

No. 671,113.

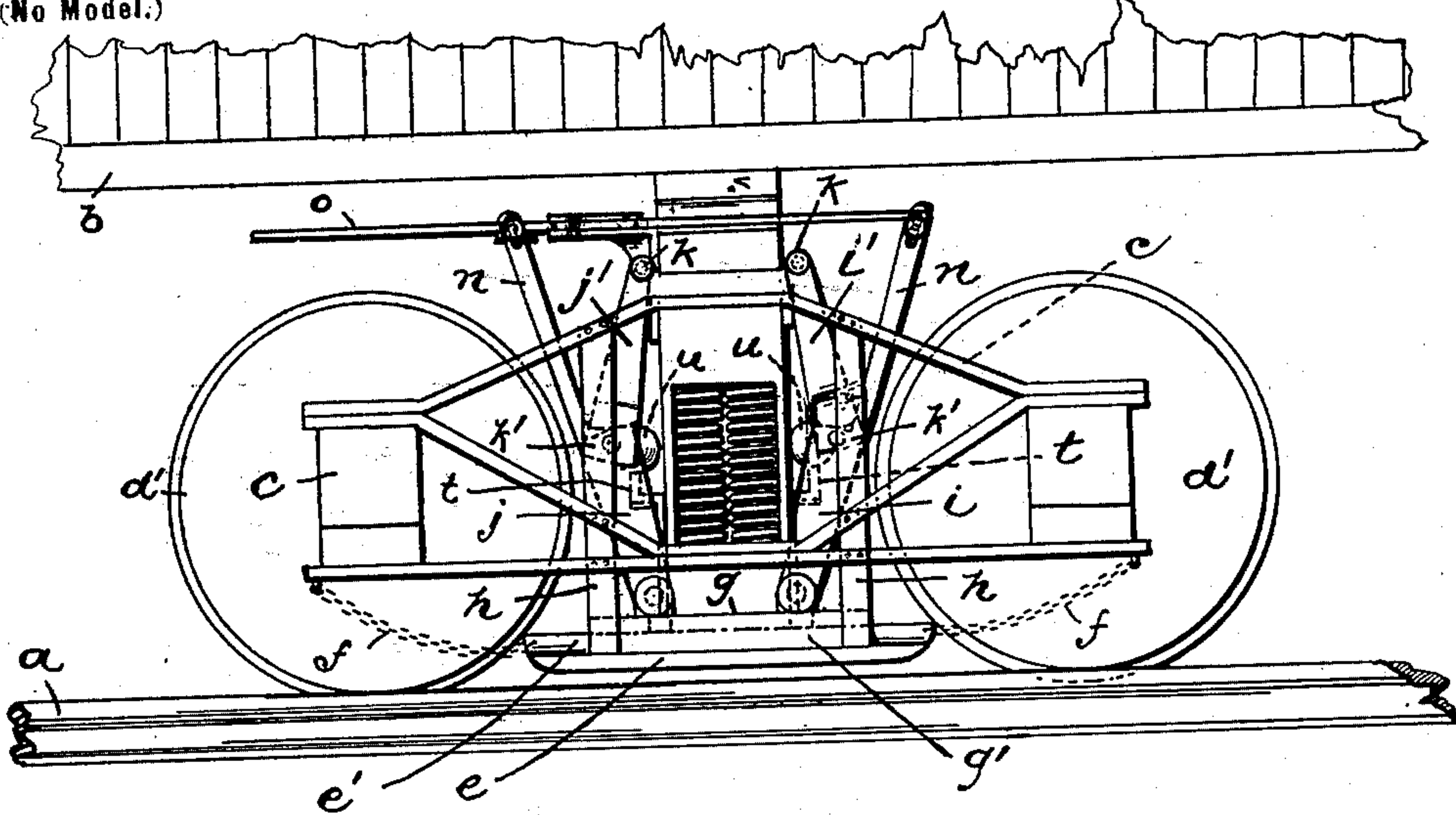
Patented Apr. 2, 1901.

