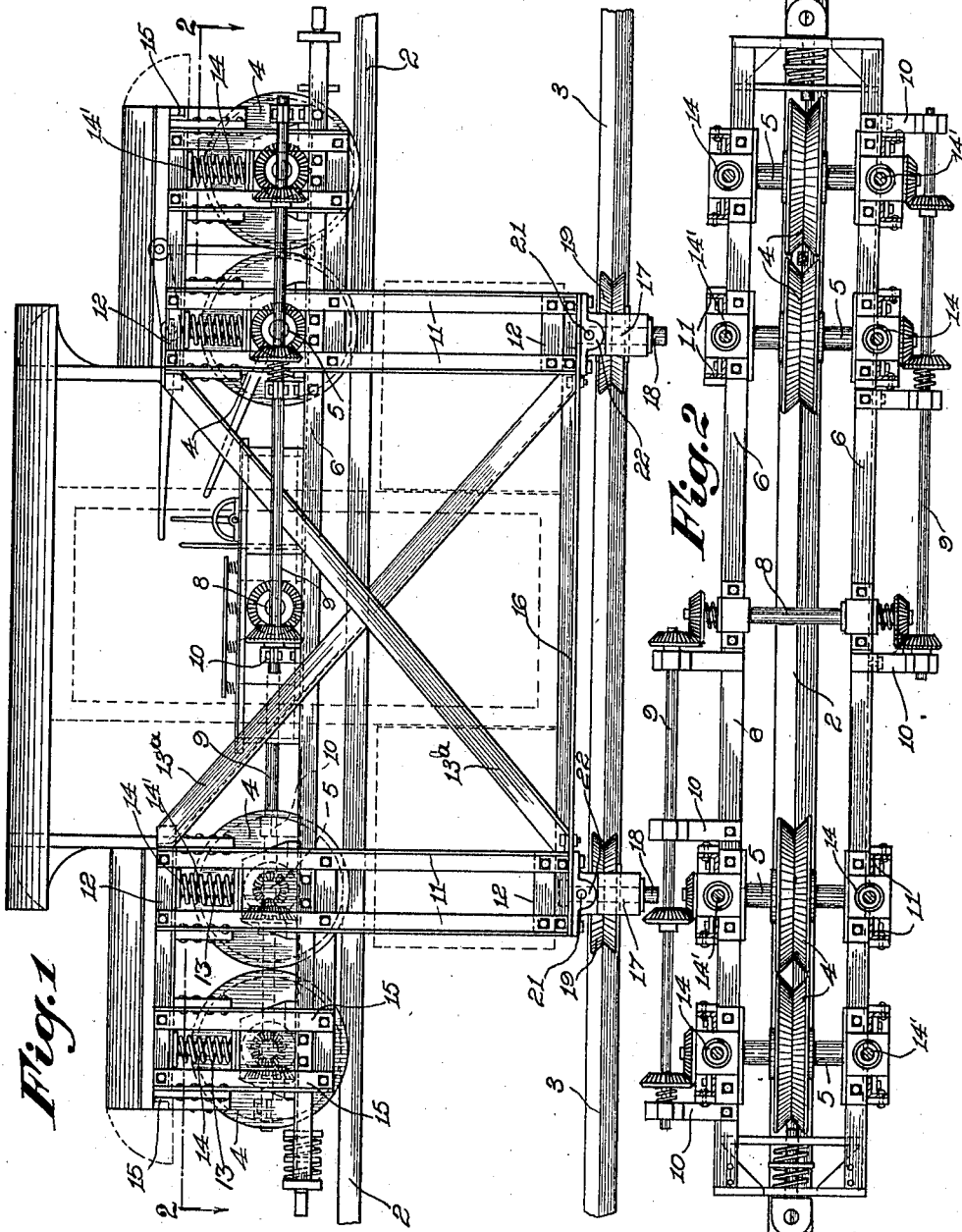


H. H. V. KOELLE.
MONORAIL CAR AND TRACTION MECHANISM.
APPLICATION FILED NOV. 9, 1911.

1,048,320.

Patented Dec. 24, 1912.

