

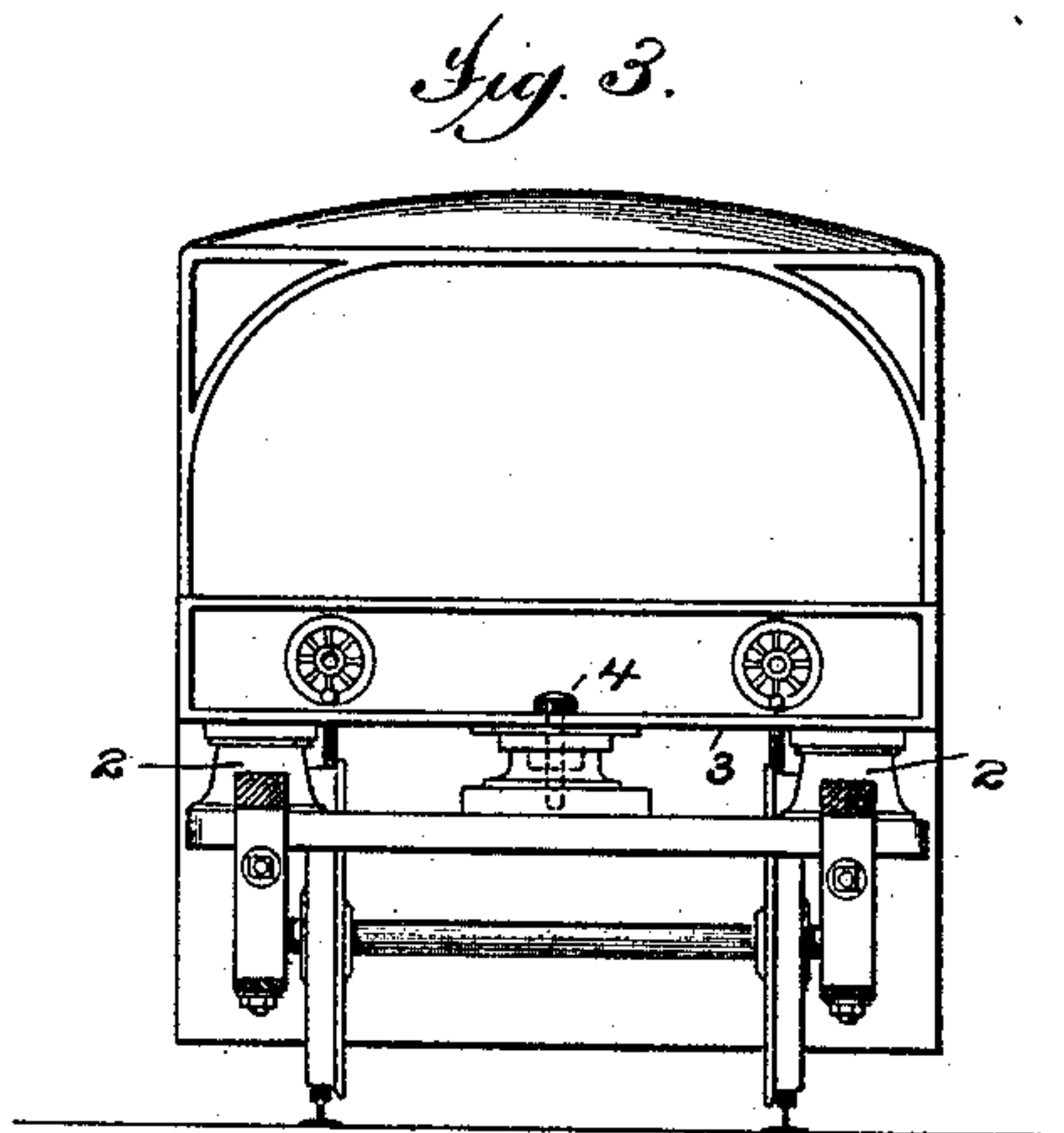
