J. F. O'CONNOR.

HAND BRAKE.

APPLICATION FILED JUNE 9, 1917.

1,300,464. Patented Apr. 15, 1919.

Fig. 1

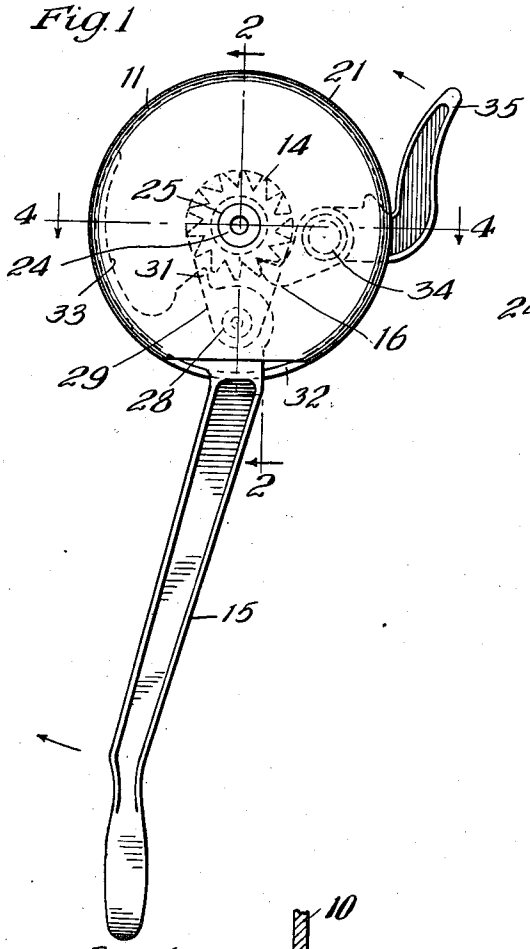


Fig. 3

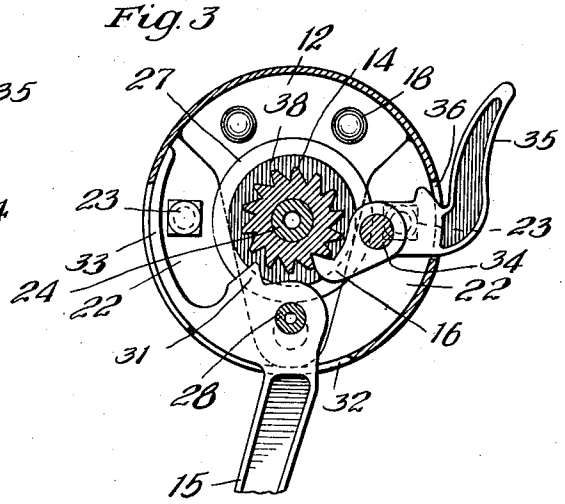


Fig. 2

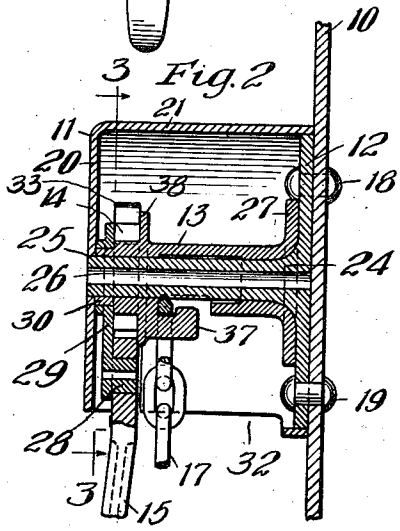


Fig. 4

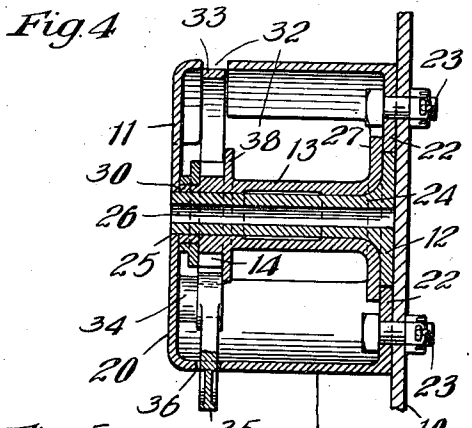
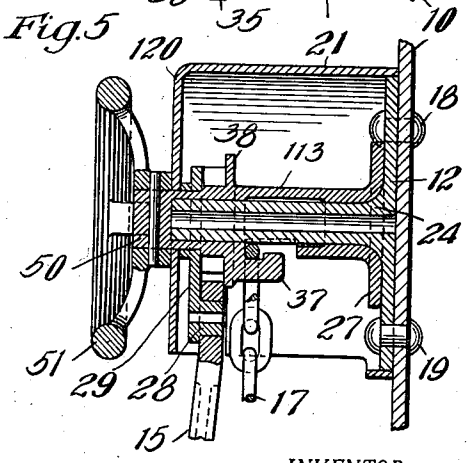


Fig. 5



WITNESSES:

Wm. Geiger

INVENTOR.

