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W. A. COLLINS & W. WESTBROOK.
AIR PUMP FOR STREET CARS AND ANALOGOUS PURPOSES.

APPLICATION FILED OCT. 29, 1907.

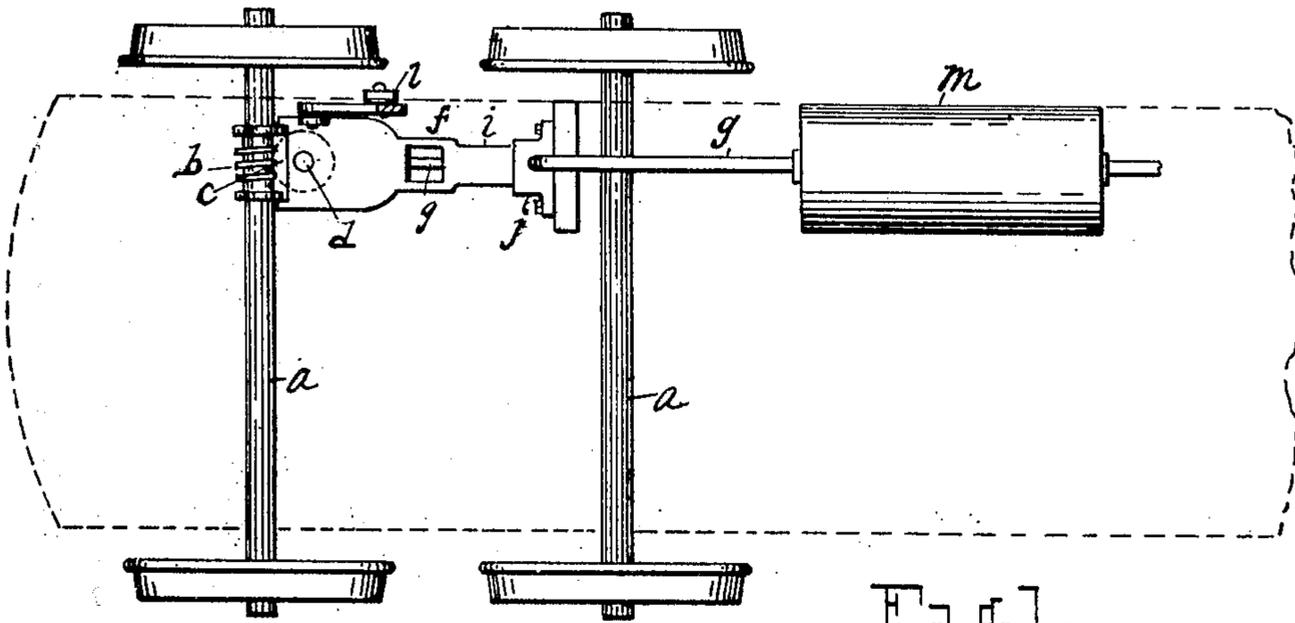


Fig. 1.