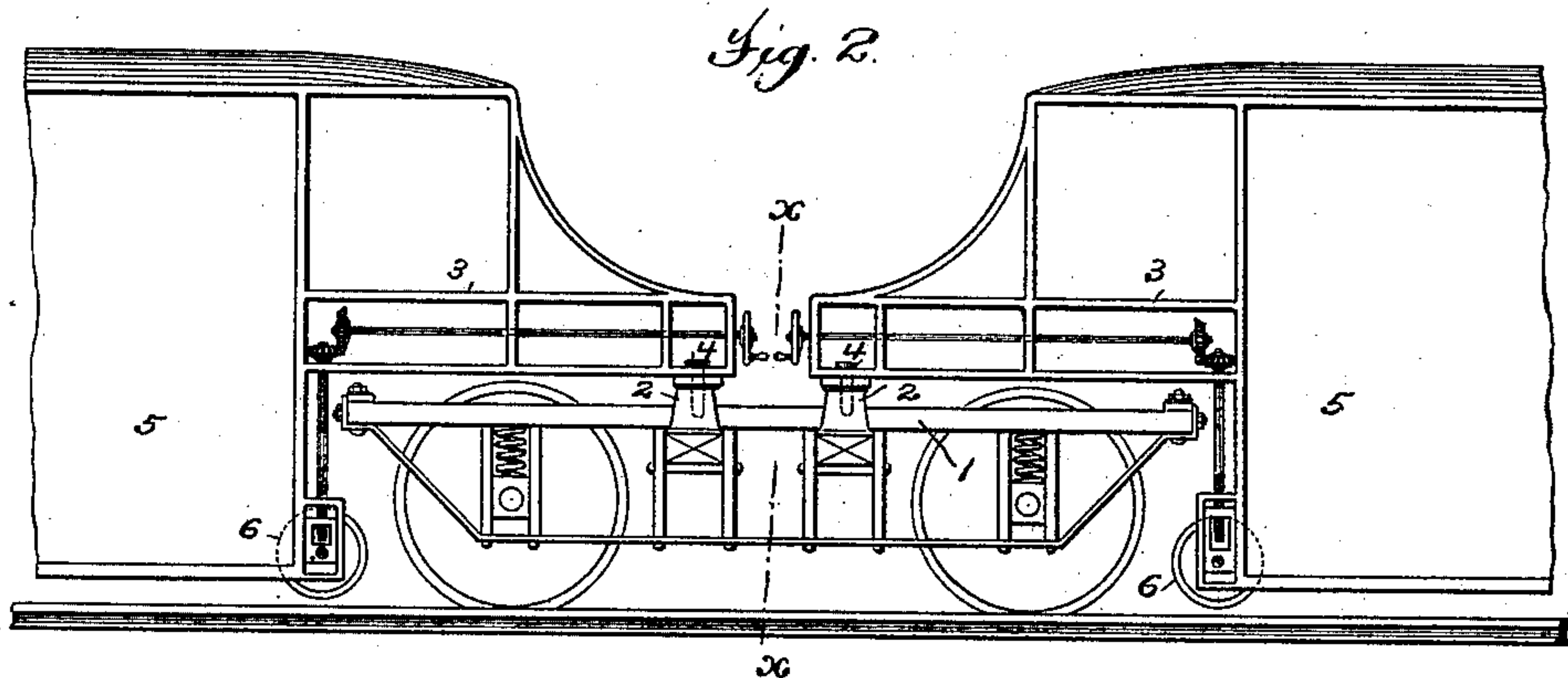
