

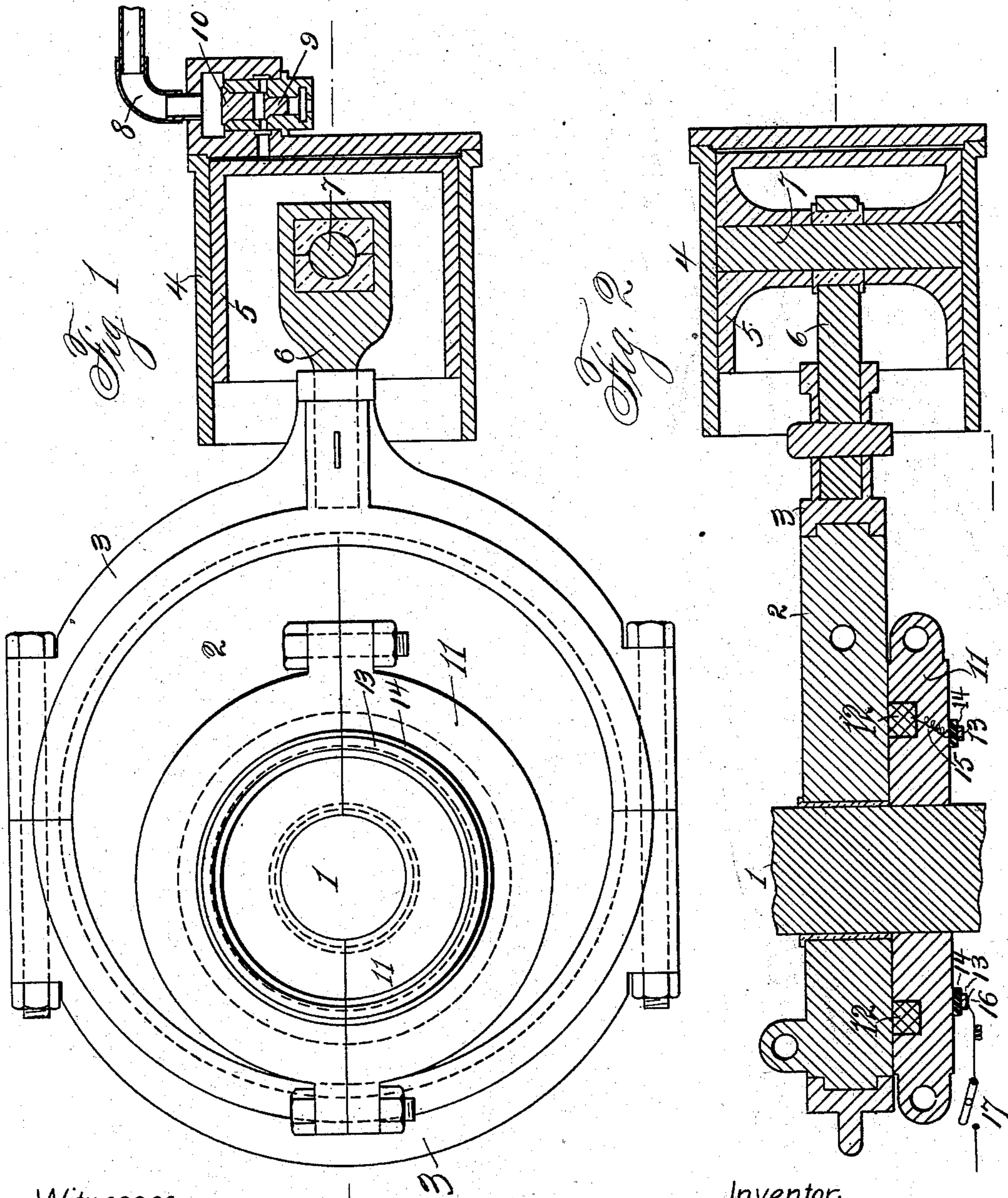
No. 712,508.

Patented Nov. 4, 1902.

B. J. DENMAN.
AIR COMPRESSOR FOR AIR BRAKES.

(Application filed Nov. 7, 1901.)

(No Model.)



Witnesses:

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By his Atty. Howard Hall

UNITED STATES PATENT OFFICE.

BURT J. DENMAN, OF TOLEDO, OHIO, ASSIGNOR TO JOHN R. B. RANSOM,
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AIR-COMPRESSOR FOR AIR-BRAKES.

SPECIFICATION forming part of Letters Patent No. 712,508, dated November 4, 1902.

Application filed November 7, 1901. Serial No. 81,384. (No model.)

