V. M. HAAS.

BRAKE LEVER CHECKING DEVICE.

APPLICATION FILED JAN. 13, 1920.

1,368,796. Patented Feb. 15, 1921.

2 SHEETS—SHEET 1.

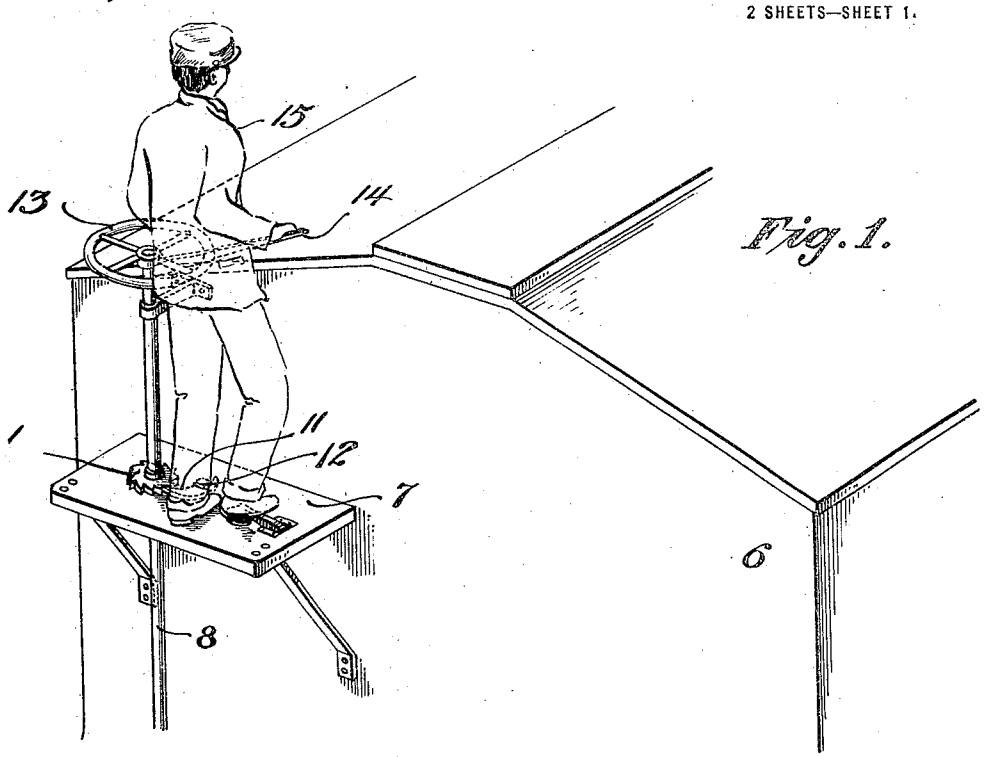
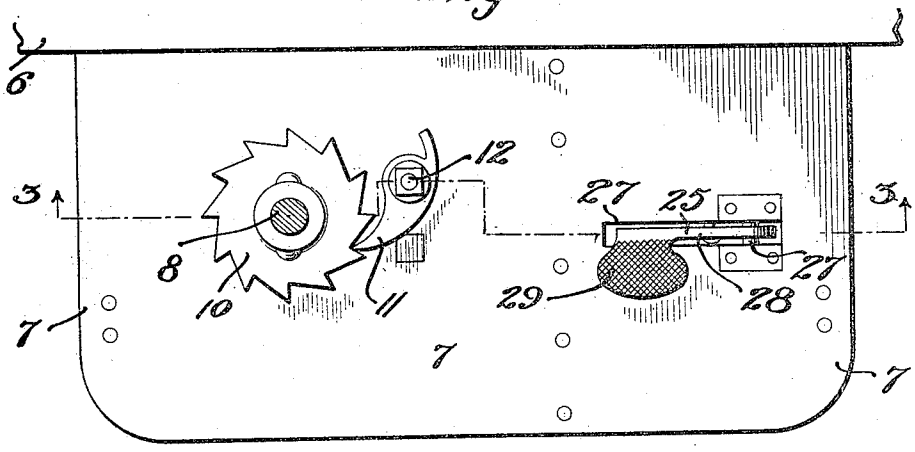


Fig. 1.

Fig. 2.



