

No. 764,617.

PATENTED JULY 12, 1904.

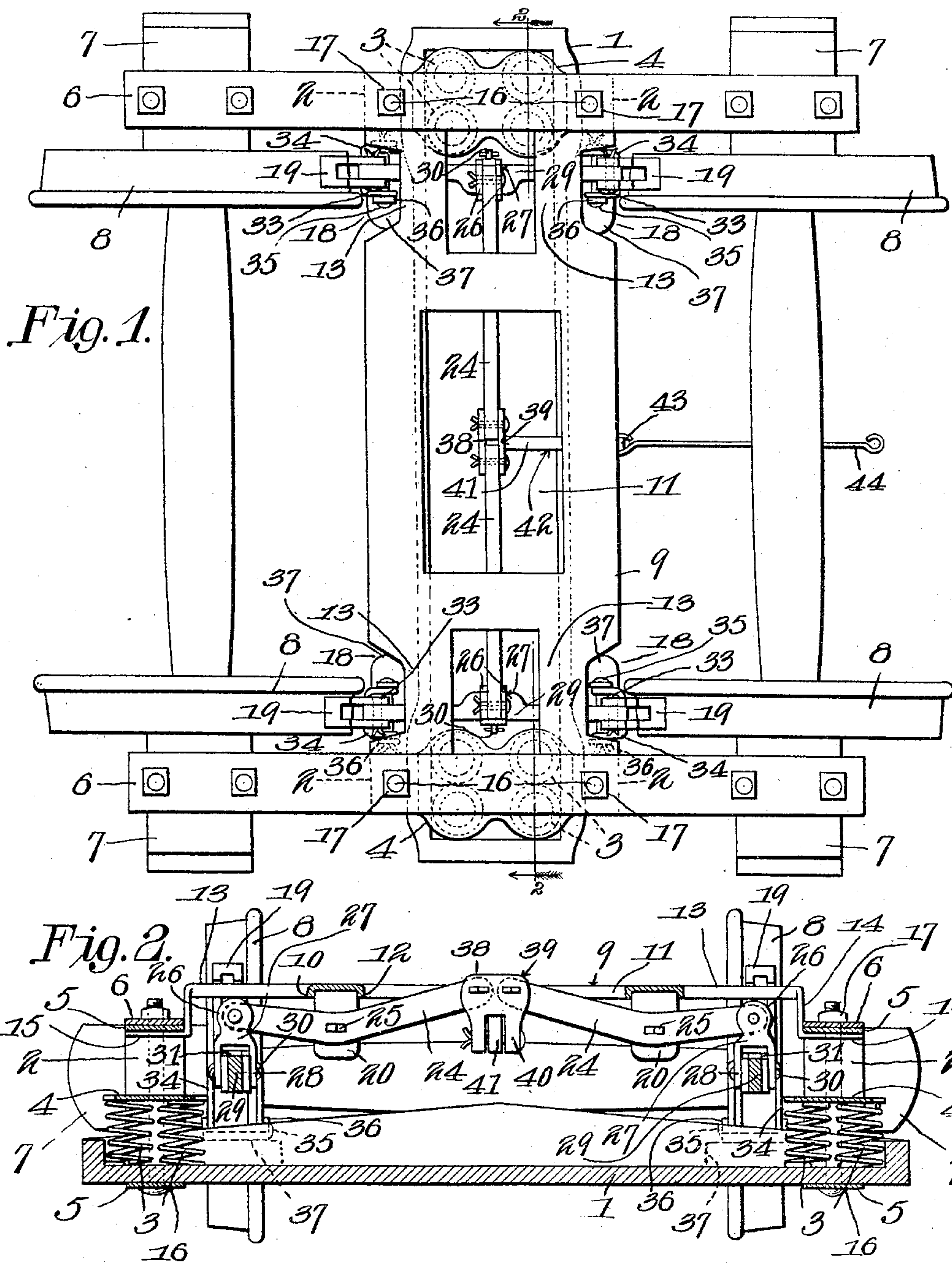
J. B. McKIEL.

