

(No Model.)

N. LAMPMAN.
BRAKE FOR RAILWAY CARS.

No. 535,211.

Fig. 1. Patented Mar. 5, 1895.

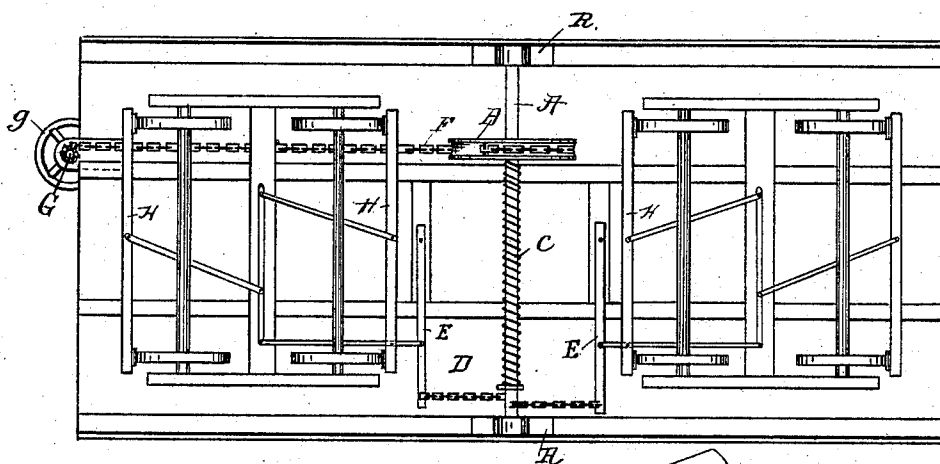


Fig. 2.

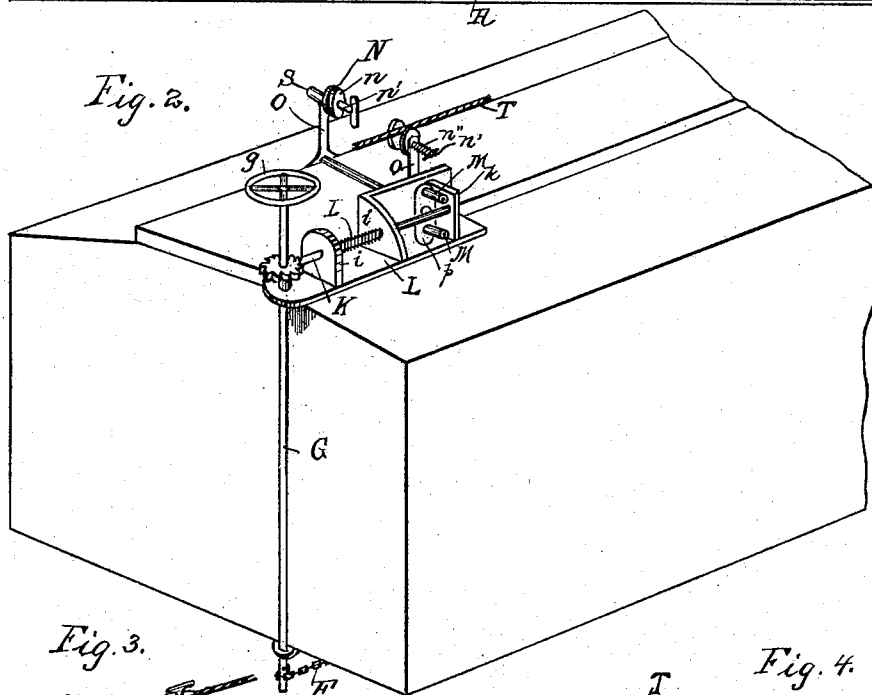


Fig. 3.

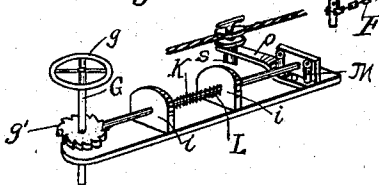
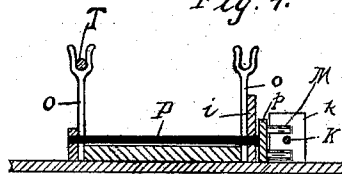


Fig. 4.



