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Patented Dec. 11, 1900.

P. BOCH.
CAR BRAKE.

(Application filed Mar. 30, 1900.)

(No Model.)

4 Sheets—Sheet 1.

Fig:1.

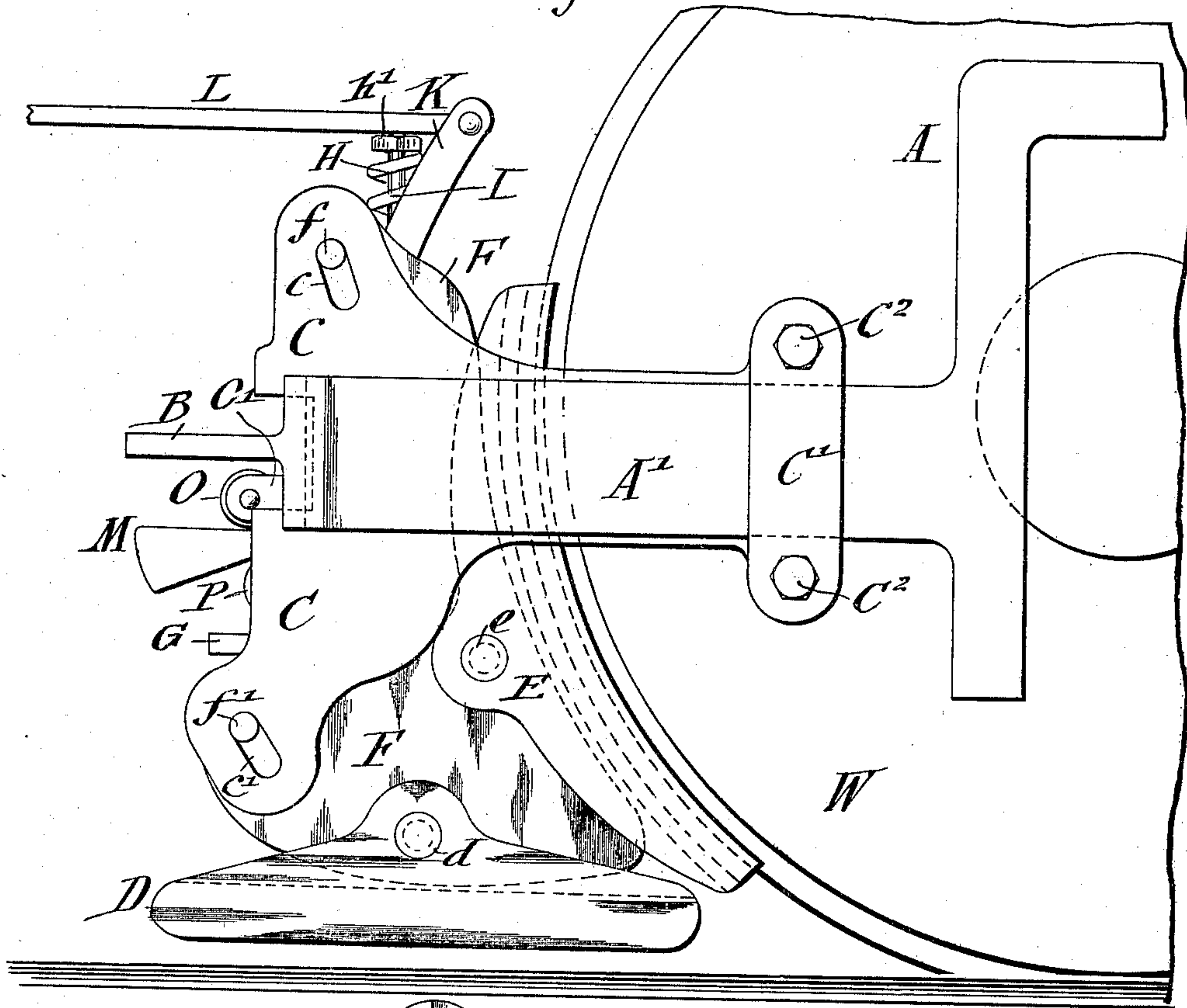
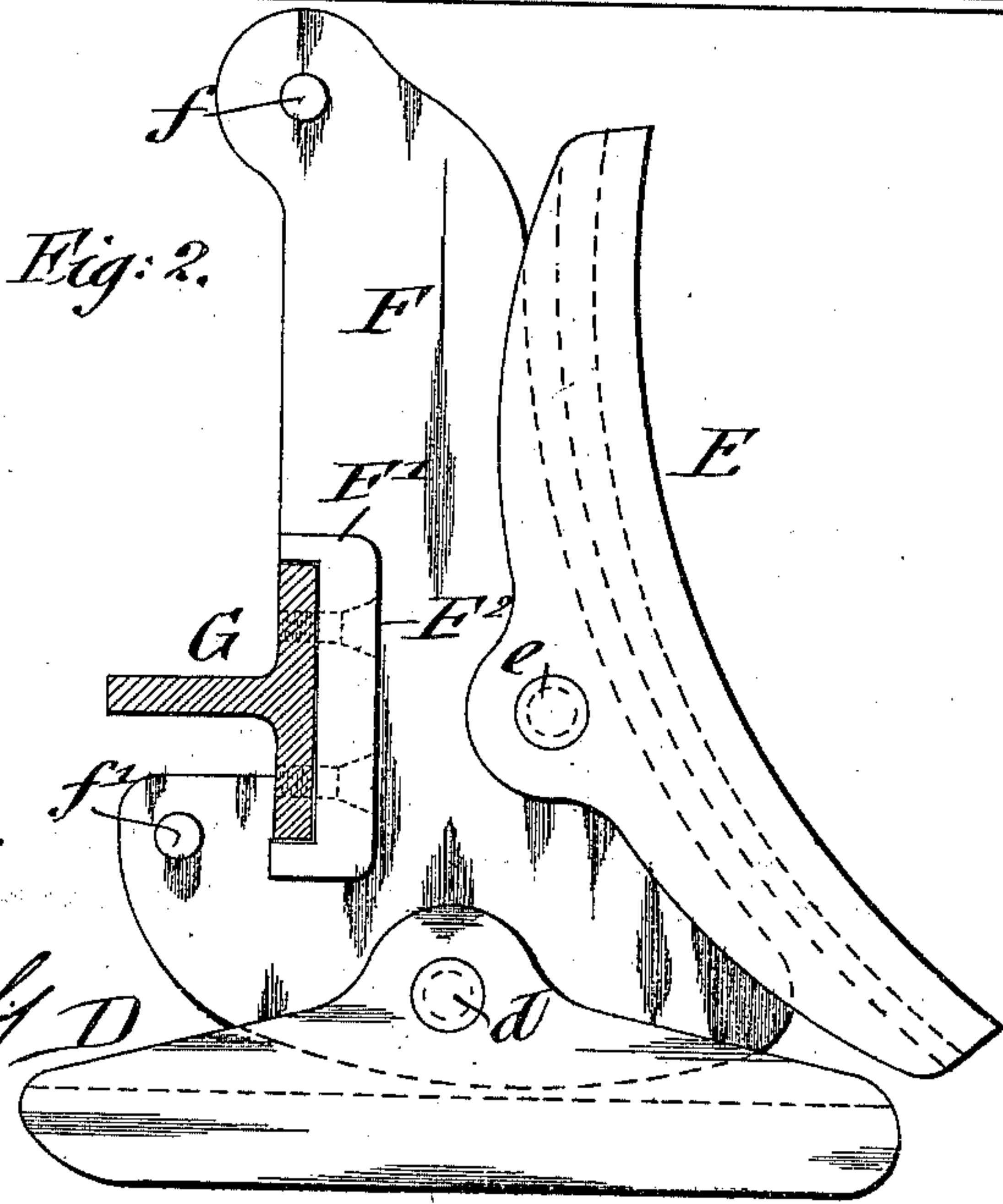


