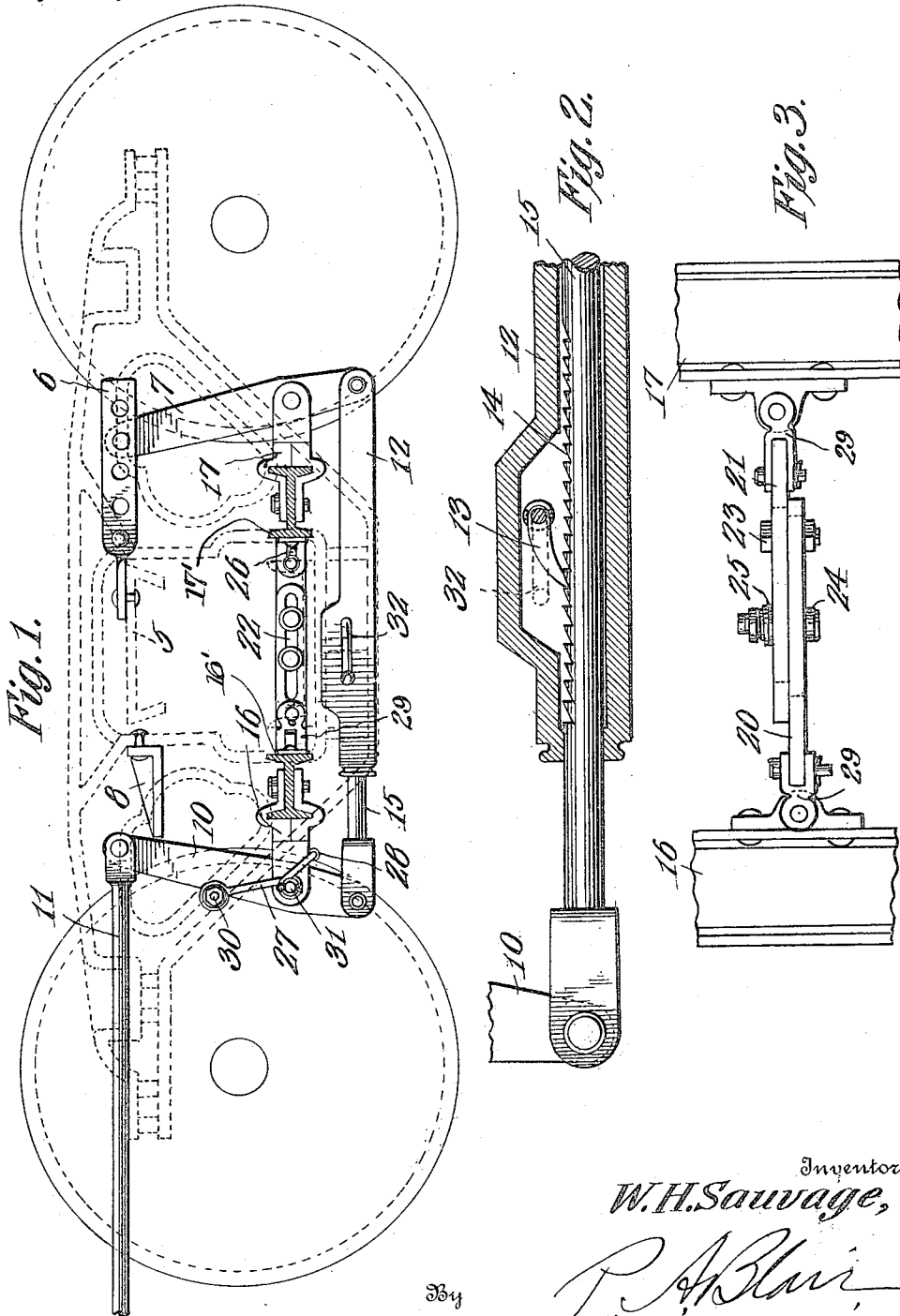


W. H. SAUVAGE.
SLACK ADJUSTER.
APPLICATION FILED JAN. 25, 1916.

1,227,959.

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SLACK-ADJUSTER.

1,227,959.

Specification of Letters Patent.

Patented May 29, 1917.

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To all whom it may concern:

Be it known that I, WILLIAM H. SAUVAGE, citizen of the United States, and resident of Flushing, in the county of Queens and State of New York, have invented certain new and useful Improvements in Slack-Adjusters, of which the following is a specification.

This invention relates to slack adjusters for the brake rigging of railway cars, and in its more intense aspect to automatic slack adjusters particularly adapted for use in connection with the brake rigging of railway car trucks.

One of the objects of the present invention is to provide a simple and practical automatic slack adjuster which may be readily applied to cars now in general use either in connection with truck brake rigging or the foundation brake rigging adjacent the power cylinder. Another object is to provide a slack adjuster of the above general type which will be cheap to manufacture and install. A further object is to provide a reliable and efficient slack adjuster adapted to insure predetermined piston travel and brake shoe clearance.

