No. 665,913. Patented Jan. 15. 1901.

M. E. KANE.

RAILWAY BRAKE.

(Application filed June 28, 1897.)

(No Model.) 2 Sheets—Sheet 1.

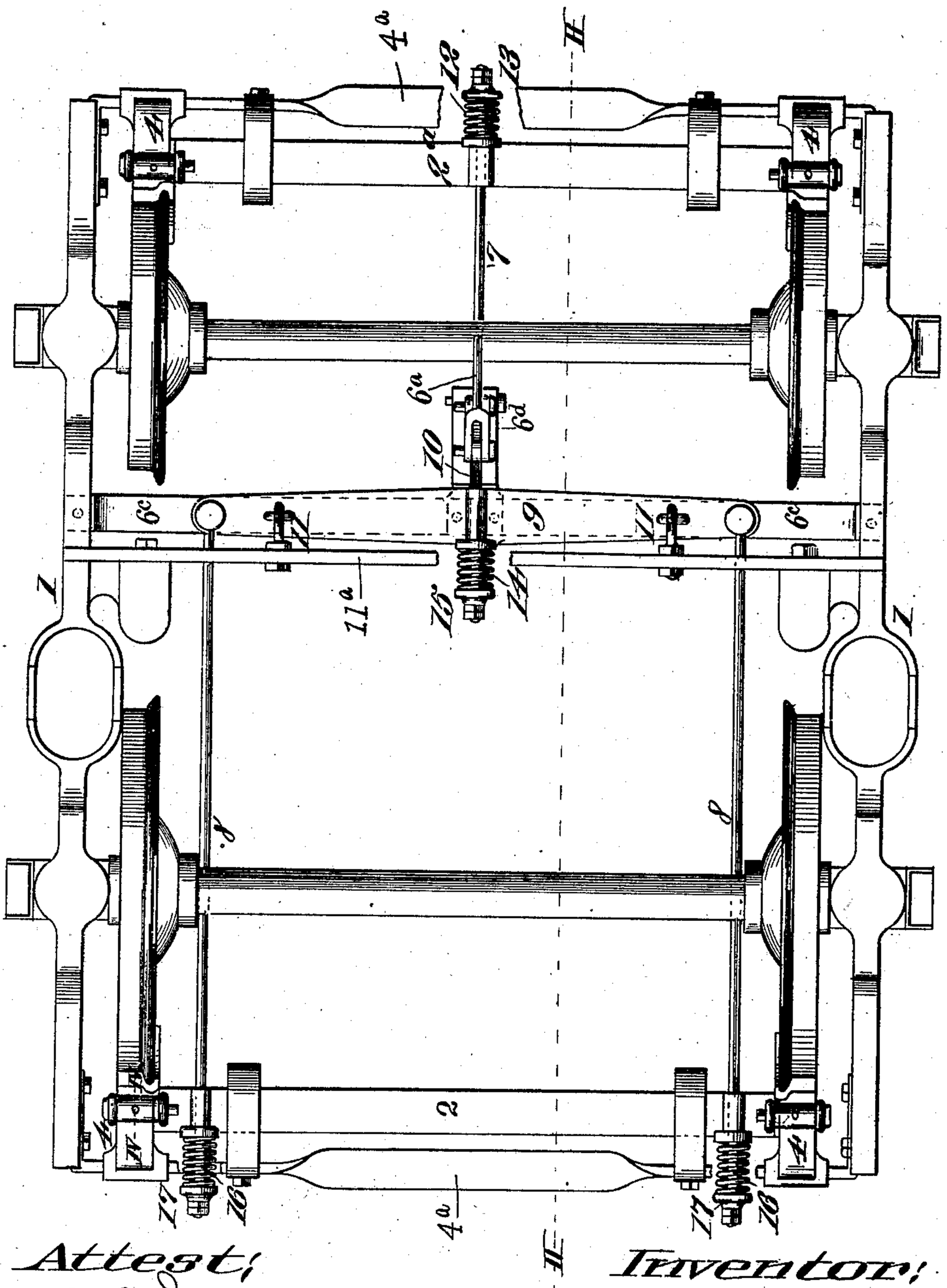

Fig. 1.

