

W. R. ROWAN.

BOGIE TRUCKS FOR LOCOMOTIVES.

No. 176,482.

Patented April 25, 1876.

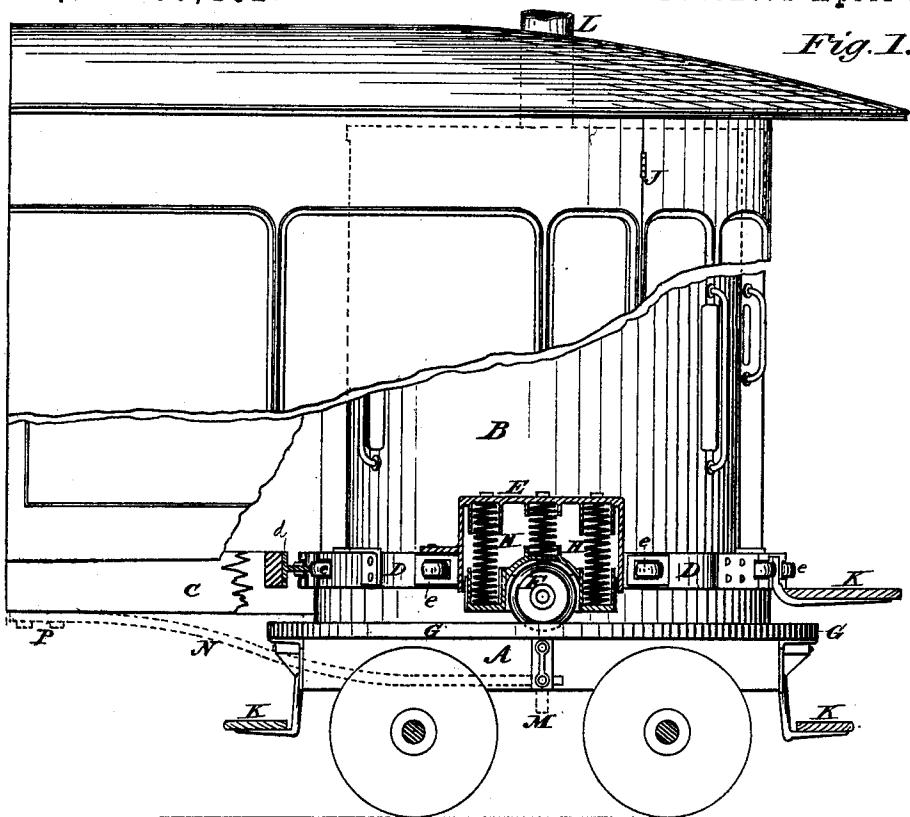


Fig. 1.

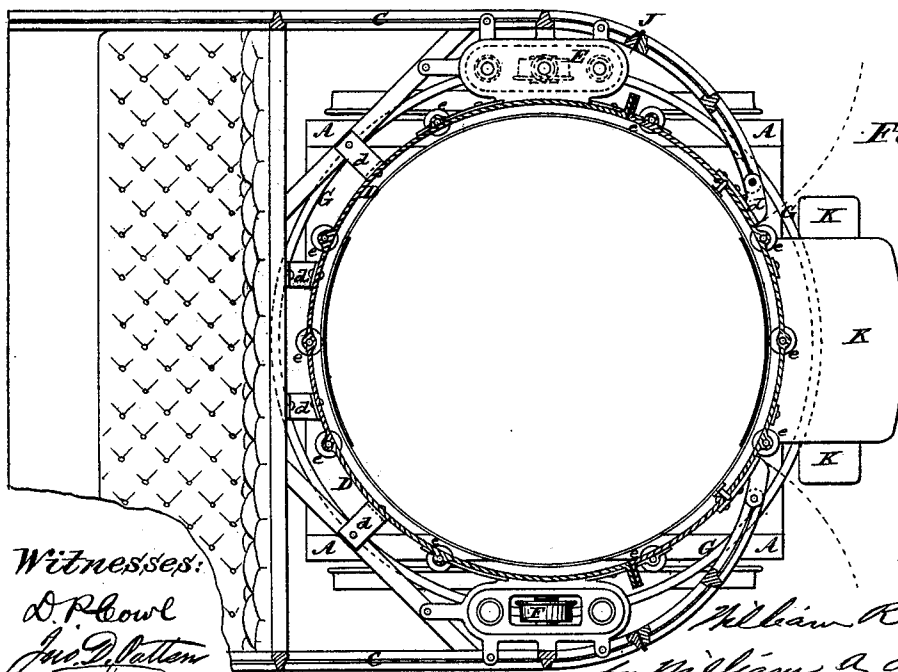


Fig. 2.

