April 15, 1930. J. T. GALLIGAN 1,754,995

TOY LOCOMOTIVE WHEEL

Filed March 8, 1928

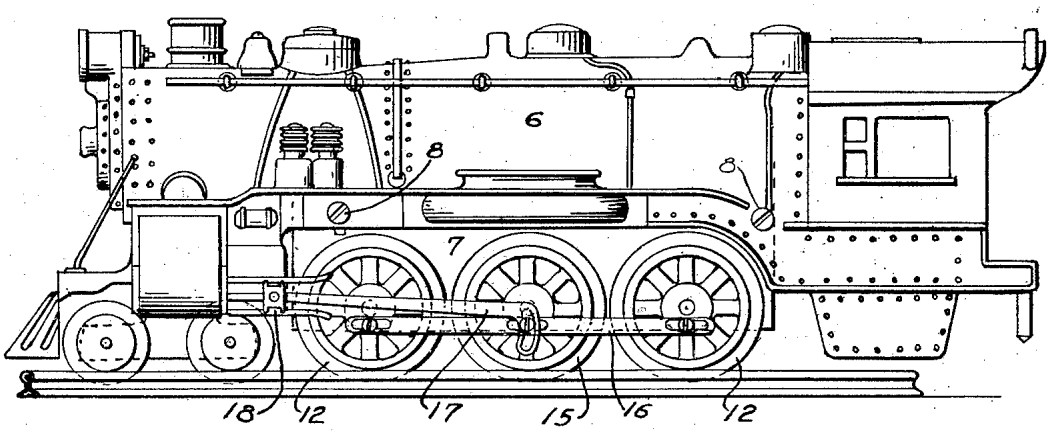

Fig 1

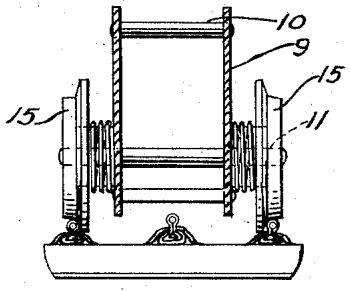

Fig 4

Fig 5

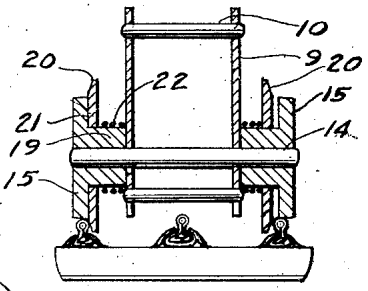

Fig 3

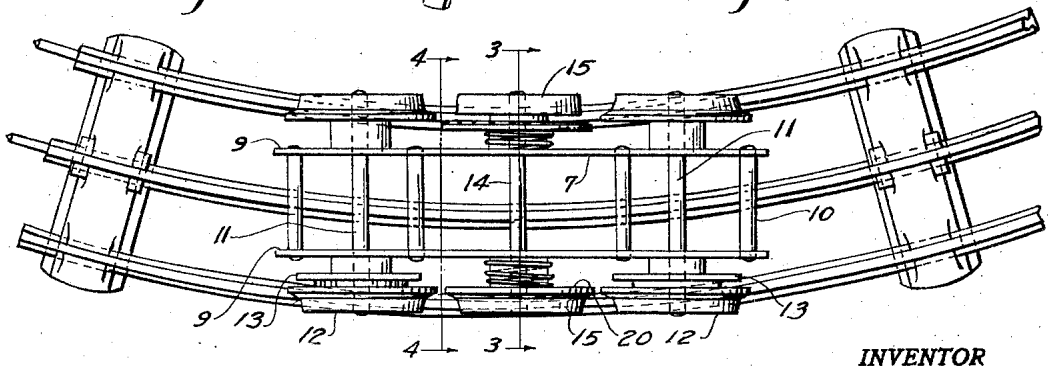

Fig 2

INVENTOR
John T. Galligan
BY
Chamberlain & Neumann
ATTORNEYS

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UNITED STATES PATENT OFFICE

JOHN T. GALLIGAN, OF BRIDGEPORT, CONNECTICUT, ASSIGNOR TO THE IVES CORPORATION, OF BRIDGEPORT, CONNECTICUT, A CORPORATION OF CONNECTICUT

TOY LOCOMOTIVE WHEEL

Application filed March 8, 1928. Serial No. 259,995.

This invention relates to improvements in flanged wheels for toy locomotives and cars, particularly adapted for use on six wheel trucks such as are used on toy railway trains and more particularly locomotives for operating such trains and especially refers to a novel form of flanged wheel to be used as a driving wheel on locomotive trucks so that the same will more freely run over curved sections of track without binding and retarding the speed of the train.

In the past it has been more or less impracticable to operate a six wheel type of locomotive upon the commercial sectional types of toy tracks including curved sections, particularly where such driving wheels were connected with side bars and linkage, for the reason that the three wheels on each side were in alignment one with the other on a truck frame which did not permit of sidewise movement of the wheels and thus could not conform with the radius of the curved track sections in a way to permit the truck to take the curve.

Heretofore various and more or less impracticable means have been devised for accomplishing this purpose, in some instances extra play to permit longitudinal movement of the center axle has been provided but this was not practical because the position of the side bars on each side would not allow the center pair of wheels and axle to shift longitudinally of their axis sufficiently to permit the truck to run over curved sections. In other instances center driving wheels have been employed which had no flanges and which obviously permitted the truck to run around the curve without friction or resistance but in this latter case the center wheel was different in appearance from the others which detracted materially from the design of the locomotive.

