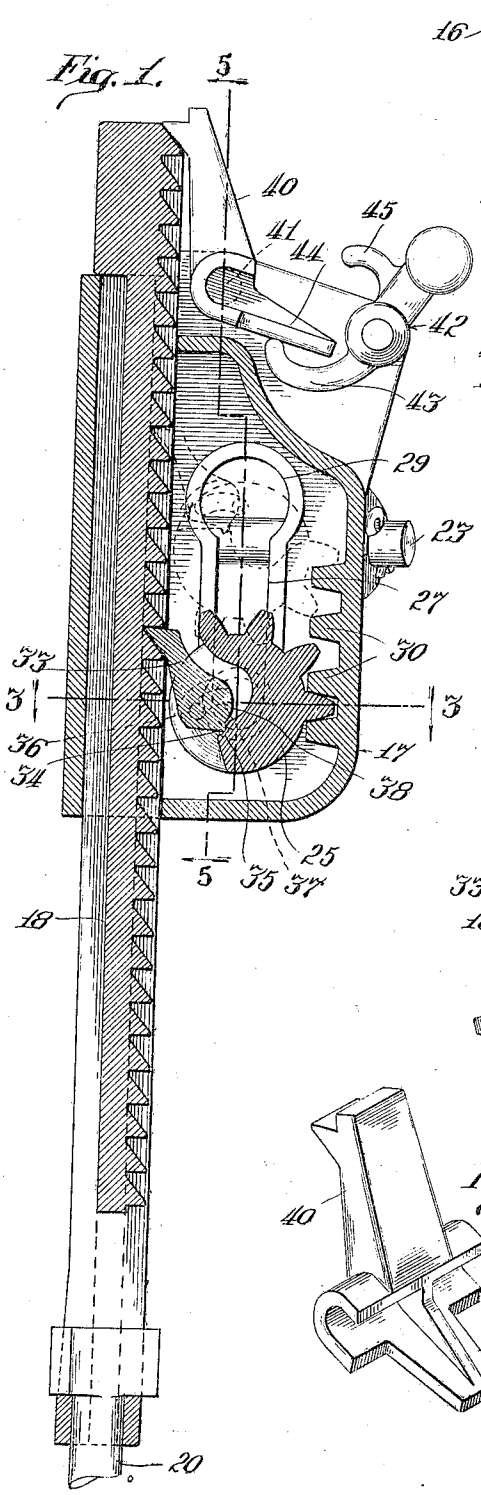
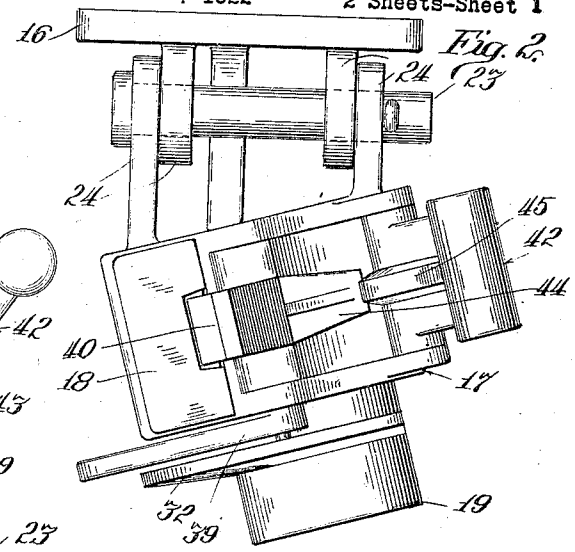
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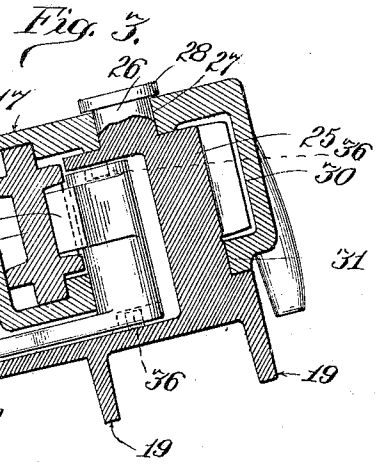
A. F. KLASING

BRAKE OPERATING MECHANISM

Filed Feb. 1, 1922 2 Sheets-Sheet 1







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Fig. 8.

