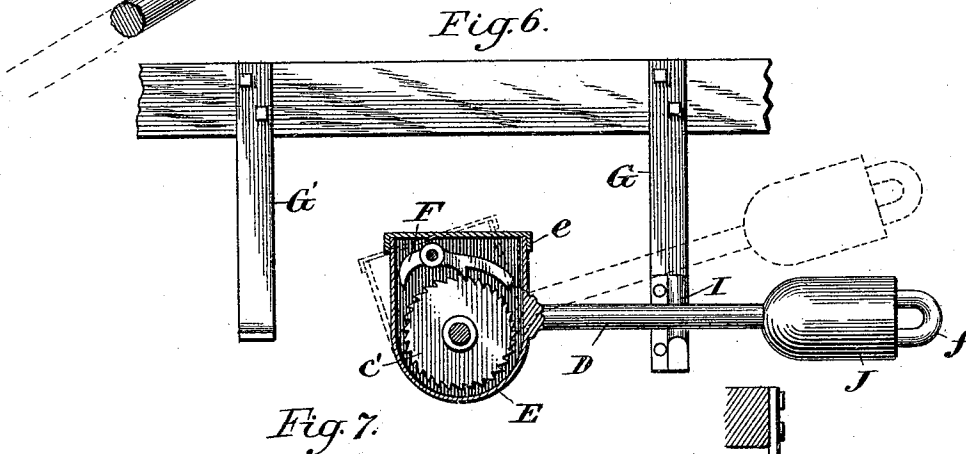
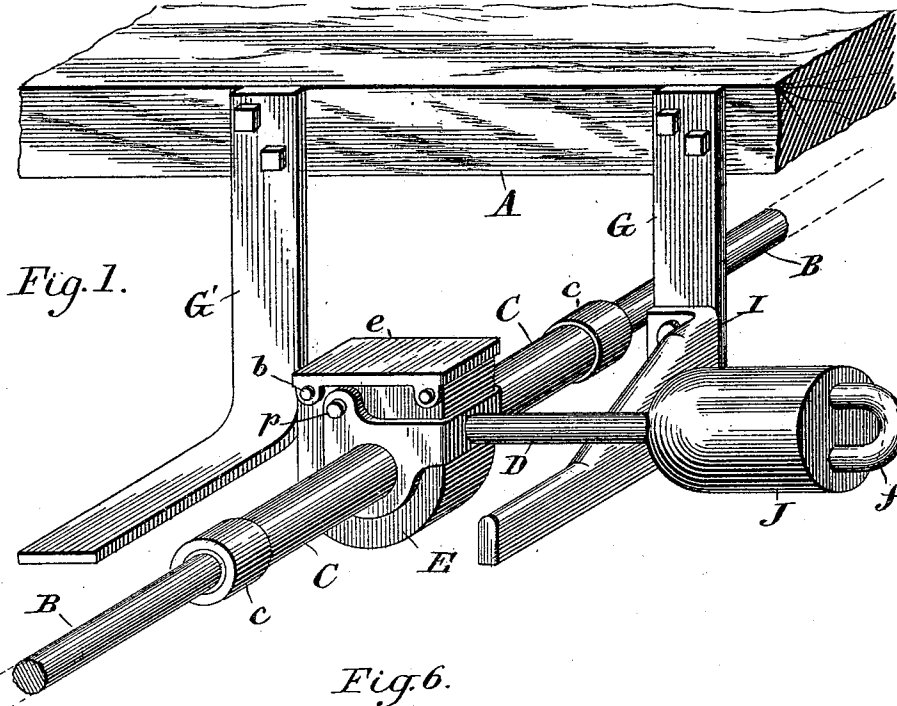


