

No. 814,659.

PATENTED MAR. 13, 1906.

A. H. AMES.
EMERGENCY BRAKE.
APPLICATION FILED JUNE 8, 1905.

FIG. I.

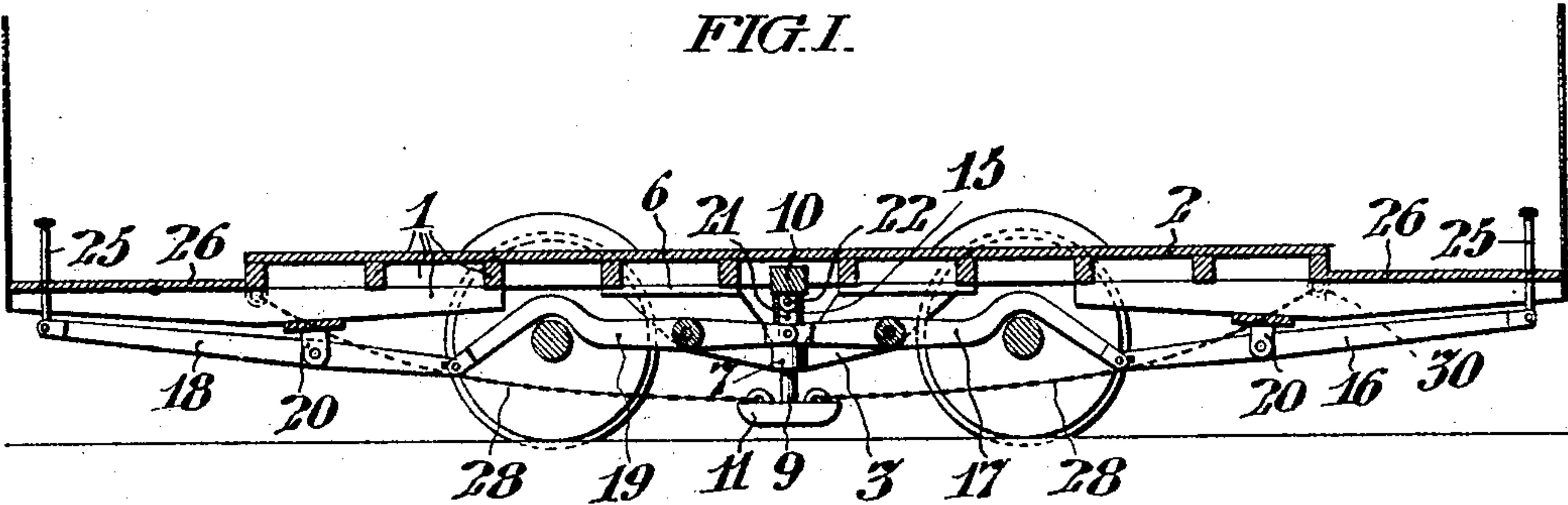


FIG. II.

