L. E. OLIVER & A. CURETON.

ADJUSTING APPARATUS FOR BRAKE RIGGING.

APPLICATION FILED DEC. 27, 1910.

1,028,264.

Patented June 4, 1912.

2 SHEETS—SHEET 1.

Fig. 1.

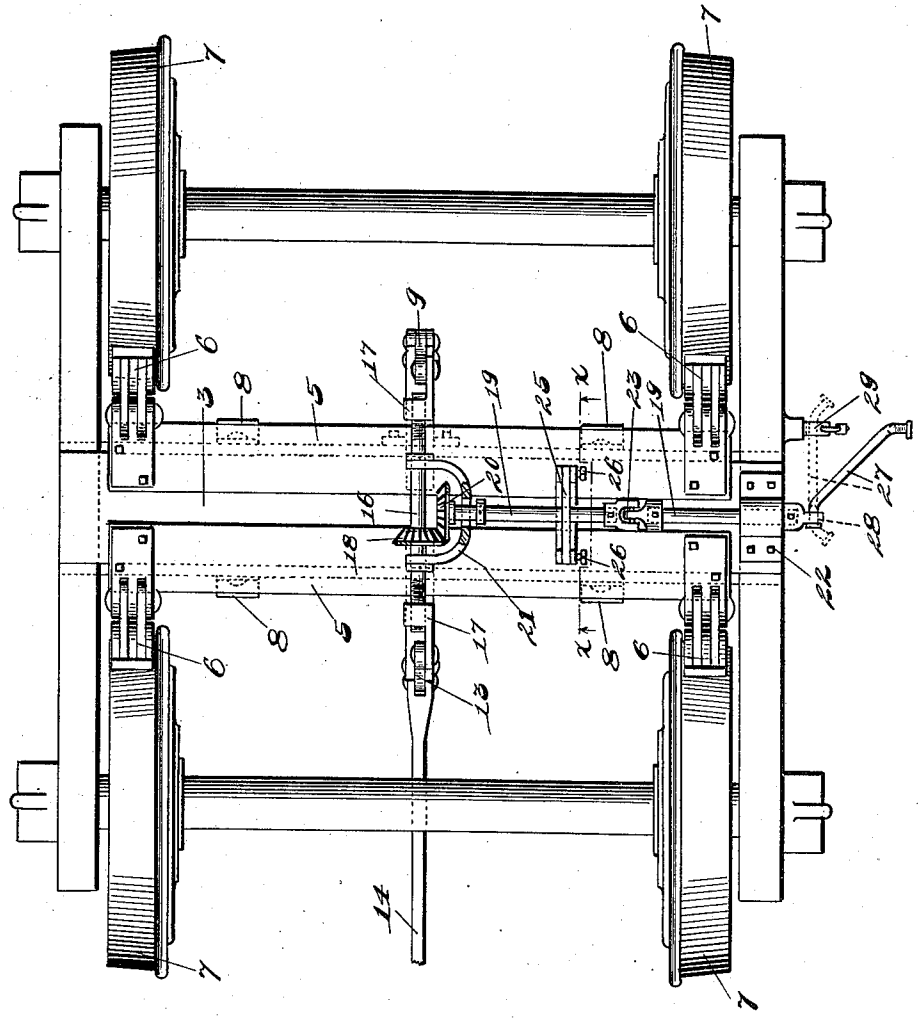
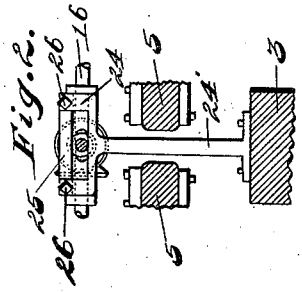


Fig. 2.



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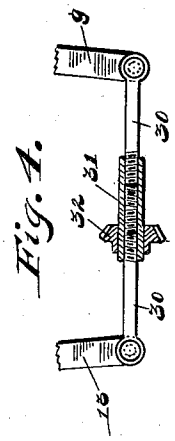

Fig. 4.

