

No. 825,724.

PATENTED JULY 10, 1906.

P. P. HATCHER.
RAILWAY CAR BRAKE.
APPLICATION FILED MAR. 8, 1906.

2 SHEETS—SHEET 1.

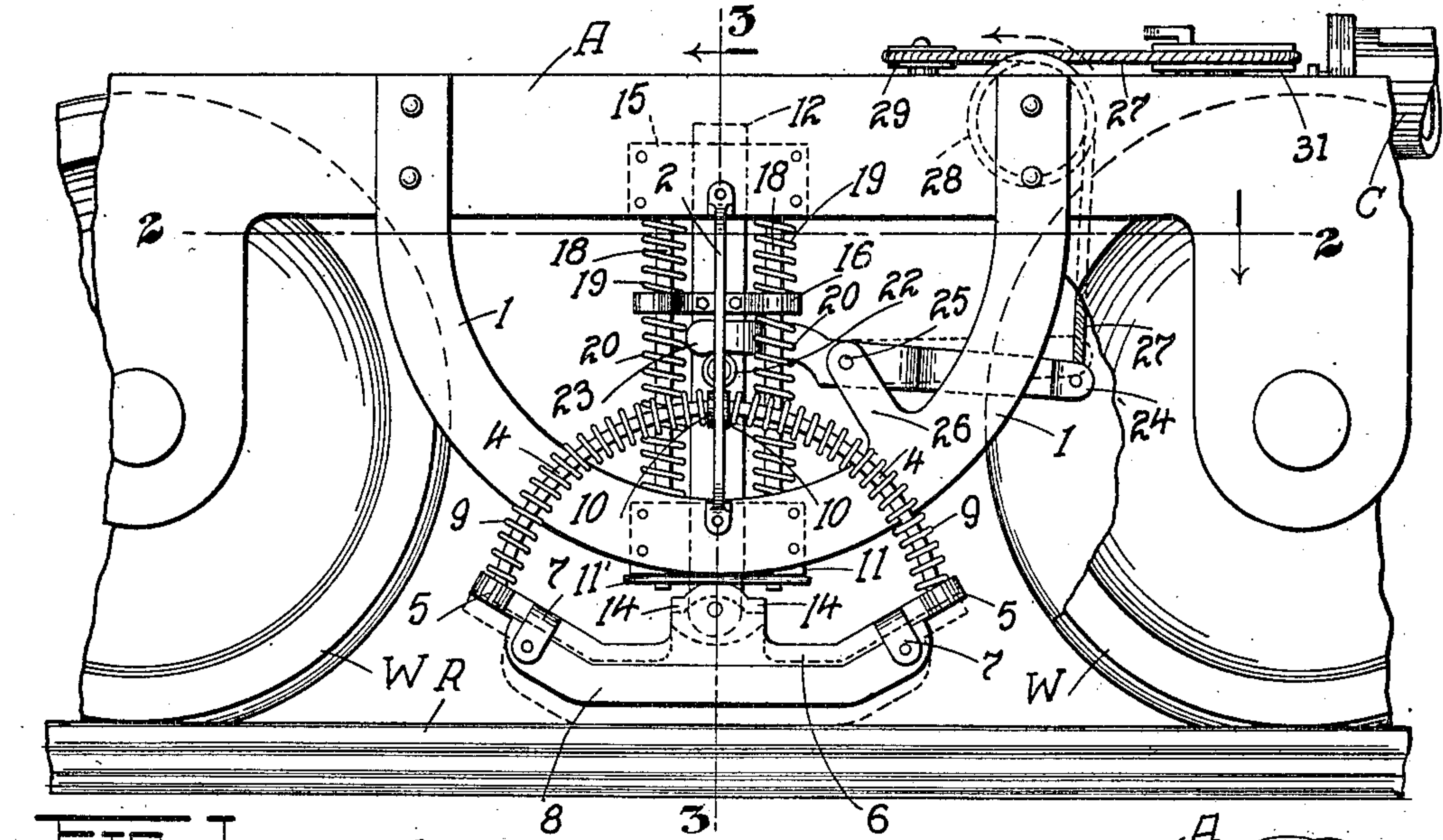
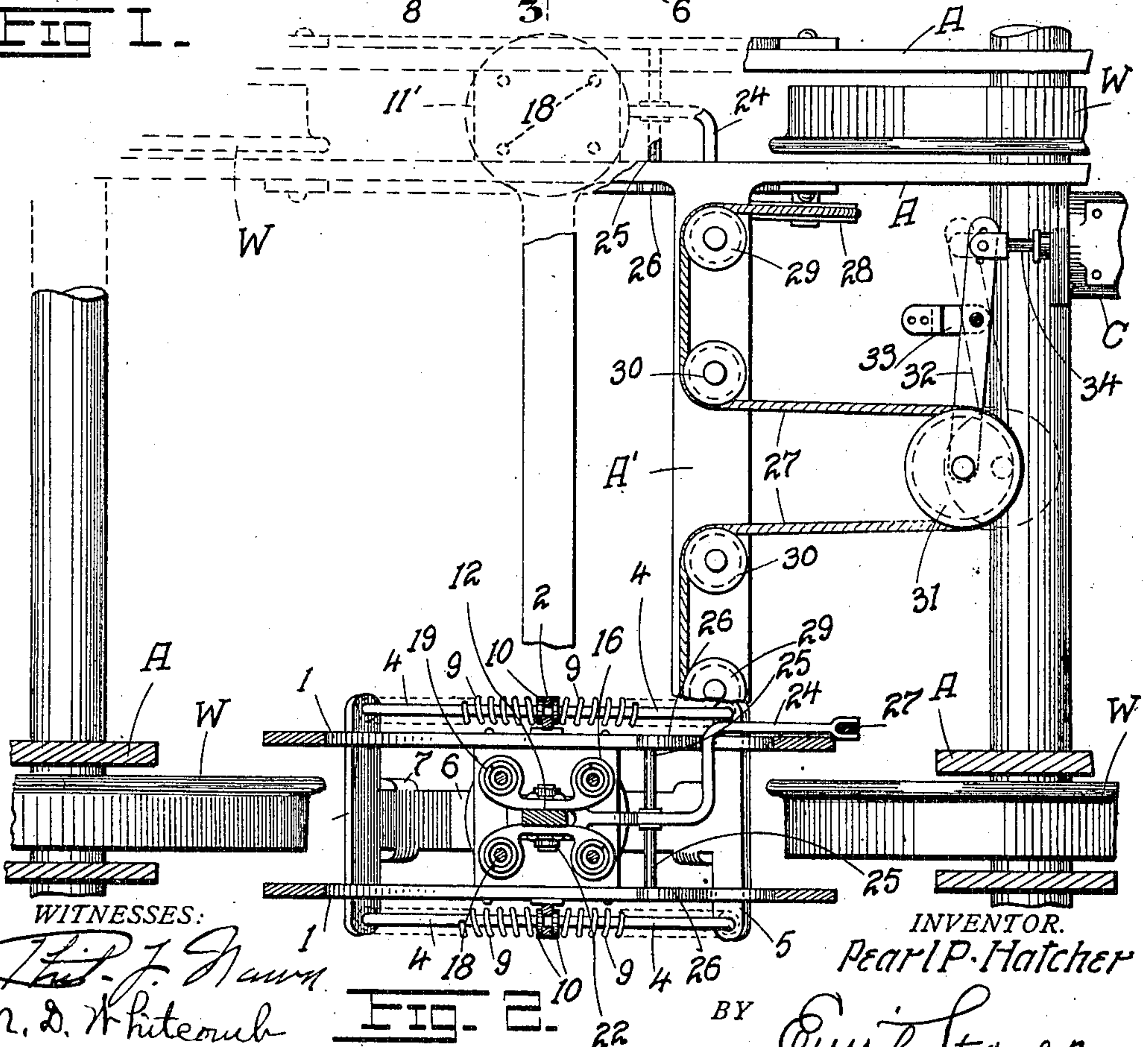


