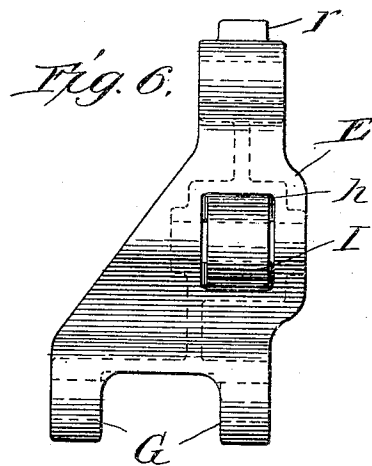
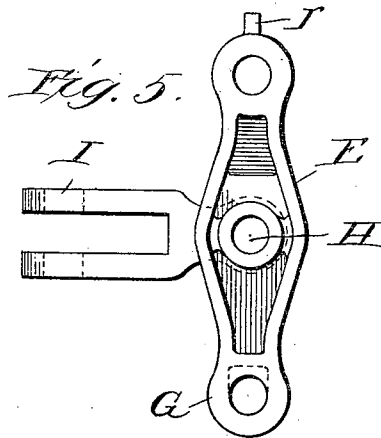
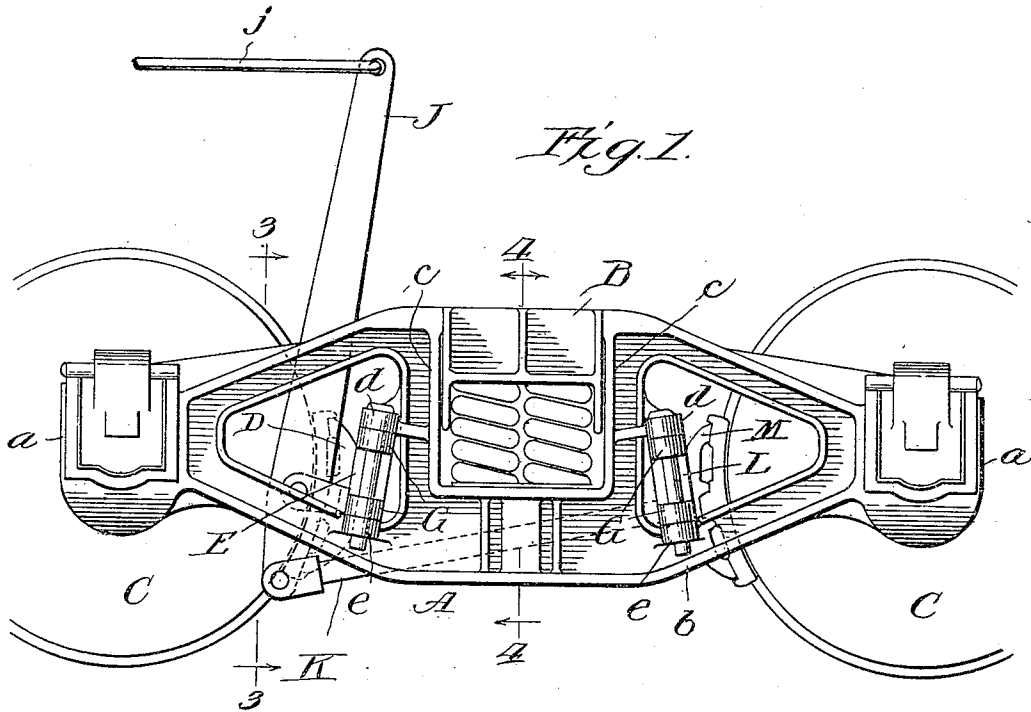


W. P. BETTENDORF.
BEAMLESS BRAKE MECHANISM FOR RAILWAY CARS.
APPLICATION FILED DEC. 18, 1909.

956,673.

Patented May 3, 1910.

2 SHEETS—SHEET 1.



Witnesses:

Harry S. Gaither
E. Lundy.