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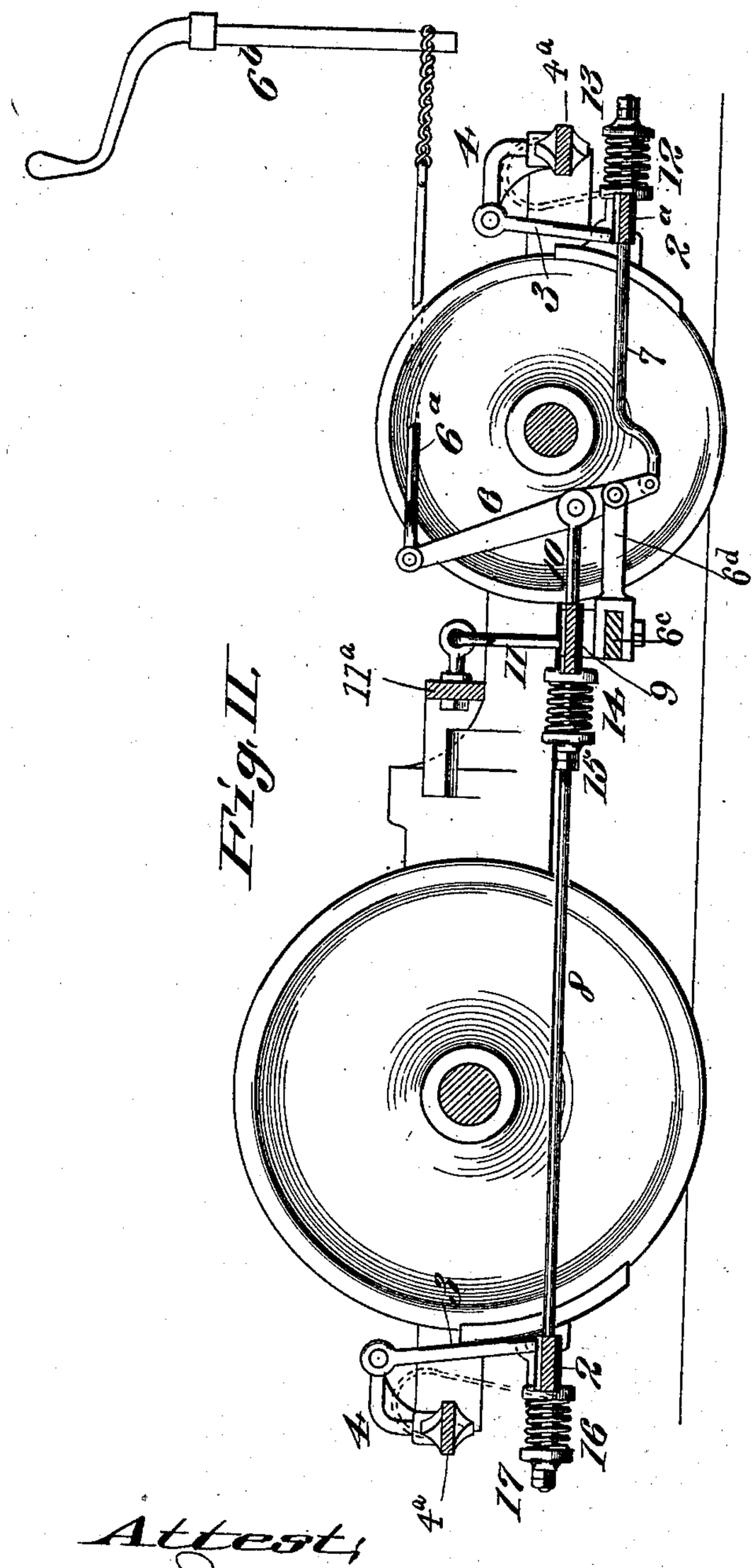

Fig. II.

