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each receiving an alignment pin to thereby couple and engage a plurality of rails one to the other with the alignment pins extending between abutting ends of said rails which are in an abutting and aligned relationship; said alignment pins including adjustment means for adjusting positioning of said pins relative to the longitudinal axes of the apertures in said rail; each aperture having an open face along the outer sides thereof.

FORM 10

COMMONWEALTH OF AUSTRALIA

015005

This document contains the amendments allowed under Section 3(2) by the Super-Vising Examiner and is correct for printing

PATENTS ACT 1952

COMPLETE SPECIFICATION

(ORIGINAL)

LODGED AT SUB-OFFICE  
29 DEC 1987  
Sydney

FOR OFFICE USE:

Class Int. Class

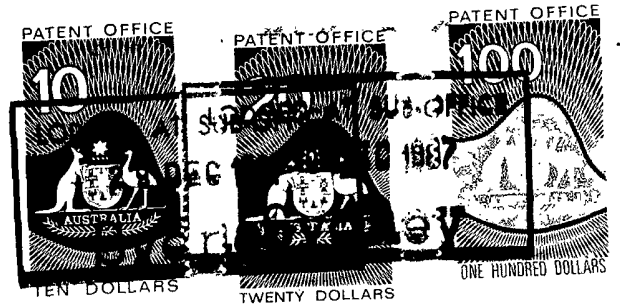
Application Number: PH7717

Lodged: 28 August 1986

Accepted:  
Published:

Priority:

Related Art:



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Complete Specification for the invention entitled:

A Dolly Track

The following statement is a full description of this invention, including the best method of performing it known to me

BACKGROUND TO THE PRESENT INVENTION

5 The present invention relates to rails for forming tracks upon which a wheeled vehicle may pass, and to tracks which are so formed. The invention has particular but not exclusive application to tracks known as "dolly" tracks, which are used to support wheeled trolleys or vehicles such as are, for example, used in the entertainment business, to support cameras and sometimes operators therefor.

10 Up until this time, the rails and tracks for such trolleys have been formed of a fabricated steel material, and have been provided in demountable sections, each section principally consisting of a length of metal tubing provided with brackets which engage base sleepers, which support the track. Further, tracks are known in which rail portions are mounted on sleepers, the sleepers being provided underneath or below the base portions of the track.

15 The above known systems, have numerous disadvantages. One disadvantage is that the tubing generally has insufficient strength to support the trolley as required. Further, as there is considerable length between supporting sleepers, known tracks will often bend due to the weight of the trolley, camera and operator. In known systems, sections are joined one to the other in a substantially end-to-end abutting relationship, and are for example held in such a relationship by turnbuckles extending between engagement means provided adjacent ends of each adjoining section. It has been found that such joins will often distort as the turnbuckles are tightened, due to the unsatisfactory end-to-end relationship between the adjoining sections and due to 20 the fact that the sleepers are provided underneath the rails. Thus, as pressure is applied to the turnbuckles, the rails tend to be drawn up and distortion occurs.

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Where such rails and tracks are used for example in the entertainment business, it is often necessary that they be transported from place to place. It is therefore advantageous that in some aspects, the rails and tracks be able to be folded and thereafter transported and stored in a compact manner. Available and known tracks do not always meet these needs.

It is an object of this invention to go some way towards overcoming and at least minimizing the above problems.

Other objects of this invention will become apparent from the following description.

BRIEF SUMMARY OF THE PRESENT INVENTION

According to one aspect of this invention there is provided a rail for a track upon which a wheeled vehicle is to pass, said rail being generally elongate and having a substantially "I" transverse cross section, said rail having an upper rail head and a lower rail foot joined by a web; said rail head having at least one longitudinally extending aperture defined therein, said at least one aperture being open-faced along an outer side thereof, and said at least one aperture receiving at least part of an alignment pin to couple said rail to a corresponding rail; said alignment pin including adjustment means for adjusting positioning of said pin relative to the longitudinal axis of said aperture in said rail, said pin extending between abutting ends of said rail and said corresponding rail, to maintain said rails in a substantially abutting and aligned relationship one with the other.