**E. F. MEYER.**  
**RAILWAY CAR BRAKE.**

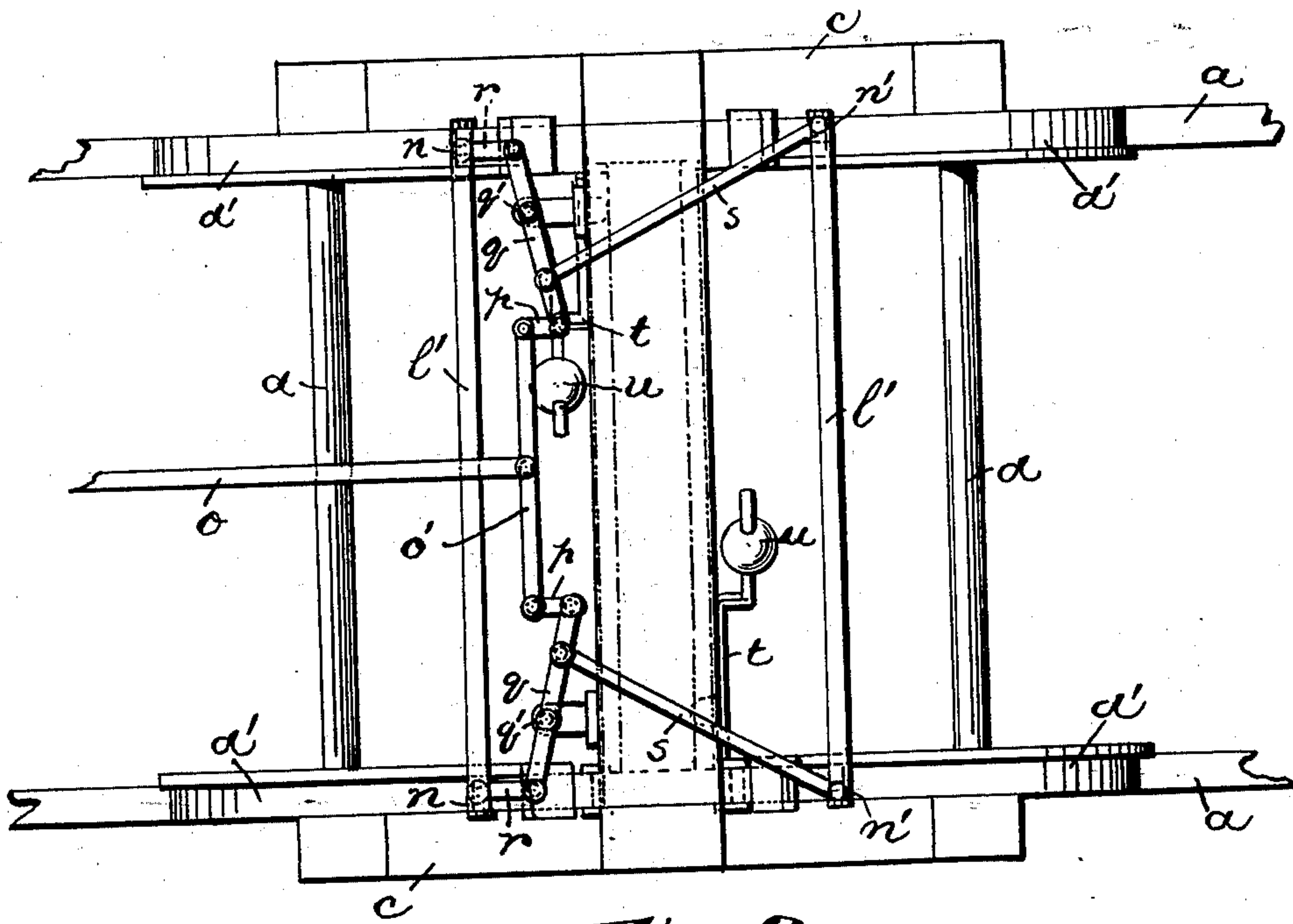
(Application filed Sept. 10, 1900.)

2 Sheets—Sheet 1.

(No Model.)



**Fig. 1.**



**Fig. 2.**

WITNESSES:

*Henry D. King*

*Russell M. Everett.*

INVENTOR:

