths of miniature trains on pillars, comprising: release engaging means at the end of a track length; and countermeans cooperating with said engaging means at the upper end of the pillar, said countermeans including a pair of hook-like extensions spaced apart and facing each other, having wedge-shaped engaging fingers, and wedge-like engaging fingers between the hook-like extensions.

2. A device according to claim **1** wherein the abutting countermeans are wedge-shaped fingers located on the face between said hook-like extensions.

3. A device according to claim **1**, wherein said hook-like extensions are provided with wedge-shaped fingers.

4. A device according to claim **1**, wherein the abutting means comprise laterally directed hook formations.

5. A device according to claim **1**, wherein the face defined by mutually inclined surfaces on said hook-like extensions is located on the minor side of said extensions.

6. A device according to claim **1**, wherein said abutting countermeans, said pair of hook-like extensions, and said face between said hook-like extensions are formed on a member releasably engaging said pillar.

7. A device for retaining track sections of miniature train on pillars comprising, in combination:

a. abutting means at the end of a track section;

b. abutting countermeans on said pillar cooperating with said abutting means for impeding movements of said track section in the axial direction thereof;

c. a pair of spaced mutually facing hook-like extensions on said pillar;

d. a face defined by mutually inclined surfaces on said hook-like extensions;

e. a face defined by mutually inclined surfaces between said hook-like extensions.

* * * * *