

(No Model.)

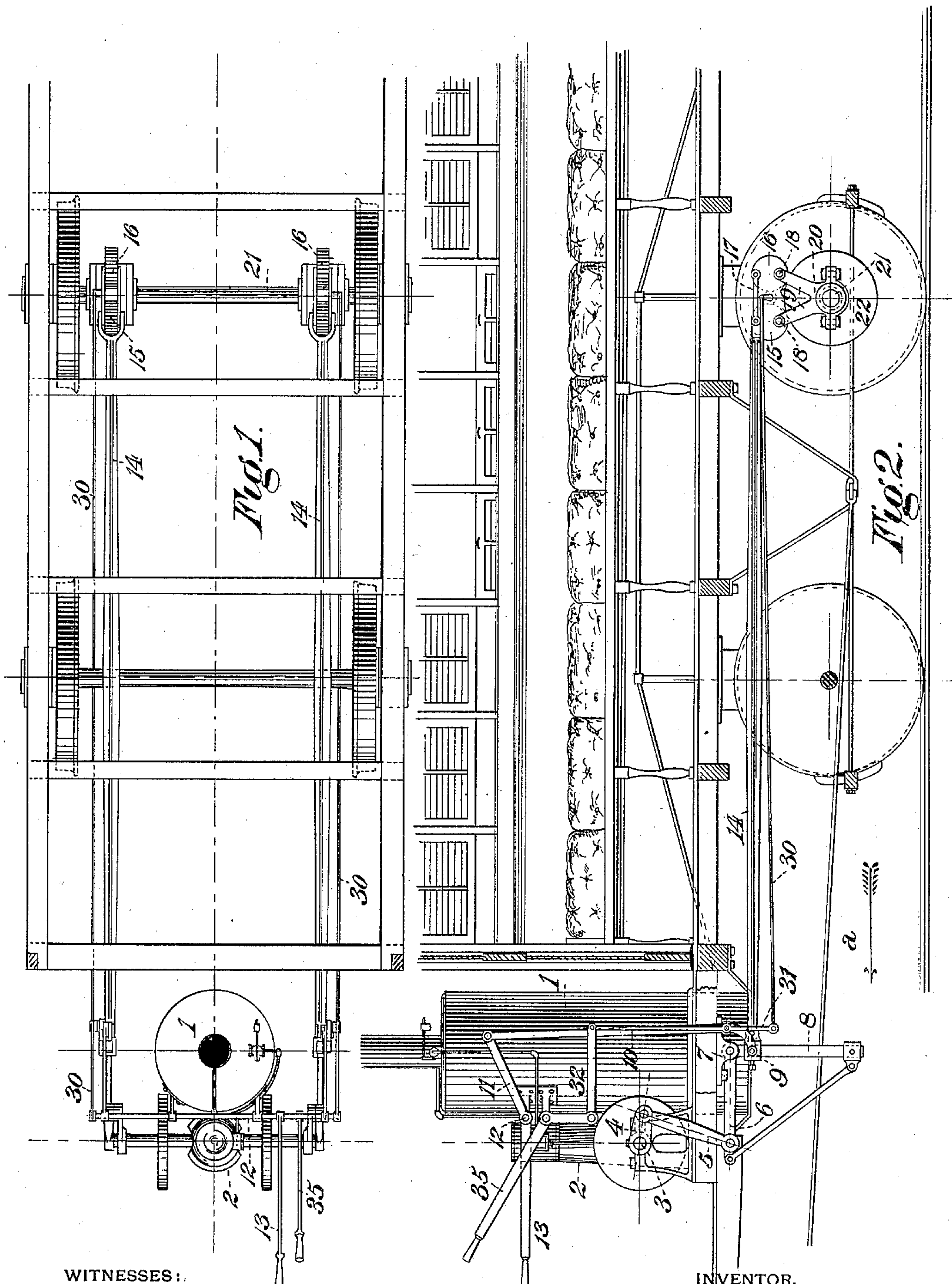
2 Sheets—Sheet 1.

