

No. 615,739.

Patented Dec. 13, 1898.

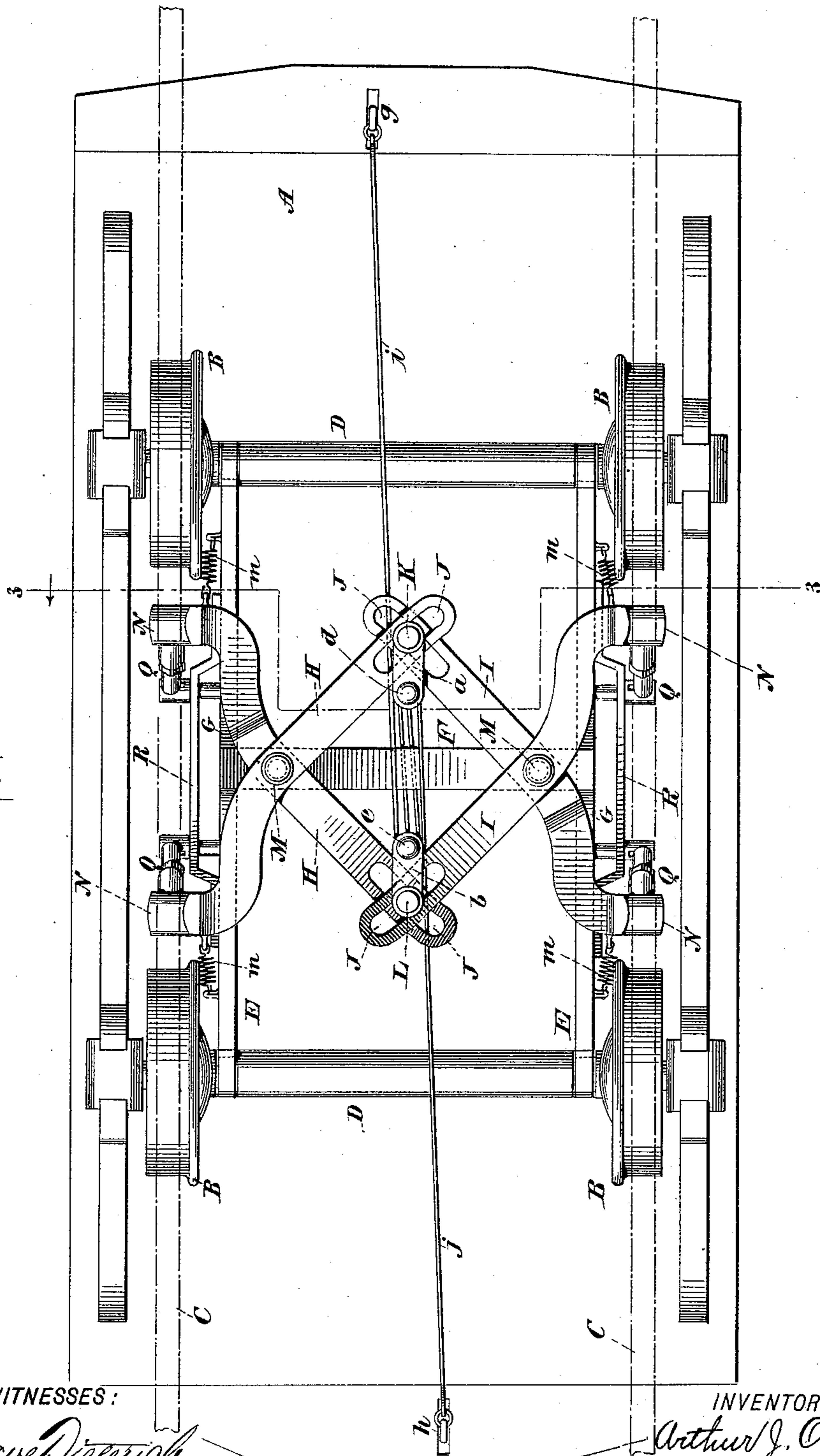
A. J. O'HARA.  
CAR BRAKE.

(Application filed Mar. 22, 1898.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.



