K. WILLIAMS.

HAND BRAKE FOR RAILWAY CARS.

APPLICATION FILED AUG. 20, 1917.

1,288,784.

Patented Dec. 24, 1918.

Fig. 1

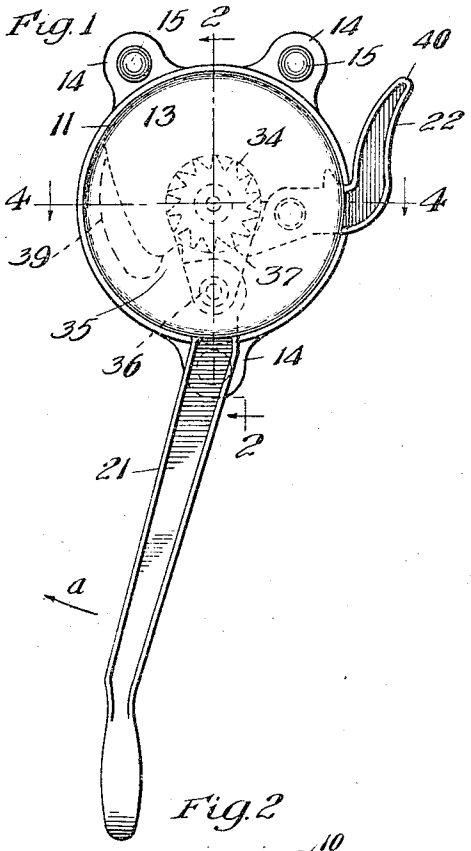


Fig. 3

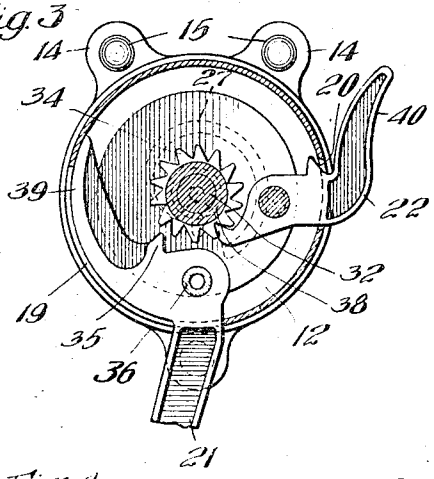


Fig. 4

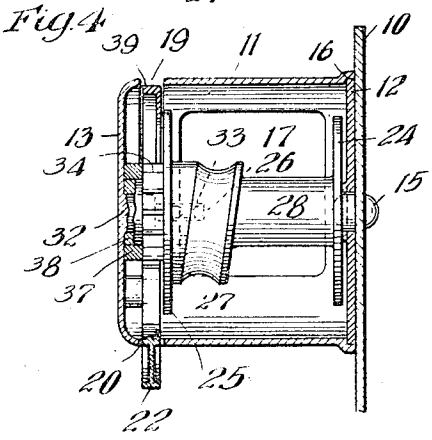
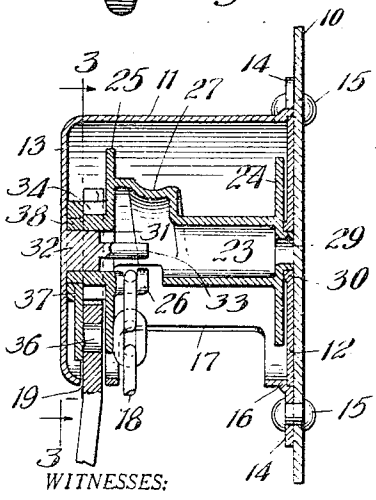


Fig. 2



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HAND-BRAKE FOR RAILWAY-CARS.

1,288,784. Specification of Letters Patent. Patented Dec. 24, 1918.

Application filed August 20, 1917. Serial No. 187,148.

To all whom it may concern:

Be it known that I, KEITH WILLIAMS, 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 for Railway-Cars, 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 for railway cars.

An object of the invention is to provide a simple and efficient hand brake more particularly adapted for use on railway cars and wherein a rotatable drum or other chain tightening member is mounted within a casing without the use of any long bolt, such as has heretofore been found necessary, to thereby decrease the cost of production.

In the drawing forming a part of this specification, Figure 1 is a side elevation of a brake embodying 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 but at right angles to that of Fig. 2 and taken on the line 3—3 of Fig. 2. And Fig. 4 is a horizontal, sectional view, taken substantially on the line 4—4 of Fig. 1.

In said drawing, 10 denotes the wall of a car, such as the end wall of a box car and to which my improved brake is adapted to be secured.

