

No. 850,202.

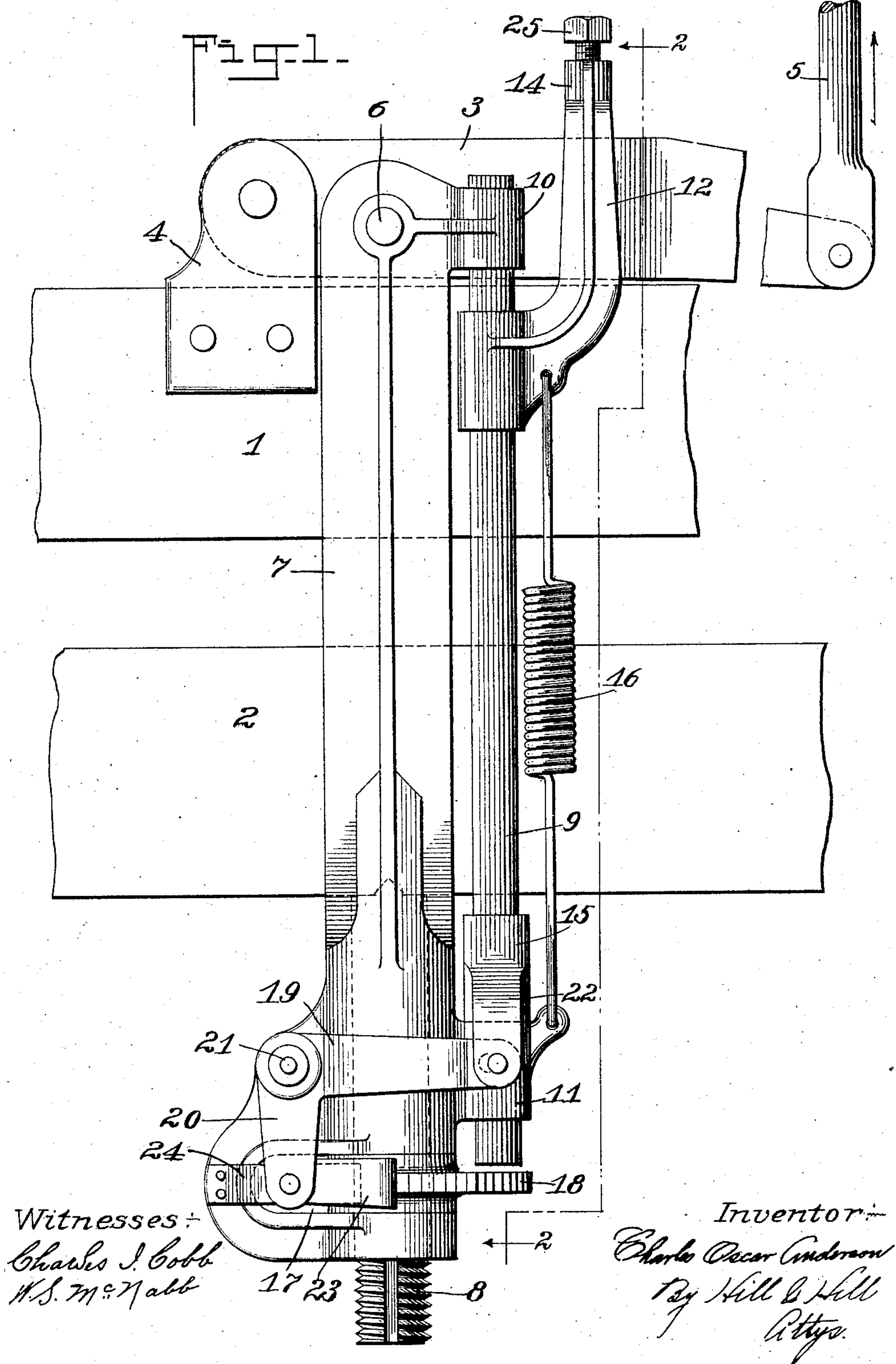
PATENTED APR. 16, 1907.

C. O. ANDERSON.

SLACK ADJUSTER.

APPLICATION FILED JUNE 7, 1906.

