

(No Model.)

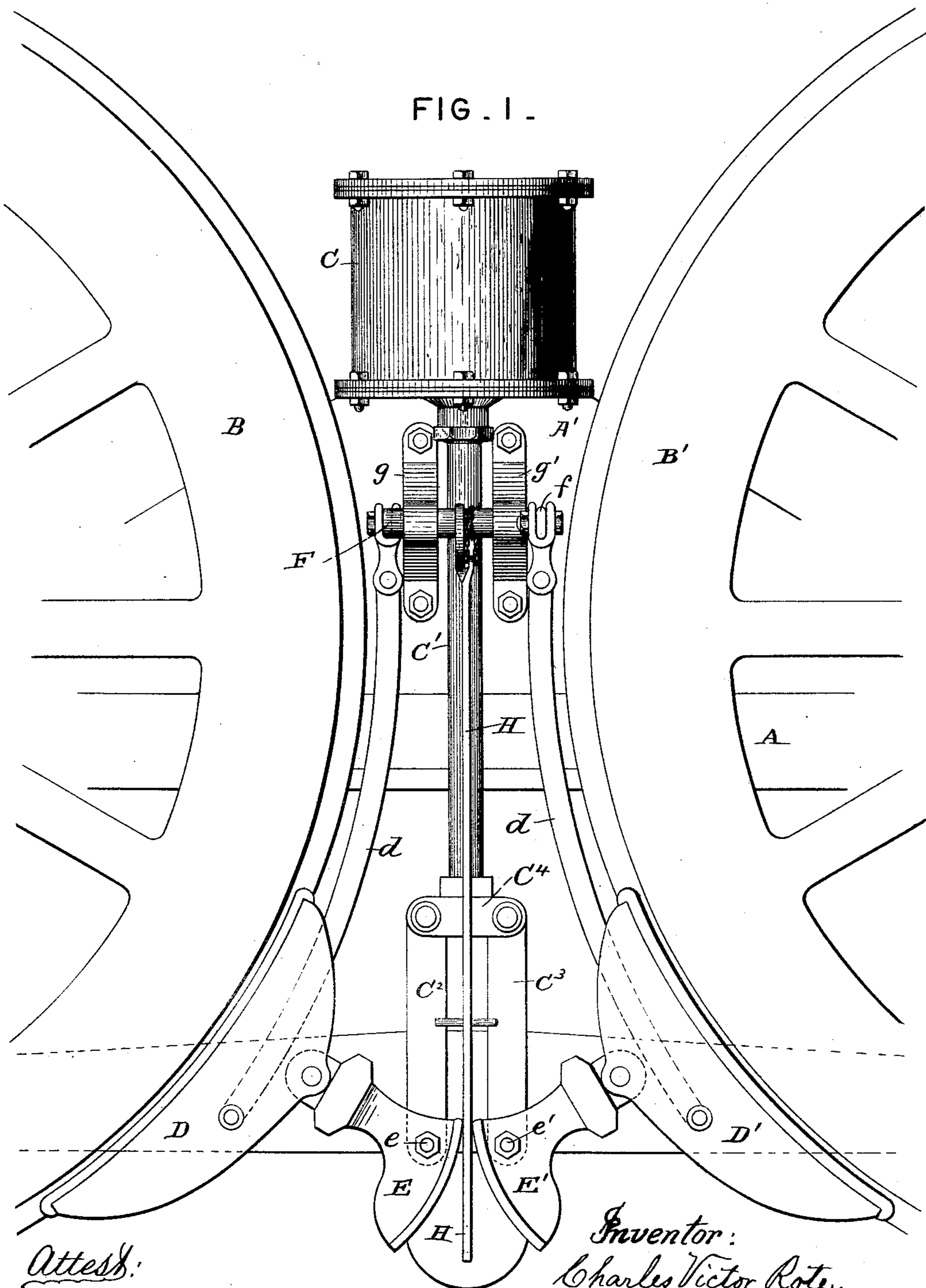
2 Sheets—Sheet 1.

