

S. SHELDON.
RAILWAY BRAKE.
APPLICATION FILED OCT. 10, 1908.

994,340.

Patented June 6, 1911.

2 SHEETS—SHEET 1.

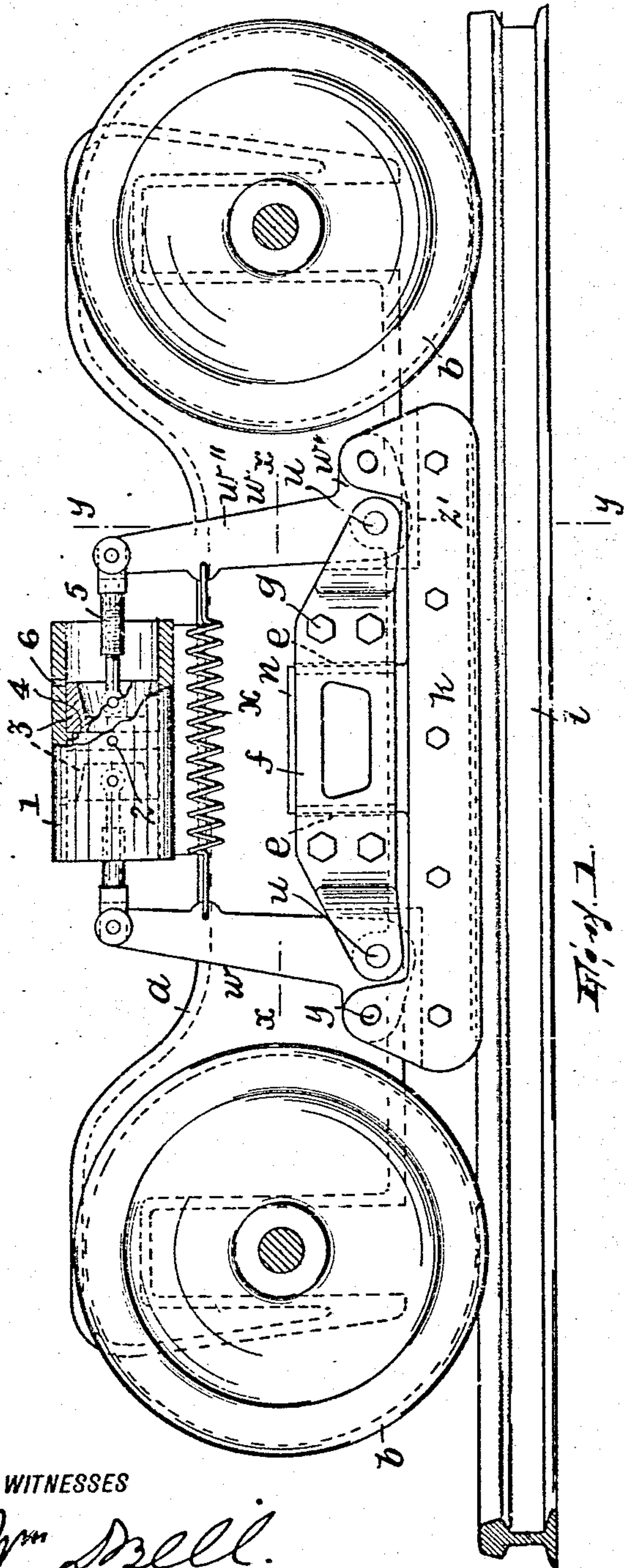


Fig. 1.

