

No. 704,506.

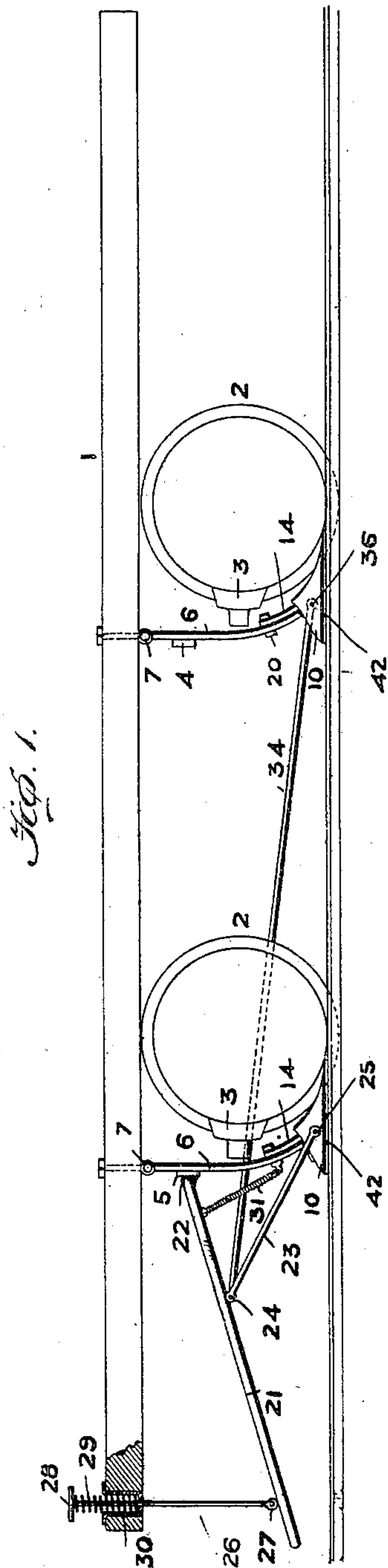
Patented July 15, 1902.

F. O. BROWN & E. T. MOORE.  
CAR BRAKE.

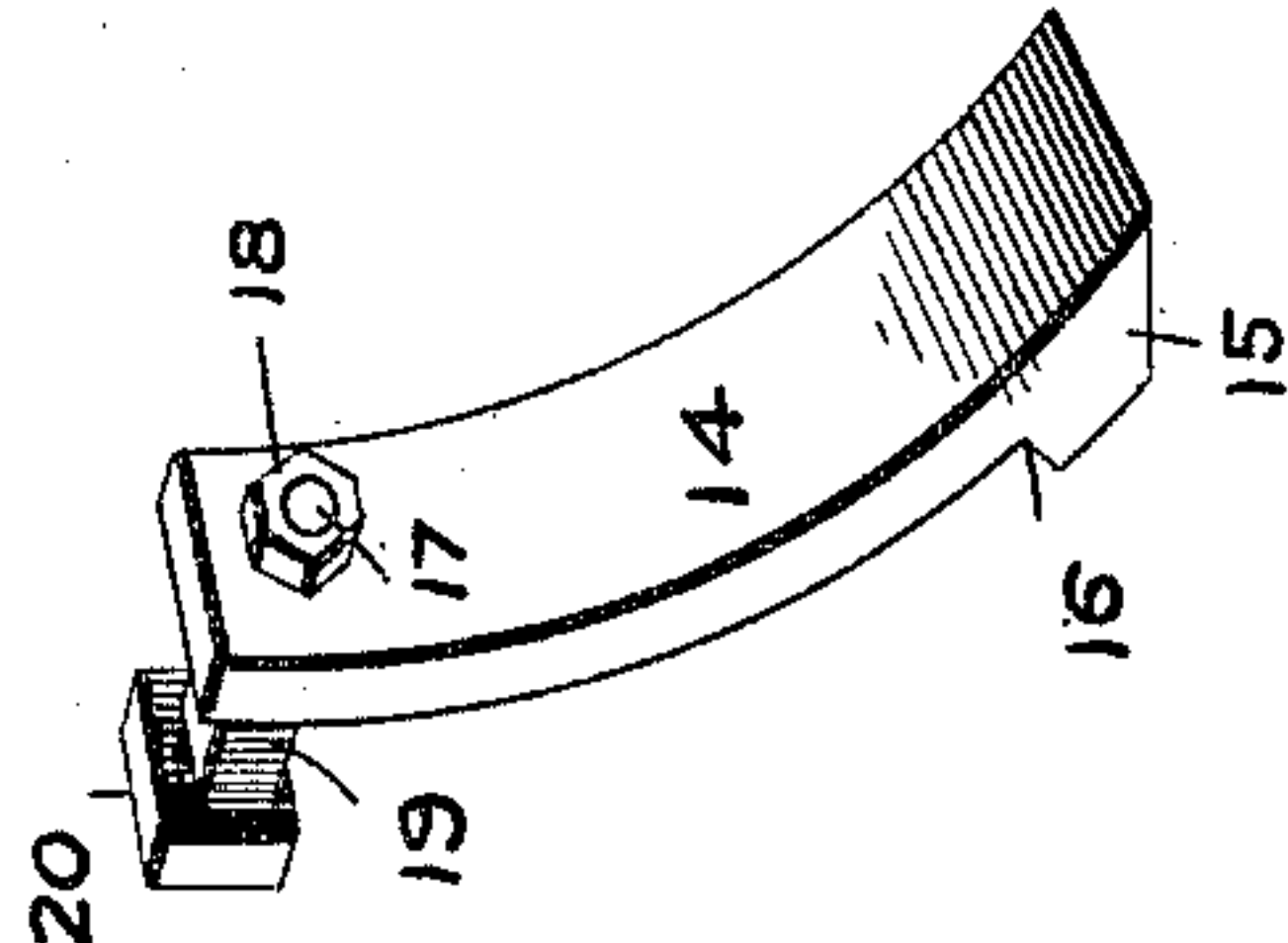
(Application filed Oct. 4, 1901.)

