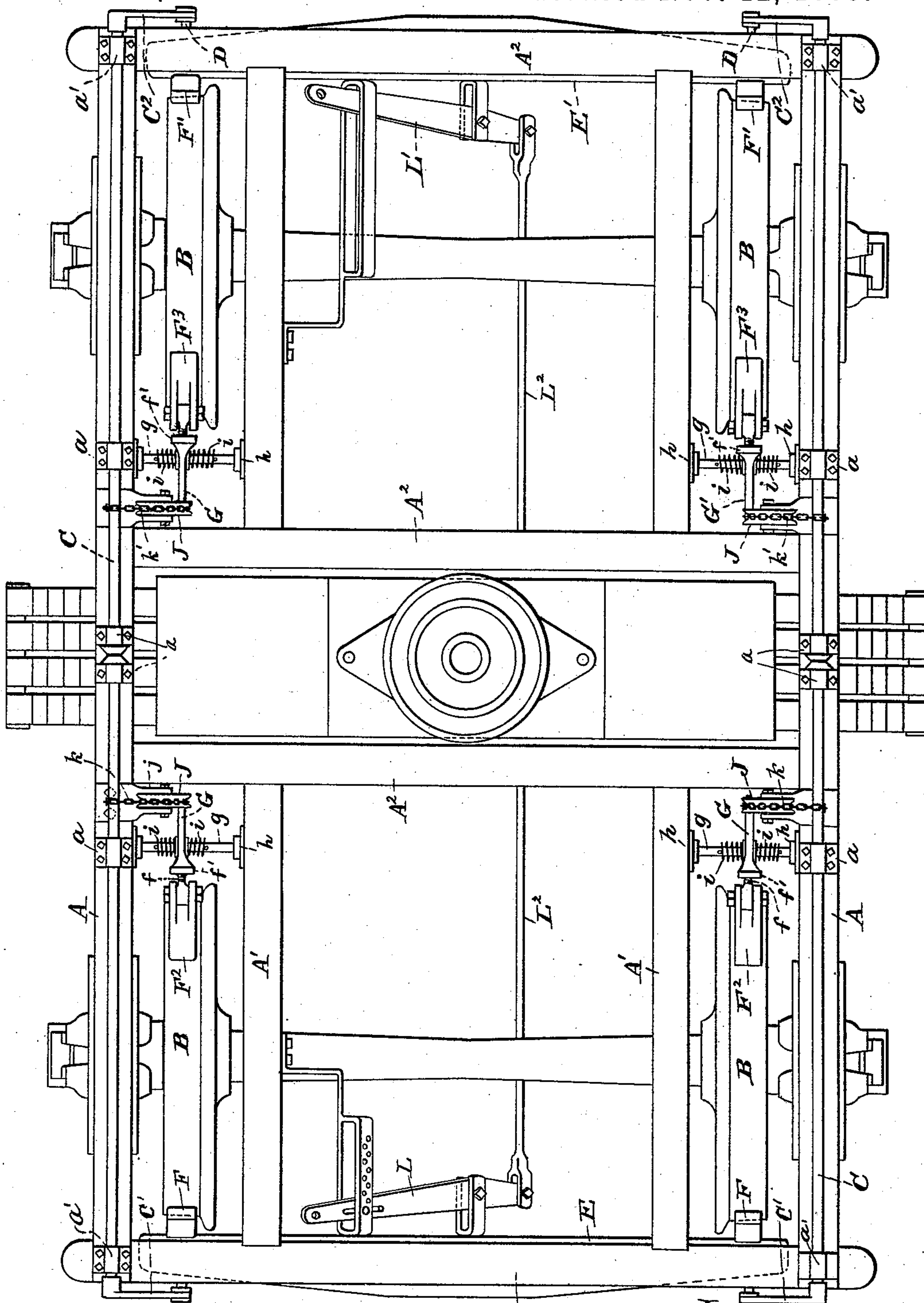


2 Sheets—Sheet 1.

No. 414,890.

Patented Nov. 12, 1889.



Attest { Geo. T. Smallwood.  
Jas. K. McBethian

**101**

Inventor:  
Charles V. Rote  
By Will Smith & Son, Attys.

(No Model.)

2 Sheets—Sheet 2.

C. V. ROTE.  
CAR BRAKE.

No. 414,890.