FIG. 1.



WITNESSES:

P. J. Shaw
M. D. Whitcomb

FIG. 2.

BY

INVENTOR.

Pearl P. Hatcher

Emil Stares

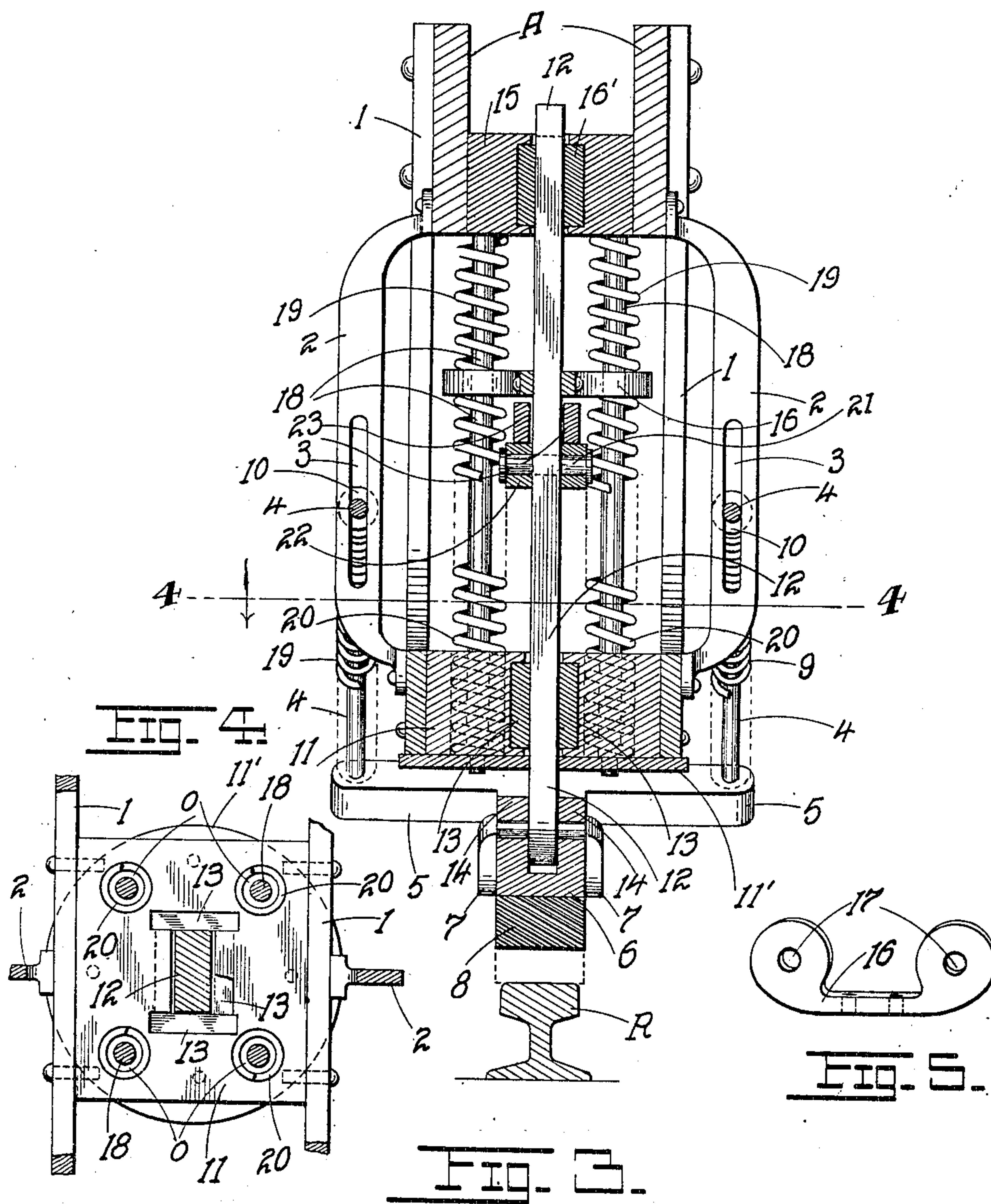
ATTORNEY.

No. 825,724.

PATENTED JULY 10, 1906.

P. P. HATCHER.
RAILWAY CAR BRAKE.
APPLICATION FILED MAR. 8, 1906.

2 SHEETS—SHEET 2.



WITNESSES:
Paul J. Gawn
M. D. Whitecomb

INVENTOR.
Pearl P. Hatcher
BY *Emil Hare*
ATTORNEY.

UNITED STATES PATENT OFFICE.

PEARL P. HATCHER, OF ST. LOUIS, MISSOURI.

RAILWAY-CAR BRAKE.

No. 825,724.

Specification of Letters Patent.

Patented July 10, 1906.

Application filed March 8, 1906. Serial No. 304,928.

