June 29, 1926. 1,590,628

H. C. IVES.

CONTACT FOR TOY RAILWAY LOCOMOTIVES

Filed August 7, 1924

Fig. 1

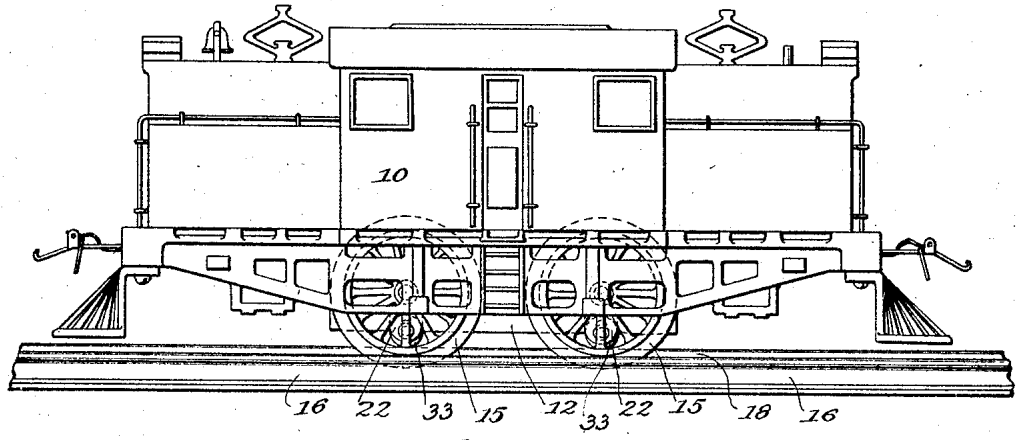


Fig. 2

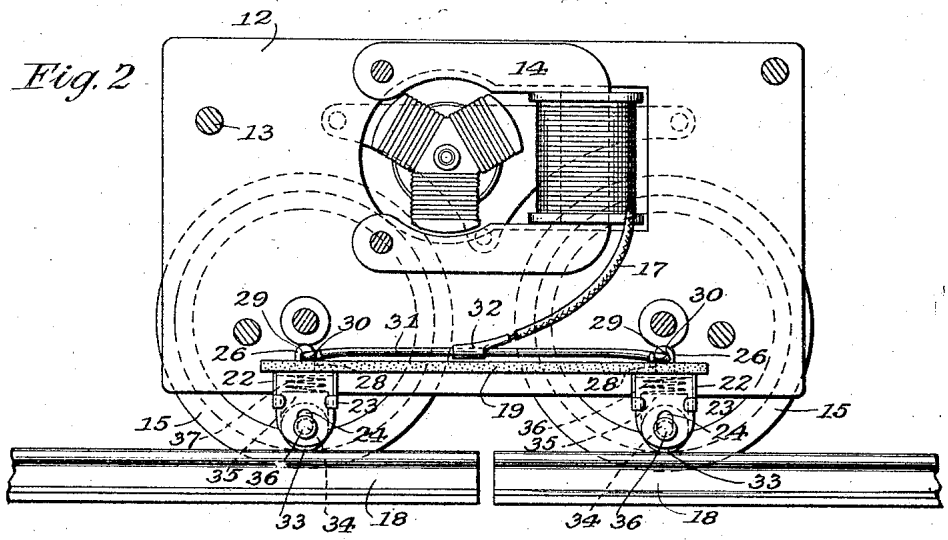


Fig. 3

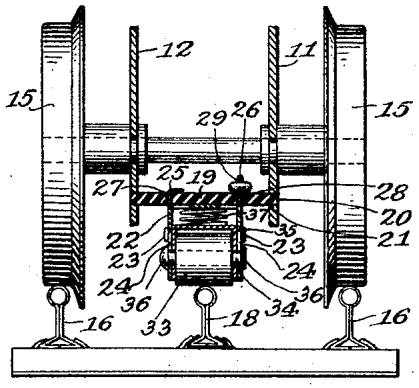
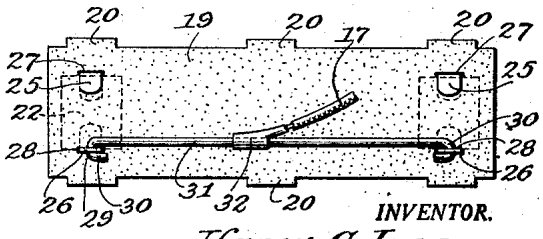


Fig. 4



INVENTOR.

Harry C. Ives

BY

Chamberlain & Newman ATTORNEYS.

Patented June 29, 1926. 1,590,628

UNITED STATES PATENT OFFICE.

HARRY C. IVES, OF BRIDGEPORT, CONNECTICUT, ASSIGNOR TO THE IVES MANUFACTURING CORPORATION, OF BRIDGEPORT, CONNECTICUT, A CORPORATION OF CONNECTICUT.

CONTACT FOR TOY RAILWAY LOCOMOTIVES.

Application filed August 7, 1924. Serial No. 730,763.

The present invention relates to improvements in contact means for electric toy railways, and particularly in roller contact means employed therein upon the rolling stock, as locomotives and cars, for gathering one side of the current from the central or power rail of the track system.

An object of the invention is to provide such roller contact means, in which a pair, or plurality of spaced rollers are provided adapted to have yielding contact with the rail, and which will be supported in a manner to insure constant and positive contact, and at the same time will offer no appreciable frictional resistance.

Other objects are to provide improved means for mounting the rollers independently of each other, and positive means for electrically bonding or connecting them together and to the motor or other electrically operated equipment.