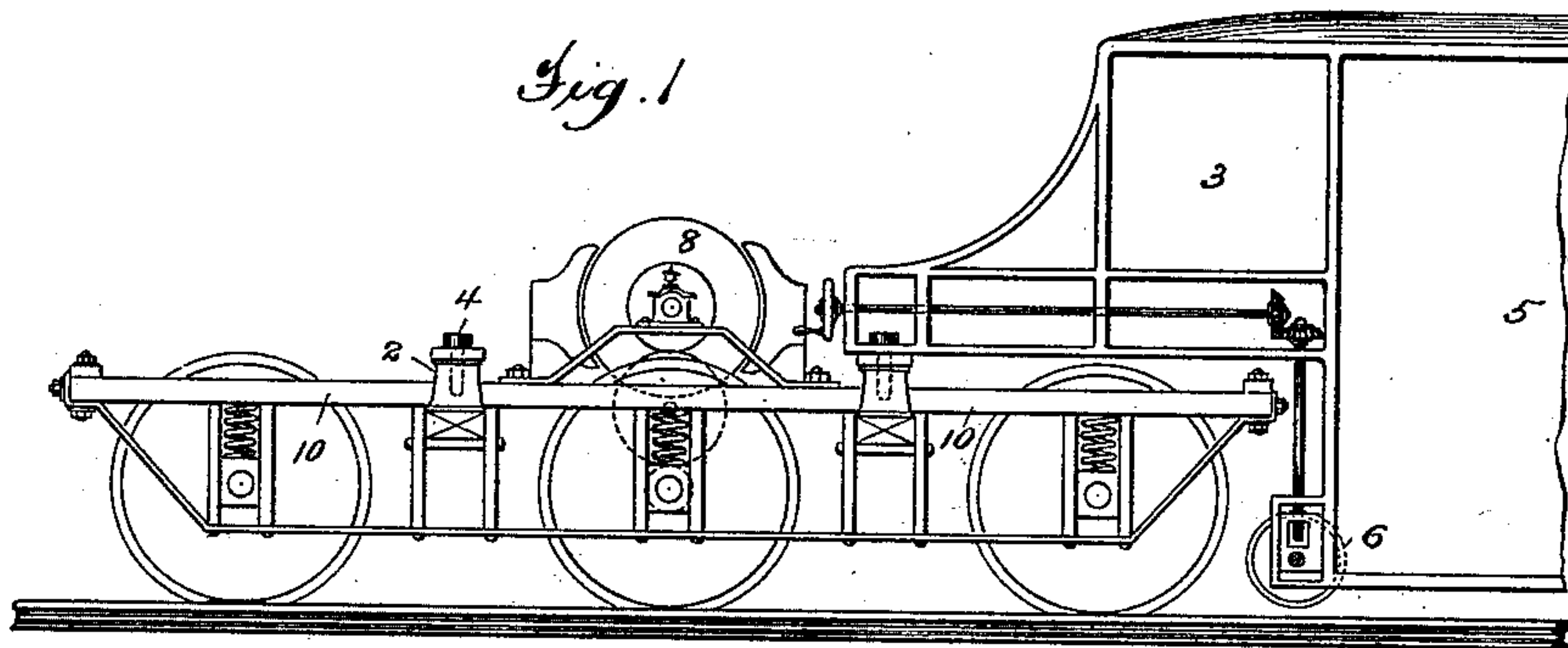
(No Model.)

