

(No Model.)

3 Sheets—Sheet 1.

G. H. POOR.
LOCOMOTIVE BRAKE.

No. 300,125.

Patented June 10, 1884.

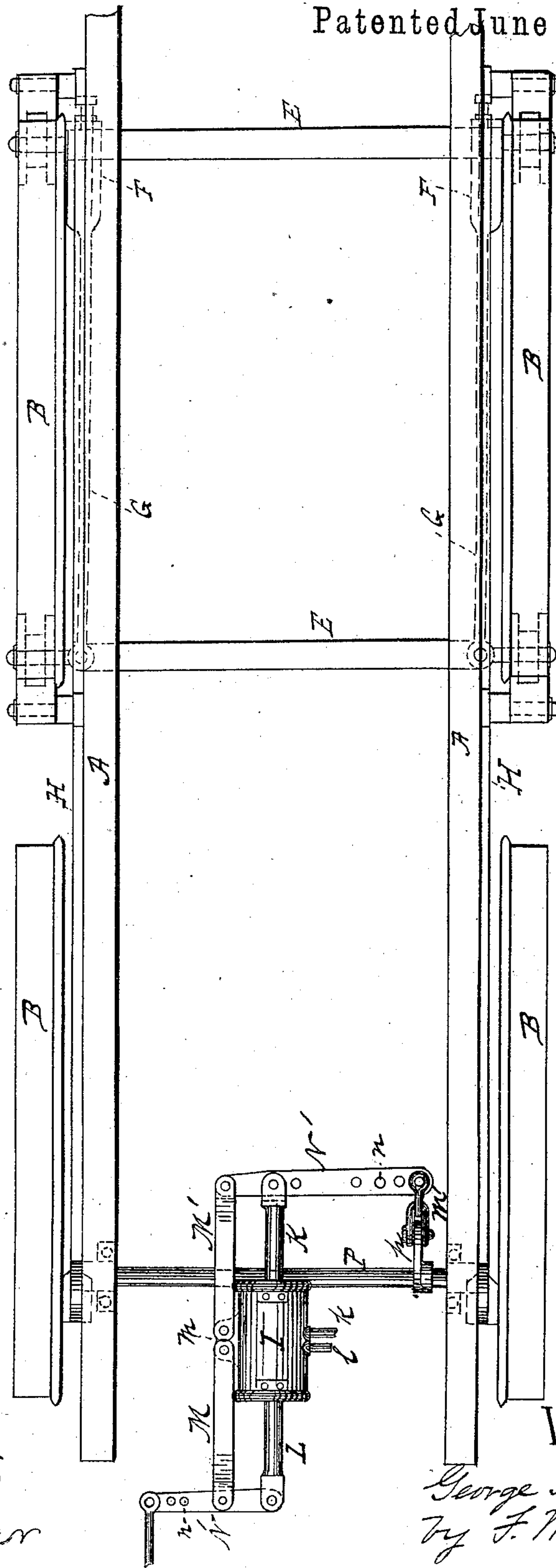


Fig. 1.

Witnesses.
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E. T. Walker

Inventor
George H. Poor
By F. W. Ritter, Jr.
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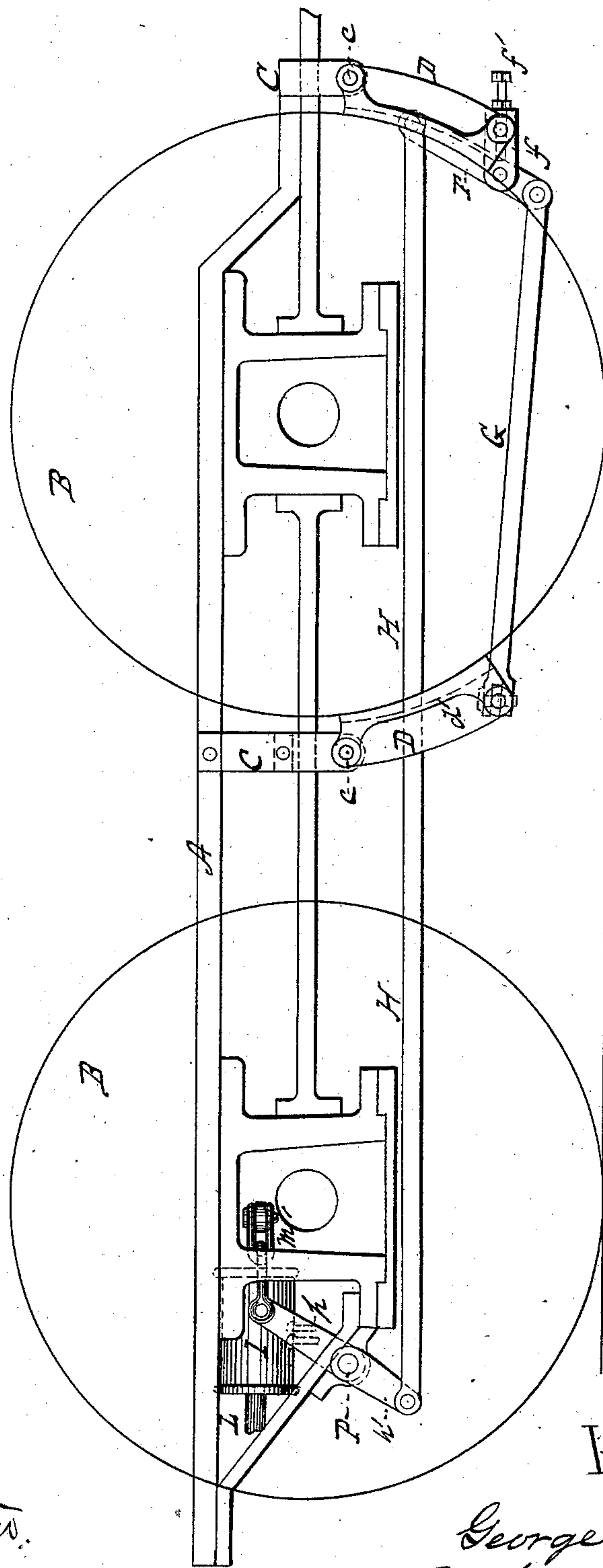