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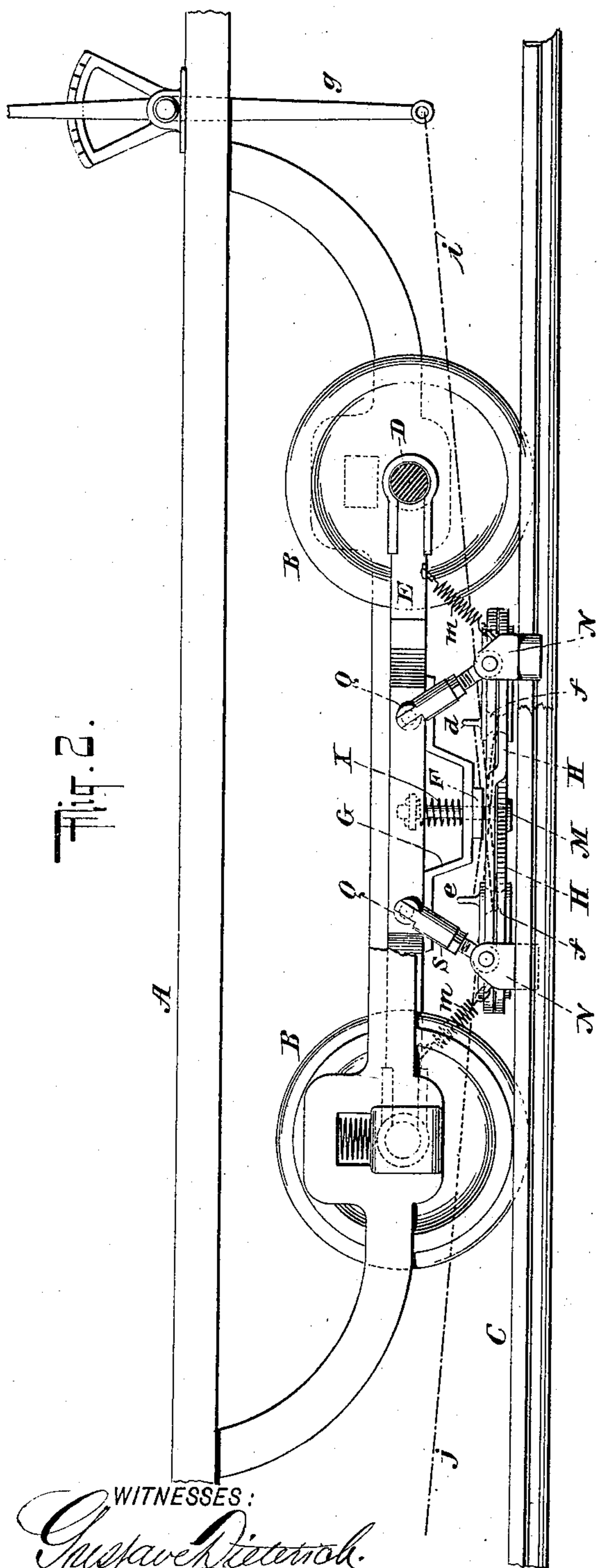
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