

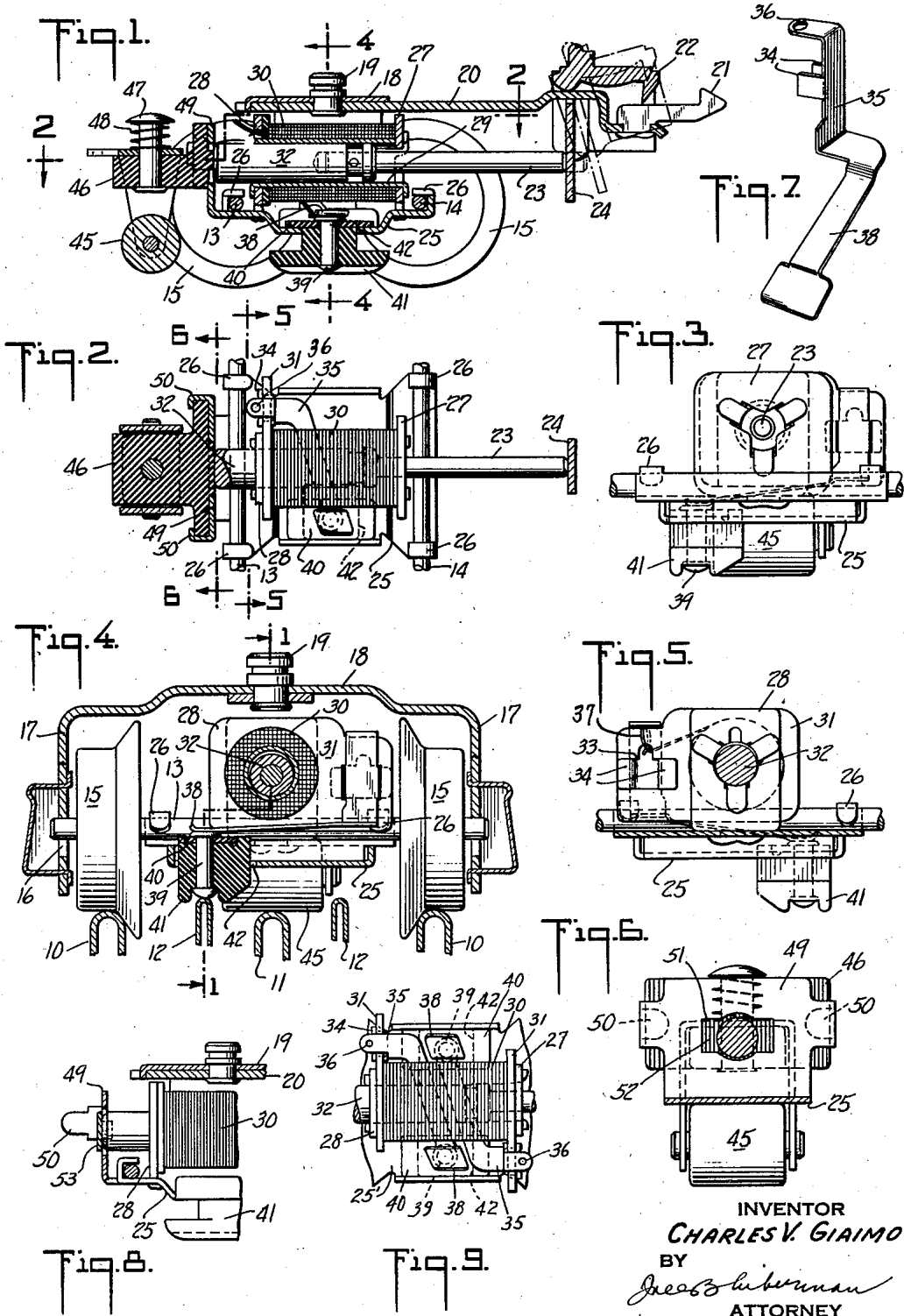
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TRUCK FOR TOY RAILROAD CARS

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TRUCK FOR TOY RAILROAD CARS

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The present invention relates to trucks for toy railroad cars, and is more particularly directed toward trucks having car coupling devices and electromagnetic means for affecting an uncoupling of the cars.