**Ernst F. Meyer,**

BY

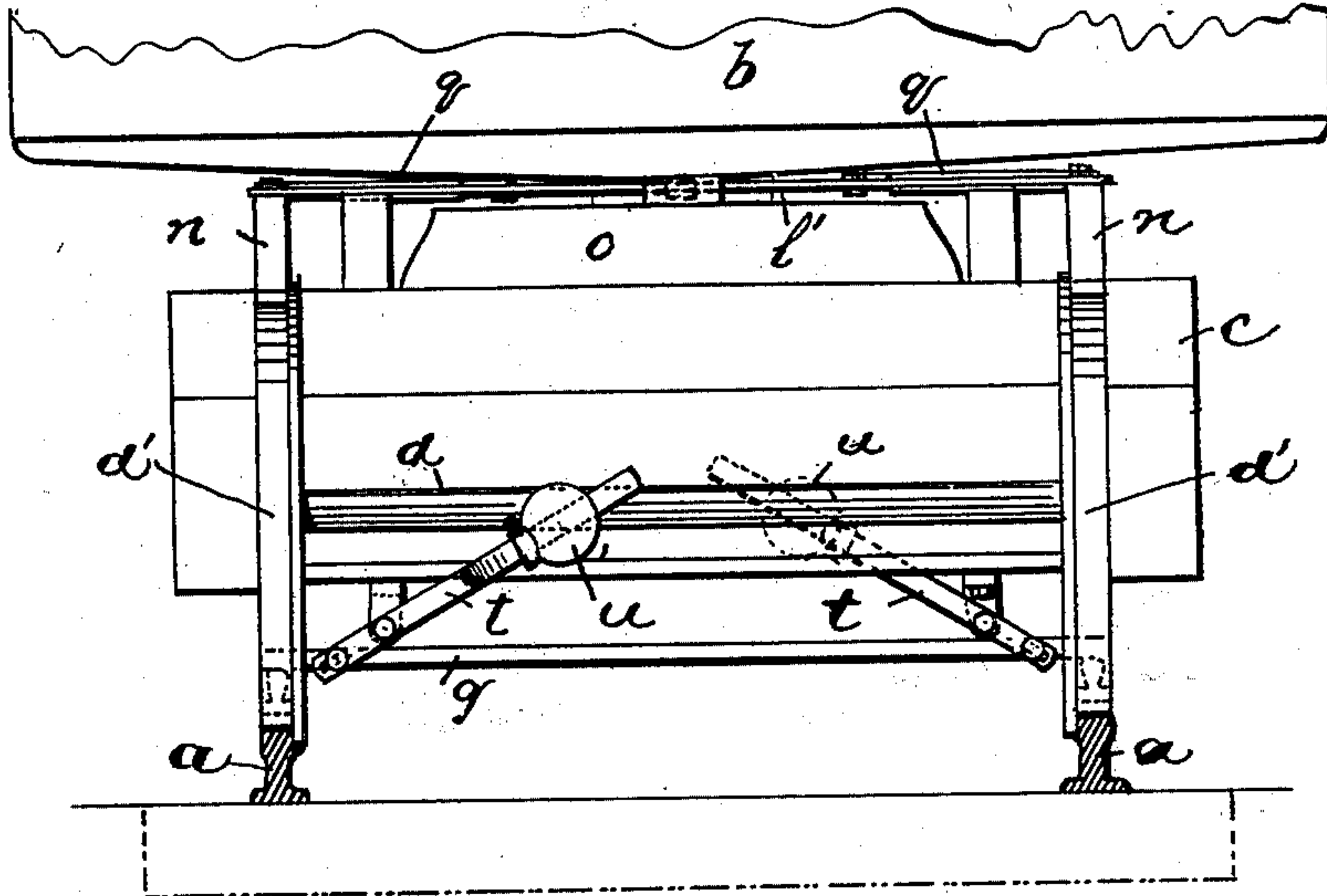
*Drake & Co.*

ATTORNEYS