Patented Nov. 12, 1889.

FIG. 3—

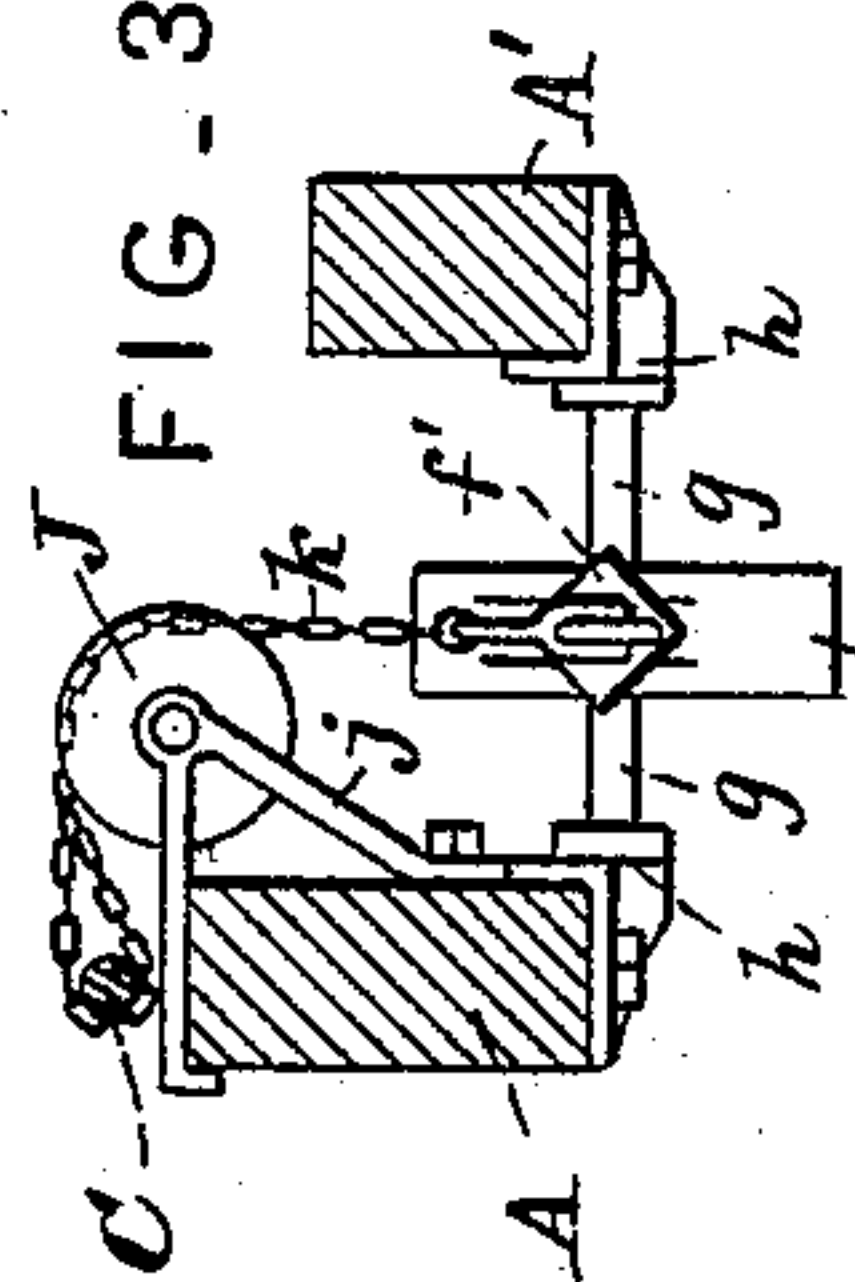