According to a further aspect of this invention there is provided a track for a wheeled vehicle, comprising a pair of rails, each rail being elongate and having a substantially "I" transverse cross-section, each of said rails having an



upper rail head and a lower rail foot joined by a web; each of said rail heads having at least two laterally spaced apart apertures defined therein, said apertures each having a longitudinally extending axis and each receiving an alignment pin to thereby couple and engage a plurality of rails one to the other with the alignment pins extending between abutting ends of said rails which are in an abutting and aligned relationship; said alignment pins including adjustment means for adjusting positioning of said pins relative to the longitudinal axes of the apertures in said rail; each aperture having an open face along the outer sides thereof.

BRIEF DESCRIPTION OF THE ACCOMPANYING DRAWINGS

The present invention will now be described by way of example only, with reference to the accompanying drawings, wherein:

Fig. 1 is a schematic perspective view of a track including rails according to one form of the



present invention,

Fig. 2 is a schematic side elevational view of a portion of a rail according to one form of the present invention,

5 Fig. 3 is a schematic plan view of a track as shown in Fig. 1 of the accompanying drawings, and showing the ability to have the track formed into a folded configuration,

10 Fig. 4 is a schematic plan view of the track of Fig. 1 in a partly folded position, such as to provide an alternative gauge to that shown in Fig. 1.

DESCRIPTION OF THE PREFERRED EMBODIMENTS OF THE INVENTION

15 Referring to Fig. 1 of the accompanying drawings, a track 10 is shown, which consists of two co-extensive rails 11, which are laterally spaced apart one from the other by a distance sufficient to establish the desired gauge of the track. The rails 11 are held in the desired spaced relationship by means of elongate spacers 12.

20 The rail members 13, which are joined end on end to form said rails 11, are formed of a generally "I" transverse cross section and are generally elongate in formation, having an upper rail head 14 and a lower rail foot 15 joined by a web 16. The rail members 13 are preferably formed from a metal material and are integrally formed. The rail head 14  
25 preferably has an upper curved surface 17, to engage with the wheels of a vehicle or trolley. The head 14 is also provided with substantially inclined and downwardly facing surfaces 18, which serve to engage one or more additional wheels provided on a trolley, such as to prevent a wheel which  
30 engages the surface 17, moving upwardly away from the surface 17, as would occur if the trolley was tilting or angled.



The rail head 14 is provided with at least one elongate aperture therein, so that when substantially corresponding rails abut and engage one to the other, one or more alignment pins 21 can engage within said apertures, so as to locate and align said rails one with the other.

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In the preferred form of the invention as shown in the accompanying drawings, the rail head 14 is provided with two elongate apertures 19, which are laterally spaced apart one from the other and which are open faced slots 20, provided at each side of the rail head 14.

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Alignment pins 21 are provided, so that an alignment pin will engage within corresponding apertures 19. The alignment pins 21 are elongate and tubular and, when engaged within corresponding apertures, ensure that the rail members 13 are in alignment while reinforcing the join therebetween. In a preferred form of the invention the alignment pins 21 are of a press or friction fit, or can be secured by threaded fastener. The pins 21 may be provided with tapered leading surfaces 22 to facilitate insertion in adjacent rail members 13. Referring to Fig. 2 of the accompanying drawings, a tail portion 21A of a pin 21 can be provided with adjustment means 21B such as a screw or grubscrew extending transversely there-through, so that on the screw or grubscrew being tightened, it will force or act against an inner surface of the aperture 19, to thus deflect the end 22 of the pin 21 outwardly therefrom, to allow for a positive engagement between the ends of rail members 13 and so as to minimize or prevent as far as possible, downward deflection of the pin. This has also been found to minimize or avoid the collection of dust, extraneous matter and the like.

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The web 16 of each rail member 13 is provided with a longitudinally extending flange 23, such that a longitudinally extending recess 25 is defined between a lower





or under surface of the flange 23 and an upper surface 24 of the foot 15. As will be appreciated from the description hereinafter, this recess 25 assists in the secure location of the ends of spacers 12, which extend between laterally spaced apart rails.

