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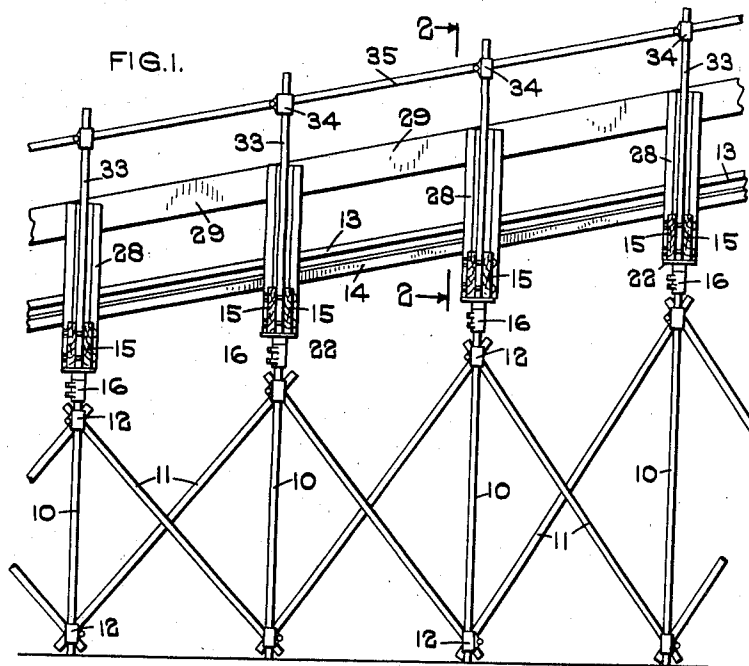
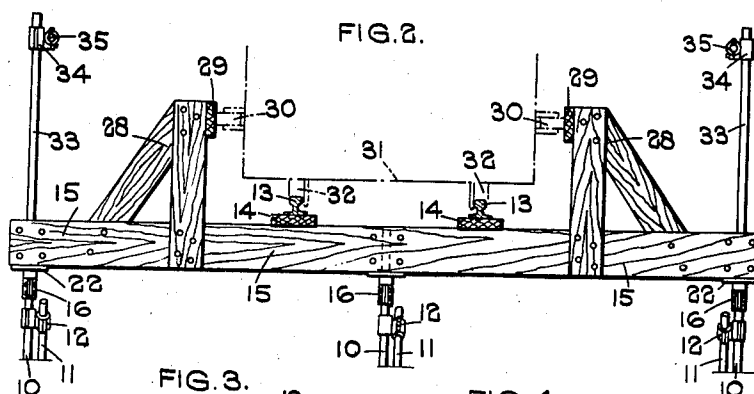
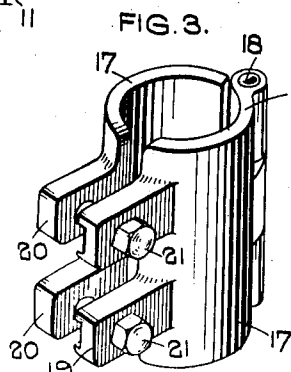
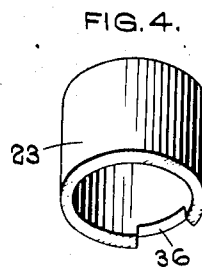
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2,249,941

TUBULAR AND OTHER METAL SCAFFOLDING AND LIKE STRUCTURES

Filed July 30, 1940

2 Sheets-Sheet 1



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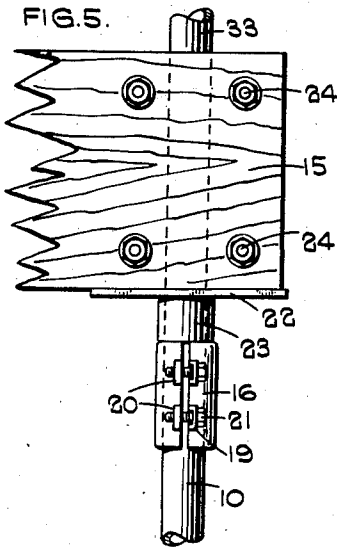
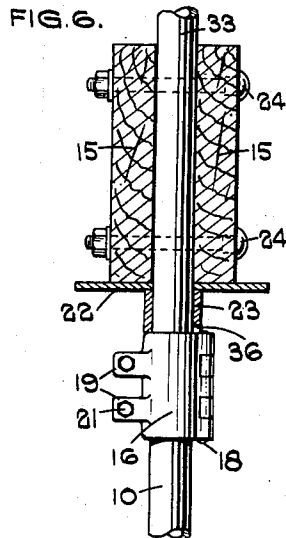
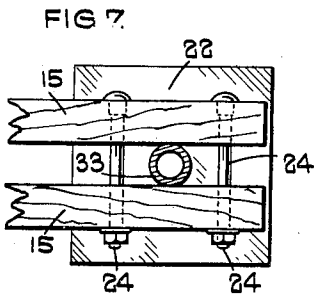
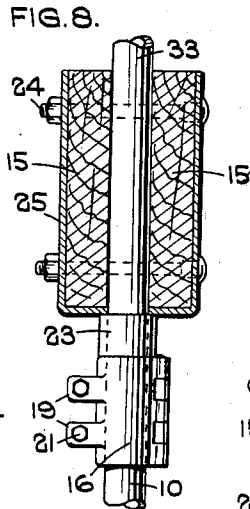
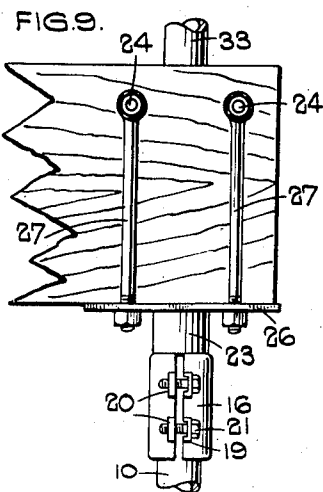
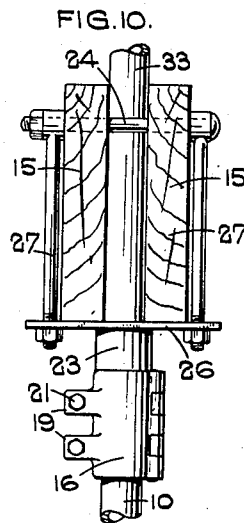
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TUBULAR AND OTHER METAL SCAFFOLDING AND LIKE STRUCTURES

