No. 710,048. Patented Sept. 30, 1902.

S. H. ELLIS.

RAILWAY CAR.

(Application filed Jan. 27, 1902.)

(No Model.) 2 Sheets—Sheet 1.

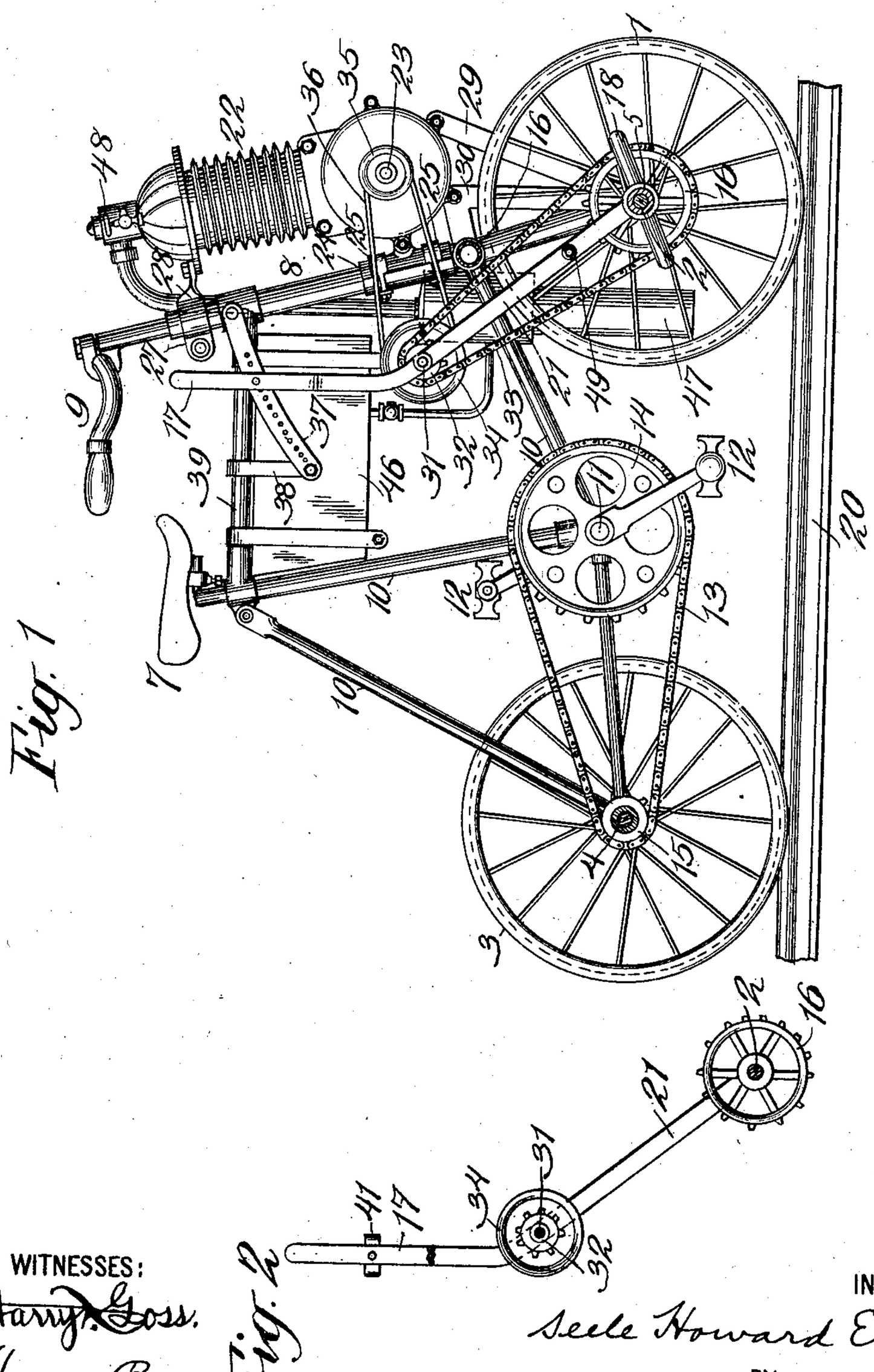

Fig. 1.

Fig. 2.

