

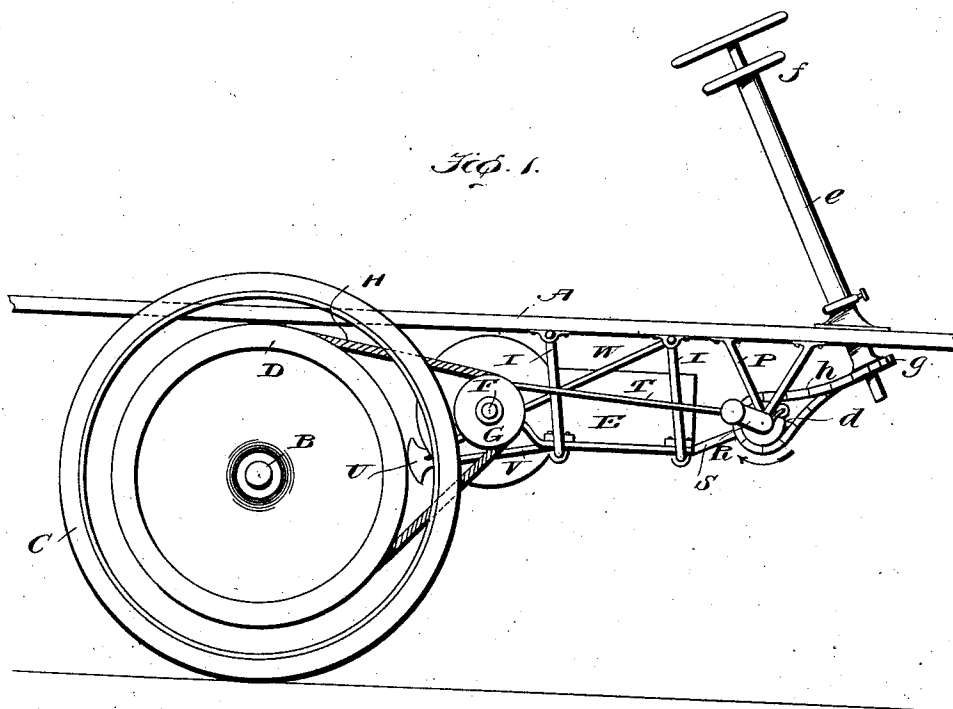
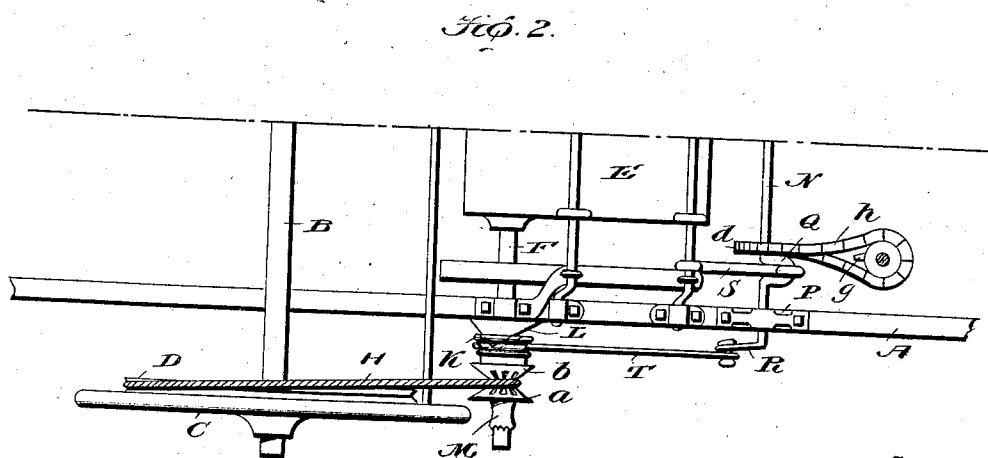
No. 842,260.

PATENTED JAN. 29, 1907.

E. SHEER.
MOTOR VEHICLE.

APPLICATION FILED MAR. 20, 1906.