J. B. HUSTON.

CAR MOTOR.

No. 344,108.

Patented June 22, 1886.



WITNESSES:

Damon S. Wolcott  
C. M. Clarke.

INVENTOR,

John B. Houston.  
by George H. Christy Att'y.

(No Model.)

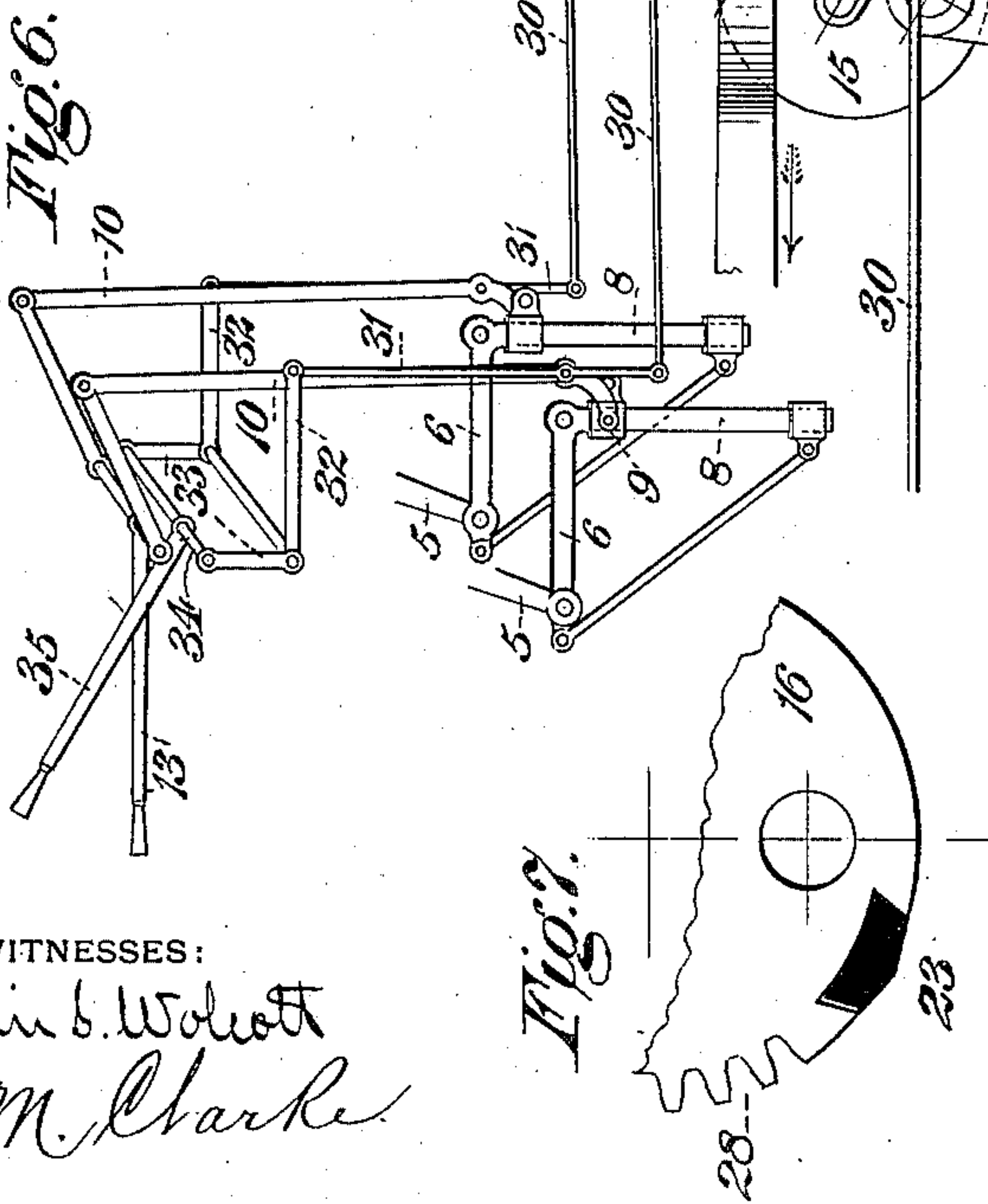