4 SHEETS--SHEET 1.

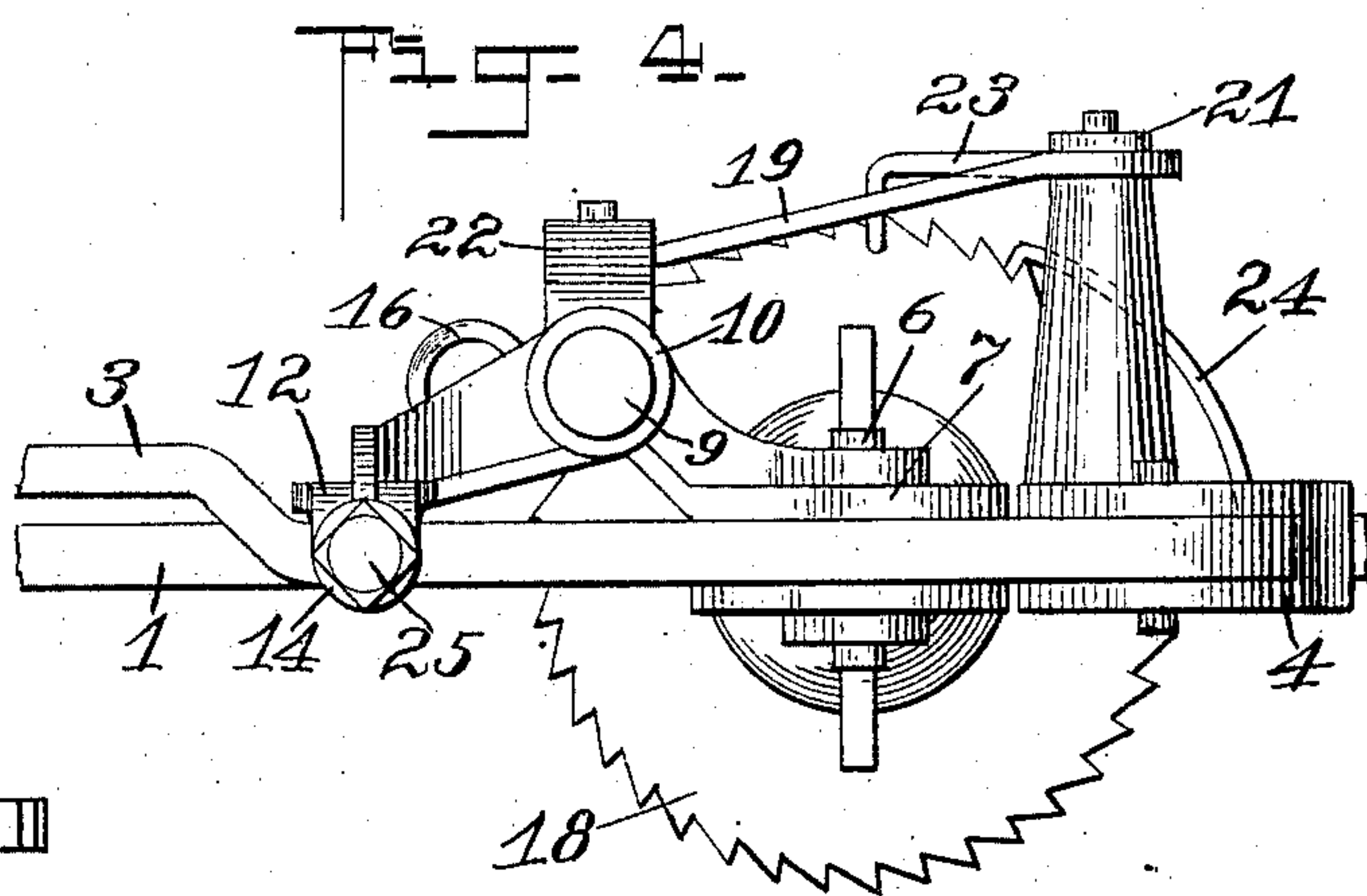