2 SHEETS—SHEET 1.



Witnesses

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By

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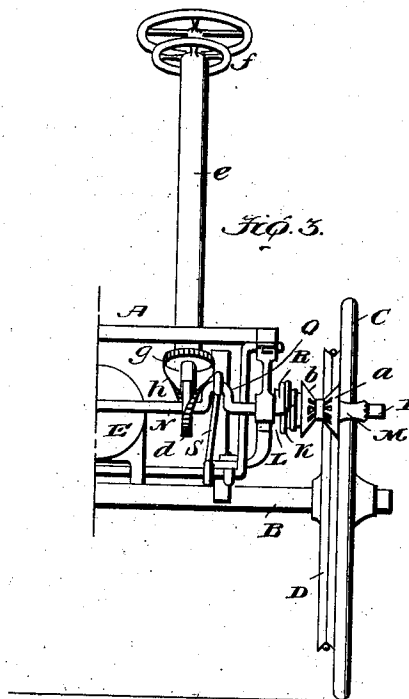
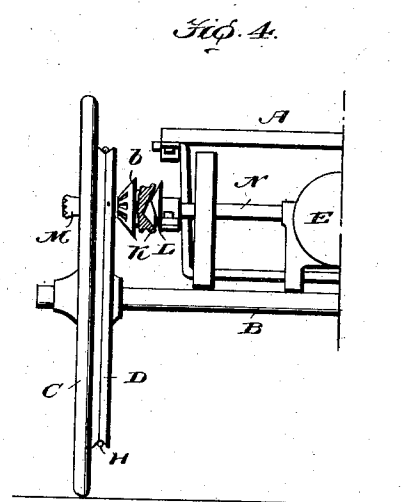
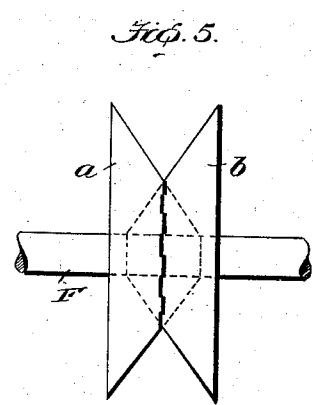
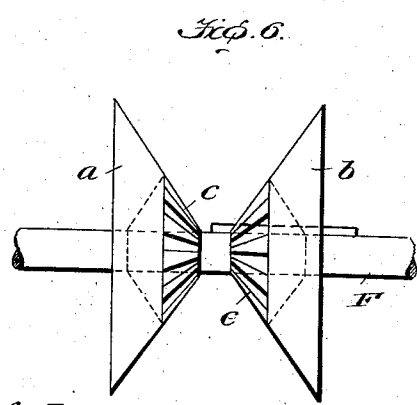
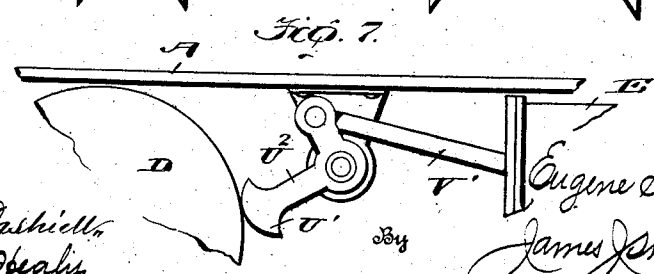
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2 SHEETS—SHEET 2.



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MOTOR-VEHICLE.

No. 842,260.

Specification of Letters Patent.

Patented Jan. 29, 1907.

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To all whom it may concern:

Be it known that I, EUGENE SHEER, a citizen of the United States, residing at Lincoln, in the county of Logan and State of Illinois, have invented new and useful Improvements in Motor-Vehicles, of which the following is a specification.

My invention pertains to motor-vehicles, and more particularly to means for propelling such vehicles and starting and stopping the same; and it has for one of its objects to provide a motor-vehicle in which the motor is mounted to swing fore and aft, and hence may be quickly and easily moved in such directions to start and stop the vehicle.

Another object of the invention is the provision of means for utilizing the rear swinging movement of the motor to reverse the vehicle.

Another object is the provision of a differential driving connection intermediate the motor and the traction-wheel for gradually increasing the speed of the latter when the vehicle is started.

Still another object is the provision of a brake arranged to retard the traction-wheel on the initial rearward movement of the motor and to move out of action precedent to the reversing of the said traction-wheel by friction.

With the foregoing in mind the invention will be fully understood from the following description and claims when the same are read in connection with the accompanying drawings, forming part of this specification, in which—

Figure 1 is a side elevation of so much of a motor-vehicle as is necessary to illustrate the preferred embodiment of my invention. Fig. 2 is a bottom plan view of the same. Fig. 3 is a detail front elevation. Fig. 4 is a detail rear elevation. Fig. 5 is a detail view of the driving-sheave as the same appears when its sections are relatively arranged to present the greatest diameter to the drive-belt. Fig. 6 is a detail view showing the sheave-sections relatively arranged to present a comparatively small diameter to the drive-belt. Fig. 7 is a detail view of a modified brake herein-after referred to in detail.

Similar letters designate corresponding parts in all of the views of the drawings, referring to which—

A is the main frame of a motor-vehicle, which may be of the ordinary or any other

construction compatible with the purposes of my invention.