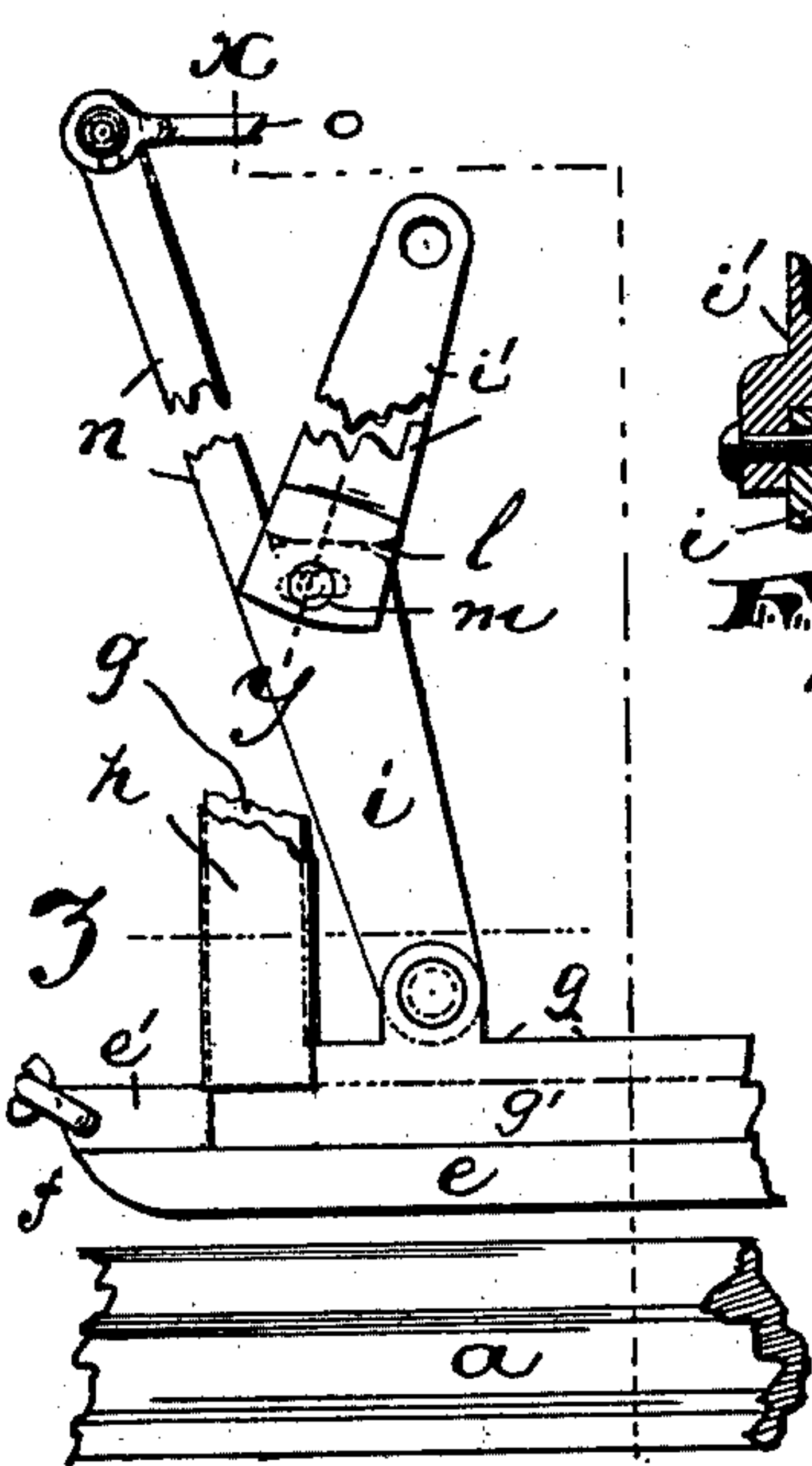
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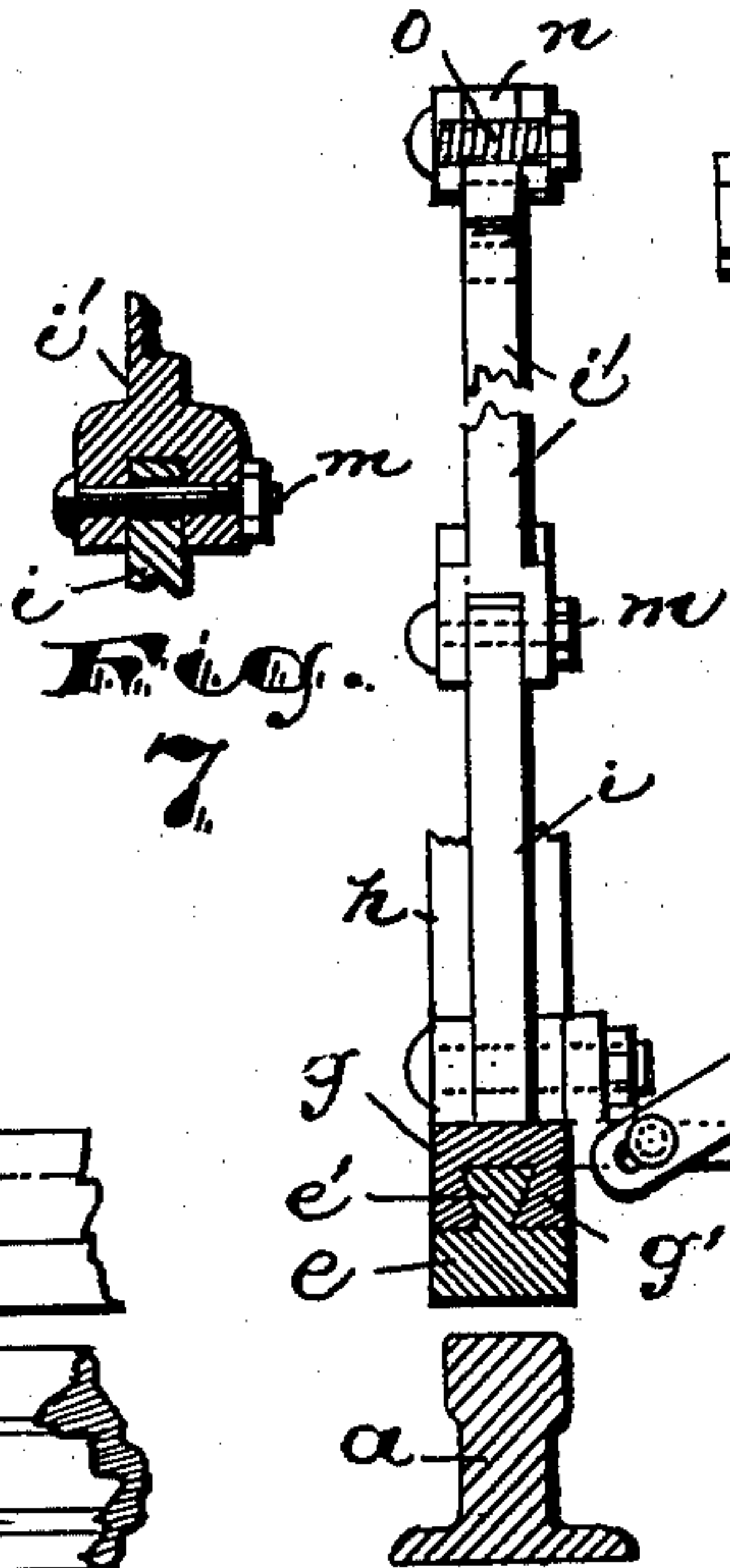