To all whom it may concern:

Be it known that I, PEARL P. HATCHER, a citizen of the United States, residing at St. Louis, State of Missouri, have invented certain new and useful Improvements in Railway-Car Brakes, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention has relation to improvements in railway-car brakes; and it consists in the novel construction and arrangement of parts, more fully set forth in the specification and pointed out in the claims.

In the drawings, Figure 1 is a side elevation of a car-truck, showing my invention applied thereto. Fig. 2 is a horizontal section on line 2 2 of Fig. 1 with only one side, however, shown full, (the opposite side being a duplicate.) Fig. 3 is an enlarged vertical transverse section on line 3 3 of Fig. 1, the brake-plunger being shown in elevation. Fig. 4 is a horizontal cross-section on the line 4 4 of Fig. 3, and Fig. 5 is a perspective of one of the guide brackets or bearings for the guide-stems.

The object of my invention is to construct a brake which will apply the brake-shoe directly to the rail instead of the wheel, thereby eliminating the danger of flat wheels resulting from sudden applications, as in emergency cases.

A further object is to construct a brake which will be simple, contain a minimum number of operating parts, one which is responsive in every respect and equally as effective on curves as on straight tracks, and one possessing further and other advantages better apparent from a detailed description of the invention, which is as follows:

Referring to the drawings, A A represent the side members of a car-truck, and W the wheels thereof. Depending, respectively, from the inner and outer faces of the said members A A are U-shaped hangers or brackets 1 1, whose bases are coupled to the members A by the longitudinally-slotted intermediate and supplemental brackets or braces 2 2. Through the slots 3 of the brackets 2 there operate the bowed members 4, whose ends are secured to the terminals of the transverse arms 5 of the upper cast section 6 of the brake-shoe, the said section 6

being provided with pairs of lateral lugs 7 7, between which is held the lower steel section 8 of the brake-shoe, the latter being applied directly to the tread of the rail R. Encircling each member 4 on each side of the bracket or brace 2 is a coiled spring 9, the ends of the springs bearing, respectively, against the arms 5 and the washers 10, the braces 2 serving as suitable abutments for the springs. Secured centrally between the bases of the hangers or brackets 1 1 is a block 11, provided with a central passage-way for the vertically-reciprocating brake-plunger 12, the plunger operating against brass wearing-plates 13, inserted into a pocket or chamber formed around the passage-way aforesaid. The base of the plunger is suitably pivoted to the center of the brake-shoe between the lugs 14 of the latter. The upper end of the plunger operates through a suitable passage-way formed in a block 15, confined between the side truck members A A, suitable brass blocks 16' being inserted around the plunger in a pocket or chamber formed in said block, Fig. 3.

The lateral faces of the plunger 12 have secured thereto at a point above the center of the plunger suitable bracket-pieces 16 of substantially the form shown in Fig. 5, the terminal lobes of said brackets having openings 17 for the passage therethrough of the rods or stems 18, respectively, confined between the block 15 and the plate 11' at the base of the block 11, the stems 18 passing freely through openings 18, formed in the block 11 for the reception of the bases of the springs encircling said stems, as presently to appear. The upper portion of each stem 18 is encircled by a spring 19, confined between the bracket 16 and the block 15, and the lower portion is encircled by a similar spring 20, confined between the bracket 16 and the plate 11', the base of the spring, as above stated, being housed between the walls of the openings 18 of the block 11, through which the stems 18 pass, Fig. 3. Passed transversely through the center of the plunger 12 is a pin or spindle 21, carrying antifriction-rollers 22, on which bear the forked ends 23 of one arm of a vertically-oscillating bent brake-lever 24, mounted on a shaft 25, supported between the arms 26 of the hangers 1, the lever being bent inwardly, so that one arm passes behind the

inner hanger 1, as fully shown in Fig. 2. The forked end of the opposite arm of the brake-lever 24 has secured thereto the adjacent end of a chain or cable 27, (the opposite end of said cable being coupled similarly to a similar brake-lever on the opposite side of the car-truck,) which passes vertically upward over a vertically-rotating pulley 28, mounted on a bracket on the inner member A of the truck, the cable thence passing horizontally over the horizontally-rotating pulleys or idlers 29 30, mounted on the cross-bar A' of the truck, the medial portion of the cable passing over a horizontally-rotating pulley 31 at the free end of a horizontally-oscillating lever 32, which is pivotally mounted at an intermediate point to a bracket 33, depending from the car-body. (Not shown.) The inner end of the lever 32 is coupled to the forked end of the piston-rod 34 of the piston (not shown) in the air-brake cylinder C, carried by the car.