The improved brake, as shown, includes, broadly, a housing or casing; a rotatable chain winding drum, pawl and ratchet mechanism; and the usual chain extending to the brake beams. In the drawing, the casing is shown of cylindrical form and consists of two members 11 and 12. The member 11 has a cylindrical portion and an outer vertical end wall 13. At its inner end, the member 11 is provided with a plurality of radially extended ears 14 by which the same is adapted to be secured to the wall, as by rivets 15. The other member 12 of the casing consists of a substantially circular flat plate which bears directly against the wall of the car. Said plate 12 is confined within the member 11 and is held in proper position by means of an interior annular shoulder 16 on the interior of the member 11. Said member 11 is cut away at the bottom thereof, as indicated at 17, in order to accommodate the chain 18. Said member 11 is also provided with a pair of peripheral slots 19 and 20 to accommodate the ratchet operating lever 21 and the locking dog 22, respectively.

The chain tightening member is shown in the form of a hollow drum 23, said drum 23 having circular flanges 24 and 25 near its ends between which the chain is wound, said flanges rendering the drum of a somewhat spool form. Said drum 23 at its outer end is provided with a hook-shaped lug 26 over which the uppermost link of the chain is hooked to thereby connect the chain and drum. At said end, the drums is of considerably larger diameter than at its opposite end and is provided with a spiral chain receiving groove 27 which gradually decreases in diameter and merges into the portion 28 of the drum which is maintained at a uniform diameter. With this construction, it is obvious that at the beginning of the winding action, the slack in the chain is taken up at a much more rapid rate than during the latter portion of the operation without losing the effective leverage when the same is most required.

In order to rotatably support the drum without employing a long or through bolt, such as has heretofore been employed, the drum 23 is provided at its inner end with a circular journal 29 which is mounted in a suitable bearing formed in the plate 12, the latter being preferably thickened, as indicated at 30, around the bearing to increase the wearing surface. At the outer end of the drum, the latter is provided with an interior bearing 31 which fits over a corresponding stud 32 formed integrally on the interior face of the wall 13. Said lug 32 is provided with an extension or finger 33 adjacent the hook-shaped lug 26 which, when the parts are properly assembled, will prevent disengagement of the chain from said lug 26.

In order to rotate the drum, the latter is provided outside of the flange 25 with an integral ratchet wheel 34 with which is adapted to coöperate a pawl 35 formed at the upper end of the operating lever 21 which is pivoted on a stud 36 carried on a swinging link 37, the link 37 in turn being loosely mounted on a circular flange 38 formed on the extreme outer end of the drum 23.

Normally, the operating handle 21 occupies the position shown most clearly in Figs.

1 and 2, that is, with the pawl 35 out of engagement with the ratchet wheel 34. This position is determined by an extension or wing 39 on the operating lever which engages against the inner face of the casing member 11. When it is desired to operate the drum to wind the chain, the operator grasps the handle 21 and pulls it in the direction indicated by the arrow *a* in Fig. 1. This causes the pawl 35 to engage the ratchet and the drum is accordingly rotated a distance corresponding to the arc through which the lever 21 is moved. To hold the drum against accidental backward rotation, the locking dog 22 is provided, the same being adapted to engage the ratchet wheel 34, as clearly illustrated in Fig. 3. The pawl assumes this position normally under the influence of gravity, the handle 40 thereof over-balancing the portion of the pawl on the opposite side of the pivot. When it is desired to release the chain, the operator disengages the dog, as will be understood.

With the arrangement above shown and described, it is obvious that the casing and drum are provided with integral means which coöperate to rotatably support the drum, thus doing away with a long bolt and the expense incident thereto. Furthermore, the structure is compact and the casing has a smooth exterior, particularly in the end wall 13, due to the absence of any projecting bolt head or nut. The parts may be relatively cheaply manufactured and assembled without difficulty, as will be obvious from an inspection of the drawing, particularly Fig. 2.

I claim:

In a winding mechanism of the character described the combination with a casing adapted to be secured to a wall, said casing comprising a housing proper having an integral end wall and a separate opposite end wall, of a hollow chain tightening drum, said drum having a portion of its periphery cut away and formed with a hook-shaped lug extending into the cut away portion, a chain having a link thereof seated over said hook-shaped lug, and means for rotatably supporting said drum within the casing, said means including a bearing stud formed on one of said end walls, said stud extending within the drum and having a finger extending adjacent said hook-shaped lug to prevent disengagement of said link therefrom when the parts are assembled.

In witness that I claim the foregoing I have hereunto subscribed my name this 29th day of July, 1917.

KEITH WILLIAMS.

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