(No Model.)

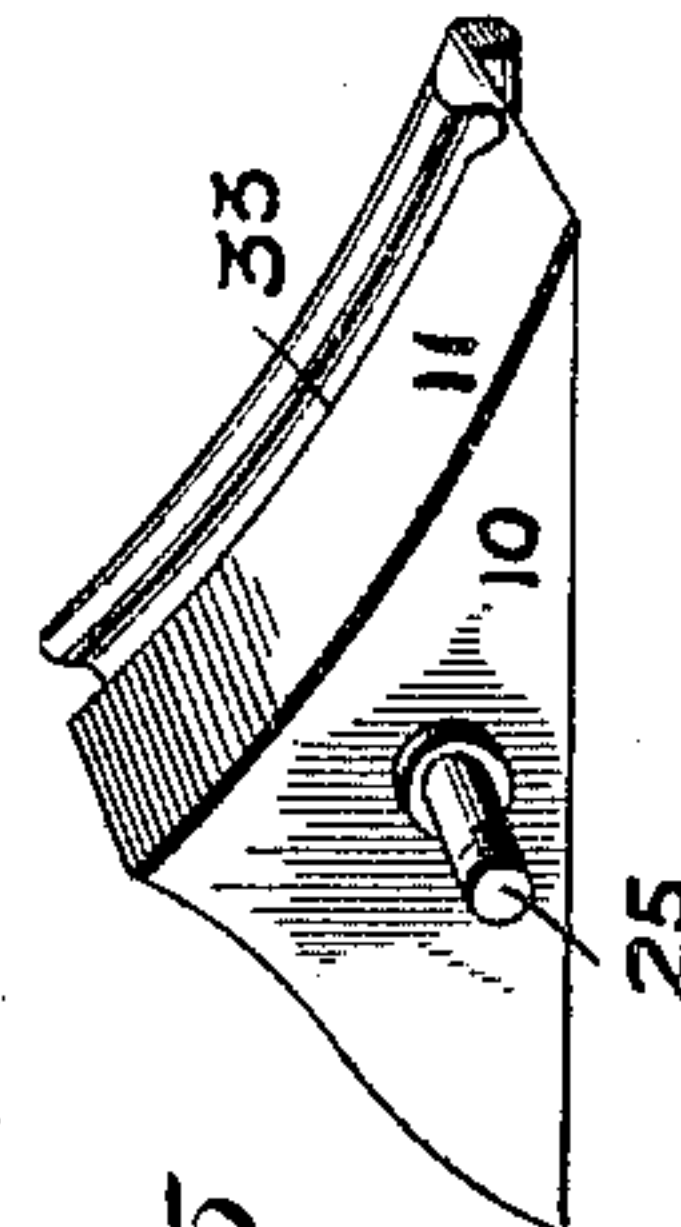
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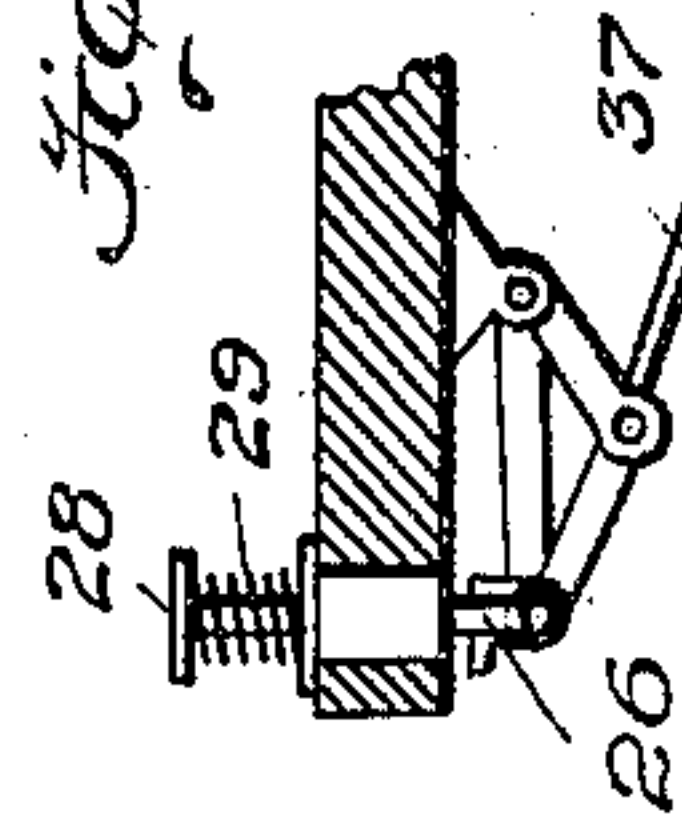
*Fig. 4.*



