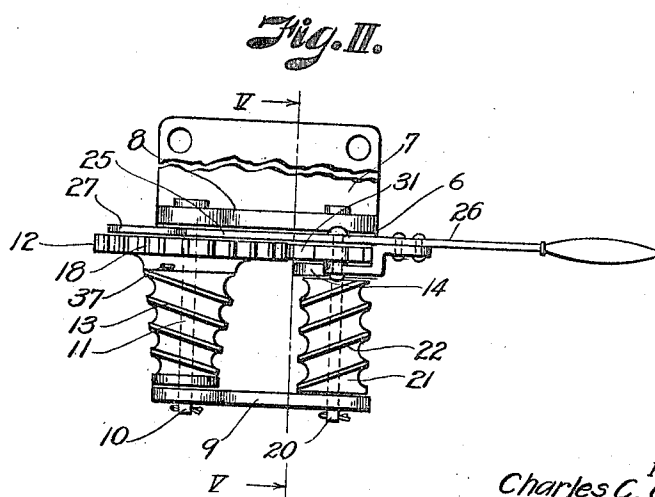
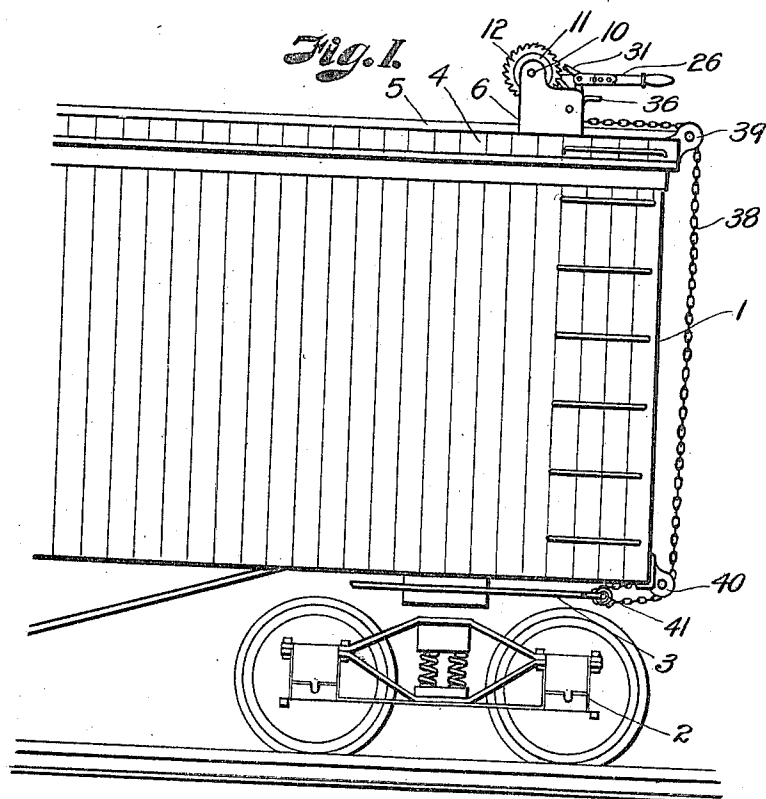


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BRAKE OPERATING MECHANISM.  
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2 SHEETS—SHEET 1.



INVENTOR.  
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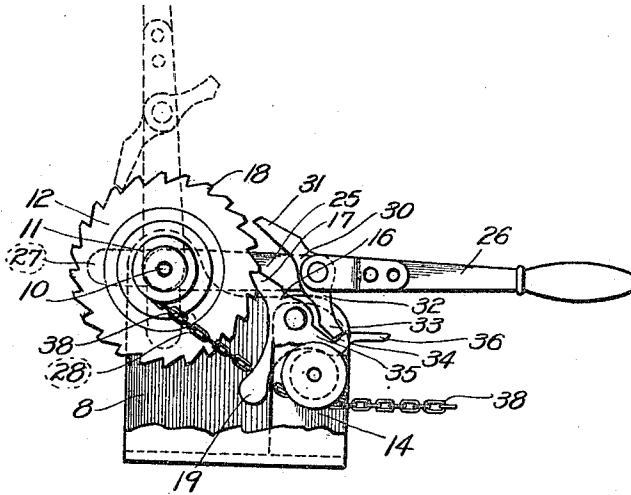
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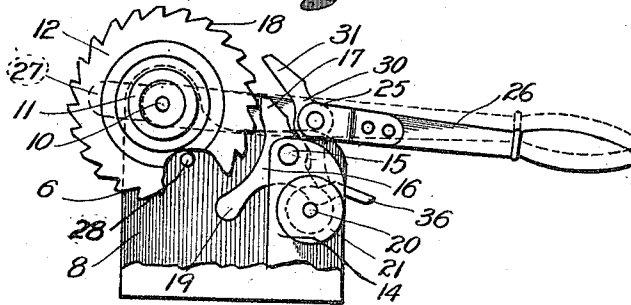
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2 SHEETS—SHEET 2.