Witnesses:

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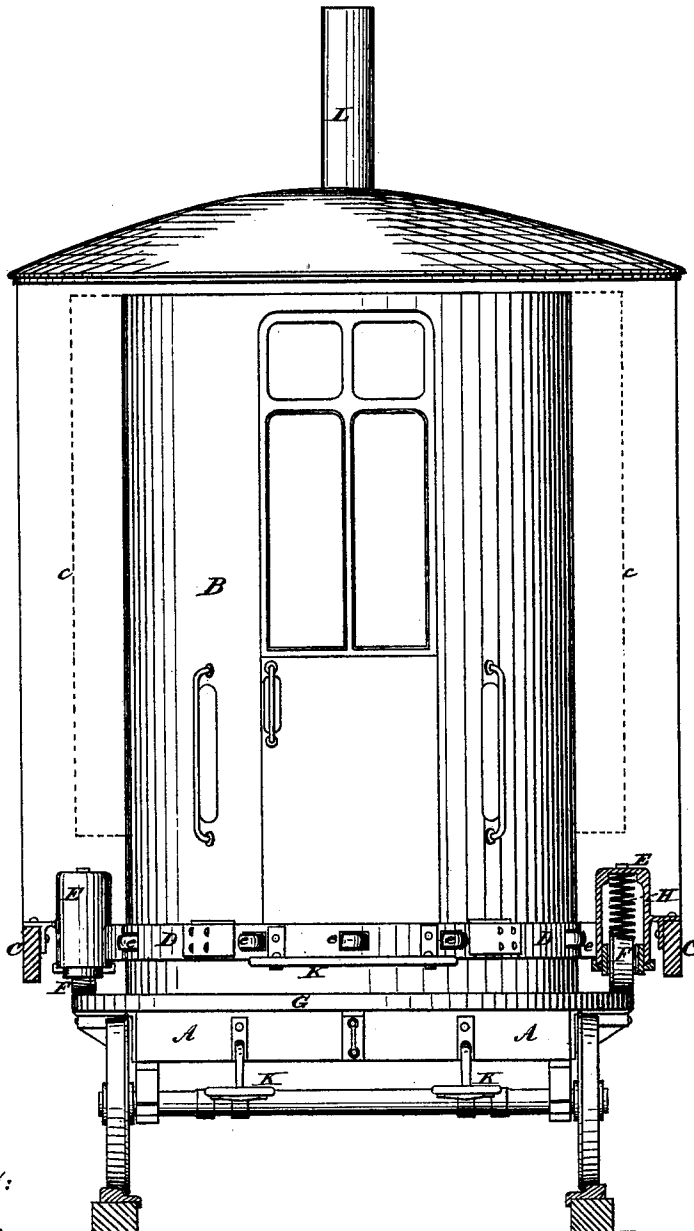
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Fig. 3.



