RAILWAY HAND BRAKE

Fig. 7

Fig. 8

Fig. 9

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My invention relates to hand brake apparatus for railway cars, (more particularly for cars of the freight car class, such as box cars, gondola cars, hopper-bottom cars, and the like) of the type involving a revoluble drum on which a chain is wound for taking up the slack in the brake rigging and for moving the brake shoes against and applying them to the wheels of the car with the pressures requisite for retarding or stopping the car or train or holding it on an incline; and the primary object of the invention is to provide a holding and releasing mechanism for the winding drum permitting either (1) a complete and instantaneous release of the brake with one movement of a controlling lever or like member; or (2) a step by step release involving successive engagements of the detents with its ratchet; or (3) a graduated release under the control of the brakesman through manipulation of the hand wheel or other revoluble member used for winding the chain on the winding drum.

A further object of the invention is to so construct the apparatus as to comply in all respects with the safety requirements of the Interstate Commerce Commission with reference to end clearances.

Other and incidental objects of the invention will appear from the description of certain preferred embodiments of the same which will follow:

The application is a continuation in part of my co-pending applications, Serial No. 10,248, filed February 19, 1926 and Serial No. 109,061, filed May 14, 1926. The present application, however, does not claim the combination of the vertical hand-wheel and winding drum, or the combination of these mechanisms with the holding and releasing mechanism, as such combinations are claimed in my co-pending applications, Serial No. 281,085, filed May 28, 1928, and Serial No. 349,817, filed March 25, 1929; the present invention relating to the mechanism for holding and releasing the winding drum and being susceptible of use in any type of railway hand brake involving a chain for setting the brakes and a winding drum on which the chain is taken up.

By the term "brake rigging" as used here-in is intended the apparatus located under the flooring of the car for moving the brake shoes against and away from the wheels, the apparatus, that is which under normal conditions is operated by air pressure. By the term "chain" I intend to include any flexible element such as a cable capable of being wound on a drum or equivalent winding member, and the term "drum" is used in the broad sense including any revoluble member on which the "chain" may be wound.

Referring to the drawings:

Fig. 1 is a fragmentary end elevation of a box car shown as provided with the brake mechanism of my invention, this mechanism being substantially that disclosed in application Serial No. 109,061 with certain improvements.

Fig. 2 is a fragmentary vertical sectional view showing the holding and releasing mechanism for the winding drum.

Fig. 3 is a view in perspective of the detent member of this mechanism.

Fig. 4 is a similar view of a part of the tripping or releasing lever.

Fig. 5 is a vertical sectional view, fragmentary in character, of the winding mechanism.

Fig. 6 is a detail view in elevation, with parts in section, of a modified holding and releasing mechanism.

Fig. 7 is a fragmentary sectional elevation, on a plane parallel to the end of a car, of the winding mechanism.

Fig. 8 is a view similar to Figs. 2 and 6 illustrating another modified holding and releasing mechanism.

Fig. 9 is a sectional plan view on line 9—9 of Fig. 8.

Fig. 10 is a fragmentary vertical longitudinal sectional view of a railway car showing an apparatus, in accordance with my present invention, but modified in certain respects.

Fig. 11 is a view similar to Fig. 2 showing another modified holding and releasing mechanism, and

Fig. 12 is a view like Fig. 11 but with the parts in different positions.

Referring first to Figs. 1 to 5 inclusive and...
Fig. 7, 25 designates the end of a railway box car, and 27 the usual end ladder. The brake rigging under the car is operated by a winding mechanism through suitable connections comprising as here shown, a vertical pull-rod 30 and chain 31, the latter being attached to so as to wind upon a revoluble element which will be hereinafter referred to as a winding drum and is designated 32. This drum and the mechanisms for rotating it, holding it in the brake setting position and releasing it, are enclosed (except for the operating wheel and trip lever) in a housing secured to the end wall of the car above a platform 33 on which the brakeman stands for operation of the brakes. The housing consists of a sheet metal back plate 34 and a disheared front member 35 provided with a flange 36 for bolts 37 which secure the housing members together and fasten the housing to the car wall.