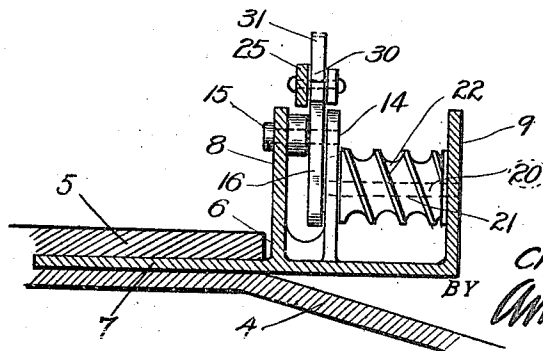
*Fig. III.*



*Fig. IV.*



*Fig. V.*



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# UNITED STATES PATENT OFFICE.

CHARLES C. CREWSON, OF KANSAS CITY, MISSOURI.

## BRAKE-OPERATING MECHANISM.

1,306,803.

Specification of Letters Patent. Patented June 17, 1919.

Application filed October 19, 1916. Serial No. 126,611.

*To all whom it may concern:*

Be it known that I, CHARLES C. CREWSON, a citizen of the United States, residing at Kansas City, in the county of Jackson and State of Missouri, have invented certain new and useful Improvements in Brake-Operating Mechanism; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention relates to a brake mechanism and particularly a device of this character for use on railway cars, or the like, the principal object of the invention being to effect the braking or releasing of the car from a position and in a manner to obviate injury to the operator.

In accomplishing this object I have provided improved details of structure the preferred forms of which are illustrated in the accompanying drawings, wherein:—

Figure I is a side elevation of a car equipped with brake actuating mechanism constructed according to my invention.

Fig. II is a plan view of the winding parts of the mechanism.

Fig. III is a side view of the same, one of the drum and roller supporting brackets being broken away for better illustrating the locking pawls.

Fig. IV is a similar view with the parts in released position.

Fig. V is a vertical section on the line V—V, Fig. II.

Referring more in detail to the drawings:—

1 designates a railway car of ordinary construction comprising trucks 2, a brake actuating rod 3, roof 4, and foot board 5.

Mounted on the car roof 4 is a winding mechanism 6, comprising a base plate 7 which carries the winding drum and operating lever later described and which preferably extends beneath the foot board 5 to provide a substantial anchorage for the mechanism and to locate the mechanism in a convenient position for a brakeman to operate.

Extending vertically from the base plate 7 at its exposed end, are spaced standards 8—9 and revolubly mounted therebetween on a pin shaft 10 carried thereby is a wind-

ing drum 11, having an integrally cast or otherwise attached ratchet wheel 12 at its inner end, whereby the drum is revolved; the said drum being tapered outwardly from the wheel 12 and provided with a spiral groove 13 whereby a chain or cable wound thereon may be prevented from crowding or overlapping itself.

Spaced from the standard 9, forwardly of the drum 11, is a standard 14, and pivotally mounted on a pin 15 carried by the standards 14 and 8, is a pawl 16 comprising a detent tooth 17 adapted for engagement with the teeth 18 of the ratchet wheel 12 to prevent unwinding of the drum, and a weighted arm 19 that is rearwardly in the direction of the ratchet whereby the tooth 17 is urged into engagement with the ratchet wheel to normally prevent unwinding of the drum 11.

Revolubly mounted on a shaft 20 carried by the standards 14 and 9 is a roller 21, which lies closely adjacent the base 7 and 8 is provided with a spiral groove 22 having the same lead as that on the drum 11 in order that, as the brake operating cable later described is unwound from, or wound on the drum, the cable be guided across the roller without binding and will also be held in close proximity to the car roof.

Pivotally mounted on the shaft 10 adjacent the ratchet wheel 12 and within the standard 9 is a winding lever 25, comprising a forwardly extending handle arm 26 and a shorter, rearwardly extending arm 27, the latter adapted to engage a boss 28 extending from the inner face of the standard 8 to limit the rearward movement of the winding lever.

