

(No Model.)

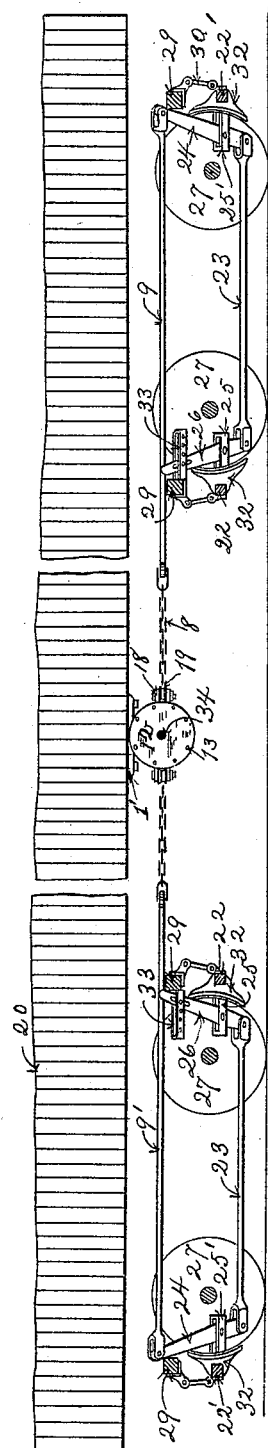
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W. C. WHITACRE.
CAR BRAKE.

No. 494,503.

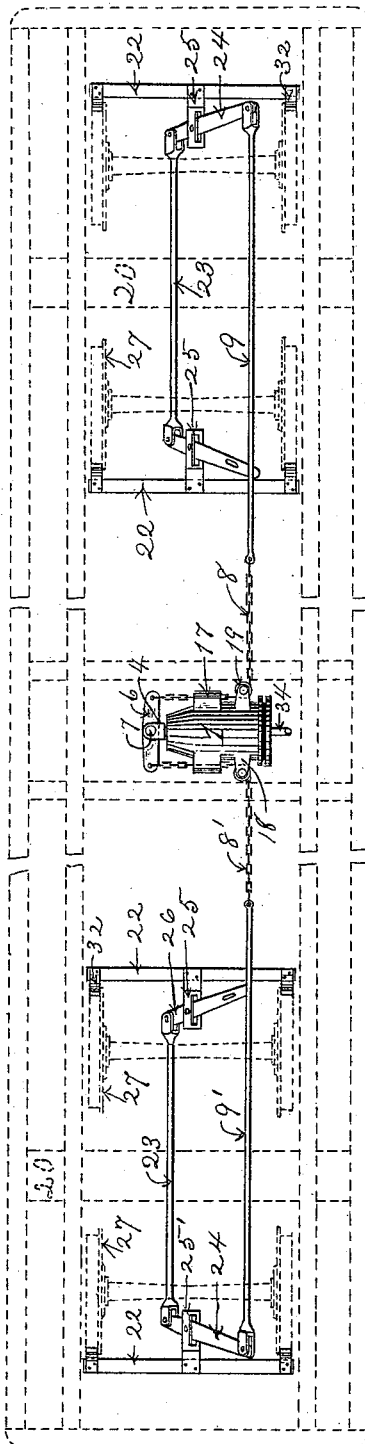
Patented Mar. 28, 1893.

Fig. 1.



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Fig. 2.



