United States Patent

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[33] **Japan**
[31] **Nos. 40/26,853 and 40/78822**

[54] **MUSIC PLAYING TOY RAILROAD**
13 Claims, 6 Drawing Figs.

[52] **U.S. Cl.** **84/102,** 84/404; 46/216, 46/177
[51] **Int. Cl.** **A63h 21/00,** A63h 5/00
[50] **Field of Search** 84/102, 402, 403, 404; 104/60; 46/111, 112, 113, 177, 216, 217, 218; 238/2, 6, 10, 11, 12

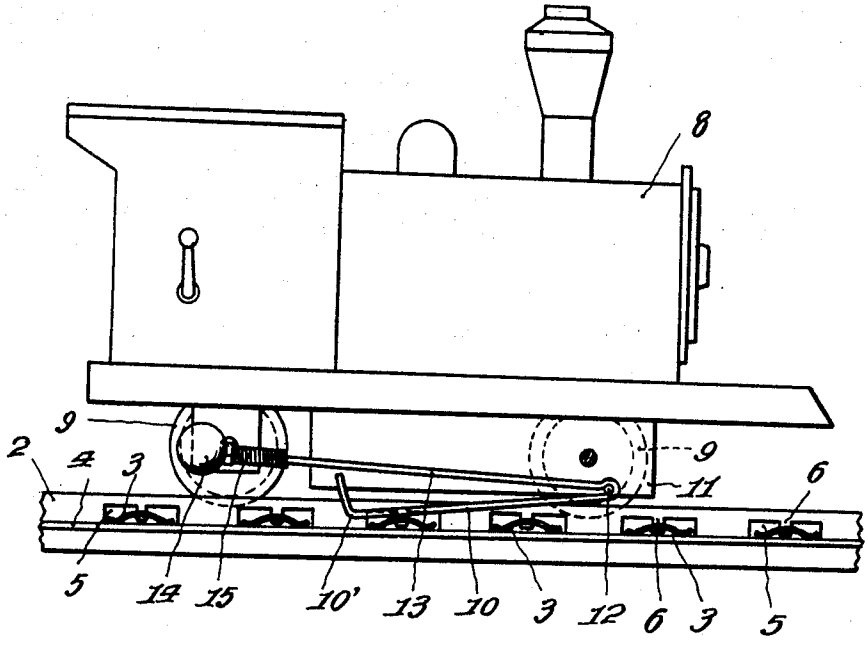
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ABSTRACT: A musical toy railroad comprising a track composed of sound-emitting bodies, toy vehicle moving along said track and striking said sound-emitting bodies during movement along said track so as to play a tune.



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SHEET 1 OF 3

Fig. 1.

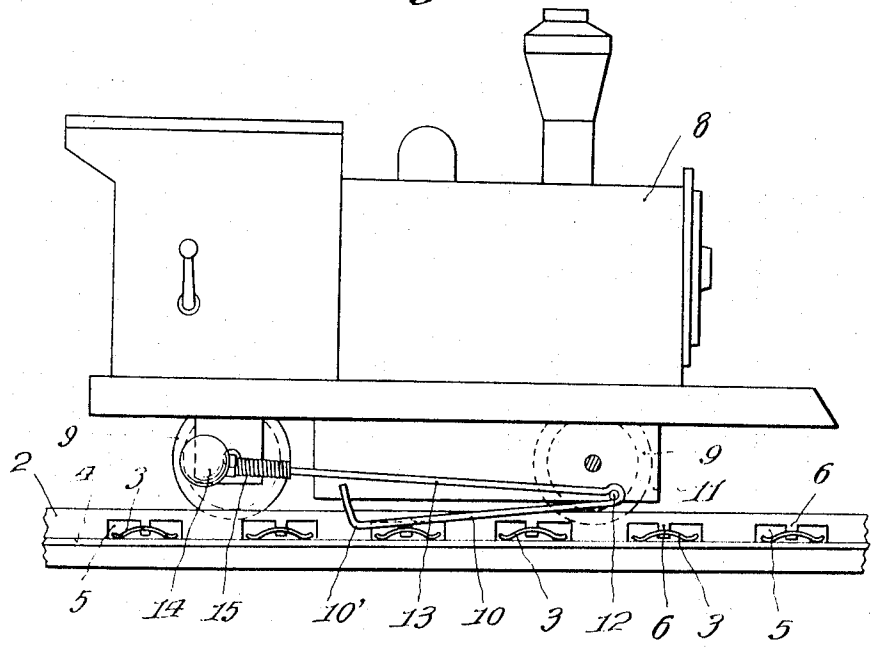
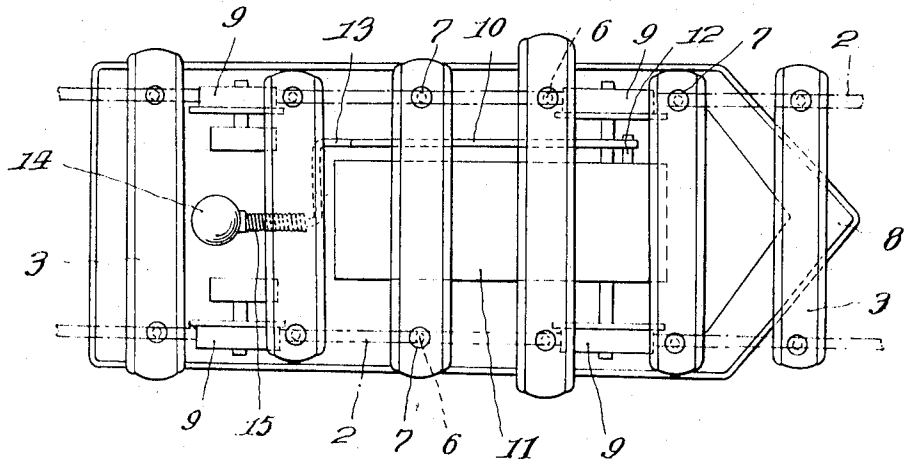