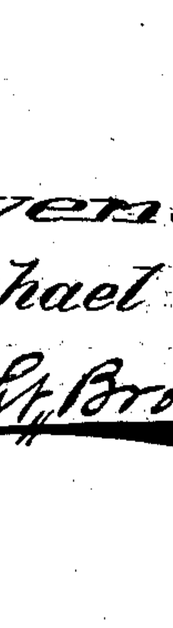

Fig. III.

Fig. IV.

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UNITED STATES PATENT OFFICE.

MICHAEL E. KANE, OF ST. LOUIS, MISSOURI, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO JOHN A. BRILL, OF PHILADELPHIA, PENNSYLVANIA.

RAILWAY-BRAKE.

SPECIFICATION forming part of Letters Patent No. 665,913, dated January 15, 1901.

Application filed June 28, 1897. Serial No. 642,711. (No model.)

To all whom it may concern:

Be it known that I, MICHAEL E. KANE, a citizen of the United States, residing at the city of St. Louis, in the State of Missouri, have invented a certain new and useful Improvement in Railway-Brakes, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to certain improvements in railway-brakes, and is particularly well adapted for use where one pair of wheels has to carry more weight than another pair of the same truck or of the same car.

My invention consists in features of novelty hereinafter fully described, and pointed out in the claims.

Figure I is a top or plan view illustrative of my invention. Fig. II is a vertical section taken on line II II, Fig. I. Fig. III is a detail view; and Fig. IV is a detail vertical section taken on line IV IV, Fig. I.

Referring to the drawings, 1 represents a car-truck, which may be of any of the well-known types or forms.

2 2^a represent the brake-beams, provided with the ordinary brake-shoes. These beams are suspended by hangers 3, journaled in brackets 4, secured to the frame 4^a of the truck or to some other support. The customary way of suspending the brake-beams is to use hangers, which are allowed to swing by suitable connection between them and their supports; but so far as I know no care has ever been taken to prevent wear between the hangers and their supports, a simple bolt or rivet only having been used to make the connection. The constant application and release of the brakes cause these bolts to wear, the result being that the bearing-point between the shoes and the wheels is at a lower elevation after the car has been in use for a time than when first put in use, and this difference in elevation increases as the use continues. To avoid this, I provide oil-bearings between the hangers and their brackets or supports, as shown in Fig. IV, so that by an occasional use of oil the bearings will be kept lubricated and little or no wear will occur, and when such does occur the bushing 5 may be renewed.

6 represents the usual brake-lever, to which the beams 2 2^a are connected, either by means of a single rod 7 or by means of a pair of rods 8 and a connecting-piece or floating equalizing-bar 9, the bar being connected to the brake-lever by means of a rod 10. The bar 9 I have shown suspended from the cross-bar 11^a of the truck-frame 4^a by means of links 11.

6^a is a rod connected at one end to the lever 6, and which is connected at its other end to the brake-rod 6^b.

6^c is a bar secured to the under side of the side pieces of the frame, and to it is secured an arm 6^d, to which the lever 6 is pivoted.

It is a common practice to mount one end of an electric motor on one of the car-axles, the other end being carried by the truck-frame. When this is done, it requires much less pressure of the brake-shoes to make the wheels of the axle not carrying the motor-slide than it does the wheels of the axle that carries or assists in carrying the motor, and experience shows that the first-mentioned wheels frequently have flat places worn in them from sliding on the rails long before the motor-carrying wheels have become substantially worn at all. To provide against this and to further increase the working facilities of the brake, I compensate for this difference in the amount of weight carried by the respective pairs of wheels by differentiating the braking-pressure applied to the respective pairs of brake-shoes, and I do this by the application of springs, the spring or springs located between the brake-rod and the brake-beam of the motor-carrying wheels having greater tension or force than the spring or springs of the brake-beam of the other pair of wheels, so that when the brake-rod is turned to apply the brake-shoes more force will be applied to the shoes of the motor-carrying wheels than to the shoes of the other pair of wheels. This spring for the brake of the pair of wheels that do not carry the motor is indicated at 12, Fig. I, and is located between the beam 2^a and a washer and nut 13 on the outer end of the rod 7. Obviously by adjusting the nut 13 any desired tension may be imparted through spring 12.

