(No Model.) 2 Sheets—Sheet 1.

C. DELAHUNT.

MOTOR PROPELLED VEHICLE.

No. 568,431. Patented Sept. 29, 1896.

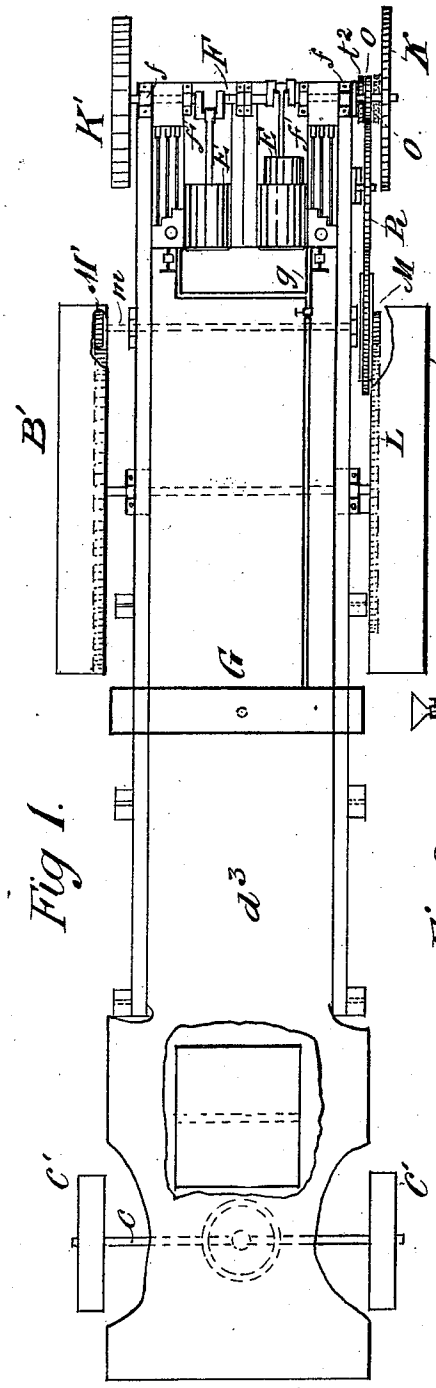

Fig 1.

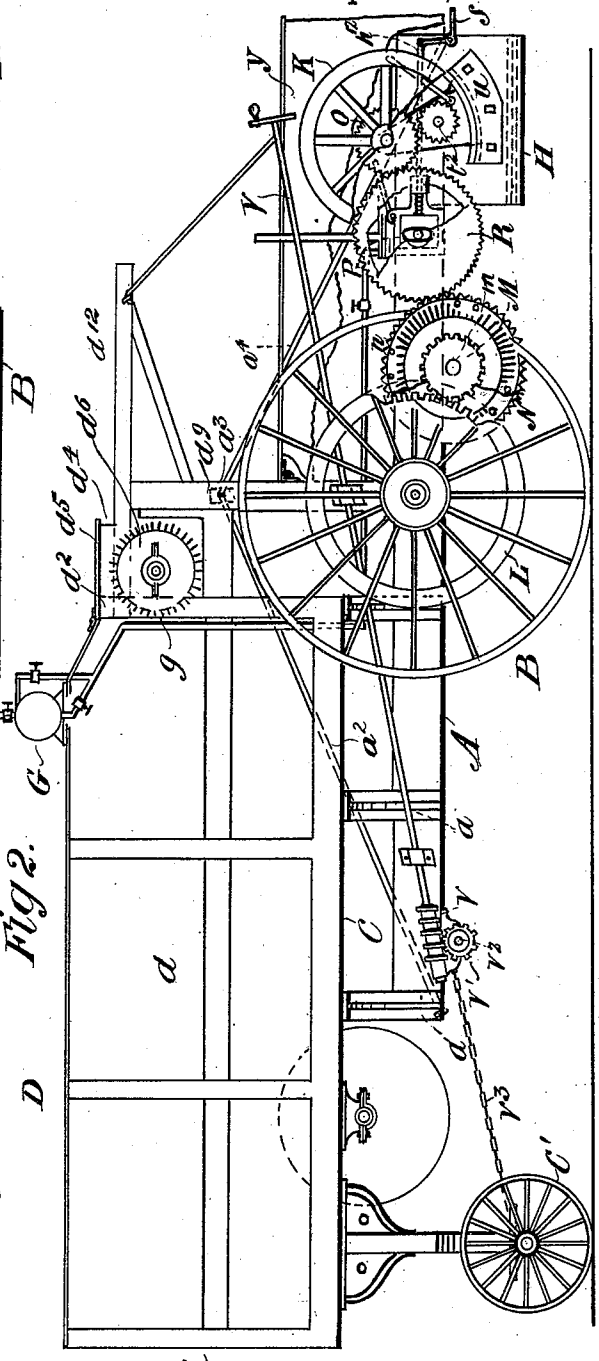

Fig 2.