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UNITED STATES PATENT OFFICE.

NELSON LAMPMAN, OF WOODSTOCK, CANADA.

BRAKE FOR RAILWAY-CARS.

SPECIFICATION forming part of Letters Patent No. 535,211, dated March 5, 1895.

Application filed December 17, 1894. Serial No. 532,117. (No model.)

To all whom it may concern:

Be it known that I, NELSON LAMPMAN, a citizen of Canada, residing at the city of Woodstock, in the county of Oxford and Province of Ontario, Canada, have invented certain new and useful Improvements in Automatic Car-Brakes; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to use the same.

My invention relates to automatic car-brake apparatus, and has for its object to produce a mechanism which may be combined with the ordinary brake equipment of a freight car, which mechanism is operated by a spring to set the brakes, the operation of the operating springs of the apparatus on the several cars being under the control of the engineer of the train, as well as being separately under the control of the trainmen who may be at different parts of the train.

To this end the invention consists of the combination with the ordinary brake equipment, of a spring operating mechanism therefor, a locking detent mechanism for holding the spring under tension and the brakes off, a tripping mechanism for such detent and connecting means between the tripping mechanisms on several connected cars.

In order that my invention may be the better understood, I have in the accompanying drawings illustrated one, and the preferred form thereof; without, however, intending thereby to limit myself to the particular construction and arrangement which, for the sake of illustration, I have delineated.

In the drawings: Figure 1 is an inverted plan view of a railway car provided with my invention. Fig. 2 is a perspective view, illustrating the mechanism on the top of the car, the protecting casing which is usually employed, being removed. Fig. 3 is a perspective view illustrating a different form of the tripping mechanism from that shown in Fig. 2. Fig. 4 is a sectional elevation illustrating a somewhat different form of the invention.

As my invention is applicable to railway cars provided with brake apparatus of different kinds, and is intended to be readily applied to cars already equipped, I have illustrated a brake apparatus in a conventional form, no

effort being made to illustrate the parts thereof in detail.

As represented in the drawings, a cross shaft, A, is mounted beneath the car, being shown as arranged centrally thereof and supported at its ends in the brackets or bearings, R. This shaft is connected with the brake apparatus, the connection shown being a chain, D, connected at one end to the shaft, and adapted to be wound thereon, and at the other end connected to a lever, E, which in turn is connected with the brake levers, the arrangement being such that when the chains, D, are wound upon the shaft, the brake beams, H, will be drawn toward the wheels and apply the brakes. I have shown two sets of such connections, they being connected respectively with the two sets of brake appliances which are arranged to apply the brakes to the wheels of the two trucks. A single set of such connections might, however, be employed and the two sets of brakes connected with each other, if this be found preferable.

A spring, C, is connected with the shaft and arranged to turn the same so as to wind the chains, D, upon the shaft and set the brakes. This spring is shown as being of coiled spiral form and is of such size as to fit over the shaft, A, which forms a support therefor. This makes a compact arrangement and one not liable to get out of repair.

B represents a groove wheel mounted upon the shaft, A, and having connected to its periphery a chain, F, which extends to and is connected with the vertically disposed shaft or rod, G, at the end of the car, which is the rod having at its upper end the hand-wheel, g, by which the brake is usually applied by the brakeman. The wheel, B, is of sufficient size to give a powerful leverage to turn the shaft so that an operator by turning the wheel, g, and winding the chain, F, upon the shaft, G, may turn the shaft, A, with comparative ease at the same time putting the spring, C, which may be of great power, under sufficient tension to operate the brakes when the shaft, A, is left free to turn.

