(No Model.) 2 Sheets—Sheet 1.

C. F. HEATH.

CAR TRUCK.

No. 470,935. Patented Mar. 15, 1892.

Fig. 1.

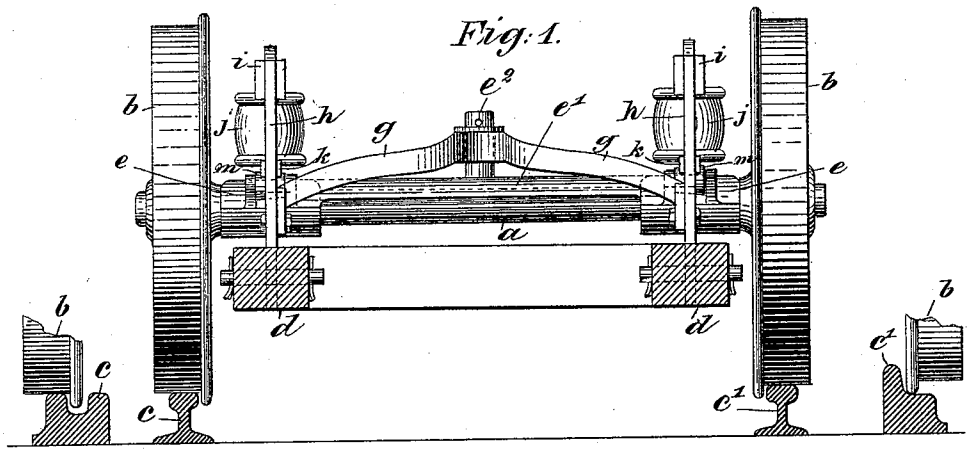


Fig. 2.

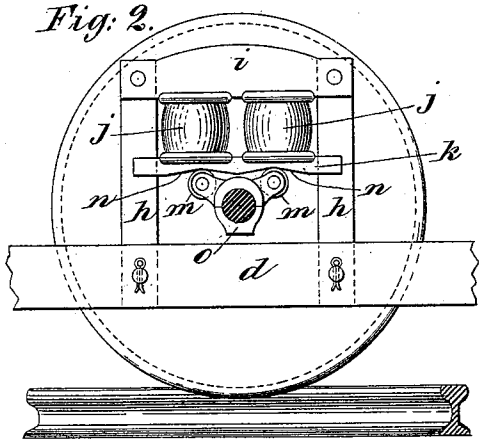


Fig. 3.

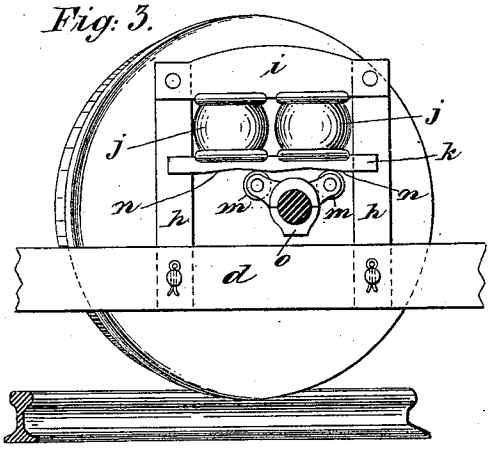


Fig. 4.

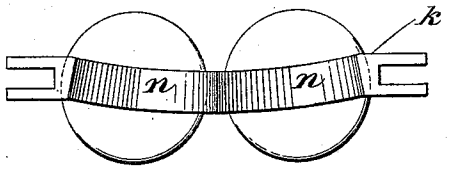
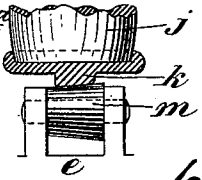


Fig. 4a.



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(No Model.) 2 Sheets—Sheet 2.

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CAR TRUCK.

No. 470,935. Patented Mar. 15, 1892.

Fig: 5.

