

(No Model.)

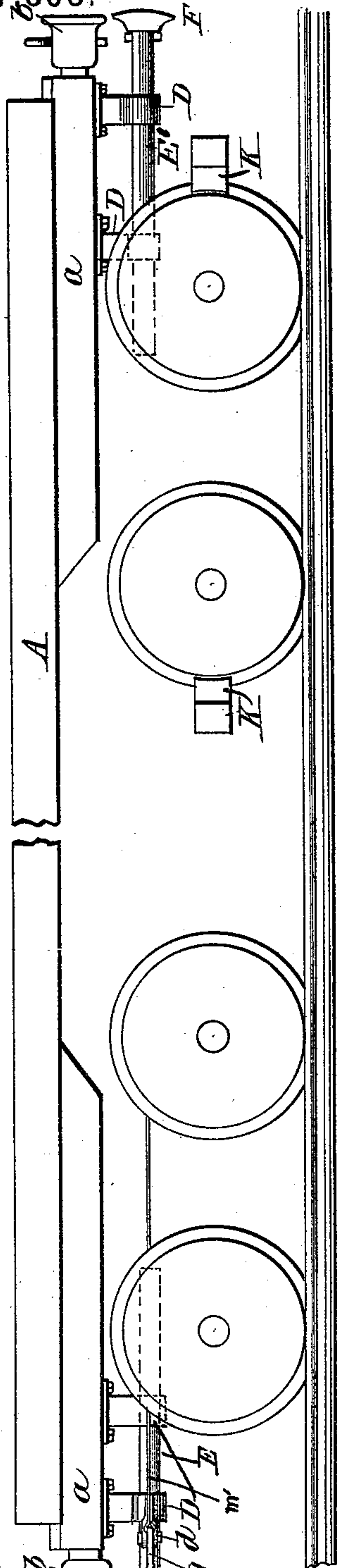
2 Sheets—Sheet 1.

T. A. MARRIOTT.  
CAR BRAKE.

No. 487,868.

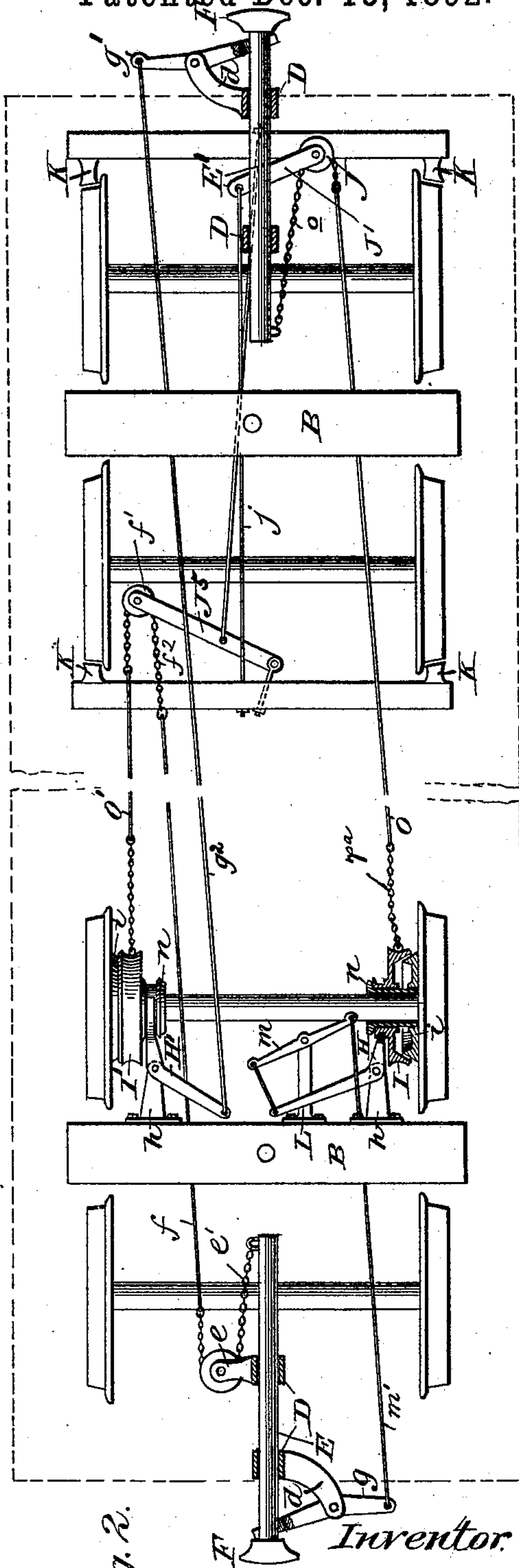
Patented Dec. 13, 1892.