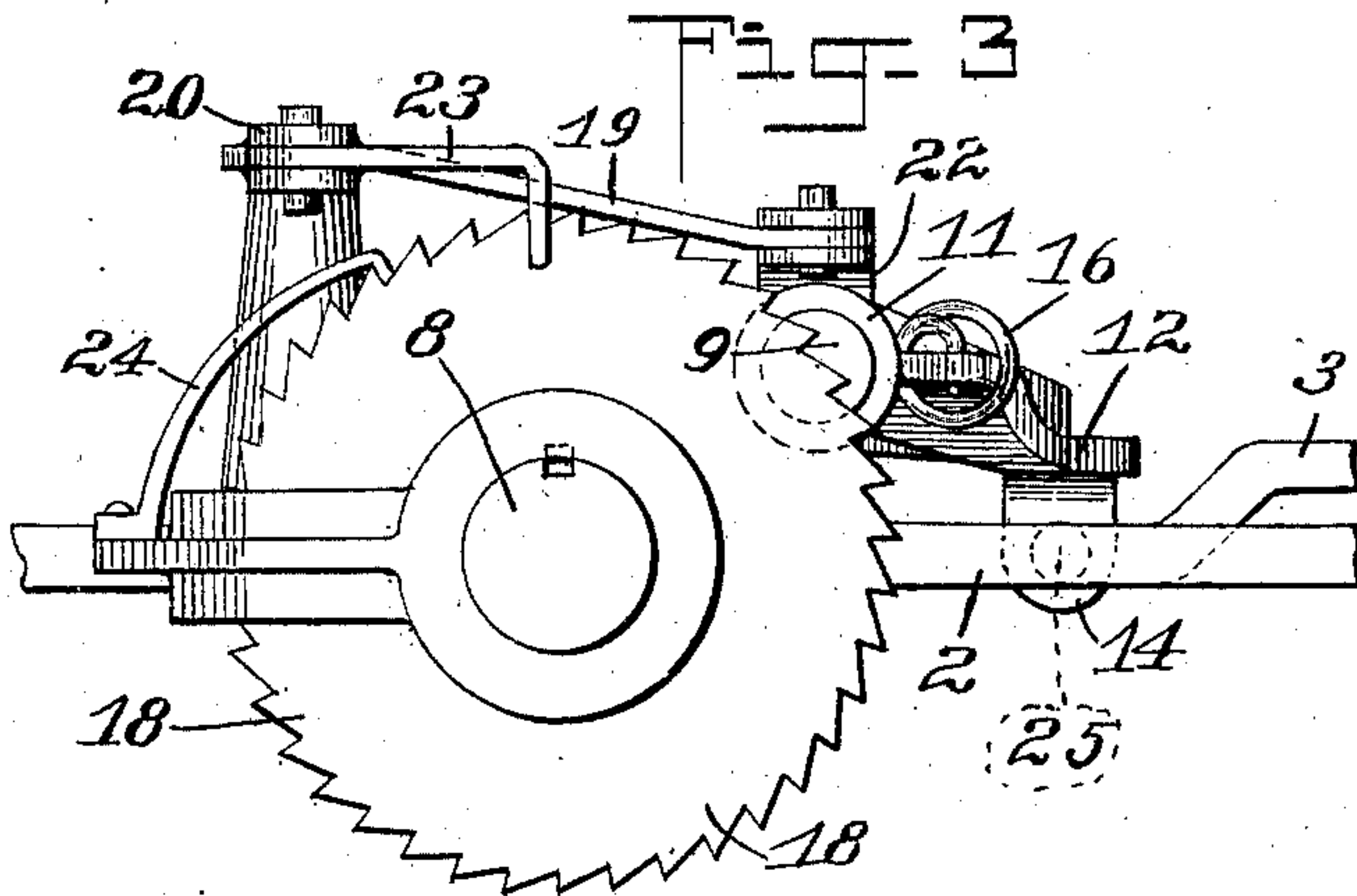
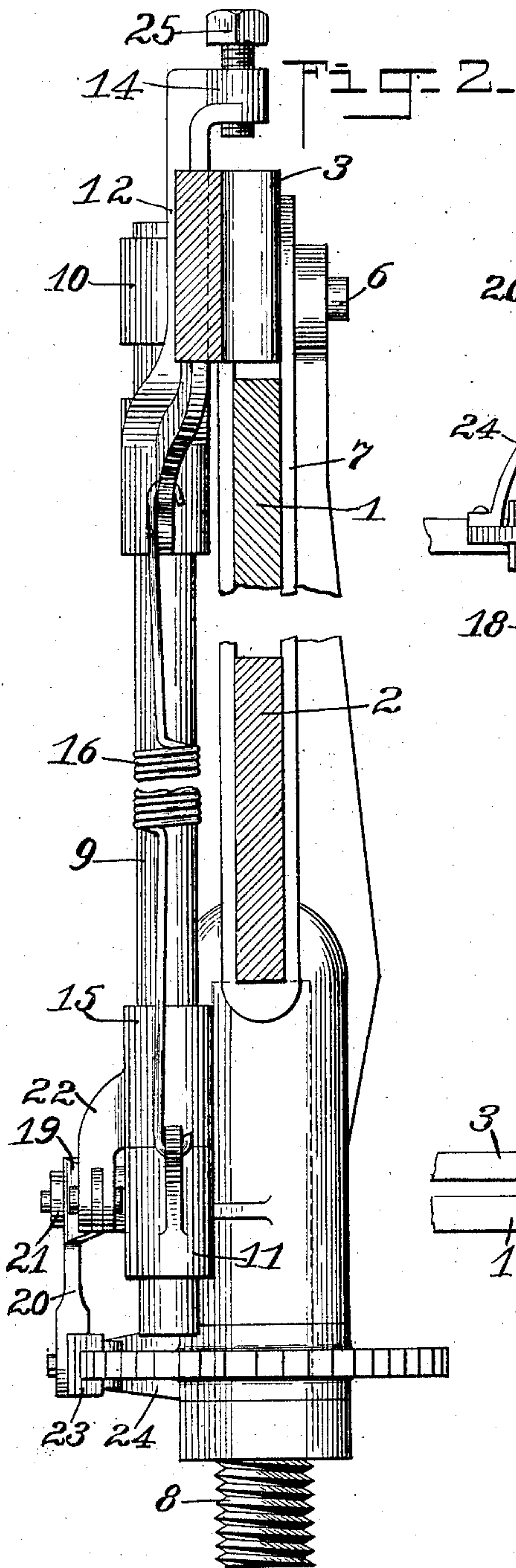