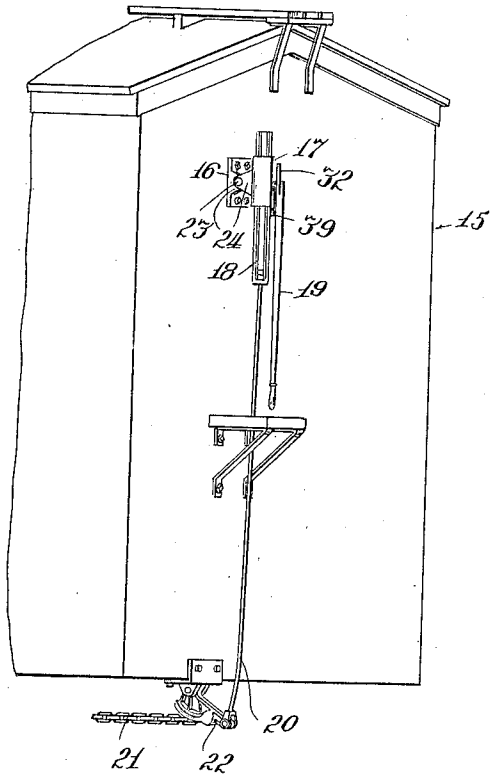


Fig. 5.

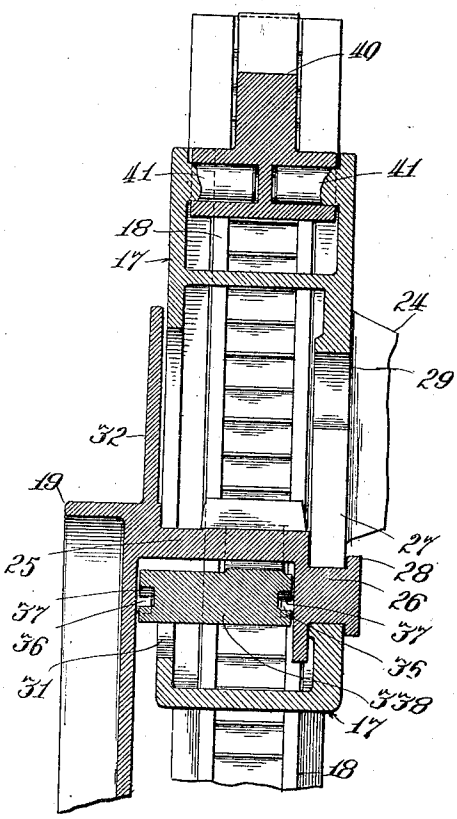


Fig. 6.

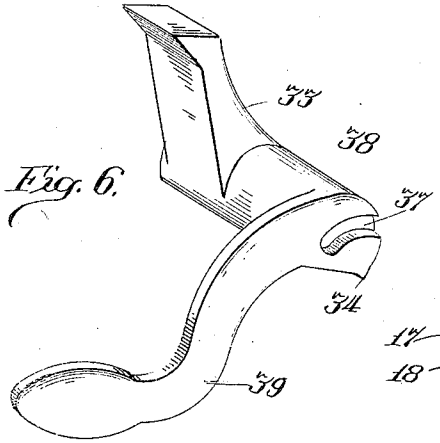
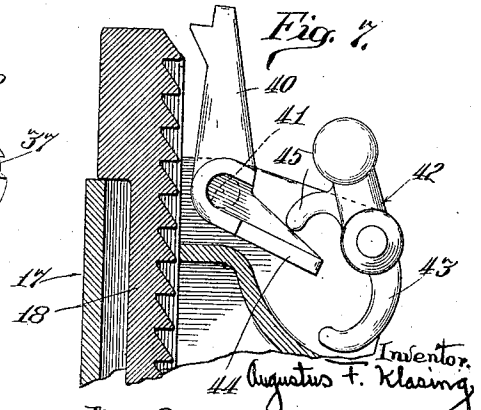


Fig. 7.



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Patented Feb. 12, 1924. 1,483,665

UNITED STATES PATENT OFFICE.

AUGUSTUS F. KLASING, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE KLASING CAR BRAKE COMPANY, A CORPORATION OF COLORADO.

BRAKE-OPERATING MECHANISM.

Application filed February 1, 1922. Serial No. 533,267.

To all whom it may concern:

Be it known that I, AUGUSTUS F. KLASING, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Brake-Operating Mechanism, of which the following is a specification.

