

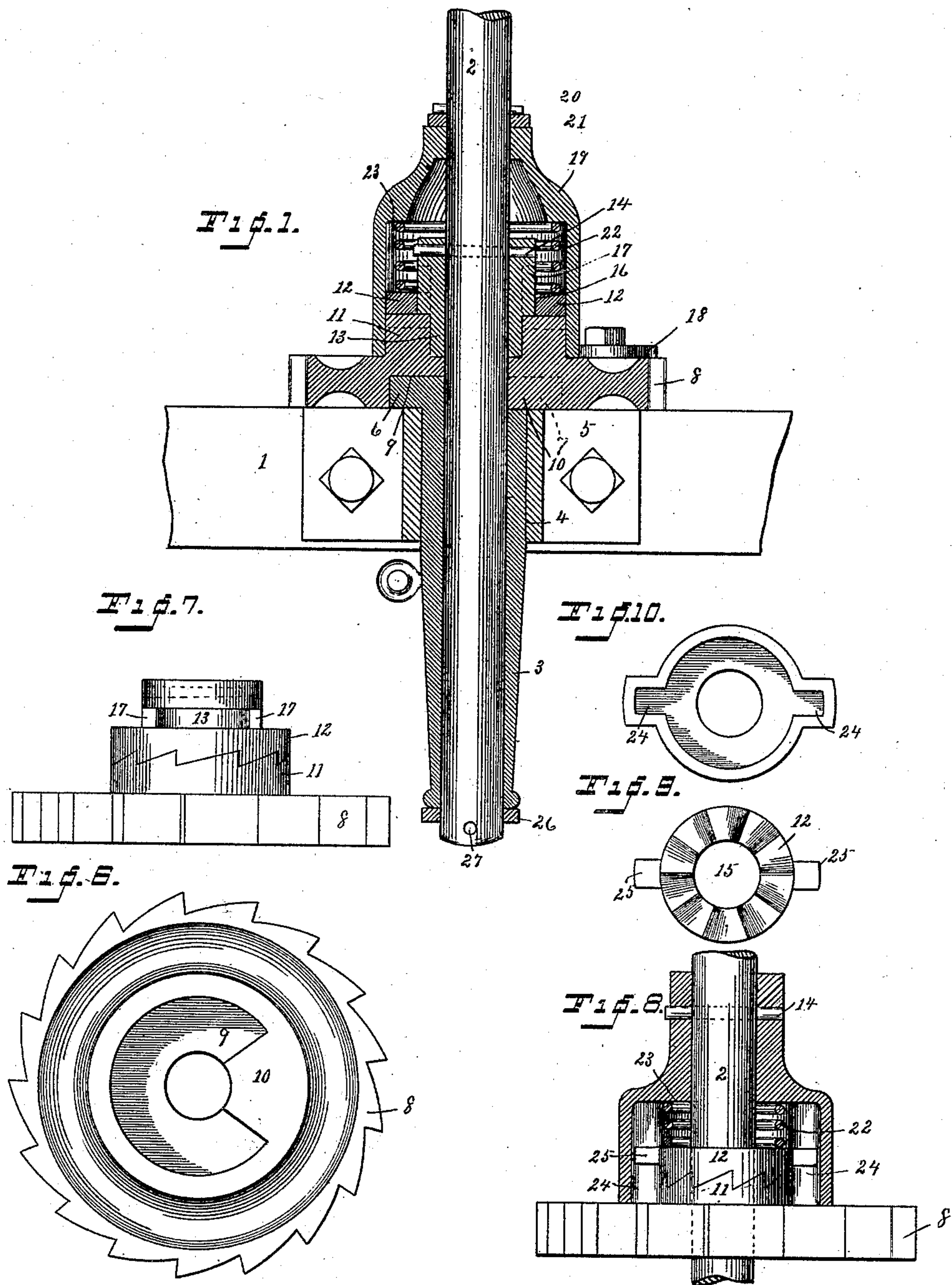
(No Model.)

2 Sheets—Sheet 1.

C. A. COOK.  
CAR BRAKE.

No. 416,996.

Patented Dec. 10, 1889.



**Witnesses**

C. M. Newman,  
Abley S. Munson.

**Inventor**

Charles A. Cook  
By A. M. Wooster  
Att.

