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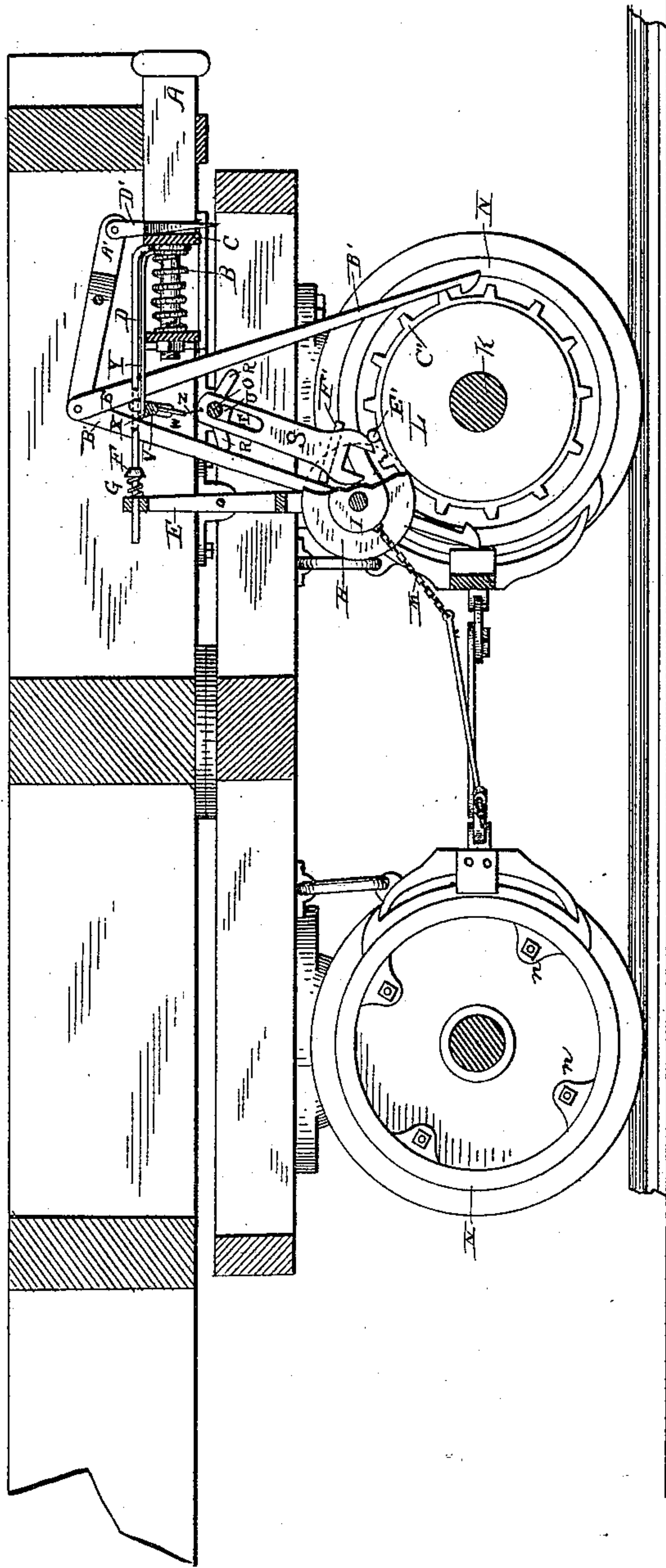
F. H. D. NEWHARD.

CAR BRAKE.

No. 348,038.

Patented Aug. 24, 1886.

Fig. 1.



WITNESSES

John C. Jenkins
C. H. Davis

INVENTOR

F. H. D. Newhard

By *Wm. Alexander*
His Attorney

(No Model.)

