(No Model.) 3 Sheets—Sheet 1.

L. C. PRESSLEY.

AUTOMATIC AIR SUPPLY FOR PROPELLING CARS.

No. 383,826. Patented May 29, 1888.

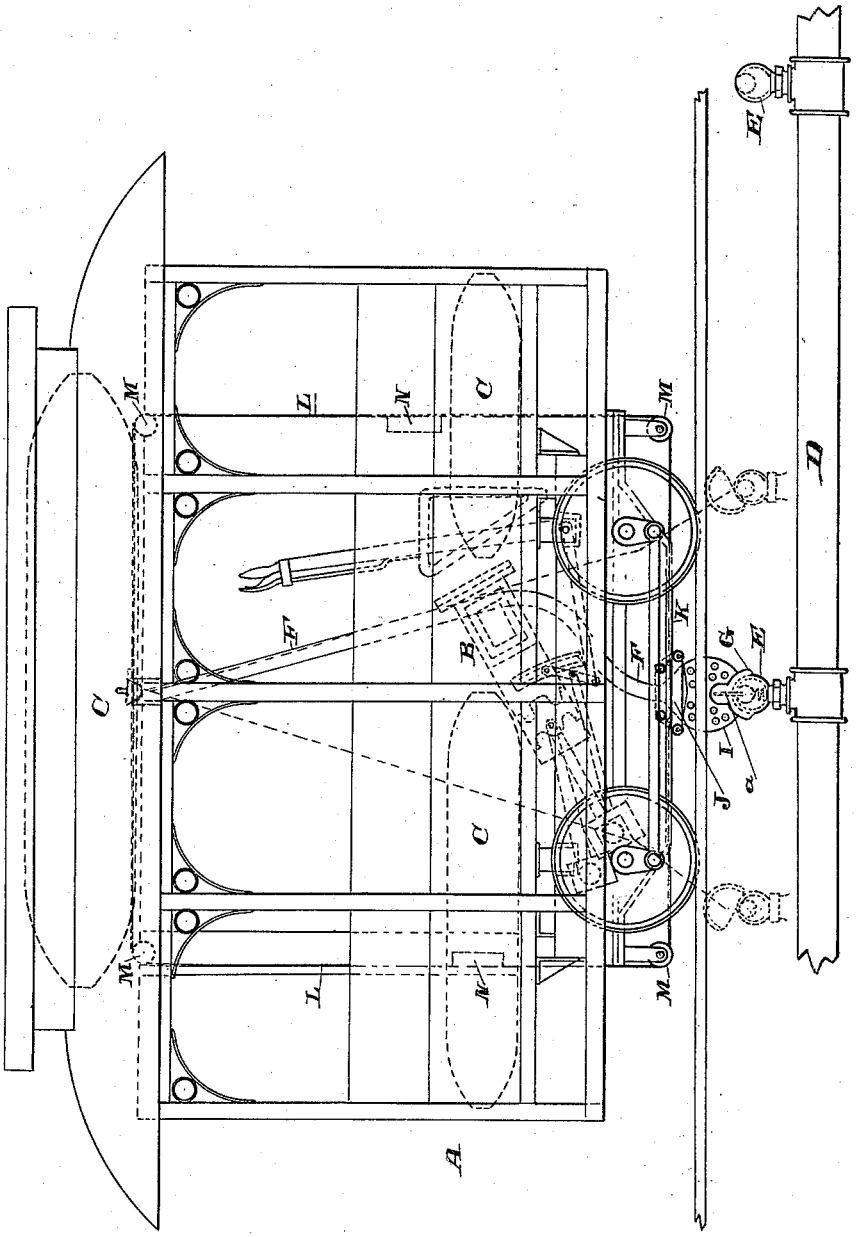

Fig. 1.

Witnesses,
Geo. H. Strong.
P. L. Wurst.

Inventor,
L. C. Pressley.
By Dewey & Co.
attys

(No Model.) 3 Sheets—Sheet 2.