B is a stationary axle on which is mounted a traction-wheel C, having fixed to it a circumferentially-grooved sheave D, and E is a motor. The said motor is preferably, though not necessarily, an internal-combustion engine, and it comprises a drive-shaft F, on which is a driving-sheave G, connected by a belt H with the sheave D, whereby it will be apparent that when the motor is in operation and the belt H is sufficiently taut the traction-wheel C is rotated by the motor. The motor is carried by fore and aft swinging hangers I, connected to and depending from the frame A, and hence but a minimum amount of effort is required to move the motor forward to place the belt H under tension and enable it to rotate the traction-wheel C or to move the motor rearward with a view of stopping the vehicle, which is an important desideratum.

As best shown in Figs. 5 and 6, the sheave G comprises a section *a*, fixed on the drive-shaft F of the motor, and a section *b*, keyed on the said drive-shaft, so as to rotate therewith and yet move in the direction of the length thereof. These sections *a* and *b* have opposed conical faces and also have inner toothed portions *c*, which are arranged to lap after the manner shown in Fig. 5 when the section *b* is moved toward the section *a*. From this it follows that the diameter which the sheave G presents to the belt H is variable—that is to say, the said diameter is increased as the section *b* is moved toward the section *a* and is diminished in proportion to the extent to which the section *b* is moved away from the section *a*. Loosely mounted on the shaft F at the inner side of the sheave-section *b* is a cam member K, while connected to the frame A and loosely surrounding the shaft F is a complementary cam member L. These cam members K have opposed faces of the construction shown in Fig. 2, whereby it will be seen that when the cam member K is turned backward and downward the sheave-section *b* will be moved toward the sheave-section *a* to increase the diameter which the sheave G presents to the belt H for a purpose presently set forth.

Fixed on the drive-shaft F of the engine at the outer side of the sheave-section *a* is a disk M, which is arranged in alinement with the perimeter of the traction-wheel C and is de-

signed to frictionally engage the said perimeter in the manner and for the purpose hereinafter pointed out in detail.

N is a transverse shaft journaled in suitable hangers P on the main frame A and having cranks Q and R.

S is a rod interposed between and connecting the motor E and the crank Q, and T is a rod connecting the cam member K and the crank R.

The cranks Q and R are relatively arranged in the manner shown in Fig. 1, and hence it will be seen that when the shaft N is turned in the direction indicated by the arrow in Fig. 1 the motor E will be drawn forward, so as to render the belt H taut and through the medium of the said belt and the sheave D rotate the traction-wheel C and start the motor-vehicle forward. It will also be seen that when the belt H is taut for the purpose described and the shaft N is further turned in the direction indicated by the arrow the motor E will swing backward and at the same time the crank R will draw the rod T forward and through the medium of the said rod turn the cam member K backward and downward. This movement of the cam member K will effect movement of the sheave-section *b* toward the sheave-section *a*, with the result that the diameter of the sheave G will be enlarged, so as to keep the belt H tight and compensate for the backward movement of the motor.

U, Fig. 1, is a brake-shoe which is arranged to engage the perimeter of the sheave D and is carried by a rod V and a rod W, the rod V being attached to the motor E and the rod W being attached to the main frame A. The said brake-shoe U is disposed below the centers of the rods V and W and also below the horizontal plane of the hub of wheel C, and hence it will be apparent that when the motor is permitted to move rearwardly it raises the shoe U against the sheave D, and then when the motor is moved far enough toward the rear to carry the disk M into engagement with the perimeter of the traction-wheel C to reverse the said wheel by friction the motor will have thrown the brake-shoe U upwardly and out of engagement with the perimeter of the sheave D. When the motor E is moved to the rear to a sufficient extent to frictionally engage the disk M with the perimeter of the traction-wheel C, it will be apparent that the said traction-wheel will be reversed.

Any means compatible with the purposes of my invention may be employed to rock the shaft N without involving a departure from the scope of my invention as claimed. I prefer, however, to employ the mechanism illustrated, which mechanism comprises a sprocket-wheel *d*, fixed on the shaft N; a tube *e*, suitably mounted in the main frame A and having a hand-wheel *f* on its upper end and a sprocket-wheel *g* on its lower end, and a

sprocket-belt *h*, connecting the sprocket-wheel *g* and the sprocket-wheel *d*. When the tube *e* is turned on its axis, the shaft N will obviously be turned in one direction or the other, according to the direction of movement of the said tube *e*.

In the practical operation of the motor-vehicle embodying my improvements it will be seen that when the vehicle is at rest and the operator desires to start the same all that is necessary for the operator to do is to turn the tube *e* in the proper direction to draw the continuously-operating motor forward. It will also be seen that when it is desired to stop the vehicle the operator has but to turn the tube *e* in the opposite direction, when the belt H will be slackened and the shoe U and the friction-disk M will be applied in the order named to perform the functions hereinbefore ascribed to the same.