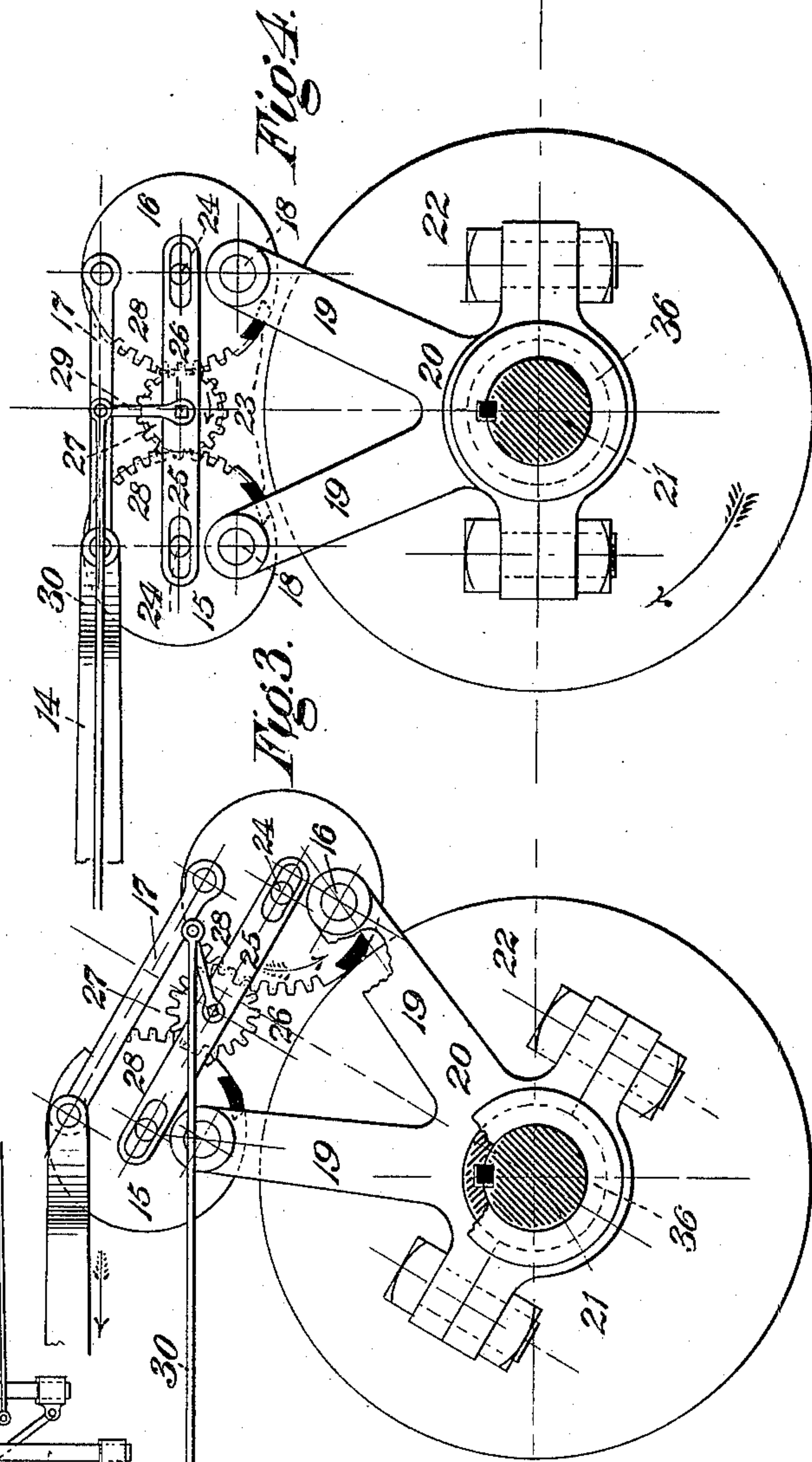
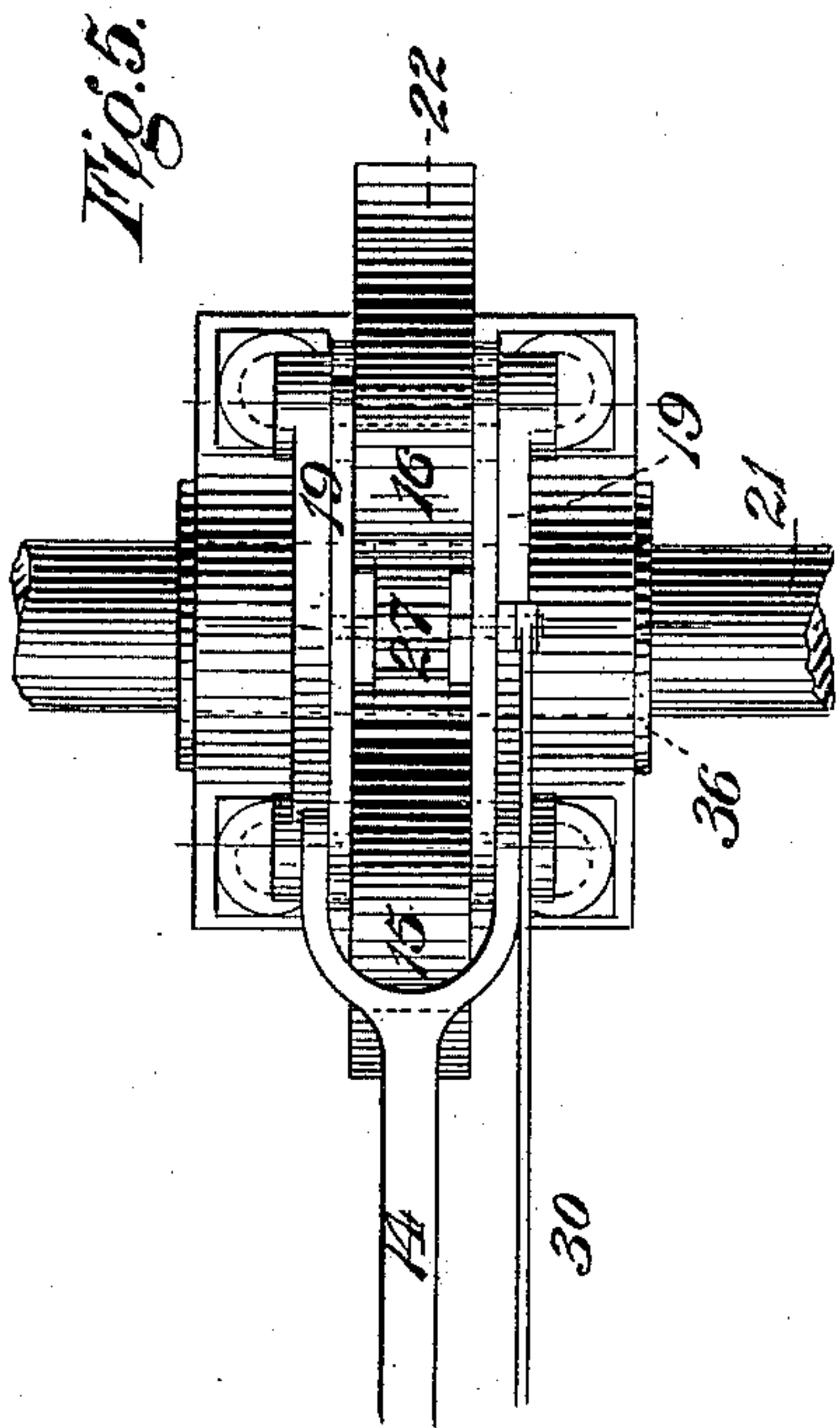
2 Sheets—Sheet 2..

