

(No Model.)

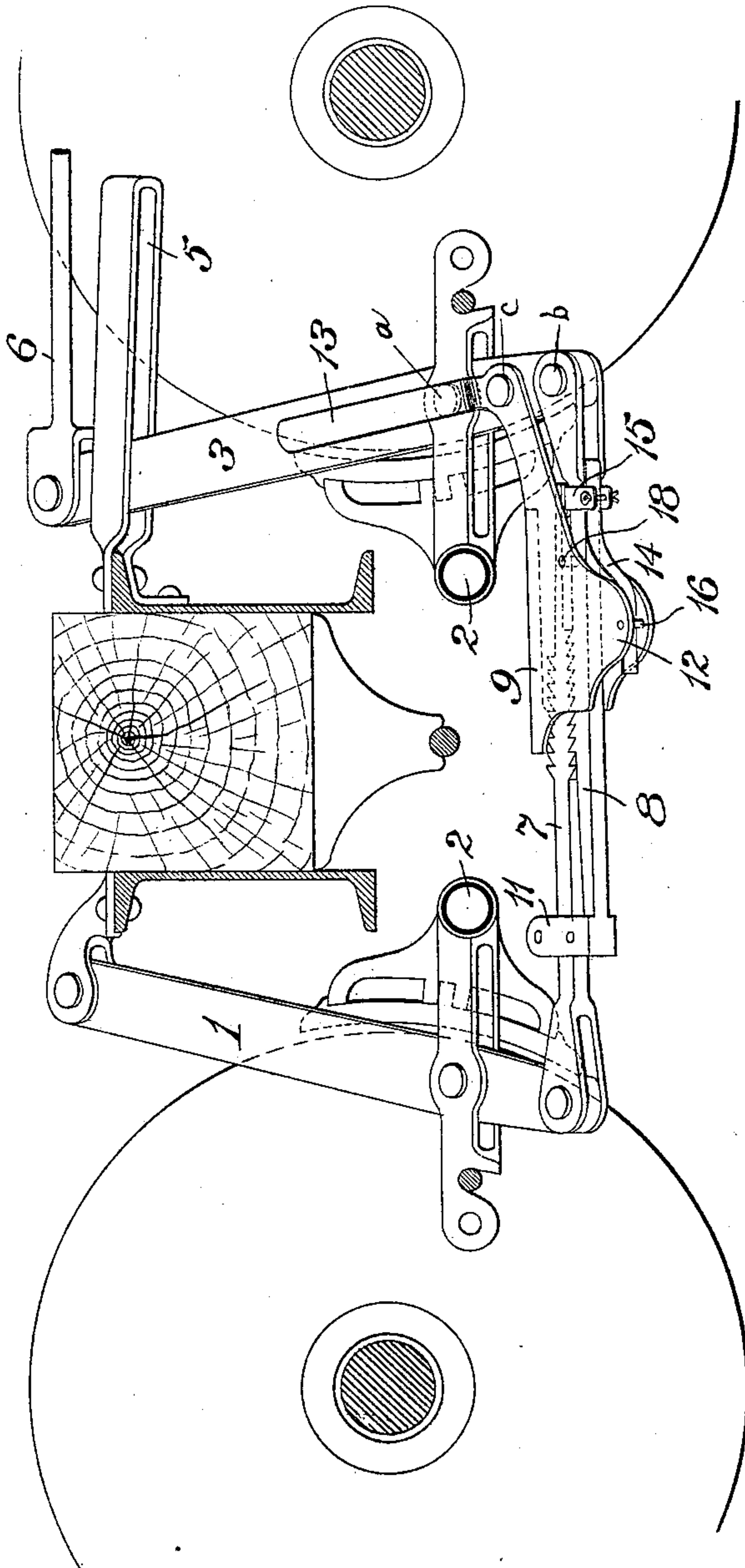
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D. C. O'KAIN.  
SLACK ADJUSTER FOR BRAKE RIGGING.

No. 594,421.

Patented Nov. 30, 1897.

FIG. 1.



WITNESSES:

*Chas. F. Miller.*  
*J. E. Gaither*

INVENTOR,

*Domene C. O'Kain*  
*by Danvers B. Wolcott*

Att'y.

(No Model.)