FIG. 2—

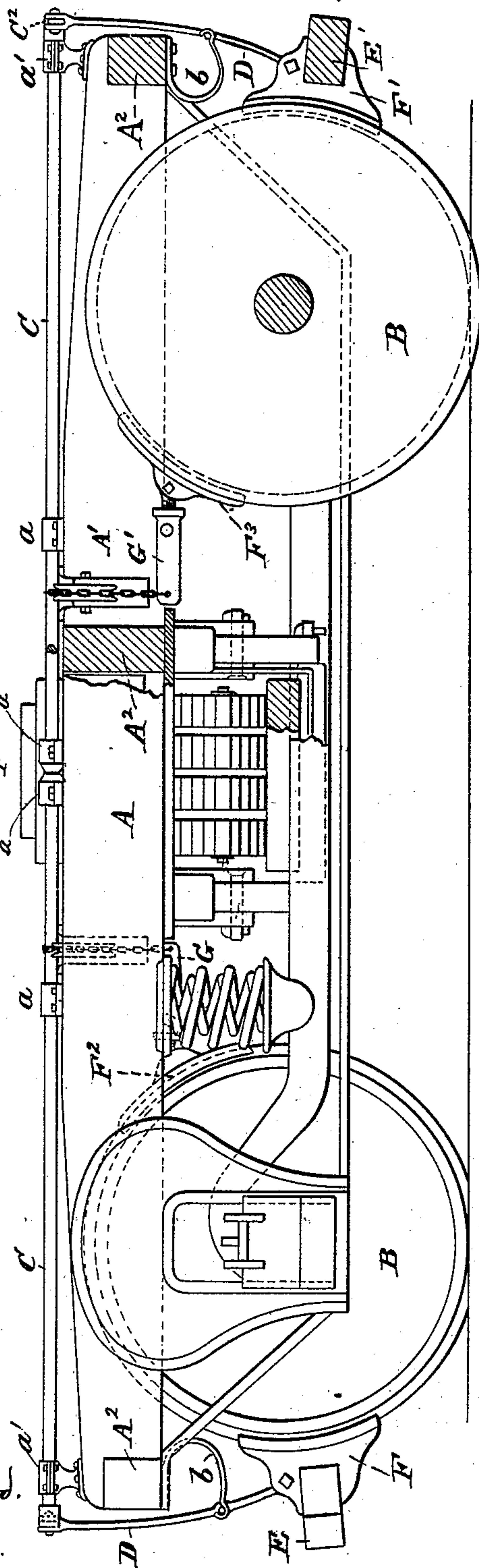


FIG. 5—