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In one form of the invention a plurality of elongate spacers are provided to form a track, the spacers 12 acting to maintain the rails 11 in a laterally spaced apart relationship, for a distance dependent upon the gauge of the track that is desired. The spacers 12 are elongate in formation having a main body 29, and a depth preferably substantially complementary to the depth of the recess 25.

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Thus the spacers extend between rails 11, by each end of a spacer 12 engaging within the recess 25 of each rail 11, so that the spacers 12 are located on the upper surface of the foot 15 and below the lower surface of the flange 23.

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Threaded fasteners 27 are provided and extend through spaced apart bores 27A provided in the web 16. Preferably the bores 27A and fasteners 27 are laterally spaced apart one from the other along the length of the web and within the recess 25.

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The spacers 12, by being so engaged between the rails 11 (each rail 11 being formed of a plurality of engaged and abutting rail members 13), maintain the rails 11 in a desired and laterally spaced apart relationship one from the other.

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The number of spacers 12 extending between rail members, depends upon the length of the rail members that are to be joined together to form the rails. The spacers 12, at or adjacent each end of a rail member 13, are provided with upwardly extending fasteners or lugs 26, and turnbuckles 50 are provided, so that ends of the turnbuckles 50 will be engaged with or over the fasteners or lugs 26, to be thereafter secured or tightened into position, so as to

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securely hold the rail members 13 in juxtaposition and abutment one with the other.

It has been found to be a substantial advantage with the present invention, that the spacers 12 are located and secured on the upper surface 24 of the foot 15, as when pressure is applied to the turnbuckles 50, such pressure does not cause distortion as has been the case in known arrangements, where spacing members or similar arrangements have been provided on a lower surface of the rail.

In the form of the invention shown in the accompanying drawings, the spacers 12 are of an articulated or pivotal constructions, which allows for the folding of a track 10, such as for example for storage or transport purposes. This is shown with particular reference to Figs. 3 and 4 of the accompanying drawings. Thus, in one preferred form of the invention, ends of each spacer 12 are formed or stepped mounting blocks 28 being secured to the rail members 13, within the recess 25, by threaded fasteners 27, using the bores 27A provided in the webs 16. The spacers 12 are provided with a flange or stepped end portion which is pivotally attached to the mounting blocks 28, by an elongate fastener 26, which will also extend upwardly from the upper surface of the spacer 12 and block 28. This means that each end of the spacer 12 is pivotally attached to a rail member 13, such that when a plurality of rail members 13 are connected together on each side of the track, the so formed rails 11 are able to be pivoted or angled towards or away from one another, such as for transport, storage or the like. Turnbuckles 50 are used to extend between the fasteners 26, at or adjacent each end of a rail member 13, where the rail members 13 are being joined one to the other and the tightening of said turnbuckles 50 will again maintain the rail members 13 in face to face abutment in a secure and aligned manner.



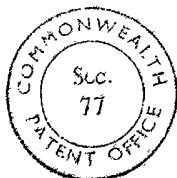
As shown by way of example in Fig. 4 of the drawings, the pivotal attachment of the spacers 12 can also be used to adjust the gauge between the rails 11 of a track 10.

5 The present invention has been described by way of example only, and with reference to the accompanying drawings, with reference to a track in which the rails 11 are laterally spaced apart, and extend substantially longitudinally and parallel one to the other. It should be appreciated however that the invention has equal application to the attachment of  
10 curved or arcuate rails and rail members one to the other, and the formation of arcuate tracks (such as for use with corners, circles and the like), where two spaced apart arcuate rails 11 are connected in the same manner as that described hereinbefore.

15 It should be appreciated that the rail members of the present invention can be formed of any appropriate material, although in preferred forms of the invention the rail members are formed of a metal, aluminium or rolled metal section. The rails can however be formed of a plastics or reinforced plastics material.

20 In the embodiments hereinbefore described, the rail members have a general transverse cross section such that an initial moment of inertia about a horizontal axis extending generally transverse of the rail member 13, is considerably greater than the initial moment of inertia about a vertical axis  
25 extending normal to the rail lengths. This facilitates the rail members 13 following an arcuate or curved path, while still providing each rail member with sufficient strength to accommodate vertical loads.