2 SHEETS—SHEET 1.



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HERMANN HARVEY VACHELL KOELLE

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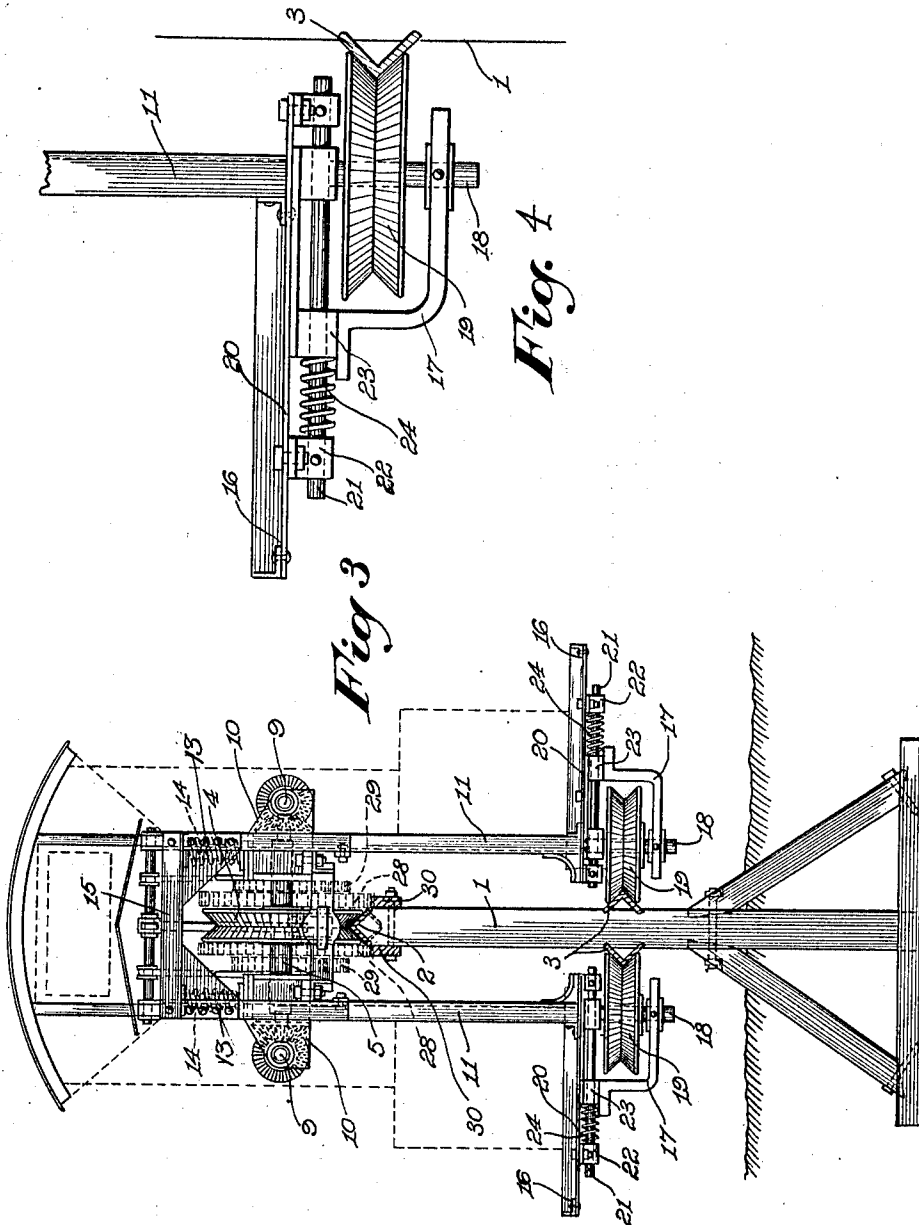
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UNITED STATES PATENT OFFICE.

HERMANN HARVEY VACHELL KOELLE, OF MONTREAL, QUEBEC, CANADA.

MONORAIL-CAR AND TRACTION MECHANISM.

1,048,320.

Specification of Letters Patent.

Patented Dec. 24, 1912.