The shaft, G, is provided with the usual ratchet wheel, g', and with this there engages a spring-actuated detent or dog, K. The form of detent which I prefer is that shown, which consists of a rod, K, mounted in the brackets,

2, of a supporting frame and having connected with it a spring, L, which tends to move it into engagement with the ratchet wheel, *g'*. I combine with this detent, a tripping mechanism by means of which it may be disengaged from the ratchet wheel, *g'*, in order to allow the brakes to be automatically set by the spring, C. As shown in Fig. 3, the trip mechanism consists of a rock shaft, P, extending across the foot-board on the top of the car, and provided with arms by which it may be operated and with means for engaging with the detent. The operating arms are represented by O, and are arranged on either side of the foot-board so that they do not interfere with the movement back and forth thereon. They carry at their upper ends rope clamps, N. The end of the shaft, P, adjacent to the detent is provided with a cross head, *p*, from which project the studs or pins, M, which are preferably provided with anti-friction rollers. The detent, K, is provided, adjacent to the said studs or pins, M, with a plate, *k*, with which one or the other of the anti-friction rollers is caused to engage as the rock shaft is turned in one direction or the other. The studs or pins carrying the anti-friction rollers are disposed upon opposite sides of the axis on which the trip turns, so that in whichever direction the shaft, P, be rocked, the detent will be withdrawn from the ratchet wheel. The spring, L, operates not only to throw the detent, K, into engagement with the ratchet wheel but also draws the plate, *k*, up into engagement with the anti-friction rollers, thereby causing the tripping mechanism to assume a central position ready to trip the detent whichever way the arms, O, be moved.

I prefer that the rope clamps should be spring-operated, and as shown they each consist of two disks, *n*, one being rigidly secured to the arm, O, and the other connected with a sliding shaft, *n'*. This shaft is acted upon by a spring, *n''*, which tends to draw together the two disks. The shaft, *n'*, is preferably extended through the movable disk and provided with some sort of a handle for convenience in separating the disks to permit the insertion of the rope, T, between them. I prefer that the spring, *n''*, should be coiled around the shaft, *n'*, and that it should be inclosed in a protecting casing, *s*.

In Fig. 3 there is shown a form of my invention in which the arm, O, is arranged horizontally instead of vertically, as shown in Fig. 2.

In Fig. 4 I have shown a form of trip mechanism in which the upper ends of the arms, O, are forked instead of being provided with the rope-clamps. The rope is crowded into the space between the arms, N', where it is held with sufficient firmness.

The rope, T, extends from car to car engaging with each trip device and is carried into the cab of the locomotive, where it may be connected to a winding drum or other device by means of which the engineer may pull the

rope and operate the brakes upon all of the cars in the train which are provided with my invention, practically simultaneously. The rope engaging parts of the trip mechanisms are so constructed that the rope may be easily pulled through them or out of them should it be necessary so to do, in operating the trip devices on the succeeding car or cars.

In practice I prefer that the detent mechanism and the connection between it and the trip mechanism should be closed in by a suitable casing, but for clearness of illustration, I have omitted the showing of such casing in the drawings.

By providing the tripping mechanism with the two arms arranged upon opposite sides of the foot-board, I am enabled to run the rope, T, straight along the train so that it nowhere crosses over the foot-board, whichever end of the respective cars be toward the locomotive.

Wherever a train of cars provided with my invention, is made up, the brakemen set up the mechanism by turning the wheel, *g*, a sufficient distance to withdraw the brake from the wheels. The cord or rope, T, is then engaged with the several trip devices and connected with the engineer's operating device, and if desirable to an operating device in a caboose. When thus equipped, all of the brakes may be set at substantially the same time from any part of the train because whichever way the rope be drawn, it operates the trip, and if the rope be drawn sufficiently far all of the devices will be operated in succession. While connecting the several tripping devices with each other permits them to be operated simultaneously or in quick succession, it nevertheless does not prevent their being operated individually, and this is often desirable when it is wished to set the brakes on one or more cars only, as when passing down heavy grades. In order to operate a single brake apparatus, the brakeman has merely to lift the cord out of engagement with the lever, O, and rock the lever sufficiently to operate the detent. There is ordinarily sufficient slack in the rope between the cars to make it unnecessary to disengage the ropes before operating the trip mechanism. A brakeman can thus pass rapidly from car to car setting the brakes as he goes, it only being necessary to strike one of the arms, O, with his hand or foot, with sufficient force to release the detent, when the brakes upon that car will be instantly set.

