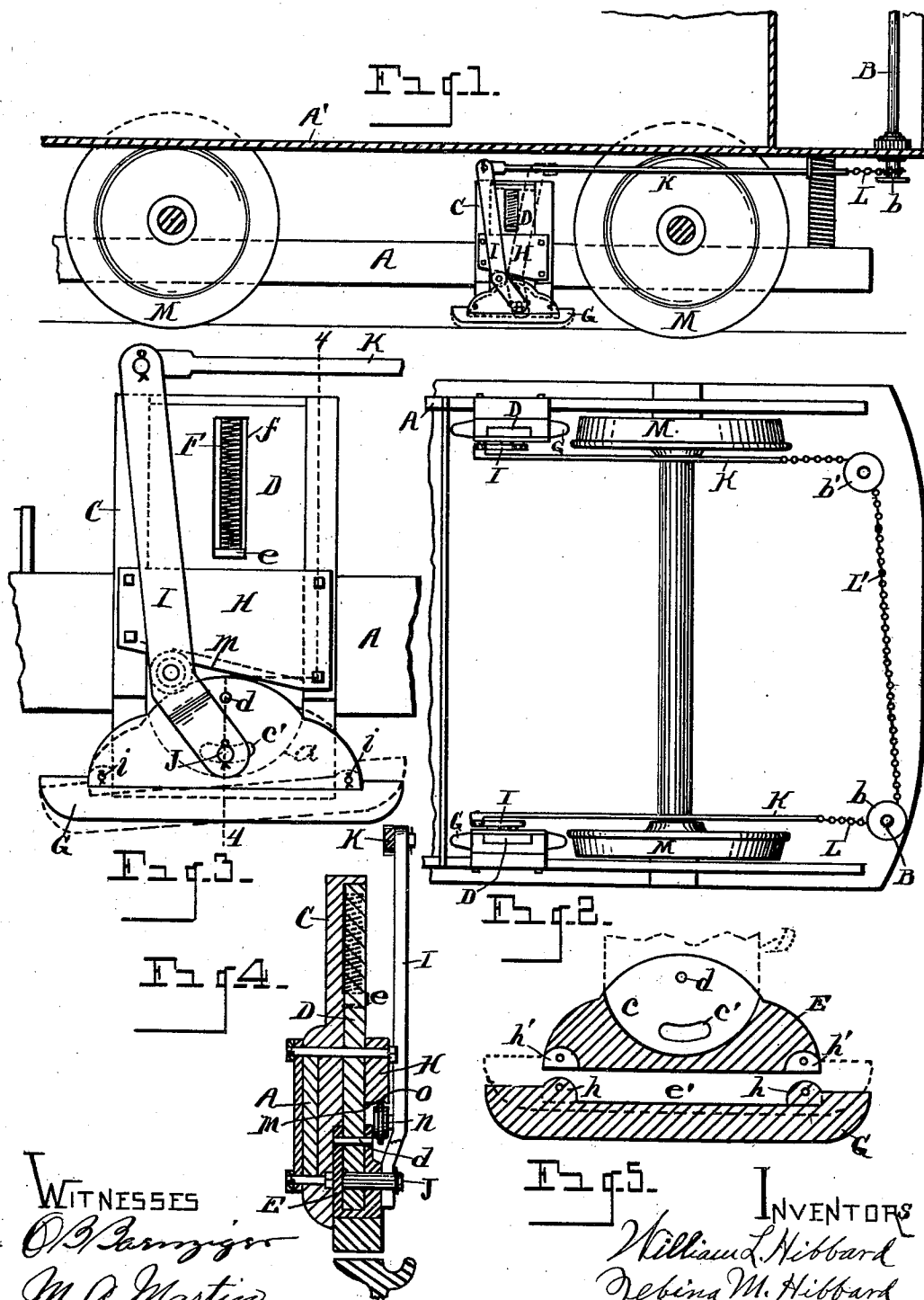


(No Model.)

W. L. & Z. M. HIBBARD.
CAR BRAKE.

No. 586,951

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ASSIGNORS OF ONE-THIRD TO BENSON E. BROWN, OF SAME PLACE.

CAR-BRAKE.

SPECIFICATION forming part of Letters Patent No. 586,951, dated July 20, 1897.