Fig: 2.



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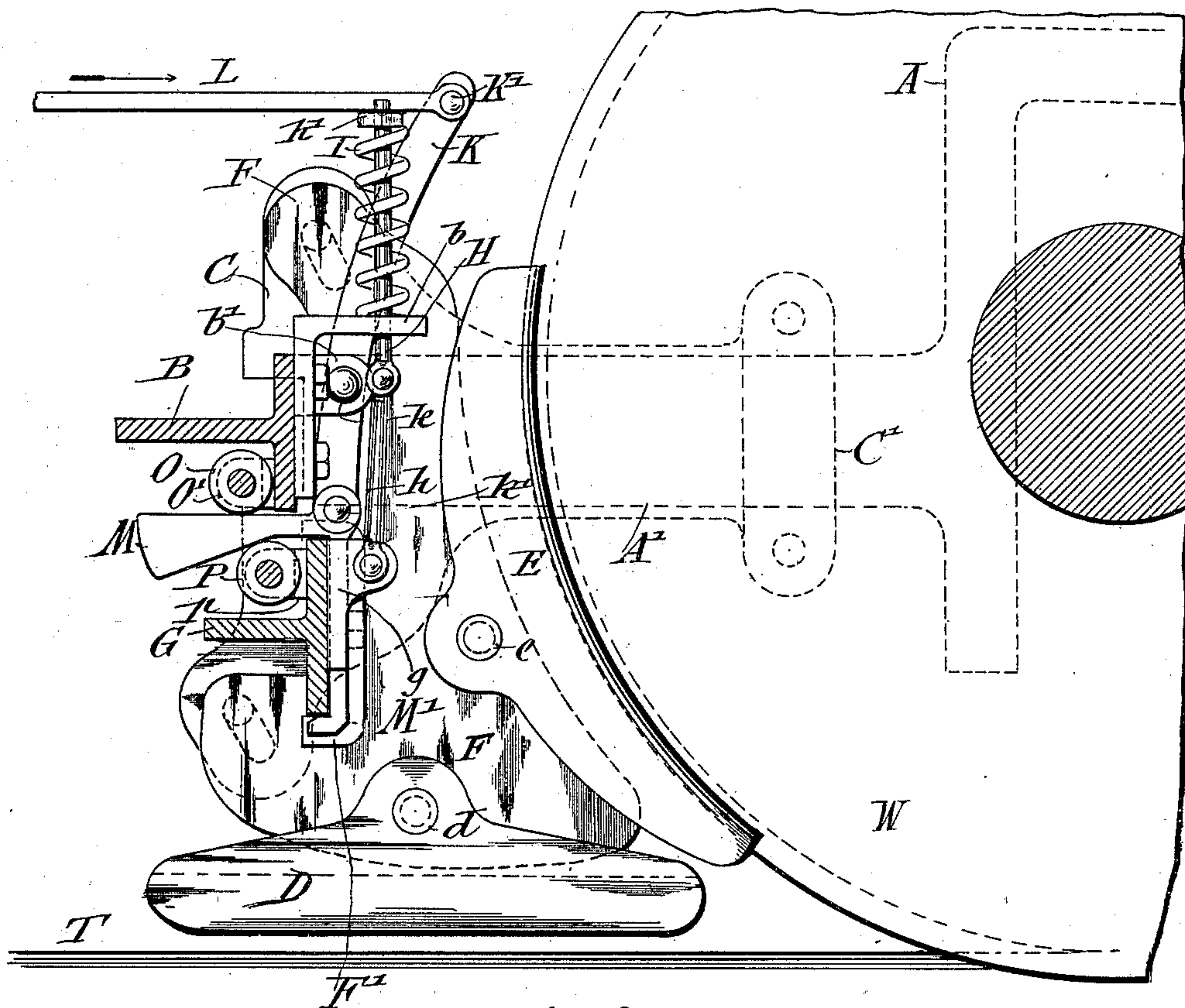
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4 Sheets—Sheet 2.