My invention relates to brake operating mechanism for railway cars, being particularly concerned with an apparatus of the type in which a longitudinally movable rack is employed with suitable co-operating mechanism for taking up the slack in the brake rigging and applying the brakes.

It is one of the principal objects of my invention to provide a simple, strong and compact mechanism which can be economically manufactured and readily assembled for imparting movements to the rack member by a plurality of strokes of a lever, such lever being preferably arranged for applying the power upon its upward stroke.

It is another object of my invention to provide an improved construction of this type in which the length of the operative stroke of the lever may be varied as desired to suit the convenience of the operator, the lever being automatically disconnected from the rack at the end of each operative stroke regardless of the length of such stroke.

It is another object of my invention to improve devices of this type in sundry details hereinafter pointed out.

The preferred means by which I have accomplished my several objects are illustrated in the drawings and are hereinafter specifically described. That which I believe to be new and desire to cover by this application is set forth in the claims.

In the drawings,—

Fig. 1 is a central vertical section through the preferred form of my operating mechanism.

Fig. 2 is a top plan view of the parts shown in Fig. 1.

Fig. 3 is a horizontal section taken on line 3—3 of Fig. 1.

Fig. 4 is a perspective view of the holding dog by which the rack is held against retraction between operative strokes of the lever.

Fig. 5 is a vertical section taken on line 5—5 of Fig. 1.

Fig. 6 is a perspective view of my improved lifting dog.

Fig. 7 is a fragmentary view showing a changed position of the holding dog, and

Fig. 8 is a perspective view of the end portion of a car equipped with my improved brake operating mechanism.

Referring to the several figures of the drawings in which corresponding parts are indicated by the same reference characters, 15 indicates the body of a car upon which is rigidly mounted a plate 16 by means of which my improved brake operating mechanism is mounted. As is clearly shown in Fig. 8, my improved mechanism comprises a housing 17 through which a vertically disposed rack bar 18 extends, such rack bar 18 being movable vertically as hereinafter described through the medium of a hand lever 19. The lower end of the rack bar 18 is connected to the upper end of a link 20 which in turn is connected to the outer end portion of a link or chain 21 which extends to the brake rigging of the car, the connection between the link 20 and the chain 21 being effected in the construction shown by the use of a bell crank lever 22. As is best shown in Fig. 2, the housing 17 in the construction shown is pivotally connected with the plate 16 by means of a pin 23 which passes through a plurality of lugs 24 carried by the housing and the plate, the housing 17 being preferably mounted at an angle with respect to the plate 16.

The means for moving the rack bar 18 upwardly by a plurality of strokes of the lever 19 comprises a floating rotary member 25 which is shown in the form of a segmental gear slidably mounted within the housing 17. As is best shown in Fig. 3, the gear 25 is normally held in position within the housing 17 by means of a lug 26 formed integrally with the gear and extending through a vertical slot 27 in the inner face of the housing 17, the lug 26 having an enlarged head 28 which is capable of passing through an enlarged portion 29 of the slot 27 at the upper end of said slot. As is best shown in Fig. 1, the housing

17 is provided at one side with a stationary rack bar 30 with the teeth of which the segmental gear 25 meshes, the arrangement being such that upon rotation of the gear 25 in clockwise direction in Fig. 1 such gear is caused to move upwardly along the rack bar 30 and along the face of the rack bar 18.

As is best shown in Figs. 3 and 5, the gear 25 extends outwardly through a vertical slot 31 in the outer face of the housing 17, the lever 19 in the construction shown being formed integrally with the gear 25. For closing the slot 31, I have provided a flange 32 on the lever 19, the flange 32 being arranged so as to stand opposite said slot in the several turned positions of the lever 19.

For causing the rack bar 18 to move upwardly with the gear 25, I have provided a lifting pawl 33 which is pivotally mounted upon the gear 25 eccentrically thereof. For reducing to a minimum the friction between the lifting pawl 33 and its supporting parts, I have provided a knife edge engagement between the pawl 33 and the gear 25. As is best shown in Fig. 6, the pawl 33 is provided at its lower end with a rib 34 which engages a notch 35 formed in the gear 25. For holding the pawl 33 in operative position, I have provided oppositely disposed pins 36 upon the gear 25 which extend into slots 37 in the ends of the hub member 38 of the pawl 33, such slots 37 being arc shaped with respect to the notch 35 in the gear 25. As is best shown in Fig. 1, the pawl 33 is in position to engage the teeth of the rack bar 18, whereby upon the upward movement of the gear 25 the rack bar 18 is caused to move upwardly therewith, the pressure of the pawl upon the gear 25 being confined almost completely to the bearing rib 34 engaging the notch 35. As is best shown in Fig. 6, the hub 38 of the pawl 33 is provided with an arm or lever 39 which serves the function of holding the pawl 33 yieldingly in operative position with respect to the rack bar 18 while at the same time serving as the means for manual movement of the pawl 33 out of operative position when desired.