With the above and other objects in view, an embodiment of the 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 side elevation of an electric toy railway locomotive, embodying the invention;

Fig. 2 is a vertical sectional view, enlarged, showing the motor frame structure, and the contact means, according to the present embodiment of the invention;

Fig. 3 is a vertical transverse sectional view, showing the contact means, wheels and track; and

Fig. 4 is a plan view of the contact means, detached.

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

Referring to the drawings, the embodiment of the invention shown therein comprises the locomotive structure proper 10, preferably formed of sheet steel and having the form of the usual electric locomotive, and having mounted therein a motor frame consisting of side plates 11 and 12 connected by transverse tie rods 13, and within which is supported an electric motor 14, suitably geared to the locomotive wheels 15. The motor is grounded at one side to the frame, and takes current from the charged wheel bearing rail 16 through the wheels and frame structure, being connected at the other side by a lead wire 17 to the contact roller means, presently to be described, and which engages the center or power rail 18. It will be understood that instead of a motor other electrically operated means may be employed, as electric lamps for illumination, and that the invention may be incorporated in other rolling stock units, as passenger cars.

At the lower portion of the frame there is provided a horizontally disposed fibre plate 19 having spaced lugs or projections 20 along its side edges, which engage correspondingly spaced openings 21 in the side plates 11 and 12 to thereby secure and support said fibre plate 19. At each end of the fibre plate, and at its under side, one of the contact roller devices is supported, these being of similar construction and each comprising a metal folded box structure 22, the sides of which are provided at the ends with lugs 23, which are folded over upon the ends of the box structure, said ends being extended below the sides and provided with vertical slots 24 horizontally aligned with each other. The box is provided at its upper end with upstanding lugs 25 and 26 struck up from the top of the same, the lug 25 being inserted through a slot 27 of the plate 19 and bent over upon the upper surface of said plate to partially secure the box, as clearly shown in Figs. 3 and 4, while the lug 26 is inserted through a slot 28 of the plate and is provided with an aperture 29 substantially flush with said upper surface of the plate.

The apertured lugs 26 of the two roller devices at each end are engaged by the hook ends 30 of a bonding and conductor wire or rod 31, said hook ends serving the double purpose of forming an electrical connection with the box and at the same time rigidly securing it, in the manner of a locking pin, by engagement with the upper surface of the plate. The lead wire 17 from the motor is connected to the center of the rod 31 by a coupling 32.

Each box is provided with an inwardly yielding contact roller 33, loosely rotatable upon a shaft 34, the ends of which are jour-

naled in the apertured sides of a U-shaped bracket 35, slidably engaged in the box, and headed, as at 36, to thereby retain the parts in assembled relation. A comparatively light coil spring 37 is disposed in the box between the top thereof and the upper surface of the bracket, exerting a downward pressure upon the roller and yieldably engaging it with the track.

The spaced contact rollers, according to the invention, insure positive and constant electrical contact with the central or power rail, and without any appreciable frictional resistance or upward derailing pressure upon the locomotive. By reason of the spaced contacts, the track may be provided with gaps, dead sections for signal purposes, switch sections, and the like, and at the same time a constant electrical connection is maintained through engagement of one or the other rollers with the live portion of the rail. The mounting of the rollers for vertical yielding movement provides a structure in which the locomotive may move in either direction, without any greater resistance effect in one direction than the other.

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 desired to secure by Letters Patent is:—

1. In a toy electric railway, the combination with an electrically operated element of a rolling stock unit, of a support, contact rollers longitudinally spaced from each other, supports for said rollers having a pair of lugs, one of said lugs being clamped through said first support, the other of said lugs being apertured and extended through said support to bring its aperture to the upper side of said support, means yieldably mounting said rollers in said supports, and a bonding conductor wire engaged at its ends through said apertures of said lugs to secure and electrically connect the same.

2. In a toy electric railway, the combination with an electrically operated element of a rolling stock unit, of a support, a contact roller, a support for said roller having a pair of lugs, one of said lugs being clamped through said first support, the other of said lugs being apertured and extended through said support to bring its aperture to the upper side of said support, and a conductor wire engaged at its end through said aperture to secure and electrically connect the roller support.

3. In a toy electric train, the combination with an electrically operated element of a rolling stock unit, of a support, a contact device mounted on said support and including an H-shaped casing rigidly secured to said support by the upper portions of its parallel arms, a bracket vertically slidable between the lower portions of the parallel arms of said casing, a roller mounted in said bracket, and means in the casing exerting a downward yielding pressure on said bracket, and conductor means forming an electrical connection between said roller and said element.

4. In a toy electric railway, the combination with an electrically operated element of a rolling stock unit, of a support, a contact device mounted on said support and including a casing rigidly secured to said support and having vertical slots in its opposed sides, an inverted U-shaped bracket vertically slidable in said casing having its sides engaging said slotted sides of the casing, a roller mounted in said bracket having a shaft extended through the sides of said bracket into said slots of the casing, and a spring disposed between the upper ends of said bracket and casing exerting a downward yielding pressure on said bracket, and conductor means forming an electrical connection between said roller and said element.

5. In an electrically operated toy railway car, a support of insulating material having spaced pairs of opening therein, spaced contact rollers, supports for said rollers each having a pair of lugs, one lug of each of said pairs being clamped through respective openings in the first support, the other lugs of each of said pairs being apertured and extending through the other respective openings of said support to bring their apertures to the upper side of the first support, means mounting the rollers in the supports, and a conductor wire passing through the apertures of said lugs to secure and electrically connect them.

Signed at Bridgeport in the county of Fairfield and State of Connecticut this 4th day of August A. D., 1924.

HARRY C. IVES.