J. B. HUSTON.

CAR MOTOR.

No. 344,108.

Patented June 22, 1886.



WITNESSES:

Danville B. Wolcott  
L. M. Clarke

INVENTOR,

John B. Huston.  
George H. Christy.  
Att'y



# UNITED STATES PATENT OFFICE.

JOHN B. HUSTON, OF CLEVELAND, OHIO.

## CAR-MOTOR.

SPECIFICATION forming part of Letters Patent No. 344,108, dated June 22, 1886.

Application filed February 25, 1886. Serial No. 193,142. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN B. HUSTON, residing at Cleveland, in the county of Cuyahoga and State of Ohio, a citizen of the United States, have invented or discovered certain new and useful Improvements in Car-Motors, of which improvements the following is a specification.

In the accompanying drawings, which make part of this specification, Figure 1 is a top plan view of the frame and trucks of a car having my improved driving mechanism applied thereto. Fig. 2 is a side elevation of the same. Figs. 3 and 4 are side elevations of one of the friction-wheels having my improved mechanism applied thereto, showing different positions of the driving mechanism. Fig. 5 is a top plan view of the parts shown in Fig. 4. Fig. 6 is a detail view showing the operating levers and handles. Fig. 7 is an enlarged view of a portion of drive wheels.

The invention herein relates to certain improvements in the mechanism employed in transmitting motion from a suitable motive power on the car to the wheels thereof, whereby the motion of a suitable engine acting continuously in one direction may be applied to move the car either forward or back, at the pleasure of the operator; and to this end my invention consists in the construction and combination of parts, substantially as hereinafter described and claimed.

On one of the platforms of an ordinary street-car is located a boiler, 1, and engine 2, the pitman of the latter being connected to the shaft 3 in the usual manner. On the ends of the shaft 3 are secured the crank-arms 4, connected by the rod 5 to the arm 6 of the bell-crank lever, the pivoted shaft of said lever being mounted in suitable bearings, 7, securely fastened to the under side of the platform supporting the boiler and engine. On the arm 8 of the bell-crank lever is mounted a sleeve, 9, adapted to be moved along said arm by the rods 10, connected at their upper ends to an arm, 11, secured to the rock-shaft 12, which is mounted in bearings, and is operated by the hand-lever 13. To the sleeve 9 is connected one end of the pitman 14, which preferably extends to the wheels at the opposite end of the car, and is there connected to one of the clutch-disks, 15 and 16, near its periphery.

These disks are connected together, so as to move in unison, by the connecting-rod 17, and are eccentrically mounted on pins 18, journaled at each end in arms 19 of the brackets 20, loosely mounted on the axle 21 of the wheels of the car. On the axle 21, between the brackets 20, is keyed the driving disk or wheel 22, the diameter of said wheel and the length of the arms 19 being so proportioned that a slight rotation of the disks 15 and 16 on the pins 18 will cause the steel bit 23 in the periphery of said disks to engage the periphery of the wheel 22. Through the centers of the disks 15 and 16 are inserted the pins 24. The projecting ends of said pins are passed through slots in the ends of the bars 25, which serve as journals or supports for the pivot-pin 26 of the pinion 27, arranged between the disks 15 and 16, and engaging the toothed portions 28 of said disks. On the squared end of the pin 26 is placed one end of the bar 29, its opposite end being connected to the rod 30, extending to the front or engine end of the car, and there connected to the lever 31. This lever 31 is pivoted to the rod 10, near its lower end, as shown in Fig. 6, and is connected at its upper end by a link, 32, to the arm 33 of the rock-shaft 34, said rock-shaft being operated by the handle 35.

The devices above described are duplicated on the opposite side of the car, and the two sets of devices are operated in unison.

Suitable devices are employed for holding the handles 13 and 35 in the different positions into which they may be shifted.

In lieu of mounting the brackets 20 directly upon the axle 21, brass or other suitable metal sleeves, 36, are keyed upon the axle, and the brackets are mounted on the sleeve, as shown in Figs. 3 and 4.

