W. S. HOVEY.

RAILWAY MOTOR CAR.

APPLICATION FILED SEPT. 17, 1908.

914,348.

Patented Mar. 2, 1909.

4 SHEETS—SHEET 1.

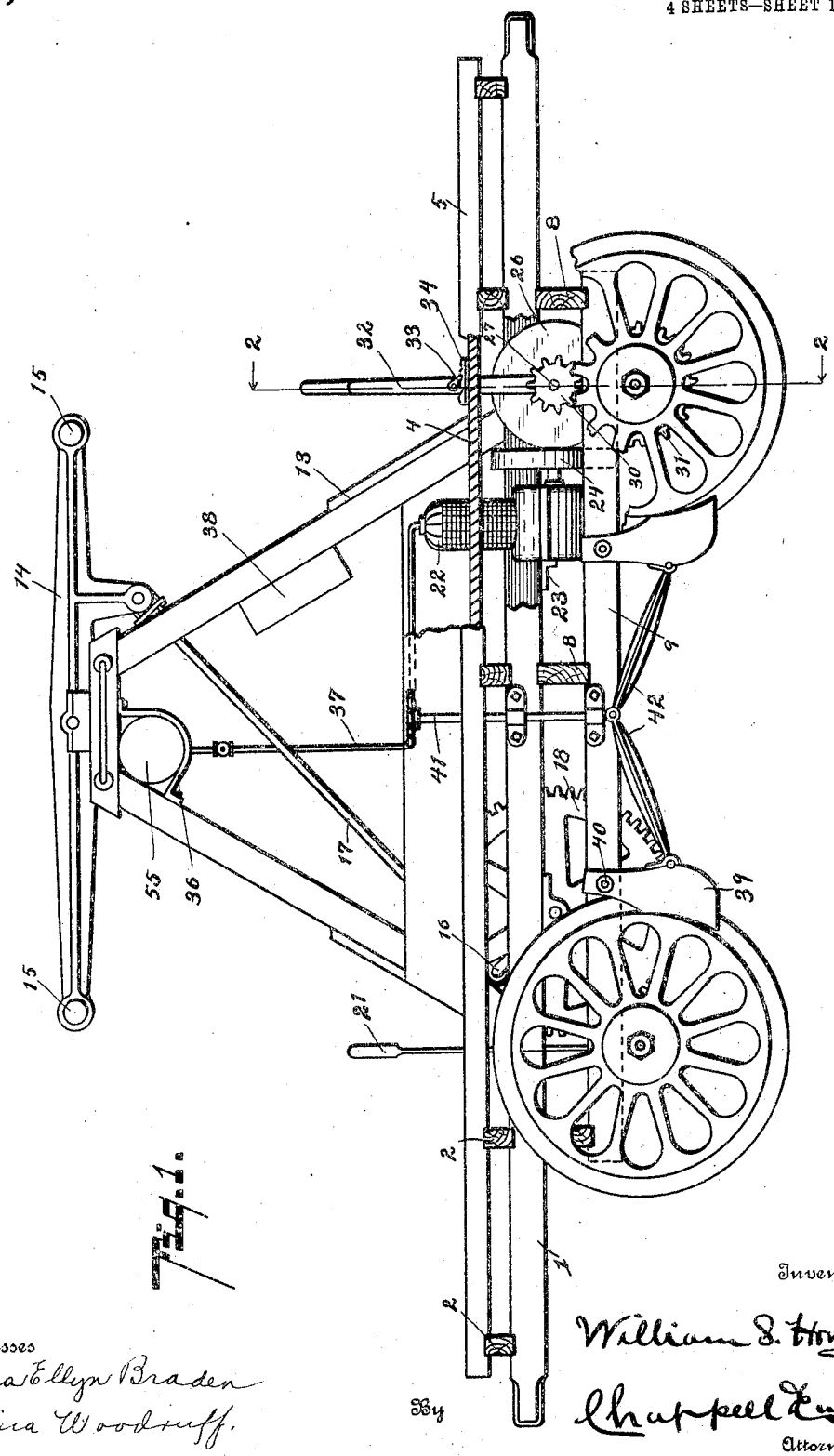

Fig. 1.