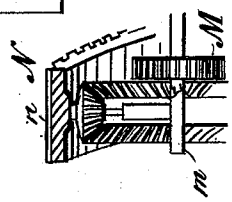

Fig 10.

WITNESSES

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(No Model.) 2 Sheets—Sheet 2.

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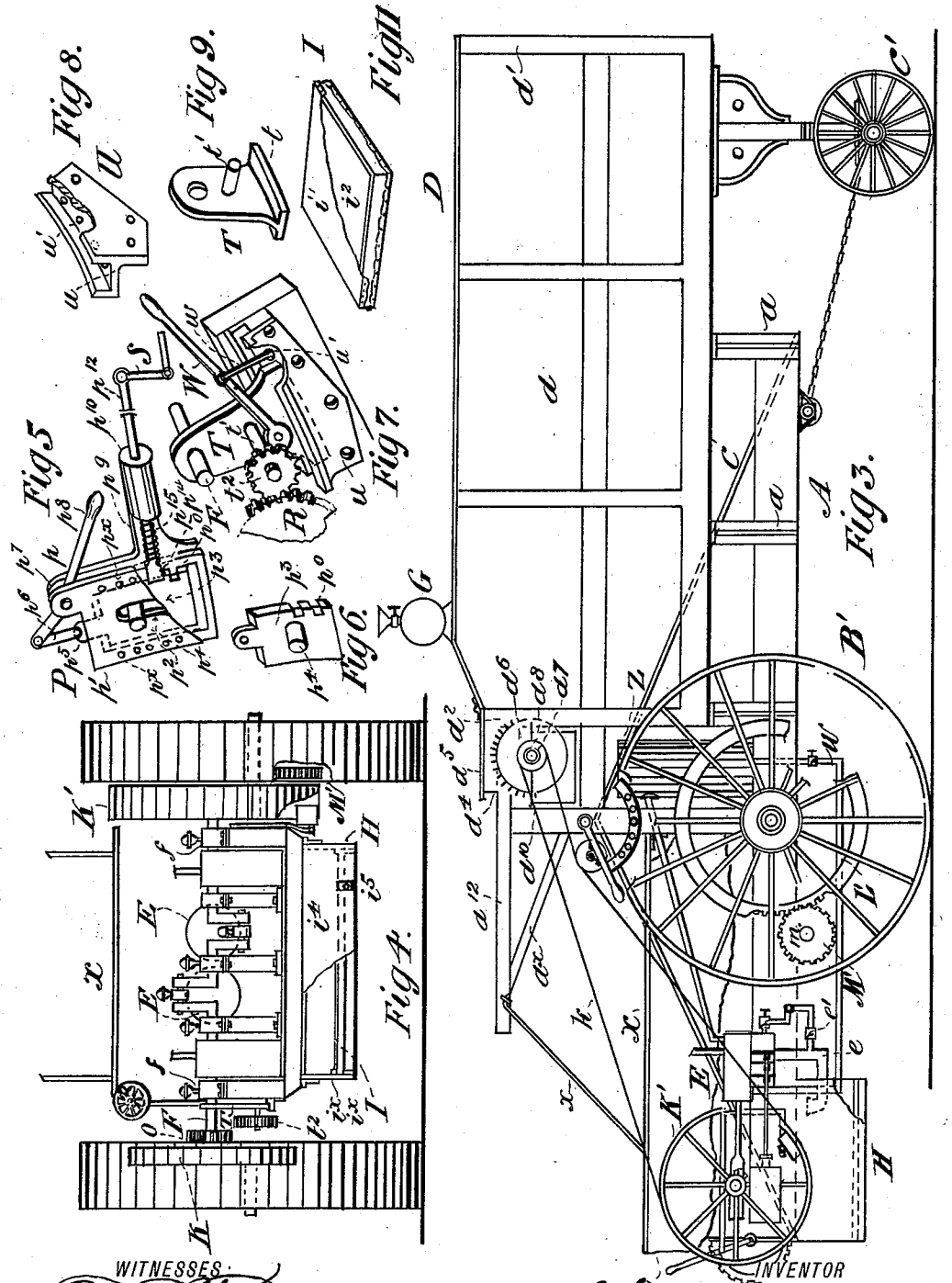

UNITED STATES PATENT OFFICE.