CAR BRAKE.

APPLICATION FILED MAR. 22, 1904.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses:

*E. J. Stewart*  
*R. M. Elliott*

*James B. McKiel*, Inventor,  
by *C. A. Snow & Co.*  
Attorneys.

No. 764,617.

PATENTED JULY 12, 1904.

J. B. McKIEL.  
CAR BRAKE.

APPLICATION FILED MAR. 22, 1904.

NO MODEL.

2 SHEETS—SHEET 2.

Fig. 3.

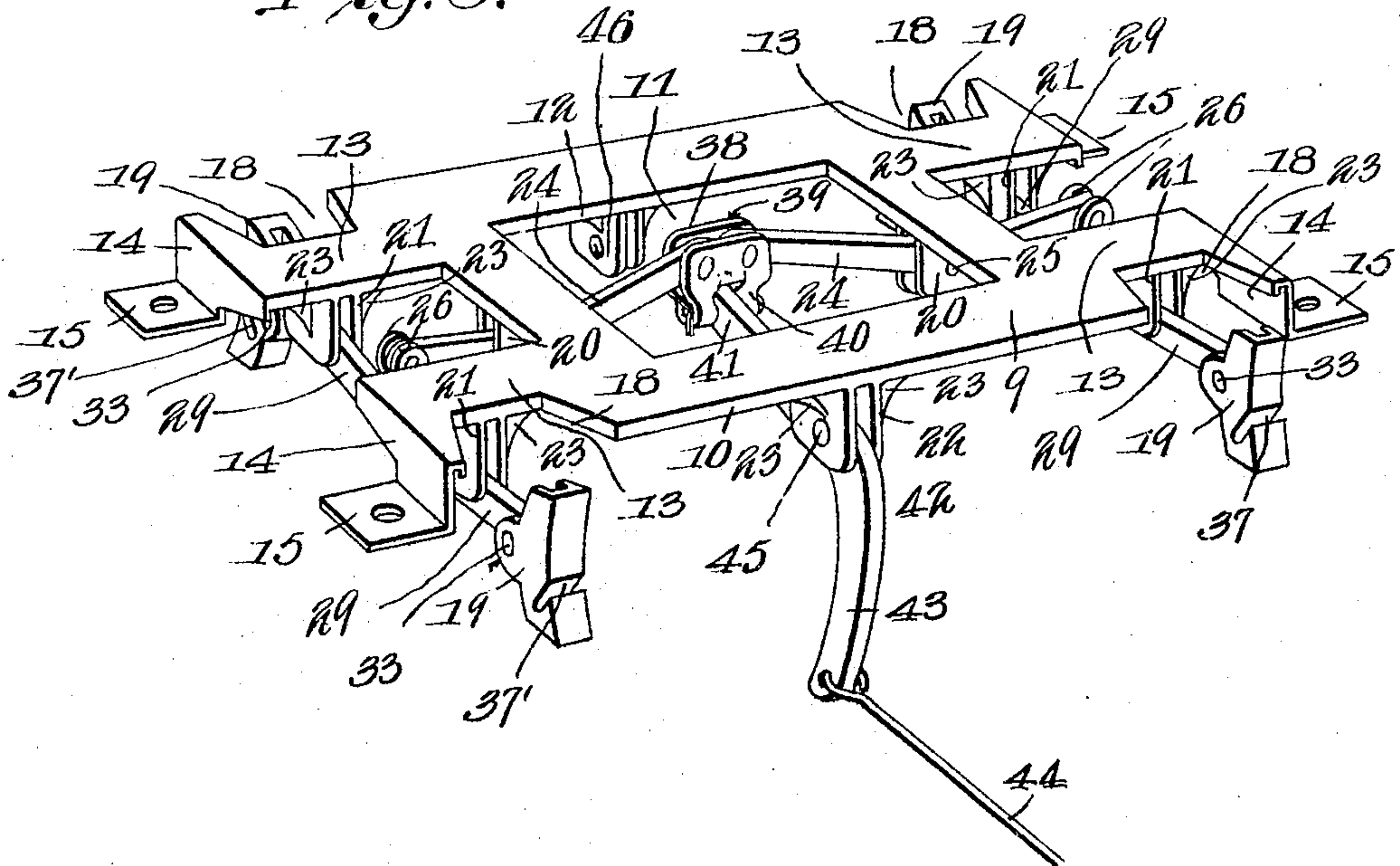
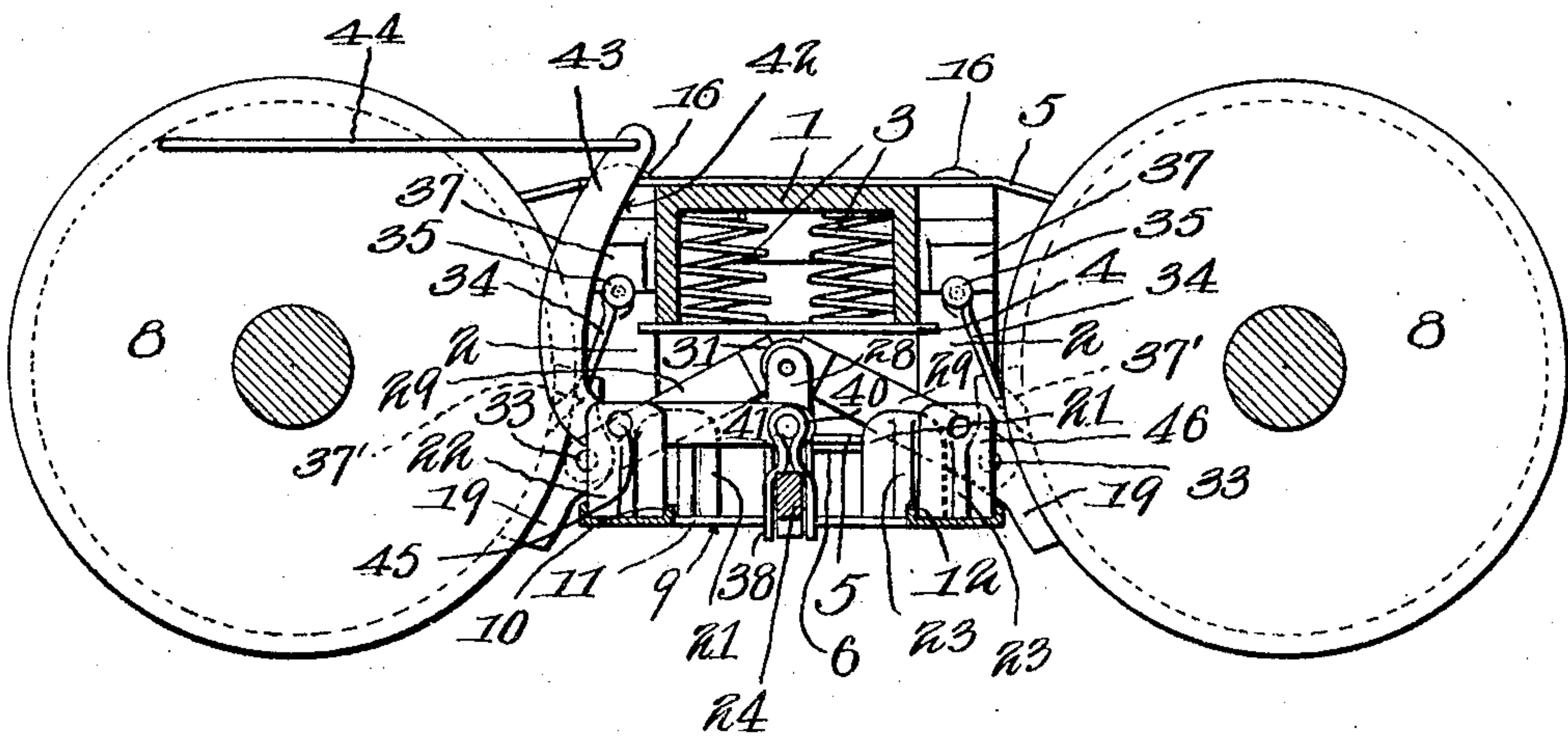


