

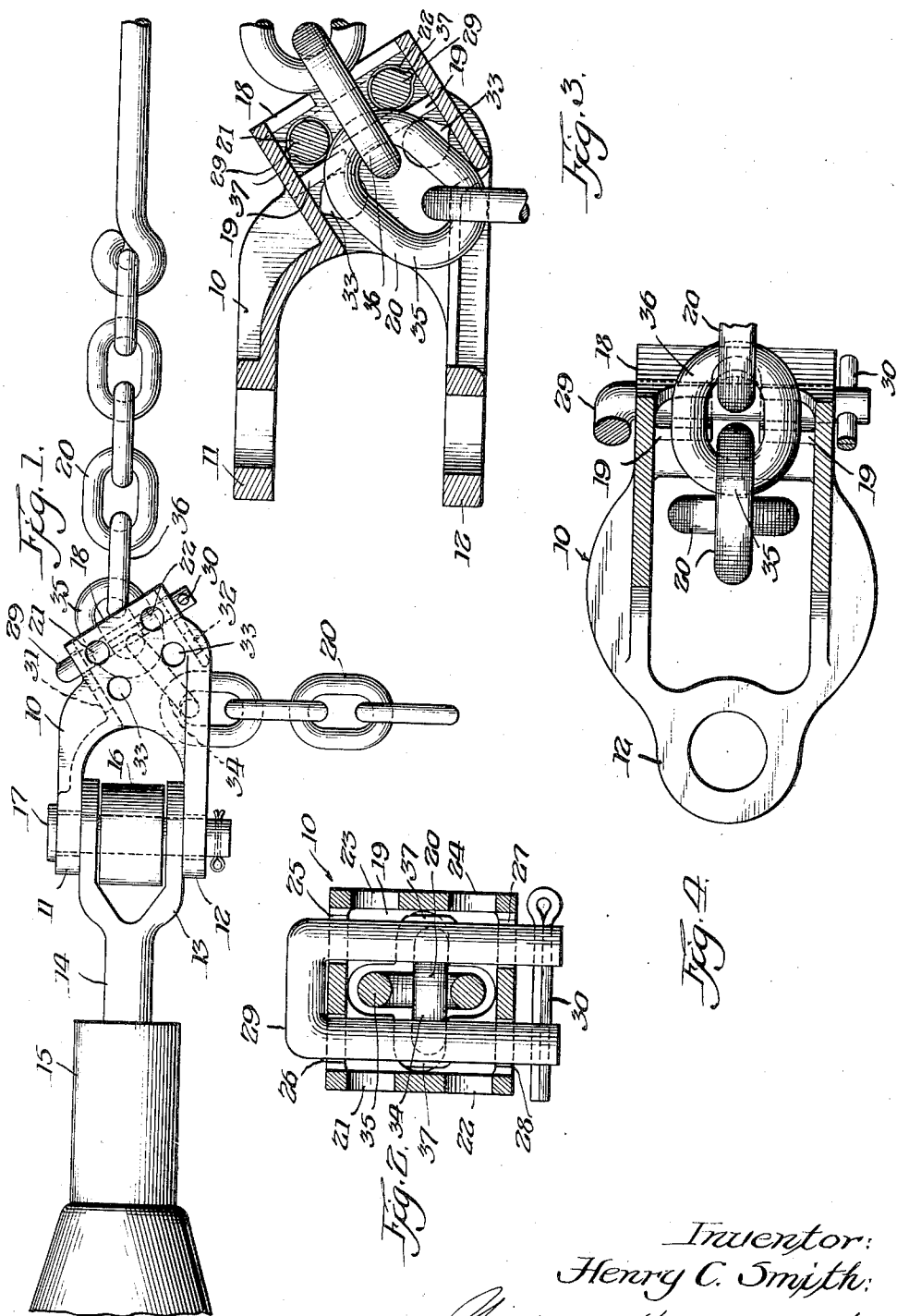
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SLACK ADJUSTER

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SLACK ADJUSTER

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My invention relates to slack adjusters for railway car brakes and has particular reference to a slack adjuster which is adapted to be mounted at the end of the push rod on a brake cylinder of a railway car and to receive the chain which extends forward either to the pull rod usually employed as a part of the mechanism leading to the hand brake on railway cars or which may be used as a means of attachment of the chain to the brake push rod where a chain extends the entire distance to the winding mechanism.