Fig. 2.

Witnesses.

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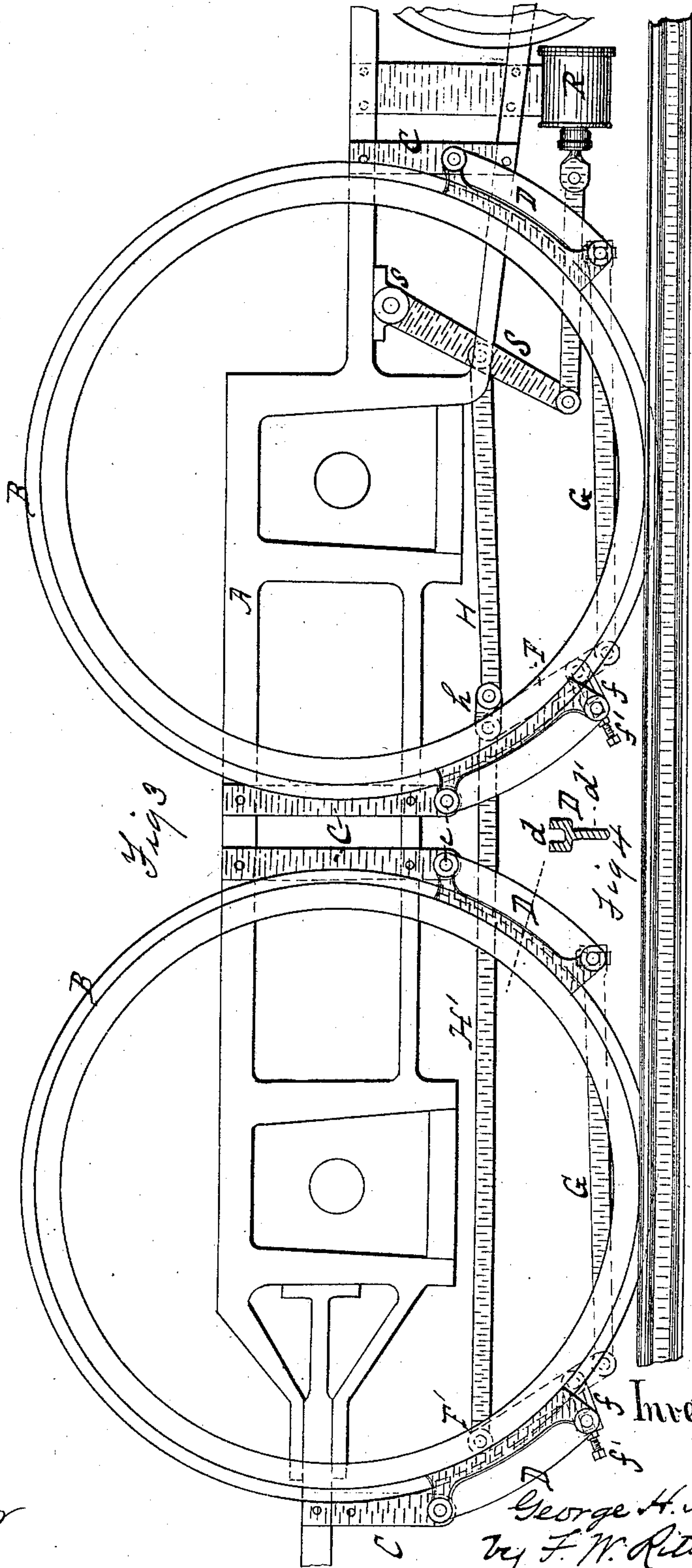
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H. B. Moulton
E. T. Walker

Inventor.