Fig. 4.



Witnesses:  
*E. J. Stewart*  
*R. M. Elliott.*

*James B. McKiel*, Inventor,  
by *C. A. Snow & Co.*  
Attorneys.



# UNITED STATES PATENT OFFICE.

JAMES B. McKIEL, OF MARSHALL, TEXAS.

## CAR-BRAKE.

SPECIFICATION forming part of Letters Patent No. 764,617, dated July 12, 1904.

Application filed March 22, 1904. Serial No. 199,394. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES B. McKIEL, a citizen of the United States, residing at Marshall, in the county of Harrison and State of Texas, have invented a new and useful Car-Brake, of which the following is a specification.

This invention relates to car-brakes.

The object of the invention is in a certain and practical manner to eliminate the danger of accidents resulting from the breaking or disconnection of brake-shoe beams, which frequently results in the derailment of trains or in badly damaging the brake-actuating mechanism; furthermore, to insure positive application of the brakes and with as much power and certainty of operation as with brakes of the ordinary construction.

With the above and other objects in view, as will appear as the nature of the invention is better understood, the same consists in the novel construction and combination of parts of a beamless car-brake, as will be hereinafter fully described and claimed.

In the accompanying drawings, forming a part of this specification, and in which like characters of reference indicate corresponding parts, there is illustrated one form of embodiment of the invention capable of carrying the same into practical operation, it being understood that various changes as to shape, proportion, and exact manner of assemblage may be made without departing from the spirit thereof.

In the drawings, Figure 1 is a plan view of an inverted car-truck having associated therewith the brake-operating mechanism of this invention. Fig. 2 is a view in transverse section, taken on the line 22, Fig. 1, and looking in the direction of the arrow thereon. Fig. 3 is a perspective view of an inverted bed-plate supporting the brake mechanism, exhibiting all the parts of the brake mechanism in their assembled relations. Fig. 4 is a longitudinal sectional view with the truck in its normal or operative position.

Referring to the drawings, 1 designates the bolster-truck; 2, the truck-columns; 3, the bolster-springs; 4, the spring-plank upon which the lower ends of the springs 3 bear; 5, the arch-bars; 6, the pedestal tie-bar; 7, the jour-

nal-boxes, and 8 the truck-wheels. These parts may be of the usual or any preferred construction, and as they form no essential part of the present invention detailed description of them is omitted.

The present invention resides in the novel form of car-brake and the means for applying the same to the truck-wheels.

The brake embodies in its construction a bed-plate 9, which is preferably constructed of cast-iron and is provided along the edges of its under side with depending flanges or strengthening-webs 10 to brace the structure against yielding in operation. The bed-plate is by preference a hollow or skeleton structure for purposes of lightness, although, if preferred, it may be solid throughout and is provided at its center portion with an opening 11, the walls of which are preferably reinforced by a downward-projecting flange 12. Each end of the plate is provided with two arms 13, the end portion of each of which is formed into a right-angle bend 14, the terminals 15 of the arms being secured between the truck-columns 2 and the arch-bars and tie-bars 5 and 6, respectively, and held in position through the medium of bolts 16, which extend through the truck-columns, terminals 15, arch and tie bars and are held in position by nuts 17. The arms 13 intermediate of their length are reduced in width, as shown at 18, to permit free movement of the brake-shoes 19, presently to be described. The upper side of the plate 10 carries two longitudinally-disposed fulcrums 20, four transversely-disposed guides 21, located at the narrow portions 18 of the arms 13, and two transversely-disposed fulcrums 22, arranged intermediate of the ends of the bed-plate and on each side thereof. These fulcrums and guides are by preference cast or formed integral with the bed-plate and are reinforced against lateral yield by reinforcing-ribs 23. As before stated, it is intended that the bed-plate, with its guides and fulcrums, shall be cast in one piece, and thus present an integral structure; but, if preferred, the bed-plate may be cast or otherwise formed as one piece, and the fulcrums and guides may be assembled therewith in any preferred manner. It is