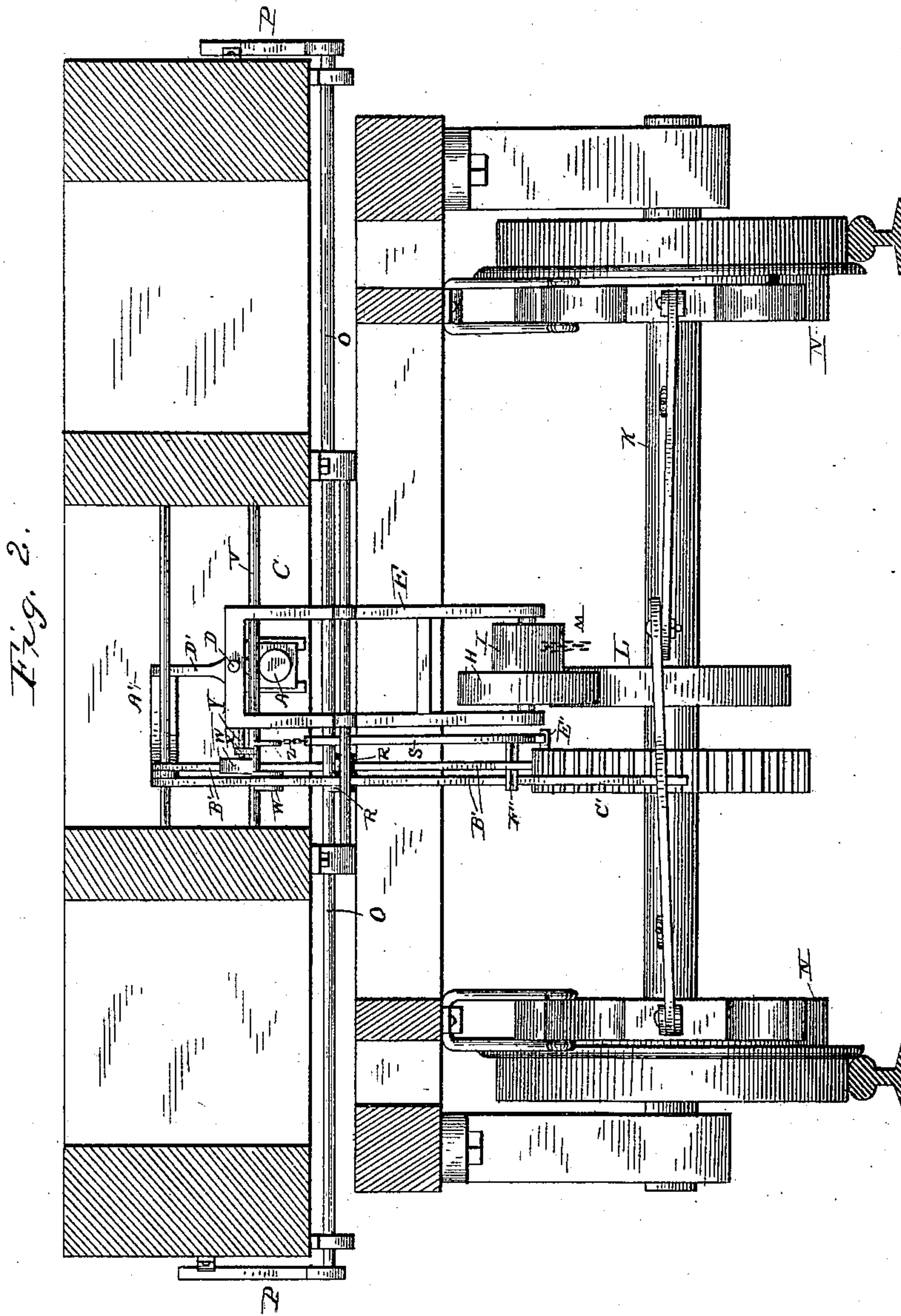
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John C. Jenkins
C. D. Davis