Fig. 2.



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Fig. 3.

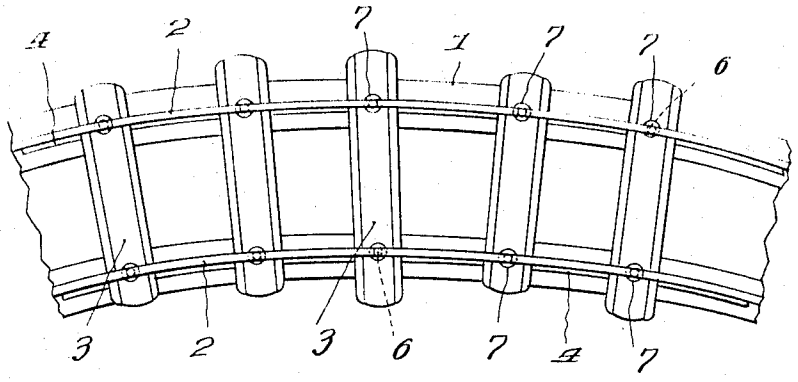
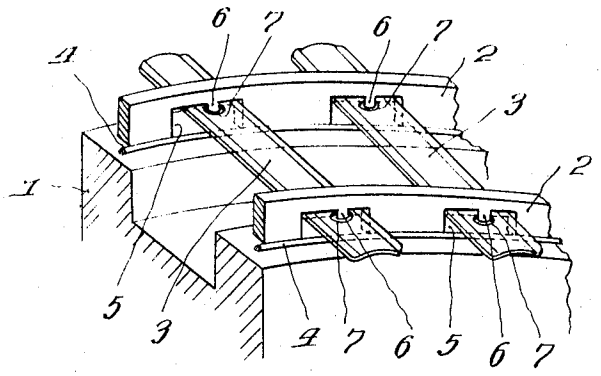


Fig. 4.