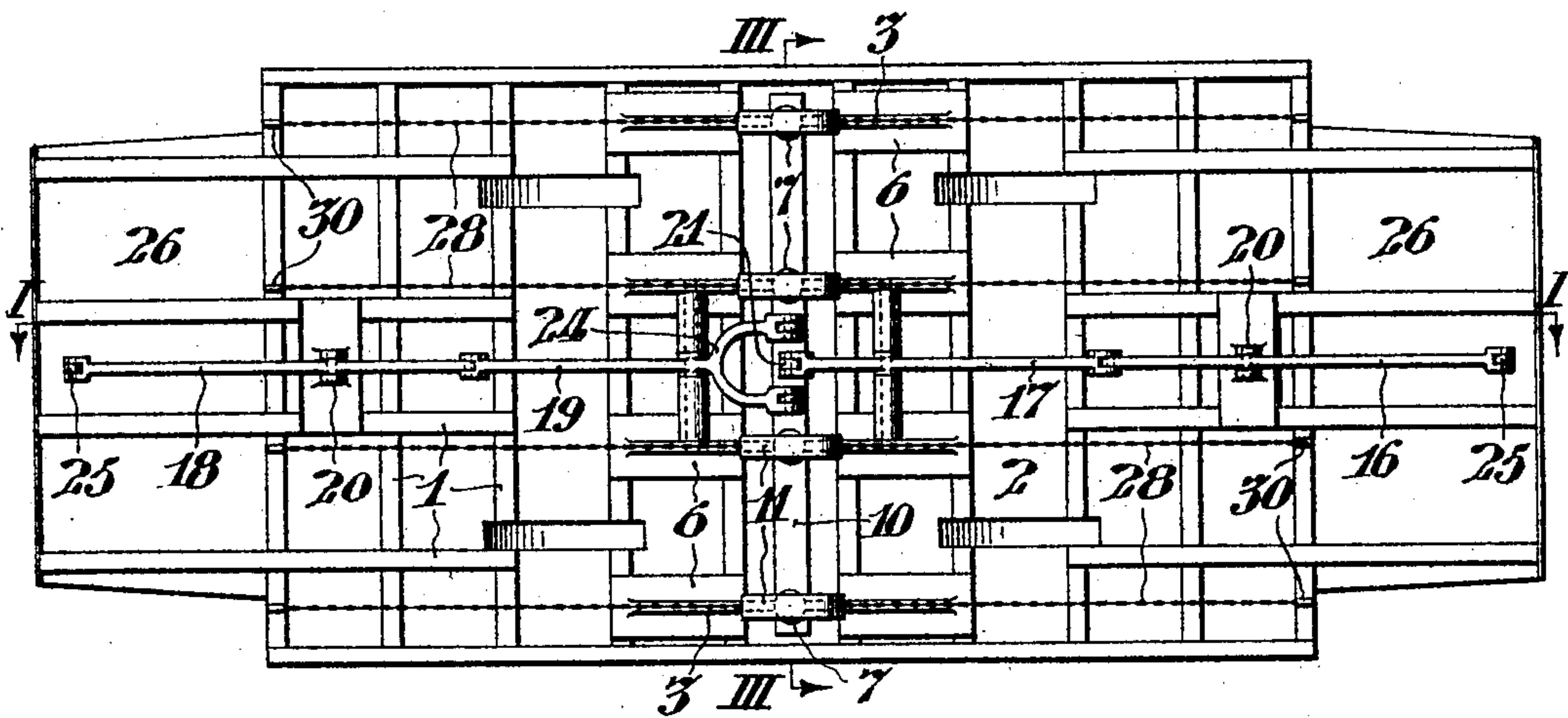
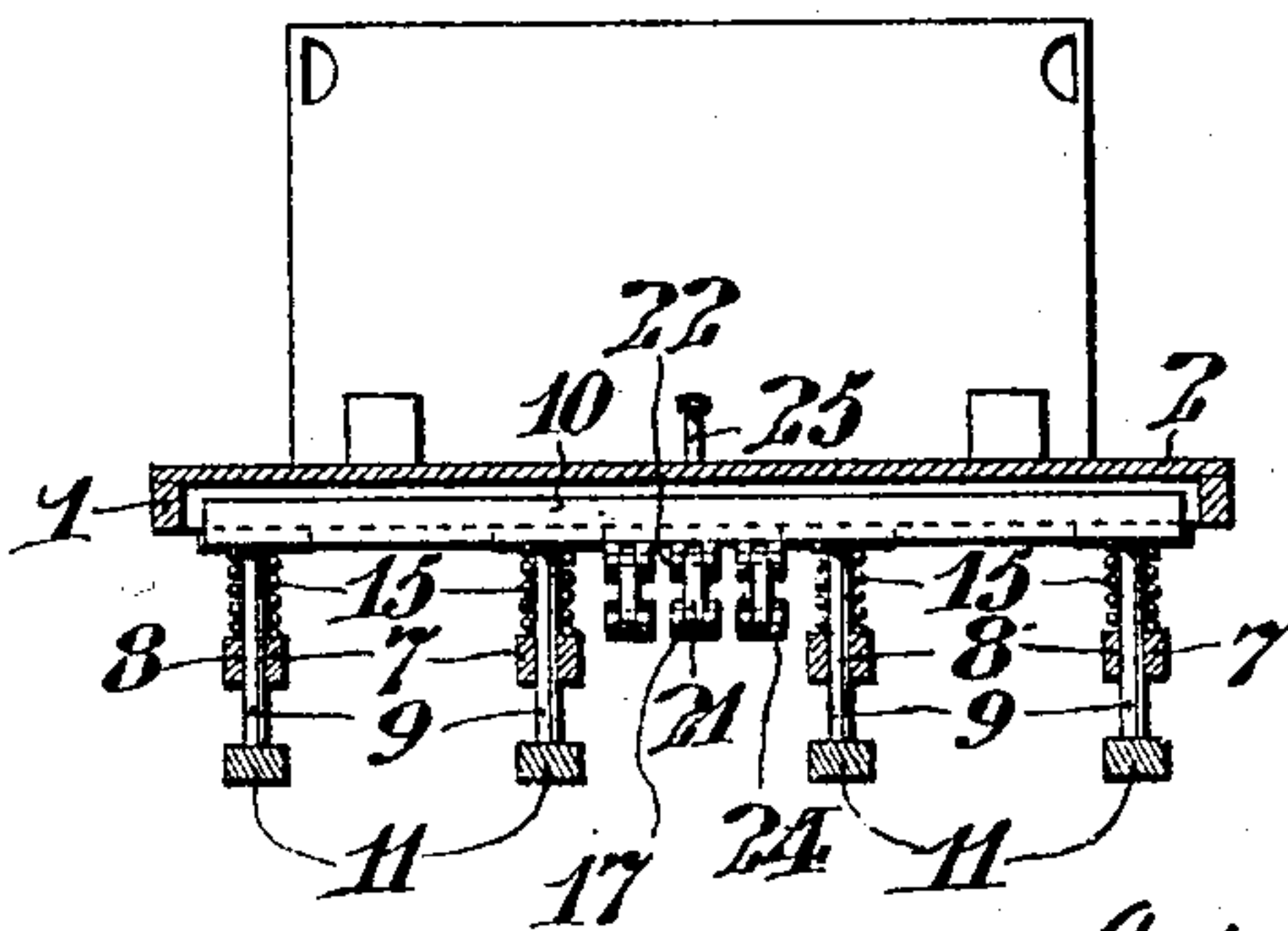


