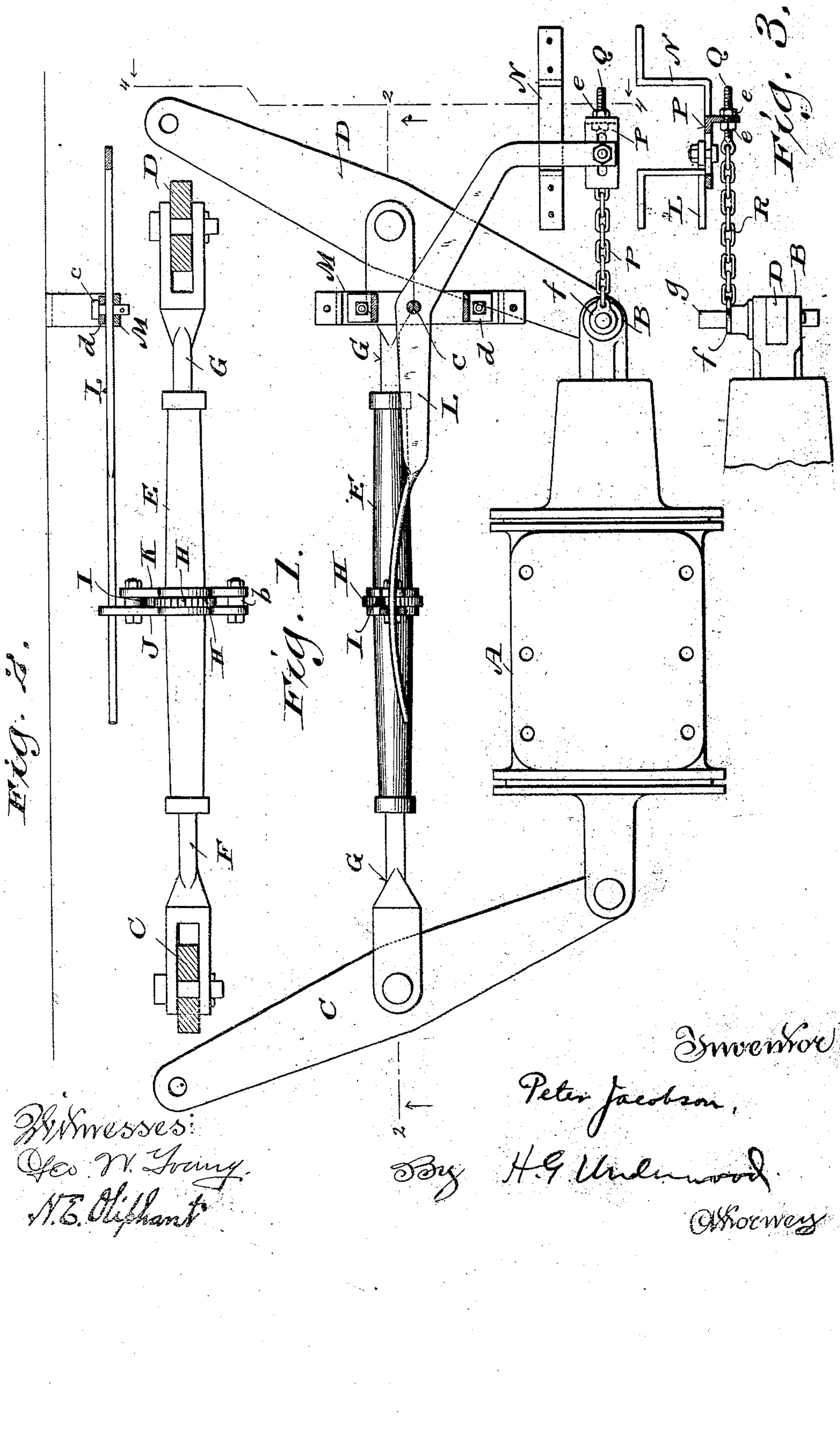
No. 735,981. PATENTED AUG. 11, 1903.