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4 SHEETS—SHEET 2.



Witnesses:
Charles J. Cobb
W. S. M. Nabb

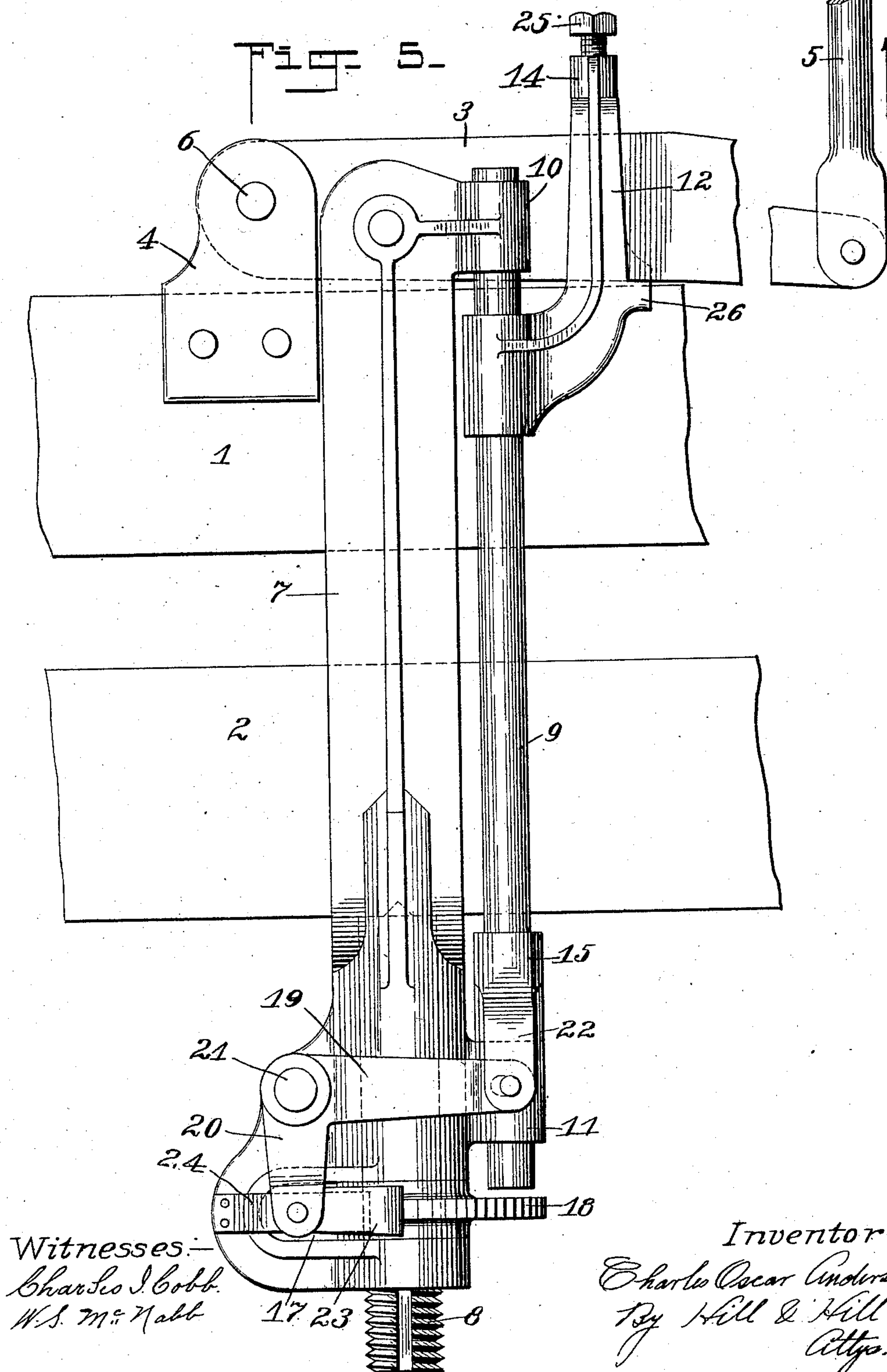
Inventor:
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4. SHEETS—SHEET 3.