Extending across the lower part of the housing, between indented bosses 38, 39 is a fixed shaft shouldered at 40 and riveted at 41 to the housing members. The winding drum 32 turns on this shaft with the intersection preferably of permanently lubricated bushings 42 flanged at 43. The drum is provided with a large diameter gear wheel 30 preferably cast integral with the drum.

Above the shaft 40 the front and back walls of the housing are provided with bearing members 45, 46 furnished with flanged permanently lubricated bushings 47 in which rotates a shaft 48, the end 49 of which projects through the front wall of the housing and is tapered and square in cross section for a non-rotative connection with the hub 50 of a hand wheel 51 secured to the shaft by a nut 52 on the threaded end 53 of the shaft, which is locked by a pin 54. The wheel is formed with outwardly curved spokes 55 and preferably with a circular web structure 55a, the purpose of which is to prevent the brakeman from putting his hand through the wheel in order to reach the tripping lever. The dished construction of the wheel, when viewed from the front, is to bring the wheel attachment within the plane of the wheel rim and to provide the necessary clearances between the wheel rim and other parts of the apparatus as will be described. On shaft 48, preferably integral therewith, is a gear wheel 56 of relatively small diameter, meshing with the large gear wheel 44 on the winding drum. On the same shaft is a ratchet wheel 57, the teeth of which are adapted to be engaged by the nose or tooth 58 of a detent provided with circular gudgeons 59 which turn in circular openings in the front and back walls of the housing, the detent being held in place by lugs 60. The detent is preferably formed with a curved tail piece 61 which serves two purposes: it limits the angular movement of the detent so that it cannot be thrown too far by the movement of the trip lever, and it can, if desired, serve as a brake to retard the reverse movement of the winding mechanism when the brakes are instantaneously released.

Pivoted in apertures in the front and back wall adjacent the detent is a shaft 62 having a squared end 63 projecting from the front wall of the housing, a gudgeon 64 which bears in the front wall, a lug 65 for preventing endwise displacement, and a segmental web 66 providing in effect, a short lug 67 and a long lug 68. The detent is formed with a curved web 69 adapted to be engaged on the under side near its outer end by the short lug 67 of the tripping member, as shown in Fig. 2, and on its upper side near the pivotal axis of the detent by the long lug 68 as shown in Fig. 7, the face of the long lug being preferably beveled as indicated at 70.

(Fig. 4). A handle or lever 71 of such length that its leverage on the tripping member is considerable, and preferably, so that it projects above the edge of the hand wheel (Fig. 1) when the tripping device is in position to disengage the detent from the ratchet, is secured to squared end 63 of member 62.

Operation.—(Figs. 1 to 5 and 7). To set the brakes the brakeman stands on platform 33 facing the operating wheel 51 and holds onto one of the rungs of the end ladder 27, or some other convenient hand-hold, with his left hand, this hold being maintained throughout the operations of setting and releasing the brakes. The tripping lever will be in the position shown in Fig. 7 and in the full lines of Fig. 1. To set the brakes the brakeman grasps the hand-wheel 51 and gives it a twirl in the clockwise direction. To set the brake shoes with greater braking power against the wheels of the car the brakeman grasps the hand-wheel, by rim or spoke, with his right hand and pulls up on the wheel, turning it in the same clockwise direction. Rotation of the hand wheel turns ratchet wheel 57 under the detent 58 which detent yields against the pressure exerted by the long lug 68 of the tripping device on the upper surface of the web 69 of the detent. The bearing of the lug 68 on web 69 near to the pivotal axis of the detent is for the purpose of shortening the vibratory movement of the trip lever which, as experience has shown, is likely with a violent pull and where the bearing of the trip lug is near the nose of the detent, to be thrown over from its holding to its tripping position.