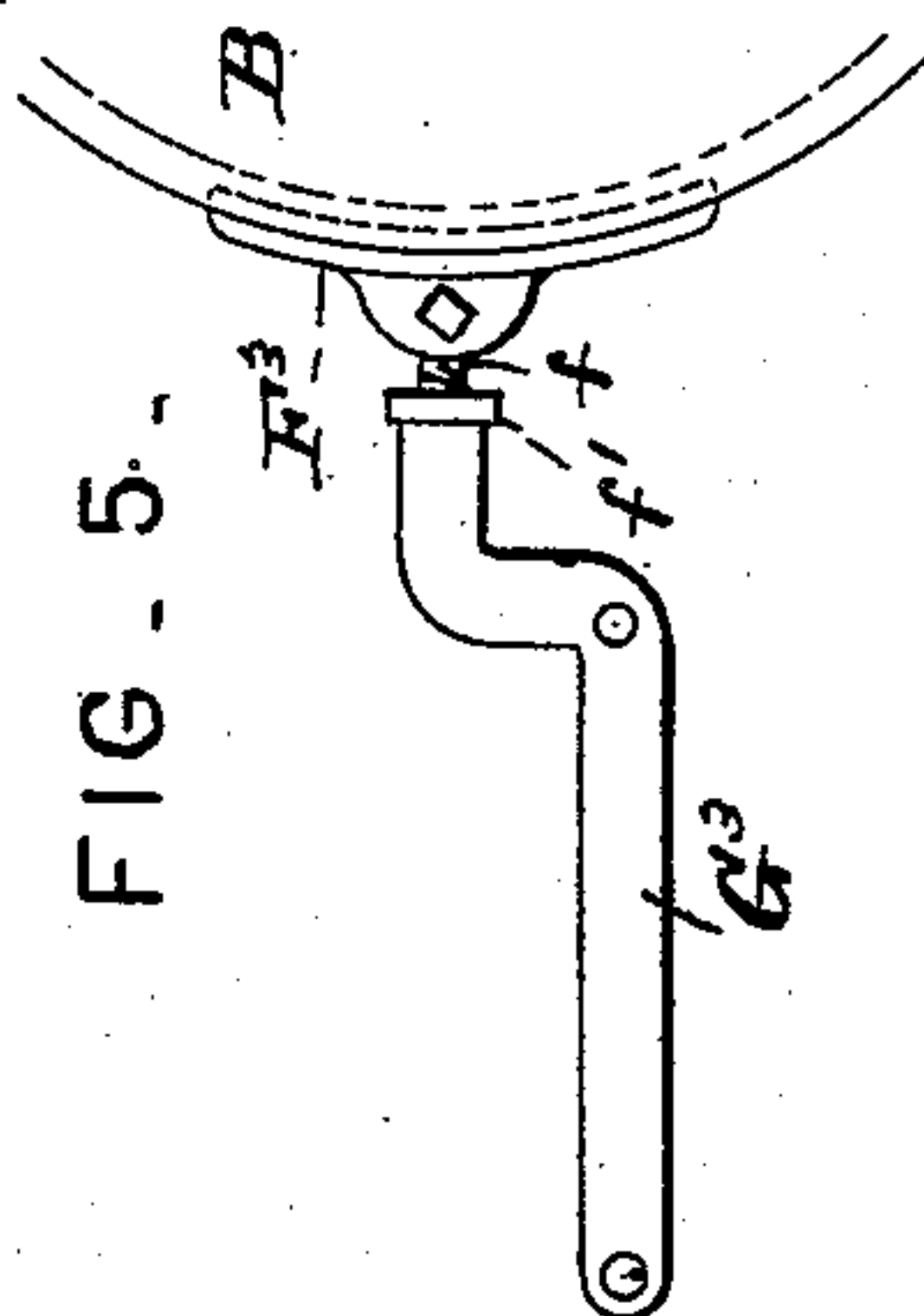
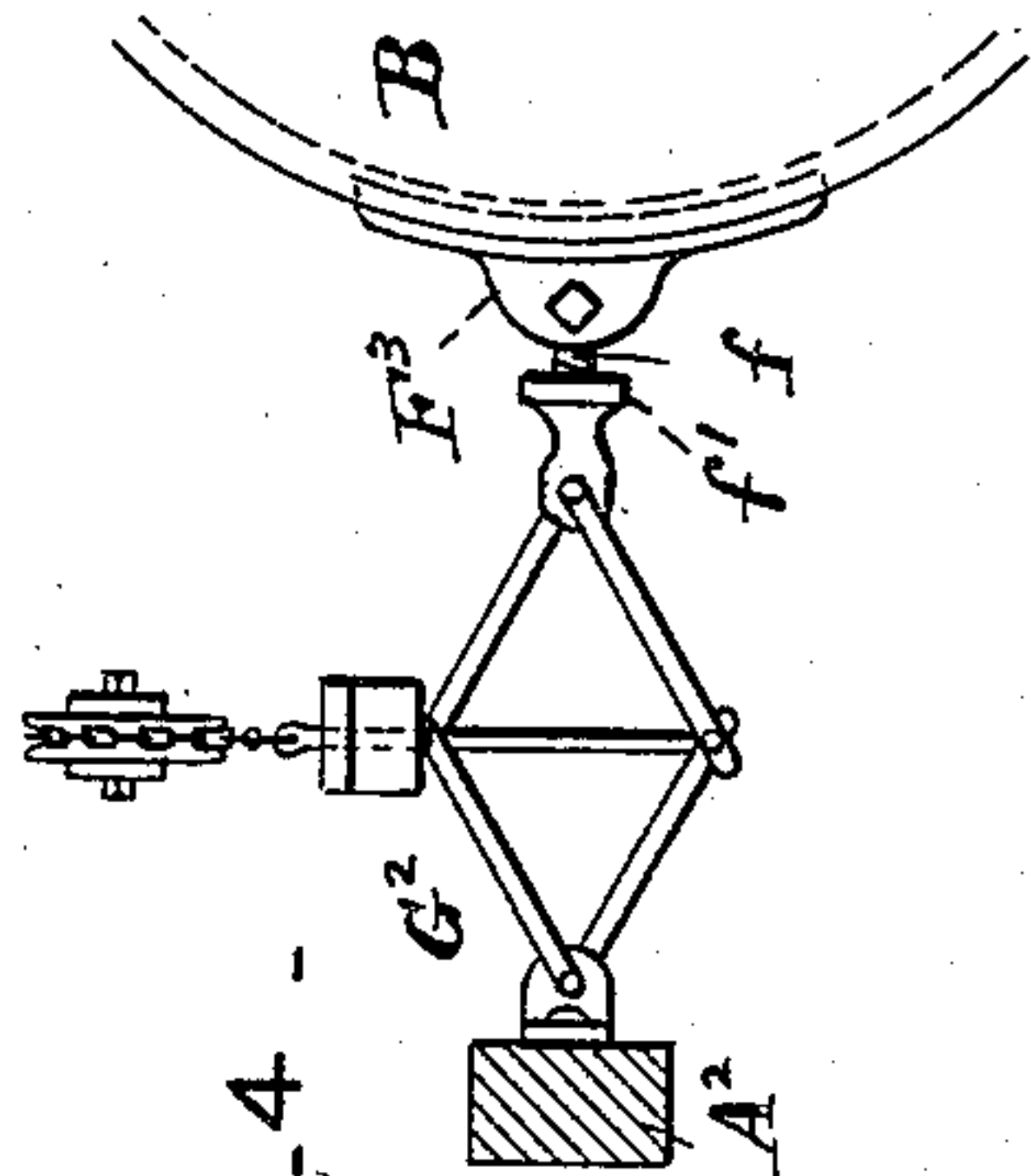


