July 18, 1933. J. L. BONANNO 1,918,796

CURRENT COLLECTOR FOR TOY LOCOMOTIVES

Filed Aug. 27, 1931

FIG. 1.

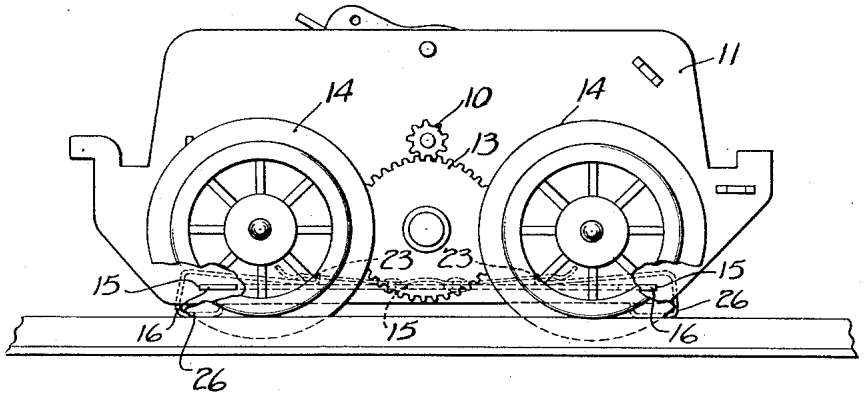


FIG. 2.

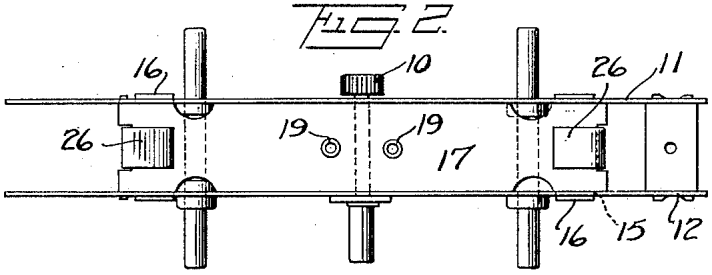


FIG. 3.

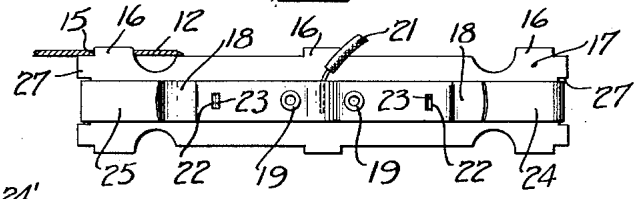
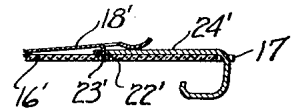


FIG. 5.



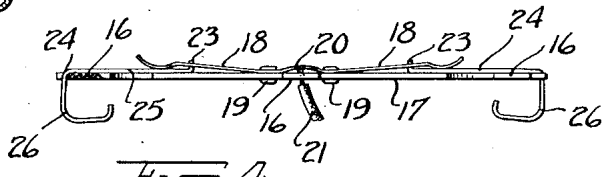


FIG. 4.

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CURRENT COLLECTOR FOR TOY LOCOMOTIVES

Application filed August 27, 1931. Serial No. 559,610.

The present invention relates to current collectors and contemplates a simply constructed, inexpensive current collector designed for toy locomotives.

The present invention contemplates a current collector for this purpose having a quick detachable contact so arranged that it can be removed and replaced without the use of tools.

The accompanying drawing shows, for purposes of illustrating the present invention, two of the many embodiments in which the invention may take form, it being understood that the drawing is illustrative of the invention rather than limiting the same. In the drawing:

Fig. 1 is a side elevational view of a propulsion unit of a toy locomotive showing the same resting on a toy track;

Fig. 2 is an inverted plan view of the propulsion unit with the wheels removed;

Fig. 3 is an inverted plan view of the current collector showing it removed from the locomotive;

Fig. 4 is a side elevational view of the same; and

Fig. 5 is a fragmentary view the same as Fig. 4 illustrating a modified form of construction.

The toy locomotive may be of the usual construction and is provided with a motor (not shown) for operating a pinion indicated at 10. This pinion is carried in bearings formed in side plates 11 and 12. It drives a gear indicated at 13 which meshes in the usual manner with gear teeth (not shown) carried on the inner face of the locomotive driving wheels 14. The frame plates 11 and 12 are provided with three openings 15 adjacent the lower edges thereof and these openings are adapted to receive laterally extending lugs 16 formed in a fibre stamping 17. The width of this stamping equals the spacing of the side plates. The lugs 16 enter the holes 15 and hold the insulating stamping in position.