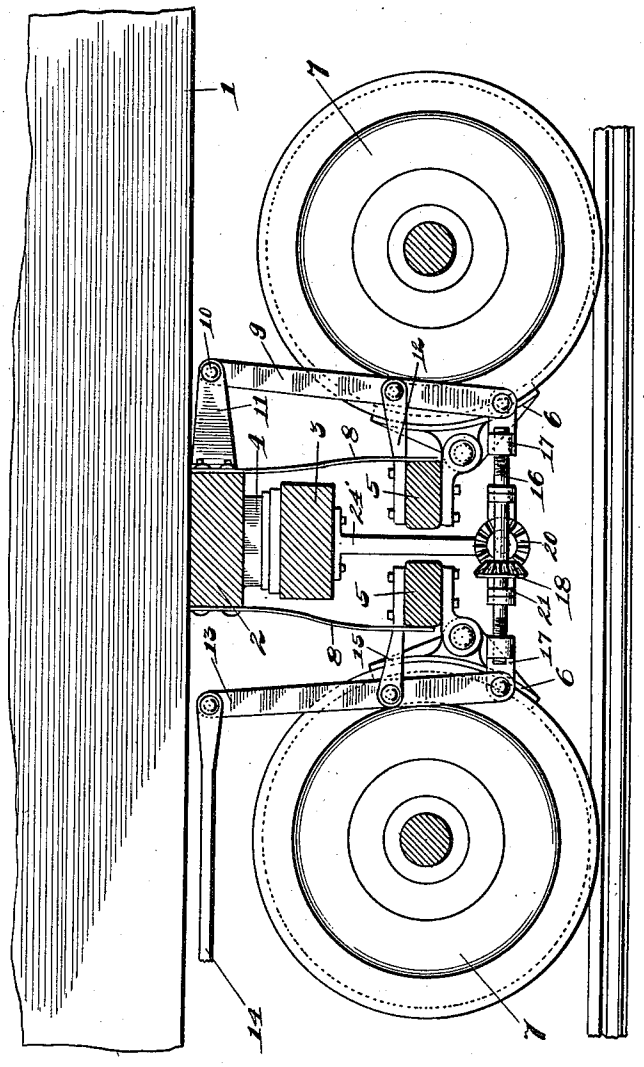

Fig. 5.

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UNITED STATES PATENT OFFICE.

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ADJUSTING APPARATUS FOR BRAKE-RIGGING.

1,028,264. Specification of Letters Patent. Patented June 4, 1912.

Application filed December 27, 1910. Serial No. 599,265.

To all whom it may concern:

Be it known that we, LOUIS E. OLIVER and ALBERT CURETON, citizens of the United States, and residents of the cities of Maywood and Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Adjusting Apparatus for Brake-Rigging, of which the following is a specification.

Our invention relates to improvements in brake rigging for street railway cars and more specifically to brake rigging in cars in which four wheeled trucks are employed, such being of the compressed air operated type.

The object of our invention is the production of means whereby the slack of the brake rigging in cars of the character mentioned may be readily and easily taken up or adjusted by the motorman or trainman when desired without necessitating his crawling under the car or of driving the car to a position over a pit, in order that the bottom of the car may be accessible, such as is required at the present time in effecting the adjustment above mentioned.

A further object is the provision of adjusting means for brake rigging of the character mentioned which will be of durable and economical construction and efficient in operation.

Other objects will appear hereinafter.

With these objects in view our invention consists in improvements in brake rigging characterized as above mentioned and in certain details of construction and arrangement of parts all as will be hereinafter more fully described and particularly pointed out in the appended claims.

Our invention will be more readily understood by reference to the accompanying drawings forming a part of this specification and in which,

Figure 1 is a bottom plan view of a conventional form of street car truck to which is applied adjusting mechanism embodying our invention, Fig. 2 is a slightly enlarged sectional detail taken on line x—x of Fig. 1, Fig. 3 is a longitudinal section of the construction shown in Fig. 1, a portion of the car body being also shown, and Fig. 4 is a sectional detail of a slight modification of the construction shown in the other figures.

Referring now to the drawings we have illustrated a conventional street car employing four wheeled trucks of the ordinary type, the brake rigging thereof being operated in the ordinary manner.