Inventor:

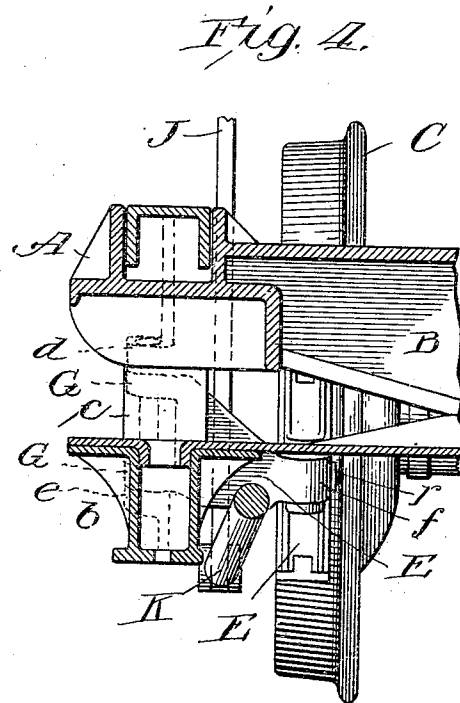
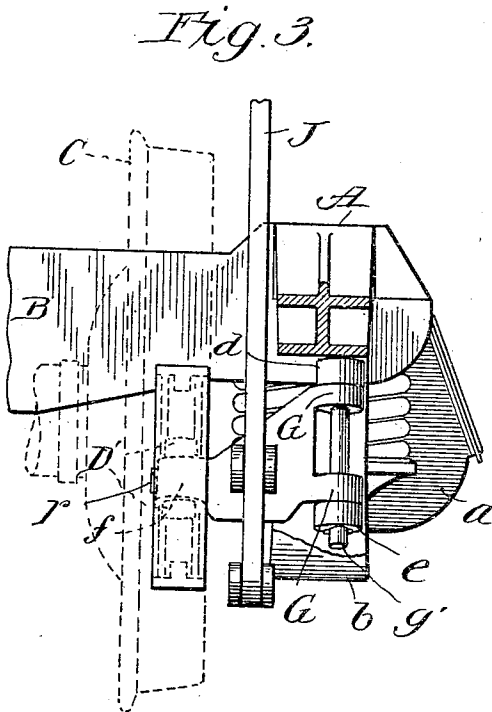
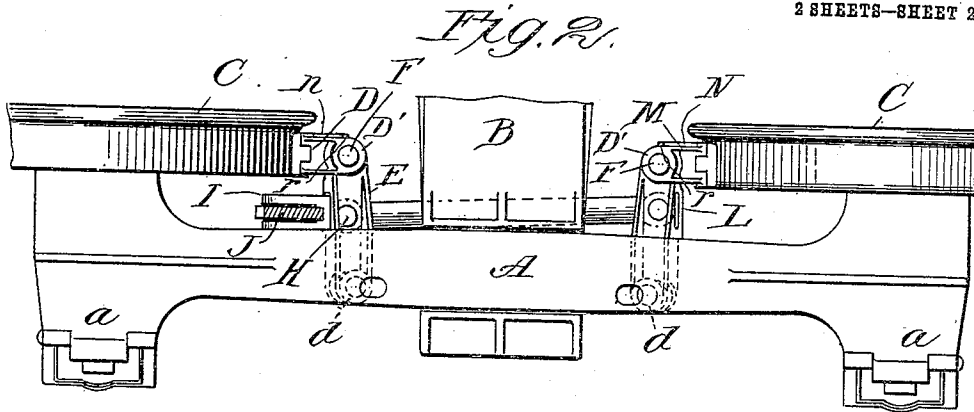
William P. Bettendorf
by Frank D. Thoma
att'y

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UNITED STATES PATENT OFFICE.

WILLIAM P. BETTENDORF, OF DAVENPORT, IOWA.

BEAMLESS BRAKE MECHANISM FOR RAILWAY-CARS.

956,673.

Specification of Letters Patent.

Patented May 3, 1910.

Application filed December 18, 1909. Serial No. 533,818.

To all whom it may concern:

Be it known that I, WILLIAM P. BETTENDORF, a citizen of the United States, residing at Davenport, in the county of Scott and State of Iowa, have invented new and useful Improvements in Beamless Brake Mechanism for Railway-Cars, of which the following is a full, clear, and exact description.

My invention relates more particularly to the breaking mechanism of railway cars, and while capable of use in connection with any kind of a passenger or freight car, is especially applicable to the modern ore or hopper car, wherein for obvious reasons all working parts of the brake-mechanism must be kept above the lower plane of the truck-bolster, and the actuating parts kept from passing crosswise the underframe.

