

No. 660,648.

Patented Oct. 30, 1900.

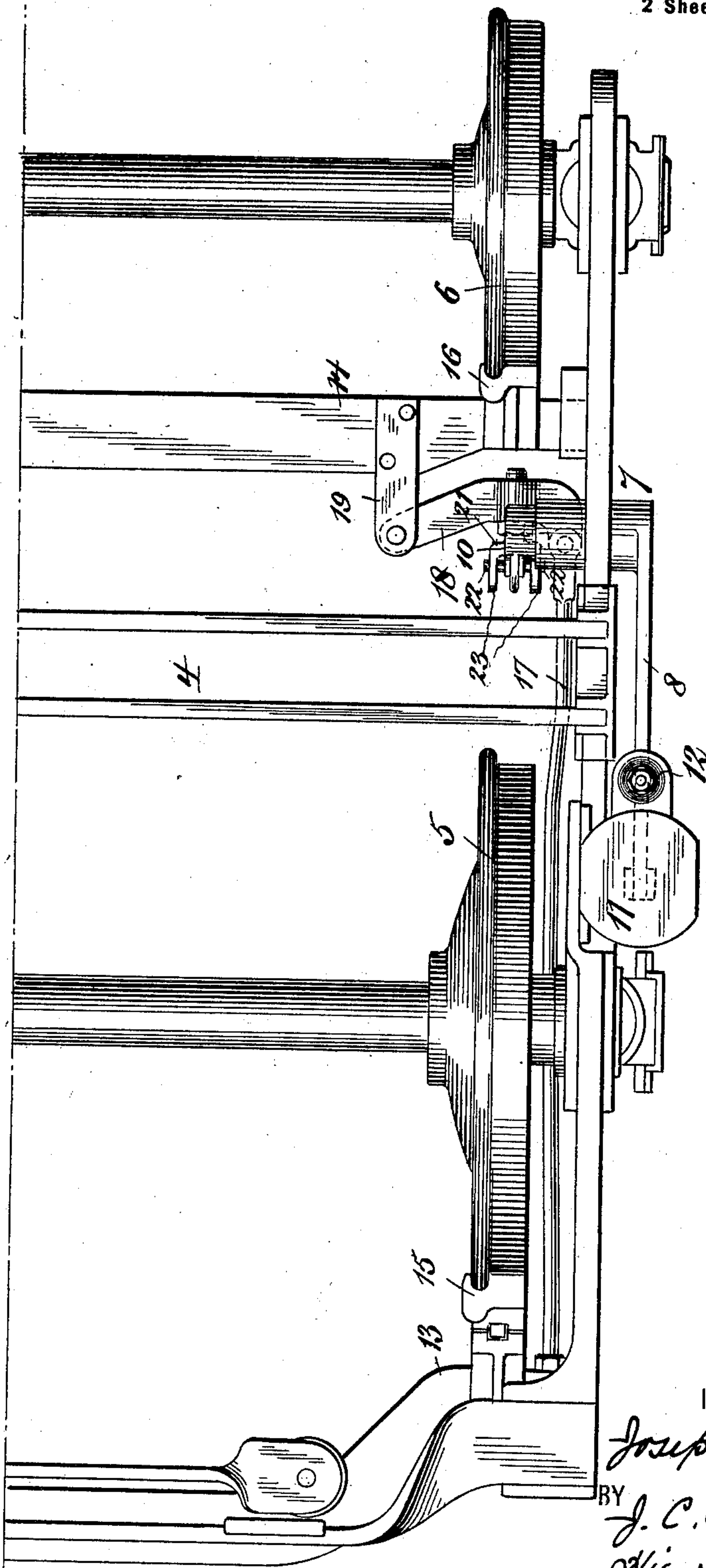
J. E. NORMAND.
BRAKE OPERATING MECHANISM.

(Application filed July 29, 1899.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1