C. V. ROTE.
CAR BRAKE.

No. 406,958.

Patented July 16, 1889.

FIG. 1.



Attest:
Geo. T. Smallwood.
Lewis Trech.

Inventor:
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(No Model.)

2 Sheets—Sheet 2.

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FIG. 2.

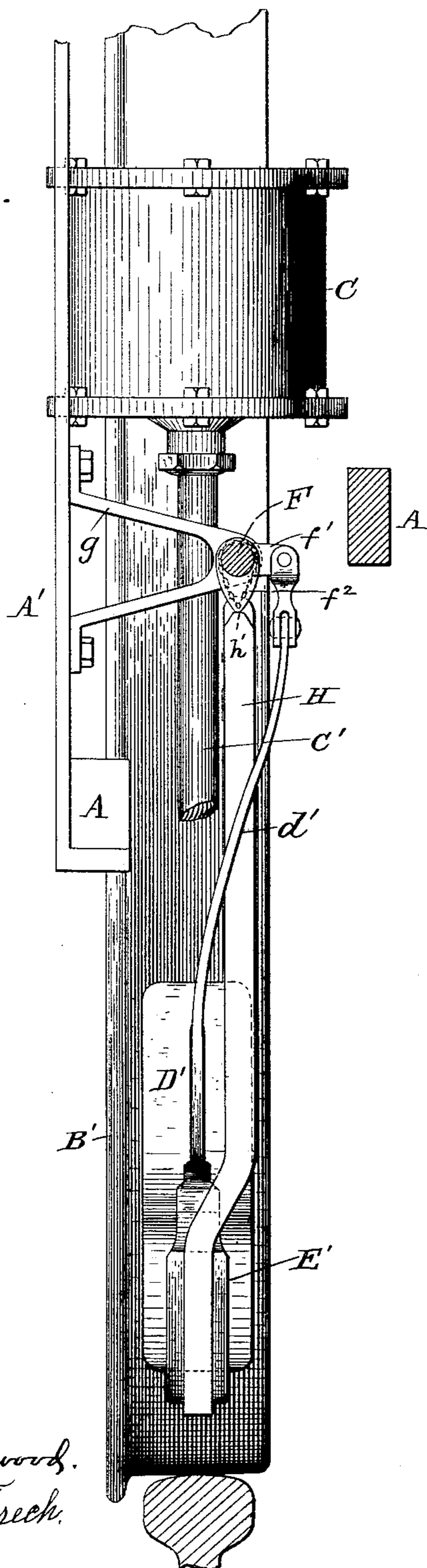


FIG. 3.