I have therefore devised a form of wheel and truck whereby a six wheel type of truck may be built and applied to a toy locomotive, which will freely run over the present commercial curved type of track without undue friction and in a way to permit of the use of side bars and links upon the outside of the driving wheels as is the present custom.

In the production of a six wheel truck of this type I find it is necessary to use but two of the improved type of wheels, one on each side and both preferably in the center of the truck, using the old form of flanged driving wheels on each end of the truck, or front and rear of the new type of flanged driving wheels.

Other objects are compactness, accessibility and freedom from parts or mechanisms which will readily go out of order.

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 shows a side elevation of a commercial steam type of electric toy locomotive and to which my invention is adapted to be applied;

Fig. 2 shows a detached plan view of a locomotive truck, as employed on the type of engine shown in Fig. 1, and embodying six driving wheels mounted upon a curved section of toy electric third rail track;

Fig. 3 is a vertical cross section through truck frame, axle and driving wheels, taken on line 3—3 of Fig. 2;

Fig. 4 is a sectional elevation taken on line 4—4 of Fig. 2, showing the center driving wheels as they would appear when mounted upon a straight track section; and

Fig. 5 shows a detached perspective view of a modified form of spring to be used in holding the separable flange of the driving wheels in position.

Referring in detail to the characters of reference marked upon the drawings, 6 represents a commercial steam type of toy locomotive to which my invention is adapted to be applied. This locomotive may be constructed in whole or in part of cast iron and while designed to be operated by electricity taken from a third rail, yet it is also adapted to be operated by a spring movement, not shown, when substituted for an electric movement that may also be contained in the truck frame mounted in the body of the locomotive.

7 represents the truck frame which is secured within the cast shell of the locomotive by means of screws 8, or other suitable means, not shown. These movements when made up to be operated by either spring or electric motor usually comprise side plates 9—9 which are secured together and in spaced relation by means of rods 10, the ends of which extend through the frame plates and are riveted upon the outside so as to form a rigid frame.

The axles 11—11 may be of the usual construction formed of wire and rotatably mounted in the side plates 9—9 of the frame and serve to receive flanged driving pulleys 12 secured thereto, one on each end of the axles and in proper spaced relation one to the other according to the particular gauge of the track and size of the locomotive. These axles may be further provided with gears 13 to connect with the operating unit, not shown, for the purpose of driving the locomotive. The center axle 14 is also journaled in the side plates of the frame and is free to turn with the rotation of the connected wheels 15 mounted thereon.

These wheels 15 operatively speaking, are more in the nature of idlers than drivers for in practise they are not usually directly connected to the motor. They are however operatively connected to the end driving wheels through the side bars 16 and also connected by the links 17 with the piston slide 18, see Fig. 1. The center wheels 15 are provided with integral hub portions 19 which bear against the outer face of the plates 9 but are not provided with an integral annular flange around their inner edge portion, as is customarily the case with locomotive and car wheels, but are provided with a movable flange 20 which is formed of the outer edge or rim portion of a flat disc 21 which is slidably fitted upon the hub 19 of the wheel. These flanges, see Fig. 3, are normally pressed outward by means of a spring 22 mounted upon the hub 19 of the wheel in a manner to yieldably hold the flanged disc out against the inner face of the wheel and to permit them to move in upon the hub against the action of the spring when the flange crowds against the inner face of the inner rail of a curved track section as is demonstrated at 25 in Figs. 2 and 3.

In Fig. 5 I have shown a flat sheet metal spring 22^a which may be used upon the hubs 19 in place of the coiled spring to hold the flanges out against the inner face of the wheels 15.

These curved sections in the track are the points in the track, with the operation of the old forms of trucks, where friction occurred since it was impossible for the three aligned integrally flanged wheels on each side to take the curve, as is done with the movable form of flanges as provided in my invention herein disclosed.

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

1. In a toy railway car wheel, a truck frame, an axle mounted therein, wheels secured to the axle, discs movably fitted against the side of the wheels and having annular flange portions extended beyond the periphery of the wheels, and springs interposed between the frame and the flanges to yieldably hold the latter against the sides of the wheels.

2. In a toy railway car wheel, a truck frame, an axle mounted thereon, wheels secured to the axle, discs movably fitted against the inner side of the wheels and having annular flange portions extended beyond the periphery of the wheels, and springs interposed between the frame and the flanges to yieldably hold the latter against the sides of the wheels.

3. In a toy railway car wheel, the combination with a truck frame, an axle mounted therein, wheels mounted on opposite end portions of the axle and having inwardly extended hub portions, movable disc flanges mounted on said hubs adjacent the inner sides of the wheels, and means for normally holding the disc flanges against the side of the wheels.

4. In a toy railway car truck, the combination with a truck frame, a series of axles mounted therein, plain and flanged wheels mounted on the axles, the plain wheels having inwardly extended hub portions, movable disc flanges mounted on said hubs adjacent the inner sides of the wheels, and means for normally holding the disc flanges against the side of the wheels.

5. In a toy railway car truck, the combination with a truck frame, a series of three axles mounted therein, flanged wheels mounted on some of the axles, and plain-faced wheels mounted on another of said axles, a movable flange mounted adjacent the inner sides of the plain wheels, and means for normally holding the flanges against the side of the wheels.

Signed at Bridgeport, in the county of Fairfield and State of Connecticut, this 7th day of March, A. D. 1928.

JOHN T. GALLIGAN.