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Fig. 5

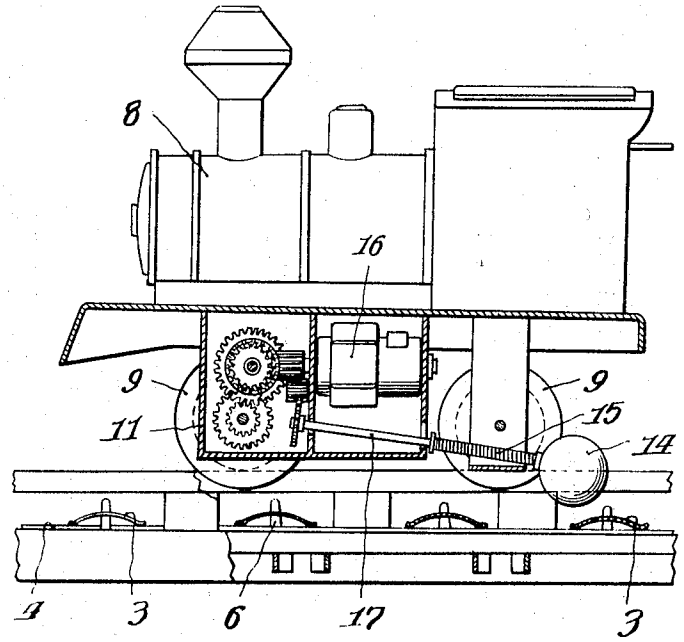
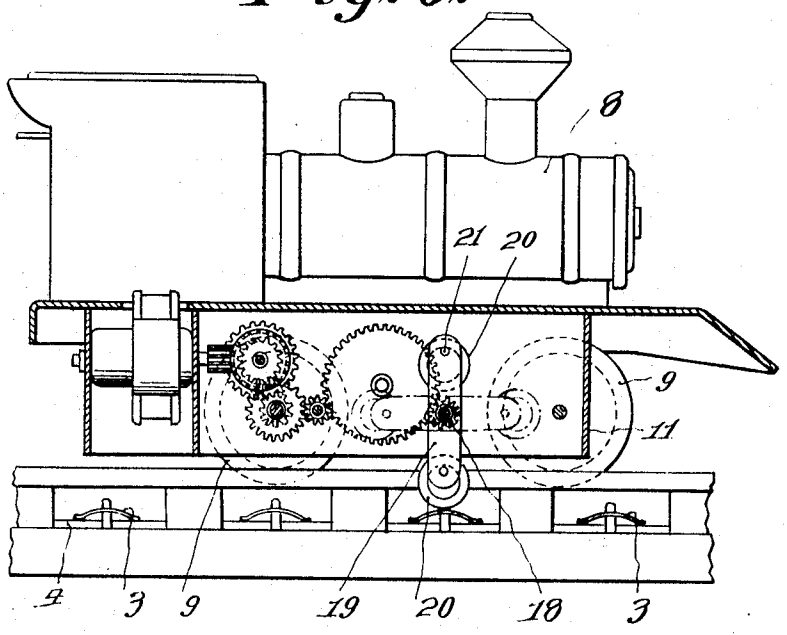


Fig. 6



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MUSIC PLAYING TOY RAILROAD

This invention relates to a musical toy train. More specifically the invention is concerned with the provision of a toy train in which the movement of a toy engine along a track causes playing of a musical tune. The invention also concerns such a train in connection with which means are provided for readily permitting the substitution of one tune for another.

In accordance with one feature of this invention, there is provided a musical toy train comprising a track and an engine or car. The track comprises a supporting base mounted on the lease, and a plurality of ties. The ties are positioned on the rails and are arranged with regular spaces between them in such a manner as to be readily removable. Each tie is formed as an individually different sounding body in a xylophone. The engine or car, which for the sake of simplicity will hereafter be referred to as "the car," is provided with a means which is adapted to strike the ties successively when the car runs along the track, whereby music is played in the manner of a xylophone.

The invention will now described in detail by way of example, with reference to the accompanying drawings, in which:

FIG. 1 is a partly broken-away side elevation of one embodiment of this invention;

FIG. 2 is a bottom view thereof;

FIG. 3 is a partly broken-away plan view of the track in accordance with an embodiment of this invention;

FIG. 4 is a partly broken-away perspective view corresponding to FIG. 3;

FIG. 5 is a partly broken-away side elevation of another embodiment of this invention; and

FIG. 6 is a partly broken-away side elevation of yet a further embodiment of this invention.

The train shown in FIGS. 1 and 2 has a supporting base 1 on which a pair of rails 2 are secured. An elastic band, such as a band 4 of rubber, is secured to the base so as to extend along the side faces of the rails. Each rail 2 is provided with a number of upwardly extending notches 5 in its bottom surface and notch 5 has downwardly extending protrusion 6. The notches 5 are spaced from one another at regular intervals and the notches 5 in one rail 2 are arranged in transverse alignment with the notches 5 in the other rail 2. The rails 2 may have any desired number of ties 3 which are received in the notches 5 in a manner still to be discussed.