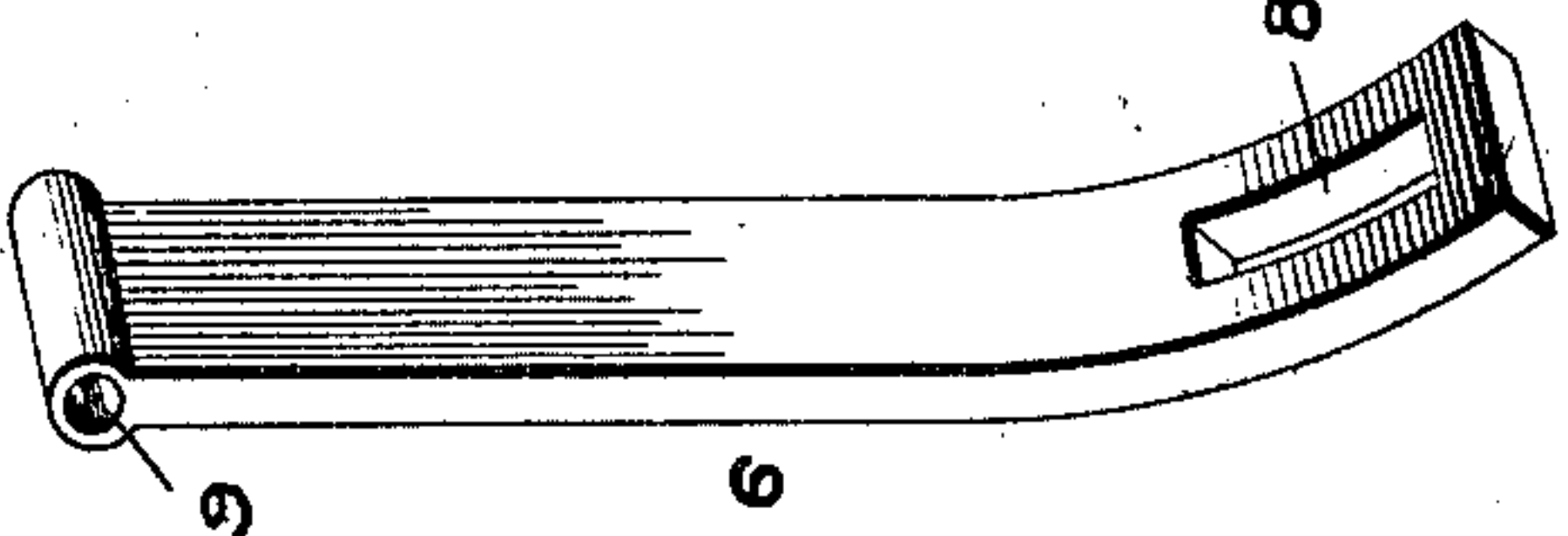
*Fig. 5.*



*Fig. 8.*



*Fig. 3.*



WITNESSES:

*Finis D. Morris,*

INVENTORS  
— F. O. Brown &  
E. T. Moore —  
BY  
*E. H. Bond*  
ATTORNEY

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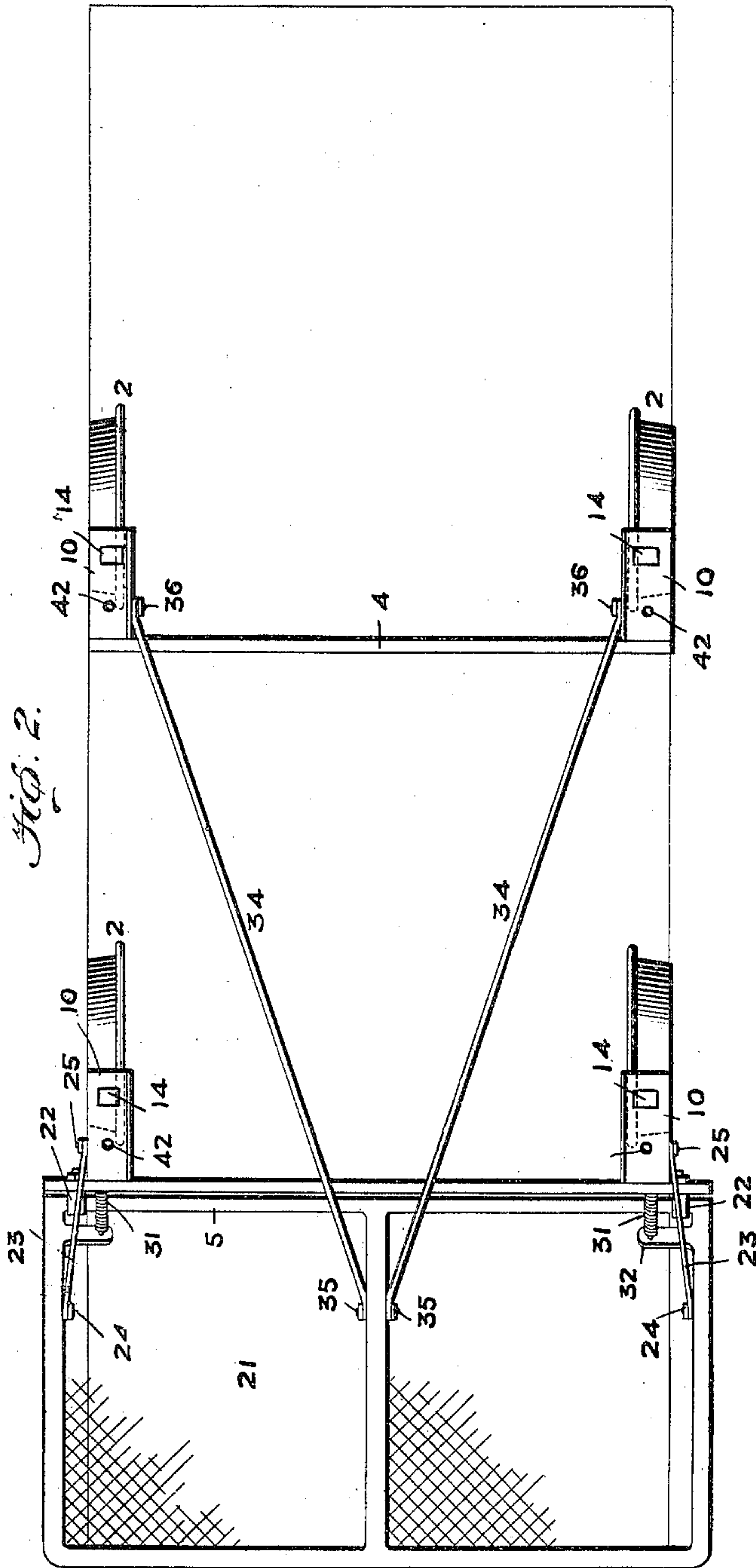