Witnesses

Clara Ellyn Braden

Phina Woodruff.

Inventor

William S. Hovey

By Chappell & Lyon

Attorneys

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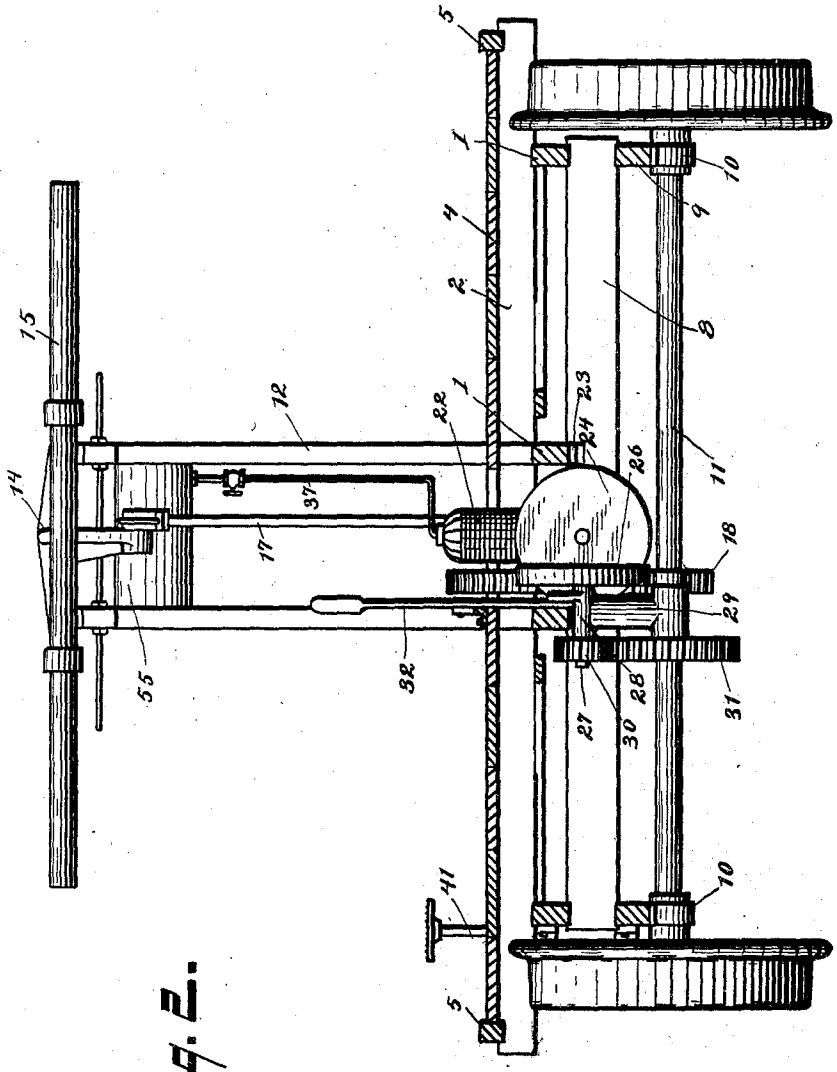

Fig. 2.

Witnesses
Elora Ellyn Braden
Phina Woodruff.