WITNESSES:

~~Harry L. Goss.~~

Henry Barnes

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ATTORNEY

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Fig. 3,

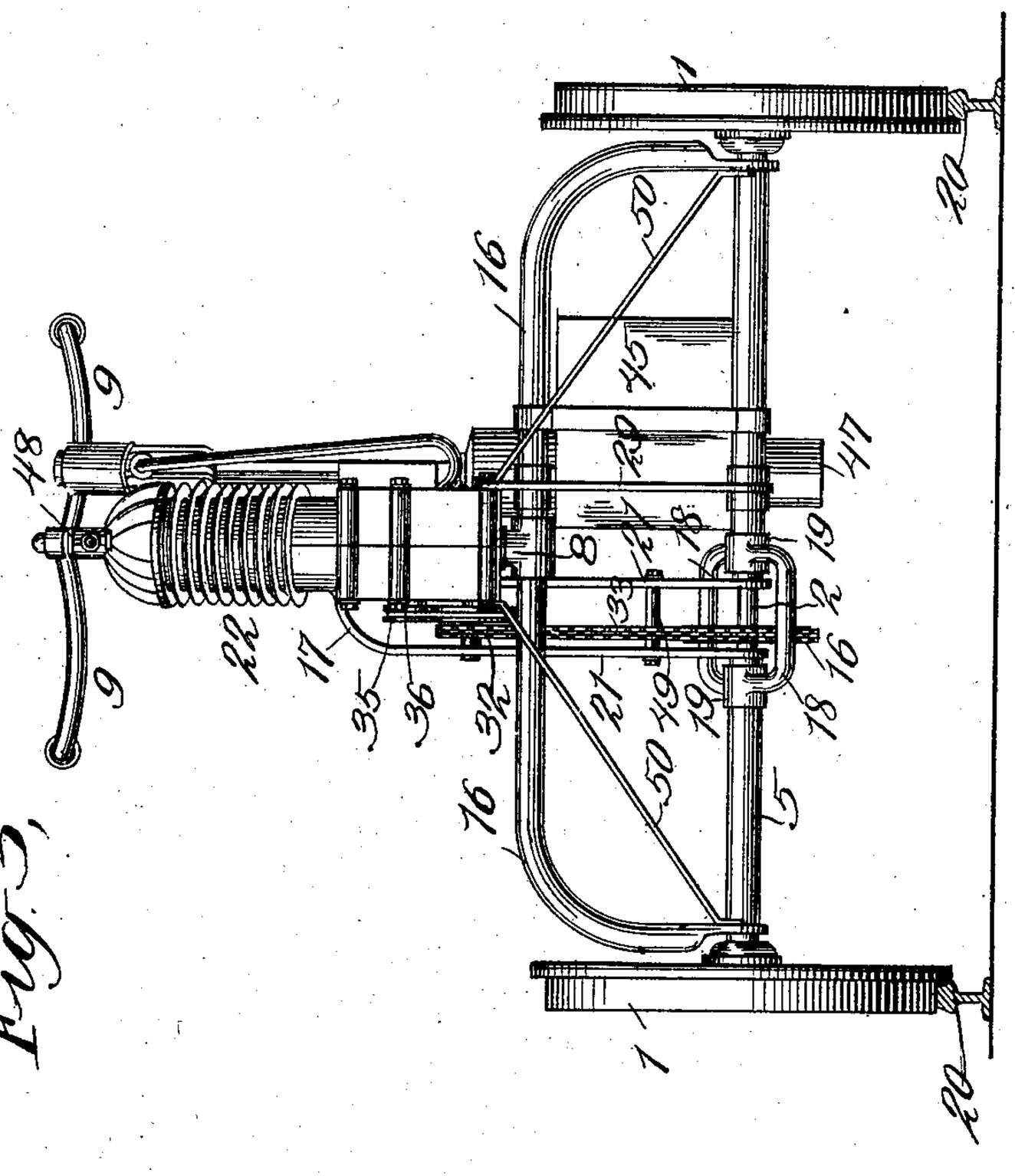


Fig. 4,

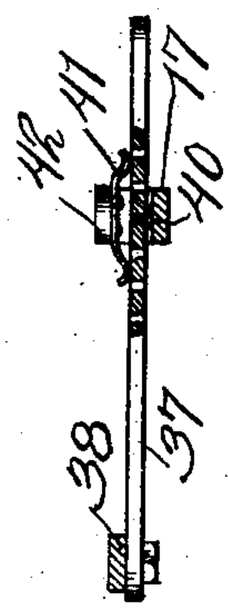
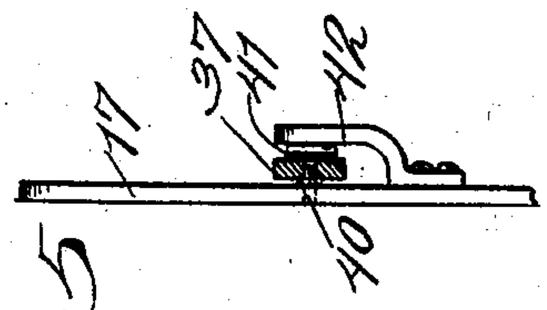


Fig. 5



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UNITED STATES PATENT OFFICE.