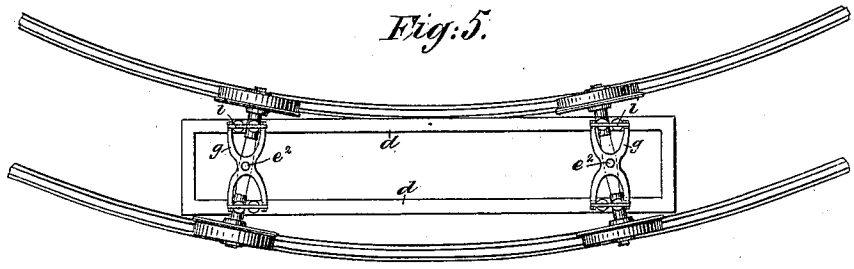
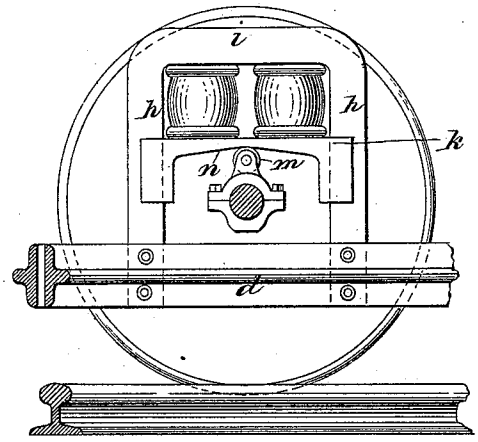


Fig: 6.



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UNITED STATES PATENT OFFICE.

CHARLES F. HEATH, OF JERSEY CITY, NEW JERSEY.

CAR-TRUCK.

SPECIFICATION forming part of Letters Patent No. 470,935, dated March 15, 1892.

Application filed November 10, 1891. Serial No. 411,454. (No model.)

To all whom it may concern:

Be it known that I, CHARLES F. HEATH, a citizen of the United States, and a resident of Jersey City, Hudson county, New Jersey, have invented certain Improvements in Car-Trucks, of which the following is a specification.

My invention relates to the class of car-trucks which are so pivoted that the axle of each pair of wheels will occupy a radial or nearly radial position with respect to the rails when the truck is moving on a curved track; and the object of my present invention is to improve the construction of the truck and provide means for bringing the axles to their normal position at right angles to the truck-axis when the truck moves onto a straight track.

My invention will be fully described hereinafter, and its novel features carefully defined in the claims.

In the accompanying drawings, which serve to illustrate my invention, Figure 1 is a transverse sectional elevation of a truck embodying my invention. Fig. 2 is a side elevation showing the mountings of one truck-axle, the near wheel of the truck being removed. This view shows the position of the parts when the truck is on a straight track. Fig. 3 is a view similar to Fig. 2, but showing the positions the parts assume when the truck is on a curved track. Fig. 4 is an under side view of the spring-bar upon which the springs rest; and Fig. 4ª is a transverse section of the bar, showing the coned form of the track and roller. Fig. 5 is a plan view, on a small scale, showing the truck on a curved track. Fig. 6 is a view similar to Fig. 2, showing a modified construction.

a are the axles, and *b* the flanged wheels thereon. The flanges of the wheels are on the inner edges of the same, as in the case of ordinary car-wheels.

c represents the inner track-rail, and *c'* the outer track-rail.

For the straight track ordinary T-rails may be used; but on curves I prefer to use the forms of inner and outer track-rails shown in the fragmentary views at the left and right, respectively, of Fig. 1.

d is the truck-frame, which may be of wood or metal. As represented in Figs. 1, 2, and 3 it is of wood.

I will now describe the manner of mounting the truck-frame on the axles.