further to be stated in this connection that while the form of bed-plate herein shown is thoroughly adapted for the purposes designed it may be found in adapting this form of  
5 brake to different styles of trucks that various parts of the plate will have to be changed or modified, and as this will properly come within the limits of the invention it is only necessary to illustrate one form.

10 The brake mechanism comprises two arched or bent levers 24, constituting brake-bar-actuating levers, the crests of the bends being disposed toward the truck-bolster and the levers being pivoted intermediate of their  
15 ends between the fulcrums 20, preferably by a split or cotter pin 25. The outer end of each of the levers is pivoted between the bifurcated eye 26 of a shackle or yoke 27, the head 28 of which straddles the juncture of  
20 the pairs of brake-bars 29 and is held combined therewith through the medium of a pivot 30, which may be in the nature of a split pin or bolt, as may be preferred. In order to secure requisite strength at the oppos-  
25 ing ends of the brake-bars, these ends are formed into a knuckle-joint 31, through the center of which extends the fulcrum-pin 30.

The outer ends of the brake-bars carry the brake-shoes 19, which may be of the usual or  
30 any preferred construction, and are held assembled with the brake-bars by bolts 33, the shoes being held against dropping through the medium of hanger-loops 34, which are supported by pins or bolts 35, carried by eyes  
35 36, supported from inward-projecting arms 37, carried by the truck-columns 2, these arms being, by preference, integral with the truck-columns; but, if preferred, they may be separate structures and suitably assembled there-  
40 with. The connection between the brake-shoes and the crests of the hanger-loops is effected by providing the brake-shoes with angular slots 37', in which the said crests rest, the slots being of such depth that the loops  
45 will always be held out of contact with the car-wheels, thus to avoid wear. The loops 34 will permit of the brake-shoes having requisite play to prevent any grinding action between them and the truck-wheels 8 and further permit ready disconnection of the brake-shoes  
50 when necessary. Intermediate portions of the brake-bars work between the guides 21, and thus the shoes are always caused properly to contact with the truck-wheels.

55 The inner ends of the brake bars and levers are pivoted between the head 38 of a shackle 39, the lower portion of the shackle being formed with a bifurcated eye 40, between which is pivoted the inner end of the horizon-  
60 tal arm 41 of a bell-crank lever 42, the upright arm 43 of which has connected with it a rod 44, which is connected with the air-drum of the air-brake system. The bend of the bell-crank lever is pivoted between the mem-  
65 bers of the fulcrum 22 and is held combined

therewith through the medium of a bolt or pin 45. In the arrangement shown the brakes can be operated from one direction only; but by the employment of a supplemental fulcrum  
70 46 the brake can be made interchangeable—that is to say, the bell-crank lever may be shifted from one side of the plate to the other—and thus render the brakes applicable from either end of the car, or an additional bell-  
75 crank lever may be employed, so that without changing any of the parts of the structure the brakes may be applied from both ends of a car.

The brake mechanism of this invention is herein shown as applied to a truck having but  
80 four wheels; but it will be obvious that it may be applied to trucks having six or eight wheels and still be within the scope of the invention.