The brakes can be released in three different ways: To instantaneously and completely release the brakes, the brakeman gives a vigorous movement to the right to trip lever 71, causing the short lug 67 of the trip to be brought to bear with sufficient impact against the under side of web 69 to force the detent from its engagement with the ratchet teeth,
overcoming the pressure due to the pull of the brake rigging which tends to keep the ratchet and detent in engagement. This is possible because of the length of the tripping lever in proportion to the shortness of lug 67 and the leverage which the lug exerts because it bears against the outer end of web 69 at a considerable distance from the pivotal axis of the detent. If the brakeman wishes he may force the tail 61 of the detent against the ratchet wheel so as to retard, to some extent at least, the releasing movement of the winding mechanism. A second method of release involves the same forcing of the detent from the ratchet wheel, while the brake apparatus is under tension, but for the purpose of a partial release of the brakes, the brakeman immediately moves the trip lever back to the left so that the detent, the nose end of which is heavier than the rail end, drops immediately into a notch in the ratchet wheel adjacent to the notch from which it was forced. The third method may be described as a graduated release under control through manipulation of the hand wheel. The hand wheel is geared to the winding drum so that with a reverse movement of the drum the wheel also revolves reversely. When the brakes are set the force tending to lock the detent to the ratchet wheel is considerable. To obtain a controlled or graduated release by merely the brakeman moves the trip lever to the right, that is from the full line position of Fig. 1 to the dotted line position of Fig. 1 so that the short lug 67 of the trip bears against the under side of the web 69 on the detent. Unless, however, the trip lever is pushed with considerable force against the under side of the detent, it will remain in contact with the detent without disengaging it from the ratchet. Therefore, the brakeman may effect the desired release by merely moving the trip lever over to its right-hand position and then relieving the pressure between ratchet and detent by a very slight clockwise or brake setting movement of the hand wheel. As soon as the pressure between ratchet and detent is relieved, the detent under the weight of the trip lever will be disengaged from the ratchet, leaving the release of the brakes under control through the brakeman’s hold on the hand wheel. The wheel is made large enough and the gear ratios of the winding mechanism so proportioned that a man of ordinary strength can hold the existing brake pressure or relieve it gradually, increasing it again if necessary, so that the movement of the car, for example when the car is sliding down a hump yard incline toward the last car of a stationary train, may be accurately controlled to bring the car to a stop against the stationary car with no appreciable shock.

During any of these brake releasing operations, as well as during the brake setting operation, the brakeman maintains his left-hand hold on the end ladder rung or other fixed structure of the car.

The hand wheel may be of a sufficiently large diameter to give the proper leverage. Being arranged on the end of the car in vertical position, the wheel can be larger than is possible under Interstate Commerce Commission safety requirements with a horizontally placed wheel on the top of the car. These requirements are fully complied with in the construction described. The rim of the hand wheel is at least four inches from any projecting part on the car, that is, in this case is at least four inches in front of the trip lever. This is made possible by the curved configuration of the wheel spokes. The wheel does not project, however, more than four inches from the pulling face of the car coupler knuckle when the coupler is against the striking casting of the car.

In Fig. 6 a modified form of holding and releasing mechanism is shown. The detent 72 is provided with a hook-shaped tooth 73 for engaging the ratchet wheel 74. In other respects the detent is like that shown in the first described form of the invention except that its position in relation to the ratchet wheel is reversed. The purpose of this is to reverse the movement of the tripping lever 75 which, in this case, is moved to the left to trip the detent and to the right when the brakes are to be set. The arrangement is desirable under certain circumstances. For example, the lever in the tripping position can be easily reached by one standing on the end ladder.

Another form of detent is shown in Figs. 8 and 9, involving a slight change in the construction of the tripping lever. In this arrangement the detent 75 has no tail piece and its movement upward is limited, to prevent possible disengagement of the detent from the tripping lever, by the nose portion 77 of the detent, coming into contact with a portion 78 of enlarged diameter of the trip 79. When the detent is disengaged from the ratchet 80 trip and detent are held in the relative positions shown in Fig. 8.

In Figs. 11 and 12 the detent 81 is provided on the opposite side of its pivotal axis 82 from the nose 83, with a weight 84 which overbalances the nose end of the detent when the detent is relieved from the weight of the trip lever 85, as a result of which the detent will remain disengaged from the ratchet 86 until the trip lever is moved back so as to engage the web 87 of the detent. This means that the apparatus is not suited for the second mentioned method of release, the step by step release, since before the lever can be moved back to re-engage the upper surface of the detent, the brakes will have been completely or practically completely released. The step by step method of release, while
feasible if the apparatus is made rugged enough to withstand the shocks incident to the quick re-engagement of the detent with the ratchet wheel, is not a necessary method of release and is undesirable unless the parts are made very strong.

