

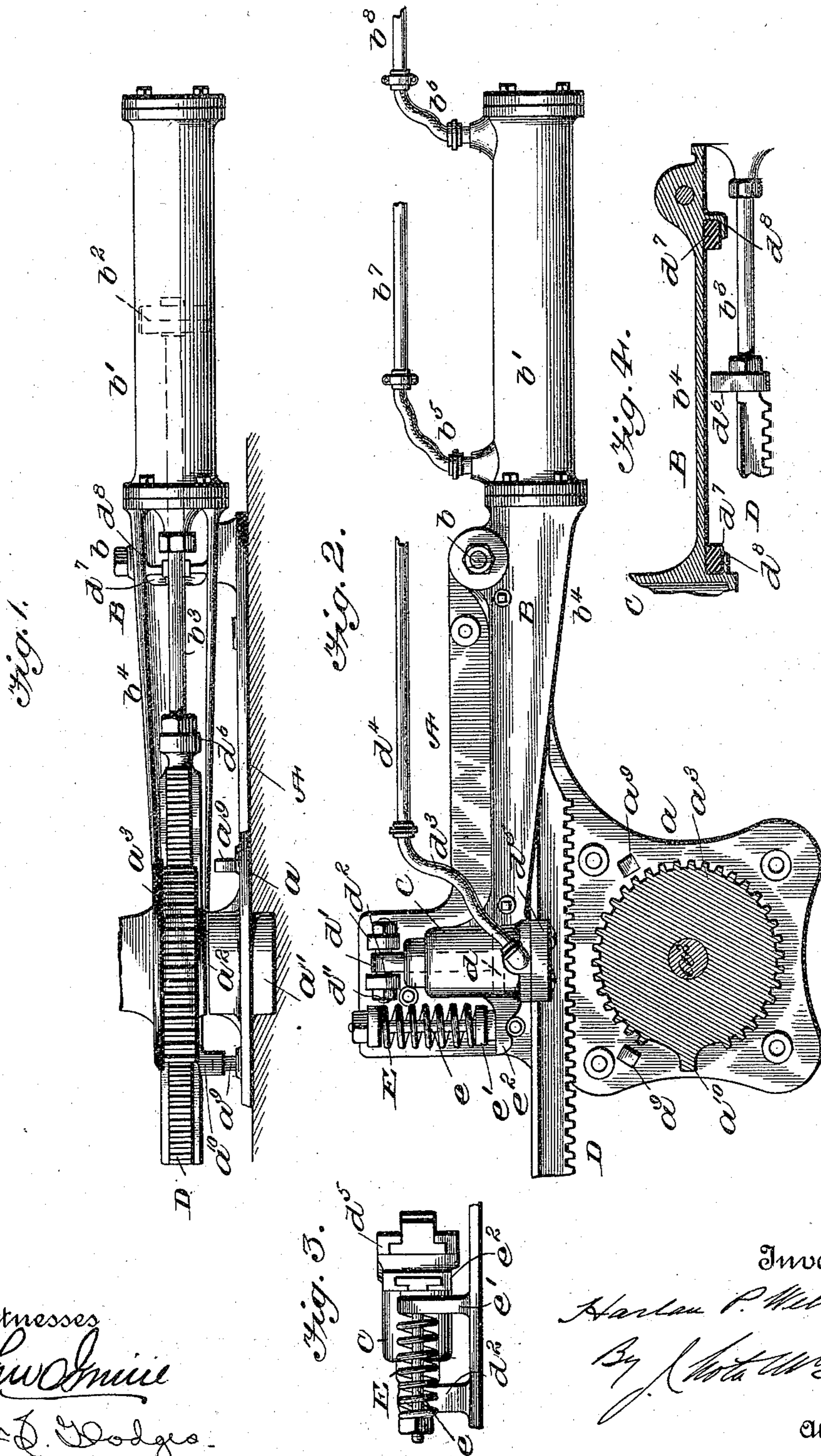
(No Model.)

H. P. WELLMAN.

MEANS FOR REVERSING TROLLEY POLE SUPPORTS.

No. 558,868.

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UNITED STATES PATENT OFFICE.

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MEANS FOR REVERSING TROLLEY-POLE SUPPORTS.

SPECIFICATION forming part of Letters Patent No. 558,868, dated April 21, 1896.

Application filed September 17, 1895. Serial No. 562,766. (No model.)

To all whom it may concern:

Be it known that I, HARLAN PAGE WELLMAN, of Ashland, in the county of Boyd and State of Kentucky, have invented certain new and useful Improvements in Means for Reversing Trolley-Pole Supports; and I do hereby 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 ap-
10 pertains to make and use the same.

This invention contemplates certain new and useful improvements in electric-railway cars, and has reference more particularly to means for turning or swiveling the trolley-
15 pole.