The operation of the brake may be best described by a reference to Figs. 1 and 2. When the lever 32 is in the position shown by the solid lines in Fig. 2, the brake-shoes are disengaged from the rails, and consequently no braking takes place. To apply the brakes, the engineer (by means well known in the art of air-brake appliances) forces the piston to which the piston-rod 34 is secured outwardly, thereby oscillating the lever to the dotted position shown in Fig. 2, this action drawing on the cable 27, passing over the idlers 30 29 28, and drawing the adjacent or inner ends of the bent levers 24 upwardly. This action depresses the forked ends 23 of said levers, which in turn, bearing on the roller ends of the spindles 21 of the brake-plungers 12, force the latter downwardly, the downward movement thereof forcibly applying the brake-shoes coupled to them to the rails R. The pivotal connection between the brake-shoe and the plunger 12 permits the shoe to readily conform to any unevenness or inclination of the rail, the bowed members 4, operating in the slots 3, readily conforming to any oscillating movements of the shoe under the circumstances and the springs 9 always returning the shoe back to its normal relation with the plunger. In the reciprocations of the plungers the springs 19 20 on opposite sides of the brackets 16 become alternately compressed and expanded, the return of the plungers to their disengaged positions and their reciprocations generally being attended without jars under the cushioning action of the springs. Normally the plunger 12 is of course held supported and disengaged from the rail by the expanding springs 20 bearing against the under sides of the brackets 16, the springs 19 being in a measure balancing-

springs to avoid a too sudden return of the plungers upon the slacking of the cable 27 when the brake-piston returns to its normal position within the brake-cylinder C. As the trucks pass over a curve it is apparent that the cable 27 freely plays over the centrally-disposed pulley 31, the laps of the cable on either side of the pulley paying out according to the sharpness of the curve passed over.

Having described my invention, what I claim is—

1. In a car-brake, a suitable vertically-reciprocating brake-plunger, a brake-shoe pivotally secured to the bottom thereof, terminal transverse arms on the shoe, bows connecting the ends of the arms, slotted brackets for the free passage of the bowed members, springs encircling the bowed members and bearing against the arms of the brake-shoe and the slotted bracket, stationary hangers for the mounting of the brake-plunger, springs supported by the hangers for normally forcing the brake-plunger and shoe out of contact with the rail, an air-brake cylinder, having an operating-piston, and intermediate connections between the piston and brake-plunger for depressing the latter upon a movement of the piston in one direction, substantially as set forth.

2. In a car-brake, a vertically-reciprocating brake-plunger on each side of the car-truck, a shoe carried by each plunger, springs for disengaging the plungers and shoes from the rails, an air-brake cylinder having a reciprocating piston-rod, an oscillating lever pivoted at an intermediate point actuated by said piston-rod, a pulley at the free end of the lever, a series of idlers or pulleys disposed on each side of the center of the truck, a cable passing over the several pulleys and over the pulley of the oscillating lever, and vertically-oscillating levers having each one end secured to the adjacent end of the cable, and the opposite end engaging the brake-plunger whereby upon movement of the brake-cylinder piston in one direction oscillation is imparted to the vertically-moving levers and the brake plungers and shoes thereof are forced against the rails, substantially as set forth.

3. In a car-brake, a vertically-reciprocating plunger superposed over each rail, a brake-shoe oscillating in the general direction of the rail pivotally mounted at the base of each plunger and springs for cushioning the shoe in its oscillations and having their ends bearing respectively against the free ends of the shoe and against a common stationary abutment, substantially as set forth.

4. In a car-brake, a vertically-reciprocating spring-controlled plunger, a brake-shoe at the lower end thereof superposed over the

5 rail, an air-brake cylinder having a reciprocating piston, a spindle carried transversely by the plunger, a vertically-oscillating lever having a forked end riding over the ends of the spindle, and intermediate connections for oscillating the engaging arm of the lever downwardly and depressing the plunger and its shoe upon a movement of the air-brake

piston in one direction, substantially as set forth. 10

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

PEARL P. HATCHER.

Witnesses:

EMIL STAREK,

MARY D. WHITCOMB.