CHARLES DELAHUNT, OF OLATHE, KANSAS.

MOTOR-PROPELLED VEHICLE.

SPECIFICATION forming part of Letters Patent No. 568,431, dated September 29, 1896.

Application filed March 16, 1896. Serial No. 583,333. (No model.)

To all whom it may concern:

Be it known that I, CHARLES DELAHUNT, a citizen of the United States, residing at Olathe, in the county of Johnson and State of Kansas, have invented certain new and useful Improvements in Motor-Propelled Vehicles; and I do hereby declare that the following is a full, clear, and exact description of the invention, such as will enable others to make and use the same, reference being had to the accompanying drawings, forming a part of this specification.

The objects of my invention are, first, to provide for the end bearings of separate vehicle and motor supporting platforms, employed conjointly; second, to exclude dust, chaff, &c., from the motor; third, to reverse the movement of the traction-wheels and change the direction of movement of the vehicle, and, fourth, to throw in and out of gear the driving-shaft of the motor and the reversing-gear to the traction-wheels.

My invention consists in the novel construction and combination of parts, such as will first be fully described, and specifically pointed out in the claims.

In the drawings, Figure 1 is a plan view of the combined motor-carrying and auxiliary vehicles. Fig. 2 is a longitudinal side elevation of the combined motor-carrying and auxiliary vehicles carrying the reversing-gear to the traction-wheels, and for communicating power from the driving-shaft of the motor to the traction-wheels, and for throwing the same in and out of gear; also showing the truss supporting the platform and the worm-gear operating the forward axle of the combined vehicles, the threshing-cylinder, the gasolene-tank, and the conductors leading from the tank to the engine. Fig. 3 is a longitudinal side elevation of the combined motor-carrying and auxiliary vehicles opposite to that seen in Fig. 2, showing the power-transmitting devices to the threshing-cylinder. Fig. 4 is a rear end view of the motor-carrying vehicle, showing the end of air-purifying chamber broken away and the cover to the motor removed. Fig. 5 is a detail view in perspective of the gear-shifting device with the outer plate broken away to show the intermediate pin-carrying plate; also showing the elevating-lever for the pin-carrying plate and the spring-actuated locking-key. Fig. 6 is a detail view of the pin-carrying plate. Fig. 7 is a detail view in perspective of the swinging arm with the reversing-gear, showing a broken portion of the gear on the gear-shifting device meshing therewith; also showing the guide or shoe for the swinging arm and the locking-lever. Fig. 8 is a detail view in perspective of the guide for swinging arm with a portion of the side broken away to show the perforations for the locking-bolt. Fig. 9 is a detail view of the swinging arm. Fig. 10 is a detail view of the differential or compensating gearing. Fig. 11 is a detail view of the screens to the air-purifying chamber.

Similar letters of reference indicate corresponding parts in all the figures.

Referring to the drawings, A represents the horizontal motor-supporting platform, which is mounted upon the traction-wheels B B′ at a point nearly equidistant from both ends of said platform.

C represents the horizontal platform of the auxiliary vehicle, and is connected pivotally at the forward end by means of the ordinary king-bolt with the axle *c*, at each end of which axle are the guide-wheels C′ C′. The platform C of the auxiliary vehicle is raised in position a considerable height above the line of the platform A and its rear end portion extended directly above and in parallelism with the forward end of the platform A and to a point a short distance in advance of the point of connection of the traction-wheels B B′ with said platform.

The platform A is less in width than the platform C for the purpose of affording room for the operating-gear hereinafter described.

To the forward end of the platform A is attached the lower end portion of a bracket *a*, the upper end of which bracket is attached to the platform C.