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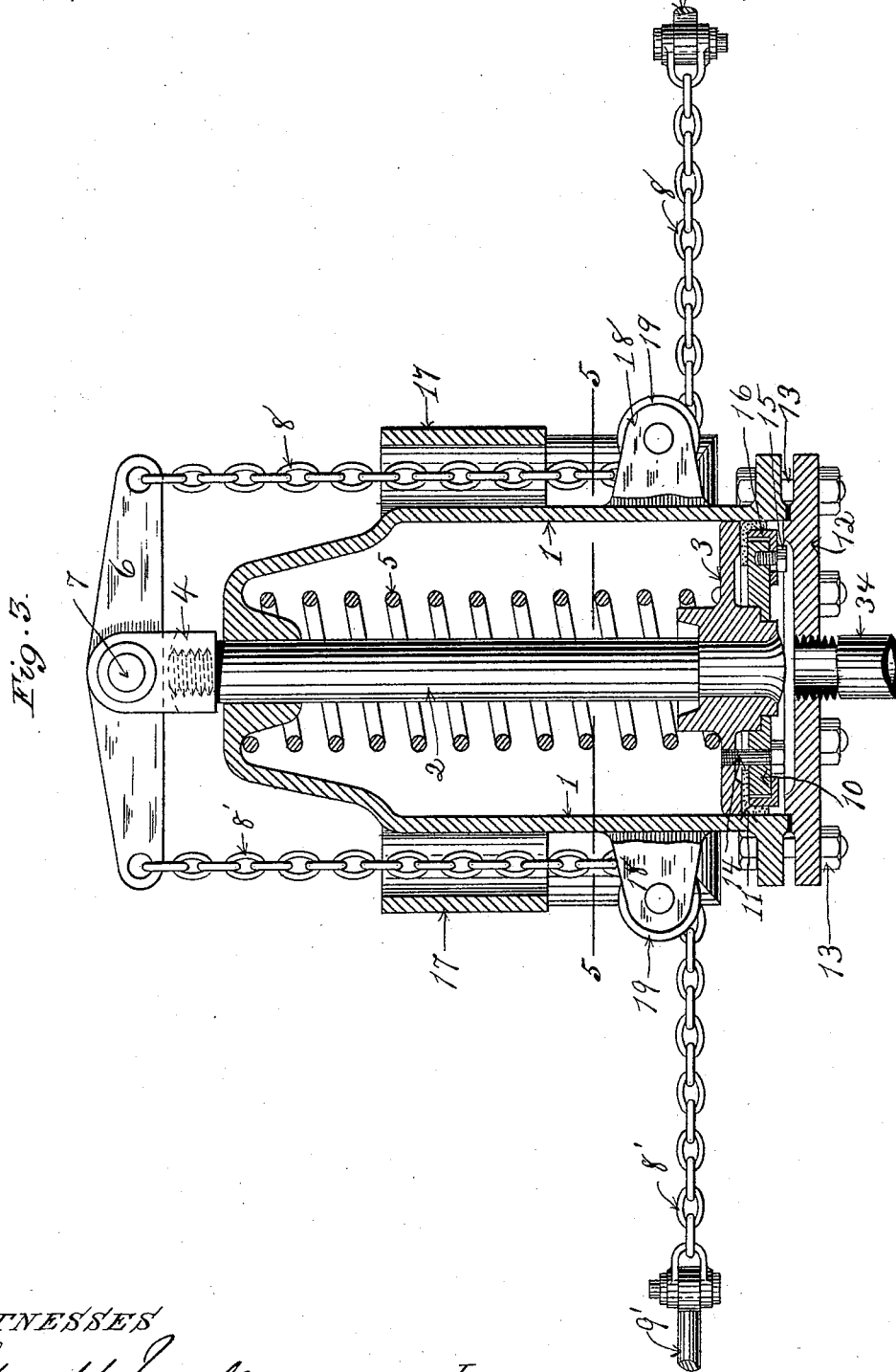
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Patented Mar. 28, 1893.



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Fig. 4.

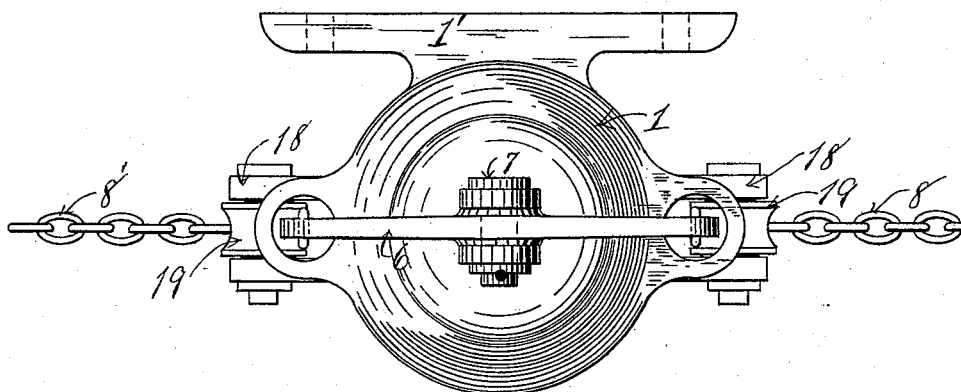


Fig. 5.