To all whom it may concern:

Be it known that I, BURT J. DENMAN, a citizen of the United States, residing at Toledo, in the county of Lucas and State of Ohio, have invented certain new and useful Improvements in Air-Compressors for Air-Brakes; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to an air-compressor for air-brakes; and its object is to provide an apparatus in which the momentum of a car, such as an electrically-propelled street-car, shall furnish the energy for compressing the air and in which the air-compressing devices shall be thrown into and out of gear and controlled by electricity.

The further object of my invention is to provide an apparatus which shall be cheap, simple, and durable and which shall be controllable by the mere touch of the operator.

I attain these objects by means of the devices and arrangement of parts hereinafter described and shown, and illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of my device, showing the air-compressor cylinder, the piston, and the air-valves in central vertical section; and Fig. 2, a horizontal sectional plan view taken on line *xx*, Fig. 1.

Like numerals of reference indicate like parts in both views.

In the drawings, 1 is a car-axle, upon which runs loosely a cam 2, having a cam-strap 3.

4 is an air-compressor cylinder suitably secured to the truck of the car and in which reciprocates a piston 5. The cylinder and piston are of the "trunk" type.

6 is a connecting-rod pivotally connected at one end with the wrist-pin 7 in the piston and connected at its other end with the cam-strap.

The working chamber of the air-cylinder is connected with an air-passage 8, in which is an induction-valve 9 and an eduction-valve

10. As will be seen from the drawings, the arrangement of these valves is such that with the suction-stroke of the compressor the induction-valve is automatically opened and that with the compression-stroke it is closed, while the eduction-valve is automatically closed during the suction-stroke and opened during the compression-stroke. The air-passage 8 leads to a receiver for the storage of compressed air, (not shown in the drawings,) where the compressed air is stored for use in actuating the brakes, as may be required.

Fixed upon the axle at the side of the cam is a soft-iron disk 11. In the side of this disk next to the cam is a deep concentric channel, in which is secured a coil of wire 12. On the opposite side of the disk 11 is secured a collecting-ring 13, insulated from the disk by insulating-ring 14 and electrically connected, as at 15, with the coil 12. 16 is a brush bearing upon the collecting-ring, which brush is electrically connected with a suitable source of electrical energy. The terminal of the coil is grounded through the wheel of the car and the track-rail. My device is also supplied with means (indicated at 17) disposed within convenient reach of the operator for opening and closing the circuit through the coil 12. In practice there is included in this circuit an automatic make-and-break device, which is controlled by the variations of air-pressure in the compressed-air-storage chamber.

The operation of my device is as follows: Assume that the car is in motion and that it is desired to supply compressed air for the operation of the brakes. The circuit through the coil 12 is closed by the operator, the disk 11 instantly becomes a powerful electromagnet, and the two adjoining faces of the cam and the disk are attracted to each other and closing together so closely that the cam revolves with the electromagnetic disk. The cam-strap and connecting-rod now communicate motion to the piston in the air-compressor and air is rapidly compressed for use as may be required. Upon breaking the circuit the magnetic disk lets go its hold upon the cam, which now ceases to revolve and stands idle until the circuit is again closed.

Having described my invention, what I

claim, and desire to secure by Letters Patent, is—

1. In an air-compressor, the combination of an axle, a cam loosely mounted upon said axle and provided with a cam-strap, a cylinder, a piston connected to said cam-strap, an electromagnetic disk fixed upon the axle and adapted for direct engagement with the loosely-mounted cam, and means for controlling the electric circuit in said disk to cause it to directly engage or disengage said cam.

2. In combination, an air-compressor, an axle, a cam loosely mounted upon the axle, a cam-strap in engagement with said cam and connected to the air-compressor, a disk fixedly mounted upon said axle contiguous to the loose cam, an electric coil carried by said disk, a collecting-ring mounted upon and insulated from the disk, connections between the collecting-ring and the coil, and a make-and-break device in circuit with said coil for controlling the electric circuit in said coil.

3. In an air-compressor for air-brakes, the combination of an axle, a cam loosely mounted upon the axle, a cam-strap in operative engagement with the loose cam, a cylinder pro-

vided with induction and eduction valves, a piston in said cylinder and connected to the cam-strap, an electromagnet fixedly mounted upon the same axle on which the cam is loosely sustained and means for energizing said electromagnet directly into operative engagement with the cam.

4. In an air-compressor, the combination of an axle, a cam loosely mounted upon said axle, a cylinder, a piston therein, and operative connections between the piston and loose cam, and means for clutching and unclutching said cam to and from the said shaft, said means comprising an electromagnetic disk fixed upon the axle contiguous to the loose cam and adapted for direct engagement therewith, an electric coil for said disk and a make-and-break device for controlling the circuit through said coil.

In testimony whereof I affix my signature in presence of two witnesses.

BURT J. DENMAN.

Witnesses:

M. D. MERRICK,
L. E. BROWN.