

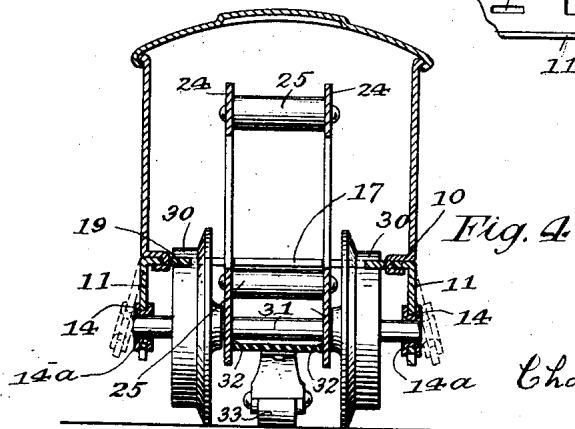
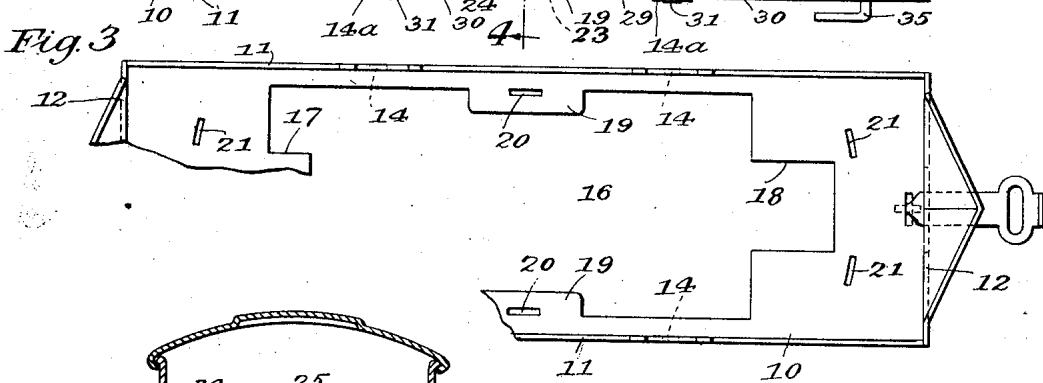
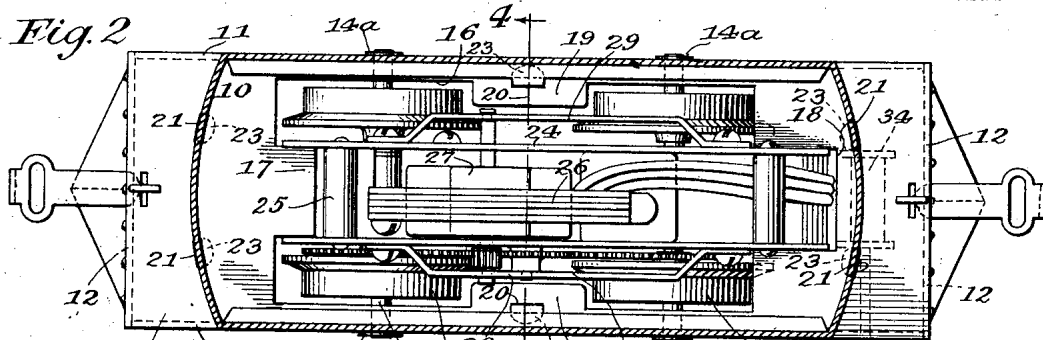
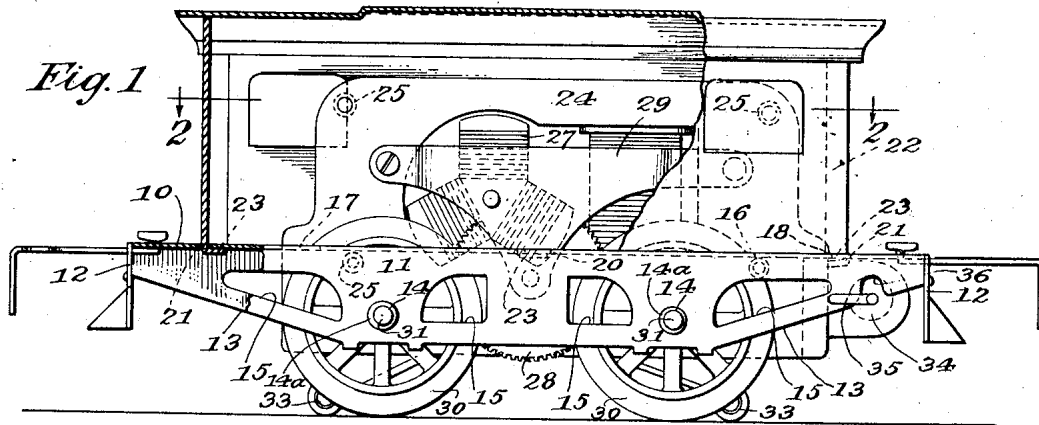
May 21, 1929.