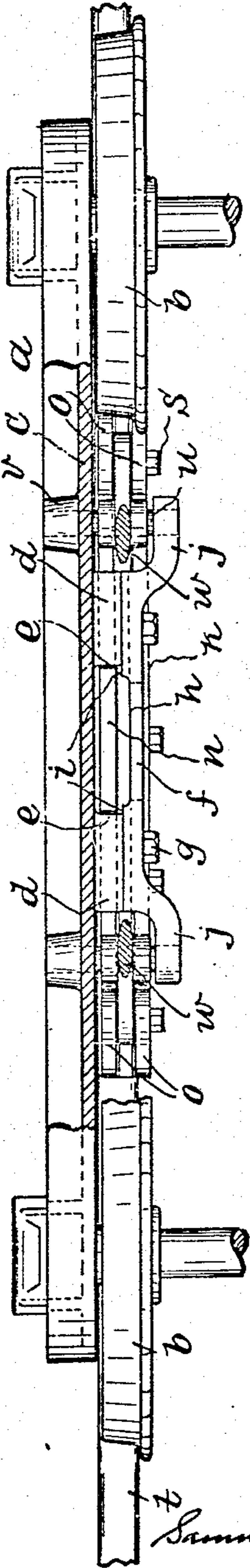


Fig. 2.

WITNESSES

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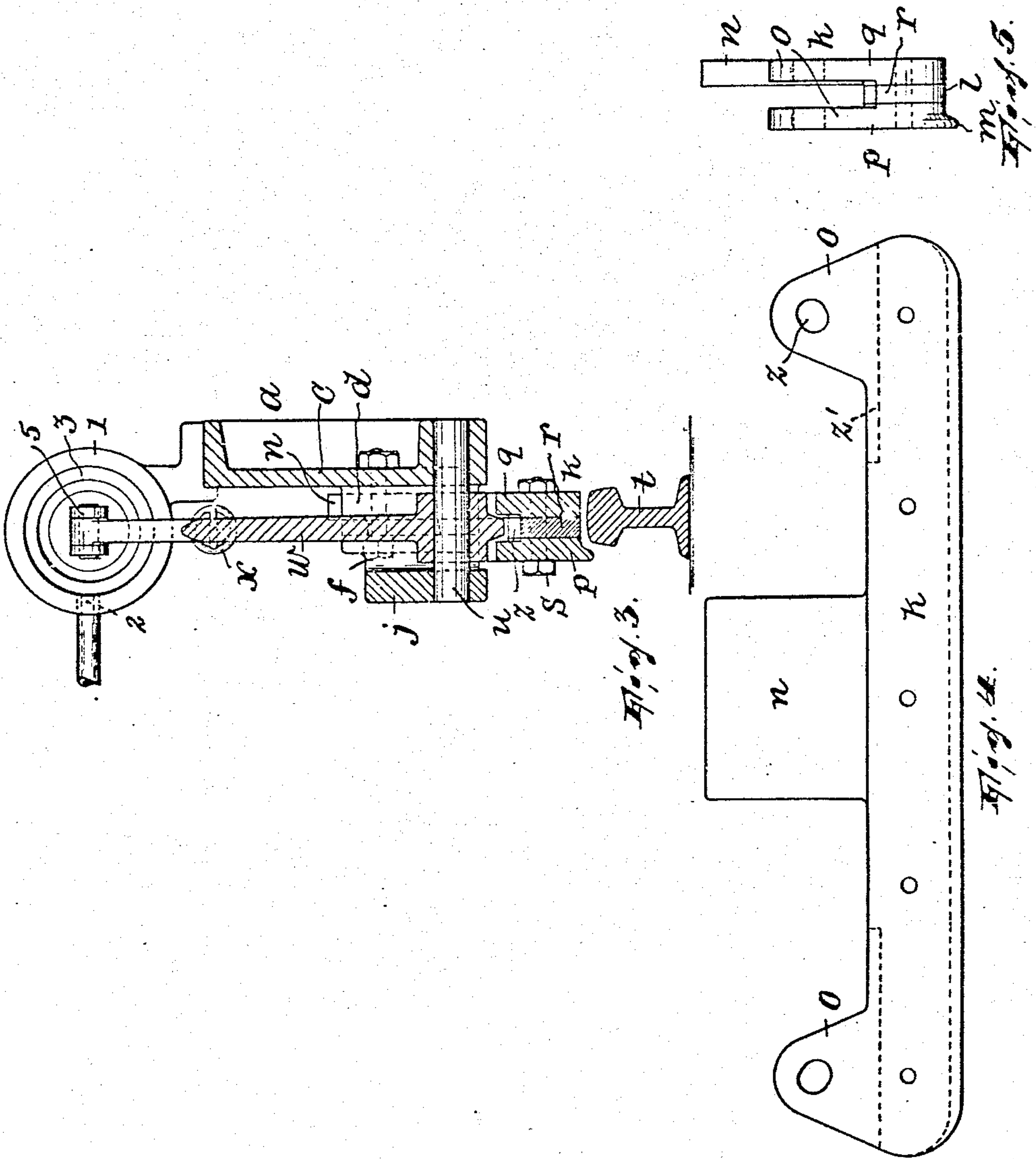
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2 SHEETS-SHEET 2.