Witnesses:—
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W. S. M^c Nabbe

Inventor:-
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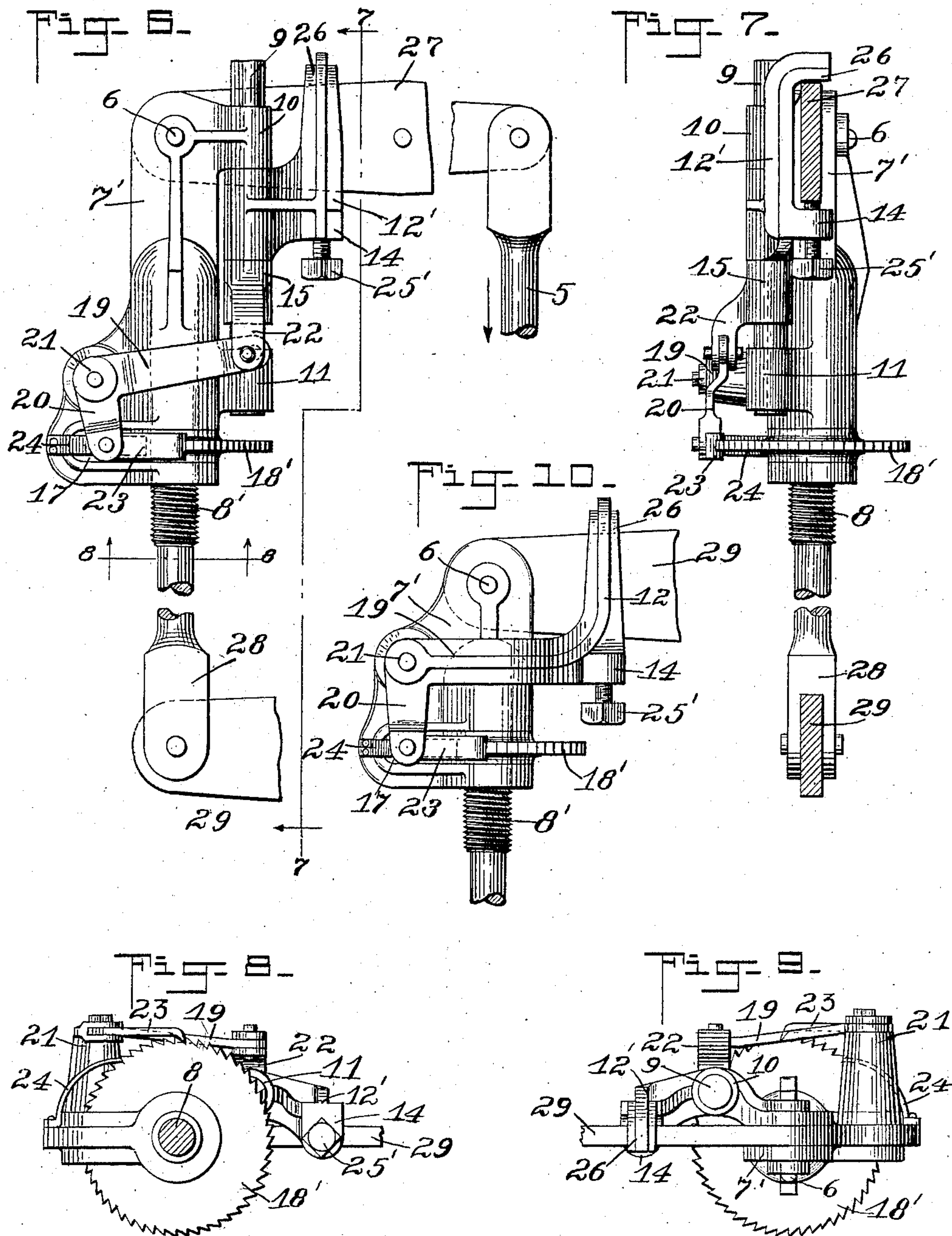
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4 SHEETS—SHEET 4.



