

(No Model.)

L. T. KNOWLES.
CAR BRAKE ADJUSTER.

No. 488,359.

Patented Dec. 20, 1892.

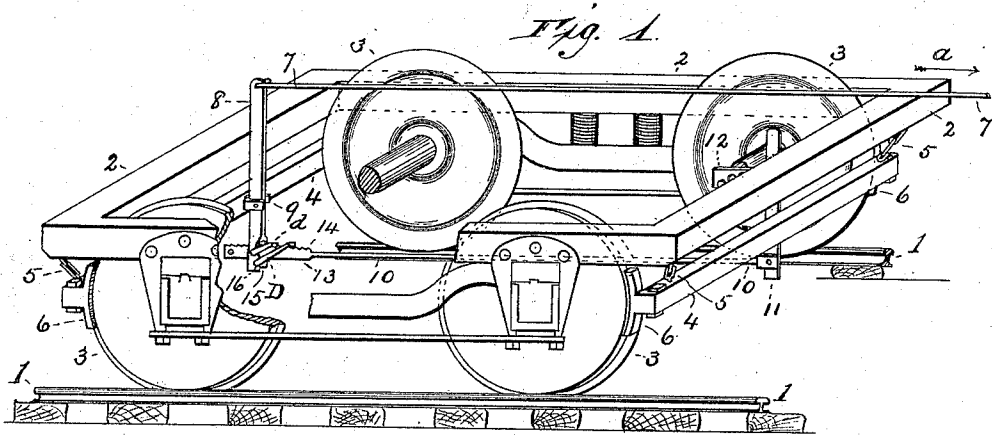


Fig. 2.

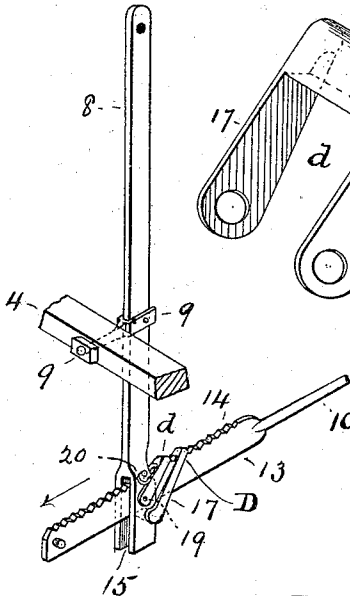


Fig. 4.

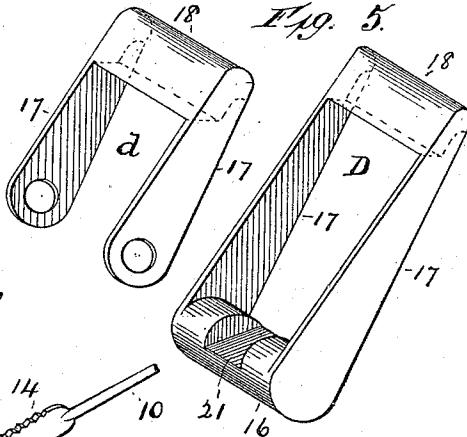
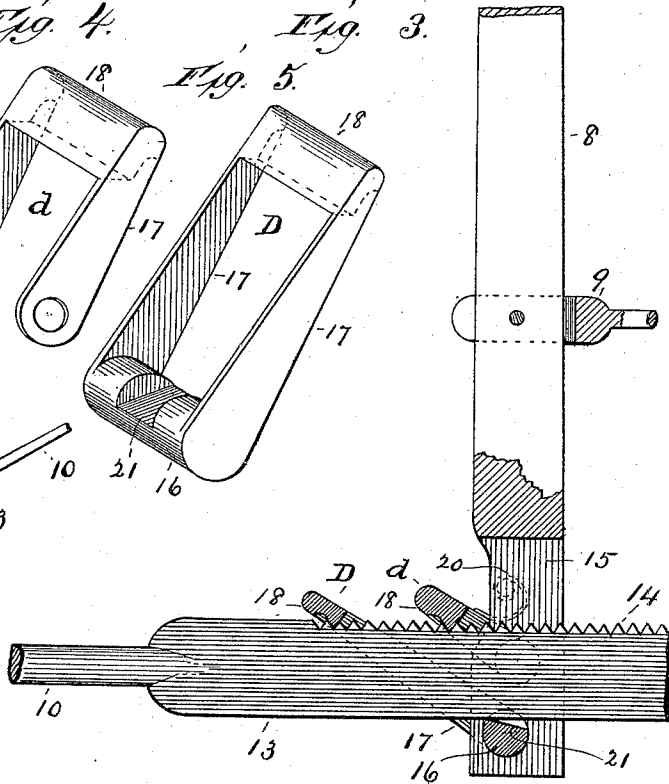


Fig. 3.

Fig. 5.



Witnesses

Chas. E. Gordon,
W. Gilson

Inventor

Louis T. Knowles
By his Attorney
P. H. Gunkel

UNITED STATES PATENT OFFICE.

LOUIS T. KNOWLES, OF MINNEAPOLIS, MINNESOTA, ASSIGNOR OF ONE-HALF
TO JAMES M. PULLMAN AND GEORGE TAYLOR, OF SAME PLACE.

CAR-BRAKE ADJUSTER.