SEELE HOWARD ELLIS, OF BROOKLYN, NEW YORK, ASSIGNOR TO HUGH L. FOX, OF NEW YORK, N. Y.

RAILWAY-CAR.

SPECIFICATION forming part of Letters Patent No. 710,048, dated September 30, 1902.

Application filed January 27, 1902. Serial No. 91,368. (No model.)

To all whom it may concern:

Be it known that I, SEELE HOWARD ELLIS, a citizen of the United States, residing in the borough of Brooklyn, in the county of Kings, city of New York, and State of New York, have invented certain new and useful Improvements in Railway-Cars, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to railway-cars such as are employed for track supervision and inspection and section and telegraph work, such cars being of light weight, so that they may be readily put on and taken off the tracks; and my invention has for its objects to provide means whereby a motor may be employed capable of driving such a car at high speed without materially altering the construction or materially adding to the light weight of the car and to provide a high degree of control by the operator of the movement of the car.

I have shown in the drawings and will now describe a railway inspection-car provided with motive means in accordance with and embodying my invention and will thereafter point out my invention in claims.

Figure 1 is a side elevation of such railway inspection-car. Fig. 2 is a detail elevation of the controlling-lever. Fig. 3 is a front elevation of the car. Fig. 4 is a detail sectional plan of the controlling-lever and clamping device therefor. Fig. 5 is a detail front elevation of the controlling-lever with the clamping device in section.

The railway inspection-car shown in the drawings is of ordinary construction, with a running-gear comprising the front wheels 1 and axle 2 and the rear wheels 3 and axle 4, the wheels being flanged and adapted to run on an ordinary railway-track, as 20. The frame-work is of the ordinary light tubular construction, comprising a front-axle tube 5, a rear-axle tube 6, the usual longitudinal frame 10, resembling a bicycle-frame and joining the front and rear axle tubes and supporting the seat 7, and having the front tubular post 8, with a handle-bar and handles 9, which perform the usual function in a railway inspection-car of merely affording a rest and support for the hands, no steering being necessary. As usual, a crank-shaft 11 and cranks and pedals 12 are provided, and the crank-shaft is connected by a chain 13 and sprockets 14 15 to the rear axle 4, and I prefer to provide an ordinary pawl-and-ratchet or similar connection, (not shown,) so that the crank-shaft may drive the rear axle forward; but the rear axle will not drive the crank-shaft forward. This is particularly desirable with my construction, as it permits the motor to drive the car at high speed without transmitting motion to the crank-shaft and without fear of injuring the operator by rapidly-revolving cranks and pedals.

As usual, a front tubular arched cross-bar 16 is shown as provided, which directly supports the front post 8 of the longitudinal frame and is supported upon the front-axle tube 5.

The ordinary construction of running-gear and framework above described requires but slight alteration in the application of a motor thereto in accordance with my invention, and, as shown, the only alteration is in the front-axle tube 5, which is partly cut away near the middle portion thereof, so as to permit a sprocket-wheel 16 to be secured upon the front axle 2 and so as to provide pivotal bearings concentric with the front axle for the lower ends of the two arms 21 of the bifurcated controlling lever 17, these two arms being joined by a tie-bar 49. The two parts of the front-axle tube 5 are joined by a frame comprising the two arched cross-bars 18 and sleeves 19, the sleeves 19 being rigidly secured by brazing or otherwise upon the ends of the front-axle tube adjacent to the cut-away portion thereof and the arched cross-bars 18 extending out sufficiently to permit free movement of the axle sprocket-wheel 16.