30 Improvements and modifications may be made to the present invention without departing from the scope or spirit there, as defined by the appended claims.



THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

1. A rail for a track upon which a wheeled vehicle is to pass, said rail being generally elongate and having a substantially "I" transverse cross section, said rail having an upper rail head and a lower rail foot joined by a web; said rail head having at least one longitudinally extending aperture defined therein, said at least one aperture being open-faced along an outer side thereof, and said at least one aperture receiving at least part of an alignment pin to couple said rail to a corresponding rail; said alignment pin including adjustment means for adjusting positioning of said pin relative to the longitudinal axis of said aperture in said rail, said pin extending between abutting ends of said rail and said corresponding rail, to maintain said rails in a substantially abutting and aligned relationship one with the other.

2. A rail as claimed in claim 1, wherein said at least one aperture has a longitudinally extending slot in an outer surface thereof, said slot extending the length of said aperture.

3. A rail as claimed in claim 1, wherein the rail head is provided with two laterally spaced apart apertures.

4. A rail as claimed in claim 1, wherein two laterally spaced apart apertures are provided in said upper rail head, said apertures being provided one on each side of said rail head.

5. A rail as claimed in claim 1, wherein at least one longitudinally extending flange is provided between said upper rail head and said lower rail foot, said flange and rail foot defining a recess therebetween.



6. A rail as claimed in claim 1, wherein operation of said adjustment means causes an end of said alignment pin to deflect outwardly of the longitudinal axis of said at least one aperture.

7. A track for a wheeled vehicle, comprising at least one pair of rails; at least one spacer extending between said at least one pair of rails; each rail being elongate and having a substantially "I" transverse cross-section, each of said rails having an upper rail head and a lower rail foot joined by a web; each of said rail heads having at least two laterally spaced apart apertures defined therein, said apertures each having a longitudinally extending axis and each receiving an alignment pin to thereby couple and engage a plurality of rails one to the other with the alignment pins extending between abutting ends of said rails which are in an abutting and aligned relationship; said alignment pins including adjustment means for adjusting positioning of said pins relative to the longitudinal axes of the apertures in said rail; each aperture having an open face along the outer sides thereof.

8. A track as claimed in claim 7, wherein said at least one spacer is pivotally secured to each of said rails in the pair to allow relative movement between said rails.

9. A track as claimed in claim 7 or claim 8, further including a flange on said web, said flange extending outwardly from said web and wherein ends of said at least one spacer are secured to said rails within a recess defined by an upper surface of the rail foot and an under-surface of said flange.

10. A track as claimed in claim 7 or claim 8, wherein said at least one spacer is pivotally attached to an upper surface of the rail foot.



11. A track as claimed in claim 8, wherein ends of said at least one spacer for each pair of rails are provided with fastener means for engaging turnbuckles between said fasteners.

12. A track as claimed in claim 7, wherein said rails are of a generally arcuate and curved formation.

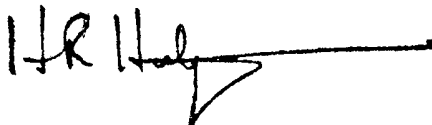
13. A track as claimed in claim 7, wherein said rails of the pair are held in a substantially parallel relationship one with the other.

14. A track as claimed in claim 7, wherein operation of said adjustment means causes said alignment pins to be deflected outwardly relative to the longitudinal axes of said apertures.