Application filed November 9, 1911. Serial No. 659,458.

To all whom it may concern:

Be it known that I, HERMANN H. VACHELL KOELLE, a subject of the King of Great Britain, residing at Montreal, in the Province of Quebec, Canada, have invented certain new and useful Improvements in Monorail-Cars and Traction Mechanism; and I do hereby declare that the following is a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The invention to be hereinafter described relates to monorail cars and traction mechanism.

In order to more clearly disclose the construction, operation, and use of the invention, reference should be had to the accompanying drawings forming part of the present application.

Throughout the several figures of the drawings like reference characters designate the same parts.

In the drawings: Figure 1 is a side elevation of the invention; Fig. 2 is a top plan view of the motor frame and the driving mechanism; Fig. 3 is a front end elevation; and Fig. 4 is an enlarged detail view showing the mounting of the guide wheels.

The main objects of the invention are to provide a simple, durable, efficient, economical, and compact mono-rail car in which the weight of the car and its load will be as nearly as possible evenly distributed and at a considerable distance below the point of support.

Another object is the provision of a motor frame within the car frame and so arranged as to permit the car frame to have vertical movement relatively to the motor frame.

Referring to the drawings in detail, 1 indicates one of a number of supporting posts, pillars, or the like, on which are mounted the traction rail 2 and guide rails 3. Preferably, these rails are triangular in cross section, as clearly shown in Fig. 3. Mounted to travel on the rail 2 are a plurality of cooperating grooved traction wheels 4 each provided with an axle 5 the opposite ends of which are journaled in suitable axle boxes securely bolted to a long narrow motor frame 6 in which is journaled a power shaft 8 having bevel pinions on its opposite ends. These pinions intermesh with similar pin-

ions on the ends of transmission shafts 9 journaled in small brackets or arms 10 projecting from the opposite sides of the motor frame 6. One of these shafts 9 extends forwardly from the power shaft 8 and is provided with pinions intermeshing with similar pinions on the ends of the axles of the two forward traction wheels 4, while the other extends rearwardly on the opposite side of the frame and is provided with pinions which intermesh with similar pinions on the ends of the axles of the two rear traction wheels 4. The power shaft 8 is placed at about the longitudinal center of frame 6, as shown. It is driven in the usual manner by any suitable form of steam, gasoline, or electromotor, the motor being placed as nearly as possible in the exact center of the frame 6, both as regards the length and the width of the same. Thus, its weight will be evenly supported on the rail 2. The car frame is yieldingly supported on this motor frame, as will later appear. In constructing the car frame, angle irons are preferred. These angle irons are bolted or otherwise connected to form U shaped members 11, each consisting of two vertical side arms depending from a horizontal part, and these U shaped members are connected in pairs by short angle bars 12, the pairs being connected by diagonal struts 13. This construction forms a saddle adapted to fit over or straddle the motor frame 6. In building the cars, the relative proportions are so maintained that the closed end of one pair of U shaped members will fall directly above the rear wheel 4 of the forward pair, while the closed end of the other pair will fall directly above the front wheel 4 of the rear pair—see Fig. 1. From the angle boxes of these two wheels extend short guide posts 13 about which are coiled cushion springs 14. The upper connecting angle bars 12 are provided with holes or passages of substantially the same diameters as the posts 13. Thus, the weight of the car frame will rest upon the springs 14 and the frame will simply be guided by the posts 13, in its vertical movements. Special perforated plates or brackets may be used instead of perforating the angle plates 12, if desired. In order to distribute the weight as evenly as possible, the upper bars 12 of the forward pair of U shaped mem-

bers 11, are extended forwardly and suitably braced by other angle bars to form an extension frame 15 which extends across above the forward wheel 4 of the front pair. A like extension frame is similarly constructed to extend across above the rear wheel 4 of the rear pair. Supporting springs 14 and guide posts 13 cooperate with these extension frames just as with the main frames.