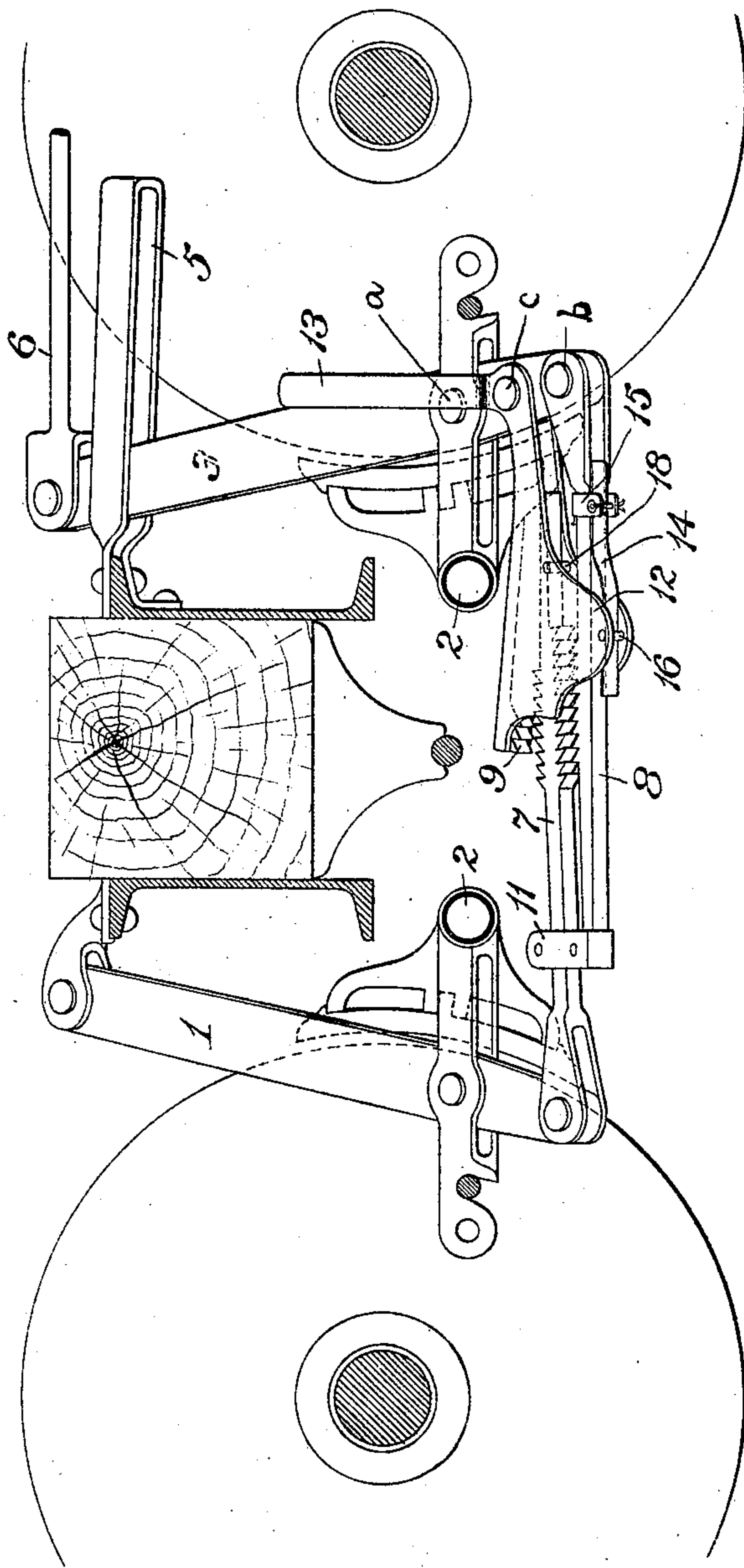
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D. C. O'KAIN.  
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No. 594,421.

Patented Nov. 30, 1897.

FIG. 2.



WITNESSES:

*Chas. F. Miller.*  
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3 Sheets—Sheet 3.

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FIG. 4.

This diagram shows a side view of a mechanical assembly. A lever arm (1) is pivoted at a point (17). It is connected to a vertical member (13) via a linkage system consisting of several components: a curved member (9), a horizontal member (10), a vertical member (11), a horizontal member (12), a vertical member (13), a horizontal member (14), a vertical member (15), a horizontal member (16), and a vertical member (18). A spring (8) is connected to the lever arm (1) and the horizontal member (12). A pin (15) is shown at the bottom of the vertical member (13).

Chas. F. Miller.  
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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. 594,421, dated November 30, 1897.

Application filed February 5, 1897. Serial No. 622,097. (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 slack-adjusters for car-brakes, especial reference being had to that class or kind described and claimed in Letters Patent No. 573,613, dated December 22, 1896.

15 The object of the invention is to provide for the disengagement of the parts or members of the adjusters, so as to permit the shoes to drop away from the wheels without dismantling or removing any of the parts of the mechanism.