Witnesses

W. C. Fielding.

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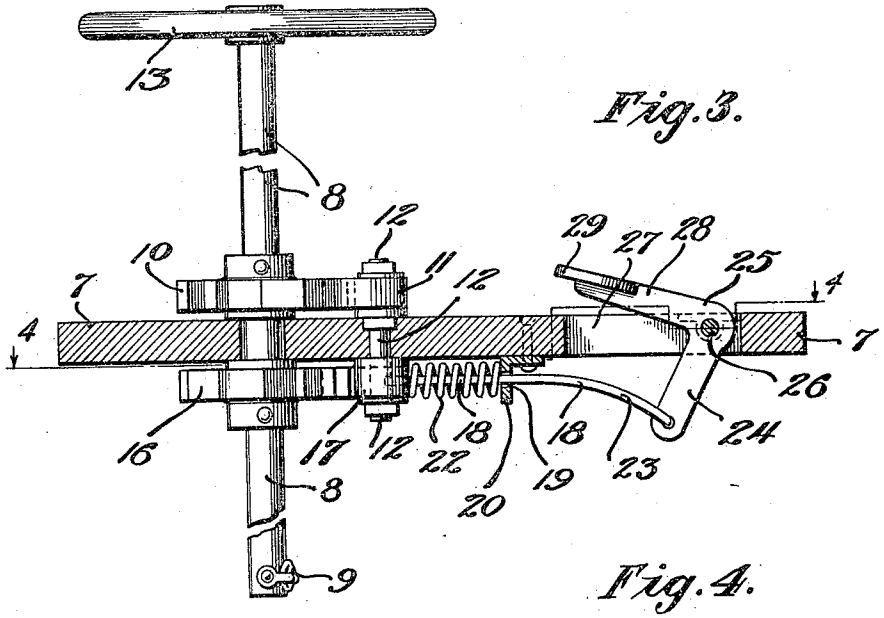


Fig. 3.

Fig. 4.

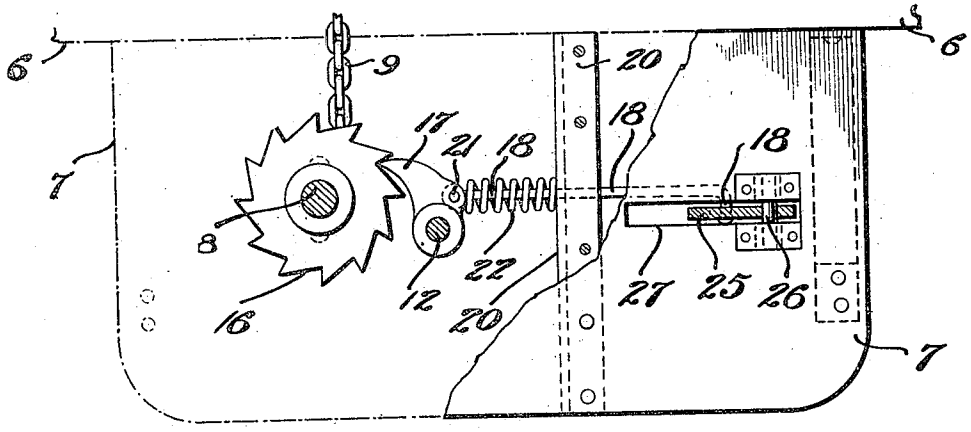
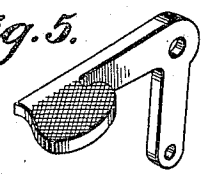


Fig. 5.



Witnesses

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UNITED STATES PATENT OFFICE.

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BRAKE-LEVER-CHECKING DEVICE.

1,368,796. Specification of Letters Patent. Patented Feb. 15, 1921.

Application filed January 13, 1920. Serial No. 351,153.

To all whom it may concern:

Be it known that I, VINCENT M. HAAS, a citizen of the United States, residing at Norristown, in the county of Montgomery and State of Pennsylvania, have invented certain new and useful Improvements in Brake-Lever-Checking Devices, of which the following is a specification.