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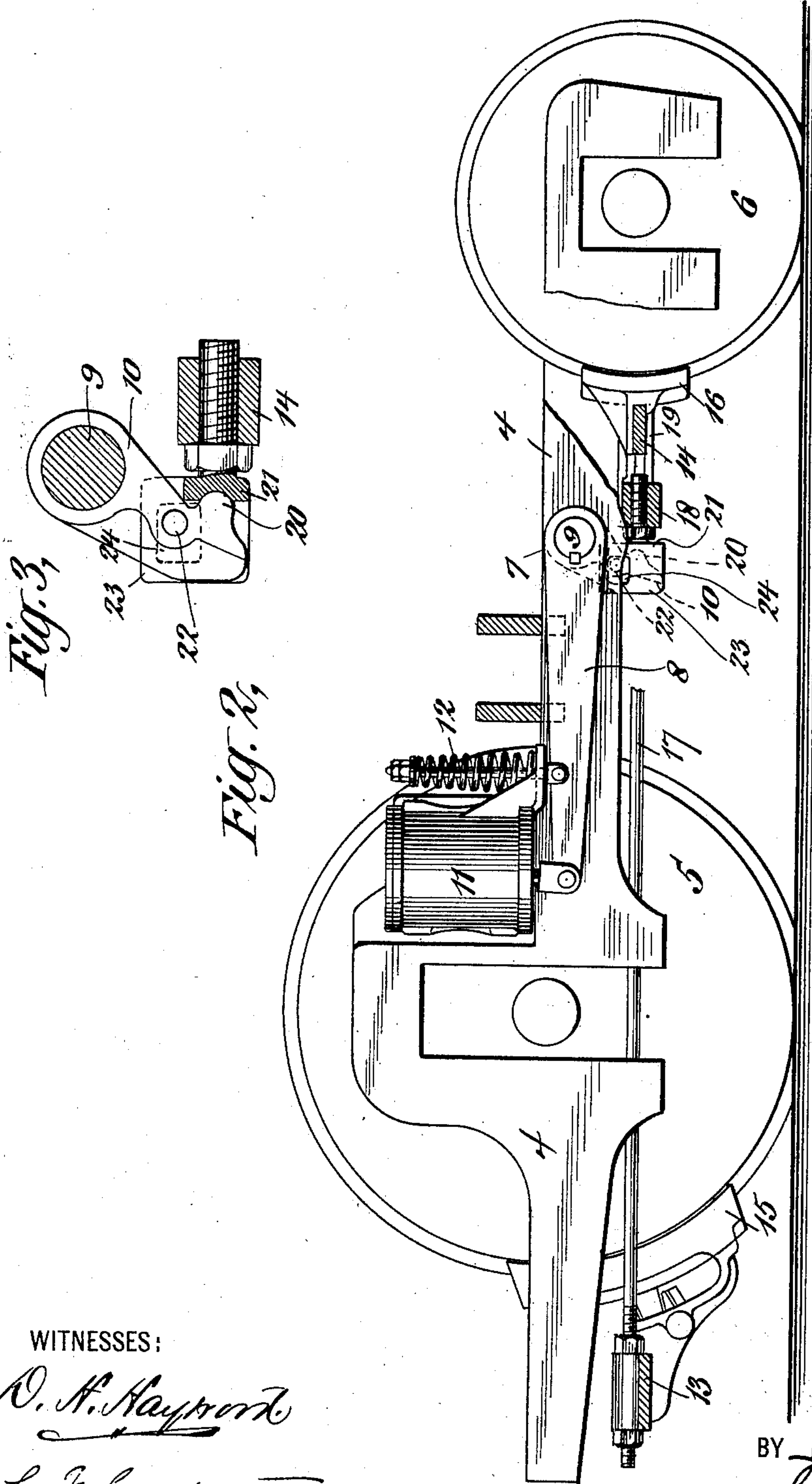
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UNITED STATES PATENT OFFICE.

JOSEPH E. NORMAND, OF WATERTOWN, NEW YORK.

BRAKE-OPERATING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 660,648, dated October 30, 1900.

Application filed July 29, 1899. Serial No. 725,453. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH E. NORMAND, a citizen of the United States of America, and a resident of Watertown, Jefferson county, New York, have invented certain new and useful Improvements in Brake-Operating Mechanism, of which the following is a specification.

My invention relates to means for operating brakes, and is particularly applicable to air-brakes, in which connection I have shown my invention applied.

My invention consists in an improved form of joint or connection between the operating-lever and the brake-beam, in an improved form of equalizing device, in an improved form of the operating-lever, and certain new and useful details of construction and combination of parts to be hereinafter more fully described.

The objects of my invention are to secure a joint between the brake-beam and the brake-operating lever which will be self-compensating, whether for wear of one brake-shoe over the other on opposite sides of a truck, thereby causing an unequal movement of the brake-beam horizontally, or for the canting or tipping of the brake-beam from a variety of causes which are well known, to provide a simple and effective form of equalizing device between two brakes on the same side of the car-truck, by such device permitting a proportionately-greater pressure to be applied to one wheel than to the other, if desired, and to simplify and render more effective the operating mechanism and working parts. I attain these objects in a device which I will now proceed to describe in the following specification, referring to the accompanying drawings, forming a part thereof, and will then point out the novel features in claims.

Figure 1 represents a top view of one-half of a truck fitted with a brake mechanism embodying my invention. Fig. 2 represents a side view, partially in section, of the same, certain parts being removed and others broken away to better illustrate the invention; and Fig. 3 is a detail sectional view of an im-

proved connection between the brake-operating lever and the equalizing-lever.