In operation when draft is applied to the  
85 rod 44 the bell-crank lever 43 is rocked on its fulcrum, thereby lifting the brake-bar-actuating levers 24 and in turn, through the medium of the shackles 27, depressing the inner  
90 ends of the brake-bars 29, causing the outer ends to lift, and thus force the brake-shoes against the wheels. As the combination of the shackle 28 and the upwardly-inclined  
95 brake-bars 29 form, in effect, a toggle-joint, it will be seen that with the minimum of power the maximum force may be exerted by the brake-shoes upon the wheels to effect, if nec-  
essary, their locking.

All of the parts of the device are secured at two and at some instances three points, so  
100 that in the event of breaking of a bolt the part thus rendered inoperative will not drop to the ground and endanger the safety of the train. Furthermore, the parts are all ex-  
ceedingly simple in construction, and repairs  
105 may readily and cheaply be effected when necessary.

Having thus fully described my invention, what I claim is—

1. In a car-brake, the combination with a  
110 bed-plate, of pairs of brake-bars the outer end of each of which carries a brake-shoe, a shackle connecting the inner ends of the brake-bars, brake-bar-actuating levers having one end  
115 connected with the shackle, the said shackle to which the inner ends of the said levers are connected, and means for actuating the levers to cause application of the brake-shoes.

2. A car-brake embodying a bed-plate pro-  
120 vided with a plurality of guides and fulcrums, pairs of brake-bars working between the guides and having their outer ends provided with brake-shoes, a shackle connecting each pair of brake-bars, a pair of brake-bar-actuat-  
125 ing levers pivoted between fulcrums and connected at their outer ends with the shackles of the brake-bars, a shackle to which the inner ends of the brake-bar-actuating levers are connected, and means connected with the latter shackle to actuate the said levers.  
130



3. A car-brake embodying a bed-plate having its upper face provided near each end with transversely-disposed pairs of guides and with longitudinally and transversely disposed pairs  
5 of fulcrums, brake-bars working between the guides and having their outer ends provided with pivoted brake-shoes, shackles connecting the inner ends of the brake-bars, a pair of  
10 brake-bar-actuating levers mounted between the longitudinally-disposed fulcrums and connected at their outer ends with the shackles of the brake-bars, a shackle connecting the inner ends of the brake-bar-actuating levers,  
15 and a bell-crank lever pivoted between the transverse fulcrums and connected at one end to the shackle of the brake-bar-actuating levers and at its opposite end with the air-drum of the brake system.

4. A car-brake embodying a bed-plate provided with transversely-disposed guides and longitudinally and transversely disposed fulcrums, brake-bars mounted between the transverse guides and carrying brake-shoes at their outer ends, shackles connecting the inner ends  
25 of the brake-bars, brake-bar-actuating levers pivoted between the longitudinal fulcrums and connected at their outer ends with the shackles of the brake-bars, a shackle connecting the inner ends of the said levers, and a bell-crank  
30 lever pivoted between the transverse fulcrums and having one end connected with the shackle

of the brake-bar-actuating levers and its opposite end with the air-drum of the brake system.

5. A car-brake embodying a skeleton bed-plate having its edges reinforced by downward-turned flanges, transversely-disposed guides arranged near each end of the plate and integral therewith, longitudinally and transversely disposed fulcrums integral with  
35 the plate, pairs of brake-bars engaging the guides, brake-shoes carried by the outer ends of the brake-bars and having recesses, hanger-loops supported from the truck-columns and engaging the recesses, a shackle connecting  
40 each pair of brake-bars, brake-bar-actuating levers pivoted between the longitudinal fulcrums and connected at their outer ends with the shackles of the brake-bars, a shackle connecting the inner ends of the brake-bar-actuating levers, and a bell-crank lever pivoted  
45 between one of the transverse fulcrums, and having one end connected with the shackle of the brake-bar levers and its other arm with the air-drum of the brake system.  
55

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

JAMES B. McKIEL.

Witnesses:

EDWARD G. CLAYTON,  
THOMAS W. SALING.