FIG. 4—



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# UNITED STATES PATENT OFFICE.

CHARLES V. ROTE, OF LANCASTER, PENNSYLVANIA, ASSIGNOR OF PART TO  
BERNARD J. McGRANN, EUGENE G. SMITH, AND ELMER ELLSWORTH  
SNYDER, ALL OF SAME PLACE.

## CAR-BRAKE.

SPECIFICATION forming part of Letters Patent No. 414,890, dated November 12, 1889.

Application filed March 28, 1889. Serial No. 305,067. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES VICTOR ROTE, a citizen of the United States, and a resident of Lancaster, county of Lancaster, and State of Pennsylvania, have invented a new and useful Improvement in Car-Brakes, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification.

My invention relates to means for giving increased force to the application of vehicle-brakes; and it consists in the combination, with the brake-shoes, of a novel arrangement of levers and connections whereby the friction of the wheels upon the brake-shoes, when the latter are brought into action, is utilized for applying the brakes with greatly-increased force, as hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a plan or top view of a car-truck with my improvements applied. Fig. 2 is a side elevation of the same, partly in section, to show the arrangement of some of the parts. Fig. 3 is a transverse section through the sills at one side of the truck, showing one of the brake-shoes and the rock-shaft and its connections with said shoe for operating the same in side elevation; and Figs. 4 and 5 are detail views showing modifications in the form of the lever attached to the brake-shoes for operating the same.

A and A' indicate longitudinal frame bars or sills of the truck-frame, two or more of which are employed at each side of the frame, A A indicating the outer bars or wheel-pieces, and A<sup>2</sup> transverse connecting-bars, and B B the carrying-wheels. The truck may be of any usual or preferred construction, and, as my improvements used upon both sides thereof are duplicates, substantially, one of the other, it will be necessary to describe those on one side only.

C C indicate a divided longitudinally-arranged rock-shaft, the two parts thereof being mounted in suitable bearing-brackets a a' on one of the side bars or wheel-pieces, and provided at its ends overhanging the ends of said side bars with short crank-arms C' C<sup>2</sup>,

from which, through suitable pendent links D, the outer brake-beams E and E' and the brake-shoes F and F', connected therewith, are suspended. To relieve the crank-arms C' and C<sup>2</sup> of the weight of the brake beams and shoes when the latter are not in action, C-shaped or other suitable form of springs b are employed, attached at one end to the truck-frame and at the other to the brake-beams or to spurs or pins on the links D to support said beams and shoes, as shown.

The brake-shoes F<sup>2</sup> and F<sup>3</sup> between the truck-wheels are pivotally secured to the ends of short levers G and G', mounted on short transverse shafts or pivots g g', secured in suitable brackets h, attached to the adjacent sides of the bars or sills A and A'. Coiled springs i i' on the pivots g on opposite sides of the levers G and G' serve to hold the latter in proper position on said pivots, while at the same time allowing them a limited freedom of movement or lateral play, sufficient to enable them to accommodate themselves to any change in the position of the wheels due to the turning of curves or to other causes. These levers G and G' and the brake-shoes connected therewith are shown arranged considerably above the plane of the car-wheel axles, this arrangement being necessary where the wheels are arranged in close proximity with each other, as frequently happens where short trucks or more than two wheels on each side thereof are employed. The inner adjacent ends of the levers G and G' have chains k k' connected to them, which extend up over sheaves or pulleys J J', journaled in suitable angular brackets j, secured to the sills A, and thence in loop form or in two parts (see Fig. 3) both over and under the rock-shaft C, to which the end of said loop is secured in such manner that the rocking of the shaft in either direction will serve to wind the chain upon it and so to lift the ends of the levers G and G' connected therewith.