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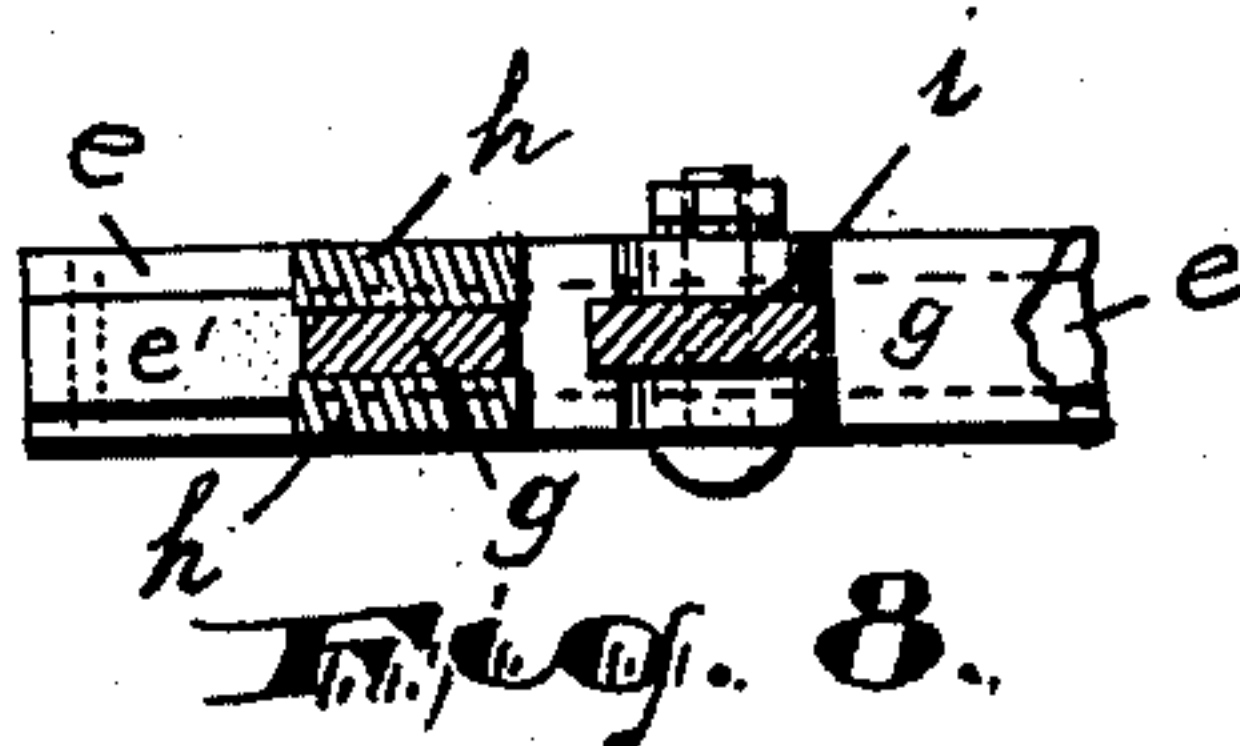
**Fig. 3.**