In Fig. 10 a chain 88 without vertical pull rod is employed in the power connections between the winding mechanism and the brake rigging and the chain is secured to the eccentric drum 89 at the wide part 90 of the drum. In other respects the winding mechanism of the apparatus illustrated in Fig. 10 may be exactly the same as the winding mechanism previously described herein.

It will be understood that other modifications might be made without departure from the scope of my invention. Therefore I wish to be understood as intending to cover all constructional changes within the scope of the appended claims.

The hand wheel, the combined gear and winding drum and the housing structure herein shown are not claimed specifically in the present application, said structures being claimed respectively in my Patent No. 1,848,822 dated March 8, 1932 and in my copending application Serial No. 349,818 filed March 25, 1929 and Serial No. 329,243, filed December 29, 1928.

I claim:

1. Holding and releasing mechanism for railway car hand brakes comprising a ratchet wheel, a pivoted detent to engage the ratchet wheel provided with a lateral web, a holding and tripping member pivoted at a point near the end of the detent which engages the ratchet, which tripping member is provided with a cam to bear against the under side of said web to disengage the detent from the ratchet and a lug to engage the upper surface of the web to hold the detent in engagement with the ratchet, and a lever for operating said tripping member and for increasing the pressure on the detent when the tripping member is in holding position.

2. Holding and releasing mechanism for railway car hand brakes comprising a ratchet wheel, a pivoted detent to engage the ratchet wheel, a holding and tripping member pivoted at a point near the end of the detent which engages the ratchet, which member is provided with a cam to bear against the under side of the detent to disengage it from the ratchet and with a lug to engage the upper side of the detent in engagement with the ratchet and a lever for operating said tripping member and for increasing the pressure of the tripping member on the detent when in holding position.

3. Holding and releasing mechanism for railway car hand brakes comprising a ratchet wheel, a pivoted detent to engage the ratchet wheel, a holding and tripping member pivoted at a point near the end of the detent which engages the ratchet wheel, which member is provided with a cam to bear against the under side of the detent near its outer end to disengage the detent from the ratchet and with a lug to engage the upper side of the detent near its pivot point, and a lever for operating said tripping member.

4. Holding and releasing mechanism for railway car brakes comprising a ratchet wheel and a pivoted detent having a tooth at one end to engage the ratchet wheel teeth and a curved portion at the other end to bear against the ratchet wheel; and a tripping lever which when turned to one position bears upon the outer side of the detent at a point between the tooth of the detent and its pivot point, but nearer the latter, and when turned into another position bears on the inner side of the detent near the tooth thereof.

5. Holding and releasing mechanism for railway car brakes comprising a ratchet wheel, a pivoted detent having a hook portion to engage the ratchet wheel and a laterally extending web, and a tripping lever having oppositely projecting lugs, one shorter than the other, the short lug adapted to bear on the under side of said web and the long lug, with a shift in angular position of the lever, on the upper side of said web.

6. Holding and releasing mechanism for railway car hand brakes comprising a ratchet wheel, a pivoted detent to engage the ratchet wheel, a holding and tripping member pivoted at a point near the end of the detent which engages the ratchet wheel, which member is provided with a relatively short cam to bear against the under side of the detent near its outer end to disengage the detent from the ratchet and with a long arm to engage the upper side of the detent near its pivot axis, and a lever for operating said tripping member.

7. Holding and releasing mechanism for railway car hand brakes comprising a ratchet and a pivoted detent co-engaged for holding the brakes in set position, and means for releasing the detent from its holding position comprising a cam provided with a power multiplying member—pivoted on an axis different from said detent and positioned to exert pressure to disengage the detent from said ratchet, against said braking pressure, said cam being movable to a position wherein it will support the detent in its disengaged position.