Pivotally mounted in the lever arm 26 is a pawl 30 having a tooth 31 directed toward and adapted, when the winding lever is actuated, for engaging the ratchet wheel 12 to actuate the winding drum, and also comprising a downwardly directed arm 32 having a foot 33 which seats, when the lever 25 is in normal position, against a shoulder 34 in a forwardly directed arm 35 forming a part of the pawl 16; the pawls being so mounted that when the lever 25 is in normal horizontal position (Fig. III) the tooth 17 of the pawl 16 will engage the ratchet wheel 12 to prevent the drum from unwinding, and the pawl tooth 31 will be held from engagement with the ratchet by the lower pawl arm 32.

The arm 35 extends forwardly from the

pawl 16 and projects slightly beyond the housing brackets to provide a step 36 whereby, when desired, the pawl tooth 17 may be rocked from engagement with the ratchet wheel 12 otherwise than by the automatic method provided, and which is later described.

Adjacent the larger end of the drum I provide a hook or eye 37 and attached thereto is a flexible connecting member, such as a chain 38 which is adapted for winding or unwinding from the drum as the latter is revolved, and which extends beneath the roller 21, over sheave wheels 39—40 at the end of the car and about a sheave wheel 41 at the end of the brake rod 3 and is suitably attached at its end to the end of the car, so that as the chain is wound on the drum the brake rod will be drawn forwardly to cause the brake levers and beams (not shown) to perform their function.

By so tapering the winding drum and attaching the chain at the larger end thereof it will be seen that the slack of the chain is more quickly taken up at the start of the operation and greater leverage is provided as the chain nears the end of the drum, so that the brake may be set more effectively.

Assuming the winding mechanism to be so constructed and a chain attached thereto and running over the sheave wheels on the car and brake rod as shown, to set the brake an operator moves the lever arm 26 upwardly from its normal horizontal position (Fig. III). As the lever is raised the pawl arm 32 is released from the shoulder 34 in the pawl 35, allowing the tooth 31 to drop into engagement with the teeth 18 of the ratchet wheel 12, and the drum 11 is carried along with the lever arm and the chain wound thereon.

When the lever 26 has been carried to its limit the operator may return it to normal position, but the drum is prevented from returning by the engagement of the pawl tooth 17 with the ratchet, the said tooth being urged against the ratchet by the weighted arm 19. The operator may then repeat the operation until the cable has been drawn sufficiently tight to effect the brake operation.

When the lever arm is in normal position, it will be noted that the pawl arm 32 seats against the shoulder 34 of the pawl arm 35, and the tooth 17 seats in the ratchet surface of the wheel 12 to prevent an unwinding of the drum.

In order to release the brake mechanism the operator presses downwardly on the lever arm 26, so that the arm 32, seating against the pawl arm 35, will rock the latter downwardly and cause the tooth 17 to be un-

seated from the teeth 18, so that the drum is released and the chain may be unwound therefrom to release the brake. The unwinding may, however, be stopped at any time by raising the lever slightly to allow the pawl tooth 17 to again engage the ratchet wheel.

If it is desired the operator may hold the tooth 17 disengaged from the ratchet wheel 12 by pressing downwardly on the step 36, so that by drawing on the lever 26 he may more accurately judge the tension on the brake chain and have immediate control of the winding drum to stop the car more accurately.

While I have specifically mentioned the use of my improvements in connection with railway cars, it is apparent that they are adaptable for dump wagons or other vehicles, as well as to any mechanism or device wherein pressure is to be exerted or relieved in the general manner herein disclosed.

It will be seen that by so constructing the mechanism, by use of a single lever, the brake chain may be wound on the drum, or unwound therefrom, and the drum may be locked or released at the will of the operator.

Having thus described my invention, what I claim as new therein and desire to secure by Letters Patent, is:—

A brake mechanism, comprising a horizontal drum provided with a ratchet wheel rigid with the same; a forwardly extending lever, a pawl pivotally mounted on the lever and having a tooth directed toward and movable by the lever into engagement with the teeth of the ratchet to actuate the winding drum, the opposite end of the pawl forming a downwardly directed depending foot, and a ratchet detent pawl pivotally mounted in vertical alignment with the said pawl in advance of the ratchet and provided with an inner upwardly and rearwardly extending tooth to engage the ratchet and having a depending weighted arm, said detent pawl being also provided with a forwardly extending arm having an outer projecting treadle portion located below the said lever, the inner portion of the forwardly projecting arm of the detent pawl being provided with a recess arranged to receive the depending foot of the pawl of the lever to permit the lever to rock the detent pawl out of engagement with the ratchet when the said lever is swung to the limit of its downward movement, said weighted arm being arranged for causing the detent pawl to engage the ratchet wheel when the lever is swung upwardly.

In testimony whereof I affix my signature.

CHARLES C. CREWSON.