For holding the rack bar 18 in raised position between operative upward strokes of the lifting pawl 33 carried by the gear 25, I have provided a holding pawl 40 which is pivotally mounted upon pins 41 extending inwardly from opposite sides of the housing 17 at its upper end portion. Pivotally mounted upon the housing 17 adjacent to the pawl 40, I have provided a weight member 42, a finger 43 of which is adapted, by engagement with the under face of an arm 44 carried by the pawl 40, to hold the pawl yieldingly in position for engagement with the rack bar 18. When it is desired to hold the pawl 40 out of operative position, this can be effected by turning the weight member 42 into changed position as shown in Fig. 7 for bringing a finger 45 into engagement with the upper end of the arm 44 of the pawl, as is shown in Fig. 7.

In operation, with the parts in the position as shown in Fig. 1, upon a movement of the gear 25 in clockwise direction in said Fig. 1 through the medium of the lever 19, the rack bar 18 is moved upwardly, the teeth of the rack bar slipping by the pawl 40 during such upward movement. When the upward pressure upon the bar 18 ceases, the pawl 40 serves to hold the bar in its raised position while the gear 25 moves downwardly, either by the application of power through the lever 19 or by gravity when such lever is released. Upon a second stroke of the lever 19, the bar 18 is given a further upward movement to the extent desired. It will be understood that the desired movement of the bar 18 can be effected by the required number of full length strokes of the lever 19 or by a correspondingly greater number of shorter strokes if it meets the convenience of the operator to employ such shorter strokes. In the use of my improved mechanism, it is possible for the operator to stop the upward movement of the lever 19 as soon as the slack in the brake rigging is completely taken up, and to move the lever 19 then downwardly so as to be ready for a complete upward stroke. Inasmuch as the arrangement is such that a single upward stroke of the lever 19 is sufficient for applying the full force of the brakes, it will be understood that means is provided by the use of my improved construction for complete control of a car by a brakeman. When the slack has been taken up as above described, the weight member 42 can be turned into the position shown in Fig. 7 for moving the holding pawl 40 out of operative position, whereupon the brakes can be entirely released from the wheels or can be applied very forcibly to the wheels, all by a single stroke of the lever 19 and all within the easy control of the brakeman. When the brakes are finally to be applied and held in set condition, the weight member 42 is to be turned back into the position shown in Fig. 1 and the lever 19 raised to its uppermost position for applying the required power to the brakes, whereupon the lever can be lowered, leaving the brakes held in set condition by the holding pawl 40. When thereafter it is desired to release the brakes, this can be effected by shifting the weight member 24 again to the position shown in Fig. 7 whereupon a slight upward movement of the lever 19 releases the pressure upon the pawl 40 for permitting the movement of such pawl out of holding posi-

tion. The lever 39 can then be operated for releasing the pawl 33 from the rack bar 18, whereupon the rack bar is permitted to move downwardly for releasing the brakes.

While I prefer to employ the construction illustrated in the drawings and above described, it will be understood that I do not limit myself to the use of such structure except as hereinafter specifically claimed, inasmuch as it is obvious that various changes might be made without departing from the spirit of my invention.

Claims:

1. A brake operating mechanism comprising a movable member for applying power to a brake, a rotary member adapted upon rotary movement to travel in the direction in which said first-named member is movable, and means movably mounted on said rotary member adapted normally to cause said two members to move together in one direction while permitting the rotary member to move in the opposite direction independently.

2. A brake operating mechanism comprising a vertically movable member for applying power to a brake, a rotary member adapted upon rotary movement to travel vertically, and means movably mounted on said rotary member adapted normally to cause said first named member to move upwardly with said rotary member but adapted to permit the rotary member to descend independently of said first named member.

3. A brake operating mechanism comprising a vertically movable member for applying power to a brake, a rotary member adapted upon rotary movement to travel vertically, means movably mounted on said rotary member adapted normally to cause said first named member to move upwardly with said rotary member but adapted to permit the rotary member to descend independently of said first named member, and means adapted normally to prevent downward movement of said first named member.