The object of my invention is to avoid brake-beam deflection, either longitudinally or transversely, and thus enable the full force of the actuating power to be exerted by the brake-shoes against the face or circumference of the car-wheels.

Another object of my invention is to swing the brake-shoes to and from the circumference of the car-wheels so that the engaging surface of the shoes may come in contact with said circumference at every point throughout its length at the same instant, and when released withdraw from contact at every point throughout its length at the same time.

Another object is to so articulate the brake-shoe bracket to its support that when the actuating power is withdrawn the bracket will automatically gravitate away from the wheel, and still another object is to so articulate the brake-shoe head or holder to its support that when the brakes are applied the shoe will automatically adjust itself so that its contacting surface will bear flat against the circumference or tread of the wheel and will wear evenly.

These and other advantages I accomplish by the means hereinafter fully described and as particularly pointed out in the claims.

In the drawings:—Figure 1 is a side elevation of my invention. Fig. 2 is a plan view of the same. Fig. 3 is a transverse section taken on line 3, 3, Fig. 1. Fig. 4 is a transverse section taken on dotted line 4, 4, Fig. 1, looking in the direction indicated by the arrows. Fig. 5 is a top plan view of the

swinging brake-shoe holder bracket of said invention. Fig. 6 is a side elevation of the same.

In the drawings A represents the side-frame of a car-truck, which, while not necessarily so, I prefer to make of integral cast steel, including the journal-boxes, *a, a*, at the ends thereof, substantially as described, and claimed in Letters Patent of the United States granted to me October 6, 1903, No. 740,617.

B represents the bolster, which may be of any of the conventional types, and C, C, represent the car-wheels, the journals of the axles of which have bearing in integral journal-boxes. My invention, however, is just as applicable to a pedestal truck as to the form of diamond-frame truck shown in the drawings.

The side-frames A comprise an upper arch-bar, a lower arch-bar, *b*, and guide-columns, *c*. These guide-columns, *c*, about their centers of height, are provided with pivotal-lugs, *d, d*, and the lower arch-bars adjacent to the base of said column-guides are likewise provided with pivotal-lugs, *e, e*. These lugs, preferably, project outward beyond the plane of the outer surfaces of the side-frames, and are provided with knuckles or pivotal bosses, the axial line of the perforations of which aline and are tipped or inclined from the lower knuckle toward the column-guides at a suitable angle.

The brake-shoe holder or block D is of the conventional shape, and has twin-lugs or knuckles D', D', projecting from its back, and it is pivotally secured to the free end of a swinging bracket E, by means of a boss *f* on the end of the latter that fits between lugs D' of the holder, and has a suitable bolt F extended through it and the alining perforations in knuckles D'. The object in thus pivotally connecting the brake-shoe holders to the brackets is so as to enable the shoes, when applied to the wheels, to automatically adjust themselves so that the contacting surfaces thereof will bear flat against the face or tread of the circumference of the car-wheels and not wear uneven, but be effective throughout their length and breadth. The opposite end of bracket E extends through the opening in the side-frame bounded by the upper arch-bar, the lower arch-bar and the guide-column and

is provided with lugs or knuckles G, G, that come between and contact with the lugs d, d, to which they are pivotally connected by a pintle g'. The length of bracket E is such that when moved into a position substantially at right angles to the length of the side-frame, the center of the joint between it and the brake-shoe holder will be about in a longitudinal vertical plane intersecting the centers of width of the tread of the wheels. Between its ends bracket E, is, preferably, made of two vertical walls, and about midway between said ends these walls are provided with transverse openings, h, both above and below which, said vertical walls are connected by transverse webs that are, midway between said walls, provided with a hole for the pivotal bolt H by means of which the adjacent end of a link or arm I is connected thereto. The remainder of this link or arm is divided or bifurcated for the greater part of its length, and a live lever J is pivoted thereto between said bifurcations. The upper and longer arm of lever J extends above the side-frame a suitable distance and is connected by a suitable rod j to the source of actuating power. The lower shorter arm of said lever extends to or slightly below the horizontal plane of the lower edge of the side-frame, and has rod, K, pivotally connected thereto, which extends therefrom in an oppositely inclined direction to a swinging bracket, L. This bracket, L, is constructed on substantially the same lines as bracket E, and is pivotally connected to the guide-column of the side-frame opposite that to which bracket E is pivoted, and is also pivoted to the portion of the lower arch-bar adjacent to the base of this last mentioned guide-column so that the axis of its pivot is inclined at its upper end toward the guide-column in the opposite direction to but in substantially the same manner as bracket E. The adjacent end of rod K enters an opening, located at about the center of length of bracket L and is pivoted thereto by means of a suitable bolt or pintle. The free end of bracket L has a suitable brake-shoe holder M pivoted thereto in the same manner that the brake-shoe holder D is pivoted to bracket E and is constructed in the same manner; in fact these holders D and M, and the brake-shoes are interchangeable and both of said holders are provided with laterally projecting lugs r, r, that are adapted to engage stop lugs, n, and N, respectively, and limit the rotative movement of the brake-shoe holders, and prevent their swinging out to an extent that the brake-shoes would engage the flange when brought into contact with the tread of the wheel.