P. JACOBSON.

RAILWAY AIR BRAKE.

APPLICATION FILED MAY 18, 1903.

NO MODEL. 2 SHEETS—SHEET 1.



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NO MODEL. 2 SHEETS—SHEET 2.

Fig. 6.

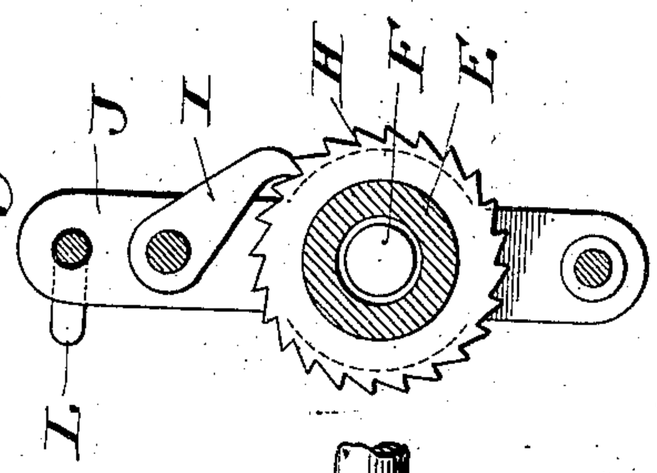


Fig. 7.

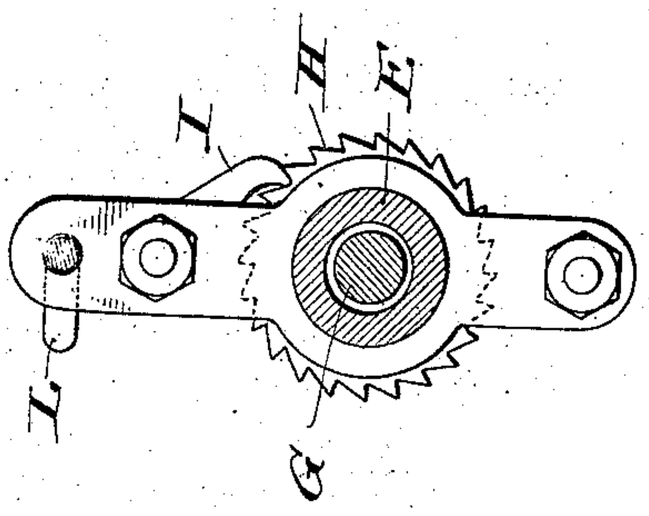


Fig. 5.

