Feb. 26, 1957 L. W. FRANK 2,782,730

TOY RAILROAD TRAIN AND TRACK

Filed Oct. 26, 1954

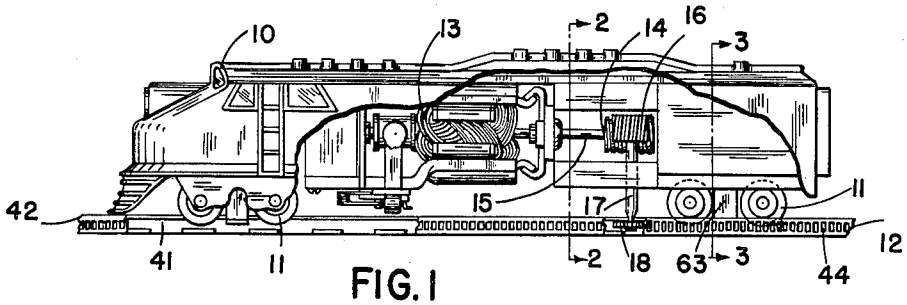

FIG. 1

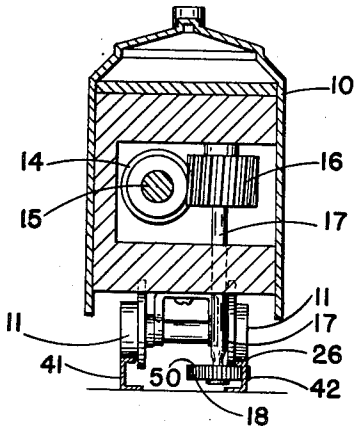

FIG. 2

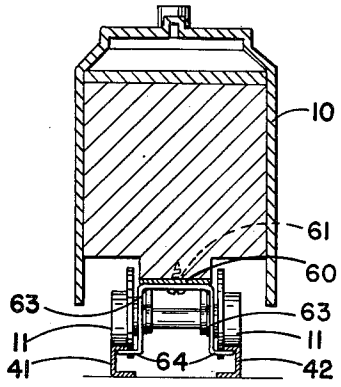

FIG. 3

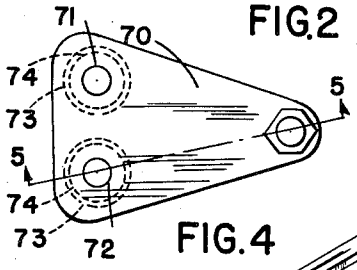

FIG. 4

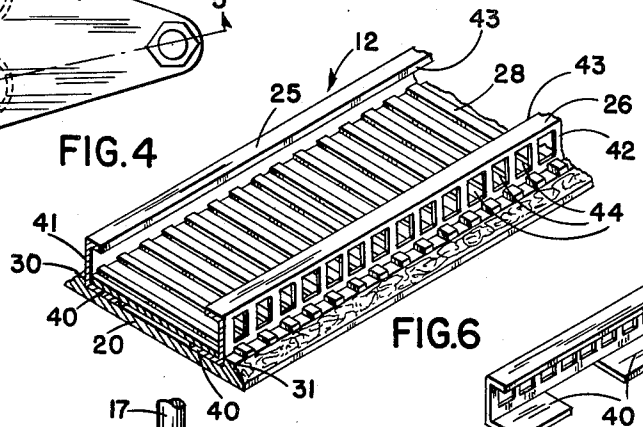

FIG. 6

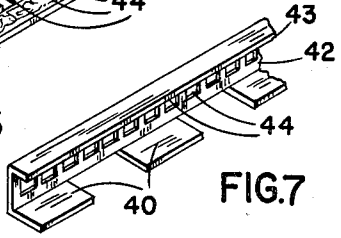

FIG. 7

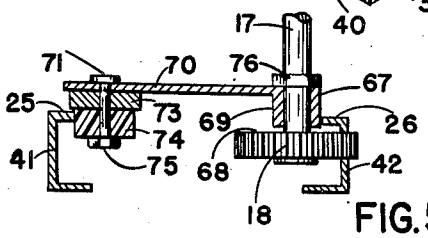

FIG. 5

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TOY RAILROAD TRAIN AND TRACK

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9 Claims. (Cl. 105—29)

This invention pertains to a toy railroad train which includes a track upon which the locomotive and other cars run.

More particularly it pertains to the combination of a special track and specially constructed cars for positively securing the cars, including the locomotive, to the track, so that they cannot come off.

The invention further contemplates a special driving mechanism in combination with the track for positively locking the locomotive to the track so that the driving wheels cannot slip.