John F. O'Connor

BY George J. Haight

ATTORNEY

UNITED STATES PATENT OFFICE.

JOHN F. O'CONNOR, OF CHICAGO, ILLINOIS, ASSIGNOR TO WILLIAM H. MINER, OF CHAZY, NEW YORK.

HAND-BRAKE.

1,300,464. Specification of Letters Patent. Patented Apr. 15, 1919.

Application filed June 9, 1917. Serial No. 173,852.

To all whom it may concern:

Be it known that I, JOHN F. O'CONNOR, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Hand-Brakes, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

This invention relates to improvements in hand brakes.

The object of the invention is to provide a hand brake more particularly adapted for railway cars and which is of compact form employing a minimum amount of metal and avoiding the use of long bolts such as have heretofore been customary in brakes of this type.

In the drawing forming a part of this specification, Figure 1 is a side elevational view of a hand brake employing my improvements. Fig. 2 is a vertical, sectional view, taken substantially on the line 2—2 of Fig. 1. Fig. 3 is a vertical, sectional view, taken substantially on the line 3—3 of Fig. 2. Fig. 4 is a view similar to Fig. 2, but taken on the line 4—4 of Fig 1. And Fig. 5 is a view corresponding to Fig. 2 illustrating an auxiliary device employed with the brake for the purpose hereinafter described.

Referring to the construction illustrated in Figs. 1 to 4, 10 denotes a metal end wall of a car or portion of any structure to which the brake is applied. The brake, as shown, comprises an outer hollow casing 11, an inner plate 12, rotatable chain winding drum 13, ratchet wheel 14, operating lever 15, locking dog 16, and chain 17. The base plate 12 is of more or less triangular shape, as clearly indicated in Fig. 3, the wide portion of the plate being adapted to receive two or more rivets 18 by which it can be secured to the wall 10, and the lower or narrow portion of the plate being adapted to receive a third rivet 19. The casing 11 which is of general cylindrical form and hollow, has an outer vertical wall 20 and a cylindrical side wall 21, the latter fitting over the plate 12 and forming the chamber within which are received the drum, ratchet wheel and associated parts. At its inner end, the casing 11 is provided with inwardly extending flanges 22—22 which fit against the base plate 12 and complete the circular base of the entire housing for the brake. Said flanges 22—22, which as above described, are within the periphery of the side of the casing, are adapted to receive attaching bolts 23—23 so as to secure the casing in place on the wall 10. With the arrangement above described, it is obvious that the use of long bolts extending from the outer end of the casing, such as have heretofore been employed, is avoided and at the same time, there are no outstanding flanges but all the securing flanges are confined within the casing. The foregoing described construction results in the use of a minimum amount of metal and a low initial cost for material aside from the fact that a very compact arrangement is thus provided which permits the employment of the brake in spaces which would not permit the use of some other forms of hand brakes.

The base plate or casting 12, is provided with an integral outwardly extending post or stud shaft 24 which has the outer end thereof seated in a suitable recess 25 provided in the end wall 20 of the casing 11. Said post 20 is preferably centrally recessed, as indicated at 26, to thereby reduce the amount of metal required and said post forms a suitable bearing for the drum 13. The drum 13 at its inner end is provided with an annular flange 27 which bears against the base plate 12, the outer end of the drum 13 being confined by the wall 20 of the casing. The ratchet 14 is preferably formed integrally with the drum 13, as clearly indicated in Fig. 2.

The operating handle 15 is pivotally mounted on a boss or lug 28 formed on a supporting link 29 which is journaled over the reduced end 30 of the drum 13. Said supporting link 29 is freely rotatable about the drum 13, thereby permitting oscillation of the operating handle 15. Said handle 15, at its upper end, is provided with a pawl 31 which is normally out of engagement with the ratchet wheel 14 when the lever 15 hangs under the influence of gravity. As will be understood, the casing 11 is recessed as indicated at 32, to thereby permit the chain 17 to pass within the casing and also permit the working back and forth of the operating lever 15. In addition to the pawl 31, said lever 15 is provided with an integral exten-

sion 33 which bears on the inner face of the casing 11 and is adapted to close a greater portion of the slot within which the lever 15 operates and said extension 33 also performs the additional function of retaining the lever 15 in proper position when hanging under the influence of gravity.