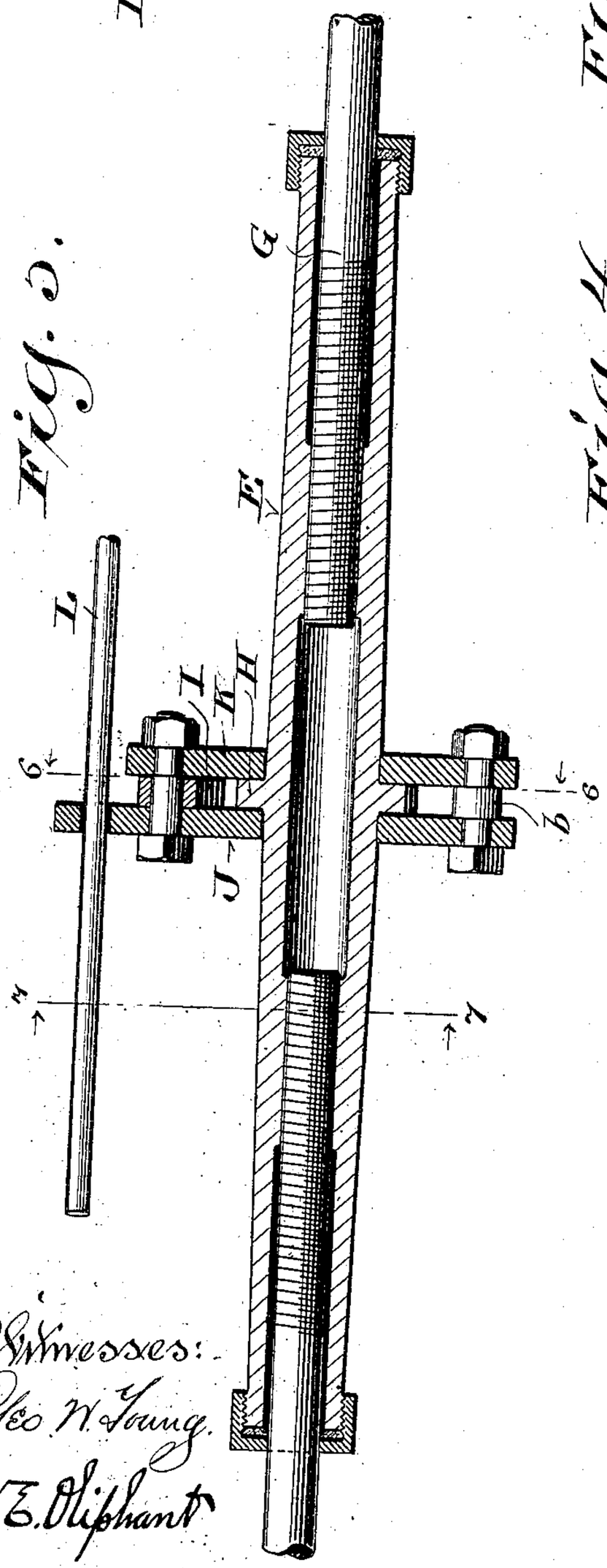
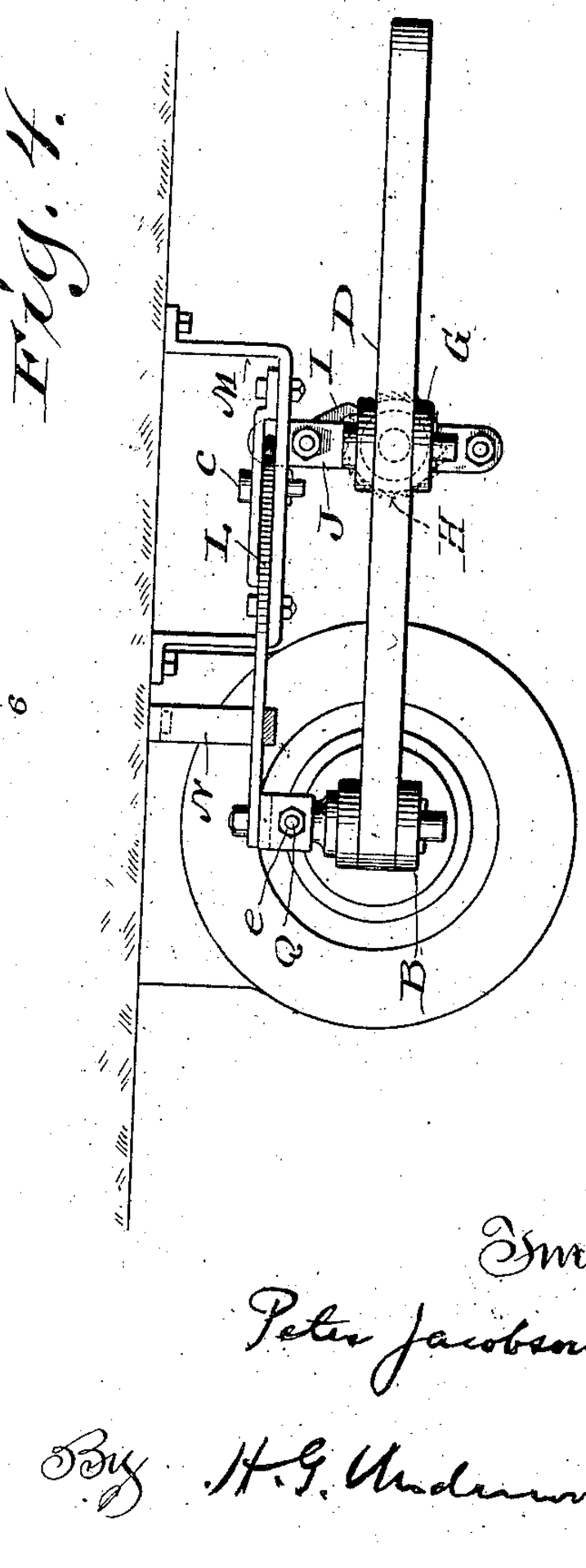