It is an object of this invention to lock the driving wheel of a toy train locomotive to the rails so that there can be no slip between rail and wheel.

Another object of the invention is to lock all cars, including the locomotive, to the rails of a toy train so that the locomotive and the other cars cannot accidentally come off of the tracks.

It is a further object of the present invention to utilize the driving means of a locomotive to lock the locomotive to the rails.

A further object of the present invention to provide a toy train which will run upside down as well as right-side up.

For a better understanding of the present invention, together with other and further objects thereof, reference is had to the following description taken in connection with the accompanying drawings, and its scope will be pointed out in the appended claims.

In the drawing:

Figure 1 is a side view of a locomotive, partially broken away, showing the interior thereof;

Figure 2 is a sectional view taken along line 2—2 of Figure 1;

Figure 3 is a sectional view taken along line 3—3 of Figure 1;

Figure 4 is a plan view, on an enlarged scale, of a bracket which may be connected underneath the locomotive;

Figure 5 is a side view, on an enlarged scale, of the bracket shown in Figure 4 mounted underneath the locomotive, only a portion of the engine being shown;

Figure 6 is an isometric view showing the special track of the invention; and

Figure 7 is an isometric view of one of the rails of the track.

One aspect of the invention is the combination of a pair of spaced apart parallel tracks at least one of which has a regularly perforated web and a locomotive having wheels for running along the top surface of the track. There is a motor within the engine and driving gear wheel means are connected to the motor and having a portion located between the tracks with its axis substantially perpendicular to the plane of the tracks. The teeth of the gear wheel means are in meshing engagement with the perforated track for driving the locomotive.

In another aspect the invention is a railroad track for a toy train comprising a bed. A pair of spaced apart

parallel tracks are provided, the lower edge portions of which are secured to the bed. Each of the tracks includes a web portion connected to and rising above the secured edge portion terminating in an inwardly turned flange. At least one of the webs is perforated at regularly spaced intervals throughout its length.

With reference to the drawing there is shown in Figure 1 a locomotive **10** having wheels **11** mounted on track **12**. Inside the car **10** is a motor **13**, preferably electric, for driving worm gear **14** by means of shaft **15**. Worm gear **14** meshes with and turns the driving gear means which is comprised of the upper gear **16**, shaft **17** and driving gear **18**.

The track upon which the locomotive **10** is mounted is shown in Figure 6 and comprises a bed **20** formed of metal, plastic or the like, and two spaced apart, parallel tracks **25, 26**. Each of the two tracks has a lower edge portion suitably secured in the bed **20** as by simulated tie member **28** positioned between the tracks **25, 26** and pushing the tracks outwardly against the raised shoulder portions **30, 31** of the track bed **24**. The raised shoulder portions **30, 31** each include portions **32** which simulate the ends of the ties **29** protruding underneath the tracks **25, 26**, thereby giving an appearance that each tie is continuous, when in fact it is not. This contributes to a realistic appearance yet permits lower cost of the track. Each track has a lower edge portion **40** which is secured to the bed **20**, and each has a web portion **41, 42** connected to the lower edge portion **40** and rising above it. Each web terminates in an inwardly turned flange **43** upon which the wheels of the cars run. At least one of the web portions of the track is perforated at regular intervals **44** throughout its length. As shown in Figure 6, web **42** is perforated, but it is to be understood that both tracks may be perforated. As shown in Figure 7 the lower edge portion of the track is not continuous. It has a series of notches extending back to the web portion **41** to permit the track to be formed into curved sections as well as straight.

When the locomotive **10** is mounted on the track **12** the teeth of the driving gear **18** mesh with the perforated track providing positive drive from the motor to the track, thereby preventing any slippage in the driving system. As shown in Figure 2 the axis of the driving gear **18** is perpendicular to the plane of the tracks **41, 42**, and its upper peripheral edge portion **50** fits underneath and closely adjacent the inwardly extending flange **26** of the perforated track **42**, thereby to hold the wheels on that side of the locomotive down to the rail.

As shown in Figure 3, a bracket **60** may be secured underneath the car **10** by means of screw **61** or the like. The bracket **60** has two downwardly extending portions **63** which terminate in horizontally extending end portions **64** positioned underneath and closely adjacent the underneath surface of the inwardly turned flanges **25, 26** of the tracks **41, 42**. The bracket **60** preferably is mounted between the wheels of a truck and serves to hold the car to the tracks. While bracket **60** has been shown in use on the engine car it is to be understood that all of the cars may use them, and that preferably two brackets **60** are used for each car, one with the front truck and the other with the rear truck.