Another and further object of my invention is the provision of a slack adjuster which is adapted to be connected into the hand brake hookup of a railway car in such manner that the chain used in the hand brake hookup can be kept taut and adjusted when applied to the railway car in such a manner that there is no slack in the chain or in which substantially all the slack is removed so as to obtain a quick application of the brakes to the wheels of the railway car when the brake is applied thereto by the hand mechanism.

Another and further object of my invention is the provision of a slack adjuster which can be easily and quickly applied as a repair part to the hand brake hookup mechanism of cars already in service so that the slack may be taken from the chain to secure quick application of the brakes to the wheels of the car by hand brake operating mechanism.

Another and further object of my invention is the provision of a slack adjuster which can be easily and quickly applied to cars already in service by removing the usual clevis by means of which the brake chain is attached to the end of the push rod, and by placing the slack adjuster in position on this clevis and inserting the chain therethrough, which operation can be effected very quickly and easily without the use of any cutting mechanism or the use of anything more than the usual tools carried by the railway car mechanic.

A brake chain is usually connected to the end of the push rod by an ordinary clevis and a pin inserted through an opening formed in the end of the push rod, the push rod being connected to the end of a brake rod in the usual manner and the clevis inserted through the end link in the chain. After the cars have been in service, considerable slack develops in the chain owing to wear of the parts in constant service so that it often becomes necessary to cut the chains and remove one or two links therefrom. Even with this adjustment, the slack in the chain cannot be fully taken up because these chains are very

heavy so that it is impossible often to remove enough of the links to secure the proper tautness.

In my improved device the slack in the chain may be taken up in a stepped relation by inserting the chain-holding mechanism either from the top or the side of the slack adjuster and in this manner the slack taken up much more accurately and completely than if the link is removed from the chain. The links of chains used for brake adjustments are usually made from steel of $\frac{3}{8}$ of an inch in diameter, with the links being very nearly three inches in length, so that when links are removed it is possible to have as much as several inches of slack in the chain even though the chain is drawn up as taut as may be with these devices. In my improved device with the link-holding member being inserted either from the top or bottom and astride either a horizontal or vertical link, the chain may be tightened up in steps of a half link at a time rather than by the method heretofore employed of removing links from the chain.

Another advantage of my device is that once a railway car is equipped with the device it is always possible to remove the holding member from the slack adjuster at any time and draw up the slack in the brake chain so that the brake chain is always kept taut in service.

Another object of my invention is the provision of a slack adjuster in which a member is placed in such position to receive the links of the chain with the holding member inserted therethrough, which may be inserted over the links in either a vertical or horizontal direction. In this manner the slack is taken up one-half a link at a time, thus providing a wider range of adjustment than has been possible to secure with devices of this kind heretofore.

Another and further object of my invention is the provision of a device which is easily and cheaply manufactured and which is long wearing and not subjected to easy breakage in service.

These and other objects of my invention will be more fully and better understood by reference to the accompanying sheet of drawings, and in which—

Figure 1 is a longitudinal elevational view of my improved device attached to the operating parts of railway car brakes;

Figure 2 is a cross sectional view through Figure 1;

Figure 3 is a vertical sectional view of the device shown in Figure 1; and

Figure 4 is a plan section of the device shown

in Figure 1 with the push rod and brake lever omitted.