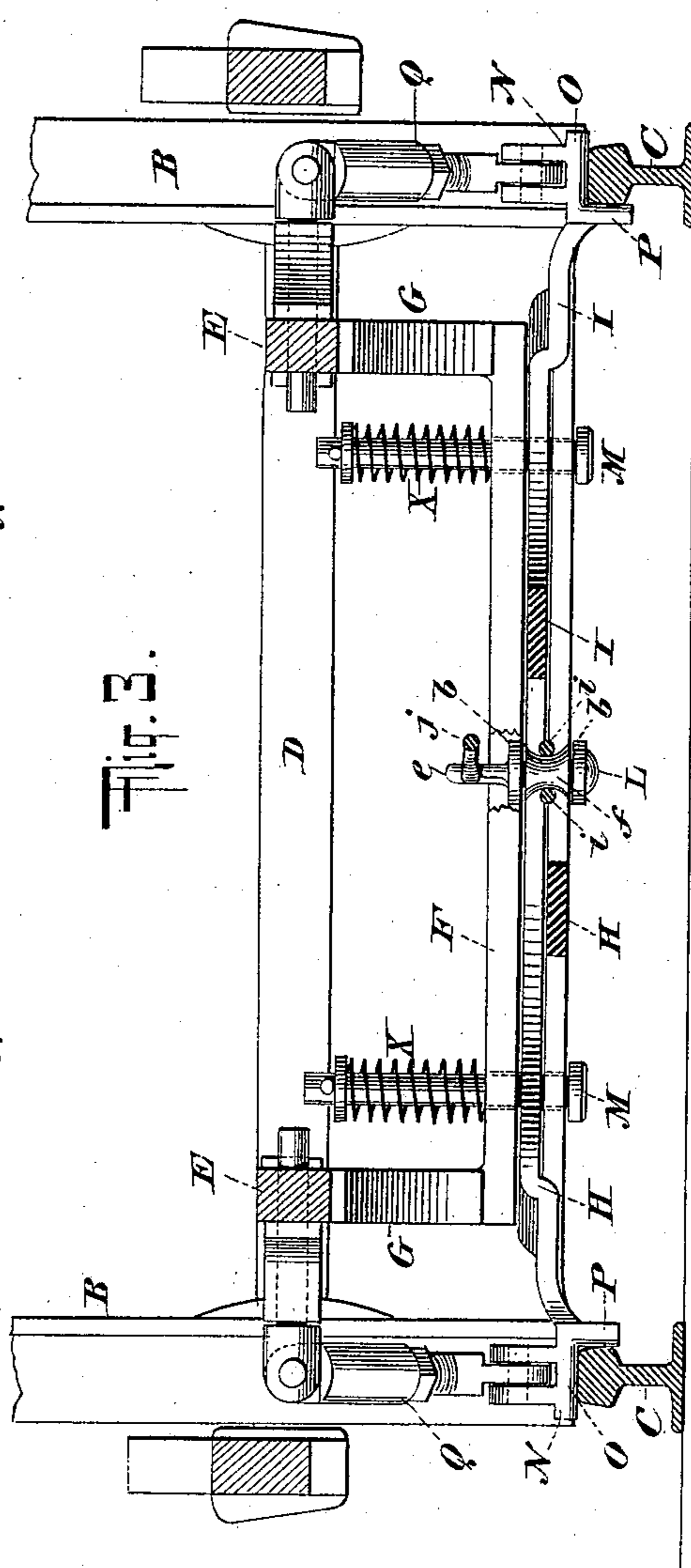
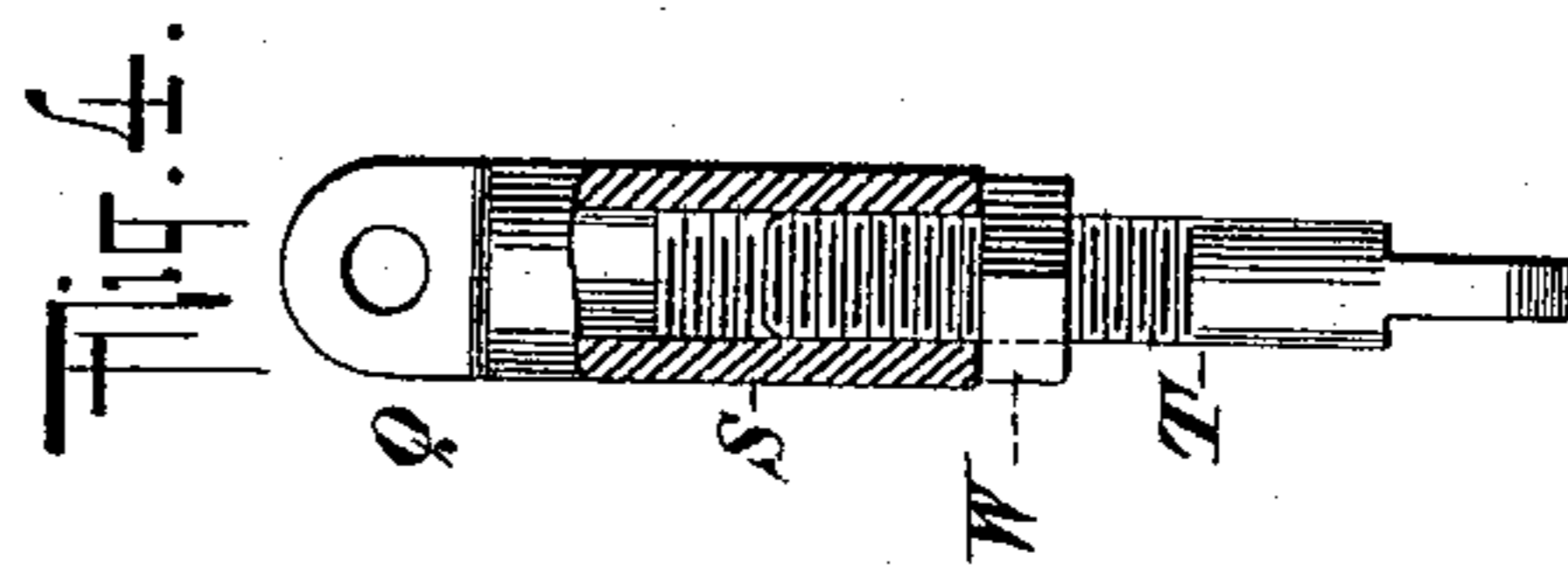
(Application filed Mar. 22, 1898.)