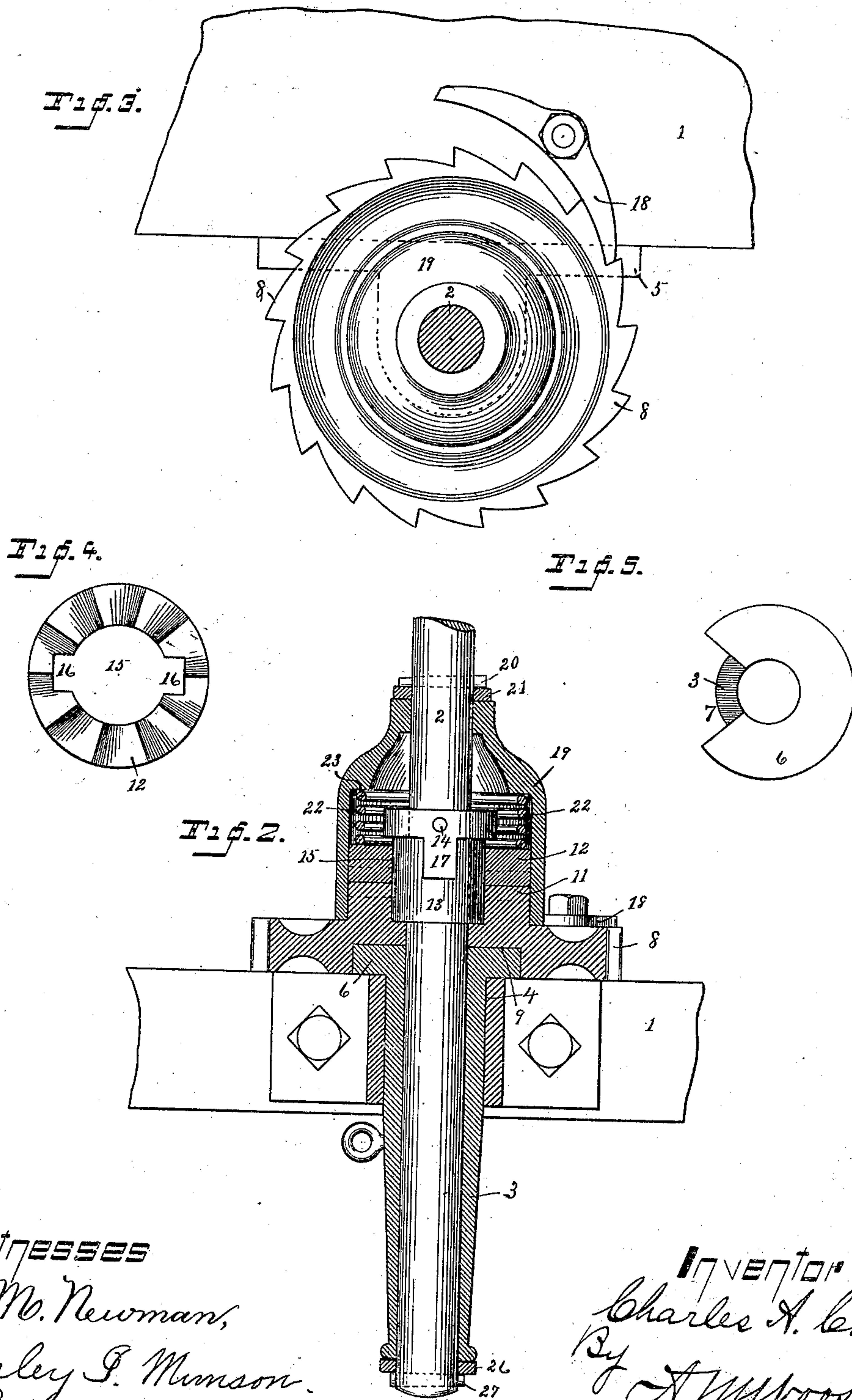
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Atty.



# UNITED STATES PATENT OFFICE.

CHARLES A. COOK, OF BRIDGEPORT, CONNECTICUT, ASSIGNOR TO THE  
BURNS, SILVER & COMPANY, OF SAME PLACE.

## CAR-BRAKE.

SPECIFICATION forming part of Letters Patent No. 416,996, dated December 10, 1889.