8. Holding and releasing mechanism for railway car hand brakes comprising a ratchet and a pivoted detent co-engaged for holding the brakes in set position, and means for releasing the detent from its holding position comprising a cam provided with a power multiplying member pivoted on an axis different from said detent and positioned to exert pressure to disengage the detent from said ratchet against said braking pressure,
said power multiplying member comprising a lever operable in one direction to cause the
ratchet to disengage the detent from said ratchet, which lever, when in said detent disengaging
position, supports the detent out of engagement with the ratchet until the lever is oper-
ated manually in the opposite direction.

9. Holding and releasing means for rail-
way car brakes comprising a ratchet, a detent
formed at one end for engagement with the
ratchet to hold it against movement in one
direction and formed at the other end with a tail portion for engagement with the ratchet when the detent is rocked out of holding position, and means for actuating the detent comprising a trip lever pro-
vided with a short arm which in one position of the lever engages one end portion of the
ratchet at a point remote from its pivotal axis
to lift the ratchet holding end thereof out of
holding position and to force the tail portion
into frictional engagement with the ratchet and
formed with means which in another position of said lever engages said end of the
detent at a point nearer said pivotal axis
to hold the holding end thereof in holding
position.

10. Holding and releasing means for rail-
way car brakes comprising a ratchet, a detent
formed at one end for engagement with the
ratchet to hold it against movement in one
direction and formed at the other end with a tail portion having a curved friction sur-
facer of substantial area for engagement with
the ratchet when the detent is rocked out of
holding position, and means for actuating the detent comprising a horizontal shaft, a
trip lever, a cam member on the shaft, pro-
vided with a short arm which in one posi-
tion of the lever engages one end portion of
the detent at a point remote from its pivotal
axis to lift the ratchet holding end thereof
out of holding position and to force the tail
portion into frictional engagement with the
ratchet and formed with means which in an-
other position of said lever engages said end of the detent at a point nearer said pivotal
axis to hold the holding end thereof in hold-
ing position.

11. In hand power mechanism for oper-
ating the brake rigging of a railway car to
set the brakes, a ratchet and detent to hold
the brakes in set position, the detent being
formed with a tail-piece, and a tripping lever
to disengage the detent from the ratchet and
bring said tail-piece into braking relation
with the ratchet.

12. In a railway car hand brake detent
mechanism, a holding member engageable
with a moving part of said mechanism to pre-
vent reverse movement thereof, means for re-
leasing said holding member, and retarding
means movable into frictional engagement
with a moving part of said mechanism upon
the release of said holding member.

13. In a railway car hand brake mechanism
a holding member engageable with a movable
part of said mechanism to prevent reverse

movement thereof, means comprising a lever
for releasing said holding member, and re-
tarding means movable into frictional en-

gagement with a moving part of said mechanism
by the releasing movement of said
lever.

14. In a railway car hand brake mecha-
nism, a holding member engageable with a
moving part of said mechanism to prevent
reverse movement thereof, means for releas-
ing the holding member, and pivoted retarding
means movable into frictional engage-
ment with a moving part of said mechanism
upon the release of said holding member.

15. In a hand brake mechanism for rail-
way cars, means for holding the mechanism
from reverse movement comprising a ratchet
and a detent engageable therewith, and a
pivoted tripping member movable in one di-
rection to release said detent, and retarding
means movable, by the said movement of the

tripping member, into position to retard re-
verse movement of said mechanism.

16. In a railway car hand brake mecha-
nism, means for holding the mechanism from
reverse movement comprising a ratchet and a
detent engageable therewith, a pivoted tripp-
ing member movable in one direction to re-
lease said detent, and means on said detent
movable, by said movement of the tripping
member, into position to retard reverse move-
ment of said mechanism.

17. Holding and releasing mechanism for
railway car hand brakes, comprising a ratchet
wheel, a pivoted detent having a nose por-
tion to engage the teeth of the ratchet wheel,
holding and tripping means for the detent
including a lever, and means operable there-
with, which in one position of the lever bears
on the detent at one side of its pivotal axis to
maintain it in engagement with the ratchet
and which in another position of the lever
exerts pressure on the detent at the same side
of its pivotal axis to disengage it from the
ratchet, said holding and tripping means be-
ing so positioned with relation to the said
detent as to limit the movement of the detent
away from the ratchet wheel.