FIG. III.



WITNESSES:

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EMERGENCY-BRAKE.

No. 814,659.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, ADDISON H. AMES, a citizen of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented certain new and useful Improvements in Emergency-Brakes, of which the following is a description.

My invention relates to improvements in emergency-brakes; and it has for its object to provide such a brake adapted to be used upon electric-railway cars and also upon self-propelled vehicles, such as automobiles.

My invention resides in the combination and arrangement of parts, as hereinafter described, as set forth specifically in the claims, and as illustrated in the accompanying drawings, forming a part of this specification, and in which—

Figure I is a longitudinal sectional view of the underframe of a car, taken on the line I I of Fig. II, having my invention applied. Fig. II is an inverted plan view of the same, and Fig. III is a transverse sectional view on the line III III of Fig. II.

In the drawings, 1 designates the underframe of the car, which may be of any preferred construction, and 2 designates the flooring of the car, which is supported upon said underframe.

3 designates hanger-supports secured to the under side of the underframe 1. As shown in Figs. II and III, four of these hanger-supports are provided, although it will be understood that a greater or less number may be employed as desired. Each of these hangers is in the form of a yoke, as is shown in Fig. I of the drawings, and they are secured at their opposite ends to the underframe of the car in any suitable and desirable manner. As illustrated in the drawings, the ends of the said hanger supports are provided with plate-like portions 6, provided with perforations (not shown) through which securing means—for instance, bolts—may be passed to connect the same to the underframe. At the center of each of the said hanger-supports an enlargement or boss 7 is provided having a perforation 8, in which the vertical rods 9 are supported and guided. The upper ends of the said rods are

connected to a supporting-bar 10, extending from side to side of the car, as clearly shown in Figs. II and III of the drawings. Each of the rods 9 is provided at its lower end with a brake shoe or member 11. Normally these brake shoes are held a short distance (about three inches) above the surface of the ground or pavement of the street by means of coiled springs 15, which respectively surround each of the rods 9 above the bosses 7 of the hanger-supports 3. The lower ends of the said springs rest upon the said bosses, and the upper ends bear against the lower side of the bar 10. These springs are of just sufficient strength to support the brake shoes or members 11 in a position slightly elevated above the surface of the ground or pavement, as previously stated.

In order to force the brake-shoes down upon the surface of the ground or pavement, I have provided a system of levers consisting of a lever 16 and a lever 17, provided at one end portion of the car and which levers are adapted to be operated by a motorman stationed at the corresponding end of the car, and also the levers 18 and 19, provided at the other end portion of the car and adapted to be operated by a motorman stationed at the corresponding end portion of the car. Each of the levers 16 and 18 are pivotally supported upon brackets 20, secured in any suitable manner to the underframe of the car.

The inner end of the lever 16 is pivotally connected to the outer end of the lever 17, and the inner end of the lever 18 is pivotally connected to the outer end of the lever 19. The inner end of each of the levers 17 and 19, located underneath the center of the underframe of the car, are respectively pivotally connected in any suitable manner to the transverse bar 10. As illustrated, the lever 17 is pivotally connected to the lower end of a link 21, the upper end of which is pivotally connected at 22 to an ear or lug upon the said transverse bar 10. The inner end of the bar 19 is provided with a yoke 24, the legs or ends of which are located upon opposite sides of the point at which the lever 17 is connected to the said bar. Each leg of the said yoke is pivotally connected to the lower end of a link, the upper end of which is pivotally

connected to the bar 10 in the same manner as the link 21 is connected thereto.