George H. Poor
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att'y

UNITED STATES PATENT OFFICE.

GEORGE H. POOR, OF ST. LOUIS, MISSOURI, ASSIGNOR TO THE AMERICAN BRAKE COMPANY, OF SAME PLACE.

LOCOMOTIVE-BRAKE.

SPECIFICATION forming part of Letters Patent No. 300,125, dated June 10, 1884.

Application filed December 19, 1883. (No model.)

To all whom it may concern:

Be it known that I, GEORGE H. POOR, a citizen of the United States, residing at St. Louis, in the State of Missouri, have invented certain new and useful Improvements in Locomotive-Brakes; and I hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, in which—

10 Figure 1 is a plan view, and Fig. 2 is a side elevation showing my improvements as applied to a single wheel on each side of the engine, the brakes being operated through the brake-beams from a twin cylinder arranged
15 beneath the cab. Fig. 3 is a side elevation showing the brakes as applied to two or more wheels on each side, the brakes of each side being operated by its own cylinder, the arrangement of cylinders being that preferred
20 by me when there is not room under the cab for a twin cylinder such as shown in Fig. 1. Fig. 4 is a cross-section of the brake-shoe.

Like letters refer to like parts wherever they occur.

25 My present invention relates to the construction of that class of "locomotive and like brakes" for which Letters Patent No. 285,068, dated September 18, 1883, were granted; and it consists, first, in an improved mode
30 of hanging the shoes directly from face-plates bolted to the frames, instead of by means of intermediate hangers, as heretofore; secondly, in the interposition of adjusting-screws between the brake-beams and operating-levers;
35 thirdly, in a special form of brake-shoe adapted to relieve the tread of the wheel from undue wear; fourthly, in the use of transverse beams extending from one side of the locomotive to the other, to each end of which are connected the pull-rods and the brake-heads, so
40 as to avoid any twisting pull on the brake-heads when power is applied; fifthly, in connecting the brake-beams by two tie-rods arranged one on each side; and, finally, in a twin
45 cylinder for operating the brakes having the fulcrum-levers pivoted thereon, all of which details of construction and novel combinations, with advantages arising therefrom, will hereinafter more fully appear.

50 I will now proceed to describe my invention more specifically, so that others skilled

in the art to which it appertains may apply the same.

In the drawings, A indicates the frame of the locomotive, and B the driving-wheels
55 thereof. On the frame of the locomotive, in front and rear of each drive-wheel to which the brakes are to be applied, I secure, by bolting or otherwise, face-plates C, provided with laterally-projecting bosses c, upon which the
60 brake-shoes D may be pivoted.

D indicates the brake-shoes, having curved faces to correspond with the periphery of the wheel, and of the general form in cross-section shown in Fig. 4—that is to say, having
65 a deep central channel, d, which will straddle that portion of the tread of the wheel which traverses the rail, so as to preserve the wheel from injurious wear when the brakes are applied, and having the central longitudinal web, d',
70 at a corresponding point on the back of the shoe, so as to re-enforce it, from which form results a shoe combining the greatest strength with the least weight of metal. The corresponding shoes on the opposite sides of the engine are
75 connected (preferably at their extremities) by the brake-beams E, which extend across under the engine, and each of said brake-beams to which the power is directly applied (or pull-rod attached) is provided with two levers, F,
80 one on each side, placed near the corresponding drive-wheels or brake-shoes, and coupled to the brake-beam by yoke f, provided with adjusting-screws f'. By means of these yokes and adjusting-screws the levers F may be ad-
85 justed with relation to the brake-beams so as to regulate the swing of the shoes and compensate for wear. The lower end of each of the beam-levers F is connected by a tie-rod, G, with the corresponding end of the other
90 brake-beam E of the same wheel, while the upper end of each beam-lever F is connected by a pull-rod, H, with the source of power.

The above description embraces the arrangement of the devices thus far enumerated
95 when applied to a single drive-wheel on each side of the locomotive, as shown in Figs. 1 and 2. When the devices are to be duplicated and applied to two drive-wheels on each side of the locomotive, the pull-rods H are preferably
100 jointly, as at h, (see Fig. 3,) and extended, as at H', to the beam-levers F', which are con-

5 nected by yokes and adjusting-screws to one of the brake-beams of the second set of brakes, which second set of brakes are in all respects constructed, arranged, and combined as hereinbefore specified.

