

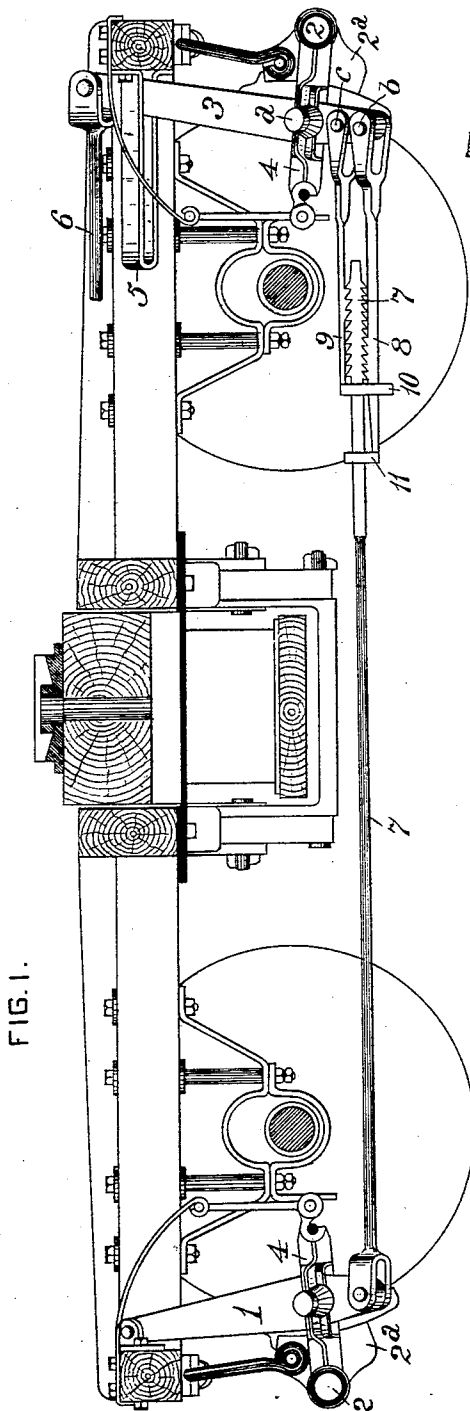
(No Model.)

3 Sheets—Sheet 1.

D. C. O'KAIN.
SLACK ADJUSTER FOR BRAKE RIGGING.

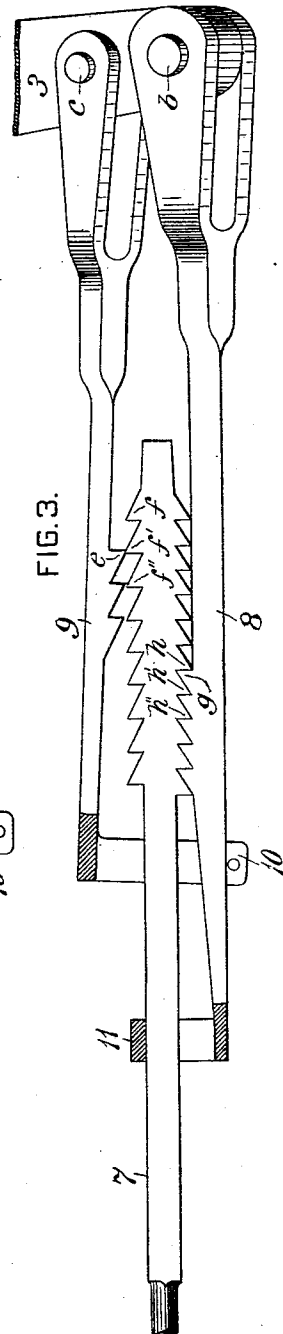
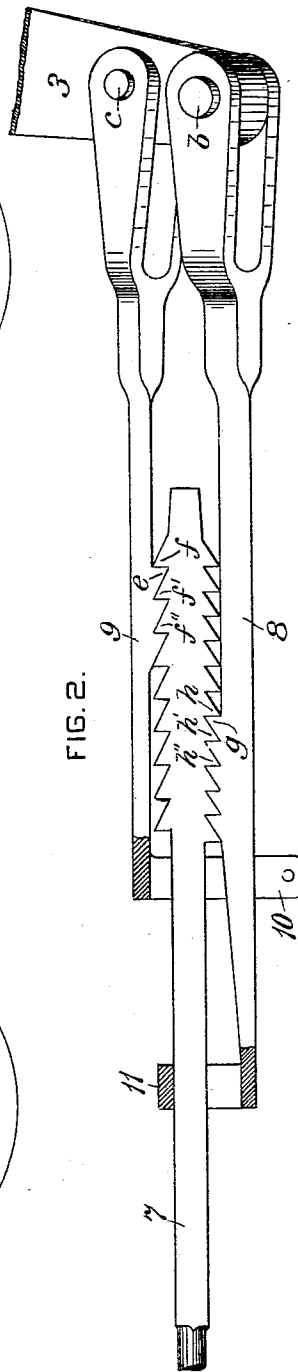
No. 573,613.