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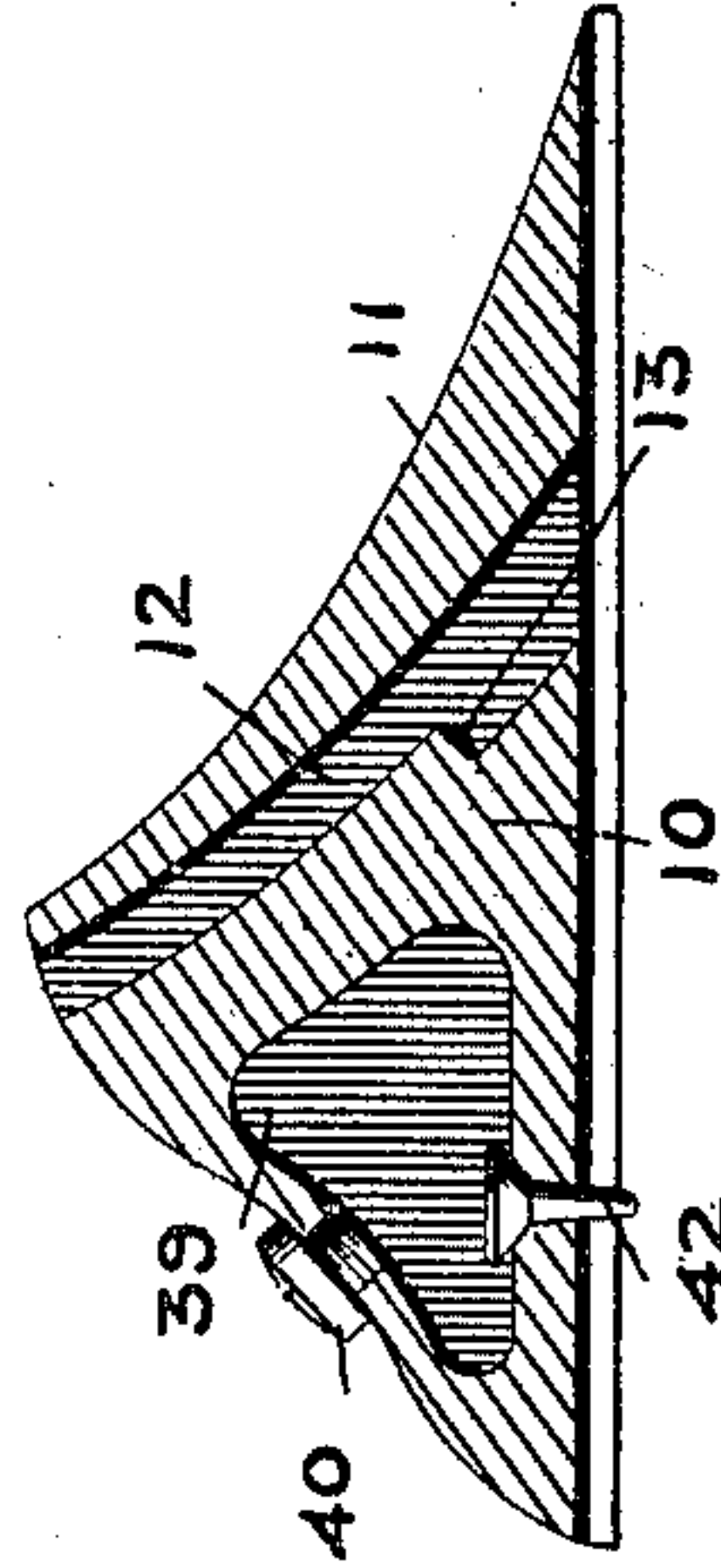
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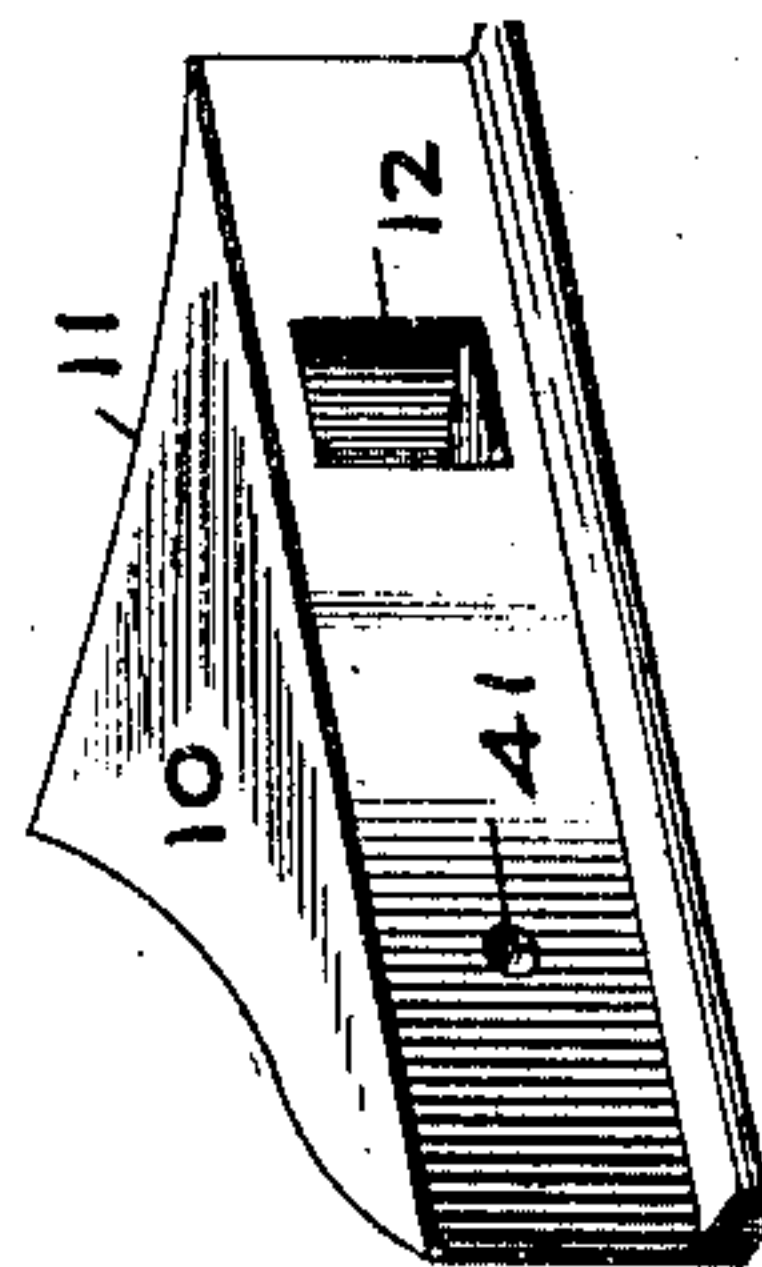
WITNESSES:

*Finis D. Morris*

*Fig. 6.*



*Fig. 7.*



INVENTORS  
F. O. Brown &  
E. T. Moore  
BY  
*E. M. Bond*  
ATTORNEY



# UNITED STATES PATENT OFFICE.

FRANK O. BROWN AND EDWARD T. MOORE, OF DALLAS, TEXAS.

## CAR-BRAKE.

SPECIFICATION forming part of Letters Patent No. 704,506, dated July 15, 1902.

Application filed October 4, 1901. Serial No. 77,590. (No model.)

*To all whom it may concern:*

Be it known that we, FRANK O. BROWN and EDWARD T. MOORE, citizens of the United States, residing at Dallas, in the county of Dallas and State of Texas, have invented certain new and useful Improvements in Car-Brakes; and we do hereby 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.

This invention relates to certain new and useful improvements in car-brakes for street-cars of that class in which the brake is designed to be automatically applied by an object coming in contact with the lower front edge of the fender or apron, which presses it downward and operates the front and rear brake-rods positively, thus forcing the shoe down on the rail and under the wheel, which runs upon the shoe.

The present invention has for its objects, among others, to improve upon this class of devices to the end that the brake shall be more positive in its action, and, further, to simplify and cheapen the construction and provide for the ready attachment of the brake and its operating mechanism to the truck. We form the shoe with a chamber designed to contain fine sharp sand which is designed to be automatically discharged through an opening in the bottom, this opening being controlled by a suitable valve that is automatically opened as the shoe comes in contact with the rail.

Means are provided whereby the brakes may be applied by the motorman, and provision is made for the application of the brake on cars where fenders are not employed.

Other objects and advantages of the invention will hereinafter appear, and the novel features thereof will be specifically defined by the appended claims.

The invention in its preferable form is clearly illustrated in the accompanying drawings, which, with the numerals of reference marked thereon, form a part of this specification, and in which—

Figure 1 is a side elevation with a portion broken away and parts in section, showing the application of the invention. Fig. 2 is a bottom plan with the brakes applied. Fig. 3

is a perspective view of the main hanger. Fig. 4 is a similar view of the shoe-hanger. Fig. 5 is a perspective view of the shoe. Fig. 6 is a substantially central vertical longitudinal section through the shoe. Fig. 7 is a perspective view looking at the bottom of the shoe. Fig. 8 is a detail showing a modification.

Like numerals of reference indicate like parts throughout the several views.

Referring now to the details of the drawings, 1 designates the truck-frame, of any well-known construction.

2 designates the wheels, also of any suitable form, the axles being omitted for the sake of clearness.