Fig. 1.



Witnesses  
J. V. Case  
C. C. Younglove

Fig. 2.



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Fig. 3.

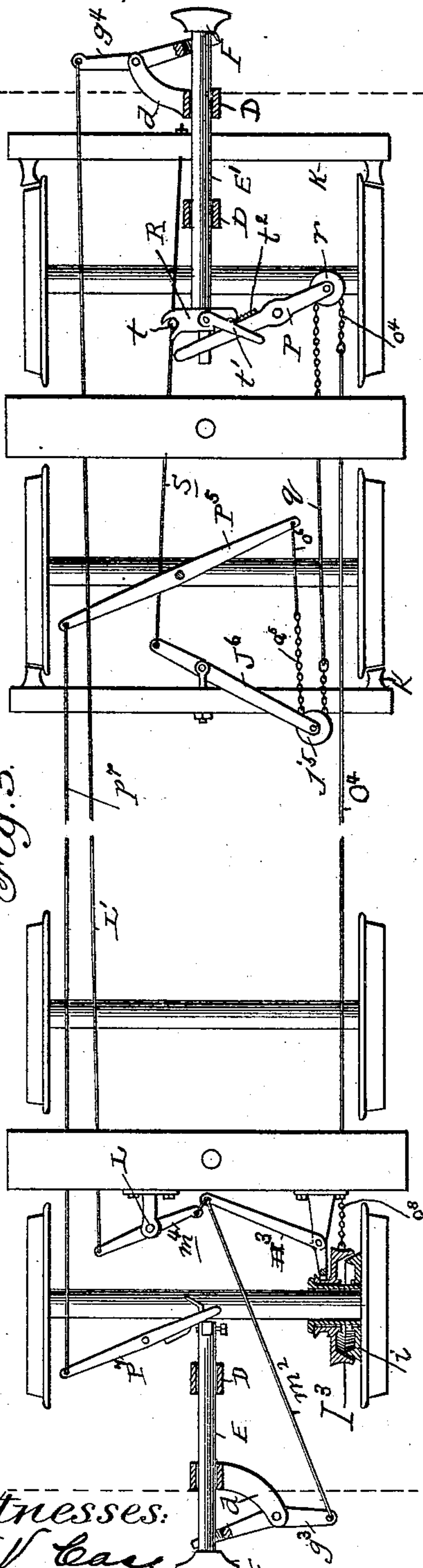
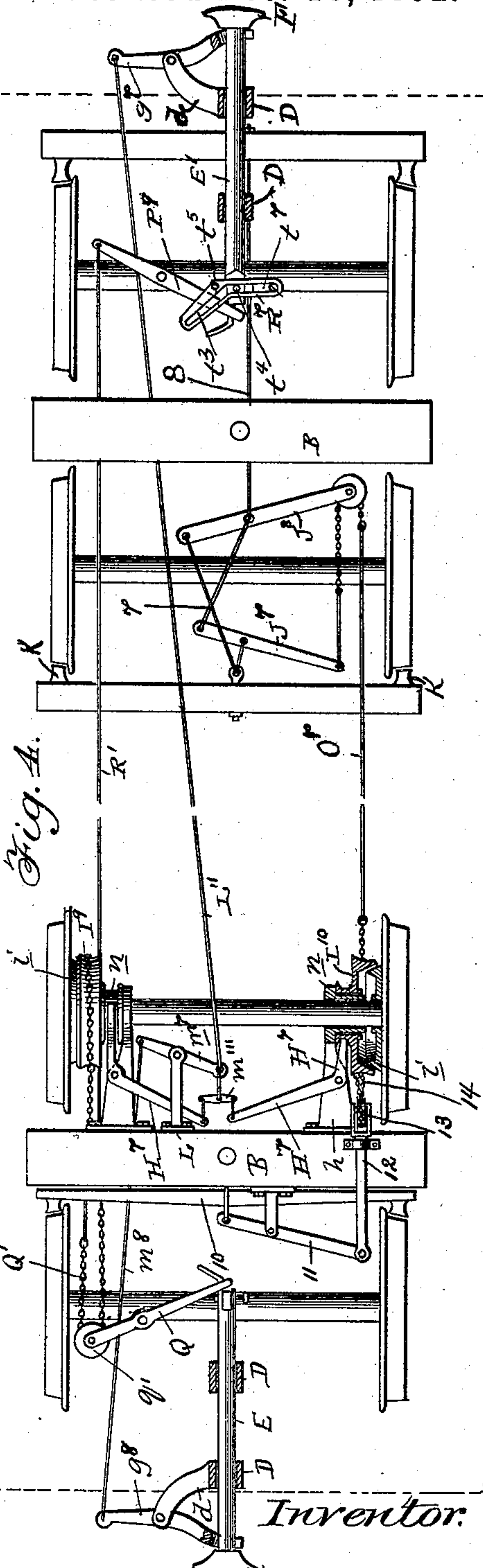