As illustrated in the drawings 1 indicates the car body each end of which is mounted upon the transversely extending body bolster 2. Arranged directly below the bolster 2 is the truck bolster or channel bar 3, the latter being connected with the bolster 2 for oscillatory movement relative to the latter by means of the usual king bolt or plate 4. Arranged below the bolster 3 are the usual brake beams 5 which are mounted in the usual manner for horizontal movement longitudinally of the car. Carried by the brake beams 5 at the extremities thereof are the brake shoes 6 arranged for coöperation with the peripheries of the wheels 7, the arrangement being such that movement of the brake beams toward the respective pairs of wheels 7 effects the forcing of the brake shoes into engagement with said wheels and the consequent retardation thereof. Said brake shoes are normally held in released position, that is out of engagement with the wheels 7 by means of release springs 8 the upper extremities of which are fixed to the bolster 2, the lower extremities of said springs engaging against the outer sides of the beams 5 as clearly shown in Fig. 3.

The mechanism for effecting operation of the brake beams as above mentioned is substantially the conventional type, such mechanism comprising the relatively stationary brake lever 9 the upper extremity of which is fulcrumed at 10 to the stationary bracket 11 rigidly secured to and projecting from the bolster 2. The lever 9 intermediate its extremities is pivotally connected by means of the arm 12 with the adjacent brake beams 5, so that upon outward swinging of said lever the shoes 6 carried by said brake beams will be forced into engagement with the car wheels 7 with which the same coöperates. Arranged at the opposite side of the bolsters 2 and 3 is the floating brake lever 13 the upper extremity of which is connected in the usual manner with the operating brake rod 14. Said lever 13 intermediate its extremities is pivotally connected by means of an arm 15 with the other of the brake beams 5. The lower extremities of the levers 9 and 13 are connected by the coupling bar so that upon proper pulling or drawing of the brake rod 14 the said levers 9 and 13 will be swung to effect the forcing of the

shoes 6 coöperating therewith into engagement with car wheels. The operations of the levers 9 and 13 and the parts connected therewith upon the above mentioned drawing or pulling of the brake rod 14 is well known, the coupling bar connecting the lower extremities of the brake levers 9 and 13 serving as a fulcrum for the latter in such operation, and as a means of outwardly swinging the lower end of the lever 9. As will be observed the arrangement is such that by adjusting the length of said coupling bar the amplitude of free movement of slack of said brake levers and the parts connected therewith, that is the brake rigging may be adjusted, it being obvious that by increasing the length of said coupling bar such slack will be taken up or mitigated, and that by reducing the length of said coupling bar such slack will be increased. The construction of the coupling bar permitting of ready longitudinal adjustment thereof and the means whereby longitudinal adjustment of said bar may be readily effected constitutes our invention, this being set forth in the following.

As illustrated in Figs. 1 and 2 the said coupling bar comprises a central rod 16 the extremities of which are provided with right and left hand screw threads being in threaded connection with socket or sleeve members 17 in pivotal connection with the lower extremities of the levers 9 and 13. The arrangement is such, as will be observed, that by rotating said rod 16 in one direction the length of the coupling member, that is the distance between the lower end of the levers 9 and 13 may be increased, and that by rotating said rod in the opposite direction such length of distance may be decreased. Fixed to said rod 16 intermediate its extremities is a bevel gear 18. Arranged coplanar with the rod 16 is a transversely extending shaft 19 carrying at its inner extremity a bevel gear 20 which meshes with the gear 18. The inner extremity of the shaft 19 is rotatably mounted in a substantially U-shaped bearing or yoke 21 the extremities of which engage or embrace the rod 16, the outer end of the shaft 19 being mounted in a bearing block 22 suitably located. In the operation of the brakes, the shaft 16 is moved slightly longitudinally, the inner end of the shaft 19 being therefore required to move correspondingly in order that the gears 18 and 20 shall remain constantly in mesh. To permit of this movement of the inner end of the shaft 19 a knuckle joint 23 is interposed in said shaft. Said shaft adjacent said knuckle joint is loosely supported in a bearing that is so as to permit of a slight horizontal oscillatory movement thereof. Said last mentioned bearing comprises a substantially U-shaped or forked body 24 the supporting stem or bracket 24′ thereof being rigidly secured to the under side of the bolster 3. The lower extremities of the parallelly extending end portions of the member 24 are bifurcated for the reception of the extremities of a bar 25, the latter being adjustably secured in position by means of set screws 26. With this arrangement, it will be observed, that the inner end portion of the shaft 19 will be supported in the manner above mentioned upon the upper edge of the bar 25. The outer extremity of the shaft 19 terminates at one side of the car, the same being provided with a crank or operating bar 27 which loosely engages a perforation or socket 28 provided for the reception thereof in the outer extremity of said shaft.

