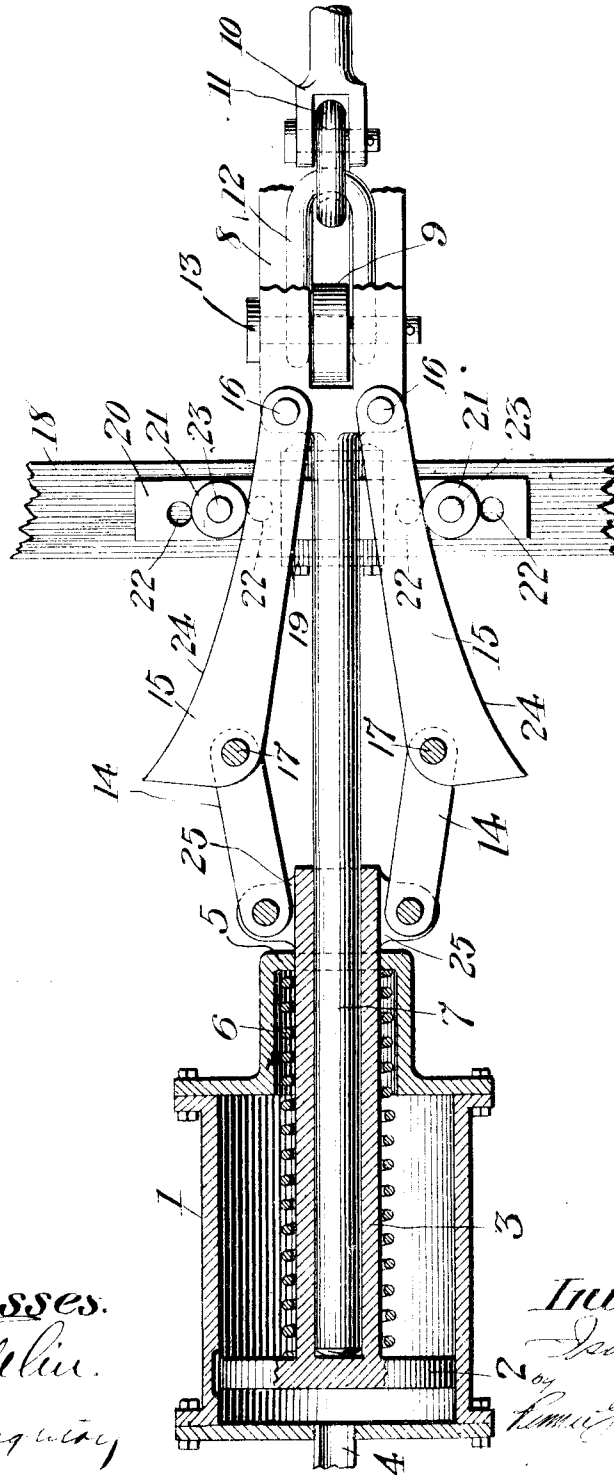


I. JONES.
SLACK ADJUSTER.
APPLICATION FILED NOV. 25, 1912.

1,057,739.

Patented Apr. 1, 1913.



Witnesses.
D. W. Edlin.
V. J. Hargrave.

Inventor.
Isaac Jones
by Louis Goldsmith & Co.
Attys

UNITED STATES PATENT OFFICE.

ISAAC JONES, OF CHEYENNE, WYOMING.

SLACK-ADJUSTER.

1,057,739.

Specification of Letters Patent.

Patented Apr. 1, 1913.

Application filed November 25, 1912. Serial No. 733,358.

To all whom it may concern:

Be it known that I, ISAAC JONES, a citizen of the United States, residing at Cheyenne, in the county of Laramie and State of Wyoming, have invented certain new and useful Improvements in Slack-Adjusters; 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.

This invention relates to slack adjusters such as are employed in combination with fluid pressure brakes to compensate for the slack produced by the wearing down of the brake shoes.

The object of the invention is to provide such a device of strong durable construction all of whose parts are positively actuated to produce a direct overstroke of the push rod to fully apply the brakes.

In its broad aspects, the invention contemplates the provision of means for automatically lengthening the stroke of the usual push rod when the diminution of the brake shoes necessitates such a lengthened stroke to fully apply the brakes.

One form of the invention is illustrated in the accompanying drawing, which represents a broken plan view partly in section of the slack adjuster applied to the piston rod and push rod of a standard Westinghouse brake cylinder.

Referring to the drawing, 1 designates the brake cylinder, the exact location of which is immaterial to the invention. Preferably, however, it is applied to the under side of the car body in the usual manner. A piston 2 carrying the usual Westinghouse piston sleeve 3 is actuated by admitting and exhausting the fluid medium to the cylinder 1 through the port 4. Interposed between the piston 2 and the end 5 of the cylinder, is the usual release spring 6.

