

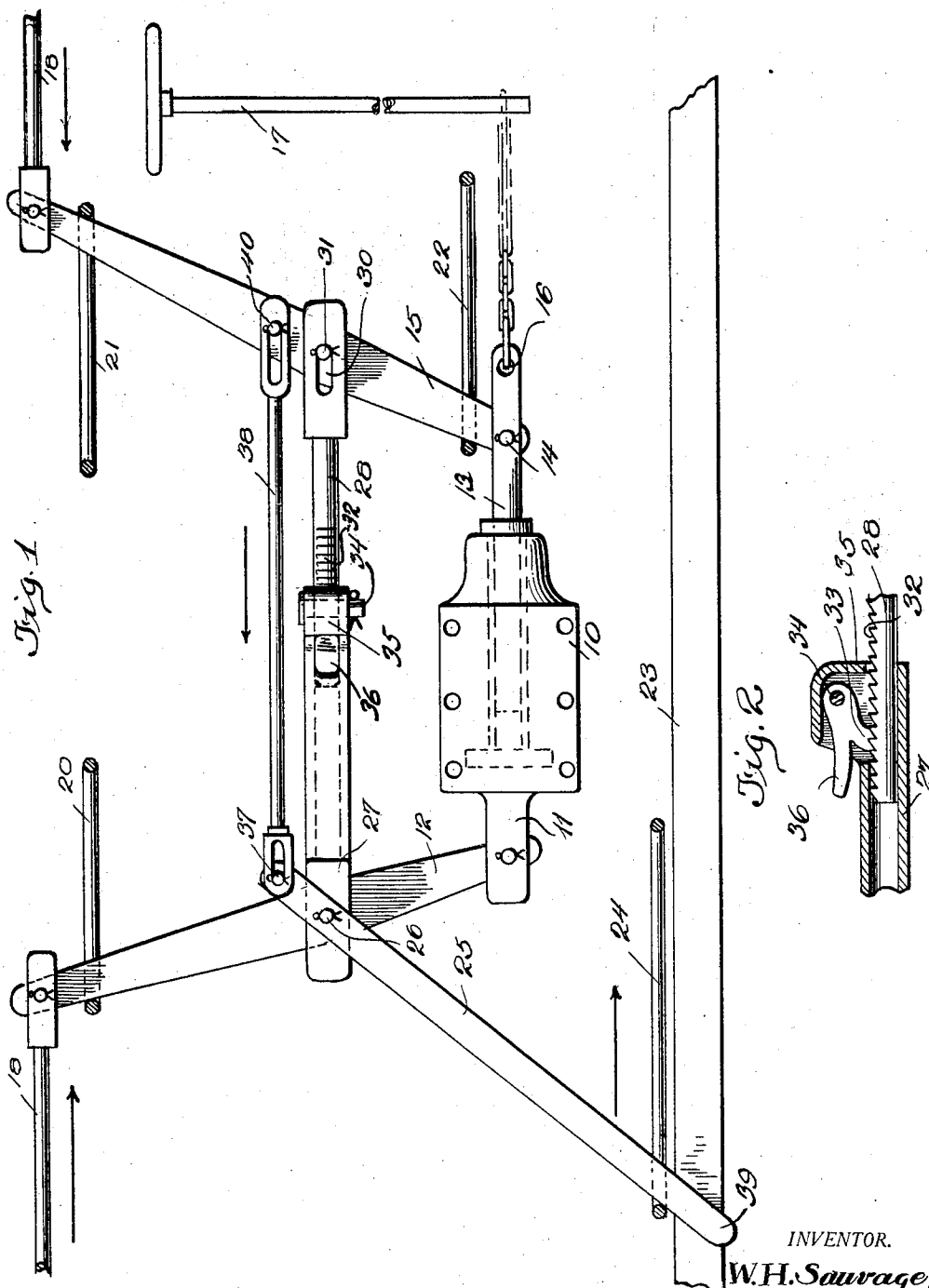
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REGULATOR FOR BRAKE RIGGING

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REGULATOR FOR BRAKE RIGGING

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This invention relates to regulators for brake rigging, and more particularly to manually actuated brake regulators especially adapted to be connected directly with the cylinder levers of the foundation brake gear for restoring the entire brake rigging to proper position after wear on the brake shoes and other moving parts has taken place.

One of the objects of the present invention is to provide a simple and practical regulator which may be easily and quickly applied to standard brake rigging now in use for substantially instantaneously regulating the entire foundation brake gear to establish proper brake shoe clearance, predetermined piston travel, and predetermined hand brake travel.