From the lower ends of the saddle extend the cargo platforms 16, running outwardly at right angles to the frame members of the saddle. From the front and rear end of the under face of each platform extend short sleeves 22. In these sleeves is flexibly mounted a rod 21 on which are slidably mounted sleeves 23 of a bracket 17. Between one of the sleeves 22 and one of the sleeves 23 is arranged a coil spring 24 for maintaining the bracket 17 in operative position—see Figs. 3 and 4. A small stationary axle 18 is fixed in the outer ends of the bracket 17 and on it is mounted the guide wheel 19 which cooperates with the rail 3. The guide wheel is mounted to have both rotary and longitudinal sliding movement relatively to the axle 18. The axle 18 is long enough, of course, to allow for all possible vertical movement of the car saddle or body. In this way, the guide wheels will be maintained in engagement with rails 3 at all times, regardless both of vertical and horizontal movements of the car saddle.

The spring suspension of the saddle counteracts the unevenness of the supporting rail 2 and permits the saddle to accommodate itself to loads of various weights. The relative lateral movement between the guide wheels 19 and the saddle, together with the pressure springs 24, serve to maintain the guide wheels in operative engagement with the guide rails at all times and under all conditions, either during the rounding of curves, or while passing along irregular stretches of track, and during all possible vertical movements of the saddle. The result is that the car will ride evenly and smoothly at all times and without jolts, jerks, or jars. The even distribution of the weight is also a great feature in the even running of the car, as will be obvious.

Directly over the center of the saddle is arranged a cab for the driver whose seat may be arranged either directly over the motor or at any other point desired. It is preferable, of course, to have this seat directly over the rail 2 in order to maintain the even distribution of the weight.

It is thought that the operation and use of the invention will be clear from the preceding detailed description.

Changes may be made in the construction, arrangement, and disposition of the several parts of the invention without in any way

departing from the field and scope of the same, and it is meant to include all such within this application wherein only a preferred form has been disclosed.

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

1. A monorail car-frame comprising a plurality of U-shaped saddle frames and parts connecting them in pairs.

2. In combination with a car-frame comprising a plurality of saddle-frames and parts connecting them in pairs, a support provided with a traction rail and two guide rails and wheels, mounted in said saddle-frames, running in contact with said rails and peripherally conformed thereto.

3. In combination, a motor frame, and a car-frame comprising a saddle frame straddling said motor frame.

4. In combination, a motor frame, and a saddle frame movably supported thereon straddling the same and supporting the car.

5. In combination, a motor frame, a U-shaped saddle frame straddling said motor frame and a car frame supported by said saddle frame, and yielding supports interposed between said motor frame and said saddle frame.

6. A monorail car comprising, a plurality of U shaped members connected together in pairs, and braces connecting said pairs.

7. A monorail car comprising, a U shaped saddle frame adapted to straddle a rail, and extension frames 15 carried by the opposite end of said saddle frame and extending over the front and rear wheels.

8. In combination, a motor frame, a saddle frame superposed on said motor frame, extending down the sides of the latter and movable vertically with relation thereto, a car frame resting on the said saddle frame and means for guiding said saddle frame in its movements.

9. In combination, a motor frame, a saddle frame superposed on said motor frame and movable vertically with relation thereto, a car frame supported by said saddle frame, means for guiding said saddle frame in its movements, and cushioning means interposed between said motor frame and said saddle frame.

10. In combination, a car frame, a vertically arranged supporting wheel adapted to run upon a central rail and a pair of depending horizontally arranged guide-wheels adapted to slide vertically in said frame.

11. In combination, a car-frame, a vertically arranged supporting wheel adapted to run on a central rail, a pair of depending horizontally arranged guide wheels adapted to slide vertically in said frame and means for normally holding said guide wheels in operative position.

12. In combination, a car frame, horizon-

tally movable brackets slidably connected thereto, and vertically movable guide wheels mounted in said brackets.

13. In combination, a car frame, horizontally movable brackets slidably connected thereto, means for normally maintaining said brackets in operative position, vertical axles mounted in said brackets, and guide

wheels freely revoluble and longitudinally slidable on said axles.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

HERMANN HARVEY VACHELL KOELLE.

Witnesses:

W. S. BABCOCK,

T. MYNARD.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."