INVENTOR

F. H. D. Newhard

By *Wm. Alexander*
his Attorney

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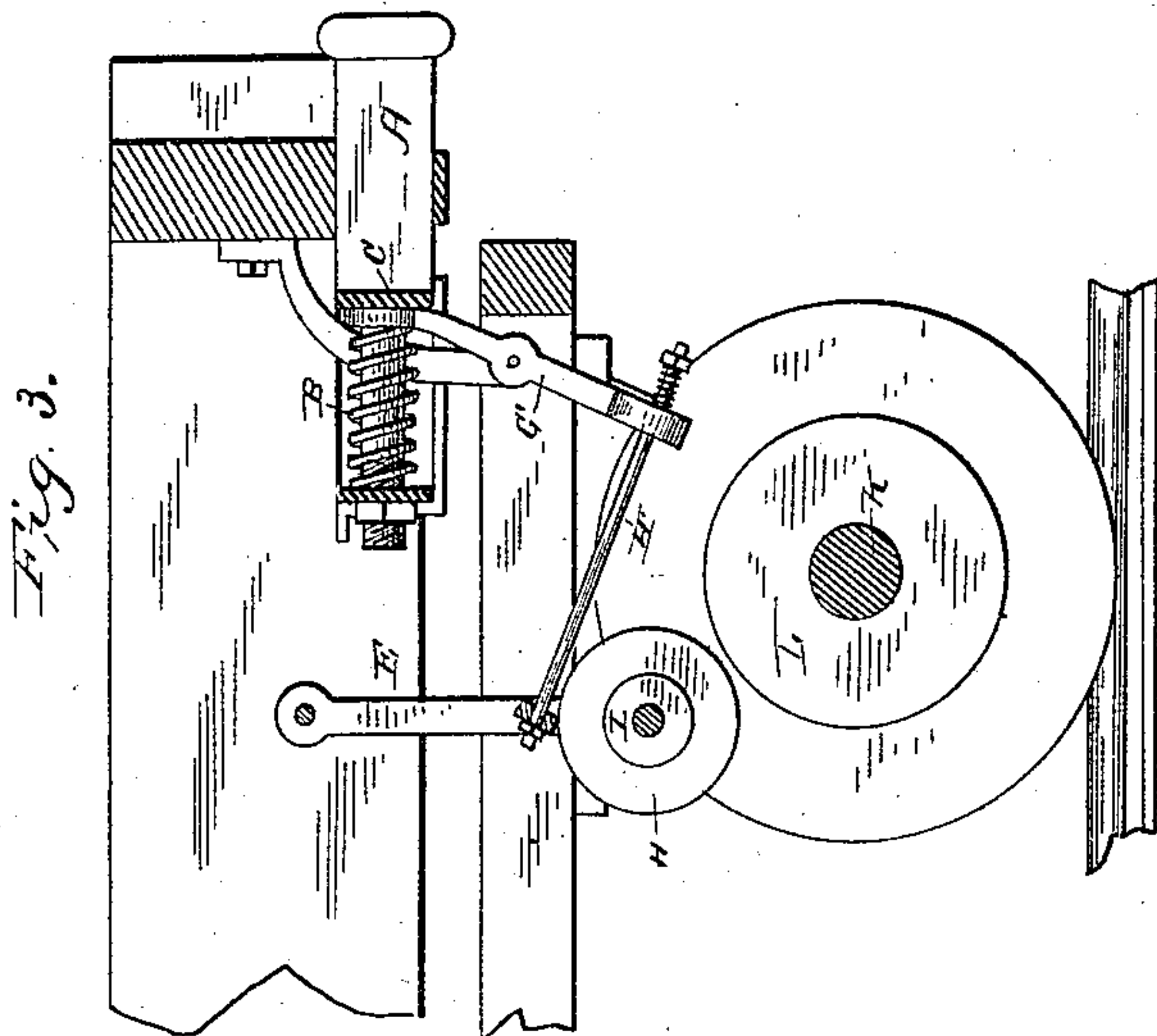