Patented Dec. 22, 1896.



WITNESSES:

Chas. F. Miller
J. E. Gaither



INVENTOR,

Domenec C. O'Kain
by Dennis S. Wolcott

Att'y.

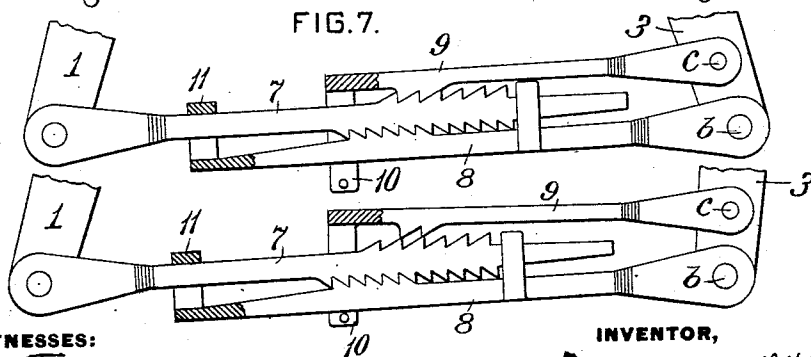
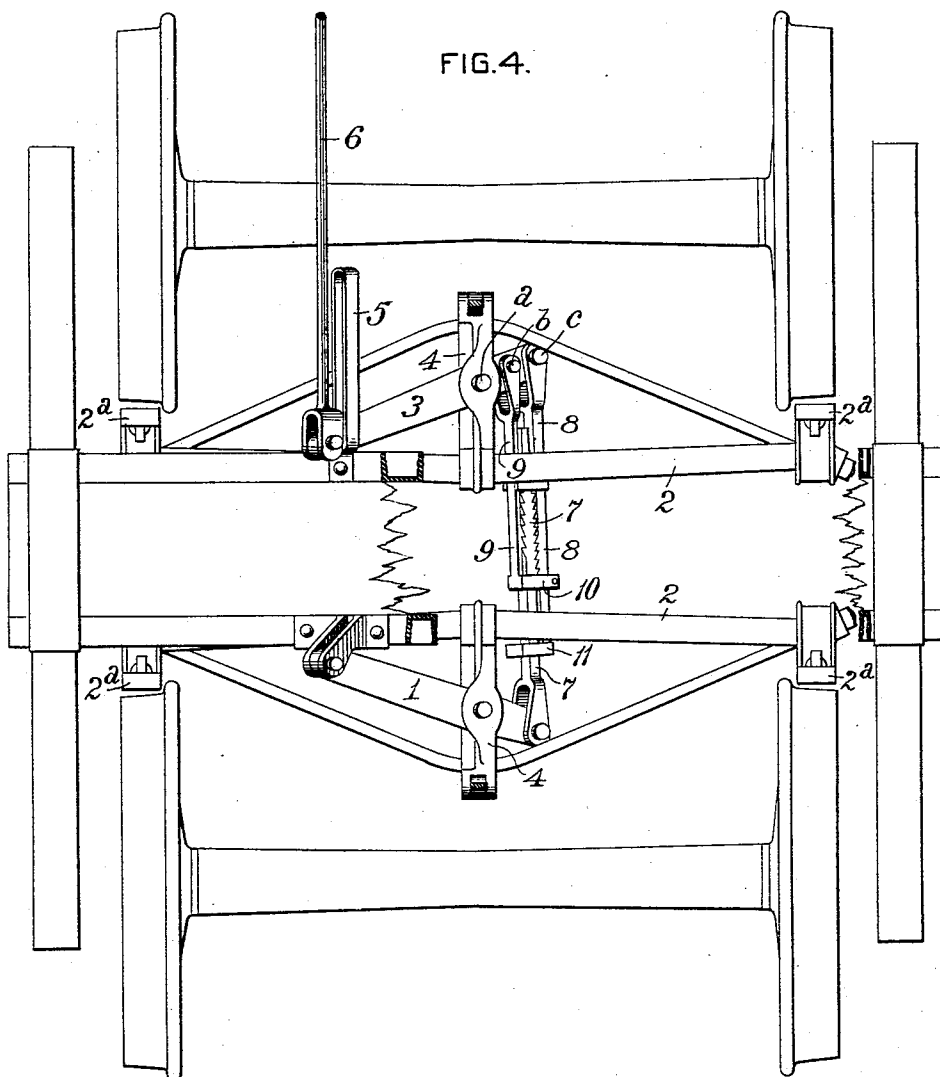
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FIG. 5.