L. C. PRESSLEY.

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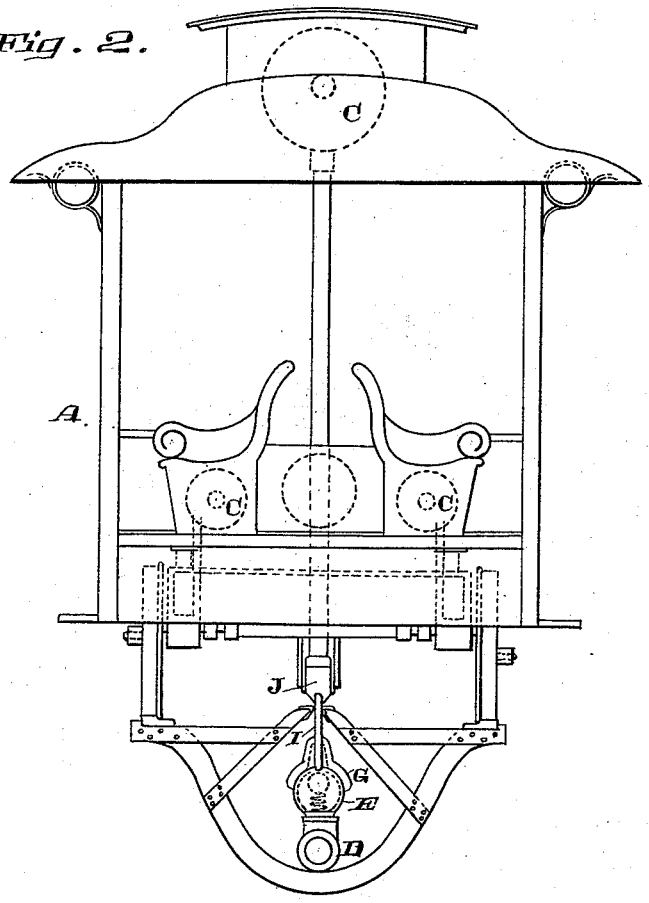
Fig. 2.



Witnesses,
Geo. H. Strong.
J. L. Bonnell.

Inventor,
L. C. Pressley.
By Dewey & Co.
attys

(No Model.) 3 Sheets—Sheet 3.

L. C. PRESSLEY.

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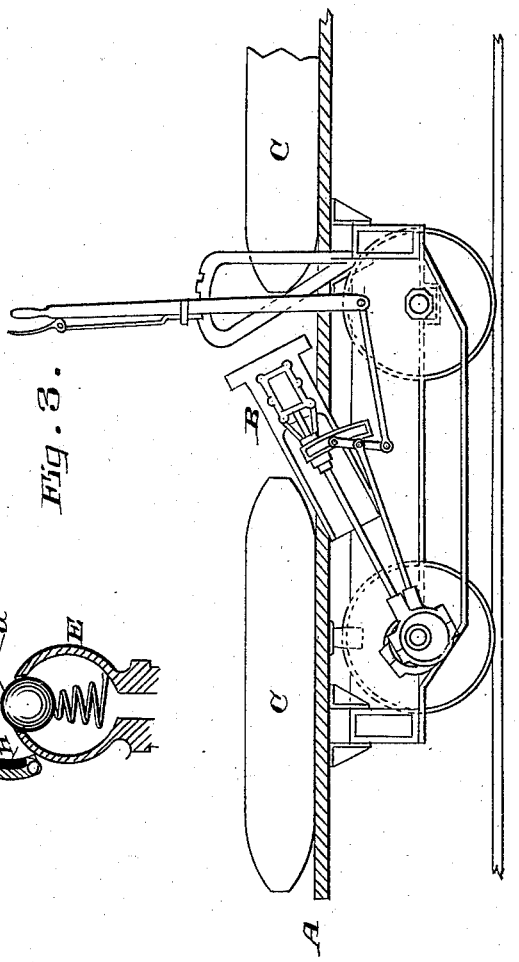
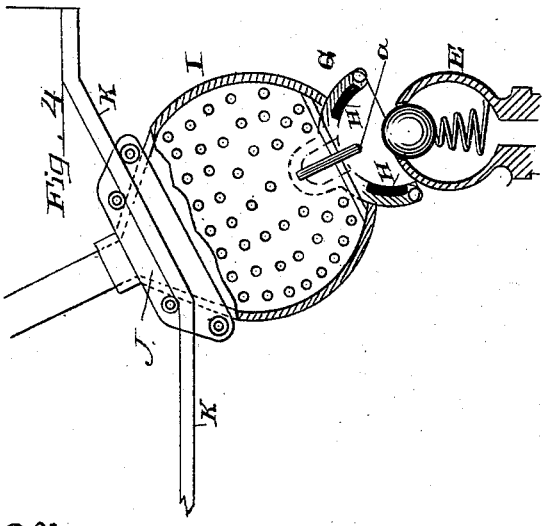