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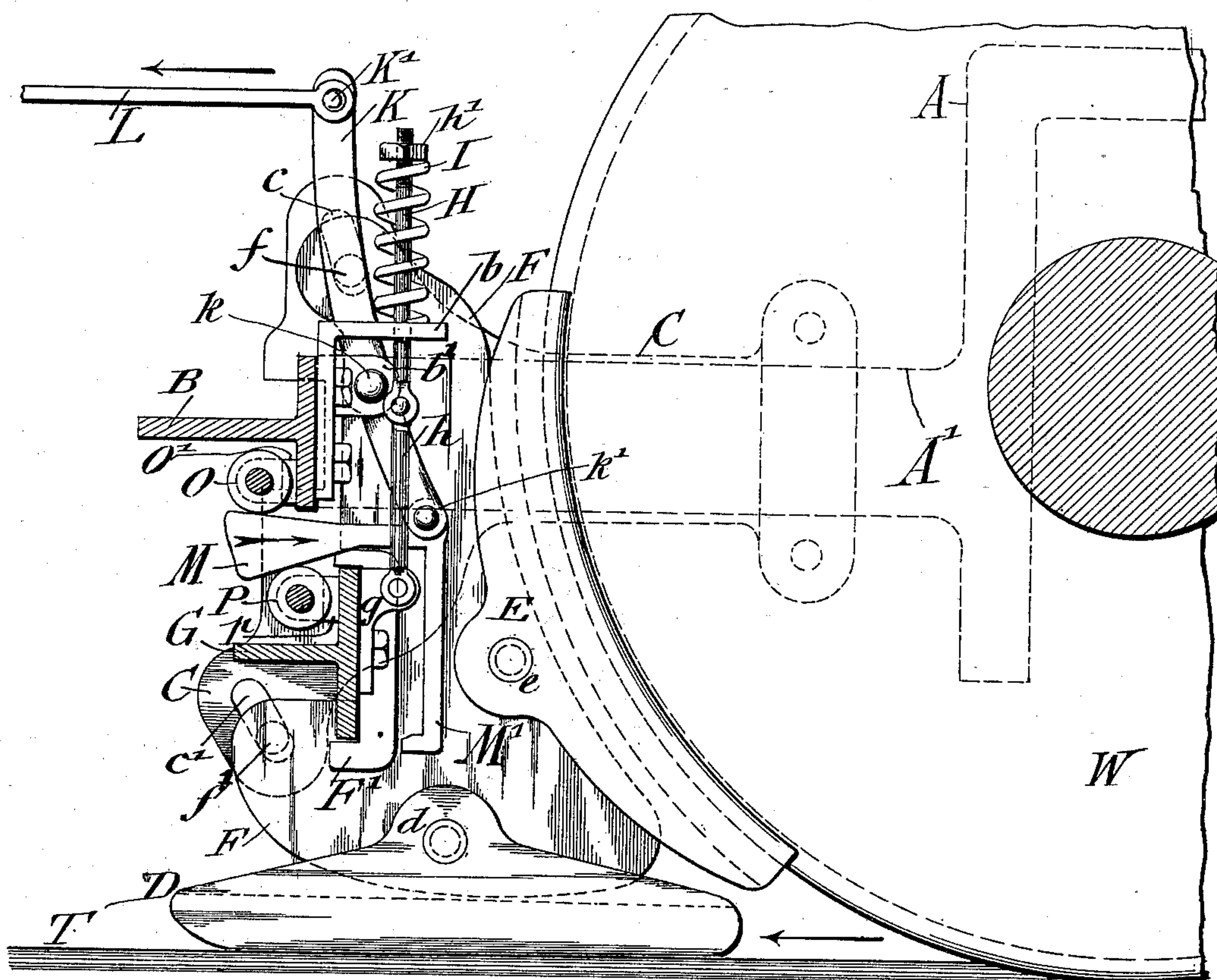


Fig. A.

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PHILIPP BOCH, OF NEW YORK, N. Y., ASSIGNOR OF ONE-THIRD TO HENRY
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CAR-BRAKE.

SPECIFICATION forming part of Letters Patent No. 663,827, dated December 11, 1900.

Application filed March 30, 1900. Serial No. 10,721. (No model.)

To all whom it may concern:

Be it known that I, PHILIPP BOCH, a citizen of the United States, residing in the city of New York, borough of Queens, and State of New York, have invented certain new and useful Improvements in Car-Brakes, of which the following is a specification.

This invention relates to car-brakes of the class provided with rail and wheel brake-shoes adapted to be forced down upon the rails and against the wheel of a car, such as an electric or other power-driven street-car, the objects of the invention being to provide a brake of the described class which is comparatively simple, powerful in action, quickly applied, and automatically released.

The invention consists of a car-brake which comprises guide-plates suitably supported on the car-truck, side plates guided by said guide-plates, a brake-beam supported by said side plates, rail and wheel brake-shoes attached to the side plates, automatically-operated means interlocking with the brake-beam for holding the brake-shoes released, and means for unlocking the brake-beam and applying the brake-shoes, all as hereinafter described and then particularly claimed.