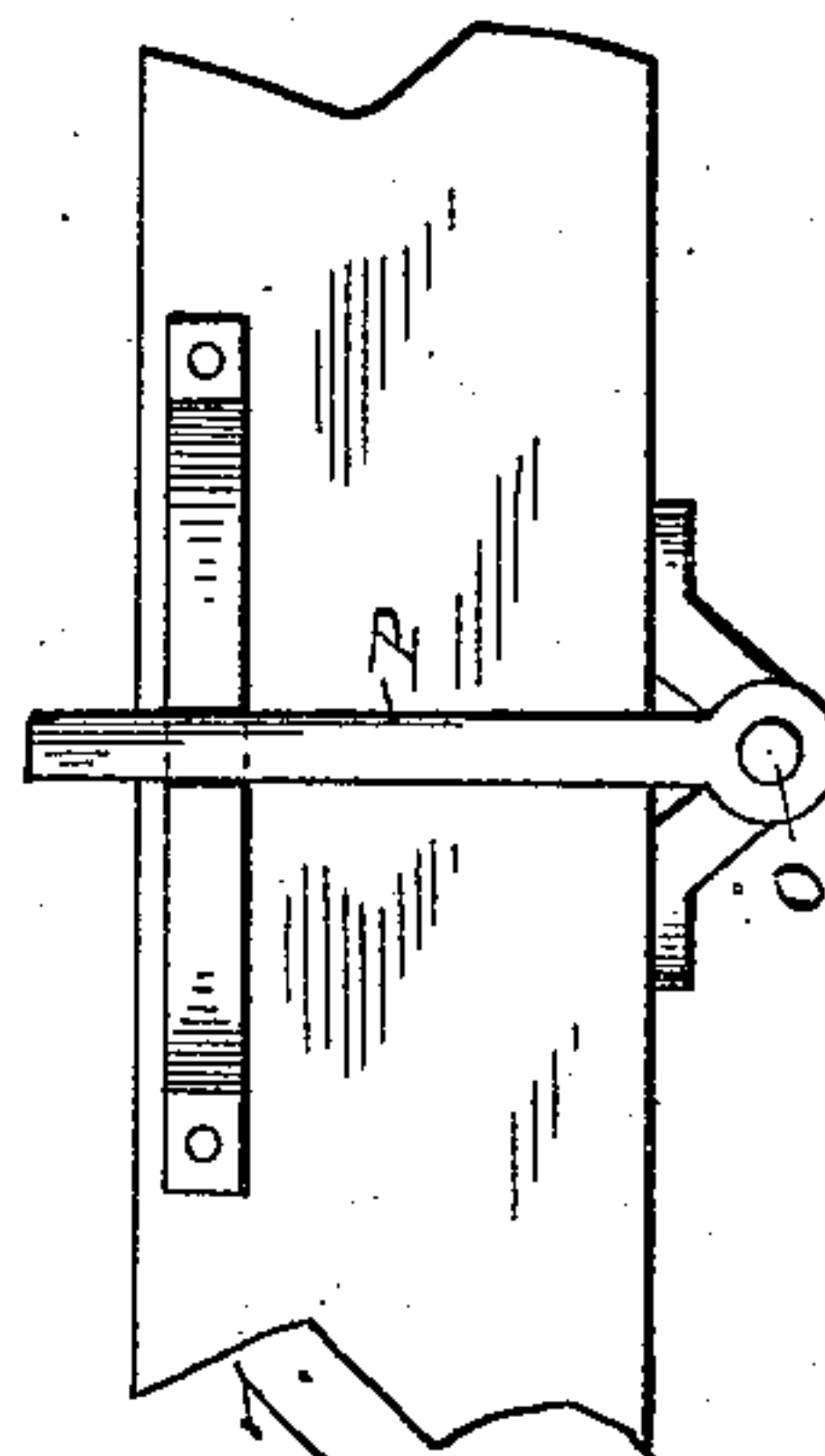