Inventor
William S. Hovey
By Chappell & Earl
Attorneys

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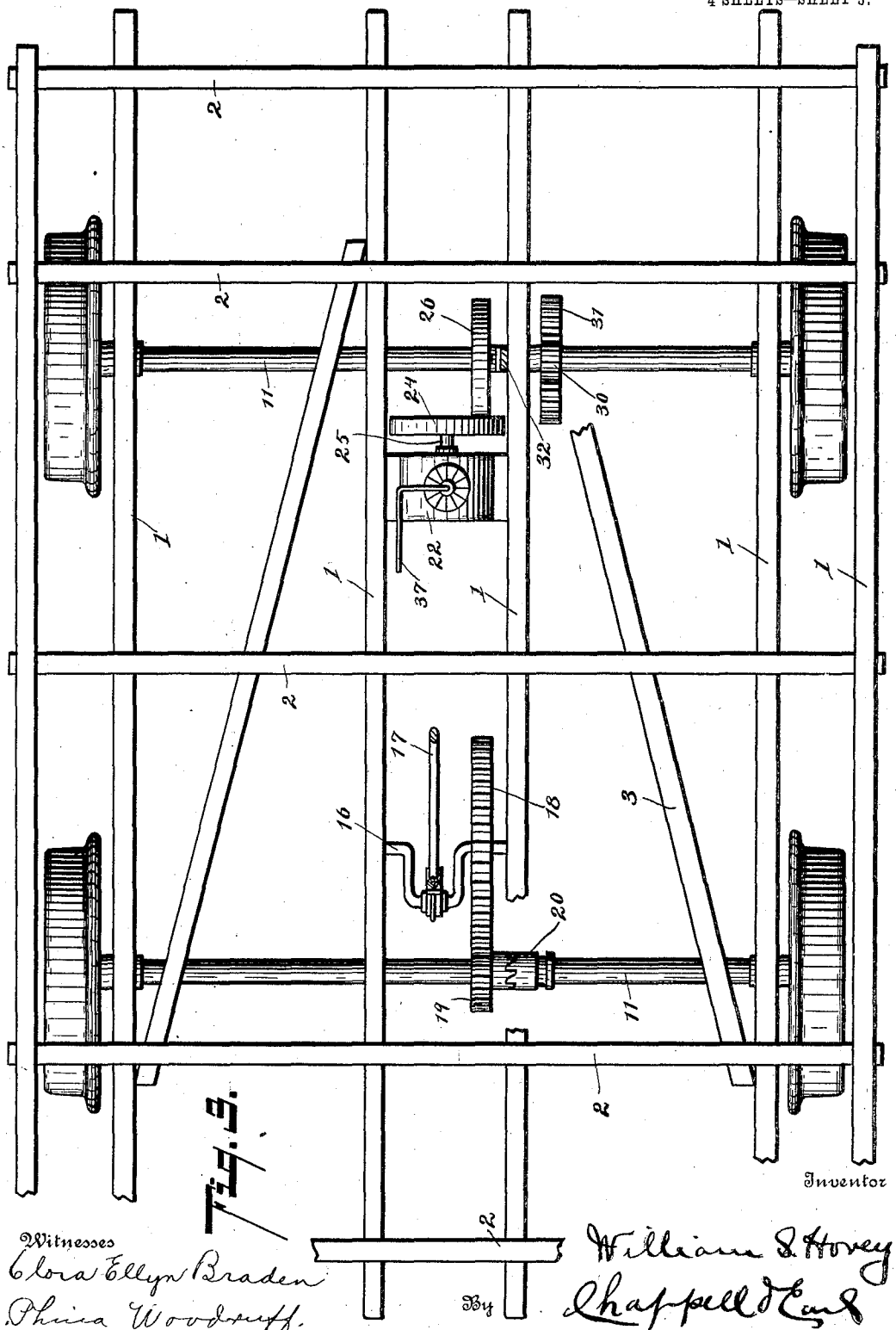

Fig. 3.

Witnesses

Clara Ellyn Braden

Phina Woodruff.