The object of the invention is to provide simple and highly-efficient means whereby the motorman or his assistant can readily and easily effect the turning or reversal of position of the base of the trolley-pole from one end of the car. This I accomplish by pneumatic pressure. The trolley-pole base is pivoted and provided with a toothed or gear wheel. A pivoted frame located longitudi-
20 nally on the car-roof supports a rack-bar, which is normally held out of contact with the gear-wheel. This rack-bar is connected to a piston-rod, into the ends of the cylinder of which open pipes leading from a compressed-air reservoir. A second piston and
25 air-cylinder are mounted on the free end of the pivoted frame. By admitting air into the latter the tension of the retaining-spring is overcome and the rack-bar is thrown into engagement with the gear-wheel of the trolley-pole base. Air being admitted to the other cylinder the rack-bar is caused to move with the piston of the latter, thereby effecting the turning of the trolley-pole base. The rack-
30 bar is then disengaged from the gear-wheel by relieving the pressure in the cylinder, which effects the turning of the frame on its pivot, said frame assuming its normal position under the action of its retaining-spring.

45 The invention will be hereinafter fully set forth, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a view in side elevation of my improved ap-
50 paratus, the trolley-pole being broken away.

Fig. 2 is a plan view thereof. Figs. 3 and 4 are details.

Referring to the drawings, A designates a stand or flat stationary frame, which is attached to the top of a car-roof. (Not shown.)
55 In the square portion a of this stand is a socket or bearing a' for the shaft or axle a^2 of a horizontally-disposed gear-wheel a^3 , which forms part of or is secured to the trolley-pole base a^4 . The movement of gear-wheel a^3 is limited
60 in either direction by stops a^9 , projecting upwardly from stand A, and with which a short downwardly-extended lug or finger a^{10} of said wheel is designed to engage.

B is a longitudinally-disposed frame, which
65 is pivotally mounted at one end by a shaft b , supported at one end of stand A. To this end of said frame is bolted or otherwise secured one end of a cylinder b' , in which is a piston b^2 , the rod b^3 of which extends into the arched
70 portion b^4 of frame B. Into the ends of this cylinder b' compressed air is designed to be admitted through flexible tubes b^5 b^6 , connected, respectively, to supply-pipes b^7 b^8 , at-
75 tached to the car-roof and leading to a compressed-air reservoir, (not shown,) located at some convenient point, preferably beneath the floor of the car. Suitable valves (also not shown) are provided in said pipes b^7 b^8 for
80 controlling the supply of air therethrough, the same being within control of the motorman or his assistant.

C designates a second cylinder mounted on the free end of frame B transversely to the latter, and in said cylinder is a piston c ,
85 whose rod c' projects through one end of said cylinder and is pivotally connected at its outer end by a nutted bolt c'' , supported by two lugs or ears c^2 , projecting upwardly from stand A. Into the closed end of this cylin-
90 der C opens a flexible tube c^3 , which leads from a pipe c^4 , also connected to the air-reservoir and valved, as before described, in connection with the pipes b^7 b^8 .

D is a rack-bar rigidly secured to the pro-
95 jecting end of piston-rod b^3 and supported by the cylinder C by means of flanged plates d^5 , attached to the closed end of the latter. A lug d^6 , extending from the rack-bar D at about its point of union with piston-rod b^3 , is
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designed to strike against bumpers d^7 , preferably composed of rubber blocks supported by flanges d^8 of frame B. (See Fig. 4.) In this way the movement of the rack-bar will
 5 not jar the frame.

E is a coil-spring which surrounds a headed rod e and bears at one end against a lug e' , projecting upwardly from stand A. This rod e extends through a hole in said lug and en-
 10 engages a short extension e^2 of the end of frame B, the end of said rod e being of T form. This spring serves to normally hold the frame B in the position shown in Fig. 2—that is, with the rack-bar out of engagement with
 15 the gear-wheel of the trolley-pole base. The lug e' forms a stop to limit the movement of the frame B.

The operation is as follows: When it is desired to change the position of the trolley-pole
 20 base, the operator first admits air from the reservoir through pipe d^4 to cylinder C. This will cause frame B to move horizontally on its pivot as against the tension of the retaining-spring E and throw rack-bar D into engage-
 25 ment with gear-wheel a^3 . While the pressure is still maintained in cylinder C air is admitted to one end of cylinder b' through one of the pipes b^7 b^8 , according to the direction in which the rack-bar is to be moved. This
 30 will cause the piston b^2 to travel and the rack-bar D to effect the turning of the gear-wheel a^3 , the movement of which is limited by the lug thereof contacting with one of the stops of the stand A. As soon as this is accom-
 35 plished pressure in the supply-pipes is cut off and the frame B returns to its normal position under the action of the retaining-spring and the rack-bar is disengaged from the gear-wheel. In some instances it may be desired
 40 or necessary to change the position of the rack-bar without having the same engage the gear-wheel of the trolley-pole base. This, of course, can be accomplished when the frame B is in its normal position by admitting air
 45 to the cylinder b' .

The advantages of my invention are apparent to those skilled in the art to which it appertains and need not be recited.

While I have shown the preferred means
 50 of embodiment of my invention, yet I do not restrict myself thereto, since changes may be made without departing from the scope of the invention.

