

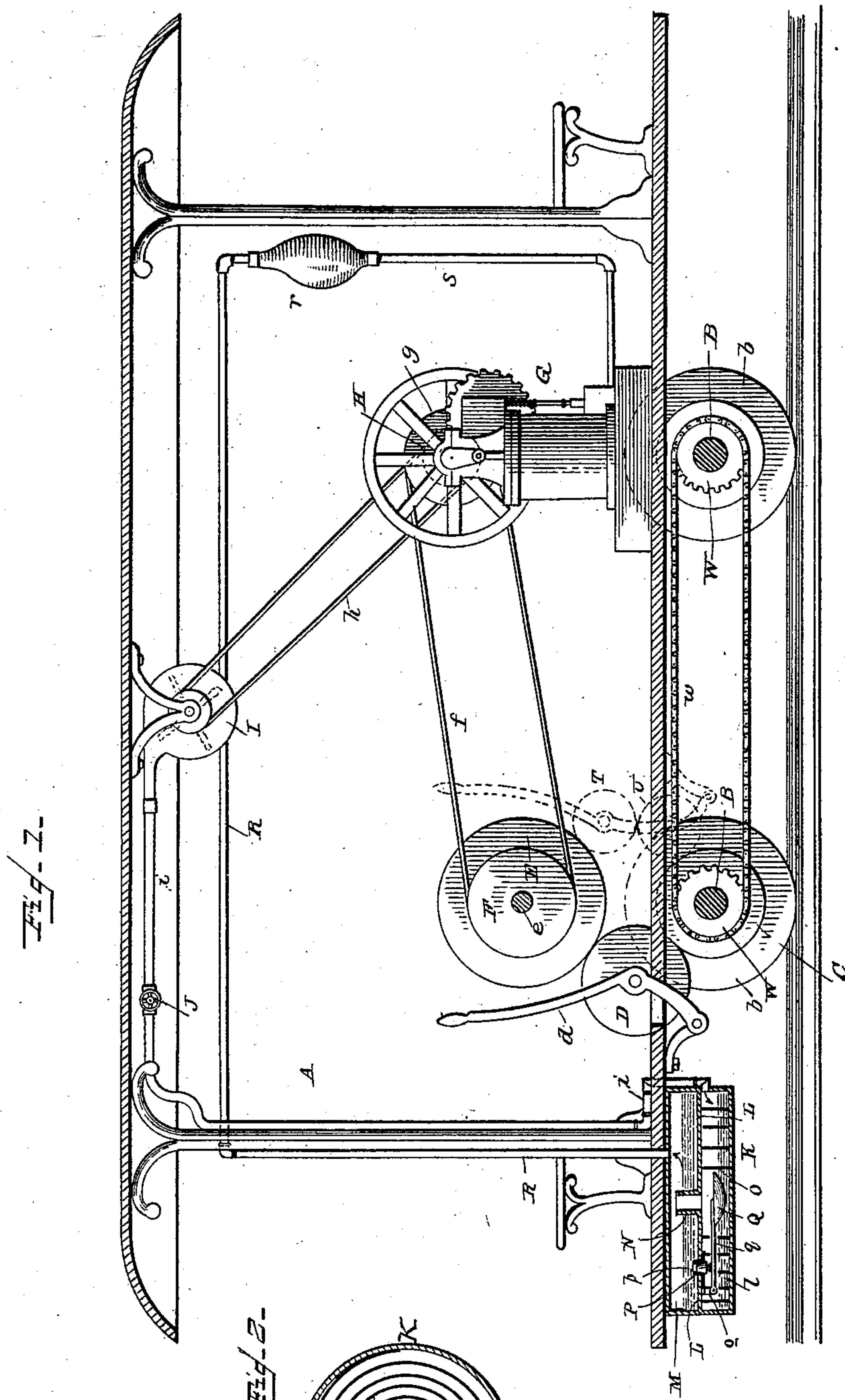
(No Model.)

O. P. SANDERS.

CAR MOTOR.

No. 379,129.

Patented Mar. 6, 1888.



WITNESSES

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# UNITED STATES PATENT OFFICE.

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## CAR-MOTOR.

SPECIFICATION forming part of Letters Patent No. 379,129, dated March 6, 1888.

Application filed August 18, 1887. Serial No. 247,286. (No model.)

*To all whom it may concern:*

Be it known that I, OLIVER P. SANDERS, of Terre Haute, in the county of Vigo and State of Indiana, have invented certain new and useful Improvements in Car-Motors; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form part of this specification, in which—

Figure 1 represents a sectional elevation of a street-car having my improved motive device applied. Fig. 2 is a detail sectional view of the carburetor.

This invention relates to improvements in street-car motors; and it has for its objects to provide a car-motor in which a gas-engine is employed to drive the car-wheels, and which engine is supplied with gas from a carburetor located on the car and supplied with air from a blower driven from the engine.

To these ends the invention consists in the novel arrangement and peculiar construction of parts of the motive-power devices, herein after described, illustrated in the drawings, and particularly pointed out in the claims hereto appended.

Referring to the drawings by letter, A designates the street-car or other light tram-car, mounted upon the usual axles, B, and wheels *b*, in the ordinary manner. Upon one axle B is mounted, near one of its wheels *b*, a friction-wheel, C. This friction-wheel C is adapted to be engaged by a similar wheel, D, mounted upon a movable lever, *d*, above wheel C, or mounted in movable bearings and adapted to be moved forward by lever *d*, so as to come in contact with wheel C, as is evident. The lever *d* is preferably provided with proper retaining devices (not shown in the drawings) for holding the wheel engaged or disengaged.