Numerous fatalities and accidents to freight train brakemen occur due to the breaking of the brake chains while the brakeman is applying leverage to set the brakes. On practically all freight cars there is a platform upon which the brakeman stands while turning the wheel which is attached to the brake operating shaft. In order to apply the brakes, the brakeman carries a stick or club which he inserts between the spokes and rim of the brake wheel to form an extended lever which he pulls and thereby rotates the wheel. The movement of the brakeman necessary to thus apply the brakes is such that he is required to lean backward and if the brake chain should happen to part, the wheel will freely swing in the direction which the brakeman is pulling and the brakeman looses his balance and falls either between the cars or off to the side of the railroad and is either seriously injured or killed.

One object of my invention is to provide means which will automatically operate to check the movement of the brake wheel and connected parts if the chain or other portion should break during the brake setting action, and thereby prevent the brakeman from falling.

Another object is to make my invention of a simple and durable construction, so that it will be positive in its action and can be applied to practically all types of brake mechanism.

These objects, and other advantageous ends which will be described hereinafter, I attain in the following manner, reference being had to the accompanying drawings in which—

Figure 1 is a perspective view showing my invention applied to the brake mechanism of a freight car and showing the position of a brakeman when applying the brakes.

Fig. 2 is a top plan view of the platform upon which the brakeman stands and which has my invention thereon,

Fig. 3 is a sectional elevation taken on the line 3—3 of Fig. 2 showing the movable parts in outside elevation,

Fig. 4 is a section taken on the line 4—4 of Fig. 3, and

Fig. 5 is a perspective view of one of the elements of my invention.

Referring to the drawings, 6 represents a freight car having a platform 7 secured on the end thereof and through which the usual rotatable shaft or post 8 extends; the bottom of said shaft having a chain 9 thereon which leads to the brakes in the usual manner. A ratchet wheel 10 is secured to the shaft 8 adjacent the top of the platform 7, and a pawl 11 is pivotally mounted on a stud bolt or pin 12 and is adapted to be pushed by the foot of the brakeman into engagement with the teeth of the ratchet wheel 10 to prevent the shaft 8 from moving in a contra-clockwise direction after the brakeman has turned the shaft 8 by a clockwise movement of the lever wheel 13; said wheel 13 being located adjacent the top of the freight car, as clearly shown in Fig. 1.

To apply the brakes, the wheel 13 is rotated preferably by the assistance of a stick or club 14 which the brakeman 15 inserts within the wheel as above described. The above specifically mentioned elements are all standard and do not in themselves form a part of my present invention. It will be noted however that if the brake chain 9 should part that the above elements would not prevent the wheel 13 and shaft 8 from continuing in a clockwise direction and this movement is such as to cause fatalities and accidents as above mentioned.

My invention includes the following additional elements: A detent ratchet wheel 16 is secured to the shaft 8 below the platform 7 and has teeth thereon extending at an angle at an opposite slant to the teeth of the ratchet wheel 10. A detent pawl 17 is freely pivoted on the stud bolt or pin 12 below the platform and is capable of engaging the teeth of the detent ratchet 16, as clearly shown in Fig. 4. A rod 18 is freely movable longitudinally through a hole 19 in a brace angle 20 secured to the bottom of the platform 7. This rod 18 at one end is pivotally connected as at 21 to the detent pawl 17. A coiled spring 22 surrounds the rod 18 and the opposite ends of this spring engage the brace angle 20 and the detent pawl 17 and normally serve to hold the pawl 17 in mesh with the teeth of the detent ratchet 16. The op-

posite end of the rod 18 curves downwardly as shown at 23 and is pivotally connected to an arm 24 of a bell crank lever 25; said bell crank lever being pivotally mounted at 26 within a slot 27 in the platform 7. The arm 24 extends below the platform 7, as clearly shown in Fig. 3, and the bell crank lever 25 has another arm 28 which is provided with a roughened flange 29 which extends over the top of the platform 7, as clearly shown in Figs. 2 and 3. From the above description it is obvious that if the arm 28 is depressed, the arm 24 will be swung to pull and move the rod 18 lengthwise. This action will pull the detent pawl 17 out of engagement with the detent ratchet 16 and will also cause the detent pawl 17 to compress the spring 22 in view of the fact that the spring 22 at one end abuts the immovable brace angle 20. If, after being depressed as above described, the arm 28 is released, the spring 22 will expand and push the detent pawl 17 into mesh with the teeth of the detent ratchet 16 and prevent the rotation of the shaft 8 and its connected parts in a clockwise direction.