Instead of levers G and G' of the form shown, the usual form of cam-blocks may be employed for the intermediate brakes, and these may be connected to the chains to be



drawn up thereby; or the form of double toggle links or levers shown at  $G^2$  in Fig. 4, the elbow or bell-crank form of lever shown at  $G^3$ , Fig. 5, or other suitable form of lever, may  
 5 be employed, connected with the brake-shoes for operating them, if preferred. The ends of the levers to which the brake blocks or shoes are connected are provided with screw-threaded sockets, in which short screw-thread-  
 10 ed rods  $f$ , to which the brake-blocks are pivoted, are secured adjustably for adapting them to compensate for wear or to give the proper adjustment to the shoes, and are held at such adjustment by means of jam-nuts  
 15  $f'$ . The form of lever and the arrangement thereof first described are preferred where the car-wheels are brought close together and but little space is left to accommodate the parts, as explained; but it will be apparent that  
 20 other forms of lever referred to may be employed and that the brake-shoes and levers connected therewith may be located in a lower plane, more nearly approximating the plane of the car-wheel axles, where there is  
 25 space enough between the wheels to accommodate the parts.

$L$  and  $L'$  indicate the ordinary "brake-levers, and  $L^2$  a rod connecting them. These may be of the ordinary construction and arrangement, and the levers may be connected  
 30 to the brake-beams  $E$  and  $E'$  and operated in any usual manner. Whatever may be the power applied for operating the beams  $E$  and  $E'$ , whether hand or otherwise, it will  
 35 be apparent that when the brake-shoes  $F$  and  $F'$  are thrown into frictional contact with the wheels the action of the wheels, moving in either direction, will be to pull downward on the shoe and rock-shaft at one end and to  
 40 push upward at the other end, and so to rock the two parts of the shaft  $C$  in opposite directions, which causes the chains  $k$   $k'$  to be wound up and wrapped upon it, and thereby to draw upward on the ends of the levers  $G$   
 45 and  $G'$  and so to apply the brakes  $F^2$  and  $F^3$  with a power proportionate to the friction of

the wheels upon the brakes  $F$  and  $F'$ , and which is found very effective in action.

Having now described my invention, I claim as new—

1. The combination, with the truck-frame, of the rock-shaft having crank-arms connected to the outer brake beams or shoes, levers carrying intermediate brake-shoes, and chains connecting said levers with said rock-shaft, substantially as described. 55

2. The levers carrying the brake-shoes intermediate the car-wheels, in combination with a rock-shaft on the truck-frame, chains connecting said levers with the rock-shaft, and brake-shoes, also connected to said rock-shaft for operating it and the intermediate brake levers and shoes, substantially as described. 60

3. The combination, with the truck-frame, of the divided rock-shafts extending lengthwise of said frame and provided at their outer ends with crank-arms, brake-shoes suspended from said arms, and intermediate shoes connected to and operated from said rock-shafts, substantially as described. 65 70

4. The combination, with the truck-frame, of longitudinally-arranged rock-shafts having crank-arms at their ends, brake-shoes suspended from said arms, springs for upholding said brake-shoes, and intermediate brake-shoes and their supporting-levers connected to and operated from said rock-shafts, substantially as described. 75

5. The combination, in a brake mechanism, of the rock-shafts  $C$ , having crank-arms  $C'$  and  $C^2$ , brake-shoes  $F$  and  $F'$ , supporting-links  $D$  therefor, intermediate shoes  $F^2$  and  $F^3$ , supporting-levers therefor, and chains  $k$ , connecting said levers with the rock-shafts, substantially as described. 80 85

In testimony whereof I have hereunto set my hand this 25th day of March, A. D. 1889.

CHARLES V. ROTE.

Witnesses:

I. C. ARNOLD,  
 C. REESE EABY.