Fig. 4.



Witnesses:
Geo. W. Young.
H. E. Oliphant

Inventor
Peter Jacobson,
By H. G. Underwood
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No. 735,981. Patented August 11, 1903.

UNITED STATES PATENT OFFICE.

PETER JACOBSON, OF MILWAUKEE, WISCONSIN.

RAILWAY AIR-BRAKE.

SPECIFICATION forming part of Letters Patent No. 735,981, dated August 11, 1903.

Application filed May 18, 1903. Serial No. 157,514. (No model.)

To all whom it may concern:

Be it known that I, PETER JACOBSON, a citizen of the United States, and a resident of Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Railway Air-Brakes; and I do hereby declare that the following is a full, clear, and exact description thereof.

My invention consists in certain peculiarities of construction and combination of parts hereinafter particularly set forth with reference to the accompanying drawings and subsequently claimed, the object of said invention being to provide simple, economical, and efficient automatic slack-adjusters for air-brakes of railway-cars.

Figure 1 represents a plan view of air-brake mechanism, partly in horizontal section and organized in accordance with my invention for automatic slack adjustment; Fig. 2, a partly-sectional view of a portion of the mechanism, this view being indicated by line 2 2 in the first figure; Fig. 3, an elevation of a detail of the mechanism, partly in section; Fig. 4, a view indicated by line 4 4 in said first figure; Fig. 5, a sectional view of an automatic take-up-lever coupling that constitutes a detail of the mechanism, and Figs. 6 and 7 partly-sectional views that are respectively indicated by lines 6 6 and 7 7 in the fifth figure.

Referring by letter to the drawings, A indicates a railway air-brake cylinder, B the cross-head of the piston that plays in the cylinder, and C D the connected brake-rods that are respectively in pivotal connection with said cylinder and cross-head.

Substituted for the usual tie-rod connecting the levers C D is a turnbuckle comprising a sleeve E, having interior right and left screw-threads engaged by corresponding threads of stems F G, in pivotal connection with said levers, and to exclude moisture and dirt the ends of said sleeves are stuffing-boxes. Integral with the sleeve or fast thereon, midway of its length, is a ratchet-wheel H, engaged by a pawl I, in pivotal suspension in a rocker comprising a pair of plates J K, loose on said sleeve and connected by upper and lower bolts. The upper bolt is the pawl-pivot, and a spacer *b* is arranged on the lower bolt between the plates.

Loose in an eye in an upwardly-extending portion of the rocker-plate J is the curved and rounded end of an otherwise angular lever L, fulcrumed on a pivot *c* between a suspended bracket M and an angular strap *d*, that is bolted on the bracket. The other end of the lever L has play in a suspended bracket N and is bolted to a right-angle plate P, that is longitudinally slotted to be adjustable on the connecting-bolt. Adjustably held in the offset end of the plate P by set-nuts *e*, opposing opposite sides of this end of the plate, is a screw-pin Q, having a head in connection with a chain R, an end link *f* of which is fitted on an extension of the pivot-pin *g*, that couples the brake-rod lever D with the piston cross-head B, the aforesaid plate being in the path of said pin.