Other objects will be in part obvious from the annexed drawings and in part indicated in connection therewith by the following analysis of this invention.

This invention accordingly consists in the features of construction, combination of parts and in the unique relations of the members and in the relative proportioning and disposition thereof, all as more completely outlined herein.

To enable others skilled in the art so fully to comprehend the underlying features thereof that they may embody the same by the numerous modifications in structure and relation contemplated by this invention, drawings depicting a preferred form have been annexed as a part of this disclosure, and in such drawings, like characters of reference denote corresponding parts throughout all the views, in which—

Figure 1 is a side elevation of a truck, partly in section, showing such parts of the brake rigging and slack adjuster mechanism as are necessary to fully understand the present invention.

Fig. 2 is a detail sectional view of certain parts.

Fig. 3 is a plan view of a slightly modified form of adjusting mechanism.

Referring now to the drawings in detail and more particularly to Fig. 1, 5 denotes a car bolster having a dead lever hanger 6 at one side thereof supporting the upper end of dead lever 7. At the opposite side of the bolster is a projection 8 adapted to act as a stop for the live lever 10 on its return to normal position. This live lever is connected at its upper end by means of pull rod 11 to the brake actuating mechanism and its lower end is connected with the lower end of the dead lever 7 by means of the two part telescopic push rod, one of these parts 12 being an enlarged cylindrical housing carrying a pawl 13, provided with a release handle, adapted to engage a ratcheted surface 14 on a coacting solid push rod 15. This mechanism which may be termed a permanent take up and holding device may be of any desired type adapted to effect the desired result, that is, mechanism which will positively prevent an inward telescopic movement of the parts as the brakes are applied but readily yield to take up the excess travel of the brake rigging due to wear of the parts when registered upon and actuated by the adjusting mechanism hereinafter described.

Both the live and dead levers are provided with brake beam struts 16 and 17, connected with beams 16' and 17' respectively if the brake rigging is of that type as to require brake beams and struts, and between which is positioned the temporary take up and holding mechanism. This mechanism comprises two links 20 and 21 respectively pivotally connected by universal joints, to the adjacent sides of brake beams. The coacting adjacent ends of these links, which are preferably flat, are provided with elongated slots 22 through which passes a guide pin 23 mounted upon one of the links, and a friction clamp device 24 comprising a headed bolt provided with a yielding, preferably spring actuated, friction member 25 at its opposite side. This mechanism is so constructed and arranged as to permit relative movement under ab-

normal conditions in both directions but normally is adapted to slide in one direction only when excess travel takes place. The connection between the link 21 and its
 5 strut is preferably provided with a lost motion slot 26 as shown thereby to insure a predetermined brake shoe clearance at all times.

In Fig. 3 is shown a slight modification of connection between the adjusting rods and the respective brake beams permitting
 10 universal movement. Each connection includes a member 29 having a horizontal pivot pin supporting the adjacent link of the adjusting rod and a vertical pin connecting said member with a casting secured
 15 to the brake beam as shown. These connections permit free movement of the parts both vertically and laterally as may be necessary, thereby preventing the rapid
 20 wearing as would otherwise take place by rigid connections.

Associated with the pivotal connection 31 between the live lever 10 and the strut 16 is
 25 a release spring 27. This spring is preferably of U-shaped construction having its lower end 28 coacting with the under side of the strut 16 while its upper ends are connected by means of the transverse bolt 30
 30 bearing against one of the side edges of the live lever. The intermediate portions or sides of the release spring are coiled one or more times about the pivotal connection 31 connecting the strut with the live lever. It
 35 will thus be seen that this release spring is adapted to maintain predetermined angular relation between the strut and the lever and tend to return the parts to such position on release of the braking power. In other
 40 words a localized turning action takes place during the application of the brakes which is reactive on their release.

The device operates in substantially the following manner: Application of the
 45 brakes causes a movement of the pull rod 11 toward the left which acts and re-acts through the intervening connection and dead lever to carry the brake shoes into contact with the peripheries of the adjacent
 50 wheels. When excess travel takes place, due primarily to the wear of the brake shoes, a relative separation of the brake beams in excess of the predetermined clearance provided for by the slot 26 takes place,
 55 and a consequent slipping action of the friction clamp 25 corresponding exactly to the excess travel occurs. Upon release of the mechanism the spring 27 comes into play to return the upper end of the live lever to its
 60 normal position against the stop 8. Complete return movement however would at first be prevented by reason of the friction clamp which causes the point 31 to act as a fulcrum about which the live lever continues
 65 to turn, causing the telescopic member 15 to

be pulled out of the housing 12 an amount corresponding to the excess travel, or as nearly equal thereto as possible, by reason of the pawl and ratchet construction.