Dated this eighth day of May 1991

PETER STOREY MCKIE

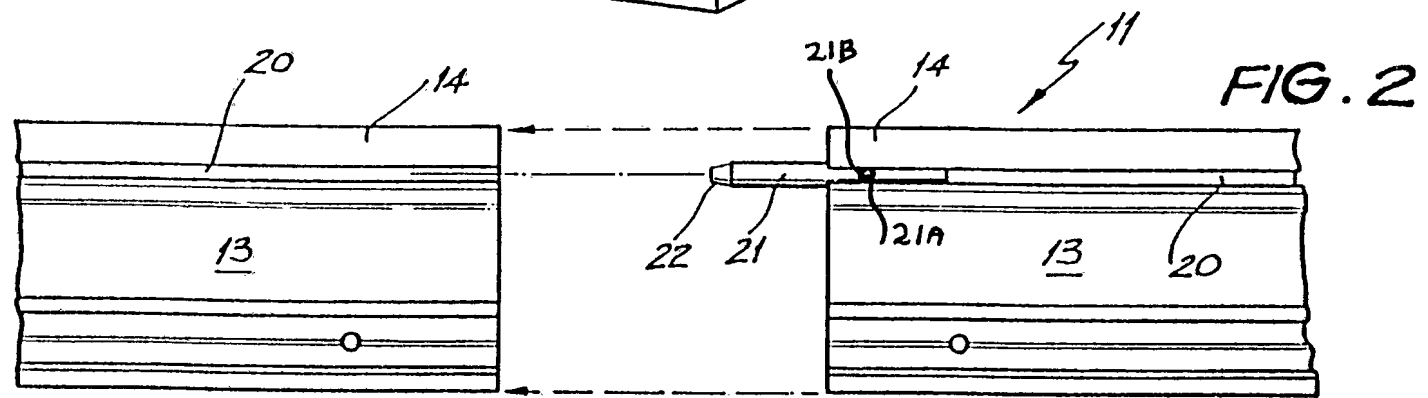