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To all whom it may concern:

Be it known that we, WILLIAM L. HIBBARD and ZEBINA M. HIBBARD, citizens of the United States, residing at Detroit, in the county of Wayne, State of Michigan, have invented certain new and useful Improvements in Car-Brakes; and we do 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 appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to new and useful improvements in car-brakes; and it consists in the construction and arrangement of parts hereinafter fully set forth, and pointed out in the claims.

The object of the invention is to provide a simple and efficient brake for stopping the momentum of the car by the application of the brake-shoe to the rail of the track, the mechanism for actuating said brake being mounted on the frame of the truck and the actuation of said mechanism being accomplished through the ordinary brake wheel or lever. This object is attained by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a view showing the application of our improved mechanism to the truck-frame of the car, the platform of the car as well as the axle and portions of the frame being in section. Fig. 2 is a plan view of one end of the truck-frame, showing the mounting of the brake mechanism on opposite sides of said frame and means for actuating said mechanism in unison. Fig. 3 is an enlarged elevation of the brake mechanism, the bars of the frame on which said mechanism is mounted being broken away. Fig. 4 is a vertical section, as on line 4 4 of Fig. 3. Fig. 5 is an enlarged detail, in vertical section, of the shoe-holder and the brake-shoe adapted to be removably attached thereto.

Referring to the letters of reference, A designates the frame of the truck, which may be of any suitable construction and upon which is mounted the platform or car-bed A', carrying at the end the ordinary brake-shaft

B, which is journaled in said platform and projects therethrough, carrying on its lower end a suitable drum *b*, upon which the chains or cables may be wound which actuate the brake mechanism.

C designates a heavy bracket which is adapted to be bolted to the frame A of the truck and which is provided in its inner vertical face with a way adapted to receive the vertically-movable plate D. The lower end of said plate D is rounded, as shown by dotted lines *a* in Fig. 3, and is adapted to lie in a circular socket *c*, (shown in Fig. 5,) which is formed in the upper edge of the shoe-holder E, said plate being pivoted in said socket by means of the pin *d*, which passes through the shoe-holder and said movable plate, as clearly shown in Fig. 4. It will be seen that the socket *c* in the shoe-holder E is curved concentric with the point of pivot *d*, so that the rounded end *a* of the plate D has at all times a bearing in said socket, thereby relieving all strain from the pivot-pin *d*, which serves only to lift the shoe-holder when the sliding plate D is raised.

Formed in the upper end of the vertically-movable plate D is a vertical slot *f*, and projecting from the face of the bracket C is a fixed stud *e*, which lies in the lower end of said slot *f*.

F designates a stiff coiled spring, which is located within the slot *f* in the plate D, the lower end of said spring bearing upon the fixed stud *e* and the upper end thereof engaging the upper end of said slot *f*, by which arrangement said spring F serves to raise the plate D after being depressed.

G designates the brake-shoe, which is provided with a recess *e'* in its upper face, adapted to receive the body of the shoe-holder E, and with the projecting ears *h*, adapted to enter corresponding recesses *h'* in the under face of said holder, in which said ears of the shoe are securely confined by means of transverse pins *i*, which pass through said parts, by which arrangement the shoe is securely attached to the shoe-holder and at the same time made readily removable for the purpose of replacing a worn shoe with a new one or when it is desired to remove the shoe for any cause.

Bolted to the vertical face of the bracket C is a cross-plate H, which serves to confine the movable plate D within the way in said bracket and which is provided with an inclined under face *m*, adapted to be engaged by the antifriction-roller *n*, carried by the lever I. This lever I is an angle-lever, as will be seen on referring to Fig. 3, and is pivoted at its lower end on a large steel pin J, which is rigidly mounted in the lower end of the movable plate D and projects through the slot *c'* in the outer face of the shoe-holder, which slot is curved concentric with the pivotal point of said holder *d*, whereby provision is made for an oscillation of said shoe-holder upon said point of pivot, as shown by dotted lines in Fig. 3, the slot *c'* in the holder embracing the pin J permitting of this movement. This slight oscillation which is permitted the brake-shoe obviates any undue strain upon the parts, owing to an uneven surface of the rail, and prevents the possible breaking of the shoe through encountering the high end of a rail at an imperfect joint. The antifriction-roller *n* is journaled to the inner face of said lever I at or near the point of angle therein and is provided with a central flange, which engages a groove *o* (see Fig. 4) in the under face of the inclined edge *m* of the plate H. The upper end of the lever I is pivoted to a horizontal rod K, which extends under the platform of the car and has attached at its forward end a chain or cable L, adapted to wind upon the drum *b* of the brake-shaft. It is evident that by drawing upon the chain L through the operation of the brake-shaft the lever I will be actuated to carry the antifriction-roller *n* thereon against the inclined under face of the cross-plate H, which as the free end of said lever moves forward exerts a wedging force to carry downward the movable plate D and force the brake-shoe G onto the rail of the track, as clearly shown by dotted lines in Fig. 1, at the same time compressing the spring F. Upon the release of the brake-shaft the force of said spring F is exerted to raise the plate D and return the lever I and its operating parts to their normal position, thereby carrying the shoe upward free from the rail of the track.