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1,713,966

TOY ELECTRIC LOCOMOTIVE

Filed Jan. 18, 1926



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# UNITED STATES PATENT OFFICE.

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TOY ELECTRIC LOCOMOTIVE.

Application filed January 18, 1926. Serial No. 81,954.

The present invention relates to an improved locomotive for toy trains, and has for an object to provide a construction in which the locomotive body or cab unit may be securely attached to the motor frame, without the use of rivets, bolts, screws, or the like, and in which the two units will be accurately aligned and rigidly supported and connected, so that they are firmly and operatively connected. The connection between the cab body and motor frame has heretofore been made, to a great extent, by means of screws inserted through the units into securing relation, and frequent removal of the motor unit, and long use, has resulted in loosening of such screws, so that the units were apt to separate or loosen, and separation of such units for repair or renewal was inconvenient. Another object of the invention, therefore, is to provide a locomotive construction by means of which the motor unit may be quickly and easily removed from the body or cab for the purpose of repair or the like, without the necessity of removing attaching means or bending attaching lugs. To this end it is proposed, in the present embodiment, to provide means in the cab or body unit for the reception of extra long axles to prevent relative vertical movement, and an opening adapted to interlockingly receive the motor unit to prevent relative horizontal or lateral movement.

A further object is to provide a locomotive body or cab unit which may be formed of two pieces of sheet metal, in which the floor or truck frame portion is made to support the cab member and is cut out to receive the motor unit which can be readily attached without the use of tools or machines, thereby greatly simplifying assembly.

With the above and other objects in view, an embodiment of my invention is shown in the accompanying drawings, and this embodiment will be hereinafter more fully described with reference thereto, and the invention will be finally pointed out in the claims.

In the drawings:—

Fig. 1 is a view, partly in side elevation and partly in vertical section, of a toy train locomotive, according to the present embodiment of the invention;

Fig. 2 is a sectional plan view thereof, taken along the line 2—2 of Fig. 1;

Fig. 3 is a bottom plan view of the base or

chassis for the sheet metal cab or body, partly broken away; and

Fig. 4 is a vertical sectional view of the locomotive taken along the line 4—4 of Fig. 2.

Similar reference characters indicate corresponding parts throughout the several figures of the drawings.

Referring to the drawings, the toy train locomotive, of the present embodiment, includes a locomotive truck frame or chassis formed of a single piece of sheet metal and comprising a flat rectangular floor portion 10 having depending longitudinal side portions 11, 11 and depending end portions 12, 12 bent downwardly at right angles thereto, the lower edges of the side portions being inclined upwardly at each end, as at 13, and the relatively deep intermediate portions being provided with spaced and aligned axle receiving apertures 14, the side portions being furthermore provided with openings 15 in semblance of the trussed truck structure of a locomotive. Eyelet bearings 14<sup>a</sup> are provided in the apertures 14.

The floor portion 10 is provided with a central opening 16 of general rectangular shape, provided at one end with an inwardly projecting rectangular portion 17 and at its other end, and in aligned relation with said portion 17, with a rectangular recess 18, slightly wider than said portion 17. Centrally of the side edges of the opening 16 there are provided inwardly projected portions 19 having slots 20 therein, these slots, together with similar slots 21 in the floor portion adjacent each end, being for the attachment of the locomotive body or cab unit 22 by means of lugs 23 inserted through said slots and bent over upon the lower surface of the floor member.