Another advantage incident to my invention is that the brakes upon the entire train will be automatically set should at any time a train part, the separation of the cars drawing the cord in both directions and applying the brakes to both sections of the train. When it is desired to notify the engineer that the train has parted, I may connect the bell in the cab of the locomotive with the cord or rope, T, by a short section of rope so that when the rope is drawn tight before parting the bell will be rung.

Having thus described my invention, what

I claim, and desire to secure by Letters Patent, is—

1. The combination with the brake apparatus of a car, of a shaft, A, a suitable connection between the shaft and the brake apparatus including a chain adapted to be wound on the shaft, a spirally coiled spring mounted upon and tending to turn the shaft and set the brakes, and means for locking the shaft in position to hold the spring coiled or under tension, and the brakes off, substantially as set forth.

2. The combination with the brake apparatus for a car, of a shaft, A, a connection between the shaft and brake apparatus, a coiled spring, C, surrounding the shaft and tending to turn it so as to set the brakes, a wheel, B, secured to the shaft, and a chain, F, secured to the periphery of the wheel and adapted to rest in a groove therein, substantially as set forth.

3. The combination with a brake apparatus of a car, of a spring-actuated shaft connected therewith and tending normally to set the brakes, the brake rod or shaft, G, the connection between the said brake rod and the spring-actuated shaft whereby the brakes may be withdrawn from the wheels when the shaft, G, is turned, and the locking detent for the shaft or rod, G, substantially as set forth.

4. The combination with a brake apparatus of a car, of a spring-actuated shaft connected therewith and tending normally to apply the brakes, a shaft connected therewith by means of which the said spring-actuated shaft may be moved to release the brakes, a detent for locking the said brake-releasing shaft, and a trip mechanism for releasing the said detent, substantially as set forth.

5. The combination with a brake apparatus of a car, of a shaft, A, connected with the brake apparatus, a coiled spring, C, tending to turn the shaft and apply the brakes, a wheel, B, upon the shaft, the vertically disposed shaft, G, at the end of the car provided at its upper end with a hand-wheel, the connecting chain between the said shaft and the wheel, B, a detent for holding the said parts in position with the spring, C, under tension and the brakes off, and a trip mechanism on the top of the car for releasing the said detent, substantially as set forth.

6. The combination, with a brake mechanism of a car, of a spring-actuated mechanism which tends normally to apply the brakes, a

detent for holding such mechanism in position with the brakes off, a trip for the detent, and a cord connected with the said trip, the said trip normally occupying a mid position and being free to move in either direction, that is forward or backward, from such mid position according as the rope is pulled in one direction or the other, and being constructed to operate the detent whichever way it be moved, substantially as set forth.

7. The combination with a brake mechanism of a car, of spring-actuated mechanism which tends normally to apply the brakes, a detent for holding such mechanism in position with the brakes off, and a trip for the detent consisting of a rocking arm provided with a head having projections adapted to engage and move the detent and arranged upon opposite sides of the axis on which the arm rocks whereby the detent will be operated in whichever direction the arm be rocked, substantially as set forth.

8. The combination with a brake mechanism of a car, of spring actuated mechanism which tends normally to apply the brakes, a detent for holding such mechanism in position with the brakes off consisting of the spring-actuated rod, K, provided with a plate, L, and a trip mechanism for operating the said detent provided with the studs or pins arranged to bear upon the said plate and disposed on opposite sides of the axis on which the said trip turns whereby the detent will be operated whether the trip be moved in one direction or the other, substantially as set forth.

9. The combination with a brake mechanism of a car, of a spring-actuated mechanism which tends normally to apply the brakes, a detent for holding such mechanism in position with the brakes off, and trip for the detent provided with two arms disposed on opposite sides of the foot-board of the car and each provided with means for engaging with a rope, substantially as set forth.

10. The combination with a brake mechanism of a car, of a spring-actuated mechanism which tends normally to apply the brakes, a detent for holding such mechanism in position with the brakes off, and a trip for the detent provided with a spring-actuated rope clamp, substantially as set forth.

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Witnesses:

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