3 designates the hand-brakes, adapted to be operated in the usual manner, but the mechanism therefor is not herein illustrated, as it forms no part of the present invention.

4 and 5 are cross-bars disposed in any suitable manner beneath the platform, as seen best in Fig. 1, and these serve their function, as will be hereinafter described.

6 designates hangers pivotally suspended from the truck-frame in any suitable manner, each having its pivot 7 disposed above the axes of the wheels, as seen in Fig. 1, being pivoted in any suitable manner. Each hanger 6 is curved at its lower end, as seen best in Figs. 1 and 3, and there provided with a longitudinal slot 8, its upper end being provided with a boss 9 for the reception of the pivot.

10 is the shoe. It is formed with the curved front face 11 and the passage 12, having the offset or shoulder 13 near its lower end, as seen clearly in Fig. 6, and in this passage is received the shoe-hanger 14, curved, as shown best in Fig. 4, and having at its lower end the enlarged portion 15, with shoulder 16, adapted to engage the shoulder 13 of the shoe. The shoe-hanger 14 has attached thereto at its upper end the bolt 17, provided with the nut 18 and with a rectangular portion 19 and a rectangular head 20, all as seen best in Fig. 4. This bolt is passed through the slot 8 of the main hanger, with its head bearing upon the outer face of the said hanger, so that the shoe-hanger may have movement relative to the main hanger, yet be limited in its movement and held against displacement, as will be readily understood.



21 is the apron or fender. It may be of any suitable form of construction, and in this instance is shown as pivotally supported, as at 22, on the front cross-bar 5.

23 indicates rods pivotally connected, as at 24, to the under side of the frame of the fender and at the other ends pivotally mounted on the projection or stud 25 on the shoes.

26 is a rod pivotally connected, as at 27, with the fender. It passes upward through an opening in the platform of the truck, and its upper end is provided with a plate or foot-piece 28 for the foot of the motorman when it becomes necessary to apply the brakes in that manner. A spring 29 around this rod and arranged within a barrel 30 and finding a bearing at one end against the under side of the said footpiece and at the other against the bottom of the barrel tends to normally keep the footpiece and fender in their uppermost position.

31 indicates springs attached at one end to inwardly-extending lugs 32 on the bottom side of the fender or apron and at the other end to the heads of the bolts 17, as seen clearly in Fig. 1.

The shoes are by preference of the form seen in Fig. 5, being provided upon their upper faces with the groove 33 to receive the flange of the wheel when the latter is upon the shoe and the flange, as seen in Figs. 5, 6, and 7. The rear shoes are connected to be actuated simultaneously with the front shoes by means of the rods 34, which are pivotally connected, as at 35, at their front ends with the apron or fender, as seen clearly in Fig. 2, and at their rear ends to projections or studs 36, extending from the inner faces of the shoes.

In case the invention is applied to a car not equipped with a fender the rods are extended, as shown in Fig. 8 at 37, and pivotally connected with the foot-rod 26, so that when the said rod is depressed the brakes will be applied.

The brake-shoe is herein shown as cored or provided with a chamber 39, adapted to receive fine sharp sand, a suitable filling-aperture being provided and closed by a suitable closure, as the screw 40. An opening 41 permits of the discharge of the sand from this chamber, and this opening is controlled by a check-valve or the equivalent 42, which is automatically opened when the shoe is brought into contact with the rail and closes by its own weight or otherwise when the shoe is lifted from contact with the rail.

The operation will be readily understood from the foregoing description when taken in connection with the annexed drawings, and, briefly stated, is as follows: In Fig. 1 the parts are in the position they assume during the ordinary travel of the car. Should, however, a person or other obstruction come in contact with the front end of the fender, the same would be forced downward, and this movement forces the rods 23 downward and the

shoes under the wheels of the car. The wheels ride up the curved faces of the shoes, and the wheels and shoes slide along the rails, the friction caused thereby being applied to the stoppage of the car. The shoes are thus held under the wheels until the car is backed, when the brakes are automatically released by means of the springs 31. As the shoes are forced into contact with the track the valves 42 are automatically opened, allowing the sand from the chamber of the shoe to be discharged upon the track. As the shoes are lifted to their normal position by the springs the said valves fall, by gravity, into position to close said openings and the flow of sand stopped. When it is desired to apply the brakes in case of emergency or otherwise, pressure of the foot of the motorman on the footpiece 28 will force the shoe against the rail and under the wheel in the same manner that it is forced downward by an obstruction striking the fender.

It is evident that the brakes may be applied to either the front or rear wheels alone, instead of to both. When applied to both, as shown, the front and rear shoes are applied simultaneously, as will be readily understood.

