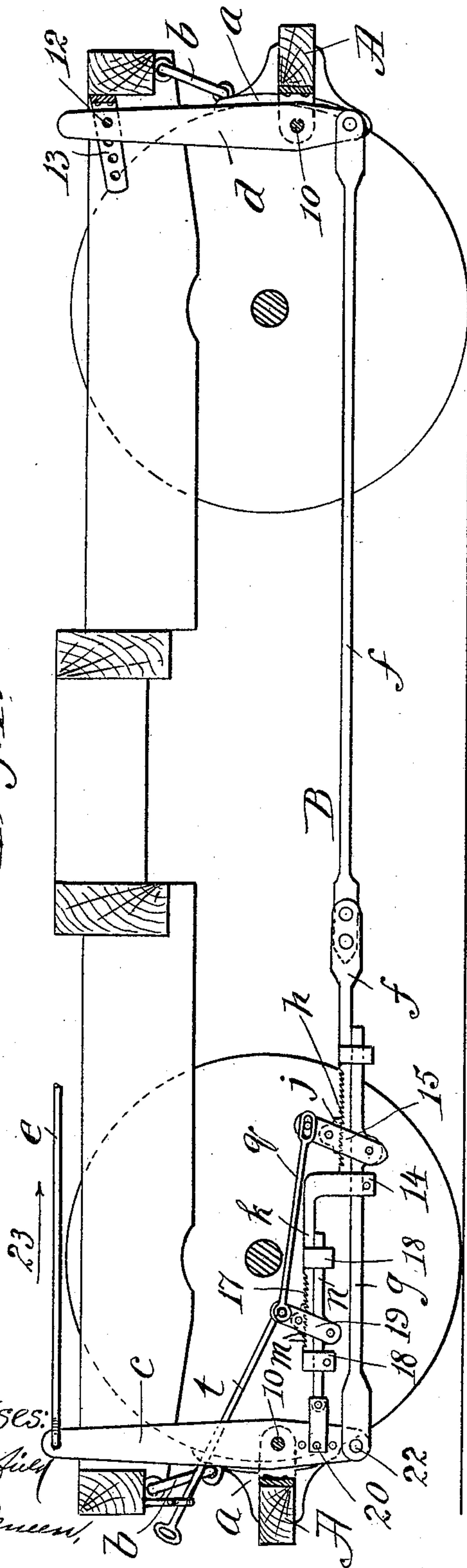


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Patented Dec. 8, 1891.

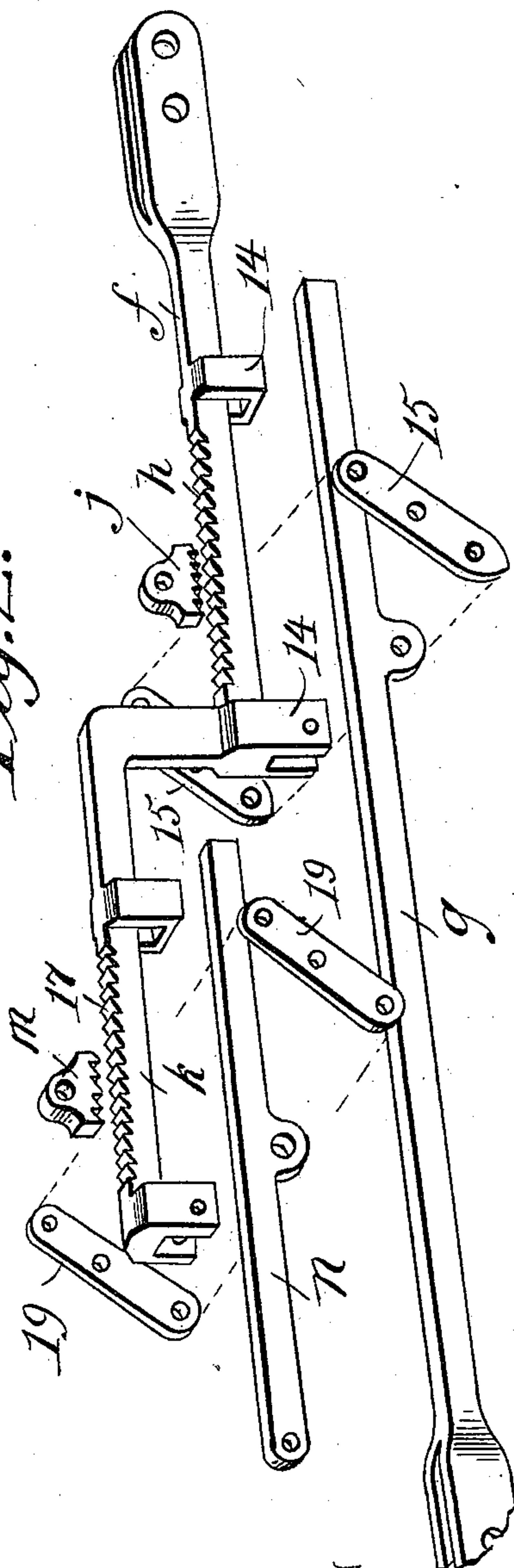
Fig. 7.