Fig. 4.



Witnesses:

J. V. Case  
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# UNITED STATES PATENT OFFICE.

THOMAS AMBROSE MARRIOTT, OF NEWBERRY, MICHIGAN.

## CAR-BRAKE.

SPECIFICATION forming part of Letters Patent No. 487,868, dated December 13, 1892.

Application filed May 13, 1891. Serial No. 392,639. (No model.)

*To all whom it may concern:*

Be it known that I, THOMAS AMBROSE MARRIOTT, a citizen of the United States, residing at Newberry, in the county of Luce and State of Michigan, have invented a new and useful System of Railroad-Car Brakes, of which the following is a specification.

My present invention relates to an automatic car-brake; and its primary object is to utilize the rotary motion and power of an axle or wheel to set the brake-beams against the wheels, and thereby retard and arrest the motion of the car.

A further object of the invention is to provide simple and efficient mechanisms to work from either end of a train of cars, which act, in conjunction with the inward movement of one or both endwise-movable pressure-bars, to automatically couple the members and apply the brake-shoes to the wheels, and thereby set all the brakes through a train, and a further object is to provide means to automatically throw one of the presser-brake-beam actuating devices out of the path of one endwise-movable bar when the latter is forced or moved inward.

With these and other ends in view the invention consists in the combination of devices and construction and arrangement of parts, as will be hereinafter fully described, and pointed out in the claims.

The invention is fully illustrated in the accompanying drawings, forming a part of this specification, and in which—

Figure 1 is a side view of my improved automatic brake. Fig. 2 is a bottom plan view showing the parts in position for operation, two clutches being employed, one for each end of a car. Fig. 3 is a similar plan view of another embodiment of the invention, in which a single clutch is used; and Fig. 4 is a plan view similar to Figs. 2 and 3, showing a duplex arrangement of clutches and a means for disconnecting one of the pressure-bars from the clutch mechanism to prevent the bar that couples the clutch from being pressed outwardly by the strain in the rods and levers.

Referring by letters and figures to said drawings, and more particularly to Figs. 1 and 2 thereof, A designates the platform or body of an ordinary car.

*a a* are the two draw-bars, each having at its outer end a coupling *b*.

B B are the trucks at opposite ends of the car, and K K are the brake-shoes, which are adapted to be applied to the wheels of one of the trucks and which are carried by the usual brake-beams on the truck.

Depending from the draw-bar *a*, at each end of the cars, are two vertical hangers D D, which are slotted or perforated to align with each other, and in said hangers are fitted the endwise-movable pressure-bars E E', one at each end of the car. The outer exposed end of each pressure-bar, which protrudes beyond the end of the car below the coupling on the draw-bar, is provided with a contact or fall plate or head F, which is of such size and form that it is adapted to contact with a similar head on the presser-bar of an adjacent car. The forward or outer hangers D of each pair of hangers on the draw-bars *a* is provided with the rigid stationary arms *d*, in which are fulcrumed the angular presser-bar levers *g g'*, one end of said levers being bifurcated or provided with a collar to fit around the presser-bars directly in rear of the contact-heads F thereon, so that when the head and bar are forced inward this lever is turned or moved in its fulcrum. To the outer end of the presser-bar lever *g* is connected a rod *m'*, which extends and is connected to an intermediate lever *m*, fulcrumed on a fixed arm or support on one truck of the car, and this intermediate lever is linked to a clutch-shipping lever H. This lever is angular in form, fulcrumed at its angle to a fixed support *h*, and the short arm of the shipping-lever is bifurcated or forked to embrace a grooved hub or sleeve *n* on the female member I of a clutch. Said female member of the clutch is loosely fitted on one of the axles of the car, and it is provided with a lateral flange, the outer surface or periphery of which is grooved, and to this female clutch member I is secured one end of a chain 7<sup>a</sup>, which is adapted to be partially coiled or wound around the clutch member I when the latter is moved by the shipping-lever into engagement with the revolvable male member *i* of the clutch, which male member is rigidly and securely attached to the axle or laterally to the inner face or side of a car-wheel and is adapted to fit securely