The insulating strip 17 supports two leaf springs 18, 18 which may be formed out of a single strip of phosphor bronze. They are riveted in place as indicated at 19. The material 20 between the rivets or eyelets 19, 19 is arched slightly, as indicated, so that the wire 21 can be inserted conveniently. This wire is clamped in place by applying pressure at 20. The springs 18, 18 are apertured as indicated at 22, 22 to receive upwardly bent prongs 23 carried by heavier gauge conducting strips 24 also made of phosphor bronze. These conducting strips have a portion, indicated at 25, which bears on the upper face of the insulating strip 17 and their free end portions are bent into a hook shape as indicated at 26 and adapted to bear on the rail. These portions extend down through notches indicated at 27 in the ends of the insulating strip.

The insulating strip and the leaf springs are secured together by the rivets 19 and the wire 21 is secured in place and then these parts are assembled between the frame plates of the toy locomotive. The current collector shoes 24, 24 are inserted between the frame plates and the prongs 23 passed underneath the springs 18. The springs 18 then hold these current collecting members in place and act to press the conducting strips downwardly against the toy track as indicated in Fig. 1.

When one desires to remove the collector shoe, it is only necessary to insert a small instrument into the locomotive between the frame plates and underneath the end of the spring 18. The spring may then be pressed upwardly a sufficient amount to release the worn shoe.

In the form shown in Fig. 5 the construction is substantially the same except that the spring 18′ is provided with a prong 23′ adapted to enter a hole 22′ in the strip 24′ which forms the current collecting shoe.

It is obvious that the invention may be embodied in many forms and constructions and I wish it to be understood that the particular forms shown are but two of the many forms. Various modifications and changes being possible, I do not otherwise limit myself in any way with respect thereto.

What is claimed is:

1. A toy electric locomotive having spaced apart frame plates, an insulating strip extending between the plates, a current collec-

tor, the current collector having a portion extending along the upper face of the strip and a portion extending downwardly underneath the strip for contact with a rail underneath the locomotive, and a quick detachable spring connection for detachably securing the collector to the strip and resiliently pressing it downwardly.

2. A toy electric locomotive having spaced apart frame plates, an insulating strip extending between them, a substantially rigid current collector strip having a portion disposed below the lower face of the insulating strip for contacting with a rail and an upper flat portion engaging the upper face of the insulating strip, and a spring releasably engaging the conducting strip and yieldably holding said upper portion against the insulating strip, the collector strip being removable by being withdrawn from between the side plates.

3. A toy electric locomotive having spaced apart frame plates, an insulating strip extending between them, a conducting leaf spring secured to the upper face of the insulating strip, and a sheet metal contact shoe releasably secured to the insulating strip by the spring.

4. A toy electric locomotive having spaced apart frame plates, an insulating strip extending between them, a conducting leaf spring secured to the upper face of the insulating strip, and extending toward the end of the strip, and a contact shoe having one end underneath the spring and the other end bent to be spaced below the end of the insulating strip, one of said metal parts having a prong entering an opening in the other to hold the contact shoe in place and permit easy removal.

5. A toy locomotive comprising spaced apart frame plates, an insulating base between the plates, a contact shoe partly above and partly below the insulating base, and a spring secured to the insulating base and having a quick detachable connection with the contact shoe, the shoe being removable by being withdrawn from the insulating base.

6. A current collector for toy electric locomotives comprising an insulating strip, a leaf spring riveted thereto and carried on the upper face thereof, and a substantially rigid sheet metal collector strip having an upper portion above the insulating strip and bent into an open loop about the end of the insulating strip so as to provide a contact portion below the insulating strip, the collector strip and spring having interengageable parts adapted to hold the collector strip in place but to release it upon flexing of the spring.

7. A current collector for toy electric locomotives comprising an insulating strip, a leaf spring riveted thereto and carried on the upper face thereof, and a substantially rigid sheet metal collector strip having an upper portion above the insulating strip and bent into an open loop about the end of the insulating strip so as to provide a contact portion below the insulating strip, the collector strip having a prong extending upwardly through the opening in the spring for releasably holding the collector strip in place.

8. A current collector for toy electric locomotives comprising an insulating strip having a notched end, a leaf spring secured to the strip and extending toward said end, and a collector strip having an end underneath the free end of the spring, the collector strip being bent downwardly to enter said notch and having a lower portion spaced from the insulating strip so as to permit up and down movement, the spring and strip being detachably connected together.

9. A current collector for toy electric locomotives comprising an insulating strip, a resilient strip of sheet metal riveted to the strip and having two free ends forming leaf springs and two relatively stiff sheet metal current collecting strips each having an end under the end of a leaf spring and one end spaced below the insulating strip, the current collecting strip being releasably secured to the respective leaf springs so as to be quickly detachable.

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