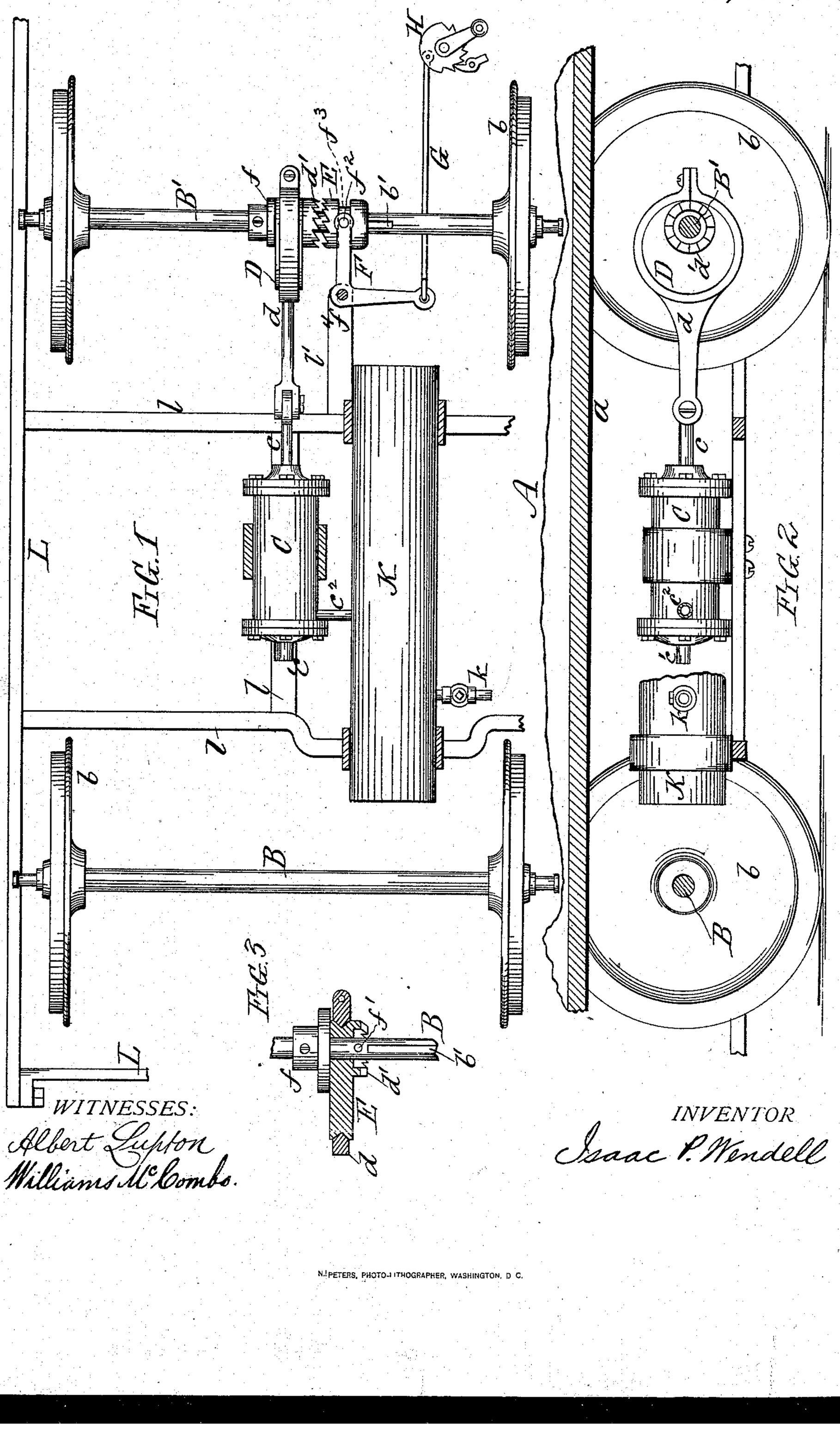
(No Model.)

I. P. WENDELL.

Atmospheric Compressor for Street Cars.

No. 237,424. Patented Feb. 8, 1881.



WITNESSES:

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ATMOSPHERIC COMPRESSOR FOR STREET-CARS.

SPECIFICATION forming part of Letters Patent No. 237,424, dated February 8, 1881.

Application filed June 21, 1880. (No model.)

To all whom it may concern:

Be it known that I, ISAAC P. WENDELL, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Atmospheric Compressors for Street-Railway Cars, of which the following is a specification, reference being had to the accompanying drawings, wherein—

Figure 1 is a plan of my invention. Fig. 2 is a longitudinal vertical section, and Fig. 3 is a detail section.

My invention has for its object to utilize the momentum of a street-railway car to operate air-pumps to compress and store up air in a reservoir or tank for use as a motive power, to actuate car-starting and brake mechanisms.