Witnesses:

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Fig. 2.



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(No Model.)

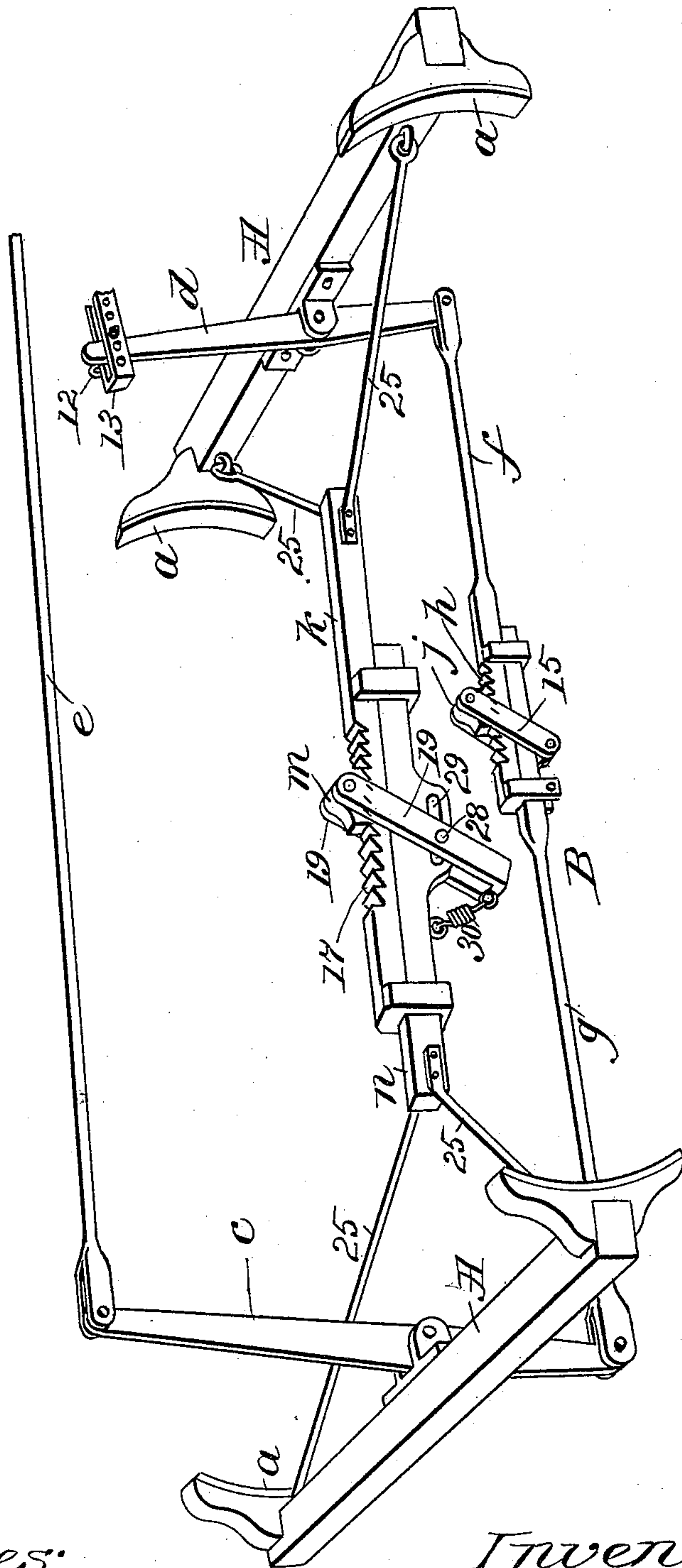
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E. G. DESOE.
BRAKE FOR RAILWAY CARS.