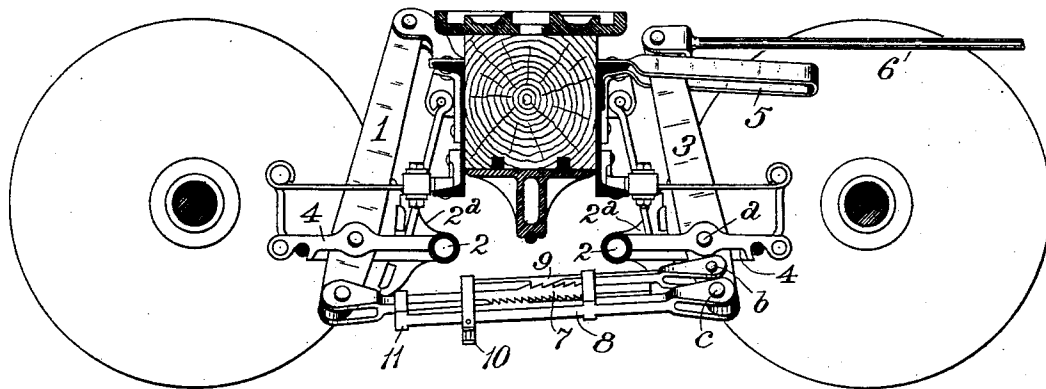
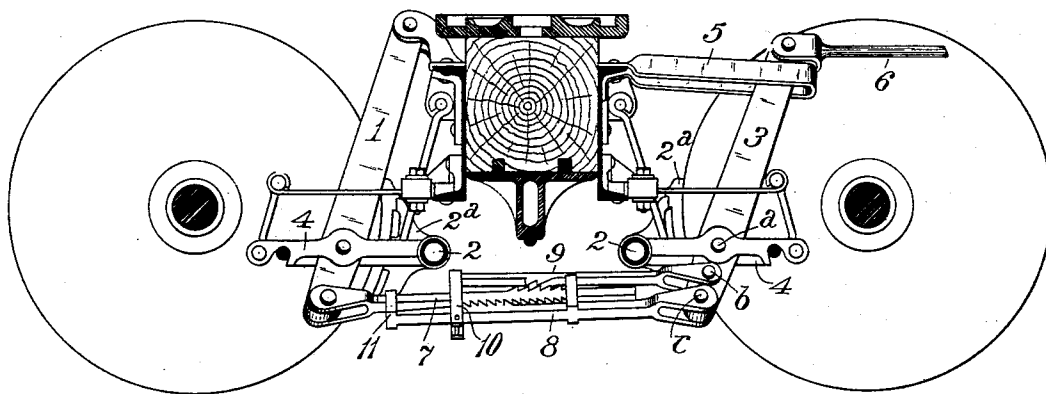


FIG. 6.