The present invention contemplates the provision of trucks for this and similar purposes wherein the magnet coil, current collector and associated parts are in the form of a pre-assembled unit adapted to be secured directly to the axles of the truck. When the electrical unit is secured directly to the axles of the truck as contemplated by the present invention, the current collecting device or devices carried by it have a very definite location with respect to the axles and therefore with respect to the tracks on which the wheels travel. When the toy vehicle is in use there is a possibility of the car body tilting and twisting with respect to the track level. This shifts the body of the truck relative to the axles. By having the collector shoe carried directly by the axles the swaying or other movement of the car body has no effect on the current collector or its elevation with respect to the track.

The present invention also contemplates devices for the purpose referred to wherein the electrical connections between the current collector and the coil are readily made by means of the spring which is used to secure adequate contact pressure against the rail.

Other and further objects will appear as the description proceeds.

The accompanying drawing shows, for purposes of illustrating the present invention, one of the many embodiments in which the invention may take form, together with modifications of certain parts, it being understood that the drawing is illustrative of the invention rather than limiting the same.

In the drawing:

Figure 1 is a longitudinal sectional view taken on the line 1—1 of Figure 4, showing a combined truck and coupler unit;

Figure 2 is a sectional view on the line 2—2 of Figure 1, the wheels being omitted;

Figure 3 is an end elevational view taken from the right of Figure 2;

Figure 4 is a transverse sectional view on the line 4—4 of Figure 1;

Figures 5 and 6 are sectional views taken on the lines 5—5 and 6—6, respectively, of Figure 2 looking in the direction of the respective arrows;

Figure 7 is a sectional view of the contact spring before it is secured in place;

Figure 8 is a fragmentary elevational view through a modified form of construction; and

Figure 9 is a fragmentary view similar to Figure 2 showing two collectors.

The car truck contemplated by the present in-

vention is more particularly intended for use with toy track sections having wheel bearing rails 10, 10, a central third rail 11 and two intermediate rails 12, 12 placed at a higher elevation than the other rails and adapted to supply current to a car-carried current-consuming device in a circuit in shunt with the propulsion circuit through the wheel bearing rails.

The truck has axles 13 and 14 of conventional form, and these carry the usual wheels 15. The ends of the axles are received in elongated holes 16 carried in the downwardly bent portions 17, 17 of a sheet metal frame 18. This truck frame is of the usual form, and carries a pivot pin 19 by which the truck is connected to a car body and a drawbar or coupler bar 20 having at its end a coupler hook 21 and a movable coupler head 22. The coupler head is normally in the full line position shown in Figure 1 and is lifted to the dot-and-dash line position either by the hook of another similar coupler during coupling, or by a horizontally movable rod 23 engaging a depending extension 24 on the coupler head.

A sheet metal stamping 25 has four upwardly extending prongs 26 bent over on to the axles 13 and 14, so as to secure the stamping 25 in place. This stamping also carries two spaced coil supports 27 and 28 apertured to receive a spool 29 carrying a coil 30 and an insulating plate 31. The spool 29 accommodates an armature 32 connected to the pin or rod 23. The rod 23 has a definite position relative to the axles and the extension 24 from the coupler head is large enough to be reached by it no matter what the relative positions of the axles and truck frame.

The outer end of the plate 31 is apertured, as indicated at 33, and this receives two prongs 34, 34 of a spring 35, shown more in detail in Figure 7. This spring has a soldering lug 36 to receive the lead wire 37 for the coil 30. The lower end 38 of the spring 37 extends across underneath the coil and bears on the upper end of a pin 39. This pin is used to rivet together a piece of sheet insulating material 40 and a molded piece of insulating material 41. The molded piece passes through a hole 42 in the stamping 25. The lower end of the pin 39 is adapted to ride on one of the rails 12 and good contact is insured by the pressure of the spring.

Where the toy car is to have an accessory, such as a lamp intended to be lighted whenever the track is energized, the truck, as shown in Figure 1, is provided with a contact roller 45 adapted to bear on the center rail 11. This roller is yieldingly secured to a piece of molded insulating material 46 by a pin 47 and spring 48. The insulating piece 46 is secured to the upwardly bent end 49 of the stamping 25 by means of lugs 50 bent over as indicated. The end 49 of the stamping 25 has an opening 51 which receives

a lug 52 provided on a piece of insulation 46. The armature 32 is inserted before the insulating piece is attached.

Where the truck is to have only the single current collector 39 the same parts are used as in Figure 1, except that the hole 51 in the upwardly extending end 49 of the stamping 25 is closed by a non-magnetic sheet metal insert 53, as indicated in Figure 8.