*e* designates a shaft preferably journaled above axle B, bearing wheel C, and having splined upon it a friction-wheel, E, adapted to be engaged by wheel D through lever *d* simultaneously with the engagement of said wheel and wheel C.

F designates a driving-pulley fixed on shaft *e*, and by which said shaft is rotated, said pulley being drawn by means of a belt, *f*, from pulley *g* of a proper gas-engine, G, located to the inside of the car from said shaft *e*.

If desired, cog-wheels may be substituted for the friction-wheels C, D, and E, so that the motive power may be applied more directly and with less loss to the car-axle to drive the same, and in some instances I propose employing belt-  
ing between the wheels C and E and employ wheel D as a tension-wheel therefor. My principal object is to effect the transmission of power from engine G direct to car-axes. This gas-engine G may be of any well-known construction powerful enough to drive the car, and has besides the driving-pulley *g* another smaller pulley, H, which drives by means of a belt, *h*, the fan of a blower, I, suitably located in the car. The blower I connects by means of a pipe, *i*, with the carburetor-vessel K, as shown, so that the air from the blower can be forced through pipe *i* into the carburetor, the force of the current of air passing through pipe *i*, or its quantity, is regulated by means of the automatic valve J, of proper construction.

The carburetor K is preferably constructed as follows:

K designates the outer casing of the carburetor. This casing is preferably cylindrical and stands vertically or on one end, as shown.

L designates a horizontal partition arranged within said casing and at a point about one-third or more of its height from the bottom, dividing the interior of casing K into an upper compartment, M, and a lower compartment, *l*, as shown.

N designates a vertical pipe opening into compartment *l* from chamber M and extending nearly to the top of the latter.

O designates a convolute bend or coiled partition arranged in chamber *l*, so that air entering said chamber at one side from pipe *i* is compelled to take a tortuous convolute course through said chamber until it reaches the center thereof, when it rises through pipe N into chamber M.

*p* designates an inverted conical opening made in partition L to one side of pipe N. This opening is closed by means of the conical valve P, as shown. The valve P is mounted on the arm *q* of a float, Q, which arm *q* is pivoted to the outside of the valve P on a depending lug, *o*, and extends forward to the center of the chamber *l*, the convolutions of partition O being suitably cut away to permit the passage



of the arm and also its free vertical play, as shown. At the center of the chamber *l* arm *g* is secured to a suitable float, *Q*, as shown and hereinafter referred to.

5 The operation of the carburetor and manner of using it are as follows: Gasoline or other suitable hydrocarbon fluid is supplied to chamber *M* through a suitable supply pipe or nipple until the same nearly reaches the top of pipe  
10 *N*, but must not be filled so much as to drip therethrough through pipe *N*. The oil passes through the opening *p* into chamber *l* until it has about filled said chamber, when float *Q* rises and causes valve *P* to close opening *p* and stop  
15 the supply of oil. The air traversing chamber *l* becomes enriched by the oil therein, forming a gas, which rises through pipe *N* into chamber *M* above the oil therein, and thence escapes through a pipe, *R*, to a gas bag or governor, *r*, from which it is supplied through a  
20 pipe, *S*, to the engine. When the oil in chamber *l* falls below a proper level, the valve *P* is opened by the dropping of float *Q* until sufficient oil has entered said chamber to raise the  
25 float.

It will be observed that I have a complete apparatus for generating gas arranged upon the car, and the manner of operating the device is as follows: The engine *G*, being started,  
30 drives friction-wheel *E*, as described, (when friction-wheels are employed,) and when it is desired to start the car the operator grasps lever *d* and moves it forward, thereby moving friction-wheel *D* and bringing it into contact  
35 with wheel *E* and with wheel *C* upon the car-axle. The power of wheel *E* is transmitted by friction through wheels *D* and *C* to the car-axle, turning the latter and moving the car. In order to give more traction to the car-  
40 wheels, I employ the sprocket-wheels *W W*, mounted upon the opposite axles, and the sprocket-chain *w*, as shown, on said wheels, so that when motion is imparted to the axle-bearing wheel *C*, as described, it will impart  
45 a similar movement to the opposite axle through the sprocket-chain, as is evident, thus

increasing the amount of traction of the car-wheels upon the track.

In order to provide for running the cars in either direction, I employ friction-wheels *T* and  
50 *U*. The wheel *T* and wheel *U* are secured on a lever, *u*, on the opposite side of the axle from lever *d*. In some cases I may dispense with wheel *T* and use only the wheel *U*, which can be so arranged as to engage the wheels *C*  
55 and *E* on the side opposite wheel *D*, as is evident. Cogs or belted wheels may be employed in place of friction-wheels *T* and *U*, and operated in the manner described when they are employed in place of friction wheels *C*, *D*,  
60 and *E*.

Having described my invention, what I claim is—

1. The combination of the gas-engine mounted upon a car, the carburetor secured  
65 below and to the bottom of the car, and the blower driven from the engine, and the connecting pipes between said blower and carburetor and between the latter and engine, with the transverse shaft *e*, driven from said  
70 engine, the friction-wheels and adjusting-levers for transmitting motion to one car axle from shaft *e*, and the sprocket chain and wheels for transmitting motion from one axle to the other, all constructed and arranged sub-  
75 stantially as specified.

2. The combination of the engine *G*, blower *I*, and shaft *e*, driven from said engine, and the carburetor *K*, secured below the car-floor, and the pipes *i*, *R*, and *s* and gas governor *r*, with  
80 the friction-wheels on shaft *e* and one car-axle, the intermediate adjustable friction-wheels and their actuating-levers, and the sprocket-wheels on the car-axes, and connecting-chain, all substantially as specified.  
85

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

OLIVER P. SANDERS.

Witnesses:

W. L. MOTT,  
H. J. STANDTE.