18. Holding and releasing mechanism for
railway car hand brakes comprising a ver-
ically arranged ratchet wheel, a detent to
engage the same pivoted on an axis fixed with
respect to the car body to oscillate freely in
a vertical plane, and a tripping device to
engage said detent pivoted on a different axis
from the detent and provided with a power
multiplier lever whereby the tripping de-
vice may be rocked to force the detent out of
engagement with said ratchet wheel against
braking pressure.

19. Holding and releasing mechanism for
railway car hand brakes comprising a ver-
tically arranged ratchet wheel, a detent to engage the same pivoted on an axis fixed with respect to the car body to oscillate freely in a vertical plane, and a tripping device to engage said detent pivoted on a different axis from the detent and provided with a power multiplying lever movable in one direction to force the detent out of engagement with said ratchet wheel against braking pressure and in the other direction to move the detent into engagement with said ratchet wheel, said mechanism comprising means for holding the tripping device and lever in either position to which they are set.

20. Holding and releasing mechanism for railway car hand brakes comprising a detent pivoted on an axis fixed with respect to the car body to oscillate freely in a vertical plane, a member adapted to be engaged by said detent, and a tripping device pivoted on a different axis from the detent, adapted to engage the detent at a point remote from its axis for disengaging the detent from said member and at a point nearer the axis for bringing about engagement of the detent with said member.

21. Holding and releasing mechanism for railway car hand brakes comprising a detent pivoted on an axis fixed with respect to the car body to oscillate freely in a vertical plane, a member adapted to be engaged by said detent, and a tripping device pivoted on a different axis from the detent, provided with a power multiplying lever and adapted to engage the detent at a point remote from the axis for disengaging the detent from said member and at a point nearer the axis for bringing about engagement of the detent with said member.

22. Holding and releasing mechanism for railway car hand brakes comprising a vertically arranged ratchet wheel, a detent to engage the same, a tripping device provided with a power multiplying lever by movement of which in one direction the tripping device may be brought against the detent to force it out of engagement with said ratchet wheel against braking pressure, said lever and tripping device being adapted to be set to a position which will automatically disengage the detent from said ratchet wheel when the braking pressure between said detent and member is relieved.

23. Holding and releasing mechanism for railway car hand brakes comprising a detent, a member engaged thereby, a tripping device pivoted on a different axis from the detent provided with a power multiplying lever by movement of which in one direction the tripping device may be brought against the detent at a point remote from the axis of the detent to force it out of engagement with said member against braking pressure and movement of which in another direction brings the tripping device into engagement with the detent at a point nearer its axis for bringing about engagement of the detent with said member.

24. Holding and releasing mechanism for railway car hand brakes comprising a detent, a member engaged thereby, a tripping device pivoted on a different axis from the detent provided with a power multiplying lever by movement of which in one direction the tripping device may be brought against the detent at a point remote from the axis of the detent to force it out of engagement with said member against braking pressure and movement of which in another direction brings the tripping device into engagement with the detent at a point nearer its axis for bringing about and holding the detent in engagement with said member.

25. Holding and releasing mechanism for railway car hand brakes comprising a ratchet wheel, a detent for said wheel pivoted to oscillate in a vertical plane, a tripping device pivoted on an axis spaced from the pivoted axis of the detent in a direction longitudinally of the detent, provided with a power multiplying lever, with a lug to bear against one side of the detent to move it out of engagement with the wheel and with a lug to engage the opposite side of the detent at a point nearer the axis of the detent.

26. Holding and releasing mechanism for railway car hand brakes comprising a ratchet wheel, a detent for said wheel pivoted to oscillate in a vertical plane, a tripping device pivoted on an axis spaced from the pivoted axis of the detent in a direction longitudinally of the detent, provided with a power multiplying lever, with a long lug to engage the opposite side of the detent at a point nearer the axis of the detent to move the detent into engagement with the wheel.