WITNESSES

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SAMUEL SHELDON, OF PATERSON, NEW JERSEY.

RAILWAY-BRAKE.

994,340.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, SAMUEL SHELDON, a citizen of the United States, residing in Paterson, Passaic county, New Jersey, have
5 invented a certain new and useful Improvement in Railway-Brakes; and I 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
10 it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

15 In the present method of braking railway vehicles or trains, involving applying the braking medium to the wheels, it is well known that even though the brakes so perfectly grip the wheels as actually to stop
20 their rotation, the checking of the speed of the vehicle or train finally depends upon the grip which the wheels have on the rails. Since the portion of each wheel actually in contact with the rail is relatively small, the
25 application of the brakes to stop the vehicle or train within a given distance is often ineffectual, besides giving rise to the production of "flats" on the wheels whenever they slide on the rails.

30 My invention has for its object to provide an efficient brake mechanism in which the braking medium operates directly on the rail; further, so to construct and arrange the several parts of the mechanism as to con-
35 serve simplicity and durability while rendering it possible for the operator to secure a wider range in respect to the amount of resistance to be set up according to the circumstances.

40 In the accompanying drawing, Figure 1 is an inside view of a railway truck provided with my braking mechanism, the wheel axles being in section; Fig. 2 is a view partly in elevation and partly in section on the line $x-x$
45 in Fig. 1; Fig. 3 is a sectional view on the line $y-y$ in Fig. 1; Fig. 4 is a side view of the brake-shoe; and, Fig. 5 is an end elevation of said brake-shoe, showing the preferred construction thereof.

50 a in the drawings designates the truck frame and b the wheels. The side c of the truck frame has projecting therefrom, preferably as integral parts thereof, the spaced
55 guides d , the adjoining faces e of which are preferably straight. Spanning these guides is a block f which is secured against said

guides by the bolts g and which, on the inside thereof, opposite the space between the guides, is formed with the vertical recess
60 h which is slightly narrower than said space and thus leaves bearing faces i at both sides of said recess. The block f has the longitudinal extensions j , the same being off-set, relatively to the block, and standing parallel
65 with the sides c of the truck frame.

The brake-shoe k is an elongated member having a flat under surface l and a flange m extending along one of its under edges from end to end thereof; midway between its ends
70 it has the upwardly extending tongue n having straight vertical sides and being approximately as wide as the space e between the guides d . Preferably at its ends, it has the upwardly projecting pairs of lugs o .
75 For the purpose of increasing the frictional action of the brake-shoe, it may be formed, as best shown in Fig. 5, in a plurality of layers, for instance, three, the two exterior
80 ones, p and q , of metal and the interposed one, r , of compressed paper or any other substance capable of securing a good frictional grip on the surface of a steel rail. While the intermediate layer affords the desired friction grip by having the greater
85 frictional adhesion, the other layers, being of harder and more durable material, prevent undue wearing away of the acting face of the brake-shoe. In this case, as shown, the metal layer p has the flange m and one
90 lug o in each pair formed as integral parts thereof; the other metal layer q has the other two lugs o and the tongue n formed as integral parts thereof. The layers p , q and r may be secured together by bolts s .