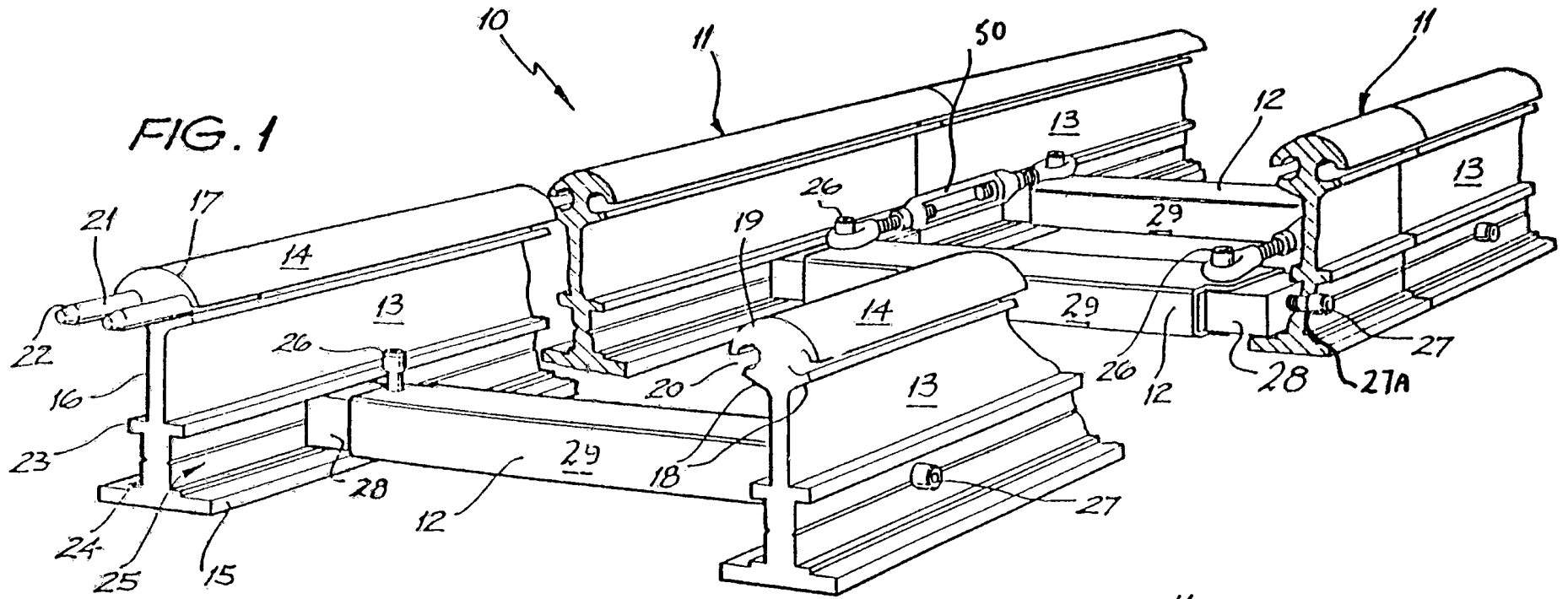
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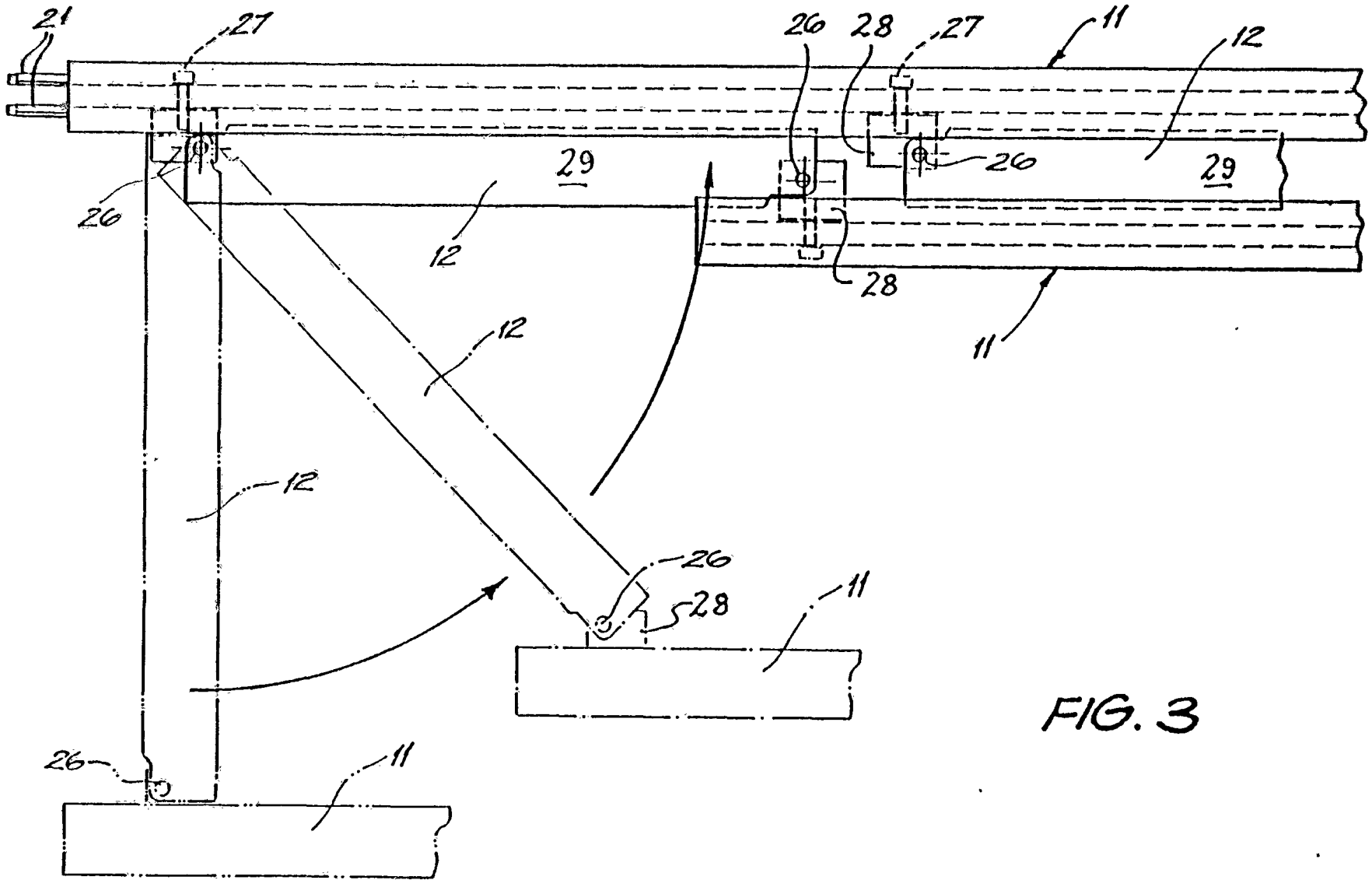