It is designed to operate two of these brake devices, one on either side of the truck-frame, as shown in Fig. 2, in which case the rods K are both operated by the drum *b* through a second chain L', which crosses the car from an idle-roller *b'* and winds on the said drum *b*, enabling the brake-shoes on opposite sides of the truck-frame to be operated in unison.

This brake mechanism is very compact and strong, and because of the small space which it occupies it may be placed adjacent to the truck-wheels M to always insure contact with the track.

Instead of the mechanism shown for actuating the brake-lever said lever may be operated to depress the brake-shoe by any of the well-known means in common use.

It will be understood that this improved brake device may be applied to the frame of any truck without materially changing the construction shown, and that when properly applied a rail-brake is produced that is quick and powerful in its operation, by means of which the car may be quickly stopped without clamping and sliding the wheels upon the track, obviating the wearing of flat surfaces upon the tread of the wheels, as results from the application of the brake-shoe directly to the periphery of the wheels to arrest the movement of the car. It will also be understood that this brake mechanism is equally effective with the car moving in either direction.

Having thus fully set forth our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In a rail-brake for cars, the combination with the truck-frame, of the vertically-movable plate mounted thereon, the brake-shoe carried by said plate standing adjacent to the rail of the track, the inclined cleat or plate fixed to the truck-frame, the lever pivoted at one end to said movable plate, the antifriction-roller on said lever engaging the inclined face of said fixed plate, and means for actuating said lever to force the shoe into contact with the rail.

2. In a rail-brake for cars, the combination with the frame, the bracket mounted on the frame, the movable plate mounted in a way in said bracket, the brake-shoe on the lower end of said plate, the cross-plate having the inclined edges bolted to said bracket, the lever pivoted at its lower end to said movable plate, the antifriction-roller journaled on said lever and engaging the inclined edge of said cross-plate, said movable plate having a vertical slot in its upper end, the fixed stud projecting from said bracket lying in said slot, the spring lying in said slot engaging the stud and the upper end of the slot-opening, and means for actuating said lever to depress said movable plate and carry the brake-shoe into contact with the rail of the track.

3. In a rail-brake for cars, the combination with the truck-frame, the vertically-movable plate mounted on the frame, said plate having a rounded lower end, the shoe-holder having a curved socket in which the rounded end of said plate is pivoted and which bears therein, said socket being formed concentric with the point of pivot of said parts, the brake-shoe removably attached to said shoe-holder, the fixed plate having an inclined lower edge, said plate being bolted to the truck-frame adjacent to said movable plate, the lever pivoted at its lower end to said movable plate and having an antifriction-roller which engages the inclined edge of said fixed plate, and means for actuating said lever to depress the brake-shoe.

4. In a rail-brake for cars, the combination with the truck-frame, the vertically-movable

plate mounted thereon having a rounded lower end, the shoe-holder carrying the brake-shoe having a curved socket in which the rounded end of said movable plate is pivoted, the pin fixed in the lower end of said movable plate, the curved slot in the face of said shoe-holder through which said pin passes, the lever pivoted at its lower end to said pin, the antifriction-roller journaled to said lever, the fixed plate having an inclined edge which is engaged by said roller, and means for actu-

ating said lever to depress said movable plate and carry the shoe into contact with the rails of the track.

In testimony whereof we affix our signatures in presence of two witnesses.

WILLIAM L. HIBBARD.
ZEBINA M. HIBBARD.

Witnesses:

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MARY A. MARTIN.