2 Sheets—Sheet 1.

R. R. HAZARD.
RAILWAY CAR TRUCK.

No. 424,062.

Patented Mar. 25, 1890.



WITNESSES:

George H. Bette
Edg. Kennedy

INVENTOR.

Roland R. Hazard
per Wm. C. Johnson atty.

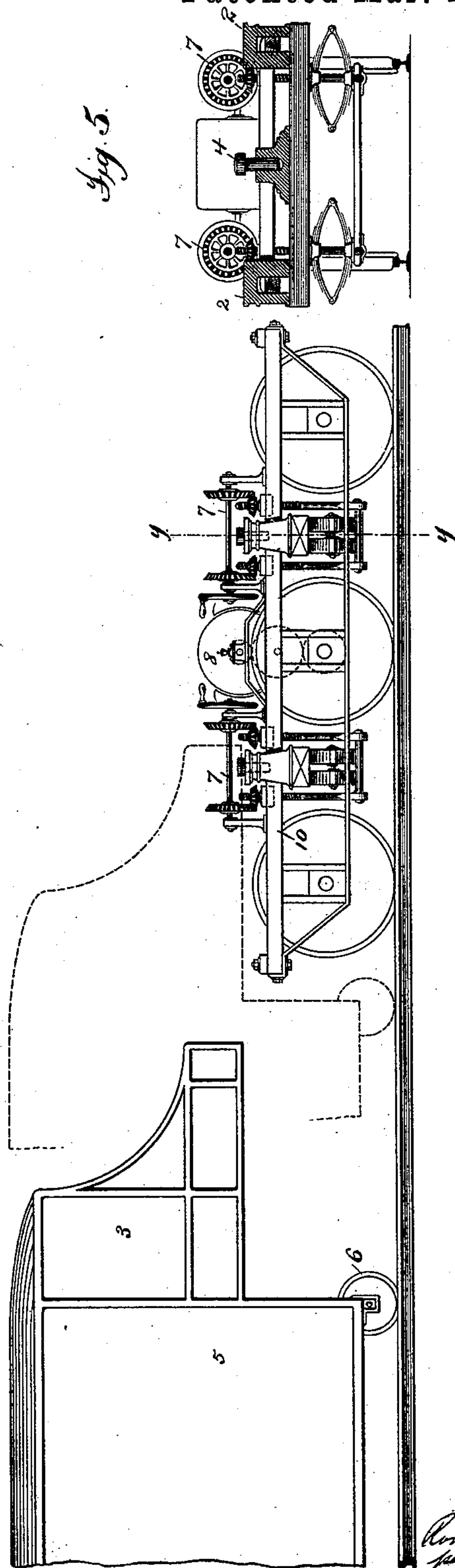
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2 Sheets—Sheet 2.

R. R. HAZARD.
RAILWAY CAR TRUCK.

No. 424,062.

Patented Mar. 25, 1890.



WITNESSES :

Chas. H. Bott
Ed. Kennedy

INVENTOR.

Rowland R. Hazard
per Wm. C. Schmidt

UNITED STATES PATENT OFFICE.

ROWLAND ROBINSON HAZARD, OF NEW YORK, N. Y.

RAILWAY-CAR TRUCK.

SPECIFICATION forming part of Letters Patent No. 424,062, dated March 25, 1890.

Application filed April 2, 1887. Serial No. 233,372. (No model.) Patented in England September 22, 1888, No. 13,737, and in France September 22, 1888, No. 193,144.

To all whom it may concern:

Be it known that I, ROWLAND ROBINSON HAZARD, a citizen of the United States, and a resident of New York, N. Y., have invented
5 a new and useful Improvement in Railway-Car Trucks and Carriages, and in the combination of the same with each other, of which the following is a specification.

The object of my invention is to make it
10 possible to utilize for railway service tunnels of shallower dimensions than have heretofore been found practicable for such purposes. A shallow tunnel involves only a superficial excavation, thus reducing greatly the cost of
15 excavation. It would not endanger house foundations where a deeper tunnel would, and it can be used where, from the presence of tide-water or lake or river level, an ordinary tunnel could not be economically constructed.

I accomplish the object of my invention by
20 the construction of an independent car-truck or, preferably, motor-truck, adapted to be placed between the adjacent ends of two railway-cars, and to be connected thereto also by
25 the construction of a railway car or carriage adapted to be used in connection with said truck, as hereinafter fully described and claimed.

In the accompanying drawings, forming
30 part of this specification, Figure 1 represents an independent motor-truck and one end of a car, both constructed in accordance with my invention. Fig. 2 represents an independent railway-car truck and the adjacent ends
35 of two cars connected thereto. Fig. 3 is an end view taken on line X X of Fig. 2. Fig. 4 is a figure similar to Fig. 1, showing the car before connected with the truck, and in dotted lines its position when connected. Fig. 5 is
40 a cross-section taken on line 7 7 of Fig. 4.