It will be evident from the foregoing description that we have devised a simple, cheap, and positive and efficient brake for street-cars, and while the structural embodiment of the invention, as herein disclosed, is what we at the present time consider the preferable one it is clear that various changes, modifications, and variations may be resorted to without departing from the spirit of the invention or sacrificing any of its advantages, and we therefore do not intend to restrict ourselves to the details herein illustrated and described, but reserve the right to make such changes, variations, and modifications as come properly within the scope of the protection prayed.

What is claimed as new is—

1. A pivotally-supported brake-shoe having its hanger passed through a passage therein, rods connected thereto, a pivoted hanger having sliding connection with said hanger, and means for depressing the rods and forcing the shoe into engagement with the track, as set forth.

2. A pivotally-suspended brake-shoe having its hanger passed through a passage therein, means for forcing the same into contact with a track, a pivoted hanger having sliding connection with said hanger, and means for automatically applying sand from said shoe as the same is forced against the track, as set forth.

3. In a car-brake, a brake-shoe, formed with a sand-receiving chamber, and an automatically-actuated valve controlling the discharge therefrom, a pivoted hanger and a shoe-hanger having sliding connection with said hanger and detachably engaged in the shoe.

4. The combination with a brake-shoe hav-



ing a passage therethrough for the passage of its hanger and a sand-receiving chamber with outlet at the bottom, and a two-part hanger carrying said shoe with a sliding connection between said two parts, of an automatic closure for said opening, adapted to be opened by contact with the rail as the shoe is forced into contact therewith.

5. A brake-shoe having curved front face with groove and a passage extending therethrough for the reception of its hanger, with its lower end enlarged and provided with an interior shoulder, as set forth.

6. A brake-shoe having an inclined front face, a passage for the reception of its hanger, and a sand-receiving chamber, as set forth.

7. A brake-shoe having a passage therethrough with offset near its lower end, as and for the purpose specified.

8. A brake-shoe having a passage therethrough with offset and shoulder near its lower end, combined with a hanger inserted in said passage and having a shoulder for engagement with the shoulder of said passage, as set forth.

9. A brake-shoe formed with an inclined front upper face with groove, a passage for its hanger, with offset and shoulder and a sand-receiving chamber with bottom outlet and a filling-aperture with removable closure, as set forth.

10. The combination with a hanger having a slot, of a shoe-hanger, means connecting the two and permitting of sliding movement of the one relatively to the other, and a shoe carried by the shoe-hanger and having a passage therethrough through which said hanger passes, as set forth.

11. The combination with a pivotally-supported hanger having a slot, of a shoe-hanger having sliding connection therewith, and a passage therethrough through which the hanger passes, a shoe carried by the shoe-hanger and a spring adapted to return the parts to their normal position, as set forth.

12. The combination with a pivotally-supported hanger, and a shoe-hanger connected therewith for sliding movement, and a shoe carried by the shoe-hanger, of a pivotally-

supported rod connected with the said shoe, and means for operating said rod, as set forth.

13. The combination with a pivotally-supported brake-shoe and a hanger passed through a passage in said shoe, of a pivotally-mounted hanger having sliding connection with said hanger, a pivotally-supported fender, means connecting the fender and shoe and means for returning the parts to normal position, as set forth.

14. The combination with a pivotally-supported fender, and a pivotally-supported brake-shoe, of a pivotally-supported hanger slidably connected with the shoe-hanger, pivotal connections between the fender and shoe, and a spring connecting the shoe-hanger with the fender, as set forth.

15. A pivotally-suspended brake-shoe, a pivotally-supported fender, a pivotally-supported hanger slidably connected with the shoe-hanger, pivotal connections between the fender and shoe, means for returning the parts to normal position, and means whereby the shoe will be actuated by depression of the fender either by foot-power or by the meeting with an obstruction by the fender, as set forth.

16. The combination with front and rear brake-shoes having passages therethrough through which their hangers pass, and a pivotally-supported fender, of connections between the fender and all of the brake-shoes whereby the front and rear shoes are actuated simultaneously, as set forth.

17. A brake-shoe having an inclined passage therethrough and having a shoulder to receive and engage its hanger, said shoe being so shaped with its radius of movement so arranged that when depressed to its lowest point in the arc of a circle it will engage the top of the rail and the bottom of the wheel at the contact-point.

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

FRANK O. BROWN.

EDWARD T. MOORE.

Witnesses:

BERT E. VAN VLEIT,

H. M. THETFORD.