Witnesses:-
Charles J. Cobb
W.S. McAbb

Inventor:-
Charles Oscar Anderson
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UNITED STATES PATENT OFFICE.

CHARLES O. ANDERSON, OF OMAHA, NEBRASKA, ASSIGNOR OF ONE-HALF
TO A. T. AUSTIN, OF OMAHA, NEBRASKA.

SLACK-ADJUSTER.

No. 850,202.

Specification of Letters Patent.

Patented April 16, 1907.

Application filed June 7, 1906. Serial No. 320,520.

To all whom it may concern:

Be it known that I, CHARLES O. ANDERSON, a citizen of the United States, residing at Omaha, county of Douglas, and State of Nebraska, have invented a certain new and useful Improvement in Slack-Adjusters, of which the following is a description.

My invention relates to means for automatically adjusting the members or "taking up the slack" in brake-rigging, and may be advantageously employed upon any of the usual kinds of hand or power operated brakes.

The object of my invention is to provide a simple, accurate, and durable device of the kind described and one requiring practically no attention, except when it is necessary to renew the brake-shoes.

To this end my invention consists in the novel construction, arrangement, and combination of parts, herein shown and described, and more particularly pointed out in the claims.

In the accompanying drawings, wherein like or similar reference characters indicate like or corresponding parts, Figure 1 is a plan view of the mechanism, showing it in operative relation to one form of brake-beams. Fig. 2 is a section taken substantially on line 2 2 of Fig. 1. Fig. 3 is an end elevation. Fig. 4 is an elevation taken from the opposite end. Fig. 5 is a plan view of a slightly-modified form of my device. Fig. 6 is a plan view of a modified form of my device, showing the same applied to connect the brake-levers of a railway-car. Fig. 7 is a section taken substantially on line 7 7 of Fig. 6. Fig. 8 is a section taken substantially on line 8 8 of Fig. 6. Fig. 9 is an end elevation of the form shown in Fig. 6. Fig. 10 is another slightly-modified form of my device.

While my improvement may be adapted to substantially any kind of brake-rigging upon any style of vehicle, I have shown in the drawings, Figs. 1 to 5, inclusive, a form particularly applicable to a well-known form of street-car brake-rigging and in the remaining figures a form which may be conveniently employed upon the ordinary brake mechanism used upon steam-railways and the heavier class of electric railways.

In the forms shown in Figs. 1 to 5, inclusive, 1 and 2 are transversely-extended beams of the brake-rigging, 1 being the beam to