FIG. 3



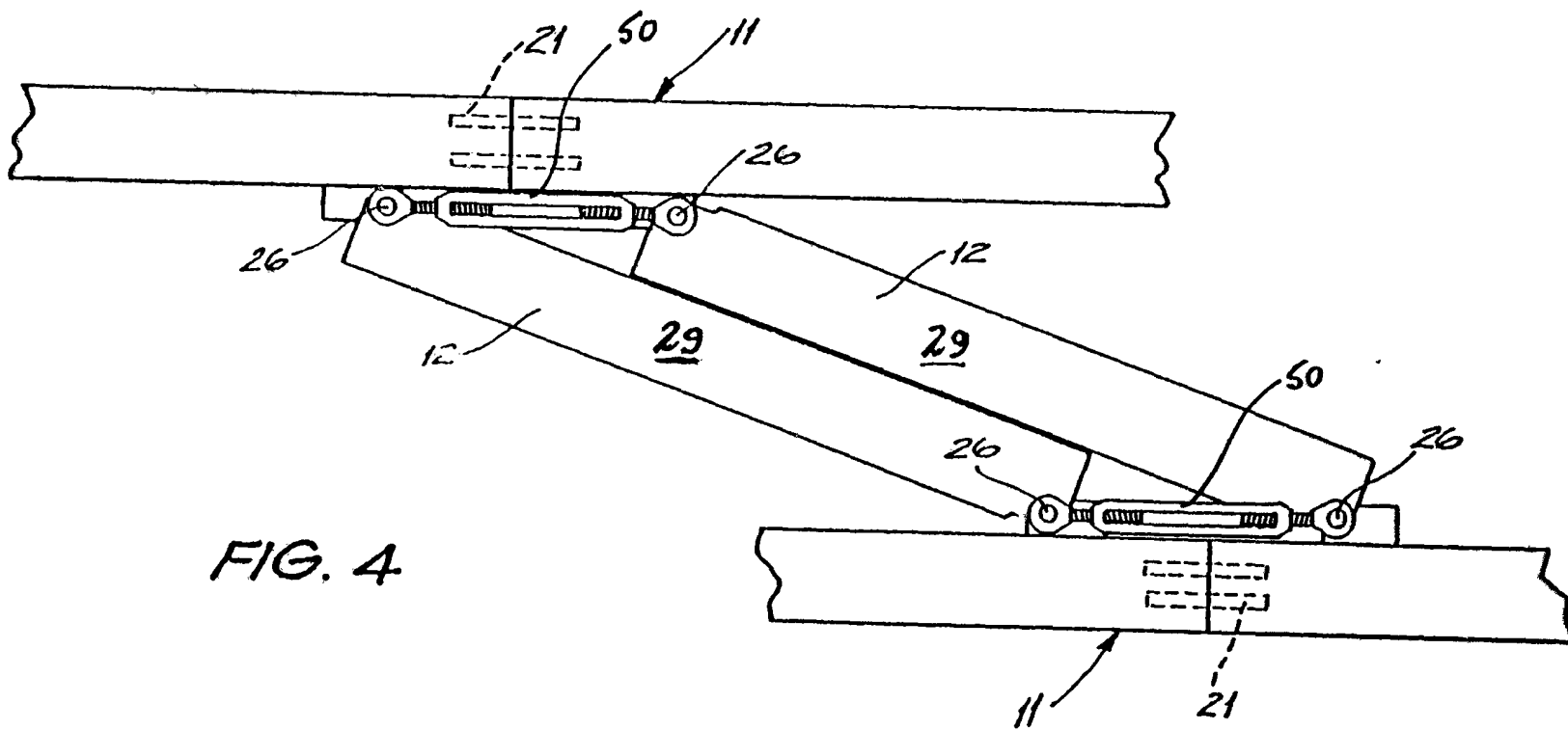


FIG. 4

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