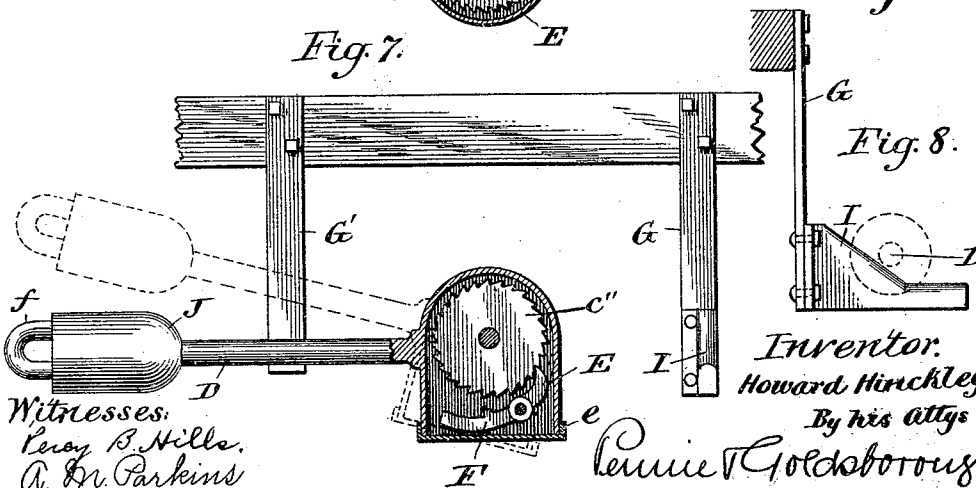
H. HINCKLEY.  
SLACK TAKE-UP FOR CAR BRAKES.

No. 496,607.

Patented May 2, 1893.



*Fig. 7.*



*Fig. 8.*

*Inventor.*  
Howard Hinckley.  
*By his attys*

*Leinie Goldborough*

*Witnesses:*  
*LeRoy B. Hills.*  
*A. W. Perkins*

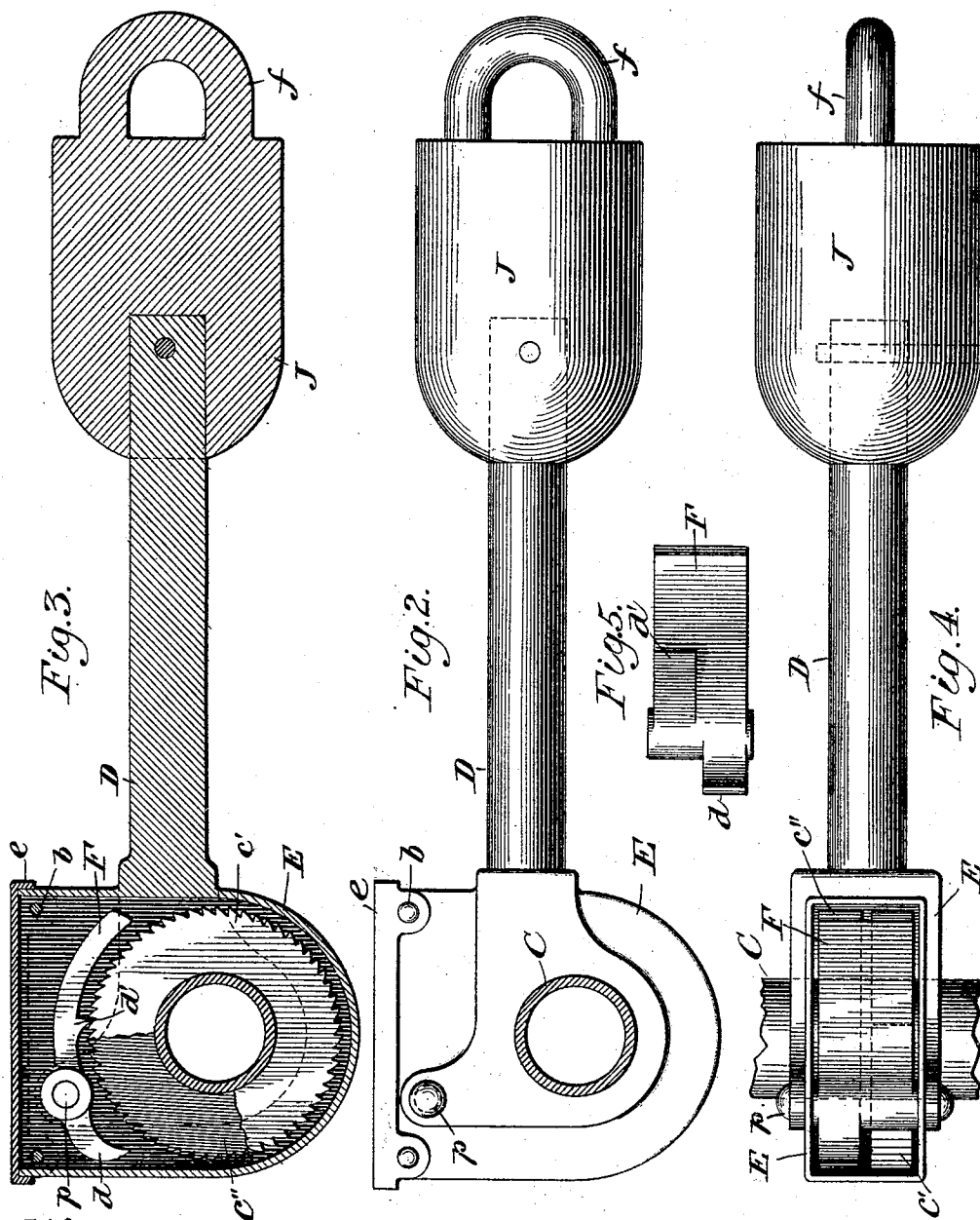
(No Model.)