Each tie 3 is a sounding body composed of a material as, for example, sheet iron, and has two perforations 7 which freely receive the respective downward protrusions of transversely aligned notches 5 of the pair of rails 2. Since the ties form part of a musical instrument, it is necessary that there should be, for example, eight kinds of ties which can emit eight different musical sounds, respectively, corresponding to one octave. In general, the sounds of these ties 3 are determined by their length. The longest tie is adapted to emit the musical sound A upon being struck, and the others emit the other musical sounds of an octave. Any of the ties 3 is adapted to be positioned in the notches 5 as outlined before. When a tie 3 is inserted into a pair of notches 5, the downward protrusions 6 engage with the perforations 7 and the band 4 serves to keep the tie 3 in place as is clearly evident from FIG. 4.

A car 8, for example a locomotive, is provided with at least two pairs of wheels 9 and a conventional means for driving at least one pair thereof. The pair of wheels 9 are adapted to engage with the rails 2 so as to propel the car 8 along the track. A V-shaped movable rod having an upper arm 13 and a lower arm 10 is secured to a frame 11 on the car 8 at its elbow by means of a pin 12 which protrudes laterally from the frame 11. The lower arm 10 of the V-shaped rod 10, 13 has an upturned elastic end 10', and the upper arm 13 is extended into an elastic rod 15 having a striking element 14 at its free end. The bend of the upturned end 10' is adapted to engage with the ties 3 successively when the car 8 runs along the rails 2. The striking element 14 is adapted to strike a tie 3 when the upturned end 10' disengages from another tie. When the upturned end 10' is suddenly lowered due to this disengagement, the striking element 14 vibrates so as to strike the tie 3 by virtue of the elasticity of the elastic rod 15.

In operation, the car 8 is put on the rails 2 and made to run along them in a conventional manner. When the car 8 is put on the rail 2, the upturned end 10' engages a tie 3. While the car 8 is running, the upturned end 10' alternately engages and disengages the ties 3 and at every disengagement of the upturned end 10', the striking element 14 strikes a different tie 3 so as to emit a different musical sound. By arranging the ties 3 one after another correspondingly to a musical note, motion of the car 8 along the track results in playing of a tune.

In order to alter the tune the ties may be rearranged in accordance with another musical note. To provide a pause, a bridge may be provided between two successive ties (not shown). The ties may be made in different thicknesses and also of different materials so that they will emit different musical sounds.

In another embodiment of this invention as shown FIG. 5, the means for striking the ties 3 comprises a rotating shaft 17, an elastic rod 15 and a striking element 14. The rotating shaft 17 extends into the lower part of the frame 11 and is adapted to be driven at one end by the motor 16 which drives the axle of the rail car 8 and inclined downwards at the other end of said shaft 17. The rotating shaft 17 is adapted to pass through a vertical guide slot in the frame 11 so as to swing up and down, and is connected in alignment with an elastic rod 15 which has secured to a free end thereof a striking element. Rotation of the shaft 17 causes vibration of the rod 15 and the associated striking element 14, so that the latter strikes the ties 3 as the car 8 moves along the track.

In further another embodiment of this invention as shown in FIG. 6, the means for striking the ties 3 comprises a rotating shaft 18, an arm 19 and two striking rings 20. The rotating shaft 18 is mounted on frame 11 transversely of the direction of the movement of car 8 and engages a transmission means which drives the axle of car 8. The arm is secured to the rotating shaft 18 at the midpoint of the arm and the two striking rings 20 are loosely secured to the respective ends of the arm 19 in such a manner as to have freedom of movement with respect thereto. When the car 8 runs along the track, the arm 19 rotates rapidly with the rotating shaft 18 and the two striking rings thereby revolve about the rotating shaft 18. Centrifugal force displaces the rings outwardly with respect to the ends of the arm 19 and the rings thus strike the ties 3 with every revolution of arm 19. Since they are mounted loosely on the latter, they are enabled to yield, of course, so that stalling of the car 8 as a result of permanent engagement with the ties 3 is made impossible.

While a particular embodiment of this invention has been illustrated and described, modifications thereof will readily occur to those skilled in the art. It should be understood therefore that the invention is not limited to the particular arrangement disclosed but that the appended claims are intended to cover all modifications which do not depart from the scope of the invention.

I claim:

1. A musical toy railroad comprising a track; a plurality of sound-emitting bodies adapted to emit sound when struck, said sound emitting bodies being carried by said track spaced along a predetermined path; toy vehicle means adapted for movement along said track; and striking means mounted into said predetermined path for striking individual one of said sound-emitting bodies during movement of said toy vehicle means along said track.