Fig. 3.



Witnesses,
Geo. H. Strong.
J. B. Howard.

Inventor,
L. C. Pressley,
By Dewey & Co.
attys

UNITED STATES PATENT OFFICE.

LEONIDAS C. PRESSLEY, OF SAN FRANCISCO, CALIFORNIA, ASSIGNOR TO THE AUTOMATIC CONNECTION COMPRESSED AIR CAR MOTOR COMPANY, OF SAME PLACE.

AUTOMATIC AIR-SUPPLY FOR PROPELLING CARS.

SPECIFICATION forming part of Letters Patent No. 383,826, dated May 29, 1888.

Application filed July 21, 1887. Serial No. 244,951. (No model.)

To all whom it may concern:

Be it known that I, LEONIDAS C. PRESSLEY, of the city and county of San Francisco, State of California, have invented an Improvement in Propelling Cars by Compressed Air; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to a means for propelling cars upon street or other railways.

It consists of a tube extending along the line of the track, preferably between the rails, this tube being connected with an air-compressing apparatus, so that it may be kept full of air at any desired pressure. At intervals along the tube are small valves, which may be opened by the approaching car, and the car is provided with a receiver and with a flexible hose and connecting bell-mouthed nozzle or joint, which engages with and opens the valve of the street-tube, so that a portion of the compressed air will be admitted to the receiver on the car, and from this may be applied to drive the engine, as will be more fully explained by reference to the accompanying drawings, in which—

Figure 1 is a side elevation of the car, showing its construction, and a section of the tube, showing the manner in which the valves operate and the air is taken from them. Fig. 2 is an end view showing the receiver, the car, and the manner of transferring the air into it. Fig. 3 is a section showing the driving mechanism. Fig. 4 is a section of the valve and nozzle.

A is the car, having any suitable engine, B, by which it is driven, and a receiver, C, for compressed air, which is to be admitted to it at stated intervals from the tube D, which extends along the street. This tube is connected with a compressing apparatus at some station or stations at various points along the route, so that a supply of compressed air may be kept in it at all times at such a pressure as may be found most desirable.

At various points along the tube, and at such intervals as may be determined by the necessities of the engine or the load to be drawn, are valves E, which are fitted into openings from which air may be allowed to pass whenever these valves are open. The valves may be of any suitable or desirable description. In Fig. 1 I have shown them in the form of puppet-valves, opening inwardly and closing outwardly, being kept to their seats also by spiral springs.

The valve-seat is preferably a small semi-globular projection rising a short distance above the level of the tube, so as to be readily engaged by the device upon the car by which the air is to be taken from the tube and transferred to the car-reservoir.

In Fig. 1 I have shown this device as being composed of a flexible tube, F, having a bell-mouthed or semi-globular nozzle, G, which will fit air-tight upon the semi-globular projection on the tube containing the valves E. Within the nozzle G and surrounding its lower periphery is an elastic rubber ring or gasket, H, which serves to make a perfect fit upon the exterior of the valve seats, and by its thickness and elasticity allows for irregularity of pressure.

As the stationary tube D is beneath the roadway in the tunnel and the connecting bell-mouth is also within the tunnel, I have shown a large flat hollow disk, I, the sides of which are connected by a number of stay-bolts to prevent their being spread by internal pressure or crushed from the outside. This disk is thin enough to pass up through the narrow slot in the roadway and forms the connection between the bell-mouthed nozzle and the lower end of the flexible tube through which air is conveyed to the reservoir.