and tightly in the female member of the clutch. The rod O extends from the chain 7<sup>a</sup> nearly to the opposite end of the car, where it has another chain o, which extends around  
 5 a guide roller or sheave J, and this chain o is attached to the inner end of the presser-bar E' at the other end of the car. The guide roller or sheave J is journaled on a pin or shaft supported in one end of a lever J',  
 10 which is fulcrumed at an intermediate point of its length to one beam, and has its other end connected by a rod j to one of the brake-beams of the car.

On the rear pendant-hanger D of the press-  
 15 er-bar E is journaled a guide-sheave e, around which passes a chain e', having one end attached to the inner end of the presser-bar E and its other end fastened to a rod f, which extends toward a power-lever J<sup>5</sup>, having one  
 20 end pivoted to one of the brake-beams and its other end provided with a guide-sheave f', around which passes a chain f<sup>2</sup>, which is attached to the rods f O', the latter having a chain connected to the female member I' of  
 25 another clutch, which member is adapted to be moved by an angular shipping-lever H', having attached to its end a rod g<sup>2</sup>, which extends to the lever g', which in turn is connected to the presser-bar E'. Normally the  
 30 presser-bars E E' are extended the proper distance beyond the ends of the car, and the female members of the clutches are free from engagement with the male members. When the train is slackened by retarding the loco-  
 35 motive in the usual manner, the presser-bar E at the forward end of the car contacts with a similar presser-bar on the preceding car or tender, and said presser-bar is thereby moved inward under the impact or pressure brought  
 40 to bear thereon, when, through the medium of the lever g, rod m', intermediate lever m, and the angular lever H, the female member I of the clutch will be pushed laterally into engagement with the male member i on the  
 45 adjacent wheel. The chain 7 will then be wound upon the clutch member I, and, through the medium of the rod O, chain o, lever J', and the rod j, the brakes will be set. When the presser-bar E is forced inward and the  
 50 bar O is moved as described, it will be perceived that, through the medium of the chain o, the presser-bar E' will be forced outward, so as to engage the presser-bar upon the forward end of the next succeeding rear car and  
 55 facilitate the application of the brakes thereof. Should the end of the car carrying the presser-bar E' be the forward end of the car, the female clutch member I' will be forced into engagement with the adjacent member i  
 60 when said bar E' is forced inwardly through the medium of the lever g', the rod g<sup>2</sup>, and angular lever H'. This will cause the chain connecting the rod O' and the clutch I' to be wound upon said clutch, when, through the  
 65 medium of the rod O', the chain f<sup>2</sup>, and the lever J<sup>5</sup>, the brakes will be applied, and, through the medium of the said rod O', the

chain f<sup>2</sup>, the rod f, and the chain e', the presser-bar E will be forced outwardly to facilitate the application of the brakes upon the 70 succeeding rear car.

In Fig. 3 of the drawings I illustrate an embodiment of my invention in which the brake is equipped with a single clutch, which is adapted to be operated by the inward 75 movement of either of the presser-bars at opposite ends of the car. In this part of my invention the single clutch has its angular shipping-lever H<sup>3</sup> connected by the rod m<sup>2</sup> to one lever g<sup>3</sup>, connected to the presser-bar E and 80 to the intermediate lever m<sup>4</sup>, fulcrumed at L, and having its other end attached to the rod L', which extends the length of the car and is attached to the other lever g<sup>4</sup>, connected to the presser-bar E'. 85

Pivoted at a point adjacent to its middle upon the presser-bar E', adjacent to the inner end thereof, is a lever R, which is provided at one end with a notch, as shown, designed and adapted to engage a stationary 90 fulcrum hanger t, depending from the truck or other suitable part of the car when the presser-bar is pushed inward. This lever R, the free end of which is designed and adapted to engage the lever P to push the same out of 95 the path of the presser-bar E, is provided upon its upper side with a pivoted arm t', to which is connected one end of a coiled spring t<sup>2</sup>, which is connected at its opposite end to the lever P and serves to hold the said lever P in 100 proper position to engage the inner end of the presser-bar when the same resumes its normal position. By the provision of the lever R and its appurtenances it will be perceived that when the presser-bar E' is forced 105 inward to throw the female members of the clutches into engagement with the male members thereof the lever P will engage the free end of the lever R instead of the bar E', and will thereby be prevented from pushing the 110 said presser-bar outwardly.