For the purpose of illustration I have shown upon the platform C an ordinary threshing-machine D, inclosed by the vertical side walls *d d*, ends *d′ d²*, and top *d³*. To the upper rear end portion of the threshing-machine D is connected a rearwardly-extended chest *d⁴*, which is provided with a cover *d⁵*, and within which chest is a threshing-cylinder *d⁶*, mounted upon a journal *d⁷*, which journal extends

through the side of the chest d^4 and is provided on the outer end with a pulley d^8. To the rear end of the chest d^4 and in line with one outer side portion of said chest d^4 is attached the upper end portion of a standard d^9, the lower end portion of which standard is attached fixedly with the motor-supporting platform A at a point directly over the axle of the traction-wheels B B'. Upon the other side of the threshing-machine and attached to the end of the case d^4 is a standard d^{10}, which is the same in construction as the standard d^9. To the upper end of the standard d^9 is attached one end of a horizontal bar d^{12}, the other end of which bar extends rearwardly a short distance and is supported by the brace-bar $d^{\times}$. Upon the standard d^{10} is attached a bar which is precisely the same as the bar d^{12} and braced in the same manner.

For the purpose of enabling the weight of the rear end of the platform C and its load to be carried by the platform of the motor-vehicle a truss-rod a^2 is connected with the forward end and side portion of the platform A at one end and the other end extended to a point near the outer side portion of the upper end of the standard d^9 and secured adjustably to a lug a^3 in said standard, the rod a^2 being bent slightly in passing the end d^2 of the machine D. To the rear end of platform A is connected one end of a truss-rod a^4, the other end of which rod is secured adjustably to the lug a^3 on said standard. Upon the other side of the platform A are truss-rods connected with standard d^{10} in the same manner as described of the truss-rods a^2 a^4.

Upon the rear end of the platform A is arranged, in a parallel position, the cylinders E E of a gasolene-engine.

Upon the upper side and extreme rear end portion of the platform A are the journal-boxes f f, in which are mounted, in a transverse direction to the platform A, the crank-shaft F. In each cylinder E E is a piston-rod F', which is connected with the respective cranks upon the crank-shaft. Upon the top d^3 of the threshing-machine D is a gasolene-tank G, with one end of which is connected the upper end of a conducting-pipe g, the other end extending in a downward direction adjacent to the side d of the machine to a position a short distance above the platform A, thence bent at an angle, and the other end connected with the inlet-openings to one of the cylinders E and by means of a branch pipe with the other cylinder E. Beneath the cylinders E of the gasolene-engine is a closed air-purifying chamber H, which consists of a rectangular frame attached rigidly to the under side portion of the platform A. In the lower part and forming the bottom to said chamber is a closely-fitting rectangular frame l, over which is extended a cover i', of chamois-skin, the outer edges of which skin extends over the edges of the frame l and is secured to the outer side portion by tacks or other suitable manner, as seen in Fig. 11. The bottom of said frame is composed of cloth i^2, the outer edges of which are extended over and secured to the sides of the frames in the same manner as described of the chamois-skin i'. To the cylinder E of the gasolene-engine is connected the air-pipe e, the lower end of which pipe extends downwardly and through the sides of the chamber H to a point above the screen i. Connected with the pipe e is the jet-pipe e' for the gasolene, so as to mix the oil with the air before entering the cylinders, as commonly employed in gasolene-engines.

To the outer end of the crank-shaft F, which extends a short distance from the direction of the side of the platform A, supported by the traction-wheel B, is attached a balance-wheel K, and upon the other end of said shaft, which extends a corresponding distance from the direction of the side supported by the traction-wheel B', is attached a band-wheel K'. Over the band-wheel K' is extended one end of a belt or band k, the other end of which belt is extended over the pulley d^8 on the shaft d^7 of the threshing-cylinder d^6, and the two ends connected together in the usual manner. The tension of said band is regulated by the belt-tightener on the standard d^{10}.

On the inner side of the traction-wheel B and secured rigidly to the spokes on said wheel is a cog-gear L, concentric with the axis and about one-half the described diameter of said wheel. Upon the inner side of the traction-wheel B' is attached fixedly a cog-gear L', which is precisely the same in construction as the gear L.

In the direction of the rear end of the platform A, and journaled in suitable boxes on the under side portion of the said platform a short distance from the gear L on wheel B, is a transverse shaft m. One end of shaft m extends nearly to the traction-wheel B, and upon said end is a small gear M, which engages with the cog-gear L on the wheel B. On the other end of shaft m is a gear M', which meshes with the cog-gear L' on the wheel B.'