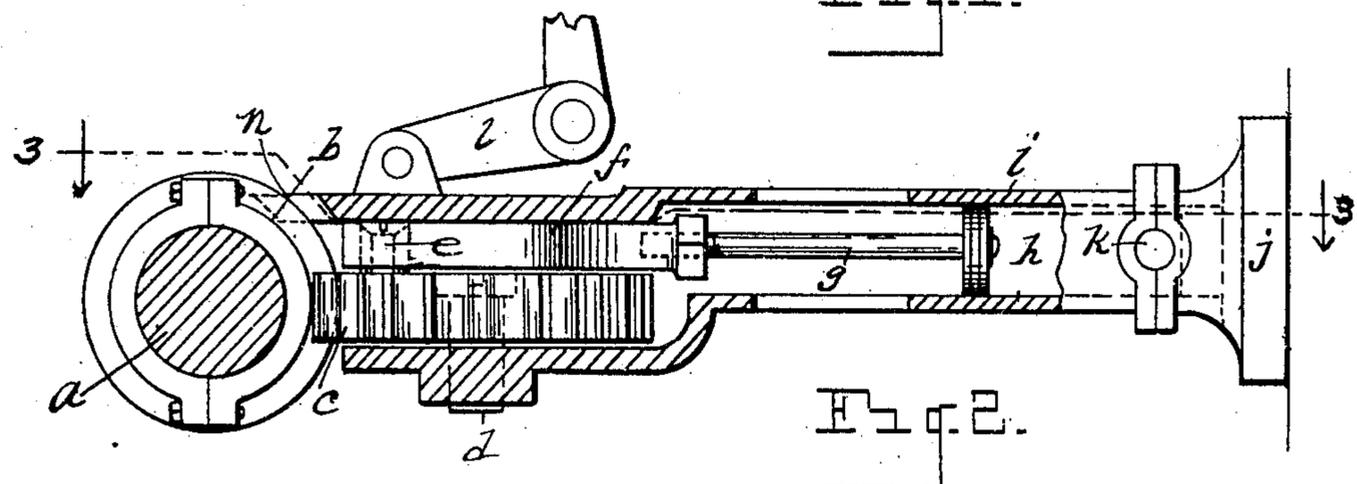


Fig. 2.

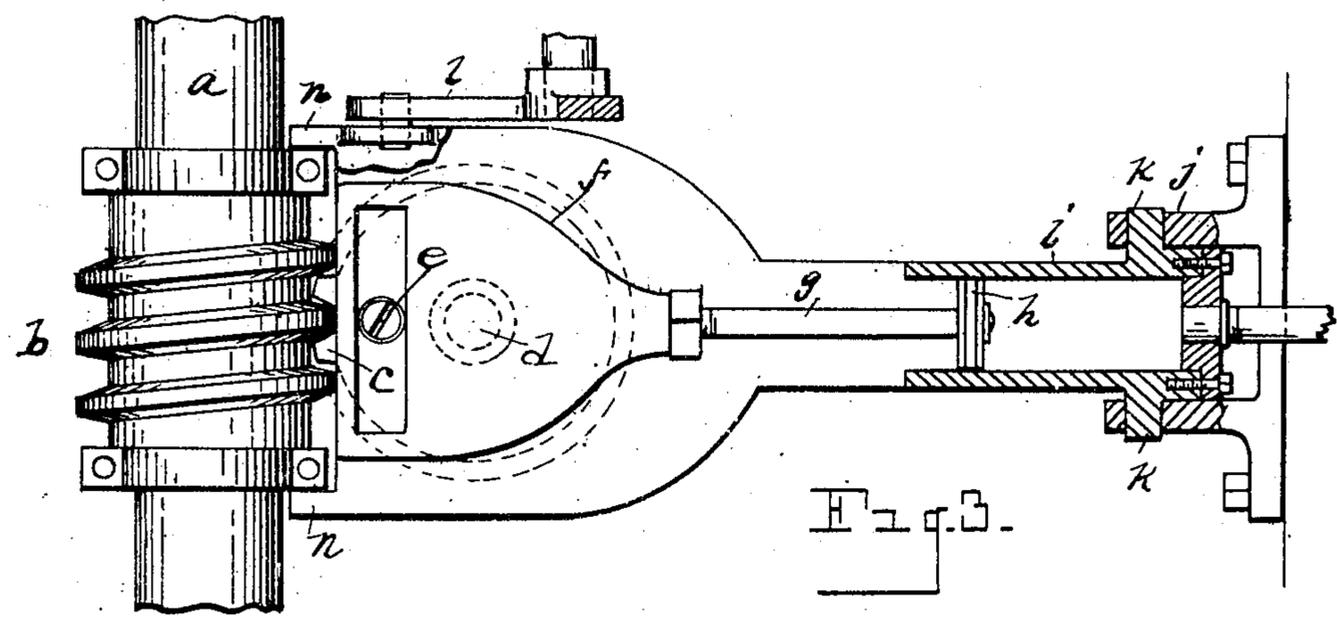


Fig. 3.

Witnesses
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UNITED STATES PATENT OFFICE.