A further object of the present invention is to provide a mechanism of the above general character having relatively few parts which may be inexpensively manufactured, assembled and installed.

A further object is to provide a mechanism of the above character which may be conveniently operated from a relatively remote point, such as at a side or end of the car, thereby avoiding the necessity of the inspector going under or beneath the car to regulate the brakes.

Other objects will be in part obvious from the annexed drawings and in part hereinafter 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 relation of the members and in the relative proportioning and disposition thereof, all as more completely outlined herein.

To enable others skilled in the art to fully 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 of the invention have been annexed as part of this disclosure, and in such drawings like characters of reference denote corresponding parts throughout all of the views, in which—

Fig. 1 is a general diagrammatic plan view

of the entire brake rigging or such parts thereof as are necessary to fully understand the present invention.

Fig. 2 is a detail view showing one form of a permanent take up and holding mechanism.

Referring now to the drawings in detail and more particularly to Fig. 1, 10 indicates an air brake cylinder secured in any desired manner to the under side of the car frame. At one end extends a boss 11 forming a pivotal support 12 for one end of the floating or dead cylinder lever 12. Telescoping within the cylinder is the usual piston rod 13 pivotally connected at 14 to one end of a live cylinder lever 15. There is also provided a point of attachment 16 for the hand brake mechanism of any desired form, which is diagrammatically shown by the parts 17. This hand brake mechanism will also act as stop means for the return of the piston rod 13 when properly applied.

The live and dead cylinder levers are connected respectively with pull rods 18 which lead to the truck brake rigging in the well known manner. These levers are supported in any desired manner, preferably in hangers 20, 21 and 22, the hangers 20 and 21 being primarily for the purpose of properly positioning the truck brake levers during installation of the brake rigging. The hanger 22, however, performs a dual function, namely, of holding the lever 15 against movement at one portion during the regulation, and of acting as a further stop therefor on the return of the piston rod 13 to its release position. All of these parts are now of well known standard construction, and it is believed to be unnecessary to go into further detailed description.

It will be noted particularly that secured in or to the under side of a side sill 23, there is mounted a bracket 24 which acts as a support for an operating lever 25, as well as a stop for limiting its movement. This lever 25 is pivotally mounted at 26 on the point of connection between the dead or floating lever 12 and a telescopic tie rod 27. This tie rod is provided with a tubular member 27 and the inner or telescoping member 28, the latter having a loose connection preferably with

the live lever 15 in the form of a slot 30 embracing the pivot 31. The length of the slot 30 is proportional or equal to brake shoe clearance and permits a manual regulation, as will be more fully hereinafter explained.

It is, of course, to be understood that these various levers, tie rods, and actuating members are provided with bifurcated jaws or slotted ends as and where may be necessary in order to insure a more practical operative construction. The parts are merely shown, as above stated, in a semi-diagrammatic manner.

Between the telescoping parts 27 and 28 is a permanent take up and holding mechanism of any desired type. For example, reference is made to Fig. 2, wherein the part 28 is provided with a series of ratchet teeth 32 adapted to be engaged by a pawl 33 pivoted at 34 within a suitable housing 35. The pawl has a projecting counterweight handle 36 adapted to hold the nose of the pawl in engagement with the ratchet at all times, except when the handle 36 is raised for restoring the parts to normal position as when replacing worn brake shoes.

It will be noted that the inner end of the operating lever 25 extends beyond the pivot point 26 where it is loosely and pivotally connected at 37 with one end of an adjusting rod 38 having a loose lost motion or slot and pin connection 40 with the live lever 15. These lost motions are primarily for the purpose of permitting an actuating of a hand or power brake mechanism without in any way disturbing the position of the regulator.

As the construction of the mechanism will be clear from the above, a brief statement of the operation is as follows. Assuming the brakes to be in full release position as shown in Fig. 1, but due to wear of the brake shoes and other parts, the piston rod 13 has excess travel in operation. When such condition arises, it is only necessary for the inspector to grasp the free end of the actuating lever 25 or handle 39 and move the same towards the right along its support 24. Inasmuch as one end of the live lever 15 is held against movement by the stop or bracket 22, the opposite end of this lever is moved gradually towards the left by reason of the connection between the rod 38 and pin 40. Such movement first takes up the excess travel of the brake rigging on the truck at the right, and then the pivot point 26 is moved relatively towards the right, which will take up all of the excess travel in the brake rigging at the left end of the car. These movements, however, occur almost instantaneously as only one strong pull is required. When the shoes are tight against the wheels and all excess travel is eliminated, then the handle 39 of the actuating lever 25 is released and the parts fall back to the position shown in Fig. 1. This operation, however, when excess travel

is present, or in excess of that permitted by slot 30, has caused the rod 28 to move inwardly with respect to the telescoping portion 27, and the excess travel above that allowed by slot 30 will be absorbed by the pawl and ratchet mechanism shown in Fig. 2. This inward movement, however, does not take place until the pivot 31 has traversed the length of the lost motion slot 30. Consequently, on release of the brakes, the pin 31 moves relatively towards the right this lost motion distance, thereby positively insuring the desired brake shoe clearance and piston travel.