Inventor

William S. Hovey

By Chappell & Earl

Attorneys

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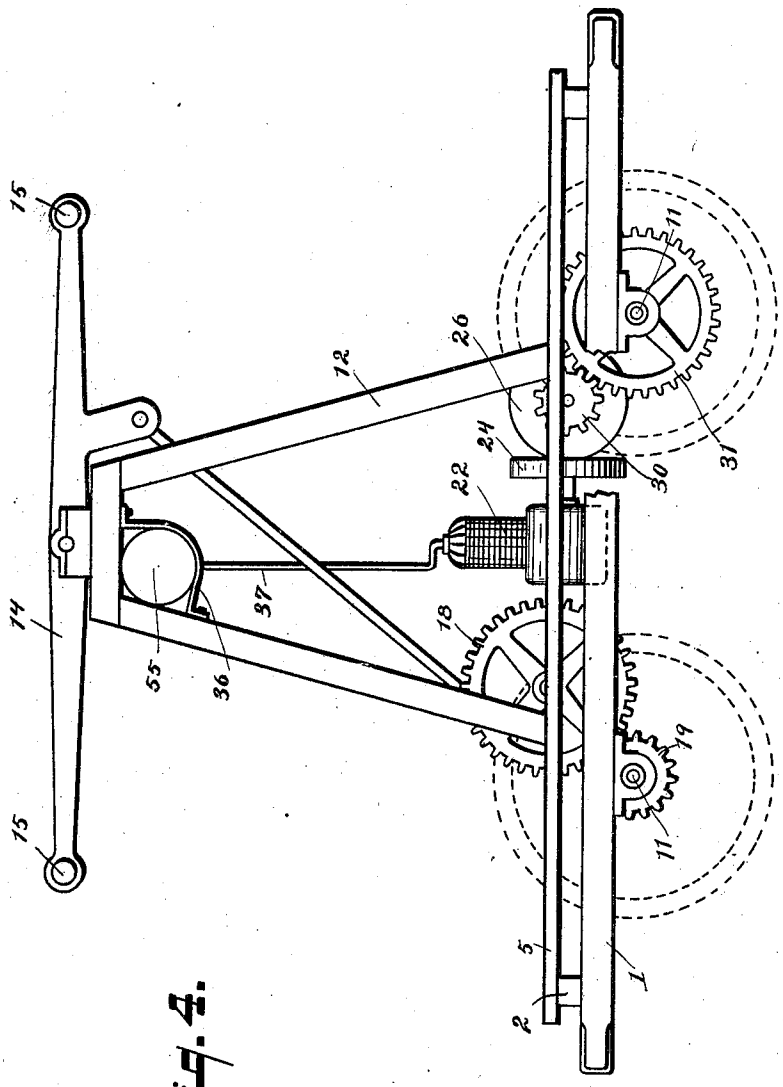

Fig. 4.

Inventor

William S. Hovey

By Chappell & Eng

Attorneys

Witnesses

Flora Ellyn Braden

Phiua Woodruff.

UNITED STATES PATENT OFFICE.

WILLIAM S. HOVEY, OF THREE RIVERS, MICHIGAN, ASSIGNOR TO SHEFFIELD CAR COMPANY, OF THREE RIVERS, MICHIGAN.

RAILWAY MOTOR-CAR.

No. 914,348. Specification of Letters Patent. Patented March 2, 1909.

Application filed September 17, 1908. Serial No. 453,427.

To all whom it may concern:

Be it known that I, WILLIAM S. HOVEY, a citizen of the United States, residing at Three Rivers, Michigan, have invented certain new and useful Improvements in Railway Motor-Cars, of which the following is a specification.

This invention relates to improvements in railway motor cars.

My present invention relates particularly to improvements in motor hand cars, such as is shown in my application for Letters Patent filed concurrently herewith, and is a modification, and in some respects, an improvement upon the structure there illustrated.

The main objects of this invention are: First, to provide an improved motor hand car having an improved driving connection for the engine. Second, to provide an improved motor hand car in which the engine and its coöperating parts are all so arranged and protected by the frame work and body of the car that they are not likely to be injured in use, and permit of the cars being used and handled in the same manner that ordinary hand cars are used. Third, to provide an improved motor hand car which is very simple and economical in structure and very easily operated, so that it can be successfully operated by persons comparatively unskilled in the operation of motors.

Further objects, and objects relating to structural details will definitely appear from the detailed description to follow.