which the brake-shoes are attached at one end of the car or truck, and 2 being a beam which is connected by means of side rods or equivalent means with a beam at the opposite end of the car or truck similar to and carrying the brake-shoes, the same as the beam 1. In operation the beams 1 and 2 move toward each other as the brakes are applied and separate or move away from each other when the brakes are released, the latter movement being in some cases assisted by the use of the well-known "release-springs." (Not shown.) Obviously, as the brake-shoes and other parts become worn in service unless the parts are almost constantly adjusted a greater movement of the beams 1 and 2 is required to apply the brakes, and my device is provided to make such adjustment to the parts before the change in movement of the beams becomes noticeable. The beam 1 is connected to the operating mechanism by which the brakes are applied by a lever 3, pivotally attached to the beam 1 by means of a part 4 and to the operating mechanism by a rod 5 or other suitable connection. The lever 3 is also connected to the beam 2 by means of a pin 6 and clevis 7, which embraces both the beams, as shown. Any suitable means may be employed to adjust the operative length of the clevis 7. As shown, a screw 8 is provided at the closed end of the clevis extending longitudinally thereof, with one end in position to engage the beam 2, and thus control the distance between the beam 2 and the pin 6. The position of the screw 8 may be automatically adjusted in any suitable manner to control the relative position of the bars 1 and 2. In the form shown a shaft or rod 9 is slidably mounted in suitable bearings 10 and 11 upon the clevis 7, and a bracket 12, having a part 14 positioned in the path of the lever 3, is rigidly attached to the shaft 9. A collar 15 is mounted near the opposite end of the shaft 9 to limit the movement of the shaft toward the bearing 11, and a spring 16 or equivalent means is provided, tending normally to maintain the shaft and associate part at the limit of their movement toward the bearing 11. A transverse slot 17 is provided near the end of the clevis 7, and a ratchet-wheel 18 is mounted within the slot 17 upon the screw 8, suitable means being provided to prevent rotation between the screw and the ratchet-wheel. A bell-crank 19 20 is

pivotaly mounted upon the clevis 7 at 21, with its arm 19 attached to a part 22 upon the collar 15 and with a hook-shaped dog 23, provided near the free end of the arm 20, arranged to
 5 engage the teeth upon the ratchet-wheel when the bell-crank 19 20 is oscillated and rotate the ratchet-wheel 18 and screw 8, a fixed pawl 24 being also provided to prevent
 10 any backward movement of the ratchet-wheel.

Under normal condition—that is, with the brake-rigging properly adjusted—the movements of the lever 3 to set or release the brakes will not disturb the bracket 12 or
 15 other associated parts of my device. When, however, through wear or other cause the movements of the beams 1 and 2 become excessive, the increased movement of the lever 3 to set the brakes will cause the lever to en-
 20 gage the part 14 of the bracket 12, which is preferably provided with an adjusting-screw 25, thereby moving the shaft 9 in the direction of the bearing 10 against the tension of the spring 16 until the dog 23 has passed one
 25 or more teeth upon the ratchet-wheel and setting the mechanism in position to operate to take up slack as soon as the brakes are released, thus permitting the spring to move the parts back to their normal position, ro-
 30 tating the screw to bring the beams 1 and 2 toward each other.

In the form shown in Fig. 5 the spring 16 is omitted, and a shoulder 26 is provided upon the bracket 12 in position to be engaged by
 35 the lever 3 when the same is in release position to hold the parts of my device in proper normal position. When so constructed, the device is set by excessive movement of the lever 3 to set the brakes and operated to take
 40 up the slack by the lever 3 when moving to release the brakes engaging the shoulder 26 and forcing the parts into their normal position as before.

In Figs. 6, 7, 8, and 9 my device is shown
 45 attached to and forming a part of the bottom rod in a common form of brake-rigging employed upon steam-roads and the like. In this form the clevis 7', which may be considerably shortened, as shown, is preferably
 50 attached directly to the live lever 27, and the screw 8' is formed upon the end of the bottom rod 28, the opposite end of which may be attached to the dead lever 29 in the usual or any desired manner. In this form in
 55 place of rotating the screw by the movements of the ratchet-wheel 18' the center of the wheel is suitably threaded and turns upon the screw, the opening in the clevis 7' being smooth and of suitable size to permit
 60 free longitudinal movement between the screw and clevis. The form of bracket 12' and position of the screw 25' is also altered to suit the changed conditions, and the dog 23' and pawl 24' are formed to rotate the ratchet-
 65 wheel 18' in the opposite direction, the re-

maining portions of the device remaining substantially the same as heretofore described, except that it is arranged to operate upon the opposite movement of the parts.

The form shown in Fig. 10 operates sub- 70
 stantially the same as the form just described, but is somewhat simplified in that the bearings 10 and 11, shaft 9, and collar 15 are entirely dispensed with and the bracket 12' is
 75 attached directly to or formed integral with the arm 19 of the bell-crank 19 20, the operation being the same as heretofore described.

My device, as heretofore explained, may be employed with any form of brake-rigging; but in order to secure the best results in each 80
 particular form slight modifications in the construction and arrangement of the parts may often be desirable, and it is obvious that various slight or immaterial modifications
 85 may be made in my device without departing from the spirit of my invention. Hence I do not wish to be understood as limiting myself to the exact form and construction shown.