For the brake of the motor-carrying wheels I have shown a spring 14 between the bar 9

and the nut and washer 15 on the end of the rod 10, and have also shown springs 16 on the ends of the rods 8 between the beam 2 and the nuts and washers 17 on the ends of the rods. It is evident, however, that the spring 14 may be omitted and the spring 16 alone used or the springs 16 omitted and the spring 14 alone used; but whether there be one or more of these springs their tension must be in excess of the tension of the spring 12, so that, as stated, when the brakes are applied greater force will be exerted on the motor-carrying wheels than on the other pair of wheels, and by thus providing for an increased friction on the motor-carrying wheels over that of the other pair of wheels the sliding of the latter pair of wheels is avoided, while the stopping force of the brake as a whole is increased.

Obviously the nuts 15 and 17 may be adjusted upon the rods 10 and 8 and the tension of the springs 14 and 16 thereby regulated at will. Moreover, by proportioning the adjustment of the several nuts the tension on the springs may be differentiated and the structure made to accomplish the objects of my invention.

An effective way in which to make the springs 16 of greater strength or resisting capacity than that of springs 12 and 14 is by making the former springs of heavier material, the tension of the springs being adjustable by means of the collars and nuts, as shown.

I do not desire to be limited to any particular location of the particular springs, as it is evident that this may be varied, and I have shown in Fig. III how the springs might be applied to either of the rods 7, 8, or 10, which is by making the rod in sections and providing one end of one of the sections with a head or loop 18 to receive the adjacent end of the other section of the rod, the spring being situated on the end of the last-mentioned section of rod and between the nut and washer 19 thereon and the end 20 of the loop.

Another advantage of the use of the spring located between the brake-rod or the point of applying the force and the brake-shoes is that in case of a roughness or enlargement on the tread of one or all of the wheels such wheel or wheels will not slide when the enlargement meets the brake-shoe; but the latter will yield sufficiently to allow the enlargement of the wheel to pass.

I claim as my invention—

1. In a truck-brake apparatus, the combination with the wheels, of a floating equalizing-bar, a brake-beam and paired shoes at one end of the truck, connections between said beam and said bar, an opposing brake-beam and paired shoes, an upright brake-lever, connections between said lever and the latter brake-beam, and springs interposed in said connections, the equalizing-bar being adapted to move the former brake-beam in the direction of movement of said bar, substantially as described.

2. In a truck-brake apparatus, the combination with paired large and small wheels, of a floating equalizing-bar, a brake-beam and paired shoes at one end of the truck, connections between said beam and said bar, an opposing brake-beam and paired shoes, a cross-bar, an upright brake-beam fulcrumed upon said cross-bar, connections between said lever and the latter brake-beam, and springs interposed in said connections, the springs interposed in the connections to the brake-beam for the larger wheels being of greater resisting capacity than those for the opposing brake-beam, substantially as described.

3. In a brake mechanism for a truck having paired large and small wheels, the combination with the truck-frame and wheels; of a brake-beam carrying shoes for the larger pair of wheels, means for supporting said brake-beam, brake-rods yieldably connected to said brake-beam, a brake-beam provided with shoes for the smaller pair of wheels, means for supporting said brake-beam, a brake-rod yieldably connected to said brake-beam, a floating equalizing-bar supported upon said frame and pivotally connected to the brake-rods for said larger wheels, an upright brake-lever supported upon said frame, a connection between said upright brake-lever and said floating equalizing-bar, and a connection between said brake lever and the brake-rod for said smaller wheels, substantially as described.

4. In a brake mechanism for a truck having paired large and small wheels, the combination with the truck-frame and wheels; of a brake-beam carrying shoes for the larger pair of wheels, brackets upon said truck-frame, bearings upon said brackets, provided with removable bushings, connections between said bearings and said brake-beam, brake-rods yieldably connected to said brake-beam, a brake-beam supported upon said frame in a similar manner as the brake-beam for the larger wheels, provided with shoes for the smaller pair of wheels, a brake-rod yieldably connected to said brake-beam, a floating equalizing-bar supported upon said frame and pivotally connected to the brake-rods for said larger wheels, an upright brake-lever supported upon said frame, a connection between said upright brake-lever and said floating equalizing-bar, and a connection between said brake-lever and the brake-rod for said smaller wheels, substantially as described.