I accomplish the objects of my invention by the devices and means described in the following specification.

The invention is clearly defined and pointed out in the claims.

A structure embodying the features of my invention is clearly illustrated in the accompanying drawing, forming a part of this specification, in which:

Figure 1 is a side elevation of a structure embodying the features of my invention, portions of one of the wheels and portions of the body being broken away to show the relation and arrangement of the parts. Fig. 2 is a vertical section taken on the broken line 2—2 of Fig. 1, the wheels, axle and driving connections being shown in full lines. Fig. 3 is a detail plan view with the platform and gallows frame, and the parts carried by the gallows frame, removed. Fig. 4 is a side elevation of a modified construction in which the body is modified, and the location and arrangement of the parts accordingly modified.

In the drawings, similar reference characters refer to similar parts throughout the several views, and the sectional views are taken looking in the direction of the little arrows at the ends of the section lines.

Referring to the drawing, the body of my improved car preferably consists of longitudinal sills 1 and cross sills 2 arranged thereon. The longitudinal sills and cross sills are preferably braced by the braces 3. On the cross sills is arranged a platform 4. At each side of the platform are side rails 5, which protect the platform and serve further to make the frame rigid. Below the longitudinal sills are cross pieces 8, to the under side of which the side bars 9 are secured. The bearings 10 for the axles 11 are secured to the under side of the side bars 9 so that the platform of the body projects or extends over the wheels and a rigid body secured. The traction wheels are of any suitable construction.

The gallows frame 12 is preferably mounted upon the central pair of longitudinal sills and projects upwardly through the platform, as is illustrated. The gallows frame is preferably secured to the platform to assist in supporting it.

The details of the connections for the sills, rails and bars referred to, such as bolts and the like, are not here illustrated, as their arrangement will be obvious.

At the lower end the gallows frame is provided with a housing 13 which serves to protect the parts arranged within and also braces the gallows frame. Mounted upon the gallows frame is a walking beam 14 having hand pieces 15 at each end. A driving connection is provided for the walking beam to the rear axle, preferably consisting of a crank shaft 16, which is connected to the walking beam by means of the connecting rod 17. On the crank shaft 16 is a gear 18 arranged to mesh with the pinion 19 on the rear axle. The pinion 19 is connected to the rear axle by means of a clutch, preferably in the form of a jaw clutch collar 20, which is operated by the clutch lever 21. As the details of this clutch form no part of this invention, they are not shown herein.

The engine 22, which is illustrated in con-

ventional form, is arranged between the central pair of longitudinal sills and suspended therefrom by means of the hangers 23. The driving connections for the engine to the front axle preferably consists of the friction wheel 24 on the crank shaft 25, the friction wheel or disk being arranged also to serve as a balance wheel in the engine. A friction wheel 26 is arranged to be thrown into and out of engagement with the wheel 24, this wheel being secured to the shaft 27 which is arranged in a bearing 28 mounted upon the upper end of the support 29, which is pivoted on the front axle.

On the shaft 27 is a pinion 30 arranged to mesh with a gear 31 on the forward axle. The shaft support 29 is shifted to throw the friction wheel 26 into and out of engagement with the friction wheel 24 by means of a lever 32, the lever being provided with a pawl 33 arranged to engage the lug 34 for securing it in engagement with the driving wheel. The shaft support 29 for the shaft 27 of the driven friction wheel 26 is, in the structure illustrated, pivotally mounted on the axle so that the shaft 27 moves in the arc of a circle concentric with the axle, so that by shifting the wheel, the pinion 30 is not disengaged from the gear 31.

The engine is located under the gallows frame so that it is protected thereby and at the same time, is readily accessible from the platform. Details of the engine are not illustrated, as they form no part of this invention.

An oil reservoir 35 is suspended by a strap 36 from the gallows frame, and is connected by a pipe 37 to the engine carbureter, which is not here illustrated. A radiator 38 is also carried by the gallows frame, being arranged within the same. The radiator is shown in conventional form and its connections are not here illustrated.