Connected at one end to the female member I<sup>3</sup> of the clutch is a chain o<sup>3</sup>, which is connected at its opposite end to a rod o<sup>4</sup>. This rod o<sup>4</sup> is provided at its opposite end with a 115 chain o<sup>5</sup>, which takes around the pulley r, carried at one end of the lever P, and is connected to the rod q, which in turn is connected to one end of the chain o<sup>5</sup>, which takes around the pulley j<sup>5</sup> of the power-lever j<sup>6</sup>, 120 which is fulcrumed in a bracket-arm carried by one of the brake-beams, as shown. After taking around the pulley j<sup>5</sup> the chain o<sup>5</sup> is connected to a short rod o<sup>6</sup>, which in turn is connected to one end of the centrally-pivoted 125 lever P<sup>5</sup>. This lever P<sup>5</sup> has its opposite end connected by the rod p<sup>7</sup> with the outer end of the lever P<sup>7</sup>, which is designed and adapted to engage and be engaged by the presser-bar E. One end of the power-lever J<sup>6</sup> is connected by 130 a rod S with the outer brake-beam for a purpose which will be apparent from the description of the operation. By the construction described it will be perceived that when the



presser-bar E is forced inwardly the member  $i^3$  of the clutch will be forced into engagement with the member  $i$ , when, through the medium of the chain  $o^3$ , rod  $O^4$ , and the chain  $o^4$  and the lever P, the presser-bar E' is forced outwardly to engage the presser-bar upon the next car and facilitate the application of the brakes thereof. Should the bar E' be the first to be pushed inward, it will push the inner end of the lever P out of its path, as before described, and will, through the medium of the lever  $g^4$ , rod  $L'$ , lever  $m^4$ , and the lever  $H^3$ , push the clutch member  $I^3$  into engagement with the member  $i$ . By reason of the long movement of the lever P it will be seen that, through the medium of the chain  $o^4$ , rod  $g$ , chain  $o^5$ , the rod  $o^6$ , the lever  $P^5$ , the rod  $p^7$ , and the lever  $P^7$ , movement will be quickly transmitted to the presser-bar E, and the same will be forced outwardly almost simultaneously with the inward movement of the bar E'. When the chain  $o^3$  is wound upon the clutch member to apply the brakes, the bar E being in its extreme inner position, it will be seen that the lever P will bear against the free end of the lever R, and will thereby be prevented from forcing the bar E' outwardly.

In the embodiment of the invention illustrated in Fig. 4 two clutches are employed and the inner approximate ends of the angular shipping-levers  $H^7$   $H^7$  are linked to a rod or bar  $m'''$ , to which is connected one end of the intermediate lever  $m^7$  and one end of a longitudinal rod  $L''$ , that extends and is connected to the lever  $g^7$ , connected to the presser-bar E', said lever  $m^7$  being likewise connected by its rod  $m^8$  to the lever  $g^8$  of the presser-bar E. The presser-bar E has its inner end in engagement with a lever Q, which carries a sheave  $q'$ , around which passes a chain  $Q'$ , one end of which is fastened to the female member of one clutch  $I^9$  and the other end of the chain is attached to a rod  $R'$ , which leads and is attached to one end of a lever  $P^9$ , which is fulcrumed at an intermediate point of its length and has its free end in the path of the stud  $t^5$  on the trip-lever  $R^7$ , pivoted at one end to a bracket on the bottom of the car at a point one side of the endwise-movable presser-bar. This trip-lever has a longitudinal slot  $t^7$ , with a laterally-inclined offset  $t^3$ , and in said slot works a stud or pin  $t^4$  in the presser-bar E'. The power-lever  $J^7$  is fulcrumed on one brake-beam, and one end thereof is connected by a link to the lever  $J^8$ , while to the other end of the power-lever is connected a link having a chain passing a sheave on the lever  $J^8$  and connected to the rod  $O^7$ , which is fastened to the other clutch. The lever  $J^8$ , which has one of its ends connected by a link 7 to one brake-beam, is connected to the other brake-beam by a rod 8, as shown.