In operation, when the live-lever J is moved so as to pull the bracket E toward

the wheel and bring the brake-shoe into contact with the tread of the same, its lower arm, moving in the opposite direction to its upper arm, pushes the dead bracket L toward the opposite car-wheel and pushes the brake-shoe into contact with the tread of the same.

My improved brake-mechanism for applying the brake-pressure to the wheel on one side of the truck, while constructed the same, is entirely separate and distinct from that engaging the wheels on the opposite side of the truck, and they can be manipulated either separately, or actuated from a single source of power.

What I claim as new is:—

1. In a car-truck the combination with the side-frames, and car-wheels thereof, of brake-shoes, brake-shoe holders supported independent of the truck-bolster, means pivotally connected to and supported by said side-frames in transverse planes between said wheels for carrying said brake-shoe holders, and mechanism for actuating said means.

2. In a car-truck the combination with the side-frames, and car-wheels thereof, of brake-shoes, brake-shoe holders supported independent of the truck-bolster, automatically returnable means pivotally connected to and supported by said side-frames in transverse planes between said wheels for carrying said brake-shoe holders, and mechanism for actuating said means.

3. In a car-truck the combination with the side-frames, and car-wheels thereof, of brake-shoes, brake-shoe holders, gravity returnable means pivotally connected to and supported by said side-frames in transverse planes between said wheels for carrying said brake-shoe holders, and mechanism for actuating said means.

4. In a car-truck the combination with the side-frames, and car-wheels thereof, of brake-shoes, brake-shoe holders supported independent of the truck-bolster, brackets pivotally connected to and supported by said side-frames in transverse planes between said wheels for carrying said brake-shoe holders, and mechanism for actuating said brackets.

5. In a car-truck the combination with the side-frames, and car-wheels thereof, of brake-shoes, brake-shoe holders supported independent of the truck-bolster, means pivotally connected to and supported by said side-frames in transverse planes between said wheels to which said brake-shoe holders are pivotally connected, and mechanism for actuating said means.

6. In a car-truck the combination with the side-frames, and car-wheels thereof, of brake-shoes, brake-shoe holders supported independent of the truck-bolster, brackets piv-

otally connected to and supported by said side-frames in transverse planes between said wheels to which said brake-shoe holders are pivotally connected, and mechanism for
5 actuating said brackets.

7. In a car-truck the combination with the side-frames and car-wheels therefor, of brake-shoe holders supported independent of the truck-bolster, brackets pivotally connected to and supported by said side-frame,
10 to the swinging end of which said holders are pivotally connected and mechanism for actuating said brackets.

8. In a car-truck the combination with the side-frames, and car-wheels, of brackets pivotally connected to and supported by said side-frame, brake-shoe holders supported independent of the truck-bolster having a limited pivotal connection with the
15 swinging ends of said brackets, and mechanism for actuating said brackets.

9. In a car-truck the combination with the side-frames, and car-wheels therefor, of brake-shoe holders, gravity returnable
20 brackets pivotally connected to and supported by said side-frame, to the swinging end of which said holders are pivotally connected and mechanism for actuating said brackets.