I preferably provide a pair of brake shoes 39 which are pivoted at 40 on the side bar 9. These brake shoes are operated simultaneously by means of the foot lever 41, which is connected thereto by means of the link 42. By shifting the clutch 20, it is obvious that the driving connections of the walking beam are disconnected, and by disconnecting the friction wheel 26, the driving connection for the engine is disconnected. By this arrangement, the car may be driven through either the walking beam or the engine, or both. The engine may be started by the use of the walking beam; that is, the driving connections of the engine being connected, the car may be driven by means of the walking beam until the engine is started or cranked, when the driving connections for the walking beam can be disconnected and the car driven only by means of the engine. Where the car is heavily loaded, both driving means may be employed, or in moving the car short distances, it may be done effectively by means of the walking beam without starting the engine.

By arranging the engine as I have illustrated and described, it is fully protected and, at the same time, is accessible from the platform for operating it. I have not illustrated the details of the engine as they form no part of my present invention.

In the modified construction shown in Fig. 4, substantially the same combination of parts are present, the modifications being in the body of the car, and such changes as are necessary or desirable to arrange the parts thereon, the body being a lighter and somewhat more simple construction than that shown in Figs. 1, 2 and 3.

By arranging the parts as I have illustrated and described the delicate parts and such parts as might be injured in the ordinary use in handling to which a hand car is subjected are so located as to be fully protected.

The structure is very simple and economical, and, at the same time, is entirely efficient and practicable for the purposes intended.

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

1. In a structure of the class described, the combination with a car body; a gallows frame; traction wheels; axles therefor; a walking beam; driving connections therefor to the rear axle; means for connecting or disconnecting said driving connections; an engine arranged under said gallows frame, with its crank shaft longitudinally of the body; and driving connections for said engine to the forward axle, comprising a driving friction wheel arranged on the engine shaft, a driven friction wheel, a shaft therefor, a bearing for said shaft, a support for said bearing pivotally mounted on the forward axle, a pinion on said driven friction wheel shaft, a gear on said axle arranged to mesh with said pinion on said driven wheel shaft; means for shifting said bearing support for throwing said driven friction wheel into or out of engagement with said driving friction wheel; a radiator arranged within and carried by said gallows frame; and an oil reservoir arranged within and carried by said gallows frame.

2. In a structure of the class described, the combination with a car body; a gallows frame; traction wheels; axles therefor; a walking beam; driving connections therefor to the rear axle; means for connecting or disconnecting said driving connections; an engine arranged under said gallows frame, with its crank shaft longitudinally of the body; and driving connections for said engine to the forward axle, comprising a driving friction wheel arranged on the engine shaft, a driven friction wheel, a shaft there-

for, a bearing for said shaft, a support for said bearing pivotally mounted on the forward axle, a pinion on said driven friction wheel shaft, a gear on said axle arranged to mesh with said pinion on said driven wheel shaft; means for shifting said bearing support for throwing said driven friction wheel into or out of engagement with said driving friction wheel; and a radiator arranged within and carried by said gallows frame.

3. In a structure of the class described, the combination with a car body; a gallows frame; traction wheels; axles therefor; a walking beam; driving connections therefor to the rear axle; means for connecting or disconnecting said driving connections; an engine arranged under said gallows frame, with its crank shaft longitudinally of the body; and driving connections for said engine to the forward axle, comprising a driving friction wheel arranged on the engine shaft, a driven friction wheel, a shaft therefor, a bearing for said shaft, a support for said bearing pivotally mounted on the forward axle, a pinion on said driven friction wheel shaft, a gear on said axle arranged to mesh with said pinion on said driven wheel shaft; means for shifting said bearing support for throwing said driven friction wheel into or out of engagement with said driving friction wheel; and an oil reservoir arranged within and carried by said gallows frame.