In the use of my invention the brakeman, to apply the brakes stands with one foot upon the platform 7 adjacent the pawl 11 and with the other foot pressing downwardly upon the flange 29 of the bell crank lever 25; thus causing the detent pawl 17 to be withdrawn from the detent ratchet 16 as above described. With the club 14 between the spokes and rim of the lever wheel 13, the brakeman applies a pulling movement to the lever 14 and rotates the lever wheel 13 and consequently the shaft 8 in a clockwise direction, keeping the pawl 11 in mesh with the teeth of the ratchet wheel 10 to prevent back lash of the lever wheel 13 and shaft 8. This ordinarily will apply the brakes. If, during this action, the chain 9 or any other of the parts connected thereto should part or break, the lever wheel 13 and club 14 will start to take a free movement in a clockwise direction. The beginning of this movement will cause the brakeman to start to fall backward and in doing so his foot which is on the flange 29 will be raised therefrom and the spring 22 will then act to push the detent pawl 17 into mesh with the teeth of the detent ratchet 16 and prevent further movement of the lever wheel 13 and chain 9 in a clockwise direction. The brakeman naturally holds on to the club 14 and the rim of the lever wheel 13 and in actual use it has been found that the brakeman can easily recover himself without falling since there is an immediate action to stop the movement of the club 14, lever wheel 13 and shaft 8 as soon as the foot of the brakeman releases the bell crank lever 22.

While I have described my invention as taking a particular form, it will be understood that the various parts of my invention may be changed without departing from the spirit thereof, and hence I do not limit myself to the precise construction set forth, but consider that I am at liberty to make such changes and alterations as fairly come within the scope of the appended claims.

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

1. The combination with brake mechanism having a part movable in one direction to apply the brake mechanism, of means for checking the movement of said part in said direction, said checking means being automatically movable into said checking position with said part and having a portion movable by contact with a person to hold said checking means out of said checking engagement with said part and when released from engagement with said person being operative to permit said checking means to automatically engage and check said part against movement in said direction; substantially as described.

2. The combination with brake mechanism of a ratchet secured to a part of said mechanism movable in one direction to apply the brake mechanism; means adapted to intermesh with the teeth of said ratchet to check the movement thereof; automatically operative means for moving said intermeshing means into engagement with said ratchet; and means for moving said intermeshing means out of engagement with said ratchet against the action of said automatic means and having a portion movable by a person to effect said latter movement, said automatic means being operative, when said portion is released, to move and hold said intermeshing means in intermeshing locking engagement with the teeth of said ratchet to prevent the movement of said part in said direction; substantially as described.

3. The combination with brake mechanism of a ratchet secured to a part of said mechanism movable in one direction to apply the brake mechanism; a pawl for engagement with said ratchet; a spring for moving said pawl into engagement with the ratchet; and means connected to said pawl and having a portion capable of being moved by a person to move said pawl out of engagement with said ratchet against the action of said spring, said spring being operative to automatically move the pawl into engagement with the ratchet when said means is released to prevent the movement of said part in said direction; substantially as described.

4. The combination with brake mechanism of a ratchet secured to a part of said mechanism movable in one direction to apply the brake mechanism; a pawl for engagement with said ratchet; a rod connected to said pawl; a spring for moving said pawl into

engagement with the ratchet; and means connected to said rod and being capable of being moved by a person to move said pawl out of engagement with said ratchet against the action of said spring, said spring being operative to automatically move the pawl into engagement with the ratchet when said means is released to prevent the movement of said part in said direction; substantially as described.

5. The combination with brake mechanism of a ratchet secured to a part of said mechanism movable in one direction to apply the brake mechanism; a pawl for engagement with said ratchet; a supporting structure; a rod connected to said pawl; a spring interposed between said pawl and a part of said supporting structure and adapted to move said pawl into engagement with the ratchet; and a lever pivoted on said supporting structure and having a part adapted to be engaged and moved by the foot of a person standing on said supporting structure to cause said pawl to be retracted from said ratchet against the action of said spring, said spring when said lever is released being operative to automatically move said pawl into engagement with said ratchet to prevent the movement of said part in said direction; substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

VINCENT M. HAAS.

Witnesses:
ANNA RENTON,
CHAS. E. POTTS.