(No Model.)

2 Sheets—Sheet 2.



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# UNITED STATES PATENT OFFICE.

ARTHUR J. O'HARA, OF PORT JERVIS, NEW YORK, ASSIGNOR OF ONE-FOURTH TO MICHAEL J. HOWLEY, OF HONESDALE, PENNSYLVANIA.

## CAR-BRAKE.

SPECIFICATION forming part of Letters Patent No. 615,739, dated December 13, 1898.

Application filed March 22, 1898. Serial No. 674,769. (No model.)

*To all whom it may concern:*

Be it known that I, ARTHUR J. O'HARA, a citizen of the United States, and a resident of Port Jervis, in the county of Orange and State of New York, have invented certain new and useful Improvements in Car-Brakes, of which the following is a specification.

The invention relates to improvements in brakes for cars; and it consists in the novel features and combinations of parts hereinafter described, and particularly pointed out in the claims.

In the preferred embodiment of my invention which is illustrated in the drawings I support the brake mechanism directly from the car-axles and equip the said brake mechanism with shoes adapted to engage both the upper and inner side surfaces of the track-rails. The brake-shoes are carried upon the outer ends of the crossed levers, which may be operated from either end of the car and which upon being moved toward one another effect the application of the brake-shoes to the track-rails and when moved in a direction from one another permit of the release of the shoes from said rails.

The brake made the subject hereof is intended as an emergency-brake, and to this end in the construction of the brake I have provided means for affording to the brake-shoes great clutching power against the track-rails.

I illustrate in the drawings and description hereinafter given the preferred embodiment of the invention; but I do not wish to be limited to all of the details of construction shown and described nor to have the invention limited further than indicated in the claims.

Referring to the accompanying drawings, Figure 1 is a bottom view of a car equipped with brake mechanism constructed in accordance with and embodying the invention, the track-rails being indicated by dotted lines. Fig. 2 is a side elevation, partly broken away, of same. Fig. 3 is a vertical transverse section of same on the dotted line 3 3 of Fig. 1; and Fig. 4 is an enlarged elevation, partly in section, of one of the arms connected with the brake-shoes.

In the drawings, A designates the car, B

the wheels thereof, and C the track-rails, which rails are engaged by the brake-shoes hereinafter described.

The brake mechanism is suspended from the car-axles D, and, as clearly illustrated in the drawings, said mechanism is supported from the longitudinal bars E E, extending, as shown in Fig. 1, from one axle D to the other axle D, and which bars E E are connected at about their center by the transverse bar F, the latter being directly connected at its ends with the hangers G, suspended from the lower side of said bars E E, as more clearly illustrated in Figs. 2 and 3.