Application filed July 23, 1889. Serial No. 318,427. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES A. COOK, a citizen of the United States, residing at Bridgeport, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in 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.

My invention has for its object to provide novel adjusting mechanism for the staffs of car-brakes, it being of course understood that it is frequently necessary in use to adjust the staff relatively to the winding-sleeve, so that the power may be applied as quickly as possible, and also that stretch of the chain, &c., in use may be compensated for.

With these ends in view I have devised the simple and novel mechanism which I will now describe, referring by numbers to the accompanying drawings, forming part of this specification, in which—

Figure 1 is an elevation of a portion of a car—for example, a platform—showing my novel mechanism in section, the staff itself being in elevation and the two parts of the clutch in the engaged position; Fig. 2, a similar view, except that the staff is shown as having been turned one-fourth around, the sleeve being in elevation and the parts of the clutch in the disengaged position; Fig. 3, a plan view of the housing, ratchet, &c., the staff being in section; Fig. 4, an inverted plan view of the upper member of the clutch detached; Fig. 5, a plan view of the winding-sleeve detached; Fig. 6, an inverted plan view of the ratchet detached; Fig. 7, an elevation of the ratchet, clutch, and sleeve; Fig. 8, a view, partly in section and partly in elevation, illustrating certain changes in the details of construction by which I have carried my invention into effect; Fig. 9, an inverted plan view of the upper member of the clutch in the modified form, detached; and Fig. 10 is an inverted plan view of the housing detached.

1 denotes the platform of the car; 2, the brake-staff; 3, the winding-sleeve, which extends below the platform and is preferably

made cone-shaped, as shown, the upper portion of said sleeve passing through a socket 4 in a holding-plate 5, which is bolted or otherwise rigidly secured to the platform. At the upper end of the winding-sleeve is a flange 6, provided with a notch 7.

8 denotes a ratchet, which is provided in its under side with a depression 9 corresponding in shape with a flange upon the top of the winding-sleeve, there being also a raised portion 10 on the under side of said ratchet corresponding with and engaging notch 7 in the flange. I thus provide for forming the ratchet and winding-sleeve in separate pieces, each of which may be readily cast, and which are so constructed as to be firmly locked together when assembled, without the necessity of any securing devices.

The clutch consists of two members, (denoted by 11 and 12,) the lower member (denoted by 11) being formed on the upper side of the ratchet, the upper member being independent thereof and adapted to move vertically over a sleeve 13 on the brake-staff. The sleeve may be drop-forged upon the staff or may be made separate therefrom, as shown in the drawings, and secured in place by a pin 14. The upper member of the clutch is provided with a central opening 15, through which the sleeve passes, and with recesses 16 at opposite sides of said opening, which receive lugs 17 upon the sleeve. I have shown a flange at the upper end of the sleeve, although it is by no means an essential feature, as it can only act as a stop to limit the upward movement of clutch member 12.

18 denotes a foot-dog of ordinary construction and adapted to operate in the usual manner to lock the ratchet after the brake has been set.

As my novel staff-adjusting mechanism is applicable to any of the various classes of brakes in use, I have not deemed it necessary to illustrate the brake mechanism itself or the chain, the staff being supposed to be operated in the usual manner by a handle. (Not shown.)

The operation of my invention is as follows: Suppose that it is desired to set the brake in the ordinary manner. The staff is simply rotated from left to right until the



brake is set as hard as may be required and the ratchet locked by the foot-dog in the usual manner. Should it be desired, however, to adjust the staff relatively to the winding-sleeve, the staff is simply turned backward. The effect of this will be clearly understood from Figs. 1, 2, and 7. The sleeve of course being made fast to the staff must rotate with it, and must carry also the upper member 12 of the clutch, said member and the sleeve being at all times engaged. When the backward movement of the staff is made, however, the teeth of the upper clutch member will simply ride upward over the teeth of the lower clutch member, the upper member rising upon lugs 17 and dropping down again after each tooth is passed. It will be understood that the brake-handle is rigid with the staff. That, however, I have not deemed it necessary to show, as it forms no portion of my present invention, it being sufficient to rotate the staff in any manner. Suppose the brake to have been put on and the handle to have stopped at an inconvenient position to reach in unlocking. The operator, having locked the ratchet, gives the staff a turn backward, leaving the handle in such position that the entire strength of the operator may be readily applied to turn it forward, so as to enable him to release the foot-dog from the ratchet in unlocking the brake. This is very important, as it is often extremely difficult for the brakeman after having set the brake as tightly as possible to give the additional forward movement to the staff required in unlocking before the foot-dog can be disengaged from the ratchet should the handle happen to have stopped in a difficult position to apply power. It will be noted, furthermore, that should it be inconvenient or impossible from any reason whatever to set the brake by rotary movement of the staff, it may be set by an oscillatory movement, the operator turning the staff as far forward as possible, then turning it backward, allowing the clutch to slip, and take a fresh hold again when the handle or other operating device is in convenient position to turn the staff forward again.