4. A brake operating mechanism comprising a vertically movable member for applying power to a brake, a rotary member adapted upon rotary movement to travel vertically, means movably mounted on said rotary member adapted normally to cause said first named member to move upwardly with said rotary member but adapted to permit the rotary member to descend independently of said first named member, and movable means serving in one position to prevent downward movement of the first-named member and serving in an alternative position to permit such downward movement.

5. A brake operating mechanism comprising a longitudinally movable member for applying power to a brake, a rotary member adapted upon rotary movement to travel longitudinally of said first-named member, means for rotating said rotary member, and means movably mounted on said rotary member adapted normally to cause said two members to move together in one direction while permitting the rotary member to move independently in the opposite direction.

6. A brake operating mechanism comprising a rack bar for applying power to a brake, a second rack in spaced relation to said first-named rack bar, a gear meshing with said second rack and movable therealong, and a pawl carried by said gear adapted to have operative engagement with said first-named rack bar for moving said bar upon travel of the gear in one direction.

7. A brake operating mechanism comprising a rack bar for applying power to a brake, a second rack in spaced relation to said first-named rack bar, a gear meshing with said second rack and movable therealong, a pawl carried by said gear adapted to have operative engagement with said rack bar for moving the bar upon travel of the gear in one direction, and a second pawl adapted normally to prevent movement of the rack bar in the opposite direction.

8. A brake operating mechanism comprising a rack bar for applying power to a brake, a second rack in spaced relation to said first-named rack bar, a gear meshing with said second rack and movable therealong, and a pawl movably mounted on said gear eccentrically thereof adapted to have operative engagement with said rack bar for moving the bar upon travel of the gear in one direction.

9. A brake operating mechanism comprising a movable rack bar for applying power to a brake, a rotary member adapted upon rotary movement to travel in the direction in which said rack bar is movable, a pawl having a bearing rib engaging a notch in the rotary member and adapted to have operative engagement with said rack bar for moving the bar upon travel of the rotary member in one direction, and means co-operating with said bearing rib and notch for holding the pawl in operative position on said rotary member.

10. A brake operating mechanism comprising a movable rack bar for applying power to a brake, a rotary member adapted upon rotary movement to travel in the direction in which said rack bar is movable, a pawl having a bearing rib engaging a notch in the rotary member and adapted to have operative engagement with said rack bar for moving the bar upon travel of the rotary member in one direction, and pin and groove means for holding the pawl in position with the bearing rib engaging said notch.

11. A brake operating mechanism comprising a movable rack bar for applying power to a brake, a rotary member adapted upon rotary movement to travel in the direc-

tion in which said rack bar is movable, a pawl having a bearing rib engaging a notch in the rotary member and adapted to have operative engagement with said rack bar for moving the bar upon travel of the rotary member in one direction, and pins carried by the rotary member engaging arcuate grooves in said pawl for holding the pawl in position with the bearing rib engaging said notch.

12. A brake operating mechanism comprising a rack bar for applying power to a brake, a second rack in spaced relation to said first-named rack bar, a gear meshing with said second rack and movable therealong, a pawl having a bearing rib engaging a notch in the gear and adapted to have operative engagement with said rack bar for moving the bar upon travel of the gear in one direction, and means co-operating with said bearing rib and notch for holding the pawl in operative position on said gear.

13. A brake operating mechanism comprising a vertically movable member for applying power to a brake, a rotary member adapted upon rotary movement to travel vertically, means movably mounted on said rotary member adapted normally to cause said first-named member to move upwardly with said rotary member but adapted to permit the rotary member to descend independently of said first named member, and means for throwing out of operation the means by which motion is transmitted to said first-named member.

14. A brake operating mechanism comprising a rack bar for applying power to a brake, a second rack in spaced relation to said first-named rack bar, a gear meshing with said second rack and movable therealong, a pawl carried by said gear adapted to have operative engagement with said rack bar for moving the bar upon travel of the gear in one direction, and means for throwing said pawl out of operation.

15. A brake operating mechanism comprising a rack bar for applying power to a brake, a second rack in spaced relation to said first-named rack bar, a gear meshing with said second rack and movable therealong, a pawl carried by said gear adapted to have operative engagement with said rack bar for moving the bar upon travel of the gear in one direction, and an arm carried by said pawl for swinging the pawl out of operative position.

AUGUSTUS F. KLASING.