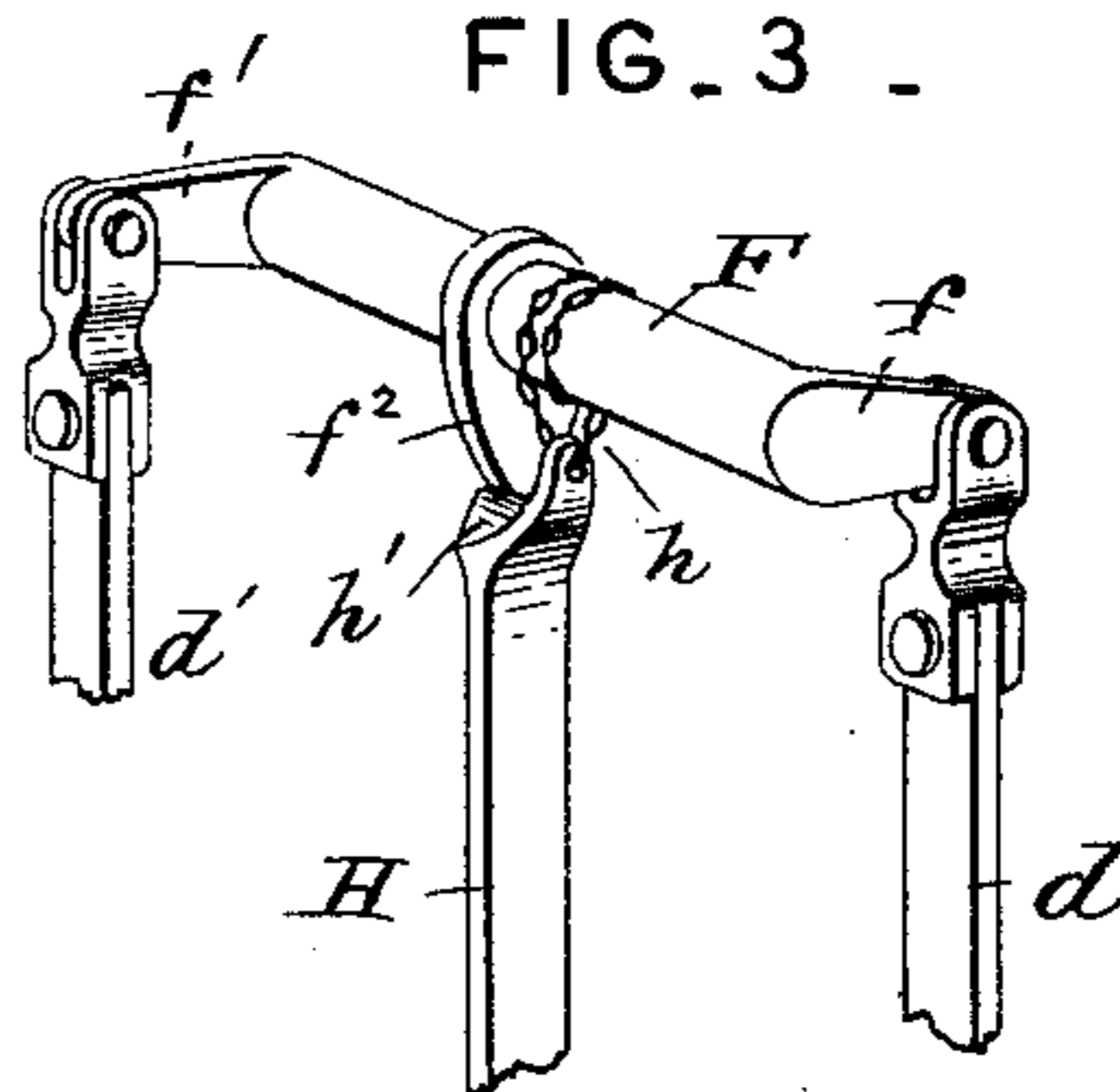
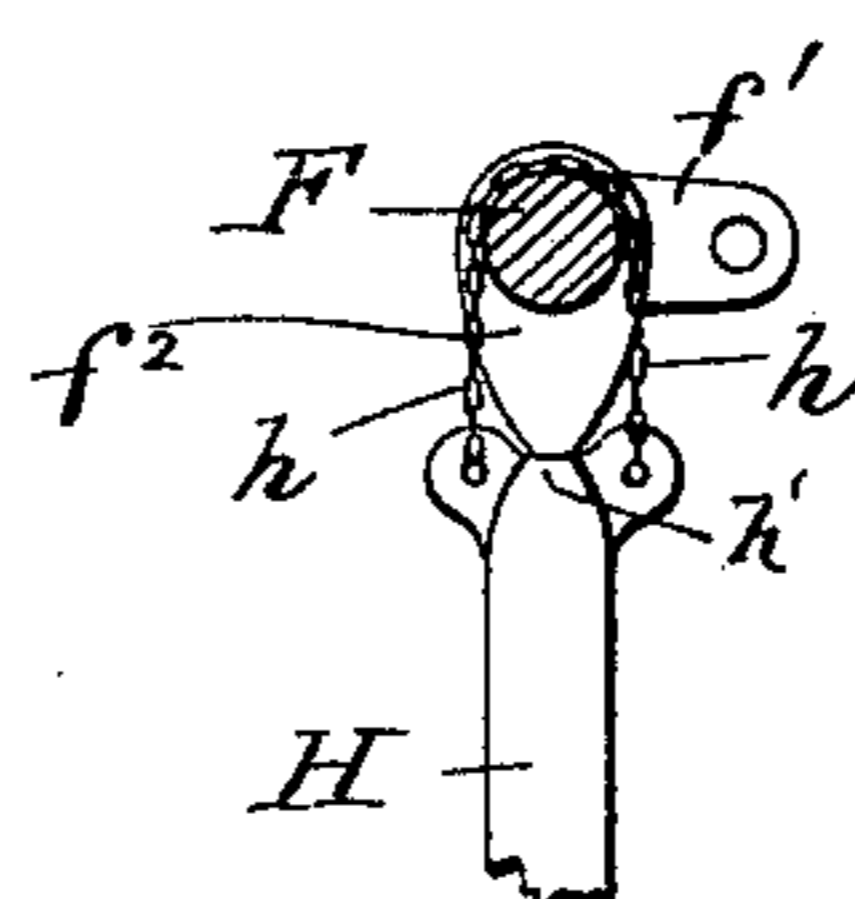