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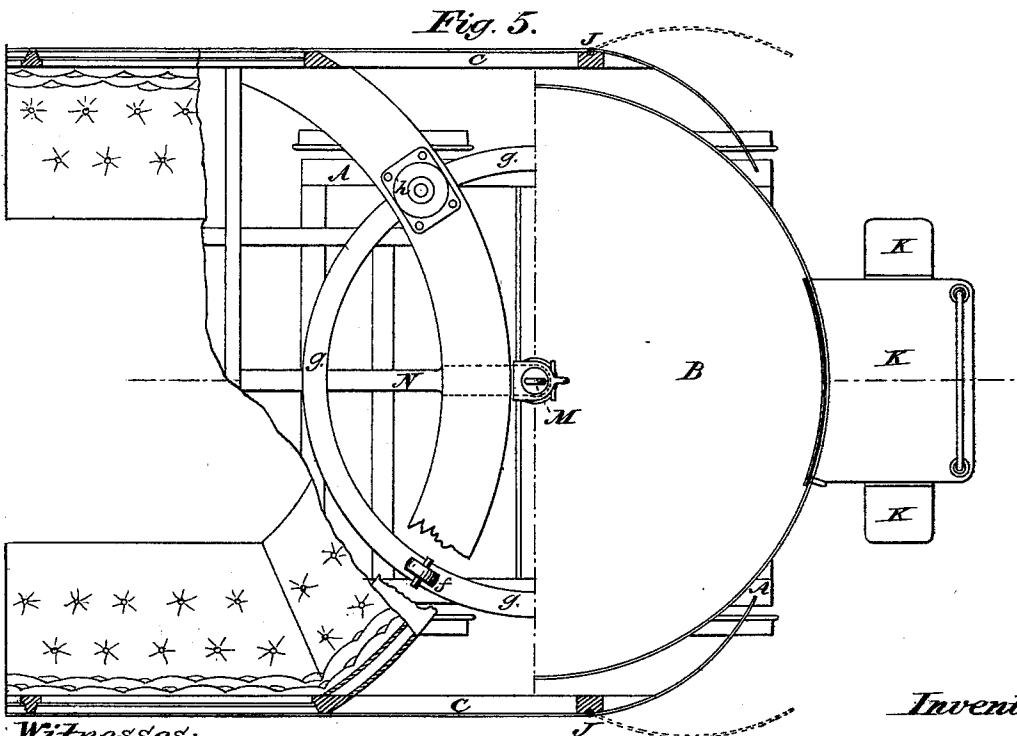
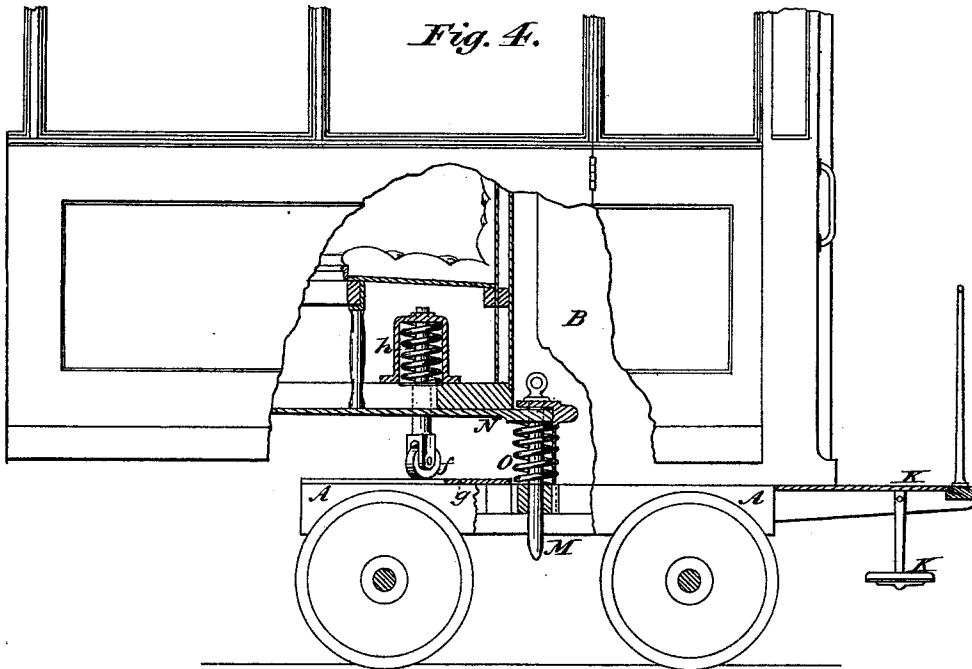
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UNITED STATES PATENT OFFICE

WILLIAM R. ROWAN, OF RANDERS, DENMARK.

IMPROVEMENT IN BOGIE TRUCKS FOR LOCOMOTIVES.

Specification forming part of Letters Patent No. **176,482**, dated April 25, 1876; application filed January 13, 1876.

To all whom it may concern:

Be it known that I, WILLIAM ROBERT ROWAN, of Randers, Denmark, have invented certain new and useful Improvements in the Application of Mechanical Power to Road-Carriages; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawing, and to the letters of reference marked thereon, which form a part of this specification.

The object of my invention is to construct a car for use on tramways or on railways, along roads with short or sharp curves, and to prevent the cars from running off the track or injuring them by the great torsional strain caused by passing around such curves, and by which the flanges of the wheels, as well as the axles and other parts of the cars, are broken or injured, especially when operated by steam, gas, or other power.

This invention consists in a cylindrical ring or pin, in which the boiler of the engine may be placed or secured, and the engine thus become concealed effectually. By the interposition of springs, the vibrations of the engine are not communicated to the body of the car itself, and the engine in no way interferes with the car passing round the sharpest curves, while the bogie-pin of the second bogie can easily revolve in the framing of the car, whether the engine be working ahead or reversed.

If it is considered advisable that the engine-bogie should always run foremost, the construction of the car enables it to be easily turned in its own length at the end of each journey without any turn-table, the wheels of one bogie being blocked fast on the rails, and the car can be simply run around the pin of this bogie as a center, and be thus reversed.

In order to enable others skilled in the art to make and use my invention, I will now more fully describe its construction and operation, referring to the drawing and letters of reference thereon.

In the accompanying drawing, Figure 1 represents part of a car in side elevation with my invention attached, partly in section. Fig. 2 is a horizontal section of the same. Fig.