In the accompanying drawings, Figure 1 is a side elevation of my improved car-brake, showing it applied to a car-truck and in inoperative or released position. Fig. 2 is a sectional detail view showing the brake-beam, a side plate, and a pair of rail and wheel brake-shoes. Fig. 3 is a sectional side elevation of the brake, showing it inoperative. Fig. 4 is a similar view showing the brake applied, and Fig. 5 is a broken plan view of the brake.

Similar letters of reference indicate corresponding parts.

Referring to the drawings, A indicates a portion of the truck-frame of a car which is equipped with my improved brake, said frame having bracket extensions A', connected by a cross-beam B of T shape in section. On these bracket extensions are mounted the working parts of the brake, to which end parallel guide-plates C are fixed on the said extensions at opposite sides of the car-truck by means of clamps C', which fit over the extensions C', being screw-bolts which rigidly bind

the movable and fixed portions of the clamps down upon the said extensions. The said guide-plates are preferably curved or so shaped as that their outer extremities will lie in approximately the planes of the car-wheels.

D indicates the rail-brakes; E, the wheel-brakes; F, side plates, to which said brake-shoes are fastened at *d* and *e*, respectively, and G the brake-beam, of T-shaped section and the ends of which are suitably secured to the said side plates F (see Fig. 2) by seating them in saddles F', projecting from the plates F and fastening the same thereto by fastenings F². The plates C are provided at points preferably above the axles with inclined slots *c* and below the axles with inclined slots *c'*, which are more greatly inclined away from the brake-shoes than slots *c*, for the purpose to be hereinafter stated, said slots *c c'* receiving and guiding the pins *f f'*, projecting from plates F. At the inner side of the brake-beam G are lugs or brackets *g*, to which are pivoted the lower ends of links *h*, the upper ends of which are pivoted to supporting-rods H, which are guided in lugs or brackets *b*, secured to the inner side of the cross-beam B. Rods H are screw-threaded at their upper ends to receive nuts *h'*, between which and the lugs *b* helical lifting-springs I are confined, which springs tend to draw the cheek or side plates F upwardly, and with them the brake-shoes D, which are thereby held raised above the rails T. The pins and slots *f c* and *f' c'* direct the side plates F in such a manner as to permit the springs I to simultaneously draw the brake-shoes E from contact with the car-wheels W.

K K indicate actuating-levers which are connected by cross-rod K', to which is pivoted a draw-rod L, (omitted in Fig. 5,) leading to a suitable point for operation by the motor-man or engineer. Said levers K are pivoted to lugs *b'* on the cross-beam B at *k*, and are also pivoted at their lower ends at *k'* to wedge-shaped depressors M, whose upper and lower surfaces have bearing upon rollers O, mounted in bearings O' on the cross-beam B, and upon roller P, mounted in bearings *p* on the brake-beam G.

Preferably formed integrally with and extending downwardly at right angles to the

depressors M is a hook M', constituting a latch the hooked lower end of which is adapted to engage with the under side of the brake-beam G, so as to positively lock the brake-shoes in inoperative position until released through the action of the lever K.

Normally the brake is in the position shown in Figs. 1 and 3. To apply the brake, a pull is exerted on the draw-rod L in the direction indicated by the adjacent arrow in Fig. 4, which thereby draws in the depressors M, which depressors (having a fixed bearing-point above) by reason of their wedge shape act to push down the rollers P and the brake-beam and to simultaneously apply brake-shoes D and E to the rails and wheels, respectively, under compression of the lifting-springs I. The inclination of the slots *c c'* in the guide-plates C, in connection with the pins *f f'*, forces the converging brake-shoes inwardly into the space between the rails and car-wheels, so as to wedge into said space and exert a more reliable breaking action, tending to lift the wheels from the rails and to prevent flattening of their treads, which often occurs where wheel-brakes only are provided. The difference in the inclination of the slots *c c'* causes the lower portions of the brake mechanism to advance more rapidly than the upper portions and prevents the upper end of the brake-shoes E from first striking the wheels, which is liable to affect the proper action of the mechanism. In releasing the brake-shoes and moving the parts to the position shown in Fig. 3 the rod L is moved in the direction indicated by the arrow, which thereby causes levers K to push out the wedge-shaped depressors M, thus permitting the brake-beam G and the side plates F to be raised and the brake-shoes E D to be withdrawn from the wheels and rails by the upward action of the lifting-springs I upon the supporting-rods H. The brake-beam of course partakes of the movement of the side plates F; but this does not wrench or injure the lifting-springs and their rods owing to the swinging-link connections *h*. When the brake-shoes are properly released, the depressors M, guided in an approximately rectilinear direction by the antifriction-rollers O P, move the latches M' with them toward the brake-beam and engage the hooked lower ends of said latches with the under side of the brake-beam, thereby automatically locking the brake-beam and responding parts in raised position and the brake-shoes in released position. The function of the latches M' is all important, as when by reason of inequalities in or obstructions on the track the truck-frame is subjected to considerable jolting, the brake-shoes, supported in released position only by the springs I, might by responding to the jolts move so far as to contact with the track and wheels were it not for said latches, which, engaging with and latching the brake-beam, positively prevent a responding movement of the brake-shoes and the