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2 Sheets-Sheet 2



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## UNITED STATES PATENT OFFICE

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TUBULAR AND OTHER METAL SCAFFOLDING  
AND LIKE STRUCTURES

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Application July 30, 1940, Serial No. 348,529  
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5 Claims. (Cl. 104—125)

This invention relates to tubular and other metal scaffolding and like structures, being particularly applicable to the construction of structures such as trestles and bridges for supporting railways, roads or other tracks; for example, the scenic railways or gravity rides commonly found in amusement apparatus.

One object of the invention is to provide an improved construction in which the track or other superstructure may be supported upon standards consisting of plain metal tubes.

A further object is to enable the bearers for the track or superstructure to be supported on the standards aforesaid by means which are adjustable longitudinally of the latter and can be effectively positioned without the use of bolts or the equivalent passing transversely through the standards, the weakening of which by the provision of holes or slots therein being thus avoided.

In scenic railways and gravity rides the track usually consists of, or includes, wooden longitudinal members, and yet another object of the invention is to provide a rigid support for the track by mounting it upon flat-topped wooden bearers which connect the metallic standards aforesaid.

A still further object of the invention is to facilitate the erection of the structure, which in the case of an amusement apparatus may require, after a short period, to be dismantled for transference to another site.

The use of plain tubular or other standards and the adjustability of the bearer supporting means longitudinally thereof to any desired position enables the structure to be erected on sites of entirely different configuration with ease.

Referring to the drawings:

Figure 1 is a sectional view in side elevation.

Figure 2 is a section on the line 2—2 of Figure 1.

Figure 3 is a perspective view of one of the clamps.

Figure 4 is a perspective view of the distance piece.

Figure 5 is an end view looking parallel to the track and showing one method of securing the track bearing members to the uprights.

Figure 6 is a sectional view in side elevation showing the construction illustrated by Figure 5.

Figure 7 is a sectional plan corresponding with Figure 5.

Figure 8 is a sectional view in side elevation showing a modification.

Figure 9 is an end view showing another modification.

Figure 10 is a view in side elevation corresponding with Figure 9.

In the constructions illustrated the invention is shown as applied to the supporting of a track of a scenic railway, gravity ride or the like for use, for example, in an amusement park. The supporting structure for the track is constructed in a manner similar to ordinary tubular steel scaffolding arranged in a manner to correspond with the desired configuration of the track, such supporting structure comprising vertical steel members 10 of plain tubular form which are connected together by crossed tubular struts 11 attached to the tubes 10 by clamps 12 of the kind commonly employed in the erection of tubular steel scaffolding.

The vertical steel tubes or standards 10 are arranged in pairs, one of each pair being at each side of the track 13. If required between each pair of vertical tubes 10 there may be a third tube 10 as shown in Figure 2.

The track members 13 may be supported upon longitudinal track members 14 which are placed upon bearers 15. These bearers are of rectangular section and may be made of wood, and they are arranged in pairs placed side by side as shown clearly in Figure 1.

The flat top of each bearer 15 makes contact over a substantial area with the flat undersides of the track members 14 laid upon it, so that the track is supported much more rigidly than would be the case if metal tubes were used as bearers.

For supporting the bearers 15 the tubes 10 are provided with clamps 16, one of which is shown in Figure 3, each clamp 16 including a pair of curved plates 17 which are hinged together at 18. The plates 17 are provided with lugs 19 and 20 which are drawn together by means of bolts 21. The clamp 16, which may be of the kind used in the construction of tubular metal scaffolding, thus grips the vertical tubes 10 frictionally.

Each pair of bearers 15 rests upon a bracket which may be of standard construction and which, in the arrangement shown in Figures 5, 6 and 7, takes the form of a flat plate 22 having a central opening through which the tube 10 can slide.

