Oct. 1, 1929. P. G. GRINE 1,729,827

TRACK FOR ROLLER COASTER TYPE OF AMUSEMENT STRUCTURES

Filed May 14, 1928

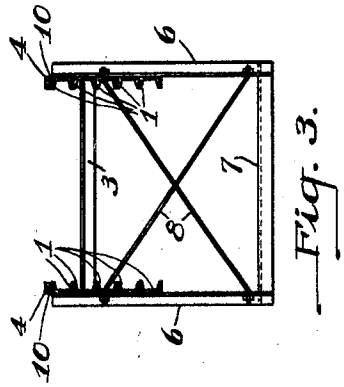

Fig. 3.

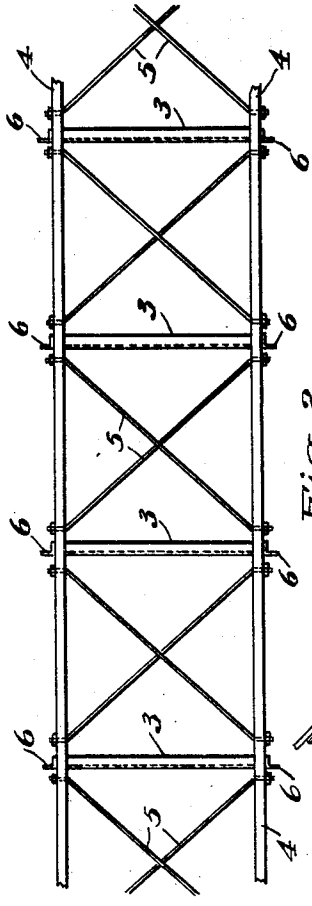

Fig. 2.

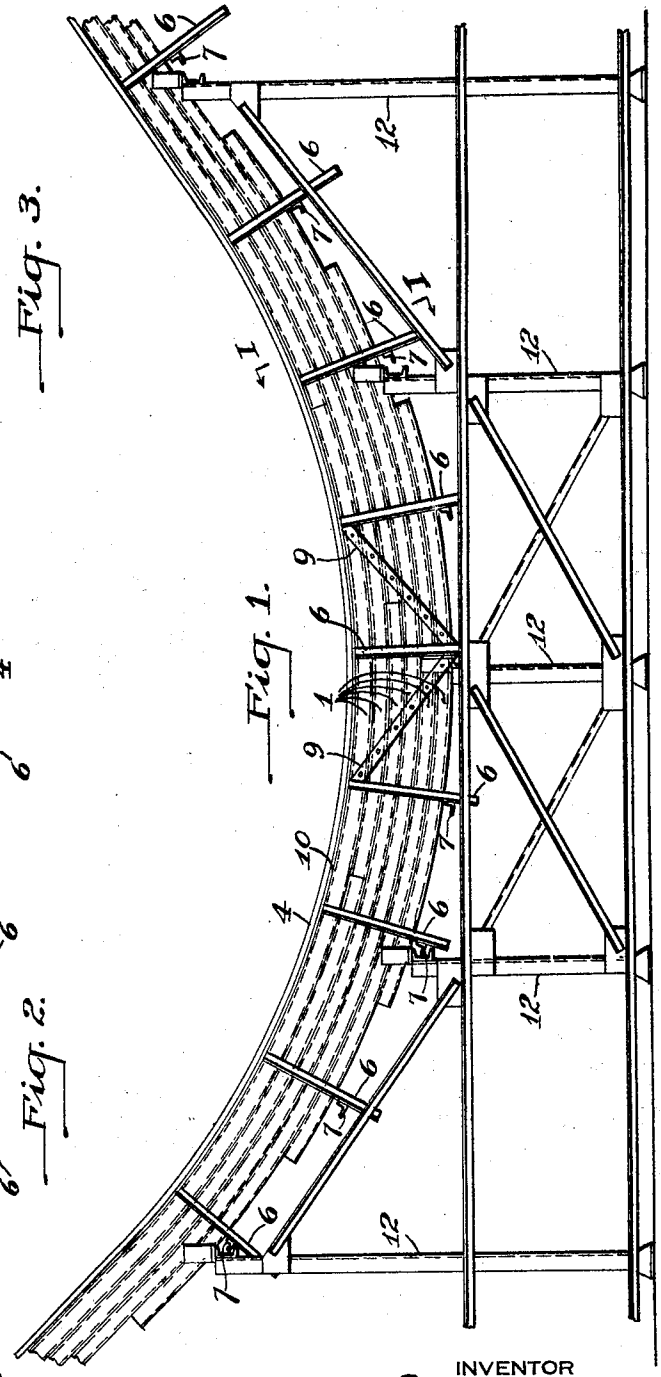

Fig. 1.

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UNITED STATES PATENT OFFICE

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TRACK FOR ROLLER-COASTER TYPE OF AMUSEMENT STRUCTURES

Application filed May 14, 1928. Serial No. 277,420.

The invention relates to roller coaster type of amusement structures, by which is meant roller coasters, scenic railways, jack-rabbits, and like structures, having tracks of varying inclination and slopes for supporting amusement passenger cars which travel at different speeds and at different momentums, and which cars accordingly place widely varying loads upon the track.

As heretofore constructed, the tracks for such structures have customarily been uniform throughout, and of such strength as to sustain the maximum loads which are imparted only at portions of the track. This has added unduly to the cost of the structure, both with respect to the material required for the tracks and to the material required for supporting them.