The operation of my improved mechanism is as follows, it being immaterial as to the direction of rotation of the power-shaft 3: If it is desired to move the car forward in the direction of the arrow *a*, Fig. 2, the handle 35 is raised, thereby rotating the pinion 27 in the direction of the arrow shown in Fig. 4, through the medium of the lever 31, rod 30, and bar 29. This rotation of the pinion 27 will turn the disk 16 on its eccentric journal 18, so as to bring the steel bit 23 into contact or close proximity with the periphery of the disk 22,



and at the same time will so turn the disk 15 as to move it away from the disk 22. Now, as the pitman 14 is moved forward by the reciprocation of the bell-crank lever, the disks 15 and 16 will move forward in the path of a circle, and as said pitman is connected to the disks near their perimeter, but on the opposite sides from the journal-pin 18, the disk 16 will be further rotated on its pin 18, thereby bringing its steel bit 23 into firm engagement with the perimeter of the driving-disk, and thus cause said driving-disk and the axle to which it is keyed to rotate in the forward direction. When the pitman commences its return-stroke, the disk 16 will be rotated so as to lift its steel bit from engagement with the perimeter of the disk 22. In order to permit of these engaging and disengaging movements of the disk 16, the lever 31 is pivoted, as above described, to lever 10, connected to the sleeve 9, so that the rod 30 and bar 29 will partake in a slight degree of the reciprocating movements of the pitman 14; but as this slight reciprocation of the rod 30 is not ordinarily sufficient to permit of the engagement of the steel bit with the disk 22, the bar 29 is made elastic, thereby permitting of a slight rotation of the disk 16 and pinion 27 independent of the movement of the rod 30. As the bar 29 is slightly bent when the pitman causes the disk 16 to engage the disk 22, its tension will aid in releasing the bit 23 from such engagement with disk 22. In case it is desired to move the car backward, the handle 35 is depressed, thereby bringing the disk 15 into operative position and turning the disk 16 away from the disk 22. After this change of position the disk 15 will be caused to engage the disk 22 by the reciprocation of the pitman 14, in a manner similar to that described in relation to the disk 16. When it is desired to stop the car, the handle 35 is so moved as to hold both disks 15 and 16 away from the driving-disk 22, and the brakes applied, thus avoiding any stoppage of the engine.

It is a prominent characteristic of the invention herein that the movements of the car can be regulated and controlled without either stopping or reversing the engine; and it is a further prominent feature that as the power is

applied to wheels through medium of levers or equivalent construction to which the power is applied at a distance from the fulcrum, an engine of small power will be highly efficient in driving the car. If desired, the friction-disks may be made to engage the wheels of the car, thereby dispensing with the driving-disk 22.

I claim herein as my invention—

1. A motor for cars, having in combination a non-reversible engine, friction-disks suitably mounted to reciprocate around one of the axles of the car, and a vibrating lever arranged to transmit motion from the engine to the friction-disks, substantially as set forth.

2. A motor for cars, having in combination a non-reversible engine, a vibrating lever connected to the engine, a pitman adjustably connected to said lever, friction-disks connected to the opposite end of said pitman and mounted to reciprocate around one of the axles of the car, and a wheel or disk secured to said axle, substantially as set forth.

3. A motor for cars, having in combination a non-reversible engine, friction-disks suitably mounted to reciprocate around one of the axles of the car and connected to the engine, and a wheel or disk secured to said axle, substantially as set forth.

4. A motor for cars, having in combination a non-reversible engine, friction-disks suitably mounted to reciprocate around one of the axles of the car, a wheel or disk secured to said axle, and mechanism engaging said disks and constructed to move said disks in engagement with a wheel or disk alternately, substantially as set forth.

5. A car-motor, having in combination the wheel or disk 22, a pair of eccentric disks mounted to reciprocate around the disk 22, and having a portion of their peripheries toothed, as described, a pinion, 27, arranged to engage said toothed portions, and an operating-lever, substantially as set forth.

In testimony whereof I have hereunto set my hand.

JOHN B. HUSTON.

Witnesses:

E. B. BAUDER,  
J. M. NOWAK.