25 designates vertical rods, one of which is connected, respectively, to the outer ends of the levers 16 and 18 and which rods extend up through the floors 26 of the platforms of the car. Each one of the said rods is adapted to be depressed by the motorman placing his foot thereupon and exerting his weight upon the same.

By mere inspection of Figs. I and II of the drawings it will be understood that when either of the said rods is depressed the outer end of the lever to which the same is connected will be depressed, occasioning a vertical or upward movement of the inner end thereof and also of the outer end of the lever to which the said inner end is pivotally connected. The vertical or upward movement of the said outer end of the second lever occasions the downward movement of the inner end thereof, which is pivotally connected to the transverse bar 10 in the manner heretofore set forth. For instance, depression of the outer end of the lever 16 would occasion depression of the inner end of the lever 17 and a consequent depression of the transverse bar 10 and of the brake-shoes connected thereto against the upwardly-exerted force of the coiled springs 15, surrounding each of the vertical rods 9, to which the brake-shoes 11 are secured.

When the brake-shoes are forced down upon the surface of the ground or pavement over which the car is located, (the car being in motion,) it will be understood that great lateral force is exerted upon the said brake-shoes and the rods to which the same are connected and that there is liability of the said rods being bent to one side, depending upon the direction in which the car is moving.

In order to prevent the bending of these rods in either direction, I have provided cables 28 upon opposite sides of the transverse center of the car, each of the said cables being connected to one of the brake-shoes and being extended therefrom to the end of the car, where it is connected to the underframe thereof in any suitable and desirable manner. These cables are of just sufficient length to extend from their points of connection 30 to the underframe to their respective brake-shoes when the latter are in their lowermost position, so that the bending of the brake-shoes in either direction would be prevented by the said cables.

Although my invention is intended to be used only in cases of emergency where it is desired to bring the car quickly to a stop, yet it may be used to take the place of the ordinary brake which is applied to the wheels of the car.

When applied to an automobile or similar

vehicle, it will be understood that as the driver or chauffeur always occupies substantially the same position in the vehicle only one of the cables and one of the systems of levers would be employed. The principle of the invention, however, both as to construction and operation would be the same.

Having thus described my invention, I claim—

1. In a brake mechanism, the combination of a plurality of brake members, a bar extending transversely of the car, rods connecting the said brake members to the said transverse bar, means connected to the underframe of the car for supporting and guiding the said rods, means for holding the said brake members out of engagement with the ground or pavement over which the car is located, a system of levers pivotally connected to the said transverse bar and extending therefrom to an end of the car, the said lever being adapted to occasion movement of the said brake members into frictional engagement with the ground or pavement, substantially as described.

2. In a brake mechanism, the combination of a plurality of brake members, a bar extending transversely of the car, rods connecting the said brakes to the said transverse bar, means connected to the underframe of the car for supporting and guiding the said rods, means for holding the said brake members out of engagement with the ground or pavement over which the car is located, a system of levers pivotally connected to the said transverse bar and extending therefrom to an end of the car, the said levers being adapted to occasion movement of the said brake members into frictional engagement with the ground or pavement, a plurality of cables or chains connected to the said brake members and extending in opposite directions therefrom and connected to the underframe of the car.

3. A brake mechanism, in combination, a plurality of brake members having rods extending therefrom, a plurality of supports having perforations provided therein through which the said rods extend, a transverse bar located above the said hanger-supports to which the said rods are connected, coiled wire springs surrounding the said rods and being located between the said bar and the said hanger-supports and being adapted to hold the said brake members out of contact with the ground or pavement over which the said car may be located, systems of levers pivotally connected to the said transverse bar and extending in opposite directions therefrom to the opposite ends of the car, means connected to the said systems of levers whereby each system may be operated to occasion movement of said brake members into fric-

tional engagement with the said ground or pavement, and a plurality of cables or chains connected to the said brake members and extending in opposite directions therefrom to
5 the underframe, to which the said cables are connected, substantially as described.

In testimony that I claim the foregoing as

my invention I have hereunto signed my name this 6th day of June, A. D. 1905.

ADDISON H. AMES.

In presence of—

J. B. GLOVER,
EDWIN R. COX.