5. In a brake mechanism for a truck having paired large and small wheels, the combination with the truck-frame and wheels; of a brake-beam supported upon said frame and carrying shoes for the larger wheels, brake-rods movably engaging said brake-beam, spiral springs interposed between said brake-beam and brake-rods, a brake-beam provided with shoes for the smaller pair of wheels, a

brake-rod movably connected to said brake-beam, a spiral spring interposed between said brake-beam and said brake-rod for the smaller wheels, a floating equalizing-bar supported upon said frame and pivotally connected to the brake-rods for the said larger wheels, an upright brake-lever supported upon said frame, a yielding connection between said upright and said floating equalizing-bar, a spiral spring interposed between said connection and the floating equalizing-bar, and connection between said brake-lever and the brake-rod for said smaller wheels, substantially as described.

6. In a brake mechanism for a truck having paired large and small wheels, the combination with the truck-frame and wheels; of a brake-beam carrying shoes for the larger pair of wheels, means for supporting said brake-beam, brake-rods yieldably connected to said brake-beam, a brake-beam provided with shoes for the smaller pair of wheels means for supporting said brake-beam, a brake-rod supported upon said frame and yieldably connected to said brake-beam, a floating equalizing-bar pivotally connected to the brake-rods for said larger wheels, an upright brake-lever supported upon said frame, a rod connecting said upright brake-lever and said floating equalizing-bar, a spiral spring interposed between said rod and said floating equalizing-bar, and a connection between said brake-lever and the brake-rod for said smaller wheels, substantially as described.

7. In a truck-brake apparatus, the combination with the wheels, of a floating equalizing-bar 9, the brake-beam 2 provided with paired shoes, bars 8 connecting said beam with the bar 9, an opposing brake-beam 2^a at the opposite end of the truck provided with paired shoes, an upright brake-lever 6 pivotally secured to the truck-frame, bar 7 connecting said brake-lever 6 with brake-beam 2^a, and springs 12, 14 and 16 interposed between said bars and brake-beams, substantially as described.

8. In a truck-brake apparatus, the combination with the wheels, of a floating equalizing-bar 9, the brake-beam 2 provided with paired shoes, bars 8 connecting said beam with the bar 9, springs 16 interposed between the bars 8 and brake-beam 2, an opposing brake-beam 2^a at the opposite end of the truck provided with paired shoes, an upright brake-lever 6 pivotally secured to the truck-frame, bar 7 connecting said brake-lever 6 with brake-beam 2^a, springs 12 and 14 interposed between said lever 6 and the equalizing-bar 9 and brake-beam 2^a, substantially as described.

9. In a brake mechanism for trucks having paired large and small wheels, the combination with the truck-frame and wheels, of a floating equalizing-bar 9, brake-beams 2 provided with paired shoes, bars 8 connecting said beam with the bar 9, springs 16 of one resisting capacity interposed between the bars 8 and brake-beam 2, an opposing brake-beam 2^a at the opposite end of the truck provided with paired shoes, an upright brake-lever 6 pivotally secured to the truck-frame, bar 7 connecting said brake-lever 6 with brake-beam 2^a, springs 12 and 14 of less resisting capacity than the first-mentioned springs, interposed between said lever 6 and the equalizing-bar 9 and brake-beam 2^a, substantially as described.

10. In a truck-brake apparatus, the combination with the wheels, of a floating equalizing-bar 9, the brake-beam 2 provided with paired shoes, bars 8 connecting said beam with the bar 9, an opposing brake-beam 2^a at the opposite end of the truck provided with paired shoes, a cross-piece 6^c, an upright brake-lever 6 pivoted to the support 6^d secured to said cross-piece 6^c, bar 7 connecting said brake-lever 6 with brake-beam 2^a, and springs 12, 14 and 16 interposed between said bars and the brake-beams, substantially as described.

MICHAEL E. KANE.

In presence of—
C. C. MOORE,
N. FINLEY.