

(No Model.)

2 Sheets—Sheet 1.

L. J. GENETT.
AIR BRAKE MECHANISM.

No. 556,815.

Patented Mar. 24, 1896.

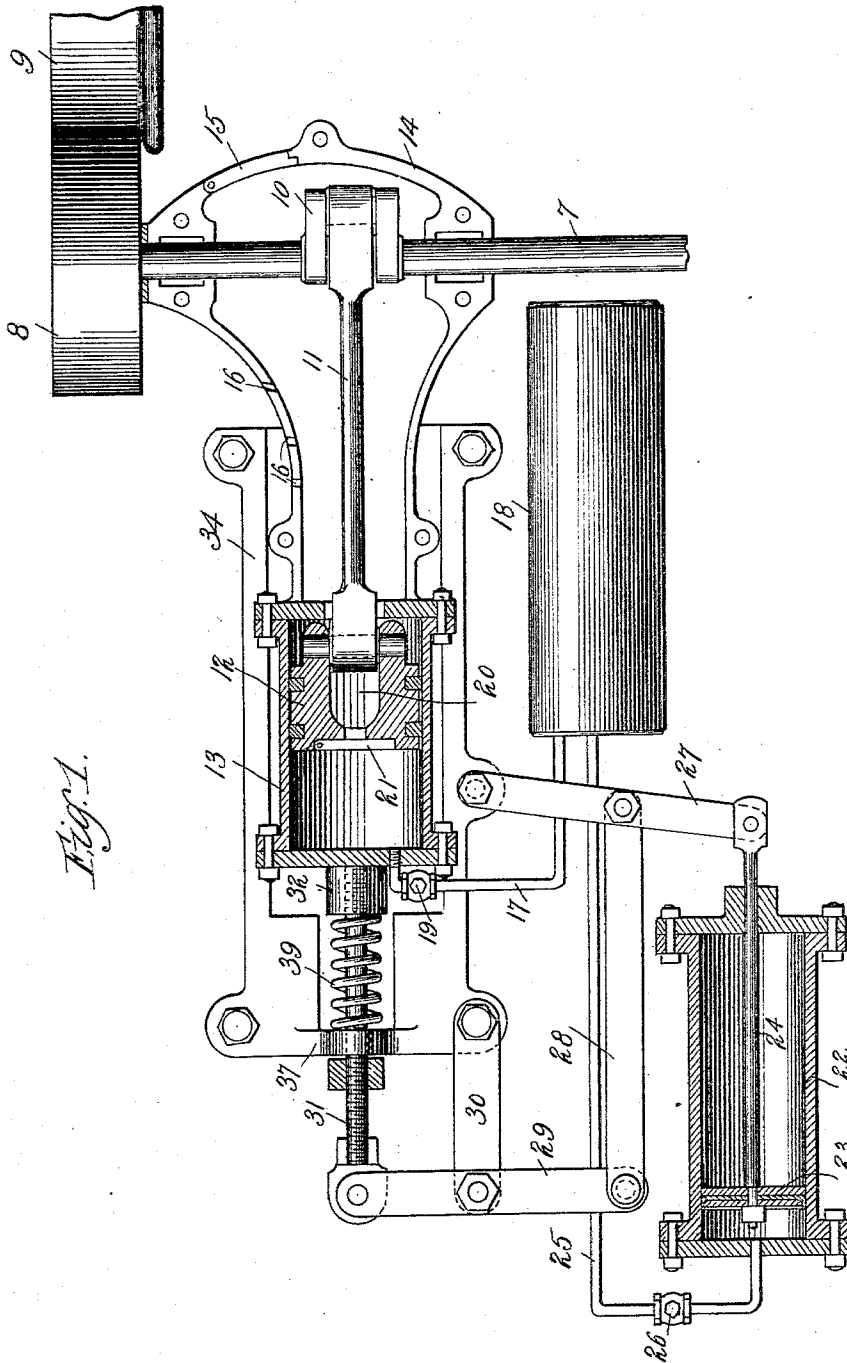


Fig. 1.