The motor shown is a single-cylinder reciprocating engine 22 of the ordinary type adapted to be driven by the explosive force of a vaporized hydrocarbon, as gasolene. The interior construction of this engine is not shown, as its construction is well understood. This engine is clamped to the framework of the car without alteration of the light tubular construction of such framework and is located in front of the front post 8 of the longitudinal frame. The engine is supported and held by clamps upon the tubular

front post 8 and by suitable braces and ties secured to other parts of the framework. The lower clamp upon the front post 8 is of improved construction and forms the subject of a separate application for Letters Patent filed on even date herewith. It comprises a long sleeve 24, longitudinally divided into two parts, which are clamped together by clamping yoke-pieces 25. One of the parts of the sleeve 24 carries lugs 26, which are secured by bolts to lugs projecting from the engine-frame. This clamp is in proximity to the rotating part or crank-shaft 23 of the engine at the point where the vibrations of the engine are developed; but by reason of the great bearing-surface of this clamp and the uniform distribution of the clamping pressure over this great bearing-surface it is enabled to sustain the weight and vibrations without displacement and without injury to the tubular front post 8. An upper clamp 27 upon the front post 8 is also provided, having an arm 28, clamped to an upper flange of the engine. The engine is further supported and braced by a bracing-bar 29, extending downward from the lower part of the engine and clamped at its lower end upon the front-axle tube 5, and by an axle-brace 30, extending rearward from the lower part of the engine and clamped upon the upper tubular cross-bar 16 and extending downward and clamped upon the front-axle tube. Two tie-bars 50 are also provided, one at each side of the engine and extending to the upper tubular cross-bar in proximity to its points of junction with the front-axle tube. It is of course evident that the details of construction of the bracing and supporting means may be varied within the spirit and scope of this invention.

The rotating part or crank-shaft 23 of the engine has a rotative connection with the running-gear, and I provide controllable means for variably transmitting motion between the rotating part of the engine and the front axle of the car, such variable transmitting means including the controlling-lever 17, the manipulation of which controls such connection. This controlling-lever is provided with a rotating part, shown as a shaft 31, fitted to rotate in the upper bifurcated part of the controlling-lever, with bearings in both arms 21 of such lever, this rotating part having a positive connection with the front axle 2, so as to rotate at all times therewith, and having a variable and frictional connection with the rotating part 23 of the engine. The rotating part or shaft 31 of the controlling-lever has its positive connection with the front axle through a sprocket-wheel 32 on the shaft 31, the sprocket-wheel 16, above referred to, on the front axle 2, and a chain 33, running over both sprockets. The rotating part or shaft 31 has its frictional connection with the rotating part 23 of the engine through a grooved pulley 34 on the shaft 31 and the grooved pulley 35 on the engine-shaft 23 and a belt 36, running over both these pulleys. The controlling-lever, as aforesaid, is pivoted concentrically with the front axle, and the movement of this lever will not, therefore, affect the positive connection with the front axle, while it will increase or diminish the tension upon the belt 36, whereby the rotating part of the controlling-lever is connected to the engine-shaft, so that by moving the controlling-lever forward and diminishing the tension upon the frictional belt 36 the transmission of rotation between the engine-shaft and front axle may be diminished or interrupted, and by moving the controlling-lever rearward, and thereby increasing the tension on the frictional belt 36, this transmission of motion may be made as positive as is desired.

Clamping means are provided for the controlling-lever, whereby it may be clamped in desired position to exert the desired tension upon the frictional belt 36. Such clamping means is shown as comprising an arc-shaped arm 37, carried by the framework and shown as secured at its front end to the front post 8 and supported at its rear end by an arm 38, clamped to the upper longitudinal bar 39 of the framework. This clamping-arm 37 is provided with a series of depressions or perforations, and the controlling-lever 17 is provided with a projection or pin 40, constructed to engage with or fit into any one of such depressions or perforations, and the depressions or perforations are preferably arranged quite close together, so that the pin 40 will engage in a depression or perforation for every position in which it may be desired to hold the controlling-lever. The controlling-lever also carries on an upwardly-extending bracket 42 a spring 41, which bears against the clamping-arm 37 on the opposite face thereof to that at which the pin 40 enters and normally presses the controlling-lever so as to hold the pin 40 within the depression in which it is engaged. With the arrangement shown the operator grasps the controlling-lever and first moves it outwardly, thereby compressing the spring 41 and moving the pin 40 out of the depression in which it was engaged, and may then move the controlling-lever as desired to increase or diminish the tension of the belt 36, and thereby to vary the transmission of power between the front axle and the engine-shaft. This controllable transmitting means enables the operator to exercise most perfect control over the engine and the movement of the car. To start the engine, he moves the controlling-lever rearwardly, so as to tighten the belt 36, and then, applying his feet to the pedals 12, starts the car in motion. The engine, although non-starting, quickly attains a normal operative condition, supplies the motive power to propel the car, and by reason of the pawl-and-ratchet connection above described the movement of the vehicle does not propel the pedals, so that the engine quickly becomes a motor without inconvenience or

danger to the operator. The car may be driven at high speed, and should the operator at any time desire to diminish the speed it is only necessary to move the controlling-lever forward, and thereby loosen the belt 36, so as to permit it to slip, and should the operator desire to quickly stop the car it is only necessary to move the controlling-lever forward sufficiently to so loosen the belt 36 that it will not transmit motion. A brake will preferably be provided, although not shown in the drawings.