2 Sheets—Sheet 2.

H. HINCKLEY.  
SLACK TAKE-UP FOR CAR BRAKES.

No. 496,607.

Patented May 2, 1893.



Witnesses:

Lucy B. Hills.  
A. M. Perkins

Inventor:

Howard Hinckley.  
By his attys.

Pennie & Goldborough

# UNITED STATES PATENT OFFICE.

HOWARD HINCKLEY, OF TRENTON, NEW JERSEY.

## SLACK-TAKE-UP FOR CAR-BRAKES.

SPECIFICATION forming part of Letters Patent No. 496,607, dated May 2, 1893.

Application filed October 10, 1892. Serial No. 448,341. (No model.)

### *To all whom it may concern:*

Be it known that I, HOWARD HINCKLEY, a citizen of the United States, residing at Trenton, in the county of Mercer and State of New Jersey, have invented certain new and useful Improvements in Slack-Take-Ups for Car-Brakes; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The present invention has for its object to simplify and otherwise improve the construction of slack take-up devices illustrated and described in Patents Nos. 475,014 and 475,015, granted to me May 17, 1892.

In the accompanying drawings, Figure 1 is a perspective view of my improved take-up and its connections. Fig. 2 is a side elevation of the operating arm. Fig. 3 is a longitudinal section of the arm, and Fig. 4 is a top view of the same. Fig. 5 is an under side view of the pawl carrying detent. Fig. 6 is an elevation of the parts shown in Fig. 1, the operating arm being in position for automatically taking up slack. Fig. 7 is a similar view, the arm being in a position for reversing the turn-buckle, and Fig. 8 is a detail of the cam for working the operating arm.

Similar letters denote corresponding parts in the several figures.

Referring to Fig. 1, A indicates the spring board or plank of the ordinary truck frame.

B is the rod forming the usual connection between the brake levers. This rod is formed in two parts or sections, *b b'*, as illustrated in my former patents. The adjacent ends of the sections are screw-threaded, and the parts are connected together by a sleeve C, having correspondingly threaded ends and constituting a double turn-buckle, the same as before. The form and construction of this turn-buckle is in all respects like that more fully illustrated and described in the above patents, and I will not further describe it herein, except to say that it is a sleeve composed of a piece of pipe or tubing having solid ends which are tapped to receive the threaded ends of the sections of the rod, caps *c, c* being secured to the ends of the sleeve to cover and protect the exposed parts of the screw threads on the

rods. Secured rigidly upon this connecting sleeve about midway of its length, are two ratchet wheels or disks *c', c''*, the ratchets or teeth on one wheel facing in the opposite direction to those on the other. The object of these ratchet disks is to permit the turning of the threaded pipe or sleeve in either direction, as may be required in order to shorten up the connecting rod to take up slack, or to let out the rod to reset the brakes or renew the shoes. For the purpose of operating upon these ratchet disks an arm D is swiveled upon the sleeve so as to be freely oscillated, said arm carrying pawls for engaging the respective ratchets, as will presently be more specifically described.

In my former patents the connection between the arm and its operating cam is such that it is necessary for the workman to get under the car and release the arm before it can be worked by hand to reverse the sleeve, and the pawl and ratchet connection between the arm and the sleeve is not so compact, strong or simple as the present, and is moreover exposed to injury and the effect of dirt and water, snow, ice, &c.