Witnesses.

Wm. M. Rheum.
L. A. Kalbach

Inventor
by Louis J. Genett
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Attys

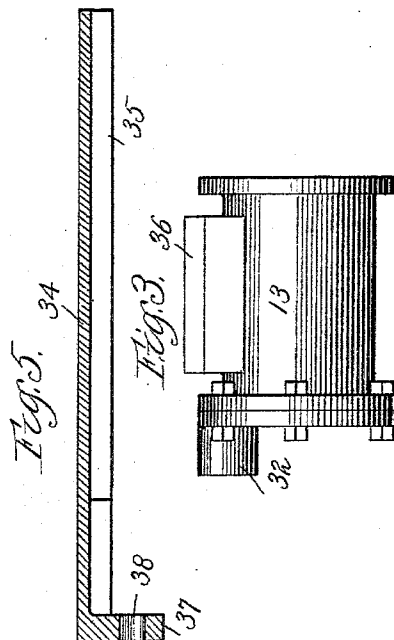
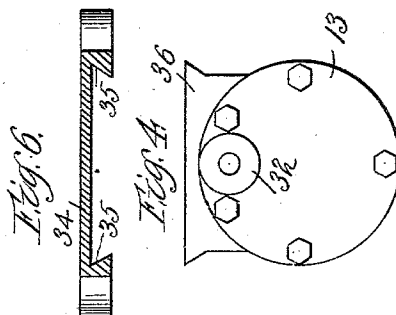
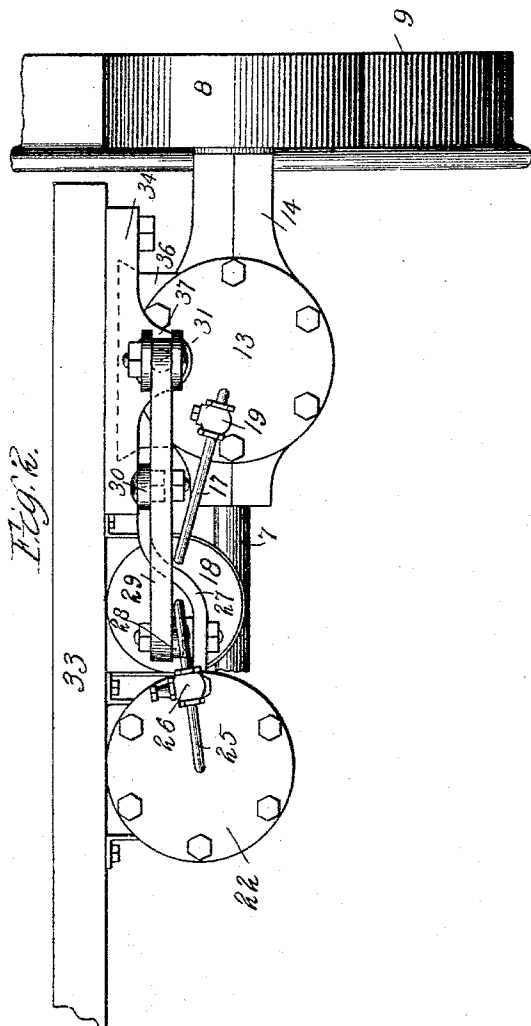
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Witnesses.

Mr. M. Rhein.
L. A. Kalbach

Inventor.
Louis J. Genett
by Brown & Leach Attys

UNITED STATES PATENT OFFICE.

LOUIS J. GENETT, OF CHICAGO, ILLINOIS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO GEORGE B. FREI, OF MARQUETTE, MICHIGAN.

AIR-BRAKE MECHANISM.

SPECIFICATION forming part of Letters Patent No. 556,815, dated March 24, 1896.

Application filed October 1, 1894. Serial No. 524,643. (No model.)

To all whom it may concern:

Be it known that I, LOUIS J. GENETT, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Air-Brake Mechanism, of which the following is a specification.

This invention relates to air-brake mechanism for street and other cars and for other purposes.