Telescoping in the piston sleeve 3 is the push rod 7 carrying at its outer end a guide block 8 which is adapted to abut the end of the brake lever 9 when the push rod is moved to the right in the drawing. The end of the brake lever 9 is longitudinally movable in the block 8 and a brake chain rod 10 is linked to the said end of the brake lever 9 by means of connections 11, 12, 13 so that the brake lever can be actuated by hand independent of the push rod connections.

The parts so far as described form the usual construction of braking mechanism.

Carried by the piston sleeve 3 are suitable lugs 25 to which the links 14 of a set of toggles 14, 15 are pivoted. The cooperating links 15 are pivoted to the push rod block 8, preferably at the points marked 16. The cooperating links of each toggle are pivoted together such as indicated at 17.

Secured preferably to a transverse sill 18 of the car body is a bracket 19 embracing the car sill and rigidly connected to said bracket is a strap 20 carrying the toggle engaging rollers 21. The strap is provided with a series of holes 22, in any two of which the pintles 23 of the rollers 21 can be placed, thereby providing means for adjusting the positions of the rollers.

The toggle links 15 are provided with the roller engaging cam surfaces 24, preferably shaped as shown in the drawing.

The operation of the apparatus is as follows: When a new brake shoe is installed, the rollers 21 are adjusted so that when the brakes are fully applied, the toggle links 15 will just come into engagement with the rollers. The full braking action can be obtained therefore within the normal stroke of the piston sleeve 3 and the push rod 7 which latter obviously moves the same amount as the piston under ordinary conditions. When the brake shoes wear, however, the stroke of the piston will be insufficient to fully apply the brakes. Due to the fact that the piston and push rod must travel a greater distance than was necessary when the brake shoes were newly adjusted, the toggle links 15 will be forced longitudinally between the rollers 21 which act on the cam surfaces 24 of said links to "make" or straighten the toggles 14, 15, thereby forcing the push rod outwardly an auxiliary amount. The said push rod will therefore travel farther than the piston. As the brake shoes wear the push rod will always be actuated an amount commensurate with such wear so that the brakes may at all times be fully applied irrespective of the size of the brake shoes. A simple mechanism is therefore provided which is actuated in a positive manner to fully compensate for the slack produced by the diminution in the size of the brake shoes.

It is obvious that many changes and modifications can be made in the construction as

disclosed herein without departing from the spirit or scope of the invention as defined in the appended claims.

What I claim is:—

1. In a fluid pressure brake apparatus, the combination with the brake cylinder, piston rod and telescopic push rod, of toggle levers interposed between said piston rod and push rod, and stationary means to engage said toggles to straighten the same, thereby lengthening the stroke of said push rod.

2. In a fluid pressure brake apparatus, the combination with the brake cylinder, piston rod and push rod, of connections between said piston rod and push rod and stationary means to engage said connections during the movement of the piston rod to move said push rod an auxiliary amount.

3. In a fluid pressure brake apparatus, the combination with the brake cylinder, piston rod and telescopic push rod, of toggle levers interposed between said piston rod and push rod, and rollers adapted to engage said toggle levers to straighten the same, thereby lengthening the stroke of said push rod.

4. In a fluid pressure brake apparatus, the combination with the brake cylinder, piston rod and telescopic push rod, of connections between said piston rod and push rod, and rollers to engage said connections during the movement of the piston to move said push rod an auxiliary amount.

5. In a fluid pressure brake apparatus, the combination with the brake cylinder,

piston rod and telescopic push rod, of connections interposed between said piston rod and push rod, said connections being normally idle for predetermined strokes of the piston, and means adapted to act on said connections to move said push rod farther than the piston when the strokes of the piston exceeds the predetermined amount.

6. In a fluid pressure brake apparatus, the combination with the usual brake cylinder, piston rod and telescopic push rod, of a toggle interposed between said piston rod and said push rod, one link of said toggle having a lateral cam surface, and a roller adapted to engage with said cam surface to straighten the toggle and move the push rod an auxiliary amount when the stroke of the piston exceeds a predetermined amount.

7. In a slack adjusting mechanism for fluid pressure brakes, the combination with a cylinder, piston rod and push rod, of pivoted levers interposed between said piston rod and push rod, and means operative when the brake shoe wears and the movement of the piston exceeds the normal brake applying stroke to actuate said levers to move the push rod an auxiliary amount and thereby thoroughly apply the brakes.

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

ISAAC JONES.

Witnesses:

JOHN D. CLARK,

BERTHA MATHSON.