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S. B. HASELTINE

HAND BRAKE

Filed May 8, 1922

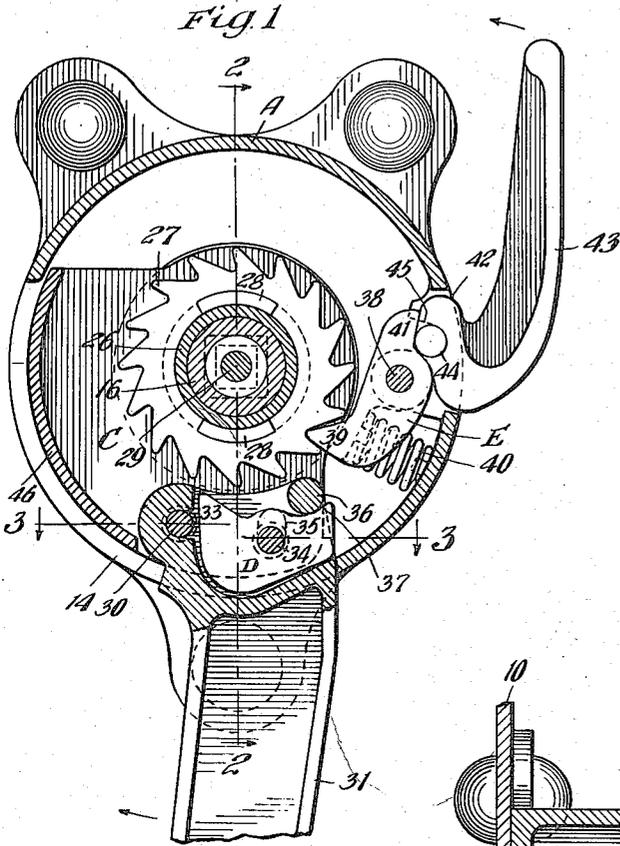
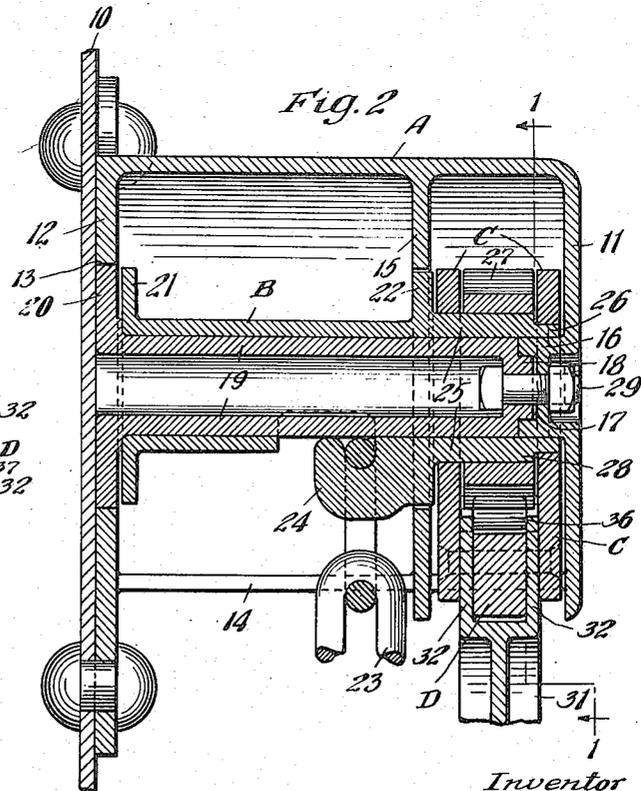
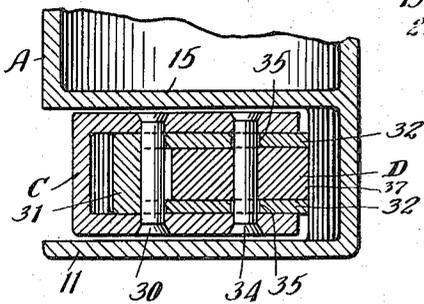


Fig. 3



Witnesses

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UNITED STATES PATENT OFFICE.

STACY B. HASELTINE, OF CHICAGO, ILLINOIS, ASSIGNOR, BY MESNE ASSIGNMENTS,
TO W. H. MINER, INC., A CORPORATION OF DELAWARE.

HAND BRAKE.

Application filed May 3, 1922. Serial No. 559,165.

To all whom it may concern:

Be it known that I, STACY B. HASELTINE, 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.

One object of the invention is to provide an efficient hand brake mechanism of the ratcheting type, especially adapted for railway cars, and wherein provision is made to insure a minimum amount of lost motion of the operating handle when picking up the ratchet wheel for an operative stroke.