The object of the invention is to provide means for automatically maintaining a uniform quantity and pressure of the compressed air in the compression or storage tank, whatever may be the variation in the amount drawn off therefrom to actuate the brake mechanism.

The invention consists substantially in the novel construction, combination and relative location and arrangement of parts, all as will be more fully hereinafter described, as shown in the accompanying drawings, and finally specifically set forth in the appended claims.

Referring to the accompanying drawings and to the various views and reference-signs appearing thereon, Figure 1 is a view partially in bottom plan, one-half of the housing removed and partially in horizontal section, of an apparatus embodying my invention. Fig. 2 is an end elevation. Fig. 3 is a side view of the pump-cylinder detached. Fig. 4 is an end elevation of the same. Fig. 5 is a view in horizontal longitudinal section of the pump-cylinder supporting-plate. Fig. 6 is a transverse sectional view of the same.

The same reference-sign is used to designate the same part wherever it occurs throughout the drawings.

In carrying out my invention I provide a shaft 7 and journal the same in suitable and conveniently-arranged bearings, usually underneath the body of the car, and preferably adjacent to and parallel with one of the car-axes. Upon shaft 7 I mount a gear-wheel 8, adapted to engage a gear-wheel on the car-axle.

While I have shown gear 8 in the form of a friction-gear, and, as shown, it is arranged to bear against and receive motion from the wheel 9 of the car, and while on account of its simplicity and effectiveness I prefer this

arrangement, it will be obvious that any other form of gearing may be employed and they may be differently arranged upon their respective shafts, or gear 8 may be arranged to bear against and receive action directly from the car-axle, without departing from the spirit or scope of my invention.

Upon shaft 7 I provide a crank 10, engaged by and adapted to operate a piston-rod 11 loosely pivoted to a hollow piston 12 arranged to operate in a cylinder 13. The shaft 7 is preferably journaled in and is carried by a hollow casting 14, rigidly secured to the pump-cylinder in any suitable way, and is arranged to inclose the crank portion 10 of said shaft and also piston-rod 11. This casting may be provided with any suitably arranged or constructed valves 15, adapted to open and admit air thereto when piston 12 is moved in a direction away from shaft 7. In practice I may, instead of valves 15, drill a series of small openings 16 through the walls of the casting 14, through which the air may be drawn. By either arrangement I avoid drawing in with the air dust, dirt, or solid particles of grit, &c., which cause a rapid wear of the parts and, eventually, undesirable leakages.

Connected to the opposite end of cylinder 13 is an eduction-pipe 17 delivering into the storage or compression tank 18. A check-valve 19 may be provided in this pipe, of suitable construction, to prevent a backflow of the compressed air from tank 18. Piston 12 is centrally bored or perforated, as at 20, and the inner end of said bore is provided with a suitably-arranged outwardly-opening valve 21, permitting the air to be admitted from the hollow casting 14 to the cylinder 13, when the piston is moved to one end of said cylinder, but preventing it from returning thereto when the piston is moved in the opposite direction, and hence forcing the air through pipe 17 into tank 18.

The compressed air contained in tank or reservoir 18 is drawn off therefrom through any suitably-arranged pipe, (not shown,) and utilized to actuate the air-brake mechanism.

I will now describe the construction of my apparatus, whereby overpressure in the storage-tank is prevented, and whereby a uni-

form quantity of air and pressure is maintained in said tank.

Reference-sign 22 designates a cylinder in which is arranged a piston 23 having a piston-rod 24. A pipe 25 is arranged to communicate from tank 18 to one end of cylinder 23. I provide a check-valve 26 in pipe 25, of any suitable construction, which is adapted to be opened by the abnormal pressure in the reservoir 18. By this construction it will be seen that any excess of pressure in tank 18 above the normal or required pressure therein opens valve 26, and hence actuates piston 23 and moves the same toward the opposite end of cylinder 22. The end of piston-rod 24 is pivoted to one end of a lever 27, pivoted at its opposite end to a fixed support. A link 28 is pivotally connected at one end with lever 27, intermediate the ends of the latter, and at its opposite end to one end of a lever 29 pivotally supported intermediate its ends upon a pivoted stud or link 30.