WILLIAM A. COLLINS AND WILLIAM WESTBROOK, OF DETROIT, MICHIGAN.

AIR-PUMP FOR STREET-CARS AND ANALOGOUS PURPOSES.

No. 885,440.

Specification of Letters Patent.

Patented April 21, 1908.

Application filed October 29, 1907. Serial No. 399,708.

To all whom it may concern:

Be it known that we, WILLIAM A. COLLINS and WILLIAM WESTBROOK, citizens of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in an Air-Pump for Street-Cars and Analogous Purposes, of which the following is a specification.

Our invention is designed to provide an improved air pump for street cars and analogous purposes, and it consists of the construction, combination and arrangement of devices hereinafter described and claimed and illustrated in the accompanying drawings, in which,

Figure 1 is a diagrammatic view showing the pump applied to the axle of a car. Fig. 2 is a longitudinal section. Fig. 3 is a section on the line 3—3, Fig. 2.

Our invention is designed and adapted to provide a pump actuated from an axle in rotation.

We carry out our invention as follows: An axle is indicated at *a*, the same being provided with a worm *b*, the worm being preferably made in two parts as indicated more particularly in Fig. 2, secured to the axle. With the worm meshes a gear *c* upon a shaft *d* provided with a pin or other connection *e* eccentrically engaged upon the gear. With said pin is connected a reciprocatory head *f* connected with a piston rod *g* of a piston *h* working in a cylinder *i*, said cylinder being provided with any suitable means of attachment as a bracket indicated at *j*, to secure the cylinder in any suitable position on a car.

It will be observed that as the axle rotates, the worm meshing with the gear *c* will cause the gear to be rotated upon its axis *d*, the head *f*, through its eccentric connection with the gear, being reciprocatory to actuate the piston *h* in the cylinder *i*.

It will be observed that the device is simple in its construction and operation.

A cylinder *i* is journaled in the bracket *j* as indicated at *k*, so that the mechanism actuated by the worm *b* may be swung out of active position, which may be accomplished in any suitable manner, as by the lever *l*. The cylinder *i* is carried forward toward the axle to form an inclosing case for the gear *c* and head *f* with relative parts. The lever mechanism *l* is actuated with said case, as shown. By means of said lever, the said case, with its inclosed parts may be swung out of active

engagement with the worm upon the journals *k*. This may be done whenever the air pressure is sufficient in a reservoir *m* communicating with the cylinder. The case of the machine is preferably carried forward toward the worm, the same projecting over the extremities of the worm as indicated at *n* to hold the case from moving longitudinally of the axle.

What we claim as our invention is:

1. An air pump comprising an axle, a worm mounted thereupon, a gear meshing with the worm, a reciprocatory head eccentrically connected with the gear, an oscillatory piston cylinder and a piston actuated by the reciprocation of said head, said cylinder forming an inclosing case for said gear and said head.

2. An air pump comprising an axle, a worm engaged upon the axle, a gear meshing with the worm, a piston cylinder, and a reciprocatory piston within the cylinder actuated by the rotation of the gear, said cylinder forming an inclosing case for said gear and said head, and projecting over the extremities of the worm to hold the case from moving longitudinally of the axle.

3. An air pump comprising an axle, a worm mounted thereupon, a gear meshing with the worm, a reciprocatory head eccentrically connected with the gear, an oscillatory piston cylinder, and a piston actuated by the reciprocation of said head, said cylinder carried forward to form an inclosing case for the gear and head and provided with projecting shoulders on each side of the worm to hold the case from moving longitudinally of the axle, said gear movable into and out of engagement with said worm.

4. The combination with an axle of a worm mounted thereupon, a gear meshing with the worm, a reciprocatory head eccentrically connected with the gear, a piston cylinder, and a piston actuated by the reciprocation of said head, said cylinder having a jointed engagement with a suitable support at one extremity thereof, and means to throw the gear out of engagement with the worm.

In testimony whereof we have signed this specification in presence of two witnesses.

WILLIAM A. COLLINS.
WILLIAM WESTBROOK.

Witnesses:

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