The various parts auxiliary to the engine are shown in the drawings, comprising a battery 45, which supplies the electric current for the sparking device and which is conveniently secured between the upper cross-bar 16 and the front-axle tube 5, a gasolene-reservoir 46, which is conveniently secured below the upper bar 39 of the longitudinal frame, and a generator or vaporizer 47, which is conveniently located in proximity to the front post 8 of the frame. The throttle-valve 48 of the engine is located at the upper part thereof within easy reach of the operator.

It is evident that various modifications may be made in the construction shown and above particularly described within the spirit and scope of my invention.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination with the framework and running-gear of a car, of a motor supported upon said framework, a rotating part to which such motor imparts rotary motion, a pivoted lever controllable by the operator to be thrown into or out of operative position, and power receiving and transmitting means carried by the pivoted lever for transmitting motion from such rotating part to the running-gear of the car and connected with such rotating part and the running-gear, such connection including a friction belt connection controlled by the movement of the lever and another connection maintained independently of the movement of the lever.

2. The combination with the framework and running-gear of a car, of a motor supported upon said framework, a rotating part to which such motor imparts rotary movement, a pivoted lever controllable by the operator to be thrown into or out of operative position, and power receiving and transmitting means carried by the pivoted lever and connected to the running-gear of the car so as to rotate at all times with the running-gear and movable relatively to and having a friction belt connection with the rotary part actuated by the motor, such friction belt connection being controllable by the movement of such lever.

3. The combination with the framework and wheels and axles of a railway-car, of a motor supported upon said framework, a rotating part to which such motor imparts rotary motion, a lever pivoted concentrically with an axle of the car and carrying a rotating part connected to such axle so as to rotate at all times therewith, and a frictional rotative connection between the rotating part actuated by the motor and the rotating part carried by the lever, whereby the transmission of motion between the motor and the rotating part carried by the lever may be varied by the actuation of the lever.

4. The combination with a framework and running-gear of a car, of a motor supported upon said framework, a pivoted lever provided with power receiving and transmitting means controllable by the position of such lever for variably transmitting motion between the motor and running-gear, and a clamping-arm carried by the framework, the controlling-lever and clamping-arm being provided with projected and depressed engaging parts whereby the controlling-lever may be held in any one of a number of positions.

5. The combination with the framework and wheels and axles of a car, of a motor supported upon said framework, a rotating part to which such motor imparts rotary motion, a lever pivoted concentrically with an axle of the car and carrying a rotating part connected to such axle so as to rotate at all times therewith, a frictional rotative connection between the rotating part actuated by the motor and the rotating part carried by the lever, such frictional rotative connection being controllable by the position of such lever, and clamping means whereby such lever is held in desired position.

6. The combination with the framework and wheels and axles of a car, of a motor supported upon said framework, a rotating part to which such motor imparts rotary motion, a lever pivoted concentrically with an axle of the car and carrying a rotating part connected to such axle so as to rotate at all times therewith, a frictional rotative connection between the rotating part actuated by the motor and the rotating part carried by the lever, such frictional rotative connection being controllable by the position of such lever, and a clamping-arm carried by the framework, the controlling-lever and clamping-arm being provided with projected and depressed engaging parts whereby the controlling-lever may be held in any one of a number of positions.

7. The combination with the framework and running-gear of a car, of a motor supported upon said framework, a pivoted lever provided with means controllable by the position of such lever for variably transmitting motion between the motor and running-gear, a clamping-arm carried by the framework and having a series of depressions therein, the controlling-lever being provided with a projection adapted to enter and engage any one of such depressions controlling lever relatively to the clamping-arm, and a spring working between the clamping-arm and controlling-lever and constructed to normally press the projection into the depression with which it is engaged.

8. The combination with the framework

and wheels and axles of a car, of a motor adapted to be driven by explosive force and supported upon said framework, a pivoted lever carrying a rotating part connected to an axle of the car so as to rotate at all times therewith, a frictional connection between the motor and the rotating part carried by the controlling-lever, and clamping means constructed to hold the controlling-lever in desired position.

In testimony whereof I have affixed my signature in presence of two witnesses.

SEELE HOWARD ELLIS.

Witnesses:

HENRY D. WILLIAMS,

HERBERT H. GIBBS.