I claim as my invention—

55 1. The combination with a pivotally-mounted trolley-pole base, of a device for turning said base, a pivoted frame supporting said device, and a compressed-air cylinder having its piston-rod connected to said device, sub-
 60 stantially as set forth.

2. The combination with a pivotally-mounted trolley-pole base, of a device for engaging and turning said base normally held out of
 65 contact therewith, a pivoted frame supporting said device, a compressed-air cylinder having its piston-rod connected to said de-

vice, and a second compressed-air attachment for moving said frame on its pivot, whereby said device is thrown into engagement with
 said base, substantially as set forth. 70

3. The combination with a pivotally-mounted trolley-pole base, of a device for engaging and turning said base normally held out of
 contact therewith, a pivoted frame support- 75 ing said device, a retaining-spring acting on said frame, a compressed-air cylinder having its piston-rod connected to said device, and a second compressed-air attachment for moving said frame as against said spring thereby
 80 throwing said device into engagement with said base, substantially as set forth.

4. The combination with a pivotally-mounted trolley-pole base having a gear-wheel, of a rack-bar having a pivoted support, a pneu- 85 matic-pressure device for moving said rack-bar longitudinally, and a second pneumatic-pressure device for moving said pivoted support, whereby said rack-bar can be thrown into engagement with said gear-wheel and
 90 caused to rotate the latter, substantially as set forth.

5. The combination with a pivotally-mounted trolley-pole base having a gear-wheel, of a longitudinally-disposed pivoted frame, an
 95 air-cylinder connected thereto having a piston and piston-rod, a rack-bar supported by said frame and connected to said piston-rod, and means for throwing said rack-bar into engagement with said gear-wheel and for disengag-
 100 ing the same, substantially as set forth.

6. The combination with a pivotally-mounted trolley-pole base having a gear-wheel, of a longitudinally-disposed pivoted frame, an
 105 air-cylinder connected thereto having a piston and piston-rod, a rack-bar supported by said frame and connected to said piston-rod, said rack-bar being normally held out of engagement with said gear-wheel, and a compressed-air attachment on the free end of said
 110 frame for throwing said rack-bar into engagement with said gear-wheel, substantially as set forth.

7. The combination with a pivotally-mounted trolley-pole base, of a longitudinally-dis- 115 posed frame pivoted at one end, a spring acting on the other end of said frame, an air-cylinder connected to the pivoted end of said frame and having a piston and piston-rod, a rack-bar connected to said piston-rod, guides therefor, and a second compressed-air attach- 120 ment on the free end of said frame for turning the latter as against the tension of said spring and throwing said rack-bar into engagement with said gear-wheel, substantially
 125 as set forth.

8. The combination with a pivotally-mounted trolley-pole base, of a longitudinally-dis- 130 posed frame pivoted at one end, a spring acting on the other end of said frame, an air-cylinder connected to the pivoted end of said frame and having a piston and piston-rod, a rack-bar connected to said piston-rod, guides

therefor, a lug projecting from said rack-bar, bumpers therefor supported by said frame, and a second compressed-air attachment on the free end of said frame for turning the latter as against the tension of said spring and throwing said rack-bar into engagement with said gear-wheel, substantially as set forth.

9. The combination with the stand, of the trolley-pole base pivotally mounted thereon having a gear-wheel provided with a lug, stops on said stand with which said lug is designed to engage, a frame pivoted on said stand and having an air-cylinder at one end, the rack-bar connected to the piston-rod of said cylinder, the spring holding the free end of said frame, and a second compressed-air attachment for moving said frame on its pivot and throwing said rack-bar into engagement with said gear-wheel, substantially as set forth.

10. The combination with the pivotally-mounted trolley-pole base having a gear-wheel, of the pivoted frame, the rack-bar supported thereby, means for moving said rack-bar, the spring acting on the free end of said frame, the air-cylinder on said end of said frame, and the stationary piston therein, substantially as set forth.

11. The combination with the pivotally-mounted trolley-pole base having a gear-wheel, of the pivoted frame, the rack-bar, means for moving said rack-bar, the air-cylinder on the free end of said frame having

guide-plates for said rack-bar, the piston on said cylinder having its rod pivotally secured at its outer end to a stationary support, and the retracting-spring connected to said frame, substantially as set forth.

12. The combination with the stand having two stops, a lug, and two ears, of a trolley-pole base pivotally mounted on said stand having a gear-wheel provided with a finger designed to engage said stops, a frame pivotally mounted at one end to said stand and having two bumpers, the compressed-air cylinder connected to the pivoted end of said frame, the rack-bar connected to the piston-rod of said air-cylinder, the lug designed to engage said bumpers, the second compressed-air cylinder on the free end of said frame, the piston-rod thereof pivotally connected at its outer end between said ears of said base, the guide-plates for said rack-bar attached to said second cylinder, and a spring-held rod extended through said lug of said base and engaging the free end of said pivoted frame, substantially as set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

HARLAN PAGE WELLMAN.

Witnesses:

M. T. NEWMAN,
J. W. KING.