e e are the bearing-boxes, which rest on the axle adjacent to the wheel-hubs. These boxes are connected together by a tie or bridge *e'*, which may be cast integrally with the boxes. This tie *e'* is raised somewhat, so as to stand at its middle part above the level of the axle or out of contact therewith, and at its central point over the axle it has an erect pintle e^2, which has a bearing in the boss of a spider-frame *g*, the four arms of which are secured to the truck-frame or to frames mounted rigidly on the truck-frame. As here shown, the arms of the spider-frame *g* are secured to what I call the "spring-frames," each of which consists of two uprights or standards *h*, fixed in the side bar of the truck-frame, and a cross-bar *i*, fixed to the upper ends of said standards and serving as a cap-plate to tie them together. The standards *h* and bar *i* may as well be integral; but for convenience in assembling the parts I prefer to make them non-integral and to rivet or bolt them together. Under the bar *i* are arranged the truck-springs *j*, which may be of any ordinary construction. These springs rest on a spring-bar *k*, the ends of which are forked to take over the respective standards, whereby said bar *k* is guided in its movements up and down as the compression of the springs varies with the load. The spring-bar *k* has a track or tracks formed on its under side, on which bear and roll two rollers *m*, mounted in bearings on the bearing-box *e*. Two rollers, the axes of which will usually be separated about two and one-half to three inches in practice, are employed to furnish a steady bearing on the axle, and each roller rolls over a V-shaped track *n*, composed of two inclines, which meet at the apex of the inverted V, as clearly shown. When the truck is on a straight track, (see Fig. 2,) the rollers *m* will occupy positions at the apexes of the respective V-shaped tracks *n;* but when the truck moves onto a curved track the axle adjusts itself to a position radial to the curve

and the rollers m roll up on one or the other of the inclines forming the track, assuming the position seen in Fig. 3. The tendency is always for the rollers to assume the position seen in Fig. 2, the inclines of the tracks acting, under the weight of the truck, as inclined planes to force the rollers to this position, and hence when the truck moves off the curve onto a straight track the axles will automatically assume their normal positions at right angles to the axis of the truck-frame.

As the axle swings on the pivot formed by the pintle e^2 it follows that the rollers m will traverse a curve, and to compensate this I make the bar k curved, as seen in the under side plan view, Fig. 4, and I preferably cone the rollers m slightly and the tracks on which they roll. This coning of the rollers and tracks is not, however, absolutely essential to the operation of the device. Fig. 4^a shows the preferred construction.

Under the bearings e and secured to them are the oil cups or boxes o. These may be of any kind and form no part of my invention.

I do not wish to limit myself to the employment of two rollers m and two V-shaped tracks n at each bearing, although I much prefer this construction, as it enables me to reduce the height of the spring-frame above the axle.

Fig. 6 illustrates a construction where but one roller m and one track n are employed. This view also shows a spring-frame $h\,i$ of integral construction and the side bars d of the truck as they will be when made of metal. Usually the metal side bars are in pairs, and the lower ends of the standards h are embraced between the two bars of the pair, being secured in place rigidly by bolts. The spider-frame g and the spring-frames $h\,i$ form, practically, parts of the truck-frame d, being rigidly mounted thereon.

The track on the lower face of the spring-bar has been described herein as V-shaped—that is, as consisting of two oppositely-inclined ways or tracks which meet at an angle; but it is not essential that the meeting-point shall be actually a re-entering angle. The tracks may be joined at this point by a curve, as seen in Fig. 6.

Having thus described my invention, I claim—

1. The combination, with the truck-frame furnished with spring-frames and springs, of the axle, the wheels thereon, the axle-bearing boxes connected by a tie, the said tie provided with a pintle which has a bearing in a transverse part of the truck-frame, the spring-bars mounted in the respective spring-frames over the axle-bearings and supporting the springs, said spring-bars having tracks on their lower faces, and rollers mounted on the axle-bearing boxes, on which rollers the spring-bars are respectively supported, substantially as set forth.

2. The combination, with the truck-frame having the upright spring-frames $h\,i$ and the spider-frame g, of the axle a, the wheels b thereon, flanged, as shown, the two bearing-boxes e, the tie e', connecting said boxes and pivoted at its middle to the boss of the spider-frame, the pairs of rollers m on the respective bearing-boxes, the spring-bars k, mounted in the respective spring-frames and resting on the respective pairs of rollers, and the springs j, the said spring-bars having each two V-shaped tracks on its under side where it rests on the rollers of the bearing-box, substantially as set forth.

3. In a car-truck, the combination, with the truck-frame, the axle, the wheels thereon, the connected bearing-boxes of the axle pivoted to a transverse part of the truck-frame over the axle, the spring-frames, and the springs, of the coned rollers mounted on the bearing-boxes and the spring-bars mounted in the spring-frames over said rollers, said spring-bars being laterally curved and having tracks on their lower faces which are coned or beveled to correspond with the coning of said rollers, substantially as set forth.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

CHARLES F. HEATH.

Witnesses:
HENRY CONNETT,
HERBERT BLOSSOM.