To the opposite end of lever 29 is pivotally connected a rod 31 having a screw-threaded end adapted to be received in a threaded socket formed in a boss 32, suitably secured to or forming a part of pump-cylinder 13. Suitably bolted or otherwise secured to the bottom 33 of the car is a supporting plate or casting 34, provided with dovetail guideways 35. Cast with or suitably secured to cylinder 13 are lugs or projections 36, formed to correspond with and to be received in dovetail guideways 35. It will be seen from this construction that cylinder 13 is slidably supported in guide and supporting plate 34. A flange 37, formed on plate 34 is perforated, as at 38, to receive rod 31 therethrough. A spring 39, coiled upon rod 31 and interposed between flange 37 and on the boss 32 on pump-cylinder 13, serves to maintain the pump-cylinder, and hence shaft-supporting casting 14, normally in such a position that gears 8 and 9 will be in engagement with each other, and hence in a position to normally operate the air-pump.

The operation of my improved construction will be readily and easily understood from the foregoing description.

When an excess of pressure of the air is attained in tank 18, valve 26 is opened and the admission of the air to cylinder 22 causes piston 23 to move. Through the system of pivoted levers, as described, the pump-cylinder 13 and housing 14 carrying shaft 7 and gear 8 are moved in a direction away from the car-axle and gear 9, and hence the operation of the air-pump is arrested. The movement above described of the pump-cylinder and shaft-housing is against the action of spring 39, and when the pressure in auxiliary cylinder 22 is reduced by being exhausted to the outer air or otherwise returns the piston 23 and the pump-cylinder to their normal positions, and also causes gears 8 and 9 to engage each other, and hence also sets the pump into operation.

It will be obvious that many alterations and modifications would readily suggest themselves to persons skilled in the art and still fall within the spirit and scope of my invention. I do not desire, therefore, to be limited to the exact details shown and described; but.

Having now fully explained the object and nature of my invention, its principle of operation, and a form of apparatus embodying the same, what I claim as new and of my own invention, and desire to secure by Letters Patent of the United States, is—

1. In an air-brake mechanism a pump having guide-flanges, a rigid support for said pump provided with ways adapted to receive said flanges, means for operating said pump, a rod secured to said pump, an air-reservoir and devices actuated by excess of pressure in said reservoir for moving said rod whereby said pump is moved in the guideways therefor and the driving means are disengaged; as and for the purpose set forth.

2. In an air-brake mechanism a pump having guide-flanges a supporting-plate provided with ways adapted to receive said flanges, gearing for actuating said pump, a spring for normally maintaining said gearing in operative engagement, an air-reservoir, an auxiliary cylinder and piston adapted to be actuated by excess of pressure in said reservoir and connections operated by said piston for moving said pump against the action of said spring, whereby said gearing is disengaged; as and for the purpose set forth.

3. In an air-brake mechanism for railway-cars, a pump, a housing carried thereby, a shaft journaled in and supported by said housing, gearing for actuating said shaft from the car-axle, connections for actuating said pump from said shaft, an air-reservoir, an auxiliary cylinder and piston adapted to be actuated by excess of pressure in said reservoir, guides for said pump, and devices actuated by said auxiliary piston for sliding said pump in said guides toward and from the car-axle, whereby the shaft mounted in the housing carried by said pump is moved into and out of operative relation with said car-axle; as and for the purpose set forth.

4. In an air-brake mechanism for railway-cars, a pump, gearing for actuating said pump from the car-axles, guides within which said pump is adapted to slide back and forth to throw said gearing into and out of operative relation, an air-reservoir arranged to be supplied from said pump, and means actuated by excess of pressure in said reservoir for sliding said pump back and forth in its guides; as and for the purpose set forth.

In witness whereof I have hereunto set my hand this 28th day of September, 1894.

LOUIS J. GENETT.

In presence of—

M. Q. CAVANAGH,
S. E. DARBY.