Referring now specifically to the drawing, and in which like reference characters refer to like parts throughout, the slack adjuster 10 is shown which comprises a rearwardly extending upper leg portion 11 and a rearwardly extending lower leg portion 12, which is adapted to fit over the outside of the bifurcated end 13 of the usual push rod 14 projecting from the end of the brake cylinder 15. A brake lever 16 is shown which is fitted between the bifurcated end 13 of the push rod 14 with a pin 17 being provided which extends through the ends 11 and 12 of the adjuster 10, the bifurcated end 13 of the push rod 14 and the brake lever 16, thereby securing all of these members together.

The forward end of the slack adjuster 10 is substantially square in cross-section and has an end wall 18 with an intermediate web 19 cast integral with the slack adjuster 10. The end wall 18 has an opening therein substantially conforming in outline with the contour of the chain, and through which the brake chain 20 extends. The web 19 also has an opening therethrough in the same contour as the opening in the end wall 18, whereby the links of the chain 20 are received into and pass through the slack adjuster 10 in the normal position occupied by a chain, that is, with certain of the links being in vertical position while others are in horizontal position. Because of the shape of the openings in the forward wall 18 and through the web 19, the chain is prevented from turning or twisting as it enters the slack adjuster 10, and the chain is also held more securely in the slack adjuster 10.

At one side near the forward end of the adjuster 10 and in vertical alignment with each other, are holes 21 and 22 extending through the outer wall of the body of the adjuster 10. On the opposite side wall of the body of the adjuster 10 are holes 23 and 24, the hole 23 being in alignment with the hole 21 and the hole 24 being in alignment with the hole 22. In the top wall of the body of the slack adjuster are other holes 25 and 26 in transverse alignment with each other, while in the bottom wall of the body of the slack adjuster are other holes 27 and 28 in transverse alignment with each other and in vertical alignment with the holes in the top wall. The centers of all of these holes are in the same transverse plane through the body of the slack adjuster 10. A U-shaped member 29 is adapted to be inserted through the holes 25 and 26 and extends through the holes 27 and 28 in the bottom of the body of the slack adjuster. A cotter pin 30 is inserted through the leg portions of the member 29 to prevent its jarring out in service and to normally hold the member 29 in position in the adjuster 10.

Spaced rearward from the holes 25 and 26 are other vertically aligned holes 31, 31 in the top wall of the slack adjuster 10, while in the bottom wall are other openings 32, 32 with corresponding openings 33, 33 in each side of the adjuster, all of this second set of holes having their centers in the same transverse plane, so that if for any reason the forward end of the adjuster should become broken or unfit for service, the member 29 can be placed in the adjuster rearward of the first openings described or can be placed in these openings for any purpose that may be desired to secure an additional adjustment of the chain. The forward end of the adjuster is disposed slightly at an angle to the lon-

gitudinal plane of the adjuster 10 and with the chain 20 being threaded through the forward end of the adjuster 10 and suspended therefrom, the ends of the chain hanging loose, as shown in Figure 1.

In operation, the device is normally secured to the railway car by being placed over the forward end of the push rod 13, which in normal position and operation extends over the end of the brake lever 16. The pin 17 is placed in position as shown in Figure 1 and secured in place by means of the cotter pin, as shown. The member 29 is thereupon removed from the forward end of the adjuster 10 and the chain 20 threaded through the forward wall 18 and drawn up as taut as may be. The member 29 is inserted through the holes provided for the purpose of receiving this member in the forward end of the slack adjuster in either a vertical or a horizontal position, depending upon whether the space between the ends of the links when the chain is drawn tight is in alignment with any particular set of holes in the slack adjuster 10. For instance, as shown in Figure 1, the member 29 is placed in vertical position with the forward end of the link 34 abutting against the legs of the member 29, the member 29 being astride the link 35 of the chain 20.