No. 464,753.

Patented Dec. 8, 1891.

Fig. 3.



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UNITED STATES PATENT OFFICE.

EDWARD G. DESOE, OF WEST SPRINGFIELD, MASSACHUSETTS.

BRAKE FOR RAILWAY-CARS.

SPECIFICATION forming part of Letters Patent No. 464,753, dated December 8, 1891.

Application filed August 20, 1891. Serial No. 403,254. (No model.)

To all whom it may concern:

Be it known that I, EDWARD G. DESOE, a citizen of the United States, residing at West Springfield, in the county of Hampden and State of Massachusetts, have invented new and useful Improvements in Brakes for Railway-Cars, of which the following is a specification.

This invention relates to improvements in devices for automatically shortening the connecting-rod which is applied between or in relation to the lever mechanism and the brake-beams with brake-shoes thereon to correspond with the wear which takes place between the faces of the brake-shoes and the treads of the car-wheels.

The invention consists, in a brake mechanism, in the combination, with a brake-beam having brake-shoes thereon, a lever connected to the brake-beam, and a connecting-rod having its one end secured to the lever and having at its other a connection with the suitable supporting part therefor, said rod being formed in two parts, the one having ratchet-teeth and the other carrying a pawl to engage said teeth, of a second ratcheted member and a pawl to engage same, which is mounted and connected for a movement with the brake-beam, but to have an extent of movement less than that of the brake-beam, substantially as will hereinafter more fully appear.

In the accompanying drawings, Figure 1 is a sectional elevation of the truck and brake mechanism, the latter embodying the present improvements. Fig. 2 is a perspective illustration of the details of the novel parts shown in Fig. 1; and Fig. 3 is a perspective view in illustration of the brake-operating and automatic take-up devices, the latter being shown as, under the invention, in substantially the same arrangement as in Fig. 1, although specifically somewhat modified for effects, as will be hereinafter set forth.

In the drawings, A A represent the brake-beams, having the brake-shoes *a a* thereon, as usual, the shoes and brake-beams being suspended from the truck-frame by means of the links *b*.

c and *d* represent the operating-levers for the brake-beams, each of said levers having a pivotal connection toward its lower end

therewith, as at 10, and the extreme lower ends of the said levers are united by the connecting-rod B, which is formed in two parts or sections and connected and adapted to slide the one part on the other in one direction only, so that the distance between the points of connection of the connecting-rod with the levers *c* and *d* may be diminished to correspond with the wear, as will hereinafter more fully appear. The lever *d* has its upper end pivotally mounted, as at 12, in a fixed supporting part 13 on the truck-frame, and the said lever *d* is termed the "dead-lever," while the one *c*, termed the "live-lever" has the power imparted, as usual, at its upper end through the rod *e*.