4. In a structure of the class described, the combination with a car body; a gallows frame; traction wheels; axles therefor; a walking beam; driving connections therefor to the rear axle; means for connecting or disconnecting said driving connections; an engine arranged under said gallows frame, with its crank shaft longitudinally of the body; and driving connections for said engine to the forward axle, comprising a driving friction wheel arranged on the engine shaft, a driven friction wheel, a shaft therefor, a bearing for said shaft, a support for said bearing pivotally mounted on the forward axle, a pinion on said driven friction wheel shaft, a gear on said axle arranged to mesh with said pinion on said driven wheel shaft; and means for shifting said bearing support for throwing said driven friction wheel into or out of engagement with said driving friction wheel.

5. In a structure of the class described, the combination with a car body; a gallows frame; traction wheels; axles therefor; a walking beam; driving connections therefor to the rear axle; means for connecting or disconnecting said driving connections; an engine arranged with its crank shaft longitudinally of the body; and driving connections for said engine to the forward axle, comprising a driving friction wheel arranged on the engine shaft, a driven friction wheel, a shaft therefor, a bearing for said shaft, a support for said bearing pivotally mounted on the forward axle, a pinion on said driven friction wheel shaft, a gear on said axle arranged to mesh with said pinion on said driven wheel shaft; and means for shifting said bearing support for throwing said driven friction wheel into or out of engagement with said driving friction wheel.

6. In a structure of the class described, the combination with a car body; a gallows frame; an axle; a walking beam; driving connections therefor to the axle; means for connecting or disconnecting said driving connections; an engine arranged under said gallows frame; driving connections for said engine to the axle, comprising a driving friction wheel, a driven friction wheel, a shaft therefor, a bearing for said shaft, a support for said bearing pivotally mounted on the axle, a pinion on said driven friction wheel shaft, a gear on said axle arranged to mesh with said pinion on said driven wheel shaft, and means for shifting said driven friction wheel into or out of engagement with said driving friction wheel; a radiator arranged within and carried by said gallows frame; and an oil reservoir arranged within and carried by said gallows frame.

7. In a structure of the class described, the combination with a car body; a gallows frame; an axle; a walking beam; driving connections therefor to the axle; means for connecting or disconnecting said driving connections; an engine arranged under said gallows frame; driving connections for said engine to the axle, comprising a driving friction wheel, a driven friction wheel, a shaft therefor, a bearing for said shaft, a support for said bearing pivotally mounted on the axle, a pinion on said driven friction wheel shaft, a gear on said axle arranged to mesh with said pinion on said driven wheel shaft, and means for shifting said bearing support for throwing said driven friction wheel into or out of engagement with said driving friction wheel; and a radiator arranged within and carried by said gallows frame.

8. In a structure of the class described, the combination with a car body; a gallows frame; an axle; a walking beam; driving connections therefor to the axle; means for connecting or disconnecting said driving connections; an engine arranged under said gallows frame; driving connections for said engine to the axle, comprising a driving friction wheel, a driven friction wheel, a shaft therefor, a bearing for said shaft, a support for said bearing pivotally mounted on the axle, a pinion on said driven friction wheel shaft, a gear on said axle arranged to mesh with said pinion on said driven wheel shaft, and means for shifting said bearing support for throwing said driven friction wheel into or out of engagement with said

driving friction wheel; and an oil reservoir arranged within and carried by said gallows frame.

9. In a structure of the class described, the combination with a car body; a gallows frame; an axle; a walking beam; driving connections therefor to the axle; means for connecting or disconnecting said driving connections; an engine arranged under said gallows frame; driving connections for said engine to the axle, comprising a driving friction wheel, a driven friction wheel, a shaft therefor, a bearing for said shaft, a support for said bearing pivotally mounted on the axle, a pinion on said driven friction wheel shaft, a gear on said axle arranged to mesh with said pinion on said driven wheel shaft, and means for shifting said bearing support for throwing said driven friction wheel into or out of engagement with said driving friction wheel.