Having thus described the preferred form of my invention, what I claim as new, and de- 90
 sire to secure by Letters Patent, is—

1. In a slack-adjuster for brake-rigging, an adjustable clevis adapted to connect a pivoted lever of the brake-rigging to other
 parts of said rigging, means for controlling 95
 the operative length of said clevis, and means positioned in the path of said pivoted lever for controlling the operation of said adjust-
 ing means.

2. In a slack-adjuster for brake-rigging, 100
 an adjustable clevis adapted to connect a pivoted lever of the brake-rigging to other parts of said rigging, means for controlling
 the operative length of said clevis and means 105
 mounted upon said clevis with a part positioned in the path of said lever for controlling the operation of said adjusting means.

3. In a slack-adjuster for brake-rigging, an adjustable clevis adapted to connect a 110
 pivoted lever of the brake-rigging to other portions of the rigging, comprising a member provided with a longitudinal opening, a screw
 fitted to said opening, and by its position 115
 controlling the operative length of the clevis, a ratchet mounted upon said screw and adapted to operate the same and means posi-
 tioned in the path of said lever for operating said ratchet when the movement of said lever exceeds a certain limit.

4. In a slack-adjuster for brake-rigging, 120
 an adjustable clevis adapted to connect a pivoted lever of the brake-rigging to other parts of the rigging, comprising a member
 provided with a longitudinal opening, a screw 125
 fitted to said opening and by its position controlling the operative length of said clevis, and means positioned in the path of said lever for changing the position of said screw
 when the movement of said lever exceeds a certain limit. 130

5. In a slack-adjuster for brake-rigging, an adjustable clevis adapted to connect a pivoted lever of the brake-rigging to other portions of said rigging, comprising a member
 5 provided with a longitudinal opening, a screw fitted to said opening and by its position controlling the operative length of said clevis, a screw-threaded ratchet mounted upon said screw and engaged by said member, whereby
 10 the longitudinal position of said screw in said opening is controlled by said ratchet, and means positioned in the path of said lever for rotating said ratchet.

6. In a slack-adjuster for brake-rigging,
 15 the combination with two beams and an operating-arm pivoted on one of the same, of a connecting member pivoted to said arm, a screw operating in the connecting member and engaged with the second beam, a ratchet
 20 adapted to operate the screw, a pawl coacting with the ratchet, an elbow-lever pivoted to the ratchet, a sliding member having connection with the elbow-lever, a bracket attached to said sliding member and adapted
 25 to be engaged by said operating-arm upon excessive movement of the same, and means adapted to operate said pawl.

7. In a slack-adjuster for brake-rigging, the combination with two brake-beams and
 30 an operating-arm pivoted to one, of a clevis pivoted to the operating-arm connected to the second beam, a screw operating in the clevis, and means for automatically operating the screw to take up the slack in the
 35 brake-rigging.

8. In a slack-adjuster for brake-rigging, the combination with two brake-beams and an operating-arm pivoted to one, of a clevis
 40 pivoted to the arm and connected to the second beam, a screw operating in the clevis, a

ratchet mounted upon the screw to operate the same, and means operated by the excessive movement of said arm for turning the ratchet.

9. In a slack-adjuster for brake-rigging, 45 the combination with two brake-beams and an arm pivoted to one, of a clevis pivoted to the arm and connected to the second beam, a screw operating in the yoke, a ratchet mounted on the screw, a pawl coacting with 50 the ratchet, a lever carrying the pawl to operate the same, and devices in connection with the lever for operating it upon excessive movement of said arm of the brake-rigging.

10. In a slack-adjuster for brake-rigging, 55 the combination with two brake-beams and an arm pivoted to one, of a clevis pivoted to the arm and connected to the second beam, a screw operating in the clevis, a ratchet mounted on the screw, a pawl coacting with 60 the ratchet, a lever carrying the pawl to operate the same, and devices in connection with the lever for operating it upon excessive movement of said arm of the brake-rigging, said devices comprising a sliding member 65 having connection with the elbow-lever, a bracket attached to said sliding member and having shoulders lying at opposite sides of the arm, whereby to move the sliding member upon excessive movement of the arm, 70 and means for returning said sliding member to its normal position upon releasing the brake.

In testimony whereof I have hereunto signed my name in the presence of two sub- 75 scribing witnesses.

CHARLES O. ANDERSON.

Witnesses:

A. A. McCLURE,
 M. ENGLER.