I have shown the entire mechanism as covered by a housing 19, which rests upon the top of the ratchet and is kept from rising on the staff by a pin 20, a washer 21 being interposed between the pin and the housing. Any other suitable device may be used, if preferred.

I have found my novel mechanism to work perfectly in use by gravity alone. In order, however, to make assurance doubly sure, I ordinarily provide a spring 22 within the housing, the upper end of which bears against a shoulder 23 within the housing, the lower end thereof bearing against the upper member of the clutch, as is clearly shown in Figs. 1 and 2.

In the modified form illustrated in Figs. 8, 9, and 10 the sleeve upon the staff is dis-

posed with and the housing itself connected directly to the brake-staff. The housing, which is shown inverted in Fig. 10, is provided with sockets 24, which are engaged by lugs 25, projecting outward from the upper member 12 of the clutch. It will be seen that when the staff is rotated the housing is carried thereby, and the upper member of the clutch carried by the housing through the engagement of lugs 25 with the sockets in the housing. When the movement of the staff is forward, the lower member of the clutch, the ratchet, winding-sleeve, &c., are carried forward precisely as in the other form. When the movement is backward, the teeth upon the upper clutch member ride up the teeth upon the lower clutch member, the lugs riding upward in sockets 24 until a tooth has been passed, the upper clutch member then dropping down into its normal position, these operations continuing as long as the staff is turned backward. The spring 22 is ordinarily used in this form, as well as in the other, to avoid the possibility of the upper clutch member failing to work by gravity. In both forms the staff is held against upward movement by a washer 26 below the winding-sleeve, the washer being held in any suitable manner, as by a pin 27, driven through a hole at the lower end of the staff.

It will of course be understood that various changes which it is not practicable to illustrate and describe may be made in the details of construction without departing from the principle of my invention.

I do not claim in this application subject-matter covered by the claims of my pending applications, Serial Nos. 318,428 and 318,429, filed of even date herewith.

I claim—

1. In combination, a brake-staff, a winding-sleeve, a ratchet having clutch member 11 on its upper side, and a clutch member 12 carried by the staff and adapted to move vertically thereon, so that when the staff is turned forward the clutch members engage and carry the winding-sleeve, and when the staff is turned backward the teeth of one clutch member ride over the teeth of the other and permit adjustment of the handle without affecting the winding-sleeve.

2. A brake-staff, a winding-sleeve having a notch 6, and a ratchet having in its under side a depression and a portion 10 to engage said notch and on its upper side a clutch member, in combination with an independent clutch member engaging therewith, which is carried by the staff and adapted to move vertically thereon, so that when the staff is turned in one direction the ratchet and winding-sleeve are carried forward and when turned in the opposite direction the ratchet and winding-sleeve are not engaged.

3. A brake-staff, a winding-sleeve, and a ratchet having a clutch member on its upper side, in combination with an independent clutch member having a central opening and



recesses in the edges of said opening and a sleeve rigidly secured to the staff which passes through said opening and is provided with lugs engaging said recesses, as and for  
5 the purpose set forth.

4. A brake-staff, a winding-sleeve, and a ratchet having a clutch member 11, in combination with an independent clutch member engaging therewith, which is carried by the  
10 staff and is adapted to move vertically thereon, and a spring acting to hold the clutch

members in engagement, so that when the staff is turned forward the winding-sleeve is carried to set the brake and when the staff is turned backward the winding-sleeve is not  
15 affected.

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

CHARLES A. COOK.

Witnesses:

A. M. WOOSTER,  
ARLEY I. MUNSON.