3 is an end view of the same. Fig. 4 is a side elevation of a modification, partly in section. Fig. 5 is a horizontal section of the same.

In all the figures corresponding parts are referred to with the same letters.

It is unnecessary to show the rear part of the car, as it is immaterial what form it has, and it might be made to rest on a single pair of wheels without in any way affecting the principle of the car.

In the drawing, A A is the frame of the bogie-truck, with the enlarged pin or cylinder B, containing the engine and boiler, and made of iron or other suitable material. This cylinder should have doors and opening to give access to the engine, and they would necessarily vary with the kind of engine used. Should more room be required for the engine, the cylinder could be enlarged, as shown by the dotted lines *c c*, Fig. 3, in which case a slight alteration in the shape of the outer casing of the car would be necessary to allow it to revolve freely.

The framing and casing of the body of the car would be of the ordinary description, but the front end of the framing should be so constructed that between the side sole C C, and firmly braced to them, is a fixed circular band or track, D D, by brackets *d d*, and it is of a diameter slightly larger than the cylinder B, around which it revolves, with the friction-rollers *e e e*, against one of which the engine-bogie will always act when moving the car, to prevent friction, and forming the connection between the body of the car and bogie. The rollers *e e e* might be fixed on the cylinder B instead in the band D, which is then made smooth.

In cars which work around sharp curves I add a draw-bar, N, (shown in dotted lines,) for additional security. In turning the car this draw-bar is detached from P. (See Fig. 1).

Firmly secured between the band D and side soles C C are casings or bearing E, provided with flanged wheels F F and spring H, on which the whole weight of the body of the car (excepting so much of it as is borne by the rear bogie or wheels) is carried. The wheels F run on a circular rail, G, attached to and resting on the frame A A, thus permitting the bogie, though carrying a great part of the weight of the car, to revolve freely under it

in passing around curves, and, as by the arrangement of the boxes E the springs H are interposed between the body of the car and the bogie, the car will ride easily, and not feel any vibration arising from the motions of the engine. Any lateral motion of the wheels F in the framing being prevented, the side thrust of the body of the car in passing a curve will be taken by the flanges of the wheels, and if this does not prove sufficient, then by the friction-rollers *e e e* in the band D. The wheels F instead of being flanged might be simply tapered, either inward, outward, or both combined, or they might be grooved like a sheave-wheel.

In the framing or casing of the cars are the joints J, which permit the front part of the outer casing being taken off, so that the engine-bogie can easily be attached or detached.

Steps K K are arranged for the engineer to mount to his engine, and to stand on when driving, and L is the chimney of the boiler.

The car as here described can, however, be varied as follows, Figs. 4 and 5, when it is necessary to have so much room for the engine, and it is not necessary to turn the car in its own length.

The rail *g g*, wheels *f f*, and springs *h* have similar corresponding functions to perform as the rail G, wheels F, and springs H in the previous description of the cars, except that the side thrust of the car being taken by the king-bolt M it is unnecessary to have flanged wheels or interpose friction-rollers between the body of the car and the bogie, unless for working in very sharp curves, in which case I prefer in all kinds of cars to combine the flanged or conical wheels on the rail with the king-bolt, as giving extra security.

All the figures show cars with flanged wheels, calculated for running on rails; but the cars can be equally well used with plain wheels on common roads, in which case, how-

ever, a steering apparatus must be added—for example, a rack and pinion fixed respectively on the cylinder B and the ring D embracing it; or any other simple apparatus calculated to regulate the relative position of the front bogie and the body of the car.

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

1. A hollow band-frame, provided with friction-wheels, revolving on a track or ring plate, in combination with street or other cars, substantially as specified.

2. The combination of a hollow band, provided with friction rollers *e e*, with a track, G, and wheels F, arranged in a spring-bearing, as shown, and for the purpose set forth.

3. The combination of a hollow band, D, having friction-rollers *e e*, with a track, G, wheels F, spring-bearing E, and a frame, A, constructed and arranged substantially as set forth.

4. The combination of a hollow band, D, with track *g*, rollers *f*, spring *h*, draw-bar N, pin M, and spring O, all constructed and arranged substantially as shown and herein described.

5. The combination of a hollow band, D, having rollers *e e*, with a track, G, wheels F, spring-bearing E, frame A, and steps K, constructed and arranged substantially as described.

6. The combination of a hollow band, with spring-bearings, constructed as shown, and for the purpose herein described.

In testimony that I claim the foregoing as my own invention I affix my signature in presence of two witnesses.

WILL. R. ROWAN.

Witnesses:

MARCUS KIERULF,
C. JINSIN.