Upon the lower side of the transverse bar F are pivotally secured the crossed but corresponding levers H H and I I, which levers at their inner ends are slotted, as indicated at J, and loosely connected together by the pins K L entering the slots J, as illustrated in Fig. 1. The levers H H and I I are secured to the transverse bar F by the fixed bolts M M, and at their outer portions, beyond said bolts M, said levers extend laterally toward the car-wheels and terminate in convenient position with respect to the track-rails C to have the track brake-shoes N rigidly connected with them. The track-shoes N have the lower surface O to bind against the top of the track-rails C and the vertical surface P to bind against the inner sides of said rails. The upper surfaces of the shoes N are formed with ears, between which are pivotally secured the lower ends of the hanger-rods Q, which rods, as shown in Fig. 2, incline downward and outward to the brake-shoes N and are pivotally secured at their upper end to the brackets R, (shown in Fig. 1,) fastened to the sides of the longitudinal bars E. The hanger-bars Q, connected with the brake-shoes N, are made in the two parts illustrated in Fig. 4—that is to say, the upper internally-threaded part of sleeve S and the lower part T, entering said sleeve—in order that said bars Q may be made adjustable as to their length, and in this manner be accurately adjusted to the cars and shoes N, and also be made to compensate for any wear upon the lower surfaces of said brake-shoes. The lower part T of the hanger-bar Q is externally threaded to engage

the internal thread of the upper or sleeve part S of said bar, and upon the lower part T is provided a jam-nut W, by which the part T may be locked in any desired position with re-

5 spect to the sleeve part S.  
The bolts M M, upon which the crossed levers H H and I I are secured, extend freely upward through apertures in the transverse bar F and carry the coiled springs X, as  
10 shown in Fig. 3, the lower ends of said springs resting upon the upper surface of said transverse bar F and the upper ends of said springs being confined by the washers upon the upper ends of said bolts M.

15 The springs X X allow of a limited downward depression of the outer ends of the crossed levers H H and I I during the application, in the manner hereinafter described, of the brake-shoes to the track-rails, and said  
20 springs X will have sufficient force during the usual travel of the car to maintain said levers H H and I I in their upward position against the transverse bar F. Upon the bolts K L, connecting the inner meeting ends of the le-  
25 vers H H and I I, are secured the links lettered *a b*, respectively, which links are in duplicate on each bolt K L, as more clearly illustrated in Fig. 3, and respectively carry upon  
30 pins *d e* the trunnions *f*, the form of which trunnions *f* is more clearly illustrated in Fig. 3.

The movement of the levers H H and I I to effect the application of the brake-shoes N to the track-rails C may be effected from either  
35 end of the car A by means of the pivoted levers *g h*, provided in convenient position to be grasped by the motorman or conductor of the car, and which levers are respectively connected with the cords or chains, lettered *i j*,  
40 respectively. The cord or chain *i* extends from the lower end of the lever *g* around the trunnion carried by the links *b* and then back to the pin *d*, carried by the links *a*, to which pin *d* the end of the cord or chain *i* is secured.

45 The chain or cord *j* extends from the lower end of the lever *h* inward around the trunnion *f*, carried by the links *a*, and thence back to the pin *e*, carried by the links *b*, to which pin *e* the end of the cord or chain *j* is secured.

50 The levers *g h* are duplicates of one another, and the two levers are provided in order that the brake mechanism may be operated from either end of the car. Upon the movement of either of the levers *g h* to pull outward on  
55 the cord or chain connected with the special lever moved the inner meeting ends of the levers H H and I I will be drawn toward one another, and this movement of said levers will cause their outer ends to move toward  
60 one another, and thereby the brake-shoes N are brought toward one another and upon the track-rails C. The moving toward one another of the shoes N N is on the arcs of circles, and hence as said shoes move toward  
65 one another the inner vertical flanges P thereof are caused to bind against the inner sides of the rails C, as shown in Fig. 3, while at

the same time the flanges O of said shoes are drawn downward and bind upon the upper  
70 surfaces of the track-rails. The shoe-hangers Q are of such length that the shoes N cannot pass inward toward one another beyond a certain fixed limit, and hence during the  
75 approach of said shoes toward one another said shoes are forced downward by the hangers Q and compelled to engage the upper surface of the rails C. The shoes N travel on the arcs of circles under the action of the le-  
80 vers H H and I I and also under the action of the shoe-hangers Q, and thus the shoes are compelled to effectually engage the track-rails and brake the car. The cords *i j* corre-  
85 spond with one another, and each cord engages both trunnions *f* in order that by the pulling action of either cord the inner ends of the levers H H and I I may be brought to-  
90 ward one another, the bolts K L during such action passing along the slots J formed in said levers and acting against the sides of said slots to move the inner ends of said le-  
95 vers inward toward one another. The levers H H and I I operate to strongly clutch the track-rails, and said levers when arranged as shown and described possess great effective power in braking the car.