The object of this invention is to provide a roller coaster type of amusement structure, with a track which varies in depth and in consequent load-supporting strength substantially in proportion to the varying loads imparted to the track by cars moving on it, the track being constructed of units which may be readily shaped to meet the requirements of service and may be easily erected to form the completed structure.

The invention is illustrated in the accompanying drawings, of which Fig. 1 is a view in side elevation of a section of a roller coaster taken at the bottom of a steep incline, Fig. 2 a plan view; and Fig. 3 a cross sectional view of the track taken on the line I—I of Fig. 1.

Referring to the drawings, each of the car rails comprise a plurality of flanged sections 1, preferably in the form of channels, which are disposed in parallel or concentric relation one on top of the other, as shown in Fig. 1, and in cross section in Fig. 3. The number of channels which form the rail varies along the length of the rail depending upon the load imposed upon the track at various points throughout its length. For example, the load on the track imposed by a given car is greatest at the curves and at the base of the inclines. Accordingly the number of channels 1 at the various points, such as at the bottom of the dip illustrated in Fig. 1, is increased substantially in proportion to the load imposed thereon, while on the upper or tangent portion of the incline shown at the left of Fig. 1 fewer channels 1 are used.

In assembling the rails the channels 1 are formed to the required shape and placed one on top of the other as shown in Figs. 1 and 3, and may be fastened together in any convenient manner such as by bolts, rivets, or electric welding. For supporting the channels both vertically and laterally, side struts 6 are bolted or welded thereto at spaced intervals along the length of the track. In order that the rails may be maintained at an equal distance apart and retained in that position, spreader members 3 are interposed between the channels at points opposite to the struts 6. These spreaders may be also used to support under-friction rails, take-up cables, or chain safety catches and various other devices used with the different types of cars or trains, and for that reason they should be placed far enough below the tops of the rails to allow sufficient clearance for underframes of the cars or trains used. However, they should be placed as near the top of the rails as the required clearance will permit.

In order to form a track which is rigid throughout, tension bracing members 5 are bolted to the rails as shown diagonally between the opposite ends of the adjacent spreader members 3, and transverse struts 7 are bolted or otherwise secured to the bottoms of the struts 6 to give the structure lateral rigidity, and diagonal tension members 8 are arranged between and connected to the opposite ends of the spreaders 3 and the lower struts 7.

To further increase the strength of the track where the stresses are extremely great, such as at the bottom of the incline, shown in Fig. 1, braces 9 may be bolted or welded to the channels diagonally between adjacent struts 6, as illustrated.

In order to increase the life of the rails a bearing plate 4 made of some suitable hard steel may be mounted on the upper channel section of each rail to form a bearing surface upon which the car wheels or train

wheels may travel, and an insulating strip 10 may be interposed between the bearing plate 4 and the upper channel section 1 so that vibrations and noises due to the car wheels impinging upon the rails will be deadened. This strip 10 may be of any soft material which will absorb the vibrations and prevent it from passing from the bearing plate 4 to the rail proper thereby lessening the noises caused by cars passing over the tracks. Further, by mounting the bearing plate 4 in this manner, as it wears away it can be readily removed and replaced by a new plate.

It will be noted that a car track of the character described hereinbefore may be constructed by shaping the relatively narrow channels into any required form before fastening them together, thereby making it possible to readily form a car track to meet any desired requirements. The car track shown in Fig. 1 illustrates this feature very nicely, as in this instance the channels may all be formed and cut to the proper shape for assembly, after which they are assembled on the job forming a track which may be cradled in and securely fastened to the supporting structure or frame 12 in any safe manner.

Another and very important feature of this type of car track which is particularly advantageous is that the number of sections going to make up the rails may be varied along the length of the track in accordance with the load requirements imposed upon the track, making it possible to not only safely but also economically construct such a track.

According to the provisions of the patent statutes, I have explained the principle and operation of my invention and have described and illustrated the preferred embodiment thereof. However, I desire to have it understood that, within the scope of the appended claims, the invention may be practiced otherwise than as specifically illustrated and described.

I claim:

1. A roller coaster type of amusement structure, comprising a frame, and a variably inclined car supporting track attached to and supported by the frame, each rail of said track being formed of a plurality of superimposed flanged sections varying in number throughout the extent of the track and varying in consequent total depth at different points along the track substantially in proportion to the variable loads imparted to the track by cars moving on it.

2. A roller coaster type of amusement structure comprising a variably inclined car supporting track each rail of said track being formed of a plurality of superimposed flanged sections varying in number throughout the extent of the track and varying in consequent total depth at different points along the track substantially in proportion to the variable loads imparted to the tracks by cars moving on it and having a bearing plate mounted on top of the upper flange section of each of said rails, said bearing plate being separated from said upper section by a vibration absorbing and sound insulating strip interposed between said bearing plate and said upper flange section.

3. A roller coaster type of amusement structure, comprising a frame, and a variably inclined car supporting track attached to and supported by the frame, each rail of said track being formed of a plurality of superimposed flanged sections varying in number throughout the extent of the track and varying in consequent total depth at different points along the track substantially in proportion to the variable loads imparted to the track by cars moving on it and having said rails rigidly bound together to form a unitary structure.

In testimony whereof, I sign my name.

PAUL G. GRINE.