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

25 In the accompanying drawings, forming a part of this specification, Figure 1 is a sectional elevation of a truck having a brake-rigging embodying my improvements applied thereto, the parts or members of the slack-adjuster being shown in normal or engaged position. Fig. 2 is a similar view showing the members of the slack-adjuster in released or separated position. Figs. 3 and 4 are elevations showing the slack-adjusting mechanism on an enlarged scale in normal and released positions, respectively.

30 While my improvement is readily applicable to other forms or constructions of slack-adjusting mechanism, I have shown it in connection with the mechanism described and claimed in Letters Patent No. 573,613, before referred to. This mechanism consists of a rod or bar 7, having one end pivotally connected to the lower end of the dead-lever 1, which in turn is pivotally supported by the frame of the truck. The opposite end of the bar or rod 7 is provided on opposite sides with series of teeth adapted to engage with teeth on the inner sides of other members 8 and 9 of the lower brake-rod. The outer ends of the mem-

bers 8 and 9 are pivotally connected one above the other to the lower end of the live brake-lever 3. The levers 1 and 3 are pivotally connected near their lower ends to the brake-beams 2, which may be of any suitable construction. When a trussed beam is employed, the levers pass through slots in the struts and are connected thereto by pins passing through the struts. The upper end of the live-lever passes through a guide 5, secured to the truck-frame, and is connected to the upper brake-rod 6.

35 The member 9 of the lower brake-rod has wings 12 formed thereon in such manner that they will extend down alongside of the other rods or members 7 and 8 of the lower brake-rod. The members of the lower brake-rod are held in operative relation to each other, but with a freedom of separation, during the operation of applying the brakes or when the releasing mechanism is operated by a spring 14, having one end secured to the member 8 by a clip 15 or other suitable means, while the opposite end bears upon a pin 16, passing through the wings 12 below the member 8. In order to relieve the spring of the strain incident to holding the members 7 and 8 in proper relation to each other, it is preferred to connect said members by a loop 11 on the member 8 passing around the rod or member 7. In order to reduce the friction incident to the movement of the loop 11 on the rod 7, the closed end of the loop is formed by an anti-friction-roller 17. The teeth on the members 7, 8, and 9 are made of a length slightly greater than the sum of the distances which it is desired that the brake-shoes shall normally hang away from the treads of the wheels.

40 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 is in engagement with tooth *h* on member 8; 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.

When it is desired to replace worn shoes, the rods or members 8 and 9 must be moved away from the rod 7, so as to effect a disengagement of the teeth, thereby permitting the brake-beams with the worn shoes to swing or be forced away from the wheels. In order to prevent the removal of any part of the adjusting mechanism for this purpose, a handle or lever 13 is attached to the member 9 in such manner that by a shifting of the lever the member 9 will be raised to disengage its teeth from those of the rod 7. The shifting of the lever 13 effects a similar but shorter upward movement of the rod 7 to disengage its teeth from those of the rod 8. Connection between the lever 13 and rod 7 is preferably formed by the member 9, its wings 12, and a pin 18, passing through the wings below the rod 7. The shifting of the lever 13 and the consequent movements of the members 8 and 9 compress the spring 14, which, as soon as

the handle or lever 13 is released, will force the several members of the brake-rod together, so as to permit the several series of teeth to engage.

This construction affords an easy means for quickly separating the members of the slack-adjuster and avoids the dismantling of any of its parts.

I claim herein as my invention—

1. In a slack-adjuster for brake-rigging, the combination of brake-beams, shoes carried by said beams, means for automatically adjusting the shoes toward the wheels, and means for effecting a separation of the engaging parts of the adjusting mechanism to permit the shoes to drop away from the wheels, substantially as set forth.

2. In a slack-adjuster for brake-rigging, the combination of the live and dead levers of such rigging, an automatically-operating mechanism for adjusting the position of the levers with relation to the wheels, and means for effecting a separation of the engaging parts of the adjusting mechanism to permit the levers to drop away from the wheels, substantially as set forth.

3. In a slack-adjuster for brake-rigging, the combination of the live and dead levers of such rigging, an automatically-adjustable connection between said levers, and means for effecting a separation of the engaging parts of such connection to permit the levers to drop away from the wheels, substantially as set forth.

4. In a slack-adjuster for brake-rigging, the combination of the live and dead levers of such rigging, a connection between said levers consisting of three parts or members, one part or member connected to one lever and the other parts or members so connected to the other lever as to have a different range of movement when the lever is shifted and constructed to alternately engage the third member, and means for effecting the separation of both members simultaneously from the third member, substantially as set forth.

In testimony whereof I have hereunto set my hand.

DOMENEC C. O'KAIN.

Witnesses;

DARWIN S. WOLCOTT,  
M. S. MURPHY.