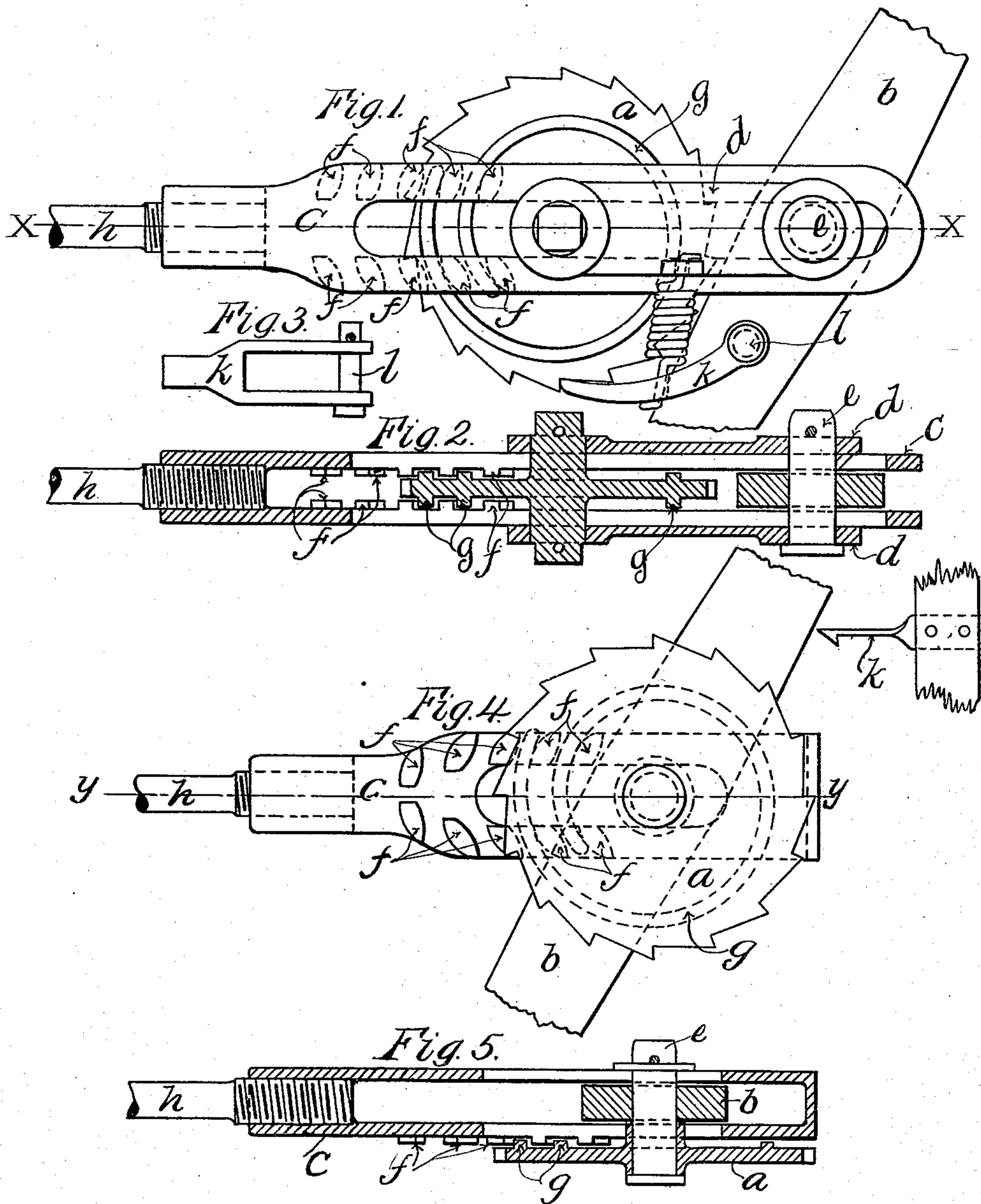


(No Model.)

