(No Model.)

# E. CLIFF.

## BRAKE FOR WHEELS OF RAILWAY CARS.

No. 568,065. Patented Sept. 22, 1896.

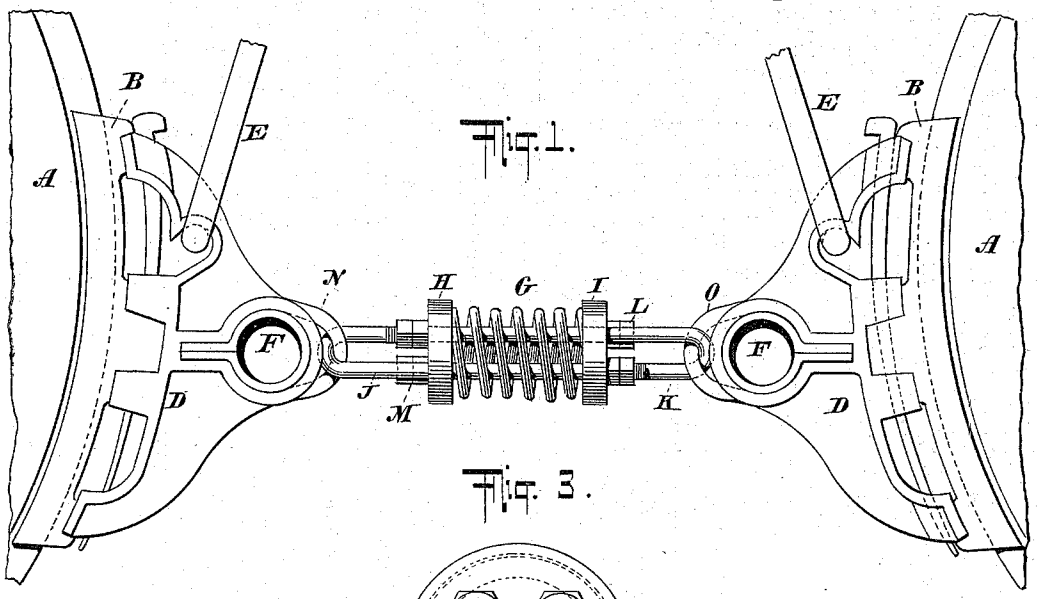
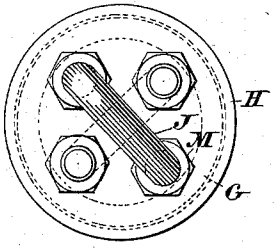



Fig. 1.

Fig. 3.



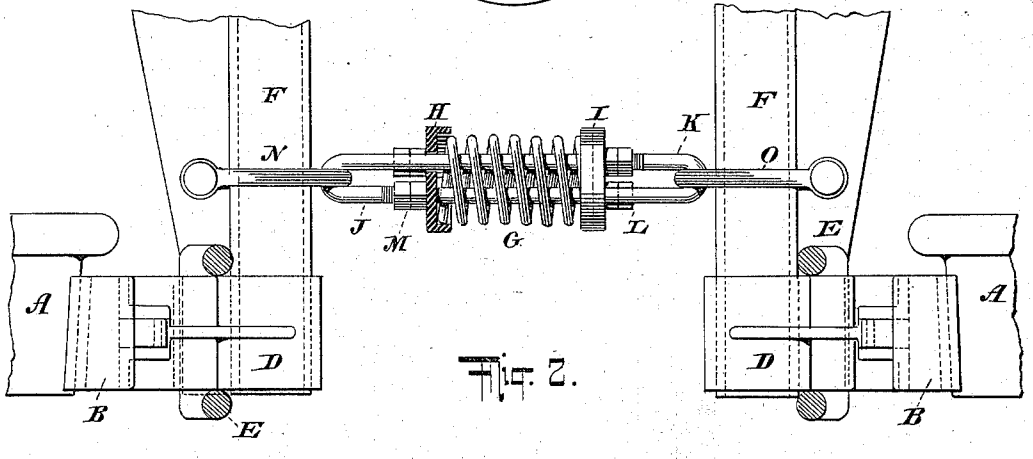




Fig. 2.