FIG. 4.



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UNITED STATES PATENT OFFICE.

CHARLES VICTOR ROTE, OF LANCASTER, PENNSYLVANIA, ASSIGNOR OF
PART TO BERNARD J. McGRANN, EUGENE G. SMITH, AND ELMER ELLS-
WORTH SNYDER, OF SAME PLACE.

CAR-BRAKE.

SPECIFICATION forming part of Letters Patent No. 406,958, dated July 16, 1889.

Application filed November 9, 1888. Serial No. 290,374. (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 utilizing the friction of the brake-shoe upon the wheel after the brake has been applied, for increasing the pressure of said shoe on the wheel, and its consequent power as a brake, and will be fully understood from the following description and claims, reference being had to the accompanying drawings, in which—

Figure 1 represents enough of a car-truck or locomotive-driver to show my improvement applied thereto in side elevation. Fig. 2 represents a vertical section at right angles to Fig. 1, showing the parts in end or edge view. Fig. 3 is a perspective view of the cranked rock-shaft and parts connected therewith, and Fig. 4 represents a section through said shaft.

The brake shown in the drawings is of that type or form known as a "driver-brake," and A thereon indicates a portion of the frame of the engine or truck, and B and B' two of the adjacent wheels thereof; A', a plate or upright secured to the frame A, and forming a support for brackets and parts of the brake mechanism hereinafter referred to.

C indicates an air or steam cylinder, supported on the engine or truck frame in any usual or preferred manner.

D and D' indicate the brake-shoes suspended on rods d and d' ; E and E', cam-blocks or eccentric-lever castings, through which the brake-shoes are operated, and which are pivoted at their outer ends, either directly or through suitable lever extensions or arms, to the outer faces of the brake-shoes D and D' at e and e' , one to each shoe, as shown. The adjacent ends of these cam-blocks E and E' are pivotally connected to the lower ends of links C² and C³, the upper ends of which

are pivoted to the ends of a cross-head C⁴ on the lower end of a piston-rod C', which at its upper end connects with a piston moving in the cylinder C and operated in any usual or preferred manner. The parts of the brake mechanism thus far described are well known and in common use, and may be of any usual or preferred construction and arrangement, except in details, which will be specified.