It is of course to be understood that suitable release mechanism may be connected
 70 with the pawl 13, such as release handle 32, to raise the same out of engagement with the ratchet when it is necessary to apply new shoes to the brakes. This mechanism is
 75 believed to require no detailed discussion and it may be operated from the side of the car by any desired intermediate connections.

From the above it will be seen that the
 80 present invention provides a simple, practical and reliable mechanism which may be readily applied to car trucks and associated brake rigging now in use without material changes, and in fact the invention is be-
 85 lieved to accomplish, among others, all of the objects and advantages above set forth.

Without further analysis, the foregoing will so fully reveal the gist of this invention that others can be applying current
 90 knowledge readily adapt it for various applications without omitting certain features that, from the standpoint of the prior art, fairly constitutes essential characteristics of the generic or specific aspects of this inven-
 95 tion, and therefore such adaptations should and are intended to be comprehended within the meaning and range of equivalency of the following claims.

I claim:

1. In a slack adjuster, in combination, a
 100 live lever, a dead lever, actuating mechanism associated with the end of the live lever, an extensible push rod connecting the ends of said levers, an adjusting device
 105 substantially parallel thereto comprising a pair of parallel disposed links having elongated slots which links are loosely connected respectively with the live and dead levers to permit relative movement in both vertical
 110 and horizontal planes, and a friction clamp passing through said slots adapted to have relative movement with respect to either of said links.

2. In a slack adjuster, in combination, a
 115 live lever, a dead lever, actuating mechanism associated with the end of the live lever, an extensible push rod connecting the ends of said levers, an adjusting device substantially parallel thereto comprising a
 120 pair of parallel disposed links having elongated slots connected respectively with the live and dead levers by universal joints, a friction clamp passing through said slots adapted to have relative movement with respect to said links, and a lost motion device
 125 associated with one of the points of connection with one of the links and its associated lever.

3. In a slack adjuster, in combination, a 130

live lever, a dead lever, actuating mechanism associated with the live lever, an extensible push rod connecting the ends of said levers, an adjusting device substantially parallel thereto comprising a pair of links having elongated slots connected respectively with the live and dead levers adapted to permit both vertical and lateral movement, a friction clamp passing through said slots adapted to have relative movement with respect to said links, said connection between the ends of said live lever and dead lever comprising a two part telescopic member having a pawl and ratchet connection between the effective ends.

4. In a slack adjuster, in combination, a live lever, a dead lever, actuating mechanism connected with the live lever, a two part extensible push rod connecting the other end of the live lever with the corresponding end of the dead lever, and a temporary take up and holding device substantially parallel with said push rod and having universal connection with said live and dead levers.

5. In a slack adjuster, in combination, a live lever, a dead lever, actuating mechanism connected with the live lever, a two part extensible push rod connecting the other end of the live lever with the corresponding end of the dead lever, and a temporary take up and holding device substantially parallel with said push rod and connecting said live and dead levers, said take up device comprising a pair of overlapping relatively flat links universally connected at their ends with the live levers and having elongated registering slots, and a friction clamp passing through said slots and adapted normally to permit movement in one direction only.

6. In a slack adjuster, in combination, a bolster having a fixed stop at one side a dead lever support at the opposite side, a live lever coacting with the stop, a dead lever supported from said support, a two part extensible push rod connecting the opposite ends of said live and dead levers having a pawl operating between the effective ends thereof and a two-part adjusting rod

parallel to said push rod having universal joint connections with their supporting parts.

7. In a slack adjuster, in combination, a bolster having a fixed stop at one side, a dead lever support at the opposite side, a live lever coacting with the stop, a dead lever supported from said support, a two part extensible push rod connecting the opposite ends of said live and dead levers, a two-part adjusting rod parallel to said push rod having universal joint connections with their supporting parts, said push rod being provided with pawl and ratchet mechanism between the effective ends of its parts and means for releasing said ratchet.

8. In a slack adjuster, in combination, a live lever, a dead lever, a two part extensible push rod connecting the ends of said live and dead levers, said push rod being provided with pawl and ratchet mechanism between the effective ends of its parts, brake beam struts pivotally connected with the live and dead levers, and a return spring associated with the pivotal connection between the live lever and its strut adapted to maintain predetermined angular relation therebetween.

9. In a slack adjuster, in combination, a car bolster, a live lever and a dead lever supported at opposite sides of the bolster, a telescopic connection between the ends of the live and dead levers, permanent take up and holding devices associated therewith, brake beam struts having connections with the live and dead levers, links connected with said struts having overlapping registering slots in their adjacent ends, a friction clamp passing through said slots adapted to have relative movement with respect to said links, and a U-shaped return spring associated with the pivotal connection of the live lever and its strut and having coactive engagement with said parts adapted to maintain predetermined angular relation therebetween.

Signed at New York in the county of New York and State of New York this 16th day of December A. D. 1915.

WILLIAM H. SAUVAGE.