On the shaft m, between the gear M and the adjacent side of platform A, is fixed the differential or compensating gear N, which is the ordinary gear in use for increasing the velocity of one traction-wheel in describing curves in the track, and as more clearly shown in Fig. 10, which shows the larger spur-wheel n, the bevel-gear n', and the beveled pinions n^2, whereby in turning a curve one of the traction-wheels is accelerated in the same degree in which the other is retarded. Upon the crank-shaft F, a short distance from the balance-wheel K and feathered on shaft F, is a small movable gear o.

Upon the side of platform A, at a point nearly equidistant from the respective gears n and o, is attached the gear-shifting device P. Said device consists of separate flat plates

$p\ p'$ of equal size and arranged a short distance apart and secured in said position by bolts $p^{\times}$. The plate p is secured rigidly to the side of the platform A in nearly an upright position. In the outer plate p' is a curved slot p^2, which is described from the center of the shaft m, carrying the differential gear N. Between the plates $p\ p'$ is a sliding plate p^3, which is narrower in width than the plates $p\ p'$, so as to move between the bolts $p^{\times}\ p^{\times}$, which unite the sides of said plates $p\ p'$. In length the sliding plate p^3 is also shorter than the plates $p\ p'$, and upon the face of said plate opposite the slot p^2 is attached rigidly a journal p^4, which extends through the curved slot p^2, upon which journal is a large cog-wheel R, which engages with the cog-wheel n on the shaft m. On the upper end of plate p^3 is an ear p^5, to which is pivotally attached a link p^6. On the upper ends of the respective plates $p\ p'$ are ears p^7, between which is fulcrumed a lever p^8, the inner end of which lever is pivotally connected with the link p^5 on plate p^3, the end of the lever extending in the direction of the rear end of platform A.

To the lower side and rear edge portion of the plate p is attached fixedly a horizontal extension p^9, upon the face of which is a sleeve p^{10}, in which sleeve is inserted one end of an operating-rod p^{12}. In the rear edge portion of the plate p^3 are notches $p^0\ p^0$, arranged one above another and beneath the line of the journal p^4, which receives the inner end of the rod p^{12}. Upon the inner end of the rod p^{12}, which enters the notches in the plate p^3, is an enlargement p^{14}. On the rod p^{12}, between the enlargement p^{14} and the inner end of sleeve p^{10}, is a spiral spring p^{15}. The outer end of the rod p^{12} extends to a position near the rear end of platform A and is connected with a bell-crank operating-lever S, pivoted to the side of said platform.

For the purpose of reversing the movement of the traction-wheels B B′ and the intermediate gear for transmitting power from crank-shaft F to said wheels upon the crank-shaft F is loosely connected the upper end portion of a flat swinging plate T, upon the lower edge portion of which is a flanged extension t on both sides of said plate, which is curved in a described line the center of shaft F. On the outer side portion of the swinging plate T is a journal t', upon which is a pinion t^2, which meshes with the gear o on shaft F and is thrown into engagement with the cog-wheel R. On the side of the platform A, beneath the lower swinging end of the plate T, is a grooved guide plate or shoe U, the bottom of which is curved at u and perforated at u' in a vertical direction. To the outer side and lower end portion of plate T is pivotally attached the inner end of an operating-lever W. Between the pivotal point of the lever W on plate T and the outer end of said lever is a locking-rod w, pivoted at its upper end to said lever, the lower end entering the perforation u' in the bottom of the grooved guide in plate U.

For the purpose of operating the forward axle and changing the direction of movement of the vehicle a rod V extends from a point near the balance-wheel K along the side of the platform to the forward end of said platform and is provided with a worm-gear v, which actuates a pinion v' on the shaft v^2, around which shaft is looped a chain v^3, one end of which chain is attached to one end of the axle and the other end to the outer end of said axle.

For the purpose of preventing dust, &c., enveloping the engine a horizontal fixed shield or plate X is attached to the standards $d^9\ d^{10}$ a short distance above the cylinders E E of the engine and extends horizontally to a position over the extremity of platform A and is nearly of the same width as said platform. Said shield is supported by the rod x, extended from the outer edge of the shield to the brace-bar d^{12}. To the outer edge of shield X is attached one end of a cloth curtain Y. The other end of the curtain is extended entirely around the rear end and sides of said shield and downwardly to the platform A. Beneath the chest d^4, containing the threshing-cylinder, is the water-tank Z for supplying water to the water-jacket of the engine in the ordinary manner.