SPECIFICATION forming part of Letters Patent No. 488,359, dated December 20, 1892.

Application filed August 13, 1892. Serial No. 442,999. (No model.)

To all whom it may concern:

Be it known that I, LOUIS T. KNOWLES, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Car-Brake Adjusters, of which the following is a specification.

The object of the invention is to provide means for compensating for any wear or looseness that may occur in the brake-shoes or connections in car-brakes, in order that full pressure of the brake-shoes on the wheels may be at all times assured.

The invention, generally stated, consists in providing the connecting-rod of the shoe beams with teeth which its operating lever engage by means of a pair of dogs of unequal movement arranged to hold the rod from sliding in one direction while permitting it to slide in opposite direction sufficiently to take up any slack occasioned by wear of the shoes or looseness in the connections.

My improvements are illustrated in the accompanying drawings, in which

Figure 1 is a perspective view of a car-truck provided with my improvements; Fig. 2 is a detached view (in perspective) of the principal parts of the improvement; Fig. 3, an elevation, partly sectional of the same, and Figs. 4 and 5 are details of the holding dogs.

In said drawings 1 designates a railroad track; 2 the frame and 3 the wheels of a car-truck. At the ends of the frame are brake-beams 4 loosely suspended by hangers or links 5 from the frame 2, and carrying the shoes 6. The brakes are operated in the usual way (by air pressure or otherwise) by means of a rod 7 connecting the source of power with a lever 8 attached to one of the brake-beams and having suitable connections with the other, whereby the beams are made to approach when the rod 7 is moved in the direction of the arrow *a*.

The lever 8 is fulcrumed to the brake-beam by a clevis or other forked connection 9 which will enable the lever to turn on its fulcrum. The rod 7 is connected to the upper and longer arm of the lever, and to its lower or shorter arm a rod 10 is connected (by my improved devices) and extends to the lower end of a second lever 11 which is suitably connected

to the opposite brake-beam and fulcrumed to a plate 12 extending inward from the truck-frame. This mechanism and its operation are common and well understood.

My improvement relates particularly to devices for making a self-adjusting connection between the lever 8 and the rod 10, whereby slack is taken up. For this purpose the portion of the rod nearest that lever is made flat vertically, as shown at 13, and provided with teeth 14, and is passed through a slot 15 in the lower end of the lever. The rod is supported in the slot by the pivot 16 of a dog D so as to permit it to slide freely in the slot. To the opposite ends of the pivot are rigidly attached arms 17 which carry a suitably shaped cross-piece 18 serving as a dog for engaging the toothed rack 13. Above the dog D is a second and shorter dog *d* for engaging the teeth 14 between the point of engagement of the dog D and the lever. The dog *d* has side arms 17 and a cross-piece 18 similar to those in the dog D, but its pivots 19 do not extend through the lever, and hence do not interfere with the movement of the rod in the slot. A spring (or springs) 20 should be provided for holding the dog *d* down to engagement with the teeth. The dog D is held down to engagement by the pressure of the bar on its pivot; and for this purpose the upper surface of the pivot-pin 16 within the slot is flattened in inclined direction, as shown at 21, so that the bar will bear on the upper edge of the inclined portion and thus tend to depress the swinging arms of the dog. The bar 10 being free to slide in the slot of the lever 8, except as restrained by the dogs, and there being a constant tension against the dogs, by reason of the arrangement of the brake mechanism, the operation of the lever will cause the dogs to advance a notch or more whenever there is slack enough to permit such advance. This is due to the fact that in moving the lever in the direction of the arrow *a* (for applying the brakes) the longer dog D is drawn toward the bar and into engagement; while the shorter dog *d* is slightly lifted and if the lever movement is sufficient the dog will be advanced a tooth. Upon the return movement of the lever (to release the brakes)

the dog *d* becomes the holding dog, and if it has been advanced a tooth the dog *D* will be lifted and advanced correspondingly. Thus, whenever, by reason of wear of shoes or looseness in connections, it becomes necessary to swing the lever 8 more than its normal distance to properly apply the brakes the movement will advance the shorter dog and upon release of brakes the longer dog will be advanced the same space, thereby shortening the connections before the next operation of the lever to apply the brakes.

Having described my invention what I claim is:—

1. In a car-brake adjuster, a lever having a forked arm below its fulcrum, a rack connecting the brake-beams and extending through the slot of said arm, a dog pivoted to the lever below the rack, its pivot providing the support for the rack, and a shorter dog pivoted to the lever above the longer dog but below the rack teeth, whereby the dogs will engage and advance alternately in accordance with the direction and extent of movement

of the lever, substantially as and for the purpose set forth.

2. In a car-brake adjuster, a rack connecting the brake beams, a lever for supporting and reciprocating it, and dogs of unequal length carried by the lever for engaging the rack at the same side of the lever in alternation corresponding with the opposite movements of the lever and arranged to advance when the throw of the lever is increased, substantially as set forth.

3. In a car-brake adjuster, a rack, a lever, a dog pivoted thereto and supporting the rack on its pivot, the latter having an inclined surface on which the rack bears to hold the dog in engagement with the rack teeth, and a second and shorter dog pivoted to the lever above the first, substantially as and for the purpose set forth.

LOUIS T. KNOWLES.

Witnesses:

J. L. DOBBIN,
P. H. GUNCKEL.