Referring to the drawings, 1 represents an independent railway-car truck, which in supporting the car while in motion performs the usual function of a railway-car truck, and
45 performs also an entirely novel function in supporting two such cars while in motion or otherwise. The said truck may be of any well-known construction adapted to the purpose, and is provided with rest-blocks 2, on
50 which the car-extensions 3 rest and are supported. The truck is coupled to the car by a coupling-pin 4 in a well-known manner.

In Figs. 1 and 4 I have shown an independent motor-truck 10, which performs the same functions as the independent truck hereinbefore described, and of course the additional
55 functions of a locomotive-engine—namely, the making up of a train and drawing it when made. This independent motor-truck performs several functions which are now performed only by several different appliances
60 and some of which are not now performed at all. It performs the principal function of a railway-carriage truck in supporting a car while in motion, and an entirely novel function
65 in supporting two such cars while in motion or otherwise.

I preferably construct the carriage 5 in the manner described in my application for United States Letters Patent filed July 26,
70 1884, Serial No. 138,833, for unfracturable carriage. It is so formed by extensions 3 at the respective ends or at either end, or so cut away or framed that it can be combined with
75 an independent motor-truck, Fig. 1, or with an independent supporting-truck, Fig. 2, so that the interior perpendicular dimensions of the car when in motion from the top thereof to the road-bed may be only slightly in excess
80 of such interior dimension, permitting thereby the use of shallow tunnels involving only superficial excavations, thus reducing the cost of excavations and enabling railway-tunnels
85 to be constructed where, from the presence of tide-water or lake or river level, ordinary tunnels could not be economically constructed.

I provide the carriages with supplementary or safety wheels 6, calculated for use in making up the trains, which wheels are removed
90 from contact with the rails when the train is made up and in motion. In making up trains either the truck is moved under the extension of the car or the latter is moved over the truck, the height of truck and extension
95 relative to each other being such that the one can readily pass over or under the other. When in position, the supplementary wheels (see Fig. 1) are elevated by any suitable and effective means, so as to clear the track and
100 cause the car to rest on the rest-blocks of the truck, as clearly shown in the drawings. The supplemental adjustable wheels also perform the function of reserve or safety wheels, which become effective by falling upon the track

and sustaining the car in the event of a break of a truck or wheel in the independent motor-truck or independent car-truck.

In Fig. 4 I have not shown the wheels as
5 adjustable relative to the car; but I have provided means 1 for a vertical adjustment of the rest-blocks of the motor-truck, so that by raising said blocks the carriage and its wheels can be lifted from the track. The means
10 shown for this purpose are so simple that their construction can be understood without a detailed description thereof.

The electric motor 8 of the motor-truck (and any suitable electric motor can be used) is
15 connected to a wheel or wheels of the truck in any approved manner.

The construction of electric motors, their connection with driving-wheels, and the means by which they are connected with the source
20 of their power being well understood, there is no necessity for any detailed illustration or description thereof in this specification.

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

1. A railway car or carriage formed at its ends with extensions arranged about midway between floor and roof, and having its floor arranged below the level of the axles of the
30 supporting-truck, substantially as described.

2. A railway car or carriage provided with supplementary wheels so located as to permit the floor of the car to approach as near the road-bed as is consistent with safety and normally not in contact with the rails, and formed
35 at its ends with extensions arranged to permit the same to rest on and be supported by a truck, substantially as described.

3. The combination, with two adjacent cars, the floors of which are arranged below the
40 level of the axles of the supporting-truck, of an independent railway-car truck provided with a motor, said truck supporting the adjacent ends of said cars, substantially as described.
45

4. The combination, with a car or carriage provided with an extension, as described, and having its floor arranged below the level of the axles of the supporting-truck, of an independent railway-car truck provided with a
50 motor and constructed to pass under said extension and support the car, substantially as described.

In testimony whereof I have hereunto subscribed my name.

ROWLAND ROBINSON HAZARD.

Witnesses:

MUNRO DIGGES,
WM. N. AMORY.