At the point where the tube joins the disk is a frame or plate, J, with anti-friction rollers journaled to it, so as to travel upon the guides K, which are fixed beneath the car parallel with the track and tube. The ends of these guides are inclined, as shown, so that when the bell-mouthed nozzle is moved to the front end the guide-rollers moving up this incline will so incline the opening of the bell-mouth that it will be in readiness to engage and fit over each of the globular valve-seats when it reaches them. The pin or projection *a* within the bell-mouth then presses upon the valve and opens it, and as the car moves forward the bell-mouth remains in connection with the opening until it has traveled to the rear end of the guides, when it is turned backward by

the rollers moving up the rear incline of the guides, and is thus disengaged from the valve-seat, the valve being allowed to close at the same instant. The flexible tube is of sufficient length to allow of this movement of the nozzle and keeps up a constant communication, thus allowing air to flow through the flexible tube all the time while the connection is kept open, and this will be sufficient to fill the car-reservoir.

In order to return the end of the traveling flexible tube and bell-mouth after it has reached the end of the guides, it is connected with a rope or cord, L, passing around pulleys M, and having a weight or spring, N, so arranged that when the traveling connecting end of the flexible tube or bell-mouth has reached the end of its travel and has been detached from the air-supply tube the weight or spring will return it to the end of the guides nearest the front, ready to be again connected with the air-supply tube. The shape of the connecting-couplings is such that they engage automatically when the car has reached the point which will bring the coupling or bell-mouth upon the flexible tube into contact with the globular one upon the stationary air-supply tube, and this end of the flexible tube moves on the guides to the end of its travel, as before stated.

By this construction it will be seen that simultaneously with the connection which is made between the flexible tube and the track-tube a connection will be made between the upper part of the flexible tube and the car-reservoir, and by this means the latter will be filled with air, a check-valve at any desired point preventing its return. The next station may be situated any suitable or desired distance away—as one hundred or two hundred feet—and the same operation will be carried on at this point. The joint is kept tight and the connection made perfect by the pressure and close fit of the nozzle on the end of the flexible tube on the projecting valve-seat upon the stationary or street tube, this pressure being maintained by reason of the horizontal guides, between which the slides or rollers connected with the nozzle on the end of the flexible tube travel.

Any suitable form of engine may be employed to apply the power of the compressed air, so as to drive the car along the track. In the present case I have indicated the ordinary oscillating engine.

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

1. The reservoir carried upon the traveling car, having the flexible tube, with one end opening into the reservoir and the other provided with a bell-mouthed nozzle, which will connect with corresponding valve-seats, and valves upon a tube fixed under ground and parallel with the line of rails, in combination with horizontal guides upon the car, and slides or rollers, whereby the nozzle at the end of the flexible tube is held in position and caused to travel from end to end of the guides while connection is made with the fixed street-tube, substantially as herein described.

2. The car provided with an air-reservoir, a flexible tube having one end connected with said reservoir and the other traveling upon horizontal guides beneath the car and provided with a bell-mouthed nozzle, by which connection is made with the corresponding valve-seats in a compressed-air pipe beneath the street, so that when such connection is made a valve will be opened to allow air to pass into the reservoir, in combination with a spring or weighted cord connected with the movable end of the air-pipe, so as to return it to the front end of the guides after connection has been broken with the street-pipe, substantially as herein described.

3. The underground tube or tunnel parallel with and between the rails and having an open slot in the top, a compressed-air pipe supported within the tube and having semi-globular projecting valve-chambers at intervals with inwardly-opening valves, in combination with a bell-mouthed nozzle fitting over the valve-seats, and a flat hollow disk extending up through the tube-slot, so as to form a connection with the lower end of a flexible tube connecting with a reservoir upon the car, substantially as herein described.

4. The bell-mouthed nozzles fitting the correspondingly-shaped valve-seats upon the air-pipe and the flexible conveying-tube with which they are connected, in combination with the traveling slides or rollers fixed to the lower end of the flexible pipe, and the guides upon which these rollers travel fixed to the car and having the ends inclined, substantially as herein described.

In witness whereof I have hereunto set my hand.

LEONIDAS C. PRESSLEY.

Witnesses:
S. H. NOURSE,
H. C. LEE.