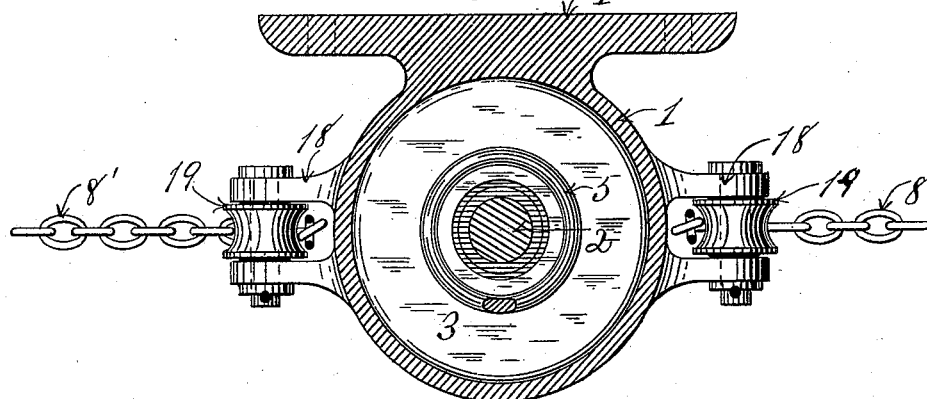
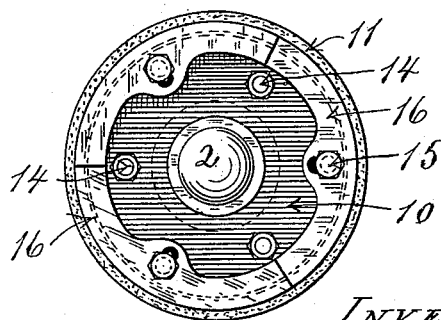


Fig. 6.



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UNITED STATES PATENT OFFICE.

WILLIAM C. WHITACRE, OF ST. LOUIS, MISSOURI, ASSIGNOR OF TWO-THIRDS
TO SHEPARD KNAPP AND JOHN F. BAUMGARTNER, OF SAME PLACE.

CAR-BRAKE.

SPECIFICATION forming part of Letters Patent No. 494,503, dated March 28, 1893.

Application filed June 20, 1892. Serial No. 437,320. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM C. WHITACRE, a citizen of the United States, residing in the city of St. Louis and State of Missouri, have
5 invented certain new and useful Improvements in Automatic Air-Brakes for Railway-Cars, of which the following is a full, clear, and exact description.

My invention relates to apparatus for operating car brakes automatically by compressed air, and has for its object the simplification of the parts in the brake cylinder and the consequent reduction in the operative parts in the connections from the same to the brake
15 beams.

It consists in the novel features of improvement in such appliances hereinafter described.

In the accompanying drawings, in which
20 like characters of reference denote like parts in the several views, Figures 1 and 2 are, respectively, a side elevational outline view and a plan view of the under side of a car, with my improved apparatus attached. Figs. 3, 4,
25 5, and 6 are enlarged detail views of my improved brake cylinder, being, respectively, a longitudinal section, a front end elevation, a cross-section taken on the line 5—5 in Fig. 3, and an elevational view of the outer side of
30 the piston.

As illustrated in Fig. 3, the brake cylinder consists in the casing 1, one end of which is closed, except where the piston-rod 2 protrudes therethrough, the other end of which is closed
35 by the removable head-piece 12, secured thereto by the bolts 13. In a central perforation in the head-piece 12 is secured the end of a short pipe 34 through which communication is afforded from the interior of the brake cylinder to the triple valve [not shown]. The
40 casing 1 is formed with two diametrically opposite external lugs, or ears, 18, in which are revolubly fitted the circumferential grooved sheaves 19. There are, preferably, formed on
45 each side of the casing 1, in line with the sheaves 19, a hollow lug 17 for guides for the brake chain. The casing 1 is also formed with a bracket projection 1', as shown in Figs. 4 and 5, by which means the cylinder, as a
50 whole, is secured to the under side of the car, as shown in Fig. 1.