Other objects of the invention are to provide a mechanism of the character indicated in which all of the operating parts are suitably housed to minimize deterioration from the elements; to provide an arrangement wherein all of the parts may be manufactured at comparatively small expense and easily assembled; and to provide a housing wherein the chain winding drum is disposed in one chamber separate from the ratchet mechanism to thereby prevent danger of the parts fouling during operation.

In the drawing forming a part of this specification, Figure 1 is a vertical, sectional view taken parallel to a wall to which the mechanism is attached, the section corresponding substantially to the section line 1-1 of Figure 2. Figure 2 is a vertical, sectional view taken perpendicular to the supporting wall and corresponding to the section line 2-2 of Figure 1. And Figure 3 is a horizontal detail sectional view corresponding substantially to the section line 3-3 of Figure 1.

In said drawing, 10 indicates an end wall of a car to which the improved mechanism is adapted to be applied. The mechanism includes a housing or casing A, the latter being of substantially cylindrical formation having an integral outer end wall 11 and an annular inner end wall 12 with a central opening 13. The casing A is formed with a longitudinally extending opening at the bottom and at one side, as indicated at 14 and is provided also with an annular flange 15 on the interior located about two-thirds

of the distance from the inner to the outer end of the casing and forming part of the partition by which the casing is divided into two chambers.

The outer end wall 11 of the casing is formed with an inwardly extending centrally disposed annular boss 16 having a square countersunk recess 17 therein. Seated within the recess 17 is a squared end 18 of reduced size formed at the outer end of a tubular bearing member 19, the latter having at its inner end a circular flange 20 occupying the opening 13 at the inner end of the casing A.

Rotatably mounted or journaled on the bearing member 19 is a drum member B. The latter is provided with longitudinally spaced annular flanges 21 and 22 between which the chain or other flexible connection 23 is adapted to be wrapped on the drum section proper. To attach the end link of the chain, the drum member B is formed with a hook 24 over which the link may be placed before the drum is assembled on the tubular bearing 19.

To the right of the partition formed by the annular housing flange 15 and flange 22, the drum member B is formed with a narrow journal 25 and outwardly spaced therefrom with another journal 26 of lesser diameter. A hanger or fulcrum member C, of U-cross section, as shown in Figure 3, is journaled on said bearings 25 and 26 and so as to straddle a ratchet wheel 27 which is locked with the drum member by means of arcuate keying lugs 28—28 shown best in Figure 1. After the ratchet wheel and carrier C have been assembled on the drum member B, the latter is applied over the annular boss 16 after which the tubular bearing 19 is inserted in place and the parts held in assembled relation by means of the short bolt 29 which holds the adjacent interfitting ends of the bearing 19 and annular boss 16.

Pivotaly mounted on the carrier C as by the rivet 30 is an operating handle or lever 31 normally adapted to hang in a depending vertical inoperative position. Said handle 31, at its pivoted end, is recessed so as to provide laterally spaced flanges 32—32 as shown in Figure 3. Pivotaly mounted within the recess between the flanges 32—32 is a pawl D having a tooth 33 adapted to engage with the teeth of the ratchet wheel 27. Said pawl D is mounted on a rivet 34

which is sustained at its ends in the side walls or flanges of the carrier C. The side flanges 32 of the handle 31 are suitably slotted as indicated at 35 to permit the handle to move relatively to the rivet 34. The handle 31 is formed with an integral cross pin or bar 36 which engages with a tail-piece 37 on the pawl D, said tail-piece being on the opposite side of the pivot to that of the tooth 33. When the handle 31 is pulled in a winding-up direction, i. e., in a clockwise direction as viewed in Figure 1, it swings about its own pivot 30 on the carrier C, thereby causing the pawl D to be oscillated about the pivot 34 of the latter and thus throwing the tooth 33 quickly into engagement with the teeth of the ratchet wheel 27. When the handle 31 is released, it falls to its vertical inoperative position as shown in Figure 1 and allows the pawl to be disengaged from the ratchet wheel.