Figure 9 illustrates an arrangement wherein an insulating plate 31 carries a second spring 35 cooperable with a second collector, the parts being the same as above described except that the stamping 25' has two holes 42. With this arrangement the coil can be energized by bringing the two supplemental rails to a different potential and separate circuit connections may be made to other accessories in the car.

It is obvious that the invention may be embodied in many forms and constructions within the scope of the claims and I wish it to be understood that the particular forms shown are but a few 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. The combination with a toy car truck having a body adapted to be connected to a car body, the body having downwardly bent apertured sides, wheeled axles of smaller diameter than the vertical width of the apertures in the sides whereby vertical play between the body and the wheels and axles is possible, a frame carrying a horizontal magnet coil whose length is less than the spacing of the axles whereby the coil may be passed upwardly between the axles, means for fixedly securing the frame to the axles, a downwardly spring pressed current collector having limited vertical movement with respect to the frame whereby the contact will not partake of the vertical movements of the truck frame with respect to the axles, and a horizontally reciprocable armature carried by the coil and extending over one of the axles.

2. The combination with the two axle truck for a toy car and a truck carried coupler having a longitudinally extending coupler bar provided with a coupler head biased toward coupling position, of a coupler head shifting device comprising a longitudinally movable plunger below the coupler bar, a longitudinally extending magnet coil for operating the plunger, a support for the magnet coil including a frame having a portion insertible upwardly between the axles of the truck and a bottom portion engaging the axles and secured directly to the axles, and a current collector shoe carried by the frame and directly connected to the coil.

3. The combination of claim 2 wherein the frame has an upwardly extending end outside the axles and opposite the coil and having a contact roller insulatedly secured to said end of the frame, the shoe and roller being offset to cooperate with different rails.

4. In combination, a horizontal frame member, two upwardly extending spaced coil supports, a coil secured between the coil supports, an insulating plate extending laterally from one end of the coil, an opening in the frame member disposed on the side of the coil axis opposite the laterally extending plate, an insulating member

extending through the opening and having limited vertical movement therein, a conducting pin carried by the insulating member, and a spring member anchored to the insulating plate and bearing on the pin to urge the insulating member down.

5. A current collecting device comprising a wheeled truck, a horizontal truck carried frame member having an aperture, an insulating plate secured to the frame member and having an end spaced laterally of the aperture, a conducting spring member having prongs bent over onto the plate to secure it to the plate and having an end above the aperture, and a vertically movable conducting element, insulated from the frame member, extending through the aperture therein, and having its upper end engaged by the spring and its lower end exposed for contact with a rail.

6. A combined truck and coupler unit for electric railroad cars, comprising a truck frame, a longitudinally extending coupler bar fixedly secured to the frame and having a coupler head biased toward coupling position and having an operating element of substantially vertical dimension, two axles carried by the truck frame for limited vertical movement, a metal plate secured underneath and to the axles, a longitudinally extending, centrally disposed magnet coil secured to the plate, and a plunger in the coil normally out of contact with the operating element of the coupler head but movable when the coil is energized to engage said member and shift the coupler head, irrespective of the relative movement of the axles with respect to the truck frame.

7. A combined truck and coupler unit such as claimed in claim 5 having an insulated contact shoe carried by and below the plate and laterally offset with respect to the coil axis.

8. A unit such as claimed in claim 5, having an insulated contact shoe carried by and below the plate and laterally offset with respect to the coil axis, and wherein the frame has an upwardly bent end opposite the coupler head, and having an insulated spring pressed contact roller disposed centrally of the wheels.

9. A subassembly for toy car trucks, comprising a metal plate having upwardly extending prongs adapted to be bent over onto truck axles, two parallel upwardly extending coil supports spaced closer than the prongs, an insulating plate carried by one coil support, a magnet coil supported by the coil supports, a spring carried by the insulating plate and connected to the coil, a contact member engaged by the end of the spring, the contact member being vertically movable in and insulated from an aperture in the metal plate, and a plunger in the coil.

10. The combination with the two-axle truck of a toy car, and truck carried coupler having a coupler head biased toward coupling position, of a coupler head shifting device comprising a horizontal, longitudinally movable plunger, a magnet coil for operating the plunger, a support for the magnet coil comprising a frame movable upwardly between the axles of the truck and secured directly to the axles, and a collector shoe carried by the frame, whereby the position of the collector shoe relative to the treads of the wheels is predetermined.

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