It will be gathered from the foregoing that my improvements are simple and inexpensive in construction, and therefore add but little to the cost of the motor-vehicle; also, that the improvements are well adapted to withstand the rough usage to which the machinery of motor-vehicles is ordinarily subjected.

I have entered into a detailed description of the construction and relative arrangement of the parts embraced in the present and preferred embodiment of my invention in order to impart a definite understanding of the said embodiment. I do not desire, however, to be understood as confining myself to the said specific construction and relative arrangement of parts, as such changes or modifications may be made in practice as fairly fall within the scope of my claimed invention.

The modified brake-shoe U', (shown in Fig. 7,) is carried by one arm of a lever U², fulcrumed on a hanger depending from frame A, and the other arm of the lever is connected through a rod V' with the engine E. From this it follows that when the engine is swung forward for forward speed the connecting-rod will swing the brake-shoe forward and upward, clearing the sheave D; also, when the engine is swung back to stop it will throw the brake-shoe back and down, placing brake-shoe against the said sheave, so as to stop same by friction. It will further be seen that when the engine is thrown a considerable distance toward the rear it will throw the brake-shoe down and forward away from the sheave D, permitting same to revolve freely again. The brake-shoe U' is offset to bring it in line with the sheave D, with which it comes in contact when engine is swung half-way.

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

1. In a motor-vehicle, the combination of a frame, a traction-wheel mounted on a stationary support, hanging means connected to

and depending from the frame and arranged to swing fore and aft, a motor carried by said hanging means and arranged to swing as a whole fore and aft therewith, a driving connection intermediate the motor and the traction-wheel, and means connected with the motor for enabling the driver of the vehicle to swing the motor forward and hold the same against swinging rearward.

2. In a motor-vehicle, the combination of a frame, a traction-wheel mounted on a stationary support, hanging means connected to and depending from the frame and arranged to swing as a whole fore and aft therewith, means connected with the motor for enabling the driver of the vehicle to swing the motor forward and hold the same against swinging rearward, and a driving connection intermediate the motor and the traction-wheel comprising a belt and means for automatically taking up slack of the belt when the motor is swung rearward.

3. In a motor-vehicle, the combination of a frame, a traction-wheel mounted on a stationary support and having a sheave thereon, a motor carried by the frame and movable fore and aft with respect thereto and having a sheave the diameter of which is variable, a belt connecting the said sheaves, and means for increasing the diameter of the sheave synchronously with rearward movement of the motor.

4. In a motor-vehicle, the combination of a frame, a traction-wheel mounted on a stationary support and having a sheave thereon, a motor carried by the frame and mounted to swing fore and aft thereon and having a sheave the diameter of which is variable, a belt connecting the said sheaves, and means for increasing the diameter of the sheave when the motor swings rearwardly.

5. In a motor-vehicle, the combination of a frame, a traction-wheel mounted on a stationary support and having a sheave thereon, a motor carried by the frame and movable fore and aft with respect thereto and having a sheave the diameter of which is variable, a belt connecting the said sheaves, means for enlarging the diameter of the motor-sheave.

a shaft having cranks one of which is connected to the said means and the other of which is connected to the motor, and means for turning the said shaft.

6. In a motor-vehicle, the combination of a frame, a traction-wheel mounted on a stationary support and having a sheave thereon, a fore and aft swinging motor carried by the frame and having a shaft, a sheave comprising sections the opposed faces of which are conical, one of the said sections being movable toward and from the other, means for moving one of the sheave-sections, a belt connecting the two sheaves, a shaft having cranks, a connection between one crank and the motor for swinging the latter, a connection between the other crank and the means for moving one sheave-section, and means for turning the said shaft.

7. In a motor-vehicle, the combination of a frame, a traction-wheel mounted on a stationary support and having a sheave thereon, a motor mounted to swing fore and aft on the frame and having a sheave, a friction-disk arranged to engage the traction-wheel, and a brake arranged to engage the sheave on said traction-wheel precedent to the engagement of the friction-disk with the wheel, a belt connecting the said sheaves, and means for swinging the motor fore and aft.

8. In a motor-vehicle, the combination of a frame, a traction-wheel mounted on a stationary support and having a sheave thereon, a motor mounted to swing fore and aft on the frame and having a sheave, a friction-disk arranged to engage the traction-wheel, a brake connected with the frame and the engine and arranged to engage the sheave on the traction-wheel and be moved from the engine, a belt connecting the sheaves, and means for swinging the motor fore and aft.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

EUGENE SHEER.

Witnesses:

C. A. SIMPSON,
KATHERINE SHEER.