

H. H. TUNIS.
RIGID TRUCK.
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955,226.

Patented Apr. 19, 1910.

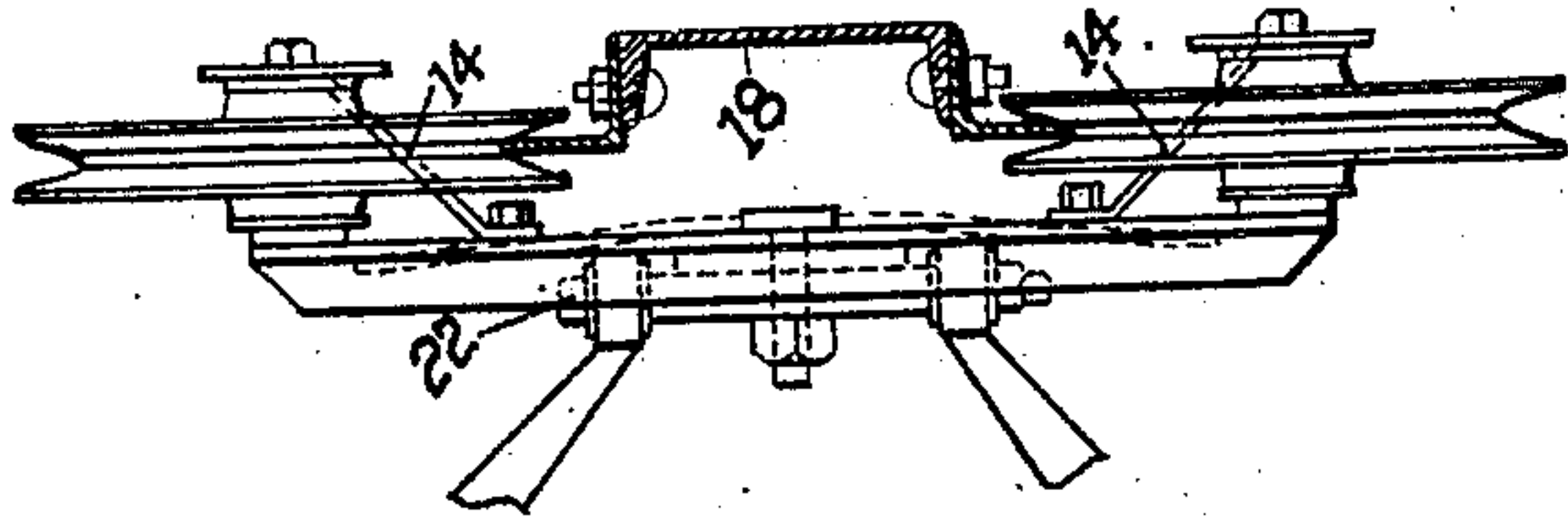


Fig. 2.