Similar reference characters designate corresponding parts in all the figures.

Reference character 4 designates the frame of a truck fitted with my improved brake, and 5 6 designate the truck-wheels. In the particular form of truck here shown the wheel 5 is of larger diameter than the wheel 6.

7 designates a brake-operating lever constructed in the form of a bell-crank lever. The said lever comprises a long arm 8, rigidly secured to a steel shaft 9, rotatably mounted upon the frame 4, and a short arm 10 at about right angles thereto, also rigidly secured to the said shaft 9.

11 designates a compressed-air cylinder provided with a piston, to which one end of the long arm 8 of the operating-lever is attached.

12 designates a spring for returning the parts to their normal position.

I have here shown and described my improved brake-operating mechanism as connected with other elements combined together to constitute an air-brake, and while it is in this connection that I more particularly intend to apply my invention I do not wish to be limited to such use, as my invention is applicable to brakes of all kinds.

13 14 designate brake-beams, 13 being arranged to carry brake-shoes 15 and 14 to carry the brake-shoes 16. As only one-half of the truck is here illustrated, only one shoe 15 and one shoe 16 are shown; but it is of course understood that there are corresponding shoes on the opposite ends of the brake-beams 13 14 for corresponding wheels 5 and 6. There are also, preferably, another operating-lever 7 and another cylinder 11, with its appurtenances.

The brake-beams may be swung or suspended from the truck-frame by links or otherwise (not shown) in a manner well known and needing no further description.

The brake-beam 13 is connected to the brake-beam 14 by means of an equalizing-lever 18, secured at one end to a connecting-rod, in turn secured to the beam 13, and at the other end to a lug 19, riveted to the brake-

beam 14. The short arm 10 of the operating-lever bears against the equalizing-lever 18 and causes pressure in a predetermined proportion to be applied to the brake-beams 13 and 14. If an equal pressure were desired to be applied to both brake-beams, the pressure would be applied midway of the equalizing-lever. In the particular truck to which the brake is shown as applied it is not so desired. The wheels 5 being very much larger than the wheels 6, it is desired to apply a very much greater pressure upon the brake-beam 13 than upon the brake-beam 14. The point at which the pressure is applied to the equalizing-lever is thus very much nearer to the point at which the said lever is connected to the brake-beam 13 than the point at which it is connected to the brake-beam 14, and just in proportion to the leverage accruing therefrom is the resultant pressure upon the brake-beams. As hereshown, the proportion is about as three is to seven.

Between the short arm 10 of the operating-lever 7 and the equalizing-lever 18 is arranged a universal-joint connection. (Illustrated more fully in the enlarged detail sectional view, Fig. 3.) The end of the said short arm 10 is provided with a round nose or ball end 20, which engages with a socket 21, with which the equalizing-lever 18 is provided. The socket is cupped to receive the ball end or nose 20 of the arm 10, and the two pieces fitted together permit a universal movement of the brake-beam relatively to the equalizing-lever. To maintain the two pieces in intimate connection and to prevent accidental displacement thereof, I have provided the arm 10 with a pin or pins 22, extending on either side thereof, and the socket-piece 21 with flanges 23, arranged on either side of the arm 10 and having slots 24, through which the pin or pins 22 pass. This connection will form a support for the equalizing-

lever and the connecting-rod 17, but will not interfere with the perfect working of the universal joint while the brake is being operated.

What I claim is—

1. In a brake mechanism, the combination with a plurality of brake-beams, an equalizing-lever connected to said beams, and an operating-lever adapted to apply pressure to said equalizing-lever, of a universal joint interposed between said equalizing-lever and said operating-lever, and means independent of the said universal joint for supporting the said equalizing-lever from the said operating-lever.

2. In a brake mechanism, the combination with a plurality of brake-beams, an equalizing-lever connected to said beams, and an operating-lever adapted to apply pressure to said equalizing-lever, of a ball-and-socket connection between said equalizing-lever and said operating-lever, and a pin-and-slot connection between said equalizing-lever and said operating-lever independent of the ball-and-socket connection, for the purpose of independently supporting said equalizing-lever from said operating-lever.

3. In a brake mechanism, the combination with a plurality of brake-beams, of an equalizing-lever connected to said beams and an operating-lever adapted to apply pressure directly to said equalizing-lever, the said equalizing-lever provided with a socket-piece rigidly secured thereto but capable of adjustment thereon, the said socket-piece having a spherical recess, and the said operating-lever having a spherical projection adapted to engage with the said spherical recess.

Signed by me at New York, N. Y., this 26th day of July, 1899.

JOSEPH E. NORMAND.

Witnesses:

FRANK H. COTHREN,
ALBERT K. NEWMAN.