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UNITED STATES PATENT OFFICE.

DOMENEC C. O'KAIN, OF WILKINSBURG, PENNSYLVANIA, ASSIGNOR TO
EDWARD H. GOODMAN, OF PITTSBURG, PENNSYLVANIA.

SLACK-ADJUSTER FOR BRAKE-RIGGING.

SPECIFICATION forming part of Letters Patent No. 573,613, dated December 22, 1896.

Application filed June 30, 1896. Serial No. 597,566. (No model.)

To all whom it may concern:

Be it known that I, DOMENEC C. O'KAIN, a citizen of the United States, residing at Wilkinsburg, in the county of Allegheny and State of Pennsylvania, have invented or discovered certain new and useful Improvements in Slack-Adjusters for Brake-Rigging, of which improvements the following is a specification.

10 The invention described herein relates to certain improvements in that kind or class of appliances used in connection with car-brake mechanism for taking up the wear of the brake-shoes and the wear and stretch of the
15 brake-operating mechanism. It has heretofore been generally customary in this class of mechanism, which are known in the art as "slack-adjusters," to effect the desired adjustment by shifting the fulcrum of the dead-lever or the connections of the brake shoes or
20 levers with the brake-beam.

It is the object of the present invention to provide for the adjustment of the length of the lower brake-rod connecting the lower ends
25 of the live and dead brake-levers, such adjustment being effected automatically as required on the wear of the shoes or the wear and stretch of other parts of the brake-rigging.

30 In general terms the invention consists in the construction and combination substantially as hereinafter more fully described and claimed.

In the accompanying drawings, forming a
35 part of this specification, Figure 1 is a sectional elevation of a truck having outside brakes with my improvement applied to the operating mechanism of such brakes. Figs.
40 2 and 3 are enlarged detail views showing the different positions of the slack-adjuster with the shoes applied and loosened, respectively. Fig. 4 is a top plan view of a truck having my improvement applied thereto in connection with inside brake-shoes. Figs. 5 and 6
45 are sectional elevations of the construction shown in Fig. 4, showing the positions of the brake-rigging and slack-adjuster with the brakes applied and loosened, respectively. Figs. 7 and 8 are detail views, on an enlarged
50 scale, of the slack-adjuster as shown in Figs. 5 and 6.

In the practice of my invention in connection with outside brake-shoes the dead-lever 1 is pivotally supported on one of the sills of the truck, and is pivotally connected at a suitable distance from its lower end to the brake-
55 beam 2 by a pin *a*, and the brake-shoes 2^a are attached to the beam in any suitable manner. In the construction shown a trussed brake-beam is employed, and pivotal connection
60 with the dead-lever is formed by a pin passing through the strut between the beam proper and the truck. The live-lever 3 is also pivotally connected to the brake-beam at the opposite end of the truck, a short distance above
65 the lower end of such lever, while the upper end of the lever projects up through the guide 5, attached, as shown, to one of the sills of the truck. The upper end of this live-lever 3 is pivotally connected to the upper brake-
70 rod 6. The lower end of one of the levers, as, for example, the dead-lever 1, has connected to it one member 7 of the lower brake-rod. The opposite end of this rod or member
75 7 is provided on opposite sides with a series of comparatively long teeth, adapted to engage corresponding teeth on the inner sides of the members 8 and 9 of the lower brake-rod. The outer ends of these members 8 and
80 9 are pivotally connected one above the other to the lower end of the other or live brake-lever 3. The rod or member 9 is provided at its inner end with a strap or loop 10, through which the rods or members 7 and 8 pass, and
85 by which they are held in proper relation to the rod or member 9. The rod or member 8 is also provided with a strap or loop 11, through which passes the rod or member 7, and by which the members 7 and 8 are held in proper
90 relationship to each other. The loop 11 is made of sufficient length to permit of such a separation of the bars 7 and 8 as to allow the teeth on said members to slide one over the other, and the loop 10 is made of such a length
95 as to permit of the disengagement of the teeth on members 8 and 9 from those on the member 7, but not both at the same time. The teeth on the members 7, 8, and 9 of the lower brake-rod are made of a length slightly greater
100 than the sum of the distances which it is desired that the brake-shoes shall normally hang away from the treads of the wheels.