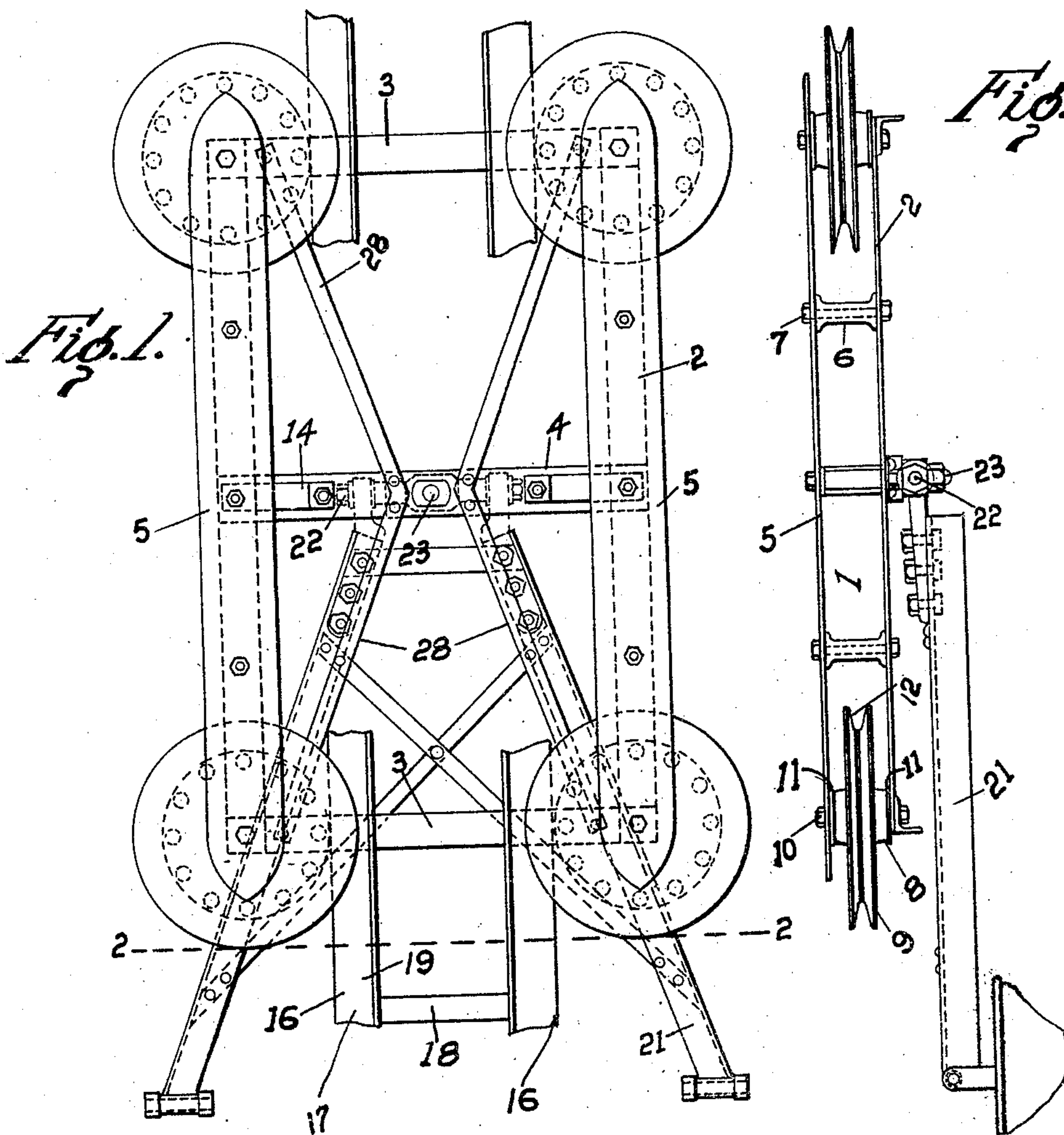


Fig. 1.

Fig. 3.

WITNESSES:
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UNITED STATES PATENT OFFICE

HOWARD H. TUNIS, OF BALTIMORE COUNTY, MARYLAND, ASSIGNOR TO AMERICAN MONORAIL COMPANY, A CORPORATION OF SOUTH DAKOTA.

RIGID TRUCK.

955,226.

Specification of Letters Patent.

Patented Apr. 19, 1910.

Application filed September 19, 1908. Serial No. 453,857.

To all whom it may concern:

Be it known that I, HOWARD H. TUNIS, citizen of the United States of America, residing in the county of Baltimore, State of Maryland, have invented certain new and useful Improvements in Rigid Trucks, of which the following is a specification.

The present invention relates to monorail systems in which the center of gravity of the cars is maintained normally over the track by means of a balance guide rail and a cooperating follower or truck carried by the car.

The improvements which constitute the invention are applied to the balance mechanism.

The device in which my invention is embodied and in connection with which it has been reduced to practice consists of a balance rail having outwardly disposed guide surfaces and a balance truck rigidly constructed mounted on the car to move vertically relatively thereto and provided with inwardly disposed follower surfaces to cooperate with the guide surfaces of the balance rail.

The rigid truck may be combined with a balance rail having internally disposed guide surfaces, and the rail shown may be used with a flexible truck within the scope of my invention. The cooperating guide and follower surfaces are preferably tongued and grooved.

The accompanying drawings illustrate sufficient of the balance mechanism of a monorail road to demonstrate the nature and operation of my invention.

Figure 1 is a top plan of a balance truck with the balance guide rail and supporting members for the truck fragmentarily shown in connection therewith. Fig. 2 is a vertical transverse section through the rail on line 2—2 of Fig. 1, showing the truck in elevation. Fig. 3 is a side elevation of the truck showing fragmentarily the rod by means of which it is supported on the car.