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# UNITED STATES PATENT OFFICE.

EDWARD CLIFF, OF NEWARK, NEW JERSEY.

## BRAKE FOR WHEELS OF RAILWAY-CARS.

SPECIFICATION forming part of Letters Patent No. 568,065, dated September 22, 1896.

Application filed April 13, 1896. Serial No. 587,264. (No model.)

*To all whom it may concern:*

Be it known that I, EDWARD CLIFF, a citizen of the United States, and a resident of Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Brakes for the Wheels of Railway-Cars, of which the following is a specification.

The invention relates to improvements in brakes for the wheels of railway-cars, and pertains particularly to inside-hung brakes for freight-cars. There are several serious conditions which constantly arise from the use of inside-hung brakes as at present mounted for operation by the usual compressed-air mechanism, and some of these are due to the fact that an excessively large percentage of the brake-shoes of a train do not entirely release themselves from the wheels after having been applied thereto by the compressed air, but especially at their upper ends rest against the wheels, and not only become unduly worn, but materially increase the load on the engine and prejudicially affect the wheels by wear and heating the chills thereof. It has also in instances been found that owing to special conditions the entire brake-shoe will hug the wheels instead of promptly releasing itself therefrom. Another serious condition which arises from the present mounting of inside-hung brakes is that during any jarring of the cars, either during the coupling of the same together or at other times, the brakes and their connections, being capable of a limited free play, will move about, thereby not only making an undue noise, but wearing their contact-points and generally becoming injured. To remedy the above-mentioned objectionable conditions and add to the efficiency, longevity, and desirability of inside-hung brakes on the four-wheel trucks of freight-cars are the objects of the present invention, which consists in the combination of such inside-hung brakes with springs which connect them together in pairs at opposite sides of the truck and operate to instantly and wholly withdraw the brake-shoes from the car-wheels the moment the usual compressed-air mechanism releases the brake and also to retain said brakes when not in actual service at a position in which they will be ready for effective use and at the same time wholly incapable of dragging against the car-wheels or jarring or rattling about to any material extent. The said springs when arranged as described also impart a degree of firmness to the brakes and their connections at opposite sides of the truck, which is highly advantageous.

The invention will be fully understood from the detailed description hereinafter presented, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation of a pair of inside-hung brakes connected by a spring in accordance with and embodying the invention, a portion only of the wheels being shown. Fig. 2 is a top view, partly in section, of same, the brake-beams being broken away and the supporting-links by which the brakes are hung being in section. Fig. 3 is an enlarged end view of the spring connections.

In the drawings, A A designate a pair of the usual wheels employed on the four-wheel trucks of freight-cars; B B, the brake-shoes; D D, the brake-heads; E E, the links by which said heads are hung, and F F the brake-beams, which extend transversely across the trucks and connect the brakes at opposite sides of the latter, the brakes at one side of the truck being a duplicate of those at the other side thereof.

The brake-shoes, brake-heads, supporting-links, and brake-beams shown in the drawings are of usual construction, and no claim is made herein to any part of them as individual elements. It is well understood that the brakes are applied to the wheels by the usual compressed-air mechanism acting through proper connections on the brake-beams.

In accordance with my invention the brakes either at the beams or brake-heads or other convenient points are connected together in pairs at opposite sides of the truck by means of a spring G, which in the present instance is shown as retained between the caps H I, through which the looped rods J K pass, the bend of the rod J being at the left of the cap H and the bend of the rod K being at the right of the cap I, as shown. The ends of the rod J pass to the right through the cap I and receive the securing-nuts L, while the ends of the rod K pass to the left through the cap H and receive the securing-nuts M. Thus when the rods J K are pulled in opposite directions they will operate to move the caps H I toward each other and compress the spring between them, and when the force