My invention accordingly consists in providing a car-body with an air-pressure tank and an air-pump the operating devices of which are connected to the car-axle and provided with a clutch, or other equivalent device, whereby said pumping mechanisms are at will set in motion by the revolution of the car-axle, moving under the influence of the momentum of the car, and stopped, when desired, by the disengagement of the clutch, and that without interfering with the movement of the car, said parts being so arranged that the periods of the operation of the pump or pumps are placed under the control of the driver or other attendant of the car. Said pumps being operated by the momentum of the car—as, for instance, when the car is traveling on a downgrade—the driver, instead of applying the brakes to retard the movement of the car to prevent it crowding the horses, operates the clutch mechanism to cause the clutch to engage with the pumping devices, whereupon the pump is set in motion and continues in operation while the car is moving on the downgrade. As soon as it has reached the end of the same the clutch is disengaged and the pump ceases working, and so remains until the advent of the next downgrade or previous to the arrival at such grade. If it is desired to stop the car for egress or ingress of passengers, the clutch mechanism is operated, as described, to engage with the pumping devices as soon as the driver slackens the speed of the horses, whereupon the momentum of the car operates the pump until the car comes to a state of rest, when the clutch is then thrown out of engagement and the car is free to be started, as usual. It will thus be seen that no additional labor is imposed upon the horses to furnish the necessary power to operate the air-pump, such operation being accomplished by the momentum of a car traveling on a downgrade, or that exerted between the slackening of the horses and the stopping of the car.

Referring to the accompanying drawings, which illustrate mechanism for carrying my invention into effect, A represents a portion of the car-body, B B′ the axles, and *b b* the wheels thereof.

C is an air pump or compressor, its piston-rod *c* connecting to the eccentric-strap *d* of the eccentric D, which is loosely secured to one of the axles, B′, so as not to revolve therewith, except when caused to do so by the engagement of the clutch E. Said eccentric is held in position on said axle by means of a collar, *f*, impinging against one of its sides, and by a pin, *f′*, on its opposite side, as more plainly shown in Fig. 3; or any other suitable holding devices may be employed. Said eccentric is provided with, or has formed integral therewith, a clutch-face, *d′*. The clutch E is provided with a spline or feather, which enters a longitudinal slot or recess, *b′*, in axle B′, so that as said axle revolves the clutch will rotate therewith.

F is the clutch-operating lever having a forked extremity with rounded ends f^2, which enter an annular recess, f^3, in said clutch, and is pivoted at f^4 to a bracket, *l′*, or at any other suitable position on the frame L. Said lever is provided with rod G, as shown, which is secured to a ratchet-wheel, H, designed to be manipulated by the driver of the car.

K is a tank for holding the accumulated compressed air from the pump, and is provided with a suitable outlet-cock, *k*.

The pump C is furnished with valved induction and eduction ports c' c^2, of the ordinary or other suitable construction, the port c^2 leading to tank K. Said tank and pump are supported on cross-bars *l l* of frame L, which is secured in any appropriate manner to the car-axle boxes, whereby said parts will be secured in

line with the axles and not be subjected to the strains, &c., resulting from the vibratory movement of the car-body.

The operation is obvious. When the pump is not in operation the eccentric rests upon axle B′, offering no interference with the free rotation of said axle. When the car is moving on a downgrade, or when about to be stopped, the clutch E is moved into engagement with the clutch-face on the eccentric D, thereby causing the latter to revolve with the axle to operate the piston of pump C, to compress air and store it up in the reservoir K. As soon as the momentum of the car is exhausted, the clutch is disengaged from the pumping mechanism and the pump stops working.

The compressed air in the tank K may, from time to time, be used as desired for a motive power to operate starting mechanism attached to the car, or it may be employed to operate the brakes, or for other like purposes; but with my present invention the brakes need not be applied to stop the car in ordinary cases, such result being performed by the operation of the pump after the horses cease pulling, thereby relieving the car-wheels of the wear and tear due to incessant braking.

It is obvious that the details of my invention may be greatly varied within the spirit of my invention, and, instead of the interlocking clutch shown, a friction-clutch may be substituted therefor; or, if desired, the clutch may be dispensed with and gearing substituted therefor. So, too, if desired, two or more pumps may be used.

What I claim as my invention is—

In combination with a street-railway car, an air-reservoir, K, air-pump C, and operating devices, substantially as shown and described, interposed between said pump and one of the axles of the car, and actuated and controlled by a clutch mechanism, E, to cause said pump to be operated at suitable intervals by the momentum of a moving car-body, as set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 18th day of June, A. D. 1880.

ISAAC P. WENDELL.

Witnesses:

BENJ. F. TELLER,

JAMES ROBERTS.