10. In a structure of the class described, the combination with a car body; a gallows frame; an axle; a walking beam; driving connections therefor to the axle; an engine; driving connections for said engine to the axle, comprising a driving friction wheel, a driven friction wheel, a shaft therefor, a bearing for said shaft, a support for said bearing pivotally mounted on the axle, a pinion on said driven friction wheel shaft, a gear on said axle arranged to mesh with said pinion on said driven wheel shaft, and means for shifting said bearing support for throwing said driven friction wheel into or out of engagement with said driving friction wheel.

11. In a structure of the class described, the combination with a car body; an axle; an engine arranged with its crank shaft longitudinally of the body; and driving connections for said engine to the axle, comprising a driving friction wheel arranged on the engine shaft, a driven friction wheel, a shaft therefor, a bearing for said shaft, a support for said bearing pivotally mounted on the forward axle, a pinion on said driven friction wheel shaft, a gear on said axle arranged to mesh with said pinion on said driven wheel shaft; and means for shifting said bearing support for throwing said driven friction wheel into or out of engagement with said driving friction wheel.

12. In a structure of the class described, the combination of a car body; a gallows frame; axles; a walking beam; driving connections therefor to an axle; means for connecting and disconnecting said driving connections; an engine arranged under said gallows frame, with its crank shaft longitudinally to the body; and driving connections for said engine to an axle, comprising a driving friction wheel, arranged on said engine shaft, a driven friction wheel, an adjustable support therefor whereby it may be thrown into and out of driving contact with said driving friction wheel, and driving connections for said driven friction wheel to the axle; a radiator arranged within and carried by said gallows frame; and an oil reservoir arranged within and carried by said gallows frame.

13. In a structure of the class described, in combination of a car body; a gallows frame; axles; a walking beam; driving connections therefor to an axle; means for connecting and disconnecting said driving connections; an engine arranged under said gallows frame, with its crank shaft longitudinally to the body; and driving connections for said engine to an axle, comprising a driving friction wheel, arranged on said engine shaft, a driven friction wheel, an adjustable support therefor whereby it may be thrown into and out of driving contact with said driving friction wheel, and driving connections for said driven friction wheel to the axle; and a radiator arranged within and carried by said gallows frame.

14. In a structure of the class described, the combination of a car body; a gallows frame; axles; a walking beam; driving connections therefor to an axle; means for connecting and disconnecting said driving connections; an engine arranged under said gallows frame, with its crank shaft longitudinally to the body; and driving connections for said engine to an axle, comprising a driving friction wheel, arranged on said engine shaft, a driven friction wheel, an adjustable support therefor whereby it may be thrown into and out of driving contact with said driving friction wheel, and driving connections for said driven friction wheel to the axle; and an oil reservoir arranged within and carried by said gallows frame.

15. In a structure of the class described, the combination of a car body; a gallows frame; axles; a walking beam; driving connections therefor to an axle; means for connecting and disconnecting said driving connections; an engine arranged under said gallows frame, with its crank shaft longitudinally to the body; and driving connections for said engine to an axle, comprising a driving friction wheel, arranged on said engine shaft, a driven friction wheel, an adjustable support therefor whereby it may be thrown into and out of driving contact with said driving friction wheel, and driving connections for said driven friction wheel to the axle.

16. In a structure of the class described, the combination of a car body; a gallows frame; axles; a walking beam; driving connections therefor to an axle; means for connecting and disconnecting said driving connections; an engine; and driving connections for said engine to an axle, comprising a driving friction wheel, a driven friction

wheel, an adjustable support therefor whereby it may be thrown into and out of driving contact with said driving friction wheel, and driving connections for said driven friction wheel to the axle.

17. In a structure of the class described, the combination with a car body; a gallows frame; traction wheels; a walking beam; driving connections therefor to the traction wheels; an engine; and driving connections therefor to the traction wheels comprising a pair of friction wheels and means for throwing said friction wheels into and out of driving contact.

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

WILLIAM S. HOVEY. [L. S.]

Witnesses:
E. J. GODSHALK,
EDW. K. GEMBERLING.