10. In a car-truck, the combination with the side-frame, and car-wheels, of gravity returnable brackets pivotally connected to and supported by said side-frame, brake-shoe holders having a limited pivotal connection
25 with the swinging ends of said brackets, and mechanism for actuating said brackets.

11. In a car-truck the combination with the side-frames, and car-wheels therefor, of brackets having a vertically disposed inclined pivotal connection with said side-frame, brake-shoe holders suitably connected to the swinging ends of said brackets,
30 and mechanism for actuating said brackets.

12. In a car-truck, the combination with the side frames and car-wheels therefor, of brackets having pivotal lugs at one vertically disposed edge, one of which is pivotally connected to the guide-columns of said side-frame and the other to the lower arch
35 bar adjacent to said columns, brake-shoe holders suitably connected to the swinging ends of the same, and mechanism for actuating said brackets.

13. In a car-truck, the combination with the side-frames and the car-wheels thereof, of brackets pivotally connected to said side-frames, brake-shoe holders secured to the swinging ends of said brackets, a live-lever fulcrumed to one of said brackets, and a
40 connecting-rod connecting said live-lever to the other bracket.

14. In a car-truck, the combination with the side-frames and the car-wheels thereof, of brackets pivotally connected at a verti-

cally disposed inclined angle toward each other, a live-lever, fulcrumed to one of said brackets, and a rod connecting the shorter arm thereof to the other bracket.

15. In a car-truck the combination with the side-frames, and the car-wheels thereof, of brackets pivotally connected to said side-frames, brake-shoe holders carried thereby, a link pivotally connected to one of said brackets, a live-lever pivotally connected to said link, and a connecting-rod connecting
45 said lever to the other bracket.

16. In a car-truck the combination with the side-frames, and the car-wheels thereof, of brackets pivotally connected to said side-frames at a vertically disposed inclined angle toward each other, brake-shoe holders carried thereby, a link pivotally connected to one of said brackets, a live-lever pivotally connected to said link, and a connecting-rod connecting said lever to the other bracket.

17. In a car-truck the combination with the side-frames and the car-wheels, of brackets pivotally connected to said side-frames and provided with an opening therethrough at about their centers of length, a link having one end pivoted within the opening of one bracket, a live-lever fulcrumed to the other end thereof, a rod connected at one end to said lever and having its opposite end pivotally connected within
50 the opening of the other bracket, and brake-shoe holders suitably secured to said brackets.

18. In a car-truck the combination with the side-frames and the car-wheels, of brackets pivotally connected to said side-frames at a vertically disposed inclined angle toward each other, and provided with an opening therethrough at about their centers of length, a link having one end pivoted within the opening of one bracket, a live-lever fulcrumed to the other end thereof, a rod connected at one end to said lever and having its opposite end pivotally connected within the opening of the other bracket, and
55 brake-shoe holders suitably secured to said brackets.

19. In a car-truck the combination with the side-frames and the car-wheels, of brackets pivotally connected to said side-frames and provided with an opening therethrough at about their centers of length, a link having one end pivoted within the opening of one bracket, a live-lever fulcrumed to the other end thereof, a rod connected at one end to said lever and having its opposite end pivotally connected within the opening of the other bracket, and brake-shoe holders
60 pivotally secured to said brackets.

20. In a car-truck the combination with the side-frames and the car-wheels, of brackets pivotally connected to said side-frames at a vertically disposed inclined angle to-

ward each other, and provided with an opening therethrough at about their centers of length, a link having one end pivoted with the opening of one bracket, a live-lever
5 fulcrumed to the other end thereof, a rod connected at one end to said lever and having its opposite end pivotally connected within the opening of the other bracket, and brake-shoe holders pivotally secured to said
10 brackets.

21. In a car-truck the combination with the side-frame thereof and the car-wheels, of brackets pivotally connected to said side-frames mediate their ends, brake-shoe hold-
15 ers suitably secured to the free ends of said

brackets independent of the truck-bolster, and brake-shoes carried thereby.

22. In a car-truck, the combination with the side-frames thereof and car-wheels, of brake-shoe holders pivotally connected to
20 their support so as to have a limited movement transverse to the tread of the wheels.

In witness whereof I have hereunto set my hand and seal this 15th day of December 1909.

WILLIAM P. BETTENDORF.

Witnesses:

A. B. FRENIER,
F. M. GODDARD.