When the live-lever 3 is shifted to apply the brakes, both members 8 and 9 of the lower brake-rod will exert a pull at the initial movement on the member 7, but as the lever 3 turns on its pivotal point or fulcrum *a* the point of connection *b* of the member 8 with the lever will move faster than the point of connection *c* of the member 9 with the live-lever. It results from this difference of movement of the members 8 and 9 with reference to the member 7 that the teeth on the members 9 and 7 will slide over each other, and if the distance between the brake-shoes and the treads of the wheel is greater than that desired the teeth on the member 7, which will move at the same rate as the member 8, will advance the distance of one or more teeth along the member 9, or, in other words, if the tooth *e* on the member 9 is in engagement with the tooth *f* of member 7 at the beginning of the application of the brake, and the distance which the brake-shoes travel during such application is greater than the length of the tooth *f*', it will be found when the brakes are applied that the tooth *e* is in engagement with the tooth *f'* or *f''*, dependent upon the amount of slack to be taken up. During the application of the brakes the tooth *g* on member 7, but when the brakes are released under conditions above supposed the tooth *g* on the member 8, which travels back a greater distance than the member 9, will move along the member 7 the distance of one or more teeth, and when the brakes are fully released the tooth *g* will be in engagement with the tooth *h'* or *h''*. It will be observed that during the release the return or backward movement of the members is limited by the member 9, which has a smaller range of movement than the member 8. It results from this adjustment of the member 8 along the member 7 that at the next application of the brakes the brake-shoes will have a shorter traverse.

In Figs. 4 to 8, inclusive, I have shown the application of my improvement to a brake-rigging where inside brake-shoes are employed and where the members of the slack-adjuster exert a push upon the brake-levers.

In such an arrangement of brake-rigging the teeth on the members 7, 8, and 9 of the lower brake-rod are reversed, so that when the live-

lever 3 is shifted by the brake-rod 6 the lower end of such lever will exert a push on the member 9, which in turn pushes the member 7 in the same direction, so as to correspondingly shift the dead-lever 1. The operation of taking up the slack is the same in the case of an inside brake-rigging as that hereinbefore described in connection with the outside brake-rigging.

It is characteristic of my improvement that the weight of the several parts and the manner of their connection by means of the loops 10 and 11 will tend to hold the teeth of the several members in engagement with each other, and that in effecting an adjustment in the manner hereinbefore stated, on releasing the brakes, the only resistance presented is that due to the friction caused in one instance by the weight of the member 9 and in the other by the weight of the members 9 and 7.

After the slack has once been properly adjusted the traverse of the members 9 and 7 on each other will be less than the length of the teeth until by the wear of the shoes or stretch of the parts of the brake-rigging the distance which the shoes drop away on release becomes greater than the length of the teeth. When this occurs, the next application of the brakes will effect an automatic adjustment and bring the brake-shoes into proper relation with the wheels.

I claim herein as my invention—

In a slack-adjuster for brake-rigging, the combination of live and dead levers, a rod or member pivotally connected to one of said levers and provided with teeth on its upper and lower sides at or near its free end, the teeth of one side having a length slightly greater than the normal distance of the brake-shoes from the wheels and two rods or members provided with teeth corresponding in length and adapted to engage the teeth on the other rod or member and so pivoted to the other lever as to have different ranges of movement when shifted by their lever, substantially as set forth.

In testimony whereof I have hereunto set my hand.

DOMENEC C. O'KAIN.

Witnesses:

DARWIN S. WOLCOTT,
M. S. MURPHY.