The locking dog is pivotally mounted on a stud 34 formed integrally with the outer wall 20 of the casing 11. Said dog 16 has an operating handle 35 which extends through a suitable recess 36 provided in the side wall of the casing. The dog 16 is gravity controlled as will be apparent from examination of Fig. 3, the weight of the handle 35 being sufficient to over-balance the dog 16 proper and maintain the latter normally in engagement with the ratchet wheel 14.

The upper or end link of the chain 17 is slipped over a substantially hook-shaped lug 37 formed integrally with the drum 13 before the latter is assembled on the post 24, the arrangement being such that, when the drum is slipped on the post 24, the link cannot be disengaged, as clearly illustrated in Fig. 2.

As shown in Fig. 2, the drum 13 is provided with an annular flange 38 adjacent the inner portion of the ratchet wheel 14, which flange 38 is of sufficient diameter to overlap the end of the operating lever 15 and thus maintain the latter in position. Similarly, said flange 38 overlaps the inner portion of the dog 16 and prevents it from slipping off of its stud 34.

In applying the brake to a car, the base plate 12 is first riveted to the wall; then the supporting link 29, operating lever 15 and chain 17 are assembled with the winding drum 13, the latter then being slipped into place. Finally, the casing 11 is applied, said casing first having mounted thereon the dog 16. With the casing 11 thus assembled over all the other parts, the bolts 23 can be applied, the operator working through the opening 32 in the lower portion of the wall 21 through which the chain 17 extends.

In the construction illustrated in Fig. 5, the arrangement of the casing, operating lever, winding drum, chain and locking dog is the same as that shown in the other figures. In this construction, however, the chain winding drum 113 is shown as provided with its outer end 50 extended beyond the outer wall 120 of the casing. This is done in order to apply a hand wheel 51 thereto, the diameter of the hand wheel 51 being preferably less than the diameter of the casing and the purpose of the hand wheel 51 is to permit the taking up of slack in the chain much more rapidly than can be done by the operating lever during the first portion of the application of the brake.

I claim:

1. In a hand brake for cars and the like, the combination with two members which together form a chamber adapted to receive chain tightening means therewithin, said members being each provided with flanges by which the same are adapted to be secured to the wall of a car, said flanges being disposed entirely within the outlines of said chamber, of chain tightening means disposed within said chamber.

2. In a device of the character described, the combination with a casing having inner and outer end walls, the inner end wall being adapted to be secured to the wall of a car, of a post extending between said walls, a chain-winding drum having a central axial recess rotatably mounted on said post, said drum having a shouldered projection and a slot communicating with the said axial recess, said shouldered projection being adapted to receive the end link of a chain thereover, said post preventing accidental disengagement of said link when the drum is assembled on the post, and means for rotating said drum.

3. In a brake, the combination with a plate adapted to be secured to the wall of a car, of a casing member fitting over said plate, said casing member having inwardly extending flanges at its end adjacent said plate and by which it is adapted to be secured to the wall, and means located within the casing by which a brake chain may be tightened.

4. In a device of the character described, the combination with a plate having flanged portions by which it is adapted to be secured to the wall of a car or the like, of a hollow casing fitting over said plate and having inturned flanges at its inner end by which it also is adapted to be secured to a wall, a rotatable chain tightening member disposed within the casing, and means for rotating said member.

5. In a hand brake for railway cars, the combination with a plate adapted to be secured to a car wall and having a post extending outwardly therefrom, of a hollow casing member fitting over said plate and forming a support for the outer end of said post, said casing member having means at its inner end disposed entirely within the casing member and by which it is adapted to be secured to the wall, a rotatable chain tightening element carried by said post within the casing member, and pawl and ratchet mechanism for rotating said element, said mechanism including an operating handle normally in inoperative position under the influence of gravity.

6. In a hand brake for railway cars, the combination with a plate adapted to be secured to the wall of a car and having an integral post extending therefrom, of a casing fitting over said plate and having inturned flanges at its inner end whereby said plate and casing may be secured to the wall by

means of short fastening devices, a rotatable chain winding drum mounted on said post, a ratchet wheel associated with said drum, a gravity operated locking dog coöperating with the ratchet wheel, and a gravity controlled operating lever having a pawl for rotating the ratchet wheel, said pawl being normally out of engagement with the ratchet wheel.

In witness that I claim the foregoing I have hereunto subscribed my name this 21st day of May, 1917.

JOHN F. O'CONNOR.