To prevent the drum and ratchet wheel from rotating accidentally in a reverse direction, I have provided a locking dog E which is pivotally supported from the housing as by a pivot pin 38, said dog having a tooth 39 engageable with the teeth of the ratchet wheel 27. Underneath the tooth 39 is placed a spring 40 so as to normally influence the tooth 39 into operative position. On the opposite side of the pivot 38, the dog E is formed with a tail-piece 41 against which is adapted to be swung, a rounded end 42 of a release lever 43. Said release lever is not fixed to the housing, but is detachable therefrom, said lever being pivotally supported from the housing by means of oppositely extended pivot lugs 44 thereon which engage in suitable slots 45 formed in the flange 15 and end wall of the housing A. To attach or detach the lever 43, it is only necessary to move the same laterally of its pivotal axis. It will be noted that the handle proper of the release lever 43 is several times longer than the arm of the lug 42 so that the leverage ratio is multiplied, thus enabling me to easily disengage the dog from the ratchet wheel. It will also be noted that, by mounting the carrier C to straddle the ratchet wheel 27, a better support for the operating handle is obtained and one which is free from eccentric load. The carrier C has its outer curved web 46 so placed and of such length as to provide, in effect, a closure for the portion of the opening in the housing through which the operating handle necessarily oscillates in operating the brake.

All of the parts may be manufactured at comparatively small expense; an unusually large bearing area is obtained for the winding drum to thereby minimize wear; and the parts may be shipped in assembled condition without danger of loss of the parts.

I have herein shown and described what

I now consider the preferred manner of carrying out the invention, but the same is merely illustrative and I contemplate all changes and modifications that come within the scope of the claims appended hereto.

I claim:

1. In a hand brake for cars and the like, the combination with a rotatable member and a ratchet wheel rotatable in unison therewith; of a carrier oscillatable relatively to said wheel; a pawl pivotally mounted on said carrier adapted to cooperate with said ratchet wheel; an operating handle pivoted to said carrier at a different point and having a portion thereof recessed to straddle said pawl and cooperable with the latter to move it to operative position; and locking means for preventing rotation of said member in an unwinding direction.

2. In a hand brake of the character described, the combination with a rotatable member having a ratchet wheel movable in unison therewith; of a carrier oscillatable relatively to said wheel; a pawl pivotally mounted on said carrier and adapted to cooperate with said ratchet wheel, said pawl having a tooth on one side and a tail piece on the opposite side of its pivot; an operating handle also pivoted to said carrier at a different point and having a cross piece engageable over said tail piece of the dog to thereby actuate the latter to operative position when the handle is moved in a direction to effect application of the brake; and locking means cooperable with said ratchet wheel to prevent accidental rotation in an unwinding direction.

3. In a brake of the character described, the combination with a housing adapted to be secured to a car wall or the like; of a chain winding drum member rotatably mounted within said housing and having a ratchet wheel rotatable in unison therewith; of means for effecting step by step movement of said drum member in a winding direction; a spring-influenced locking dog pivotally mounted within said housing and cooperable with said ratchet wheel; and a release lever detachably and pivotally mounted on said housing and having a cam end adapted to cooperate with said dog to disengage the latter from the ratchet wheel, said release lever being movable laterally of its pivotal axis to detach the lever.

4. In a brake of the character described, the combination with a hollow casing of generally cylindrical form having an outer end wall and adapted to be secured to a car wall or the like, said casing having also an intermediate partition; of a spindle extending from the inner to the outer end of said casing centrally thereof; a winding drum member rotatably mounted on said spindle; a ratchet wheel secured to said drum member adjacent the outer end thereof and out-

wardly of said partition; a carrier oscillatably mounted on said drum member and having arms straddling said ratchet wheel; pawl-operating means on said carrier between said arms; and means for preventing accidental rotation of said drum member in an unwinding direction.

5. In a brake of the character described, the combination with a hollow casing of generally cylindrical form having an outer end wall and an annular flange at its inner end, thereby providing an opening in said casing; of a spindle within said casing having a flange at its inner end fitting within the opening of said annular flange, said spindle having socketed engagement at its outer end with the end wall of the casing; a rotatable member mounted on said spindle; means for effecting step by step rotation thereof in a direction to apply the brake; and means for preventing accidental rotation of said member in a reverse direction.

6. In a brake of the character described, the combination with a hollow casing of generally cylindrical form having an outer end wall and an annular flange at its inner

end thereby providing an opening in said casing, of a spindle within said casing having a flange at its inner end fitting within the opening of said annular flange, said spindle having socketed engagement at its outer end with the end wall of the casing; a rotatable member mounted on said spindle; means for effecting step by step rotation thereof in a direction to apply the brake; and means for preventing accidental rotation of said member in a reverse direction, said last named means comprising a spring-influenced dog pivotally mounted within the casing and having a tooth at one side of its pivot and a tail piece at the opposite side thereof, and a release lever detachably and pivotally mounted on said casing and having a cam end engageable with said tail piece.

In witness that I claim the foregoing I have hereunto subscribed my name this 18th day of Apr., 1922.

STACY B. HASELTINE.

Witnesses:

CARRIE GAILING,
ANN BAKER.