If in drawing the chain through the slack adjuster the chain could be drawn another half link farther into the slack adjuster, then the member 29 would be inserted through the holes 21 and 22 and 23 and 24, respectively, in a horizontal position, in which condition the member would be astride the link 36 and the forward end of the link 35 would abut against the rear side of the legs of the member 29. In this manner, instead of the adjustment of the chain being provided for in full link length adjustment, an adjustment of one-half the length of each link is secured, a matter which is vitally important in the adjustment of these brake pulling mechanisms. The device is easily and quickly inserted and placed in position upon a car and the chain inserted therethrough, and the brakeman is able to secure the proper chain adjustment easily and quickly. The member 29 has ribs 37, 37 formed at the outer sides thereof which engage against the inner sides of the body portion of the slack adjuster and prevent the member 29 from spreading to such an extent as to allow the links of the chain to pass through the member 29.

While I have described more or less precisely the details of construction, I do not wish to be understood as limiting myself thereto, as I contemplate changes in form and the proportion of parts and the substitution of equivalents as circumstances may suggest or render expedient without departing from the spirit or scope of my invention.

I claim:

1. A slack adjuster comprising, in combination, a body member having a chain-receiving opening therein and having a plurality of holes through its walls in the same transverse plane, and a chain-holding member adapted to extend into the body in either a vertical or horizontal direction.

2. A slack adjuster comprising, in combination, a body member having a chain-receiving opening longitudinally thereof and having a plurality of holes in each of the side walls, the top and bottom wall, and a holding member adapted to extend into the body member in either a horizontal or vertical direction.

3. A slack adjuster comprising, in combination, a body member having a chain-receiving opening longitudinally thereof and having a plurality of holes in each of the side walls, the top and bottom wall, and a holding member having a plurality of leg portions extending into the body member in either a horizontal or vertical direction.

4. A slack adjuster comprising, in combination, a body member having a chain-receiving opening longitudinally thereof and having a plurality of holes in each of the side walls, the top and bottom walls, and a holding member having a plurality of leg portions extending through the body member in either the vertically aligned set of holes or the horizontally aligned set of holes.

5. A slack adjuster comprising, in combination, a body portion having a chain-receiving opening therein and having openings in at least two of its adjacent sides and a chain-holding member adapted to be received into the body portion of the slack adjuster in the openings in either of its sides.

6. A slack adjuster for railway car brakes comprising a body portion having means therein for attachment to a part of the railway car and having a chain-receiving opening therein and having a plurality of spaced holes in at least two adjacent walls, and a chain-holding member adapted to extend into the body portion in either of said adjacent walls.

7. A slack adjuster for railway car brakes comprising a body portion having means therein whereby the body portion may be attached to a part of a railway car and having a chain-receiving opening therein and having a plurality of spaced holes in each of its sides, all of said holes being in substantial transverse alignment, and a chain-holding member mounted transversely in said body and extending through the oppositely aligned holes.

8. A slack adjuster for railway car brakes comprising a body portion of substantially rectangular

form in cross section having attaching means thereon and having a transversely extending wall having a chain-opening therein and having holes in each of the side walls in substantially the same plane, and a chain-holding member having leg portions adapted to fit astride one link between the ends of adjacent links in either a transverse or vertical direction.

9. A slack adjuster for railway car brakes comprising a body portion of substantially rectangular form in cross section having attaching means thereon and having a transversely extending wall having a chain opening therein and having a plurality of holes in each of its walls in substantially transverse alignment, and a chain-holding member of U-shape adapted to pass through the aligned holes in the body portion in either a horizontal or vertical direction.

10. A slack adjuster for railway cars comprising a body portion having means thereon for attachment to a railway car, having a transverse forward wall and a transverse web portion, the said forward wall and said web portion having chain-openings therein, the body portion having spaced holes in each of its sides in substantial transverse alignment, and a chain-holding member carried by said body portion and extending through the said body portion in either a vertical or horizontal direction.

11. A slack adjuster for railway cars comprising a body portion having means thereon for attachment to a railway car, having a transverse forward wall and a transverse web portion, the said forward wall and said web portion having chain-openings therein, the body portion having two sets of holes in each of its sides, one set being in spaced relation with the other set, with each set of holes being in substantial transverse alignment, and a U-shaped chain-holding member adapted to fit over the brake chain in either of two directions through the body member in either of said set of holes.

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