F indicates a rock-shaft, mounted in suitable bearings in brackets g g , attached to the frame or plate A', and provided at its ends with oppositely-arranged crank-arms f and f' to suitable crank-pins, at the ends of which the upper ends of the brake-shoe suspension-rods d and d' are attached, instead of being attached to and supported directly from the machine-frame, as is the usual manner. By this arrangement of the supports for the brake-shoes instead of the shoes being held rigidly when thrown against the wheels by the movement of the adjacent faces of the latter in opposite directions one shoe will be drawn downward and the other will be thrust upward by the action of the wheels thereon, and this movement of the shoe serves, through the arms f and f' , to rock the shaft F in its bearings. This movement is produced by the action of the piston-rod C' in drawing the cam-blocks E and E' upward and thereby thrusting the brake-shoes against the wheels in the usual manner.

The shaft F has a chain or chains h , wrapping it at or near the center of its length, the ends of which are connected to the upper end of a pendent rod or bar H, (see Fig. 3,) the arrangement being such that the rocking of the shaft F in either direction will cause the chain to wind up on the shaft on one side or the other and so to lift the bar H. For preventing the accidental lifting of the bar by the action of the cam-blocks E and E', or other cause, the shaft F has a heart-shaped or other suitable cam f^2 applied to it adjacent to the chain h and the point of which rests on a shoulder or projection h' on the upper end of the bar H and prevents the latter from being raised until by the rocking of the shaft F in the manner explained the point

of the cam is rocked to one side of the shoulder h' , and so permits the bar H to rise.

The bar H extends down between the adjacent faces of the cam-blocks E and E', and when the latter are drawn upward by the movement of the piston in the cylinder C, for throwing the brake-shoes against the wheels, they clamp the bar H between them. At the same time the arms $f f'$ rock the cam f^2 out of the way of the bar H, and the latter being drawn upward by the chain h the cam-blocks E and E' are further drawn upward with it and serve to crowd the brake-shoes outward away from each other and against the wheels B and B' with greatly increased and increasing force in a manner that will be readily understood.

The length of the arms f and f' , as compared with the radius of shaft F, acting as a lever to lift the bar H, may be as three or four (more or less) to one, according to the power desired for lifting said bar and the amount of lift required.

By the arrangement described after the first application of the brakes to the wheels, and which may be made by any usual arrangement of means for the purpose, the friction of the brake-shoes themselves is made to continue such application and to give greatly-increased force thereto.

It will be apparent that the form and arrangement of the parts may be greatly varied from those shown, and I therefore do not wish to be restricted to such specific form and arrangement, so long as substantially the means described are employed to attain the results specified.

Having now described my invention, I claim as new—

1. The combination, with the brake-shoes and the cam blocks or levers for throwing the

shoes into frictional engagement with the wheels, of the rock-shaft and interposed longitudinally-movable rod or bar connected therewith, substantially as described.

2. The combination of the brake-shoes, the cam blocks or levers for actuating said shoes, the interposed rod or bar, the suspending links or rods to which said cam-blocks are connected, and the rock-shaft to which said rods are attached, substantially as described.

3. The combination, with the brake-shoes and their actuating cam-blocks, of the links or rods and rock-shaft on which said brake-shoes are suspended, and the bar interposed between the cam-blocks and connected with and operated from the brake-shoes, substantially as described.

4. The combination, with the brake-shoes and the mechanism for throwing the same into engagement with the wheels, of a rock-shaft and rods connected therewith for upholding said shoes, and a sliding bar actuated by the frictional engagement of the shoes to increase the pressure of the brake-shoes on the wheels, also connected with said rock-shaft, substantially as described.

5. The combination, with the brake-shoes and their actuating cam blocks or levers, of the suspending-rods and the rock-shaft to which said rods are connected, the bar interposed between the cam-blocks and connected with and operated from the rock-shaft, as described.

In testimony whereof I have hereunto set my hand this 9th day of November, A. D. 1888.

CHARLES VICTOR ROTE.

Witnesses:

EUGENE G. SMITH,
GEO. T. SMALLWOOD.