The fact that the levers H H and I I are suspended from the car-axles D is of importance in that by reason thereof the brake mechanism is not subjected to the jarring to which  
100 car-bodies are subjected and always maintain a uniform relation with respect to the track-rails.

The application of the brake-shoes to the track-rails may, as above described, be ef-  
105 fected from either end of the car and by either of the levers *g h*, and the release of the brake-shoes from the track-rails may be effected by the use of springs *m*, extending upward and outward from said shoes to the longitudinal  
110 bars E, or in any other suitable way desired.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a car-brake, the substantially horizontally-arranged pivotally-mounted crossed le-  
115 vers H, H, at one side of the car, and the substantially horizontally-arranged pivotally-mounted crossed levers I, I, at the other side of the car, combined with brake-shoes carried at the ends of said levers and intermediate  
120 the car-wheels, the hanger-bars connected with said brake-shoes, and means for drawing the inner ends of the levers H, H, toward one another and the inner ends of the levers I, I, toward one another and thereby causing  
125 the outer ends of said levers to approach one another at each side of the car and press said shoes against the track-rails; substantially as set forth.

2. The car-brake comprising the pivoted le-  
130 vers H, H, and I, I, crossed and connected and extending transversely across the car, combined with the brake-shoes at the outer ends of said levers, the hanger-bars connected with said brake-shoes and adjustable as to length,

and means for actuating said levers from either end of the car to apply said shoes to the track-rails on the movement toward one another of the inner ends of said levers; substantially as set forth.

3. The car-brake comprising the pivoted levers H, H, and I, I, crossed and connected and extending transversely across the car, combined with the brake-shoes at the outer ends of said levers, the hanger-bars connected with said brake-shoes, the spring-supports for said levers whereby the said levers may yield downward when the shoes are applied to the rails, and means for actuating said levers; substantially as set forth.

4. The car-brake comprising the pivoted levers H, H, and I, I, crossed and connected and extending transversely across the car, and a framing suspended from the car-axles and to which said levers are secured, combined with the brake-shoes at the outer ends of said levers, the hanger-bars connected with said brake-shoes, and means for actuating said levers to apply said shoes to the track-rails on the movement toward one another of the inner ends of said levers; substantially as set forth.

5. The car-brake comprising the pivoted levers H, H, and I, I, crossed and extending transversely across the car and at their meeting inner ends being slotted and provided with pins entering said slots and connecting said ends, combined with the brake-shoes at the outer ends of said levers and of a shape to engage the top and side of the rails, the hangers connected with said shoes, the yielding supports for said levers, the levers at opposite ends of the car, and connections from said le-

vers to the inner ends of both said levers H, H, and I, I; substantially as set forth.

6. The car-brake comprising the brake-shoes adapted to engage the rail at each side of the car, and the pivoted hanger-bars suspended from a rigid part of the truck and connected with said shoes, combined with lever mechanism also connected with said shoes and adapted to cause said shoes to approach one another and be thereby depressed upon the track-rails by said hanger-bars, and means for operating said lever mechanism, said mechanism being arranged to exert a direct force on substantially horizontal lines against said brake-shoes to drive them toward one another; substantially as set forth.

7. The car-brake comprising the brake-shoes adapted to engage the top and inner side of the rail at each side of the car, and the pivoted hanger-bars suspended from a rigid part of the truck and connected with said shoes, combined with lever mechanism comprising the substantially horizontally-arranged crossed levers in pairs connected at their outer ends to said shoes, and means for actuating said levers to move said shoes at each side of the car toward one another and against the sides of said rails and thereby causing them to be depressed upon said rails by said hanger-bars; substantially as set forth.

Signed at New York, in the county of New York and State of New York, this 21st day of March, A. D. 1898.

ARTHUR J. O'HARA.

Witnesses:

CHAS. C. GILL,  
E. JOS. BELKNAP.