10 In Figs. 1 and 2 I have shown the preferred form of applying the power where there is room below the cab—that is to say, I secure below the cab a twin cylinder, I, one piston, K, of which operates the locomotive-brakes, and the other, L, operates the tender-brakes. The cylinder I is cast with a central partition to form the two piston-chambers, each of which is provided with its own steam-inlet, *k* and *l*, while on the exterior of the cylinder is provided a boss or lugs, *m*, to which may be pivoted the fulcrum-levers M M'. The pistons K and L are each connected by a pivoted connection with cross or floating lever N, (or N'), which latter is pivotally connected to a fulcrum-lever, (or link,) M, (or M'), pivotally attached to the cylinder I, as before specified. The cross or floating levers N N' are each provided with pivot-holes *n n*, so that the fulcrum-point may be changed to increase or diminish the power.

20 To the cross or floating lever N the pull-rod of the tender-brake is attached, while one arm of the cross or floating lever N' is connected by a link or shackle, *m'*, with the upper arm, *p*, of a rock-shaft, P, journaled on the locomotive-frame. This rock-shaft P has near each side of the locomotive an arm, *p'*, extending down or in an opposite direction from the arm *p*, and to each of these arms *p'* the pull-rod H of the corresponding side is attached.

30 Where, as before specified, there is not sufficient room under the cab to use the twin cylinder, a small horizontal cylinder, R, may be placed on each side of the engine, (see Fig. 3,) and either attached directly to the pull-rod H of its side or to a lever, S, pivoted on the frame, as at *s*, and the pull-rod H may be pivotally connected to said lever S. Either method of connecting the power and pull-rod may be employed at will, as the judgment of the mechanic may suggest or the exigencies of the case require.

40 The construction of the devices being substantially as hereinbefore specified, they will operate as follows: The power, being applied to the pull-rod H by admitting steam to the cylinders, or in other suitable manner, will first act upon beam-levers F and the beams E, to which they are attached, to force the corresponding set of shoes, D, against the driving-wheels B. As soon as the first set of shoes hug the wheel the beam-levers F will rock, and, pulling on the tie-rods G, will draw over the opposite brake-beams E and apply the second set of brake-shoes to peripheries of wheels B opposite the first set of brake-shoes. When the power is withdrawn from the pull-rods, the shoes will be released in reverse order and will swing away from the wheels.

65 The adjusting-screws *f'* may be operated

at any time, so as to draw the beam-levers F near to the beams E, and thus regulate the swing of the shoes and compensate for any wear thereof.

I hereby reserve the right to make such other and further claims as shall be or become necessary to fully protect any and all the novel features hereinbefore sufficiently shown and described, and not fully and completely secured to me by the claims hereinafter set forth.

Having thus described the nature and advantages of my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a locomotive-brake, the combination, with the locomotive-frame, of a face-plate secured thereto and provided with a boss or projection for suspending the brake-shoe, and a brake-shoe pivoted directly on the boss or projection of the face-plate, substantially as and for the purposes specified.

2. In a locomotive or like brake, the combination, with the brake-beam, of a beam-lever coupled to the brake-beam by a yoke provided with a screw for adjusting the distance between the brake-beam and brake-lever, substantially as and for the purposes set forth.

3. The brake-shoe having the deep longitudinal groove in the face which bears on the tread of the wheel, and the longitudinal web upon its back corresponding with the groove of the bearing-surface, substantially as and for the purposes specified.

4. In a locomotive-brake, the combination, with the brake-shoe of opposite sides, of a transverse brake-beam having two beam-levers, one arranged near each end of the brake-beam and connected thereto by an adjustable yoke, and two pull-rods, one connected to each of said beam-levers, substantially as and for the purposes specified.

5. In a locomotive or like brake, the combination of two transverse brake-beams, two beam-levers connected to one of said brake-beams near its extremities, two pull-rods—one for each beam-lever—and two tie-rods which connect the two beam-levers with the opposite brake-beam, substantially as and for the purposes specified.

6. The twin cylinder provided with its two pistons, in combination with the two cross or floating levers pivotally secured to the cylinder, substantially as and for the purposes specified.

7. The twin cylinder provided with its two pistons, in combination with two cross or floating levers, each of said levers fulcrumed on the cylinder by means of an intermediate link pivoted on the cylinder, substantially as and for the purposes specified.

In testimony whereof I affix my signature, in presence of two witnesses, this 11th day of December, 1883.

GEORGE H. POOR.

Witnesses:

ALBERT BLAIR,
E. B. LEIGH.