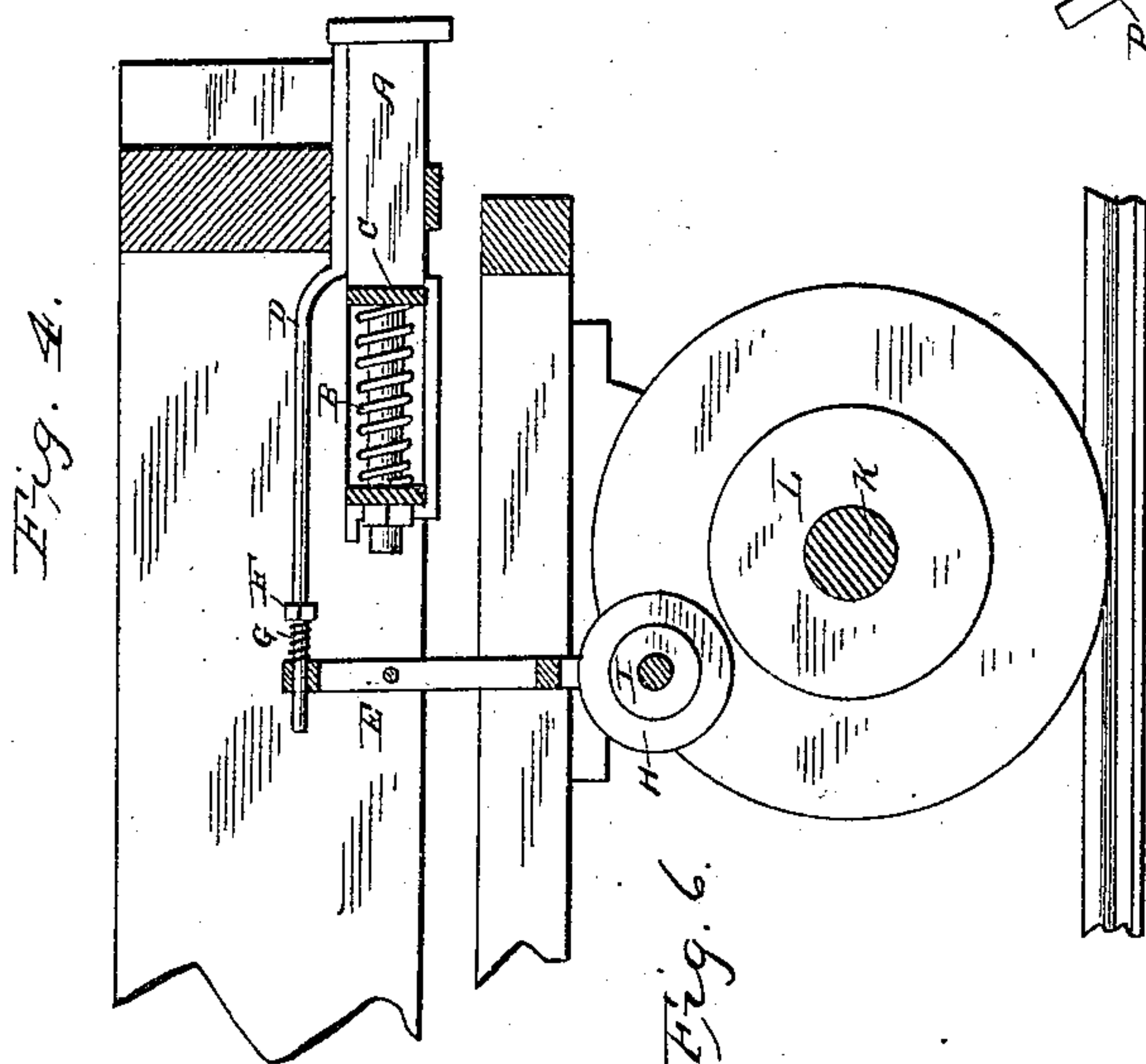
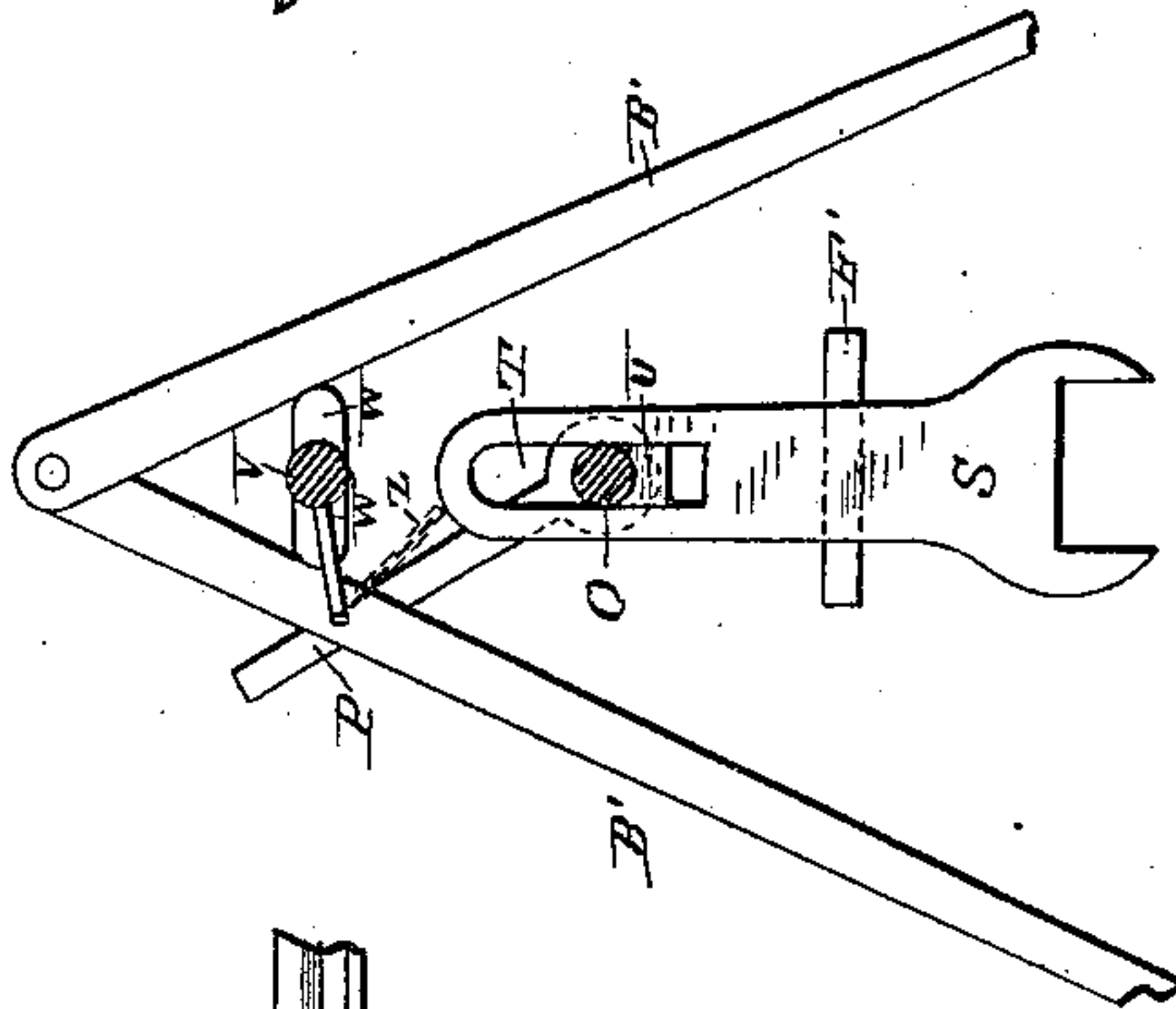