The motor unit comprises a frame consisting of vertically disposed side plates 24 connected in spaced parallel relation by riveted spanner studs 25, and within which is supported the magnetic field 26 and rotor 27 mounted in side plates 29 secured at each side of the plates 24 and bent outwardly in spaced relation thereto. This rotor is connected to drive gear 28 which in turn drives gears 28' secured to the wheels 30 mounted on axles 31 journaled at their intermediate portions in bearing apertures 32 in the frame plates 24, see Fig. 4, and projected at their ends for engagement in the aligned apertures 14 of

the truck, frame or chassis. Spring contact elements 33, for engagement with the power rail, are also secured to the motor frame, and at one end of the frame there is secured a reversing switch 34, the handle 35 of which projects into a recess 36 in the side portion 11 of the chassis at one side.

In assembling the motor unit with the cab unit the side portions 11 of the truck frame are sprung outwardly, as indicated in dotted lines in Fig. 4, and the motor frame is slid upwardly into the opening 16, the length of the side plates 24 being slightly less than the distance between one end of said opening 16 and the base of the recess 18, while the spacing and thickness of said plates is such relatively to the projecting portion 17 and the recess 18 that said portion 17 engages snugly between said plates, and said plates are snugly engaged within said recess at the other end. The axle ends of the flanged wheels 30 are of sufficient length to be inserted in the apertures 14 of the side portions of the frame 10, which as above pointed out are sprung outwardly for this purpose, and which when released resume their right angular retaining relation, as shown in Fig. 4. The wheels 30 project at their upper portions into the larger opening 16 at each side of the portions 19.

In this assembled relation the motor unit and cab unit are securely connected and rigidly supported against relative movement, the engagement of the axles in the apertures 14 and the interlocking relation between the portion 17 and the recess 18 of the opening 16 and the motor frame insuring a rigid centrally aligned assembly in which both vertical and lateral movement is prevented. In order to remove the motor unit it is only necessary to spring the sides 11 of the chassis frame outwardly, to the dotted line position Fig. 4, to release the axle ends, whereupon the motor unit may be slid from the cab unit.

The construction provides a reliable and simple toy locomotive structure, which may be conveniently assembled, and in which the motor unit may be easily removed and replaced, without the necessity for removing screws, or other means, or of bending attachment lugs with the danger of crystallization and breakage incident thereto.

I have illustrated and described a preferred and satisfactory embodiment of the invention, but it will be obvious that changes may be made therein, within the spirit and scope thereof, as defined in the appended claims.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:—

1. In a toy train locomotive, a cab unit including a truck frame and cab, said cab unit having a motor receiving opening and axle receiving portions, and a motor unit including wheels having axles projecting at each

end, said opening and axles receiving portions adapted to removably connect said units to prevent relative vertical and lateral movement.

2. In a toy train locomotive, a cab unit including a cab, a truck frame having a motor frame receiving opening and axle receiving portions therein, a motor unit including a frame, a motor, and wheels having axles supported in said frame and projected at each end for detachable engagement with said axle receiving portions, said frame being engaged in said opening of the truck frame, said opening having portions adapted to interlockingly engage said frame to position it against lateral movement centrally within said opening.

3. In a toy train locomotive, a cab unit including a cab, a truck frame having a motor frame receiving opening therein, and depending side portions having axle receiving portions therein, a motor unit including a frame, a motor, and wheels having axles supported in said frame and having their ends projected from the wheels, said axle ends being engaged in said receiving portions to fix the motor unit against movement in the truck frame, the said depending side portions being adjustable to permit of the attachment and removal of said axles and motor frame.

4. In a toy train locomotive, including a truck frame having side portions extending downwardly at each side thereof, said frame having a motor frame receiving opening therein, and said side portions having axle receiving portions therein, and a motor unit including a frame, a motor, and wheels having axles supported in said frame and projected at each end, said frame being engaged and positioned in said opening of the truck frame against lateral movement, and said axle ends being engaged in said axle receiving portions to fix the motor unit against vertical movement.