The connecting-rod B, which consists of the sections *f* and *g*, has on the section *f* the series of ratchet-teeth *h* and is provided with the pending yokes or clips 14 14, through which the connecting-rod section *b* is passed and by which the same is supported. The connecting-rod section *g* has pivoted thereon the pawl-carrying bar or arm 15, on which is pinned the pawl *j*, which takes into the ratchet-teeth *h*, and there is a second ratcheted member *k* and a pawl *m*, which engages the ratchet-teeth of the part *k*, the said ratcheted member *k* being adapted to have a movement in connection with one of the brake-beams and the operating-lever therefor, while the pawl which engages the part *k* is mounted and connected for a movement in the reverse direction with the other brake-beam; but its extent of movement is less than that of the brake-beam, and with particular reference to Fig. 1 the said ratcheted member *k* is formed as an offset extremity of the brake-rod section *f* farthest from the dead-lever and having the ratchet-teeth 17. The said offset extremity is provided with the pending clip 18 18, supported in which is the bar *n*, which carries the pawl *m*, the latter being mounted and connected on the bar *n* by the duplicated pivoted and united pawl-carrying arms 19 19. The bar *n* is connected, as at 20, to the live-lever *c* between the pivotal and fulcrum point 22, which said lever has in its engagement with the connecting-rod B and the point of connection 10 which said lever has with the brake-beam.

Now with respect to the operation of the

mechanism shown in Fig. 1. It being assumed that there is a slight wear on the brake-shoes, but not enough to be material or to require being taken up, as the power-lever *c* is drawn upon in the direction of the arrow 23 in Fig. 1 to set the brake in the usual way the live-lever *c* will be swung to the right from the fulcrum-point 22 and the brake-shoe brought upon the wheel. The bar *n* has, with the brake-beam which is adjacent thereto, a movement less than that of the brake-beam and of the shoes thereon, owing to its manner of connection therewith, for, as shown in Fig. 1, said bar *n* is attached to the live-lever *c* (which in turn is connected to the brake-beam at 10) between the fulcrum 22 and the point of connection 10 which the latter has with the brake-beam, so that the movement of the bar *n* and the pawl *m* thereon will be less than that of the brake-beam and shoes, and if the movement which is required to set the brake-shoes is normal or not excessive the pawl *m* will slide forward to the extent of a portion only of a ratchet-tooth, and then as the brake is let off the pawl and the bar *n* will slide back again over the tooth which had been but partially traversed; but of course if the wear is excessive, requiring to be taken up, the movement of the live-lever to set the brakes becomes increased, and correspondingly and proportionately increased is also the movement of the bar *n* and the pawl *m*, carried thereon, and as or slightly before the brakes are being set the pawl *m* will have been slid to engage a next forward ratchet-tooth on the member *k*, which is to be regarded as an adjunct of and in substance in engagement with the brake-beam at the farther end of the truck, the relations between the left-hand end of the member *k* and the live-lever *c* are maintained by the pawl engagement between the bar *n* and part *k*, and the movement which the live-lever is next permitted to have—that is, on letting off of the brake—imparts a motion to the section *g* of the brake-beam connecting-rod B which is so much in excess of that necessary to let the brakes off in the proper extent, and so much in excess of the movement which the connecting-rod section *f* has in such letting off of the brakes, that the section *g* will slide endwise on the section *f* until a new ratchet-tooth *h* is taken by the pawl *j*, and the connecting-rod B, as a whole, is correspondingly shortened.

In the operation of the devices described the pawl *m* and the part carrying it are free and capable of moving relative to the part *k*, which said pawl engages at the time the draft is had endwise on the connecting-rod B, at which time the other pawl *j* acts as the medium or connection between the sections of said connecting-rod and prevents the one moving outwardly on the other, while in the reverse movements of the parts or at the time of the letting off of the brakes the draft upon the part carrying the pawl *m* is such as to

cause it to take into the teeth of the ratchet on the part *k*, engaged thereby, while the slackening and take-up is had between the sections *f g* of the connecting-rod. Thus the one pawl holds at one set of ratchet-teeth on the connecting-rod section what the other pawl takes up on the other set of ratchet-teeth 17.