W. H. MARSHALL.
SLACK ADJUSTER.

No. 543,390.

Patented July 23, 1895.



Witnesses
G. W. Barford.
Nelson L. Litten

Waldo H. Marshall Inventor
By his Attorney Paul Synnestvedt

UNITED STATES PATENT OFFICE.

WALDO H. MARSHALL, OF CHICAGO, ILLINOIS.

SLACK-ADJUSTER.

SPECIFICATION forming part of Letters Patent No. 543,390, dated July 23, 1895.

Application filed February 13, 1895. Serial No. 538,220. (No model.)

To all whom it may concern:

Be it known that I, WALDO H. MARSHALL, a citizen of the United States, residing in the city of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Car-Brake Slack-Adjusters; and I declare the following, with the accompanying drawings, which form a part of this specification, to be a full, clear, and exact description of my invention.

My invention is an improvement in that class of automatic brake slack-adjusters for regulating the travel of pistons in the cylinders of air-brakes on railway-cars in which ratchet-wheels with spirally-shaped cams are employed for adjusting the length of brake-rods, and in which class is included my invention described in another application for Letters Patent of this date. I have found that in practice a spiral cam having a single bearing-point upon the rod or connection whose length is to be adjusted must be so large in diameter as to be inconvenient. It must be of such dimensions as will make the difference in radial distance between the nearest and farthest points of the spiral measured from the center of the wheel at least equal to the extreme amount of take-up required. This means that the diameter of the wheel must be considerably more than twice this amount of take-up. As already stated, this makes the wheel larger than is desirable.

My improvement consists in making the spiral cam engage a series of teeth or bearing-points on the rod, whose length is to be adjusted in a manner which will make it possible to greatly reduce the diameter of the wheel and incidentally diminish the size of some of the other parts. The manner in which this result is accomplished is shown in the accompanying drawings, in which—

Figure 1 is an elevation of an adjuster with a ratchet-wheel journaled in the brake-rod, as shown in my other application of this date, but provided with the improvement mentioned. Fig. 2 is a section on the line $x x$ in Fig. 1. Fig. 3 is a plan of the pawl operating the ratchet-wheel. Fig. 4 illustrates the application of my improvement to an adjuster, in which the ratchet-wheel is located on the brake-lever and operated by a pawl external to the brake-gear; and Fig. 5 is a section on line $y y$ in Fig. 4.

It will be seen that in these drawings I have shown forms of construction resembling those embodied in my other application for Letters Patent of this date, already referred to. A detailed description of the construction and operation is therefore not required except in so far as modified by this improvement. I provide on the jaw c , which is attached to the rod h , whose length is to be adjusted, a series of teeth or bearing-points $f f f$, upon which the spiral cam can operate successively. The spiral is preferably in the form of a rib or projection on each side of the wheel a and is made slightly more than one turn in length, so that upon rotation of the wheel a perfect bearing is obtained upon one set of teeth before the previous set go out of contact. As they pass out of working contact with the spiral they travel across the face of the wheel, as more slack is taken up and the fork c is drawn toward the lever. It is only necessary, therefore, to make the spiral of such a diameter that the first of the teeth shall not strike it again on the other side of the axis of the wheel before the last of the teeth come into operation or the maximum amount of slack has been taken up.

As illustrating the general adaptability of the invention to more than one form of construction, I have shown in Figs. 4 and 5 its application to an adjuster having the ratchet-wheel located on the lever and operated by a pawl located external to the brake-gear on some adjacent part of the car body or truck. It does not need further illustration to show that the improvement can be applied to any or all brake-adjusters employing the spiral cam wherever they may be located in the brake-gear.

Having thus described my invention, what I claim is—

In a brake slack adjuster, a rod or connection provided with a series of teeth or bearing points, in combination with a spiral cam, adapted upon rotation to successively engage said teeth, substantially as shown and for the purpose specified.

WALDO H. MARSHALL.

Witnesses:

NELSON L. LITTEN,
G. M. BASFORD.