Between the underside of the plate or bracket 22 and the top of the clamp 16 is a distance sleeve 23. The upper end of the sleeve 23 is flat for engagement with the underside of the bracket 22, but owing to the fact that scaffolding clamps of the kind commonly employed in the erection of tubular scaffolding do not present a flush abutment surface and usually embody a projecting part, such as the head of the hinge pin 18, the

lower end of the sleeve is recessed as at 36 to clear such projection.

A number of different sleeves 23 may be provided in accordance with the particular shapes of the different scaffolding clamps which may be employed for providing the necessary frictional support for the bracket.

The scaffolding clamps may, in addition to providing a suitable frictional support for the bracket, serve also to connect together additional tubular or other metal members of the supporting structure.

By supporting the brackets 22 frictionally upon the metal standard tubes 10 as above described, adjustment of the bearers 15 to any desired height is made possible, and the standards are not weakened by the provision of holes or slots therein such as would be necessary if the brackets were positioned by bolts or other transversely disposed members.

Furthermore the fact that each bracket 22 can be adjusted to any desired extent and throughout the entire length of the tube 10 associated therewith greatly facilitates the erection, dismantling, and re-erection of temporary structures, such as amusement apparatus used in fairgrounds. The contours of a scenic railway or gravity ride erected on one site may be reproduced without difficulty when re-erecting the structure upon a site of entirely different configuration, which would be impossible if the positions of the brackets 22 were governed by those of bolt-holes in, or locating formations on, the standard tubes 10.

The ends of the bearers 15 are disposed on either side of the tube 10 and rest on the plate or bracket 22, and the ends of the bearers 15 are drawn together by bolts 24. The tightening of the nuts on these bolts draws the bearers towards each other and ensures them gripping the tube 10 so that they are supported partially by this frictional grip and partially by the plate or bracket 22 which is itself supported by the frictional grip of the clamp 16 on the tube 10.

In the modification shown in Figure 8, instead of forming the bracket as a flat plate it is formed as a U shaped plate 25, the sides of this plate embracing the ends of the bearers 15, and the bolts 24 extending through the sides of the plate 25 in addition to extending through the bearers themselves. The U shaped plate 25 is supported on the distance tube 23 supported by the clamp 16.

A further modification is shown in Figures 9 and 10, wherein the bracket is again formed as a flat plate 26, and at the outer sides of the bearers 15 eye bolts 27 are provided engaging the plate 26 and also engaging the ends of the two cross bolts 24, so that the bearers 15 may be tightened down upon the bracket 26.

As will be seen from Figure 2, the bearers 15 may carry two side structures 28, each carrying a side track 29 engageable by track wheels 30 indicated upon the truck 31, the truck 31 also having supporting wheels 32 which engage the track 13.

The vertical tubes 10 placed at the sides of the track may be extended upwardly as shown at 33 and provided with clamps 34 carrying a hand rail 35.

For additional security, below each of the clamps 16 a second clamp 16 may be mounted upon the vertical tubes 10.

Although I have described the invention as applied to the supporting of a track of a scenic railway or gravity ride, it should be understood that its application is not limited thereto and that it is equally applicable to other structures.

What I claim then is:

1. A structure comprising metallic standards, non-metallic bearers supported upon said standards, each standard being disposed between a pair of said bearers, bolts connecting said pair of bearers together at opposite sides of said standard, brackets slidably mounted on said standards and adapted to engage beneath the bearers associated therewith, and clamps secured in frictional engagement with said standards to support said brackets.

2. A structure comprising metallic standards, non-metallic bearers supported upon said standards, each standard being disposed between a pair of said bearers, a U shaped bracket slidably mounted on each standard, the adjacent pair of bearers being carried by said bracket and disposed between the limbs thereof, bolts passing through said bracket limbs and through said pair of bearers at opposite sides of said standard, and clamps secured in frictional engagement with said standards to support said brackets.

3. A structure comprising metallic standards, non-metallic bearers supported upon said standards, each standard being disposed between a pair of said bearers, bolts connecting said pair of bearers together at opposite sides of said standard, brackets slidably mounted on said standards and adapted to engage beneath the bearers associated therewith, means for securing said bearers to said brackets, and clamps secured in frictional engagement with said standards to support said brackets.

4. A structure comprising metallic standards, non-metallic bearers supported upon said standards, each standard being disposed between a pair of said bearers, brackets slidably mounted on said standards and adapted to engage beneath the bearers associated therewith, clamps secured in frictional engagement with said standards to support said brackets, eye-bolts secured to each bracket at opposite sides of the pair of bearers carried thereby, bolts passing through the eyes of said eye-bolts and connecting said pair of bearers together at opposite sides of the associated standard, and clamps secured in frictional engagement with said standards to support said brackets.

5. A structure comprising metallic standards, non-metallic bearers directly engaging the sides of said standards and clamped thereto by clamping means passing through the bearers but offset from the standards, whereby the reaction of said standard against the bearer acts between two clamping forces drawing the bearer to the standard, a bracket on the standard engaging the underside of the bearer, and a clamp frictionally secured on the standard and engaging the underside of the bracket.

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