The operation of the construction shown in Fig. 4 is as follows: When the presser-bar E is pressed inwardly, it will, through the medium of the lever  $g^8$ , rod  $m^8$ , lever  $m^7$ , and le-

vers  $H^7$ , force the female members of the clutches into engagement with the male members, when, through the medium of the chain  $Q'$ , rod  $R'$ , and the lever  $P^9$ , the presser-bar E' will be almost simultaneously forced out. Thus it will be seen that the chain  $Q'$  may be wound upon the female clutch member  $I^9$  without moving the lever Q and forcing the bar E outwardly. The two rear brake-beams are moved and the brakes are applied by the female clutch member  $I^{10}$  through the medium of the rod  $O^7$ , lever  $J^8$ , the lever  $J^7$ , and the rods 7 and 8. In this construction I also provide a forward brake-beam 10, to which is connected one end of a lever 11, to the opposite end of which is connected an arm 12, which carries at its opposite end a pulley 13, around which takes a chain 14, which is connected to the female clutch member  $I^{10}$ , through the medium of which the beam 10 is adjusted. When the rod E' is forced inward, the female clutch members will be forced into engagement with the male members through the medium of the lever  $g^7$ , the rod  $L''$ , and the levers  $m^7$  and  $H^7$ . As the bar E' is forced inward the lever  $R^7$  will swing and its lug  $t^5$  will force the lever  $P^9$  out of the path of the presser-bar. The said lever  $R^7$  swings until the slot  $t^3$  in its offset rests in the same vertical plane as the bar E', when the lug  $t^4$  of said bar is free to move to the outer end of the said slot. The lever  $P^9$  being locked or held by the lever  $R^7$ , as described, it will be perceived that as soon as the clutch member  $I^9$  rotates the chain  $Q'$  will be wound thereon, and through the medium of the lever Q the presser-bar E will be forced outward almost simultaneously with the inward movement of the presser-bar E'.

From the foregoing description, taken in connection with the drawings, it will be seen that I have provided a brake in which a clutch is first thrown into action to take power from a rotating wheel and transmit the same through a system of levers to the brake-beams to set the shoes against the wheels and that the movement of the clutch and brake-levers are automatically controlled by the endwise movements of presser-bars at either end of the car, each of the said presser-bars being adapted to effect the application of the brakes to its car and to force the other presser-bar out, so as to facilitate the application of the brakes on the car contiguous to said presser-bar.

It is evident that changes in the form and proportion of parts and details of construction can be made without departing from the spirit of my invention, and I therefore hold myself at liberty to make such modifications as fall within the scope of my invention.

Having described my invention, what I claim as new is—

1. In an automatic car-brake, the combination of an endwise-movable presser-bar, a clutch having a member rigid with a wheel or axle and a loose member on the axle, connections between the loose member and the



presser-bar, a brake-beam, and a system of levers connected with said beam and the loose member of the clutch, substantially as described.

5 2. In an automatic car-brake, the combination of an endwise-movable presser-bar, the clutch having the male member fast on a car-wheel or axle and the female member loose on the axle, connections between the loose female member of the clutch and the bar to automatically couple the clutch members on the inward movement of the bar, a brake-beam, and the levers between the brake-beam and the loose member of the clutch, substantially as described.

15 3. In an automatic car-brake, the combination of an endwise-movable presser-bar, a clutch having its male member rigid with a car wheel or axle and its female member loose on the axle, the angular shipping-lever connected to said loose female member, a lever connected to the presser-bar, connections between the said lever and the shipping-lever, a brake-beam, and the system of operating-levers, substantially as described.

25 4. In an automatic car-brake, the combination, with two presser-bars and a brake-beam, of an automatic clutch mechanism associated with a car axle or wheel, and the presser-bars to be connected to the axle or wheel on the inner endwise movement of either of the presser-bars, a system of levers between the

clutch mechanism and the brake-beam, and intermediate mechanism adapted to force one of the presser-bars outwardly when the other is forced inwardly, all substantially as and for the purpose specified.

5. In an automatic car-brake, the combination, with two presser-bars at opposite ends of a car, of a clutch having a male member rigid with the axle or wheel and a loose member, mechanism connecting the loose member of the clutch to the opposite presser-bars, the brake-beams, and a system of levers having connections with the loose clutch members and said brake-beams, substantially as specified.

6. In an automatic car-brake, the combination, with a brake-beam and the presser-bars at opposite ends of a car, of a clutch mechanism having the fast and loose members, the latter connected to both presser-bars, a system of levers between the brake-beam and the loose member of the clutch, and an automatic tripping-lever connected to one of said presser-bars and adapted to engage one of the levers of the system of levers to move the same out of the path of the presser-bar upon the inward movement of the latter, substantially as and for the purpose set forth.

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Witnesses:

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