The truck body 1 consists of longitudinally extending parallel bottom frames 2 spaced a distance apart to be determined by the width and diameter of the cooperating balance guide and followers respectively. These frames are connected at their extremities by transverse frames 3 shown in the form of angle irons and at their centers by transverse frames 4, preferably in the

form of a channel iron. The top longitudinal frames 5, which may be in the form of switch shoes, as shown overlies the longitudinal bottom frames 2, and are supported and secured in relation to such frames by means of hollow, tubular, upright, compression members 6 and tension bolts 7 which pass through the upper frame and lower frame and are secured in operative relation thereto by means of suitable heads and nuts. Added rigidity is given to the structure by means of a pair of diagonal braces 14, each of which is secured at one extremity to the central transverse frame 4, and at the other extremity to one of each of the top frames 5 at the under side near its central point. Horizontal diagonal braces 28 also extend from points on each side of the center of the middle transverse frames 4 to points near the ends of the end transverse frames 3. At each corner, instead of a tubular compression member, the hub 8 of a rotating follower 9 is interposed between the upper and lower frames. The corresponding tension member or bolt 10 passes through the usual opening in the hub, forming a journal bearing for the follower, and suitable washers 11 are interposed between each end of the hub and the neighboring frames. The follower or balance roller 9 is provided with a groove 12, the depth of which extends inward regularly. This groove receives a corresponding tongue 16 on the balance guide rail 17. The rail 17 is preferably formed of two parallel angle irons 19, one web of which is externally disposed and horizontally placed, forming the tongue 16 referred to, the other web of which is vertical. The angle irons 17 are secured in their relation to each other by cross bars 18 each of the extremities of which are bolted to the upright flanges 19. The balance rail is supported by suitable means which it is unnecessary to describe.

The balancing action of the rail and truck which is communicated to the car consists of a frame 21 connected to the car to swing relatively thereto in a vertical plane, as described in my previous patent, or in any suitable manner. This frame, as illustrated, is connected to the truck by means of a horizontal pivot 22 which allows the truck to swing relatively to the frame 21 in the vertical plane of the track, or in a plane parallel thereto, and a vertical pivot 23

which allows the truck to swing in a horizontal plane.

It is apparent that the structure thus formed consists of a rigid truck body having
5 rotating followers or rollers placed one at each corner. This truck is mounted on the car to swing relatively thereto in both a vertical and a horizontal plane. The balance rail, placed preferably directly over the
10 track and above the car, is engaged by the rollers. This rail may be provided with a tongue and the rollers may be grooved peripherally to engage the tongue. Preferably, the guiding surfaces of the rail are
15 placed externally and the followers inclose the rail on each side, but it is within the scope of my invention to use a balance rail with internally disposed guide surfaces and rollers correspondingly placed; *i. e.*, be-
20 tween the guide surfaces engaging them from within.

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

25 1. In a monorail system, an overhead balance guide, a balance truck having a rigid frame cooperating with the guide and an arm on the car, the truck pivotally secured to the arm.

30 2. In a monorail system, an overhead bal-

ance guide, a balance truck having a rigid frame cooperating with the guide, an arm pivotally mounted on the car to swing in a vertical plane, a truck pivotally secured to the arm.

3. In a monorail system, an overhead balance guide, a balance truck consisting of four wheels and a rigid frame on which the wheels are mounted, and an arm mounted on the car, the truck pivotally secured to the
35 arm to swing relatively thereto.

4. In a monorail system, a balance rail having externally disposed guiding surfaces, a balance truck consisting of four wheels, two engaging the rail on each side, and a
45 rigid body on which the wheels are mounted.

5. In a monorail system, a balance rail having externally disposed guiding surfaces, a balance truck consisting of four wheels, two engaging the rail on each side, a rigid
50 body on which the wheels are mounted, and an arm on the car to carry the truck, the arm mounted to move vertically relatively to the car.

Signed by me at Baltimore, Maryland, 55 this 14th day of September, 1908.

HOWARD H. TUNIS.

Witnesses:

EDWARD L. BASH,
L. H. LATHAM.