27. Holding and releasing mechanism for railway car hand brakes comprising a vertically arranged ratchet wheel, a detent to engage the same pivoted on an axis fixed with respect to the car body to oscillate freely in a vertical plane, and a tripping device to engage said detent pivoted on a different axis from the detent and provided with a power multiplying lever whereby the tripping device may be rocked to force the detent out of engagement with said member against braking pressure; said detent being weighted so that it moves to effect a holding engagement with the ratchet wheel when released by the tripping device.

28. Holding and releasing mechanism for railway car hand brakes comprising a ratchet, a pivoted detent arranged so that when released it tends to move into holding engagement with the ratchet and a pivoted
tripping device, which when moved to one position disengages the detent from and holds it out of engagement with the ratchet and when moved to another position exerts pressure on the detent in the direction to engage it with the ratchet; said tripping device provided with a power multiplying lever for effecting the aforesaid movements.

29. Holding and releasing mechanism for railway car hand brakes comprising a vertically arranged ratchet wheel, a detent pivoted above the axis of said ratchet wheel to engage therewith, a tripping device pivoted on a different axis from the detent and above the axis of the ratchet wheel which when moved to one position disengages the detent from and holds it out of engagement with the ratchet and when moved to another position engages the detent and moves it in the direction to bring about its engagement with the ratchet.

RICHARD W. BURNETT.

DISCLAIMER


Hereby enters this disclaimer, to wit:

1) Your petitioner disclaims from the scope of the claims of said Letters Patent numbered 7 and 8 holding releasing mechanisms in which the means for releasing the detent from its holding position is operated by the movements of the hand operated device used for setting the brakes.

2) Your petitioner disclaims from the scope of claim 11 holding and releasing mechanisms in which the tripping lever is a part of, or in fixed relation with, the detent.

3) Your petitioner disclaims from the scope of claims 12 and 14 holding and releasing mechanisms in which the means for releasing the holding member is not separate from, and movable with respect to, said holding member.

4) Your petitioner disclaims from the scope of claim 13 holding and releasing mechanisms in which the lever for releasing the holding member is not separate from, and movable with respect to, said holding member.

5) Your petitioner disclaims from the scope of claims 15 and 16 holding and releasing mechanisms in which the pivoted tripping member is a part of, or in fixed relation with, the detent.

6) Your petitioner disclaims from the scope of claims 18 and 27 holding and releasing mechanisms in which the tripping device is operated by the movements of the hand operated device used for setting the brakes.

[Official Gazette April 24, 1934.]
tripping device, which when moved to one position disengages the detent from and holds it out of engagement with the ratchet and when moved to another position exerts pressure on the detent in the direction to engage it with the ratchet; said tripping device provided with a power multiplying lever for effecting the aforesaid movements.

20. Holding and releasing mechanism for railway car hand brakes comprising a vertically arranged ratchet wheel, a detent pivoted above the axis of said ratchet wheel to engage therewith, a tripping device pivoted on a different axis from the detent and above the axis of the ratchet wheel which when moved to one position disengages the detent from and holds it out of engagement with the ratchet and when moved to another position engages the detent and moves it in the direction to bring about its engagement with the ratchet.

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(1) Your petitioner disclaims from the scope of the claims of said Letters Patent numbered 7 and 8 holding releasing mechanisms in which the means for releasing the detent from its holding position is operated by the movements of the hand operated device used for setting the brakes.

(2) Your petitioner disclaims from the scope of claim 11 holding and releasing mechanisms in which the tripping lever is a part of, or in fixed relation with, the detent.

(3) Your petitioner disclaims from the scope of claims 12 and 14 holding and releasing mechanisms in which the means for releasing the holding member is not separate from, and movable with respect to, said holding member.

(4) Your petitioner disclaims from the scope of claim 13 holding and releasing mechanisms in which the lever for releasing the holding member is not separate from, and movable with respect to, said holding member.

(5) Your petitioner disclaims from the scope of claims 15 and 16 holding and releasing mechanisms in which the pivoted tripping member is a part of, or in fixed relation with, the detent.

(6) Your petitioner disclaims from the scope of claims 18 and 27 holding and releasing mechanisms in which the tripping device is operated by the movements of the hand operated device used for setting the brakes.

[Official Gazette April 24, 1934.]