5. In a toy train locomotive, a truck frame including a floor portion and flexible side portions bent downwardly at each side thereof, said floor portion having a motor frame receiving opening therein, and said side portions having axle receiving portions therein, and a motor unit including a frame, a motor, and wheels having axles supported in said frame and projected at each side, said frame being engaged and positioned in said openings, locking the truck frame against lateral movement, and said axle ends being engaged in said axle receiving portions to fix the motor unit against vertical movement and being disengageable therefrom by flexing of said side portions outwardly.

6. In a toy train locomotive, a truck frame including a floor portion and side portions extending downwardly at each side thereof, said floor portion having a motor frame receiving opening therein, and said side por-

tions having axle receiving apertures therein, and a motor unit including a frame, a motor, and wheels having axles supported in said frame and projected at each end, said frame being engaged in said opening of the truck frame, said opening having portions adapted to interlockingly engage said frame to position it against lateral movement centrally within said opening, and said axle ends being engaged in said axle receiving apertures to fix the motor unit against vertical movement.

7. In a toy train locomotive, a truck frame including a floor portion and side portions extending downwardly at each side thereof, said floor portion having a motor frame receiving opening therein, and said side portions having axle receiving portions therein, and a motor unit including a frame, a motor, and wheels having axles supported in said frame and projected at each end, said frame being engaged in said opening of the truck frame, said opening having portions adapted to interlockingly engage said frame to position it against lateral movement centrally within said opening, and having wheel receiving portions at each side of said frame, and said axle ends being engaged in said axle receiving portions to fix the motor unit against vertical movement.

8. In a toy train locomotive, a truck frame including a top portion and side portions extending downwardly at each side thereof, said top portion having a motor frame receiving opening therein, and said side portions having axle receiving apertures therein, and a motor unit including a frame having a pair of vertically disposed spaced parallel side plates, a motor, and wheels having axles supported in said frame and projected at each end, said frame being engaged in said opening of the truck frame, said opening having means at its ends adapted to interlockingly engage the side plates of the frame at each end to position it against lateral movement centrally within said opening, and said axle ends being engaged in said axle receiving apertures to fix the motor unit against vertical movement.

9. In a toy train locomotive, a truck frame including a top portion and side portions extending downwardly at each side thereof, said top portion having a motor frame receiving opening therein, and said side portion having axle receiving portions therein, and a motor unit including a frame having a pair of ver-

tically disposed spaced parallel side plates, a motor, and wheels having axles supported in said frame and projected at each end, said frame being engaged in said opening of the truck frame, said opening having a projecting portion centrally at one end adapted to engage between said side plates of the frame at one end and a recessed portion centrally at the other end adapted to embrace said side plates to position the frame against lateral movement centrally within said opening and said axle ends being engaged in said axle receiving portions to fix the motor unit against vertical movement.

10. In a toy train locomotive, a cab unit including a cab and truck frame therefor having depending flexible side portions with axle receiving portions therein, a motor unit including a frame and wheels having projecting axle ends detachably engaging the axle receiving portions of the side portions of the truck frame, and adapted to removably connect the truck frame and motor unit.

11. In a toy train locomotive, a truck frame including a floor portion having a motor receiving opening therein, and depending longitudinal side portions with aligned axle receiving apertures, a motor unit including a frame adapted to fit the opening of the floor portion and including wheels having axles projected from said frame for detachable engagement with the axle receiving portion of the truck frame.

12. In a toy train locomotive, a truck frame including a floor portion having a motor receiving opening therein, with an inwardly disposed projection at one end, a motor unit including a frame comprising spaced apart side plates adapted to receive therebetween the projection at one end of the opening, and means for holding the motor unit against vertical movement.

13. In a toy train locomotive, a truck frame including a floor portion having a motor receiving opening therein, with an inwardly disposed projection at one end and a recess at the other end, a motor unit including a frame comprising spaced apart side plates adapted to receive therebetween the projection at one end of the opening and to fit into the recess of the other end of the floor, and means for holding the motor unit against vertical movement.

Signed at Bridgeport in the county of Fairfield and State of Connecticut this 31st day of October A. D. 1925.

HARRY C. IVES.