Fig. 5.



WITNESSES

John Jenkins
Chas. Davis

INVENTOR

F. H. D. Newhard

By C. W. Alexander
his Attorney

UNITED STATES PATENT OFFICE.

FRANKLIN H. D. NEWHARD, OF HOKENDAUQUA, PENNSYLVANIA.

CAR-BRAKE.

SPECIFICATION forming part of Letters Patent No. 348,038, dated August 24, 1836.

Application filed June 9, 1886. Serial No. 204,637. (No model.)

To all whom it may concern:

Be it known that I, FRANKLIN H. D. NEWHARD, a citizen of the United States, residing at Hokendauqua, in the county of Lehigh and State of Pennsylvania, have invented certain new and useful Improvements in Car-Brakes, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to that class of car-brakes in which the operation of applying the brakes is automatically effected by the contacting of the cars; and it consists in certain appliances, constructions, and combinations fully hereinafter described.

15 In the annexed drawings, Figure 1 represents a longitudinal section of a portion of a car and one of the trucks, showing the parts embraced in the improvement in position; Fig. 2, a vertical section through *xx* of Fig. 1; Figs. 3 and 4, modifications of the brake-operating mechanism. Figs. 5, 6, and 7 are detail views.

25 My invention is adaptable to cars having trucks of ordinary construction, and hence I have shown such a truck, a description of which is unnecessary. The draw-bar A is also of the usual or ordinary construction and is provided with the buffing-spring B, common to such draw-bars. As shown in Fig. 1, the forward bearing of the spring B consists of a plate, C, interposed between the end of said spring and the shoulder formed by the rear end of the head of the draw-bar. Resting against the rear side of the said plate C, so as to move with the draw-bar, and also to be carried to its normal position by the extensile force of the spring B, is the angle-looped end of a rod or bar, D, the said end, by preference, encircling the draw-bar exterior to the spring. The other end of the bar D passes through the upper end of a lever, E, which latter is fulcrumed in suitable brackets secured to the bottom timbers of the car-frame, and is normally in a nearly vertical position. The bar D is also provided with a shoulder, F, between which and the lever E is interposed a spring, G, surrounding the said bar D, and adapted to take up, in a measure, the shock of contact incurred in the operation of applying the brake. The lever E is preferably

formed of two arms, joined by an integral cross-piece at the upper end, through which cross-piece passes the end of the bar D, as before set forth. The lower ends of the said lever E form bearings for a shaft carrying a roller, H, and a winding-drum, I.

On the car-axle K is secured by any suitable means a disk or circular plate, L, located in the same plane as the roller H, and formed of one or more pieces, and from the drum I to the brake-connections (which latter are of usual form in the drawings) extends a chain, M. When, from the checking of the speed of a moving train or other cause the draw-bar is forced backward, the bar D is carried with the said draw-bar and moves the lever E, as is evident, forcing the roller H firmly against the disk L. The said disk L, turning with the axle, will cause the roller H and the drum I to turn, and the latter, winding the chain on it, will cause the brake-shoes to engage firmly with the peripheries or treads of the wheels, or, as is preferred, with disks or rims N, secured on the axle interior to the wheels or directly to the inner faces of the said wheels.

75 Journaled in the side timbers, or provided with other suitable bearings, is a rock-shaft, O, extending transversely of the car and beyond the said side timbers, and provided with manipulating-handles P on the outer sides of the car. The shaft O carries short arms R, arranged at an angle one to the other, and for the purpose hereinafter set forth.

Supported by the shaft O is a pendent arm, S, provided with a slot, T, near one end, through which slot the said shaft passes, and bifurcated or forked at the other or lower end. The said shaft O also carries a feather, U, which rests in the slot T, and causes the shaft and arm S to move simultaneously.

90 Journaled in suitable bearings above the shaft O is a shaft, V, preferably shorter than the said shaft O, and carrying diametrically-disposed short arms W and a short arm or pin, X, to which is pivoted the end of a rod, Y, embracing the draw-bar in front of the spring thereof and moving with said draw-bar. The pendent arm S is secured to and normally held by said shaft V by means of a chain, Z, also secured to an arm on said shaft.

Arranged above the draw-bar and to one

side thereof, is a lever, A', supporting at its rear end pendent arms B', provided with hook-shaped lower ends, which are adapted to engage with the teeth of a wheel, C', secured to the axle, in the manner and for the purpose hereinafter specified. The arms R and W on the rock-shafts are in the same plane as the arms B' and wheel C'. The forward end of the lever A' carries a forked or bifurcated wedge, D', sufficiently far to one side of the said end to engage between the plate C and the shoulder formed by the back of the draw-head and straddle the spring-surrounded end of the draw-bar. The space occupied by the said wedge when seated is equal to the amount of travel of the draw-bar to cause the brake-shoes to engage firmly with wheels.