In the present improvement I do away with the spring which holds the ratchet operating arm up to the cam, and arrange the cam under the arm so that the arm rests loosely upon the upper surface of the cam, the arm being weighted so as to fall by gravity when it slides down the incline of the cam as the rod moves to release the brakes. I also provide a case or housing for the pawl and ratchet mechanism, and, in lieu of the two separately pivoted pawls, use a single detent provided with rigid pawls, the detent being weighted so as to throw the pawls alternately in or out of engagement with the respective ratchets as the arm is shifted from one position to another, as will presently be described in detail.

The arm D is preferably formed as a single casting, having at its inner end a cup-shaped shell or casing E, as shown in Figs. 1 to 4, the casing being rectangular in horizontal section, as indicated more especially in Fig. 4, and having a closed bottom and sides, and an open top. A cover, as *e*, fits over the top of the casing and is removably secured in place by bolts *b* passing through the flanged edge

of the cover and the wall of the casing, though any other suitable fastening may be employed. The arm is swiveled upon the sleeve C so as to turn freely thereon, as explained, the side walls of the casing forming the bearings, and the casing is arranged to inclose the ratchet disks so as to form a covering or housing for the same, concealing and protecting the parts. In the upper part of the casing, overhanging the ratchet disks, a pawl carrying plate or detent F is mounted so as to turn freely on a pivot pin *p*. This detent is constructed as shown in Figs. 4 and 5, being in the form of a plate with a sleeve-like bearing at one end, and having rigid pawls *d* and *d'* arranged on opposite sides of the pivotal point and located in different vertical planes, as shown in Fig. 5, so that the pawl *d* will stand over the ratchet *c''* and the pawl *d'* will overlie the ratchet *c'*. It will be understood from this construction that, when the arm D is in the position represented in Fig. 6, the pawl *d'* will engage the ratchet *c'*, and, when the position of the arm is reversed, or thrown over to the opposite side of the rod, as shown in Fig. 7, the pawl *d* will be thrown by the gravity of its detent into engagement with the ratchet *c''*, the pawl *d'* being meanwhile disengaged.

Referring to Fig. 1, G and G' are brackets secured to the spring plank A, and depending so that their horizontal arms lie lengthwise or substantially parallel with the connecting rod B on opposite sides thereof and in about the same horizontal plane. The purpose of these brackets is to support the arm D, and hold it up in either of its two positions. The horizontal arm of the bracket G is provided with an inclined cam I, which may be formed integrally with the bracket, or may be cast separately and bolted thereto, as shown in the drawings. In the operation of the brakes, the connecting rod travels lengthwise to and fro between the brackets, carrying the turn-buckle and the swiveled ratchet operating arm. The movement of the rod in applying the brakes carries the arm D along the horizontal part of the bracket G and up the incline of the cam, the distance which the arm climbs up the cam depending upon the amount of slack in the brake connections. When there is no slack in the system, the arm travels to and fro over the flat part of the bracket, but, as the shoes wear away, or as the slack increases from any other cause, the arm begins to ascend the incline more and more at each operation of the brakes until the ratchet *d'* (which in this position of the arm engages with the advancing ratchet *c'*) finally catches in a new tooth of the disk. Upon the release of the brakes, the arm travels down the incline of the cam, and the present arrangement is similar to my former construction in that the ratchet and sleeve are turned as the arm is leaving the cam, and when there is but little if any strain on the rod. To insure the turning of the ratchet by the arm in this im-

provement, I provide the arm with a heavy weight J, which steadies the arm and holds it down on the bracket, and at the same time permits its ready disengagement from the cam when it is desired to adjust the connections by hand.