drawing said rods J K in opposite directions is released the spring of its own resiliency will restore itself and the said caps and rods to their initial condition, the cap H sliding outward to the left on the arms of the looped rod J and the cap I sliding outward to the right on the arms of the looped rod K. The bends of the rods J K are respectively connected with the brake-beams F F by means of the eyes N O, which pass over the circular portion of said beams and are secured by bolts passing through the flanged portion of the same. When the brakes are not under the influence of the compressed-air mechanism, the springs at opposite sides of the truck connecting said brakes in pairs preserve the latter entirely free of the car-wheels and prevent them from rattling or jarring about, particularly during the coupling of the cars or when the cars are moving about under conditions not requiring the application of the brakes to the wheels, and in these respects the said springs perform a very important office and remove objections which at present exist to all inside-hung brakes on the trucks of freight-cars. When the cars are in service, the springs at opposite sides of the truck prevent the brake-shoes from having any contact whatever with the wheels except at such times as the force of the said springs is directly overcome by the compressed-air mechanism and said brakes are purposely applied to the wheels, and as soon as the pressure applying the brakes to the wheels has been released the said springs perform the very important office of instantly forcing the complete release of said brakes from the wheels and holding them from further contact therewith until the compressed-air mechanism again acts. It is known that in the employment of inside-hung brakes the release of the air-pressure does not leave the brakes entirely free of the wheels, and it is a fact that but a small percentage of the brakes entirely clear themselves of the wheels after the air-pressure has been released. There is a preponderating tendency on the part of the brakes, particularly at their upper ends, to drag against the wheels, and this not only results in the brake-shoes being rapidly worn, but in materially increasing the load on the engine and prejudicially affecting the chill of the wheels by heating the same. In a train of, say, twenty-five cars it is believed that at least eighty per cent. of the brake-shoes will drag at some portion against the wheels, and it is obvious that the load on the engine will be thereby materially increased. To overcome all of these and other objections is the purpose of the present invention, which consists not in any special construction of brake-shoe, brake-head, or brake-beam, but in the combination of the inside-hung brakes, with the tension-springs connecting the same in pairs at opposite sides of the truck and of a nature to compel the complete removal of the brakes from the wheels at the proper time and to preserve said brakes and their connections during the coupling of the cars or at other times from rattling and jarring. The structure comprising the inside-hung brakes and their connections with the springs connecting the brakes at each side of the truck in pairs possesses a degree of firmness and rigidity highly advantageous, and in use is at all times efficient, reliable, durable, and desirable.

The form of spring shown, with the caps and rods connected therewith, is desirable and efficient, but the invention is not confined to the special arrangement of spring connections presented, nor to the points at which the ends of the spring are connected with the brakes or the parts comprised in the brake system. The invention is, however, limited to inside-hung brakes, or, in other words, to brakes hung between the pairs of wheels, as shown.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In and in combination with a car-truck of the specific character described, the pivotally-mounted brake-beams F, F, extending transversely across the truck between the pairs of wheels and on substantially parallel lines, the brake-heads D secured on the opposite ends of said beams, the brake-shoes B carried by said heads, the links E, E, by which said heads are hung inside between the pairs of wheels at opposite sides of the truck, and the horizontal longitudinal springs G, G, located longitudinally wholly between the opposite ends of said beams and each pivotally connected at its ends to both beams, one spring G being at each side of the truck between said beams, the whole being constructed and arranged substantially as and for the purposes shown and described.

2. In and in combination with a car-truck of the character described, the pivotally-mounted brake-beams F, F, extending transversely across the truck between the pairs of wheels and on substantially parallel lines, the brake-heads D secured on the opposite ends of said beams, the brake-shoes B carried by said heads, the links E, E, by which said heads are hung inside between the pairs of wheels at opposite sides of the truck, the springs at the opposite sides of the truck directly intermediate the ends of said beams, the caps at the ends of said springs, the folded rods passing through said caps and springs in opposite directions, the nuts securing said rods, and the eyes engaging the bends of said rods and secured to said beams, the whole being constructed and arranged substantially as and for the purposes set forth.

Signed at New York, in the county of New York and State of New York, this 11th day of April, A. D. 1896.

EDWARD CLIFF.

Witnesses:
CHAS. C. GILL,
E. JOS. BELKNAP.