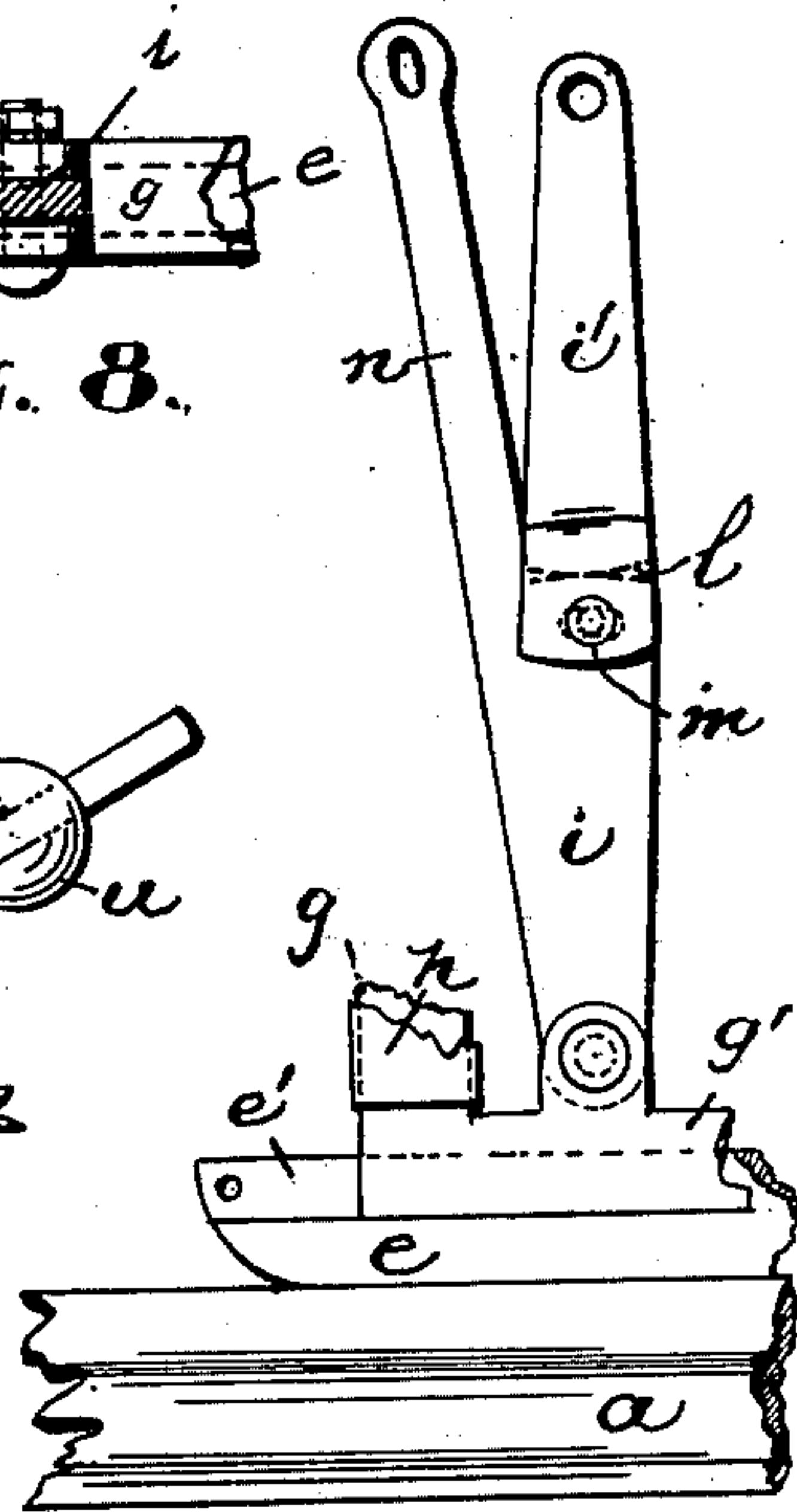
**Fig. 4.**



**Fig. 6.**



**Fig. 8.**



**Fig. 5.**

WITNESSES:

*Henry King*

*Russell M. Everett.*

**Ernst F. Meyer,**

INVENTOR

BY

*Drake & Co.*

ATTORNEYS



# UNITED STATES PATENT OFFICE.

ERNST F. MEYER, OF WAVERLY PARK, NEW JERSEY.