In order to keep the drive gear **18** at all times in positive interlocked engagement with the perforated track **42**, a bracket **70** is provided mounted around the shaft **17** immediately above the drive gear **18**, as shown on an enlarged scale in Figure 5. A plan view of the bracket **70** is shown in Figure 4. The bracket **70** extends over toward the other track **42** and has two spaced apart roller mechanisms **71, 72** secured to its end adjacent the track **41**. The roller mechanisms **71, 72** each comprise an upper roller section **73** and a slightly smaller lower roller

section **74** immediately underneath and coaxial with the upper section **73**. Means **75** are provided for rotatably connecting the roller mechanisms to the bracket **70**. The upper roller section **73** engages the top face of the flange **25** and the lower roller **74** engages the inward face of the flange **25** thereby keeping the drive gear **18** in its proper position. The shaft **17** rotates within the enlarged bearing portion **69** and an enlarged collar **76** is secured to the shaft **17** immediately above the bracket **70** to prevent the bracket from sliding up on shaft **17**. The bore through the bearing portion **69** and the top and bottom surfaces **67**, **68** may be made of bearing metal to facilitate easy rotation of the shaft **17** with respect to the bracket **70**.

While there have been described what are at present considered to be the preferred embodiments of this invention, it will be obvious to those skilled in the art that various changes and modifications may be made therein without departing from the invention, and it is, therefore, aimed in the appended claims to cover all such changes and modifications as fall within the true spirit and scope of the invention.

I claim:

1. A toy railway system comprising, in combination, a pair of spaced apart parallel tracks at least one of which has a regularly perforated web, a locomotive having wheels for engaging the top surface of said tracks, a motor within said locomotive, driving gear wheel means connected to said motor and having a portion located between said tracks with its axis substantially perpendicular to the plane of the tracks and with its gear teeth in meshing engagement with said perforated track for driving the locomotive.

2. A toy railway system as set forth in claim 1, further characterized by said motor driving a worm gear mounted within said locomotive with its axis substantially parallel to said track, said gear wheel means including a shaft extending up into said locomotive and including a gear connected to the upper end of said shaft meshing with said worm gear for rotating said driving gear wheel.

3. A toy railway system as set forth in claim 2, further characterized by a bracket mounted around said shaft and extending across the locomotive at the bottom thereof toward the other track, and rotatable means mounted on said bracket in engagement with the inside edge of said track opposite said perforated track.

4. A toy railway system comprising, in combination, a pair of spaced apart parallel tracks both of which have inwardly turned upper flanges and at least one of which has a regularly perforated web, a locomotive having wheels for running on the top surface of said inwardly turned flanges, a motor within said locomotive, driving gear wheel means connected to said motor and located between said tracks below said flanges with its axis of rotation substantially perpendicular to the plane of the tracks and with its gear teeth in meshing engagement with said perforated track for driving said locomotive, the edge portion of said driving gear wheel means being located immediately underneath the flange of the perforated track

for holding the wheels on that side of the locomotive to the track.

5. A toy railway system as set forth in claim 4, further characterized by a bracket connected to said gear wheel means and extending across the locomotive at the bottom thereof toward the other track, and rotatable means mounted on said bracket in engagement with the inside edge of said flange opposite said perforated track.

6. A railroad track for a toy train comprising a bed, a pair of spaced apart parallel tracks the lower edges of which are secured to said bed, each said track having a web portion connected to and rising above said secured edge portion terminating in an inwardly turned flange, at least one of said webs being perforated at regularly spaced intervals throughout its length to accommodate gear teeth.

7. A railroad track for a toy train as set forth in claim 6, further characterized by both of said webs being perforated at regularly spaced intervals throughout their length.

8. A railroad track for a toy train comprising a bed member having a pair of inwardly facing spaced apart shoulders at its outer edges, a pair of spaced apart parallel tracks having a lower horizontal edge portion, an upright web portion and an upper flange portion, each said track being positioned with its lower horizontal edge portion extending parallel to and against the horizontal surface of said bed between said shoulders and having a part of its web in engagement with the said shoulder with the upper flange above and free from engagement with the said bed member, and a rail securing member resting down upon the lower horizontal edge portion of both tracks and pushing said tracks outwardly against said shoulders.

9. A toy railway system comprising, in combination, a pair of spaced apart parallel tracks both of which have inwardly turned upper flanges and one of which has a perforated web, a locomotive having a motor and having wheels for running on said flanges, bracket means mounted underneath said car means and having two spaced apart end portions each of which is located underneath and closely adjacent said flanges of said spaced tracks for holding said locomotive to said tracks, one of said ends of said bracket means including gear means driven by said motor and meshing with said perforated web of one of said tracks.

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