2. A musical toy railroad as defined in claim 1, wherein said sound-emitting bodies are removably carried by said track.

3. A musical toy railroad as defined in claim 1, wherein said track comprises base means having rail means including a pair of transversely spaced rails mounted thereon, one of said means being formed with a plurality of pairs of transversely aligned cutouts in which said sound-emitting bodies are receivable, said sound-emitting bodies being provided with spaced-apart apertures therethrough; and further comprising locating pin means provided in each such cutout and registering with respective one of said apertures of the associated sound-emitting bodies for removably locating said sound-emitting bodies with reference to said track.

4. A musical toy railroad as defined in claim 1, wherein said striking means is movable toward and away from said predetermined path for striking individual one of said sound emitting bodies in said predetermined path and withdrawing from the latter.

5. A musical toy railroad as defined in claim 1, wherein said striking means comprises a first member normally extending into said predetermined path, and a second member normally located remote from said predetermined path, and coupled for movement with said first member whereby, when said first member engages individual ones of said sound-emitting bodies, said second member is deflected into said path for striking individual other ones of said sound-emitting bodies.

6. A musical toy railroad as defined in claim 1, wherein said striking means comprises an elongated member having opposite ends and rotating, when said toy vehicle is in place on said track, about an axis extending transversely of its elongation and in plane coincident with the direction of movement of said toy vehicle, and wherein said striking means further comprises a pair of striking members respectively loosely secured to said opposite ends of said elongated member with freedom of movement relative thereto; and further comprising means for rotating said elongated member about said axis whereby said striking members successively strike individual ones of said sound-emitting bodies and withdraw from said predetermined path.

7. A musical toy railroad as defined in claim 1 wherein said striking member comprises a shaft having a front end carrying a ball member adapted to strike said sound-emitting bodies, and a rear end carrying gear means; and further comprising drive gear means provided on said vehicle means and meshing with said gear means on said shaft for causing movement of the same whereby to successively displace said ball member into striking engagement with individual ones of said sound-emitting bodies.

8. A musical toy railroad as defined in claim 7 wherein said gear means and said drive gear means are rotary means for rotating said shaft about the longitudinal axis of the same; and further comprising flexible means interposed between said ball member and said front end of said shaft whereby, when said shaft rotates, said ball member carried by said flexible means oscillates toward and away from said predetermined path.

9. A musical toy railroad as defined in claim 1, wherein said sound-emitting bodies are removably carried by said track; and further comprising retaining means for retaining said sound-emitting bodies on said track against undesired movement with reference thereto.

10. A musical toy railroad as defined in claim 9, wherein individual ones of said sound-emitting bodies emit different musical notes when struck, and wherein arrangement of said sound-emitting bodies in a given manner will result in playing of a predetermined musical tune when said sound-emitting bodies are struck by said striking means during movement of said vehicle means along said track.

11. A musical toy comprising a plurality of sound-producing elements capable of producing musical tones when struck, support means supporting said elements in a predetermined sequence along a given path for producing a predetermined combination of musical sounds when said elements are struck in said sequence in which they are arranged along said path, guide means coextensive with said path, moving means guided by said guide means for movement along said path, and striking means carried by said moving means for striking said sound-producing elements in said sequence as said moving means is guided by said guide means along said path, so as to produce said predetermined combination of musical tones during movement of said moving means along said path.

12. A toy as recited in claim 11 and wherein said moving means is a toy vehicle and said guide means is in the form of a track guiding said vehicle for movement along said path, drive means operatively connected to said toy vehicle for driving the latter along said path, and said striking means being operatively connected to said drive means to be driven thereby simultaneously with the movement of said toy vehicle along said track.

13. An xylophone toy comprising a track, said track comprising a first and second mounting beam, said beams extending in parallel i disposition, a track suspended over each of said mounting beams, pins located along said mounting beams to receive tone bars positioned thereon so that said tone bars extend substantially transversely of said track, being positioned under said tracks, a resilient member extending along said beams upon which at least the edges of said tone bars rest for separation of said tone bars from said mounting beams, a wheeled vehicle adapted to run along said tracks and a striking hammer carried by said wheeled vehicle to sequentially strike said tone bars as said wheeled vehicle progresses along said track.