## RAILWAY-CAR BRAKE.

SPECIFICATION forming part of Letters Patent No. 671,113, dated April 2, 1901.

Application filed September 10, 1900. Serial No. 29,498. (No model.)

*To all whom it may concern:*

Be it known that I, ERNST F. MEYER, a citizen of the United States, residing at Waverly Park, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Railway-Car Brakes; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

The objects of this invention are to provide for railway-cars a brake which shall act upon the rail instead of on the wheels; to thus prevent flat spots being ground upon the wheels by their sliding on the rails; to enable a greater braking force to be applied; to provide a construction in which the brake-shoe shall always lie in the vertical plane of the rail; and to secure other advantages and results, some of which may be hereinafter referred to in connection with the description of the working parts.

The invention consists in the improved brake for railway-cars and in the arrangements and combinations of parts of the same, all substantially as will be hereinafter set forth, and finally embraced in the clauses of the claim.

Referring to the accompanying drawings, in which like letters of reference indicate corresponding parts in each of the several views, Figure 1 is a side elevation of a portion of a car having my improved brake. Fig. 2 is a plan of the same, the body of the car being removed; and Fig. 3 is an end view. Fig. 4 is a detail side view showing the brake-shoe and operating parts in relaxed position, and Fig. 5 is a similar view showing the parts in braking position. Figs. 6, 7, and 8 are sectional views on lines *x*, *y*, and *z*, respectively, of Fig. 4.

In said drawings, *a a* indicate the rails of a railway-track, and *b* the body of a car of any usual construction. Said car is supported upon trucks *c*, in which are journaled axles *d*, carrying wheels *d'*. I have shown two axles in a truck parallel to each other and providing spaces between the front and rear

wheels for the brakes at the two sides of the car. Each of said brakes comprises a friction-shoe *e*, adapted to engage the rail-surface and being rounded or upcurved at the ends and loosely attached by chains *f* to the trucks to limit its range of longitudinal movement. Said shoes have each a dovetailed rib *e'* at the upper side, which fits into a correspondingly-shaped groove or slideway in the side piece *g'* of a carrier *g*, extending horizontally from side to side of the car and adapted to slide vertically between guides *h* on the truck, which guides also prevent lateral or longitudinal movement of the carrier. Pivoted to the upper edge of each side piece *g'* and near the opposite ends thereof are the lower members *i j* of vertically-disposed pairs of levers, the upper members *i' j'* of which are pivoted at their upper ends on the truck, as at *k k*. The two intermediate ends of the members of a pair of levers meet in a toggle-joint, as at *k'*, and to prevent their falling entirely apart the end of one lever is slotted or forked to receive the other and a pin *m* passed through, said pin, however, working in a slotted opening in one of the levers, so as not to hamper the toggle-joint action. The bottom of the recess in the forked lever and the end of the other lever are suitably rounded to bear against each other, and the two front and rear pairs of levers at each side of the car are arranged to bend outwardly apart at their joints in relaxing. Preferably the end surfaces where the levers engage one another are transversely rounded on a curve crossing the lever obliquely, as at *l*, said curves diverging from each other toward the inside of the joint or side away from that toward which bending takes place. This construction provides that the point of contact shall change toward the straight line, joining the fixed ends of the levers as said levers bend outward from said straight line.

To operate the levers, each lower member of a pair is at its outer edge extended upward past the point of engagement with the upper lever to form a handle-rod *n*, the upper ends of these handle-rods being connected to means for applying draft to force the opposite pairs of levers together. To this end a draft-rod *o*, extending longitudinally of the car, has a pivoted cross-piece *o'* at its end, and each end



of said cross-piece is coupled by a short link  $p$  to the inner end of a lever  $q$ , pivoted at a point intermediate of its ends on a fulcrum  $q'$ , fixed on the car-truck. The outer end of this lever is coupled by a rod  $r$  to a forward handle-bar  $n$ , while another coupling-rod  $s$  extends from a point inside the fulcrum  $q'$  to a rear handle-bar  $n'$ . Draft upon the rod  $o$  therefore swings the levers  $q$  and draws the handle-bar  $n$  of the front and rear levers together, as will be understood. Horizontal rods  $l'$  preferably connect the ends of the handle-bars at opposite sides of the car to secure greater rigidity.