In practice the adjustment of the plate P and pin Q determines the initial play of the piston in cylinder A, the adjustment being such that said plate will not be affected by the pivot-pin or striker *g* until there is wear of brake-shoes due to running application of the brake. There being wear of the brake-shoes, outward movement of the brake-piston results in an impact of the pivot-pin or striker *g* against the plate P and a swing of the lever L, whereby when there is sufficient wear of said shoes the rocker aforesaid is moved far enough to cause the pawl I to slip back in another notch of the ratchet-wheel H, that is rigid with the sleeve E aforesaid. As a result of this operation there will be rotary movement of said sleeve when the piston and lever L return to normal position on release of the brake, whereby the connection between the levers C D is shortened to compensate for the slack that results from the wear of brake-shoes. This automatic compensation for brake-shoe wear takes place from time to time as the frequency of running application of the brake mechanism may necessitate. Hence predetermined piston play in the brake-cylinder is always approximately the same, the variation at any time being too slight to affect the efficiency of said brake mechanism.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A railway-car air-brake mechanism comprising stems in pivotal connection with brake-rod levers, a sleeve having stuffing-box ends and right and left screw-thread connection with the stems, a ratchet-wheel rigid on the sleeve, a rocker loose on said sleeve, a pawl carried by the rocker and engaged with the ratchet-wheel, a lever in connection with said rocker, and a flexible connection between the rocker-lever and piston cross-head of said mechanism, said rocker-lever being arranged to be actuated by said cross-head or a striker therewith when the brake-piston has greater than predetermined outer stroke.

2. A railway-car air-brake mechanism comprising stems in pivotal connection with brake-rod levers, a sleeve having stuffing-box ends and right and left screw-thread connection with the stems, a ratchet-wheel rigid on the sleeve, a rocker loose on said sleeve, a pawl carried by the rocker and engaged with the ratchet-wheel, a lever in connection with said rocker, an angle-plate having adjustable union with the rocker-lever in the outward path of the piston cross-head of said mechanism or a striker therewith, and an adjustable flexible connection between said plate and cross-head.

3. A railway-car air-brake mechanism comprising stems in pivotal connection with brake-rod levers, a sleeve having stuffing-box ends and right and left screw-thread connection with the stems, a ratchet-wheel rigid on the sleeve, a rocker loose on said sleeve, a pawl carried by the rocker and engaged with the ratchet-wheel, a lever in connection with said rocker, a right-angle plate having a longitudinal slot engaged by a bolt in connection with the rocker-lever, this plate being in the outward path of the piston cross-head of said mechanism or a striker therewith, a chain in connection with said cross-head, a screw-threaded pin with the chain engaging the offset end of said plate, and nuts run on the pin to hold the same in adjusted position.

4. A railway-car air-brake mechanism comprising a turnbuckle-coupling between brake-rod levers, a ratchet-wheel in rigid connection with the turnbuckle, a rocker loose on said turnbuckle, a pawl carried by the rocker and engaged with the ratchet-wheel, an angular lever having a curved end loose in a rocker-eye, and a flexible connection between the other end of the rocker-lever and the piston cross-head of said mechanism, said rocker-lever being arranged to be actuated by said cross-head or a striker therewith when the brake-piston has greater than predetermined outer stroke.

5. A railway-car air-brake mechanism comprising a turnbuckle-coupling between brake-rod levers, a ratchet-wheel in rigid connection with the turnbuckle, a rocker loose on said turnbuckle, a pawl carried by the rocker and engaged with the ratchet-wheel, an angular lever having a curved end loose in a rocker-eye, a right-angle plate in connection with the other end of the rocker-lever, in the outward path of an extension of the pivot-pin connecting the piston cross-head of said mechanism with one of said brake-rod levers, and means by which the offset end of said plate and pivot-pin are put in adjustable flexible connection.

In testimony that I claim the foregoing I have hereunto set my hand, at Milwaukee, in the county of Milwaukee and State of Wisconsin, in the presence of two witnesses.

PETER JACOBSON.

Witnesses:
N. E. OLIPHANT,
E. W. HELLER.