Having now set forth, in combination with the two-part and pawl-and-ratchet engaged connecting-rod for the opposite brake-beams, one form of ratchet member having a movement in conjunction with the one brake-beam and a pawl which engages the same that is mounted and connected for a movement with the other brake-beam, but in an extent less than that of the said latter brake-beam, on reference to the drawings, Fig. 3, it will be seen that a device acting in substantially the same way, but in accordance with the invention and for effecting the same results, is shown. In this arrangement the part *k*, which moves in conjunction with one of the brake-beams, has its connection directly with said brake-beam near the shoes through means of the oblique rods 25, instead of, as in Fig. 1, by being a part of the connecting-rod section *f* and being linked to the brake-beam through the dead-lever *b*. The bar *n*, that carries the pawl *m*, is also directly attached through the oblique rods 25 to the brake-shoes or to parts of the brake-beam adjacent thereto, and in order that as this bar *n* (which has movements coinciding with the brake-beam to which it is connected) moves it will not impart to the pawl *m* so great a movement the pawl is mounted so that there will be a certain amount of lost motion by the bar *n* before the pawl will be moved therewith as the brakes are set. This manner of mounting the pawl *m* consists in having its carrier arm or arms 19 provided with a transverse pin 28, which is passed crosswise through a slot 29, which is formed in the bar *n*, and has a certain proper extent longitudinally of said bar. The spring 30 is applied between the pawl-carrying arms and the bar *n* as a means of safeguard, so that the tooth or teeth of the pawl will be held down into engagement with the ratchet-teeth on part *k*, except when the pawl is forwardly forced by positive means. At the time of setting up the brake, if the wear is not material, the brake-shoes will come hard upon the wheels without any or enough of movement being imparted to the pawl *m* to force it forward to the extent of a ratchet-tooth on the part *k*, for the bar *n* will not force the ratchet-carrier or arms 19 forward until the rear end of the slot is forced to contact with the pin 28. When the movement necessary to set the brakes is therefore sufficient to cause the bar *n* to move with one of the brake-beams, so that its slot end bears against and forces the pawl-carrier forward to the extent of a tooth on the part *k*, which is connected, substantially as described, with the further brake-

beam, of course the taking up on the connecting-rod *b* below will be insured for the same reasons and in the same manner as has been already described in connection with Fig. 1, of which the last-described specific construction is a legitimate modification.

An advantage arising from the employment of the device shown in Fig. 3 consists in the fact that the movements of the taking-up pawl and ratchet parts, which are proportionate in extent to the movements of the brake-shoes, are controlled and imparted directly by and from the brake-shoes owing to the oblique rods 25 25 shown, and therefore any springing of the brake-beams or brake-levers *c d* will have no effect to take up the brake-rod falsely—that is to say, when there is not such an extent of wear as to warrant same. Where the brake beams and levers *c d* are formed of wood or in such form or material as to be capable of intermediately springing, of course there is a point in favor of the device shown in Fig. 3, although where the brake-levers may be relied upon as of a sufficiently rigid construction the form shown in Fig. 1 is deemed desirable and efficient.

The pawl-carrying arms 15 and 19, Fig. 1, are shown as linked together, as at *q*, and a handle-rod *t*, connected thereto, which is extended to an accessible place at the end of

the truck or otherwise. This appliance is convenient at the time of replacing the worn-out brake-shoes, at which time the brake-rod has been shortened up correspondingly and in a maximum extent, for as the new and normally thick brake-shoes are applied the connecting-rod requires to be correspondingly lengthened, and at this time the pawls are readily held raised to permit of such by merely drawing on the rod *t*.

And, therefore, what I claim, and desire to secure by Letters Patent, is—

In a brake mechanism, the combination, with a brake-beam having brake-shoes thereon and a lever connected to the brake-beam, and the connecting-rod having its one end secured to the lever and having at its other a connection with a suitable supporting part therefor, said rod being formed in two parts, the one having ratchet-teeth and the other carrying a pawl to engage said teeth, of a second ratcheted member and a pawl to engage same, which is mounted and connected for a movement with the brake-beam, but to have an extent of movement less than that of the brake-beam, substantially as and for the purpose set forth.

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Witnesses:

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