When the shoes are worn out, and it becomes necessary to replace or to renew them or any of the other parts, the connections must be restored to their original length. As before stated, it was necessary with the old arrangement to get under the car and release the spring connection between the cam and the ratchet operating arm before this could be done. In the present improvement, however, the arm is free to be lifted from the cam, and it is only necessary to reach under the car and throw the arm off the cam over upon the bracket on the other side of the rod. To facilitate this I provide an eye or staple *f* on the end of the arm, into which the train-man may catch a hooked rod or other convenient implement. When the position of the arm is thus reversed, the pawls on the detent F change places, as before explained, the weight of the detent throwing the pawl *d* into engagement with its ratchet. When in this position the arm may be oscillated as indicated in dotted lines in Fig. 7 for the purpose of unscrewing the turn-buckle. The bracket G' is mainly for the purpose of holding up the arm and preventing it from falling entirely over. It is incidental to the use of this bracket, however, that the slack adjuster may be thrown out of action if desired without interfering with the operation of the brakes, as the arm would then play to and fro over the horizontal arm of G' without being operated.

The present invention is susceptible of considerable modification, and I do not intend to limit myself to the details of the construction herein illustrated. As in my former patent, so in this, the turn-buckle may be a single one if preferred. The casing may be constructed and mounted in any preferred manner, and the brackets may be hung from any other part of the truck frame.

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

1. In a slack adjuster for railway brakes, the combination of a connecting rod, a turn-buckle connected therewith, a pivoted, weighted, operating arm for the turn-buckle, and an underlying cam for working the arm, the cam being fixed with relation to the movement of the rod, and the arm being arranged to rest normally upon the cam, substantially as described.

2. In a slack adjuster for railway brakes, the combination of a connecting rod, a turn-buckle connected with the rod, a pivoted, weighted, operating arm having a pawl and ratchet connection with the turn-buckle, and a fixed cam for working the arm, the arm and cam being arranged so that the arm rests normally upon and is operated in one direction

by the cam, and the arm being free to be disengaged from the cam so as to be worked by hand, substantially as described.

3. In a slack adjuster for railway brakes, the combination of a connecting rod, a turn-buckle connected therewith, a pivoted, weighted, operating arm, pawl and ratchet connections between the arm and the turn-buckle, and a cam underlying the arm for working the same in one direction only, the arm resting normally in working position upon the cam, and free to be disengaged therefrom so as to be worked by hand, and the pawl and ratchet connections being arranged so that by throwing the arm from its working position on one side of the rod to a position on the opposite side of the same one of the pawl and ratchet connections will be disengaged and the other will be thrown into action, substantially as described.

4. In a slack adjuster for railway brakes, the combination of a connecting rod, a turn-buckle having oppositely facing ratchets, an operating arm, and a weighted detent pivoted on the arm, said detent having reversely set pawls on opposite sides of its pivot, substantially as described.

5. In a slack adjuster for railway brakes, the combination of a connecting rod, a turn-buckle, an operating arm, a pawl and ratchet connection between the arm and the turn-buckle, and a case or housing for concealing and protecting the ratchet, said casing being integral with the inner end of the arm, and having the removable top or cover, as *e*, substantially as described.

6. In a slack adjuster for railway brakes, the combination of a connecting rod, a turn-buckle, an operating arm, a ratchet fixed upon the turn-buckle, a shell or casing integral with the inner end of the arm and surrounding and

protecting the ratchet, a cross-pin fixed in the side walls of the casing, a pawl pivoted on the cross-pin, and a removable cover permitting access to the pawl and ratchet connection, substantially as described.

7. In a slack adjuster for railway brakes, the combination of a connecting rod, as B, a turn-buckle, as C, an operating arm, as D, a pawl and ratchet connection between the arm and the turn-buckle, a case or housing, as E, for concealing and protecting the connections, a fixed cam, as I, upon which the arm rests normally in working position, and a weight, as J, carried by the arm, substantially as described.

8. In a slack adjuster for railway brakes, the combination of a connecting rod, a turn-buckle connected therewith, a pivoted, weighted, operating arm having pawl and ratchet connections with the turn-buckle whereby the latter may be operated in either direction, a cam underlying the position of the arm on one side of the connecting rod, and a bracket arranged in corresponding position to that of the cam on the opposite side of the rod, the arm resting normally in working position upon the cam and free to be disengaged therefrom and thrown over upon the bracket, and the pawl and ratchet connections being arranged so that when the arm is working upon the cam one of the said connections will be engaged, and when the arm is thrown over upon the bracket the other connection will be engaged, the former being thrown out of action.

In testimony whereof I affix my signature in presence of two witnesses.

HOWARD HINCKLEY.

Witnesses:

F. B. STEVENS, Jr.,  
F. C. LOWTHORP.