In operation the extremities of the operating member 27 engage the socket 28 said member 27 being so formed that when either extremity thereof is so engaged the outer end portion of said member will project outwardly for ready engagement by the hand so as to permit of ready rotation thereof. In order to prevent relative rotary movement of the operating member 27 the end portions thereof are squared as indicated, and the socket 28 is correspondingly formed to snugly receive the same. Said member 27 and hence the shaft 19 and the parts connected therewith may be held in positions of adjustment by means of a suitable locking device 29 arranged adjacent the outer extremity of said shaft, the member 27 being shown in dotted lines in locked position. With this arrangement then it will be observed that rotation of the shaft 19 in order to effect rotation of the rod 16 in effecting longitudinal adjustment of the coupling bar, as above described, may be readily and expeditiously accomplished by manual engagement and rotation of the member 27 from a position alongside the car. With the construction as set forth then, upon the motorman or other trainman desiring to adjust the brake rigging to either increase or lessen the slack it is only required, from a position alongside the car at the exteriorly projecting extremity of the shaft 19, to unlock or release the member 27 and proceed, in the manner above mentioned by manipulation of said member 27 to rotate said shaft 19.

In Fig. 4 wherein is illustrated a slight modification we have shown the coupling bar connecting the lower ends of the brake levers 9 and 13 formed of two alining rods 30 the outer ends of which are pivotally secured to the lower ends of said levers, the same being held against ready movement thereby. The inner ends of said members 30 are provided respectively with right and left hand screw threads which are engaged by the extremities of a sleeve 31 which is internally correspondingly screw threaded so that by rotation of said sleeve said mem-

bers 30 may be forced apart or drawn together to increase or decrease the length of the coupling bar. The sleeve 31 carries a bevel gear 32 which is adapted to mesh with the bevel gear 20 provided at the inner extremity of the shaft 19 so that rotation of said sleeve 31 as mentioned in order to effect the longitudinal adjustment of the coupling bar may be effected by rotation of said shaft 19 in the same manner as the corresponding construction first described.

While we have illustrated and described the preferred construction for carrying our invention into effect this may be varied somewhat without departing from the spirit of the invention, and hence we do not wish to be limited to the precise details of construction as set forth but desire to avail ourselves of such variations and modifications as come within the scope of the appended claims.

Having described our invention what we claim as new and desire to secure by Letters Patent is:

1. The combination with a brake rigging of oppositely disposed brake levers; an adjustable connection between said levers; a bevel gear arranged to operate said adjustable connection; a shaft carrying a bevel gear meshing with said first mentioned bevel gear and leading to a side of the car; and means for operating said shaft from said side of the car, substantially as described.

2. The combination with a brake rigging for railway cars comprising fulcrumed brake levers adapted through adjustment of the distance between corresponding ends thereof to effect the adjustment of the slack in said rigging, of longitudinally adjustable coupling means extending between and connecting said ends of said levers; a rotatably mounted transversely extending shaft carrying a gear meshing with a gear included in said coupling means, whereby longitudinal adjustment of said coupling means may be effected by rotation of said shaft; a knuckle joint interposed in said shaft; and means at the outer end of said shaft for effecting ready rotation thereof, substantially as described.

3. The combination with a brake rigging for railway cars comprising fulcrumed brake levers adapted through adjustment of the distance between corresponding ends thereof to effect the adjustment of the slack in said rigging, of rotatable screw threaded coupling means extending between and connecting said ends of said levers; a gear carried by said coupling means adapted when rotated to effect longitudinal adjustment of said coupling means; a manually rotatable shaft; and a gear carried by said shaft meshing with said first mentioned gear, substantially as described.

4. The combination with a brake rigging for railway cars comprising spaced fulcrumed brake levers adapted through adjustment of the distance between corresponding ends thereof to effect the adjustment of the slack in said rigging; of a bar extending between and connecting said ends of said levers, the respective ends of said bar being in opposingly threaded connection with said ends of said levers; a gear fixed to said bar; a manually rotatable transversely extending shaft; and a gear carried by said shaft meshing with said first mentioned gear, substantially as described.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

LOUIS E. OLIVER.
ALBERT CURETON.

Witnesses:
W. C. SMITH,
JOSHUA R. H. POTTS.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."