To the inner end of the piston-rod 2, is rigidly secured the piston 3. To the protruding end of the rod 2 is rigidly secured the slotted fulcrum block 4 in which is pivotally secured,
55 by the pivot bolt 7, the equalizing lever bar 6. To the ends of the bar 6, are secured, respectively, one end of the brake chains 8 and 8' which lead therefrom, through the guide holes in the projection 17, around the sheaves 19,
60 toward either end of the car, the other ends of which are, respectively, connected with the ends of the brake rods 9 and 9'. As shown in Figs. 1 and 2, the brake rods 9 and 9' are, in each instance, connected with one end of the live
65 truck levers 24 which are fulcrumed in stirrups 25' secured to the outer brake beams 22'. To the other ends of the truck levers 24, are secured, respectively, one end of the connecting brake rods 23, the other ends of which
70 are connected with one end of the dead truck levers 26, which are pivotally connected, by means of the stirrups 25 to the inner brake beams 22. The other ends of the truck levers
75 26 are fulcrumed in the adjustable stirrup blocks 33 which are rigidly secured, in any convenient manner, to the truck frame or the bottom of the car. The object of thus securing the fulcrum end of the levers 26 in the adjustable fastenings 33 is to provide for a take-
80 up to compensate for the wear in the brake shoes, &c.

As shown in Fig. 2, the brake cylinder is secured to the body of the car at right angles to the direction of the pull in applying the
85 brakes; *i. e.*, transversely to the length of the car. In this way, the brake chains of the brakes at both ends of the car can be directly attached to the single equalizing lever 6 of the brake cylinder, dispensing with any ad-
90 ditional dead equalizing lever for one set of brakes, as in the heretofore-used systems.

The principles of operation are as follows: When the engineer's valve is turned to withdraw the pressure from the train pipe, the
95 triple valve, which is secured to the brake cylinder 1, by the pipe 34, turns the pressure of the auxiliary reservoir into the brake cylinder, through the pipe 34, driving the piston-head 3 in toward the closed end of the cylinder, carrying with it the attached equalizing
100 lever 6. This will draw the chains forward

around the sheaves 19, and this, through the connecting rods and levers, will draw the brake beams at either end of the car [when placed on the outside of the wheels, as shown], together, setting the brakes 32. When this pressure is removed, the piston-head 3 will return to its normal position, being impelled in this direction by the internal re-acting spring 5.

- 10 In Figs. 3 and 6, is illustrated an improved expansion ring 16 for keeping the piston head packing ring 11 against the inside of the cylinder 1 to make it air-tight in its operation. My improvement, in this particular, consists
 15 in an annular piece of spring metal formed with an upturned lip portion at right angles to the plane of the ring, as shown in Fig. 3. This ring, as a whole, is then divided into three parts by radial divisions, as shown in
 20 Fig. 6, and each separate piece adjustably secured to the gasket clamping head-piece 10 by the screw-bolts, 15 for which are formed radial slots in the pieces 16. In this manner, the expansion ring, as a whole, is made ad-
 25 justable radially, the upturned edge pressing at all times against the inside of the upturned edge of the leather gasket packing ring 11, in the manner shown in Fig. 3.

I claim—

- 30 1. A brake cylinder for pneumatic brake systems, consisting of a casing formed with means for securing it to the under side of the car and diametrically opposite lugs in which are revolubly secured sheaves for the guid-
 35 ance of the brake chains, substantially as and for the purposes specified.

2. In a pneumatic car brake system, the combination with a brake cylinder formed with diametrically opposite lugs, of sheaves revolubly secured in said lugs, a piston rod an
 40 equalizing lever, pivotally secured in the extending end of the piston-rod, chains secured to the ends of said equalizing lever, brake beams and intermediate connections between the said chains and the brake beams, sub-
 45 stantially as described and for the purposes specified.

3. In a brake cylinder for pneumatic brake systems, the combination with a cylinder casing formed with diametrically opposite lugs, 50 of sheaves revolubly secured in said lugs, and guidelugs formed in the said casing in line with said sheave lugs, combined substantially in the manner and for the purposes specified.

4. In a pneumatic brake system, the com- 55 bination with a brake cylinder, of a piston therein provided with an expansion head, a pipe leading to the front end of said casing, a spring surrounding the piston at the back of the head, an equalizing bar carried by said 60 piston, brake beams, and connections between said equalizing bar and beams, whereby the thrust of the piston will operate the beams; substantially as described.

In testimony whereof I have affixed my sig- 65 nature, in presence of two witnesses, this 13th day of June, 1892.

WILLIAM C. WHITACRE.

Witnesses:

A. RAMEL,
 H. K. WAGNER.