The present mechanism should of course not be confused with automatic mechanical slack adjusters of the "grab all" type, which have proven so unsatisfactory in commercial use, due primarily to the variations in the brake forces actuating the same, which when extreme cause relative movement of the axles and consequent loss of brake shoe clearance. With the present construction, a substantially constant or normal pressure is exerted upon the operating handle, and this is insufficient to disturb the brake rigging to the extent of causing a relative movement of the wheels towards each other or a shifting of the axles in the journal boxes, pedestals, etc., in certain types of trucks, as occurs when an emergency brake application is made.

The construction herein shown and described is of simple and practical construction, and may be readily applied to brake rigging now in general use without material alterations and substitutions. The action is substantially instantaneous, positive and accurate, and the parts being of simple, strong and durable construction are unlikely to get out of order or adjustment.

Without further analysis the foregoing will so fully reveal the gist of this invention that others can by applying current knowledge readily adapt it for various applications without omitting certain features that, from the standpoint of the prior art, fairly constitute essential characteristics of the generic or specific aspects of this invention, 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 combination with a cylinder and cylinder levers of the foundation brake gear, a telescoping tie rod connecting said levers, an adjusting rod provided with a lost motion connection with one of said levers for insuring brake shoe clearance, and a manually actuated lever connected with said adjusting rod and extending to a relatively remote point whereby the adjusting rod may be manually actuated without the necessity of going beneath the car.

2. In combination with a cylinder and cyl-

inder levers of the foundation brake gear, a telescopic tie rod connecting said levers having positive take up and holding means between its effective ends, an adjusting rod interposed between said levers, and an actuating member therefor extending to one side of the car whereby said adjusting rod may be manually actuated to move said cylinder levers relatively towards each other, thus to take up the excess travel in said permanent take up and holding means.

3. In combination with a cylinder and cylinder levers of the foundation brake gear, a telescopic tie rod connecting said levers having positive take up and holding means between its effective ends, an adjusting rod interposed between said levers, and an actuating member therefor extending to one side of the car whereby said adjusting rod may be manually actuated to move said cylinder levers relatively towards each other, thus to take up the excess travel in said permanent take up and holding means, said permanent take up and holding means including a pawl and ratchet mechanism.

4. In combination with a cylinder and cylinder levers of the foundation brake gear, a telescopic tie rod connecting said levers having positive take up and holding means between its effective ends, an adjusting rod interposed between said levers, an actuating member therefor extending to one side of the car whereby said adjusting rod may be manually actuated to move said cylinder levers relatively towards each other thus to take up the excess travel in said permanent take up and holding means, and a lost motion connection including a pin and slot device between one of said levers and the adjusting rod, said slot being substantially proportional to brake shoe clearance.

5. In combination with a cylinder and cylinder levers of the foundation brake gear, a telescopic tie rod connecting said levers having positive take up and holding means between its effective ends, an adjusting rod interposed between said levers, an actuating member therefor extending to one side of the car whereby said adjusting rod may be manually actuated to move said cylinder levers relatively towards each other thus to take up the excess travel in said permanent take up and holding means, and a hand brake mechanism connected with one of said cylinder levers which may be actuated without disturbing the position of said regulating mechanism.

6. In combination with a cylinder and cylinder levers of the foundation brake gear, a tie rod connecting said levers having a lost motion connection with one of them and having a permanent take up and holding means interposed between the effective ends of said tie rod, an adjusting rod having a loose connection with one of said levers, and an actuat-

ing lever connected with said adjusting rod for manually moving said cylinder levers relatively towards each other to take up the excess travel over and above that provided for by the lost motion connection.

7. In combination with a cylinder and cylinder levers of the foundation brake gear, a tie rod connecting said levers having a lost motion connection with one of them substantially proportional to brake shoe clearance and having a permanent take up and holding means interposed between the effective ends of said tie rod, an adjusting rod having a loose connection with one of said levers and extending substantially parallel to said tie rod, and an actuating lever connected with said adjusting rod for manually moving said cylinder levers relatively towards each other to take up the excess travel over and above that provided for by the lost motion connection.

Signed at New York, New York, this 30th day of October, 1929.

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