To insure an automatic lifting of the brake-shoes  $e$  from the rails when the draft is relaxed, counterbalance-weights  $u$  are provided at the inner ends of lever  $t$ , pivoted on the truck and attached at their outer ends to the carrier-frame  $g$  to raise it.

Obviously by my improved construction a large braking-surface is provided to engage the rail, and it is so located, being between the closely-adjacent wheels  $d'$ , that it will always be in line with the rail. Furthermore, great pressure can be brought to bear upon the brake-shoes and with very little power by the toggle-joint levers and connections shown.

Having thus described the invention, what I claim as new is—

1. In a railway-car brake, the combination with a truck having front and rear pairs of running-wheels, of a carrier-frame sliding vertically between said pairs of wheels, brake-shoes held at the opposite sides of said carrier above the rails and adapted to slide longitudinally a limited distance, vertically-disposed pairs of levers each having its upper member pivoted at the upper end on a fixed fulcrum and the lower end of the lower member pivoted to the carrier, the two intermediate ends of the levers meeting in a toggle-joint, and the lower member having an upwardly-projecting handle-bar, and means for applying draft to the handle-bars to close the toggle-joints, substantially as set forth.

2. In a railway-car brake, the combination with a supporting-truck having front and rear pairs of wheels rigidly connected, of a horizontal carrier-frame vertically movable between said pairs of wheels, brake-shoes longitudinally disposed over the rails and each having at its upper edge a dovetailed rib lying in a corresponding groove in the carrier-frame, chains attached to the ends of said shoes and connecting them to the truck, pairs of vertically-disposed levers having upper and lower members pivoted at their opposite ends to the truck and carrier-frame, respectively, and forming at their meeting ends a toggle-joint, the lower member having an extension projecting beyond said joint, and a system of levers for applying draft to said toggle-joint levers, substantially as set forth.

3. The combination with a car-body and supporting-truck, of a vertically-sliding car-

rier-frame, brake-shoes carried by said frame parallel to the rails, toggle-joint levers vertically disposed and adapted when straightened to force the carrier downward, a handle-bar projecting from one of said toggle-joint levers at their meeting ends and extending said lever past the toggle-joint, means for applying draft to said handle-bar, and levers pivoted on the truck and each having at one end a weight and at the other end engaging said carrier-frame to automatically raise the shoes from the rails when the toggle-joint levers are relaxed, substantially as set forth.

4. The combination with the sliding carrier-frame and brake-shoes thereon, of a pair of levers extending away from said carrier and having their opposite ends pivoted one to said frame and the other to a fixed support, the adjacent ends of said levers being transversely curved and adapted to work upon each other to form a toggle-joint, the curves extending obliquely with reference to the length of the levers, whereby the edges of the levers on the side toward which bending out occurs are longer than the inner edges, and the point of contact of the ends approaches the outer edges as the levers approach a straight line, means for holding the ends of the levers in contact, and means for operating said levers, substantially as set forth.

5. The combination of the brake-shoes, a sliding carrier for said brake-shoes, pairs of levers arranged end to end and extending away from said carrier, the opposite ends of a pair of levers being pivoted to a fixed support and to said carrier, respectively, and the meeting ends being one forked or slotted to receive the other and loosely held together by a transverse pin, the one end engaging the bottom of the slot in the other and forming therewith a toggle-joint, a handle on one lever extending on past the toggle-joint, and means for applying draft to the handles, substantially as set forth.

6. The combination of the brake-shoes at opposite sides of the car, a sliding carrier for said shoes, pairs of vertically-disposed levers arranged end to end and having their opposite outer ends pivoted one to a fixed support and the other to the said carrier, and the meeting ends of the levers forming a toggle-joint, handle-bars extending upward from the lower lever of each pair, draft-levers at opposite sides of the car, coupling-rods extending from said handle-bars to said draft-levers, and a draft-rod coupled to said draft-levers, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 20th day of August, 1900.

ERNST F. MEYER.

Witnesses:

CHARLES H. PELL,  
RUSSELL M. EVERETT.