95 The brake-shoe k is arranged over the rail t with its tongue received in the space e between the guides d . It is actuated as follows: Bearing pins u are arranged in the extensions j and bosses v formed on the side c
100 of the truck frame. On these are fulcrumed in reverse arrangement bell-crank levers w having their shorter arms w' projecting horizontally and their longer arms w'' projecting upwardly, the latter being
105 drawn toward each other by a stout spring x connecting them. The shorter arms w' snugly fit between the lugs o at the ends of the brake-shoe k , said arms and the lugs articulating on the bearing pins y penetrating them. Since the movement of the levers
110 w is a pivotal one and that of the brake-shoe rectilinear, either the pins u or

the pins y should move in slots either in the levers, the parts j and v , or the parts o ; in the present instance such slots z are provided in the lugs o . A groove z' between the lugs o at each end of the brake-shoe may be formed to admit the lever. The truck carries a cylinder 1 open at both ends and having an admission port 2 for a fluid under pressure, such as air; in this cylinder are arranged the pistons 3, normally impinging against an interposed stop 4 formed as an annular rib on the inside of the cylinder and penetrated by the port 2. Each piston is pivotally connected with a lever w by a longitudinally adjustable piston rod 5. When air or other operating fluid under pressure is admitted by port 2 to the cylinder, it forces the pistons apart, against the tension of spring x , and thus turns the levers w on their fulcrums, with the result that the brake-shoe k is thrust downwardly squarely against the rail. As it may be desirable to limit the throw of the brake-shoe under the action of the pistons, a relief port 6 may be formed in the cylinder at such a point that, when the adjoining piston passes it, the pressure will be temporarily relieved.

In addition to advantages already indicated, my arrangement makes it possible not only to set up considerably greater resistance in braking a train or vehicle than is possible by the usual braking mechanism but to apply the brakes much more smoothly and gradually; furthermore, the parts being arranged and constructed substantially as herein shown and described, are calculated to withstand considerable wear and tear without repairs. Since the brake-shoe is elongated and rounded at the ends of its rail-contact surface it will ride smoothly over the joints between meeting ends of rails when in braking contact therewith. The drag of the brake-shoe, being directly and positively assumed by a rigid part of the truck, vibration when the brake is operating is substantially wholly eliminated. Again, should one of the wheels break, the drop of the truck would be at once and without material shock assumed by the brake-shoe in a manner calculated to insure the truck remaining squarely on the rails and thus prevent further damage and a possibly serious accident.

Having thus fully described my invention, what I claim as new and desire to secure by Letters Patent is:

1. The combination of a railway truck, a vertically movable brake-shoe adapted to

bear against the rail, and mechanism for moving said brake-shoe comprising a cylinder having a fluid-admission port, and a piston arranged in said cylinder, said cylinder also having a relief-port spaced from the admission port in the direction of the working thrust of the piston, substantially as described.

2. The combination of a railway truck, a vertically movable brake-shoe adapted to bear against the rail and disposed between two alined wheels of the truck, a block secured against the side of the truck and having portions thereof spaced from the truck-side, levers fulcrumed between the truck-side and said portions of the block and connected with the brake-shoe, and means for operating said levers, substantially as described.

3. The combination of a railway truck, a vertically movable brake-shoe adapted to bear against the rail and disposed between two alined wheels of the truck, said truck being formed with a vertical guide-way on one side thereof, a block covering said guide-way, a brake-shoe guided in said guide-way, levers fulcrumed on the truck and connected with the brake-shoe, and means for operating said levers, substantially as described.

4. The combination, in a railway truck, of a suitable supporting structure, a brake-shoe movable vertically therein, reversely arranged levers fulcrumed in said structure, each between its ends, the corresponding ends of said levers being pivotally connected with the brake-shoe, and means, operatively connected with the other or free ends of said levers, for moving said free ends in reverse directions, substantially as described.

5. The combination, in a railway truck, of a suitable supporting structure, a brake-shoe guided for vertical movement, only, in said structure, reversely arranged levers fulcrumed in said structure, each between its ends, the corresponding ends of said levers being pivotally connected with the brake-shoe, and means, operatively connected with the other or free ends of said levers, for moving said free ends in reverse directions, substantially as described.

In testimony, that I claim the foregoing I have hereunto set my hand this 7th day of October, 1908.

SAMUEL SHELDON.

Witnesses:

ELSIE KAUFMANN,
WM. D. BELL.