movable parts. The strong springs I assist in engaging the latches with the brake-beam, because by raising the latter they permit the same to push the wedge-shaped depressors outwardly by the action of the rollers P on the inclined lower edges of said depressors.

My improved car-brake is strong and durable and every part is accessible when required. Being powerful, it may be applied without taxing the strength of the motorman or engineer, stopping a car within a few feet, while its action when the pull-rod is released is entirely automatic, even to the locking of the parts against movements. The brake is automatically locked when released, so that it is not continually racked or worn out by the jolting of the car, in consequence of which the brake is long-lived.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a car-brake, the combination of suitable guide-plates, supported from the car-truck, side or cheek plates guided upon said guide-plates, a brake-beam supported by said side plates, rail and wheel brake-shoes attached to said side plates, automatically-operated means, interlocking with the brake-beam, for holding the brake-shoes released, and means for unlocking the brake-beam and applying the brake-shoes, substantially as set forth.

2. In a car-brake, the combination of suitable guide-plates, supported from the car-truck, side plates, slot-and-pin connections between the side plates and guide-plates, said slots being inclined outwardly, a brake-beam supported by said side plates, brake-shoes attached to said side plates, means for automatically locking the brake-beam in raised position and for holding the brake-shoes released, and means for unlocking the brake-beam and applying the brake-shoes, substantially as set forth.

3. In a car-brake, the combination of suitable guide-plates supported from the car-truck, side plates guided upon said guide-plates, a brake-beam supported by said side plates, rail and wheel brake-shoes attached to said side plates, a latch, means for automatically engaging said latch with the brake-beam, when the brake is released, whereby the said brake-beam and other movable parts are locked in position, and means for unlocking the brake-beam and applying the brake, substantially as set forth.

4. In a car-brake, the combination of suitable guide-plates, supported from the car-truck, side plates guided upon said guide-plates, a brake-beam connected with said side plates, rail and wheel brake-shoes, attached to the side plates, spring-actuated lifting-rods, pivoted links connecting the brake-beam and lifting-rods, and means for lowering said brake-beam for applying the brake, substantially as set forth.

5. In a car-brake, the combination of suit-

able guide-plates, supported from the car-truck, side plates guided upon said guide-plates, a brake-beam connected with said side plates, rail and wheel brake-shoes attached to the side plates, lifting-springs acting on the brake-beam, automatic latches adapted to engage and hold the brake-beam in lifted position, and means for lowering said brake-beam for applying the brake, substantially as set forth.

6. In a car-brake, the combination of suitable guide-plates, supported from the car-truck, side plates guided upon said guide-plates, a brake-beam connected with said side plates, rail and wheel brake-shoes, on said side plates, a wedge-shaped depressor guided between the brake-beam and a fixed bearing-point above, means for pulling upon the said depressor for depressing the brake-beam, means for raising the brake-beam, and means for locking the same in raised position, substantially as set forth.

7. In a car-brake, the combination of suitable guide-plates, supported from the car-truck, side plates guided upon said guide-plates, a brake-beam connected with said side plates, rail and wheel brake-shoes on said side plates, a wedge-shaped depressor guided between the brake-beam and a fixed bearing-point above, a latch carried by the said depressor, means for pulling on the said depressor for lowering the brake-beam, and devices for automatically raising the brake-beam and causing the latter, through the depressor, to engage the latch with the brake-beam, substantially as set forth.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

PHILIPP BOCH.

Witnesses:

PAUL GOEPEL,
M. H. WURTZEL.