The operation of the above-described mechanisms is as follows: The car in front slackening in speed causes the draw-bar to be forced inward, and the roller is carried to the disk L, causing the drum I to wind on it the chain and apply the brake, as before set forth. Normally the arms W on the shaft V engage with the arms B', and spread them sufficiently to carry the hooked lower ends thereof away from the toothed wheel on the axle. As the draw-bar moves backward, the rod Y moves with it and partially rotates the shaft V, thus releasing the arms B', and at the same time dropping the arm S, which is normally held elevated—that is, with the shaft O at the lower end of the slot T. It may be here stated that the shaft O is moved by hand sufficiently to cause one or the other of the arms R to engage with one or the other of the arms B' and hold it away from the toothed wheel C' independent of the operation of the shaft V before the car is started for its destination, or at any other suitable time. The one of the arms B' which would be in front of the toothed wheel—that is, the arm which would engage with the said teeth when the car is moving forward—is the one that is held away from said wheel. Such being the case, the other arm, B', being released by the shaft V, will engage with the said teeth and merely rebound therefrom as the car moves forward. The brake action will continue till the car stops. Should it be desirable to back the car, as soon as it is started backward the rear arm, B', will engage with the teeth of the wheel C' and be carried downward, causing the lever A' to move and carry the wedge D' from between the plate C and the draw-head, thus permitting the spring on the draw-bar to expand and carry the roller from the disk on the axle, and thus release the brake. The arm B' may then be disengaged from the wheel C' by partially rotating the shaft O till one of the arms R engages therewith, or a pin or pins, E', on said wheel C', engaging with the pendent arm S, will carry it against the arm B', and thus force the said arm from the said teeth. The pin E', as shown, will first engage in the bifurcated end of the arm S, and then on the

next revolution with the side thereof, and the said arm S is also provided with a projection, F', which engages with the arm B', instead of the arm S engaging directly with the said arm B'. When the cars are normally moving in the direction opposite to that described, the operation of the parts as regards the releasing mechanism is reversed. The wedge D' is pivotally connected to the lever A', so as to allow for the movement of the draw-bar, which in practice is but a few inches. When the draw-bar assumes its normal position, the wedge drops into place between the plate and the draw-head.

Fig. 3 shows a modified form of brake mechanism, in which the roller H is hung on a pivoted arm, and a lever, G', is connected to the draw-bar between the spring and the draw-head, and is also connected to the arm carrying the roller H by a rod, H', having a spring take-up thereon.

In Fig. 4 the rod D, instead of embracing the draw-bar to the rear of the draw-head, is continued forward to a position just to the rear of the mouth of the draw-head, and engages with the lip or flange on the top thereof.

As shown in Fig. 1, the rims N are provided with inwardly projecting lugs n, by means of which they may be bolted directly to the inner sides of the wheels. When such rims are made of chilled iron, they are of cheap construction, easily applied, and very effective for the purpose.

Without limiting myself to the precise constructions shown, I claim—

1. The combination, with the draw-bar and brake mechanism, substantially as described, operated by said draw-bar, of a toothed wheel on the axle, pendent hooked arms adapted to engage with said teeth and connected with the brake mechanism, and a pendent arm between the hooked arms engaging with said hooked arms to carry them from the toothed wheel, substantially as described.

2. The combination, with the draw-bar and brake mechanism, substantially as described, operated by said draw-bar, of a toothed wheel on the axle, pendent arms with hooked ends adapted to engage said teeth, and a lever supporting said arms and carrying a wedge at the end opposite the arms, said wedge normally resting between the draw-head and the spring of the draw-bar, substantially as described.

3. The combination, with the draw-bar and brake mechanism, substantially as described, of a toothed wheel on the axle, a lever fulcrumed above the draw-bar, a wedge carried by said lever and engaging between the draw-head and the spring of the draw-bar, pendent hooked arms carried by the lever, a swinging pendent arm adapted to engage the hooked arms, a rock-shaft with angle-arms and carrying the swinging arm, and also provided with operating-handles, and a shaft connected to the brake mechanism and also to the swinging

arm, and carrying short arms adapted to engage the hooked pendent arms, substantially as described.

5 4. Combined with the draw-bar and brake mechanism, hooked arms having connection to the brake mechanism and a toothed wheel on the axle with which the hooked arms are adapted to engage, whereby the brake is auto-

matically released after being applied, substantially as described. 10

In testimony whereof I affix my signature in presence of two witnesses.

FRANKLIN H. D. NEWHARD.

Witnesses:

JAMES B. SNYDER,

THOMAS F. BUTZ.