In the operation of the improved motor-propelled vehicle the gasolene-engine which is employed renders the operation of the vehicle, which contains in threshing-machines combustible substances, free from danger by fire, and as a motor the employment of the threshing-machine may be readily made within the walls of a granary or within the barn containing the wheat to be threshed and thus out of exposure to weather. The dust arising from the machine is purified in passing through the screen l and excluded by the shield K.

After starting the engine and for the purpose of operating the threshing-machine the gear o is moved by hand out of engagement with the gear R and pinion t^2, in the direction of the balance-wheel N, into the position as seen in dotted lines in Fig. 1. The power from shaft F is transmitted to the band-wheel K′, and thence by the band or belt k to the threshing-cylinder d^6, and the threshing or other work continued without loss of power in its transmission. When the movement of the vehicle is desired in a forward direction, the engine is stopped and the gear o moved into engagement with the gear R on the shifting device and the pinion t^2 on the swinging plate T. The engine is then started and the power transmitted from shaft F, through the gear o and R to the differential gear N, and thence to the traction-wheels B B′, the direction of movement being controlled by the rod V, which actuates worm-gear v and the pinion v' and the shaft v^2, thus winding one or the other portion of the chain v^3 and moving the axle of the forward wheels C′ C′.

In changing direction of movement the differential-gear N permits one of the traction-wheels B B′ to turn faster than the other and describe a short curve. When the movement of the vehicle is desired in a reverse or backward direction, the lever S is operated and the end of the rod p^{12} is withdrawn from the notch in the plate p^3 and the plate lowered in position, the rod automatically engaging the notch above and interlocking, so as to hold the plate in position. In this movement the gear R preserves engagement with the cog-gear n on the shaft m. The lever W is elevated sufficiently to lift the bolt w out of the perforation u' in the groove u of the guide U and the lower end of the swinging plate T thrust forward and causing the pinion t^2 to engage with the gear R. The power from the shaft F is then transmitted to gear o and t^2 and the gear R, and thence to the differential gear N and to the traction-wheels and reversing the direction of rotation of the said gear R, n, and M. The bolt on lever W is then placed in one of the perforations u' and the plate T held firmly in position. As soon as movement of the vehicle is completed the lever W is operated to disengage the pinion t^2 from gear R, and the gear o shifted so as to throw said lever out of engagement with the gear t^2, and the power of the engine is then transferred to the band-pulley K, or the gear-shifting device operated to throw the gear R into engagement with the gear o, as the power is required.

Instead of the threshing-machine D, I may employ a receptacle for grain, using the power of the engine to effect its removal, thus making a motor-wheel of great utility and of great adaptability when change of location is found necessary. The equipoised trussed platform enables the great weight of the threshing-machine to be sustained, and with the motor a counterbalance is obtained, the weight of the threshing-machine offsetting or reducing the vibrations of the platform during the operation of the engine.

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

1. In a motor-propelled vehicle, the combination with an equipoised trussed platform having traction-wheels of a motor at one end of said platform and an auxiliary or separate platform having traction-wheels at one end, and an endwise bearing upon the end of the motor-supporting platform opposite to said motor, and suitable connections of one of said platforms with the other, substantially as shown and described.

2. A gear-shifting device consisting of separate outer and inner fixed guide-plates, having an intermediate sliding plate, said outer plate having a curved slot, and said sliding plate being provided with a journal within said curved slot, and a pinion on said journal, means for raising and lowering said sliding plate, and a locking device to said plate, as and for the purpose described.

3. A gear-shifting device for vehicles consisting of separate outer and inner fixed guide-plates, said outer plate having a curved slot and upwardly-extended lever-bearing, a sliding plate between said guide-plate having notches, and a journal extending through the slot in said outer plate, and a gear on said journal, a lever in the lever-bearing on said plates having a link connected with the sliding plate, and a sleeve on said fixed plates, and a spring-actuated rod in said sleeve, as and for the purpose described.

4. In a motor-propelled vehicle the combination with the traction-wheels of said vehicle, of a motor having a driving-shaft and gear on said shaft, power-transmitting gear connected with the traction-wheels, a swinging arm a guide-plate or shoe for the lower end of said arm having perforations and a pinion on said arm engaging with the gear on said driving-shaft adapted to be brought into engagement with the power-transmitting gear to the traction-wheels, a lever pivotally connected with said swinging arm and a rod pivotally connected at one end with said lever and having the other end adapted to enter the perforations in said guide-plate, as and for the purpose described.

CHARLES DELAHUNT.

Witnesses:
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