(No Model.)

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C. L. MATTHEWS.

CAR BRAKE.

No. 329,328. Patented Oct. 27, 1885.

Fig. 1.

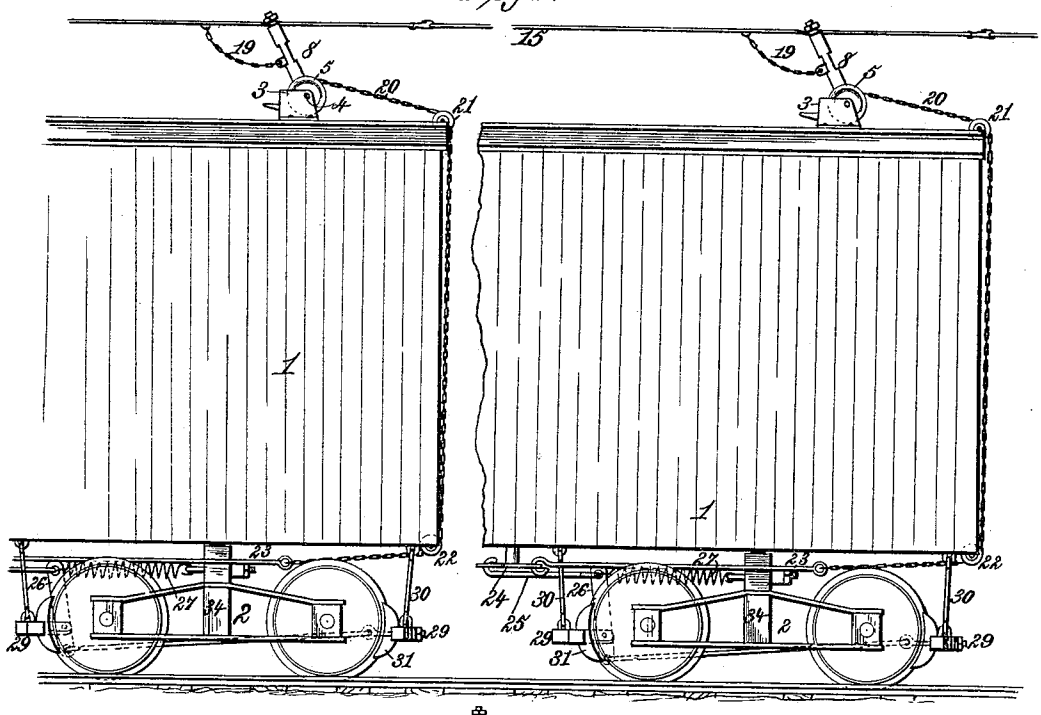
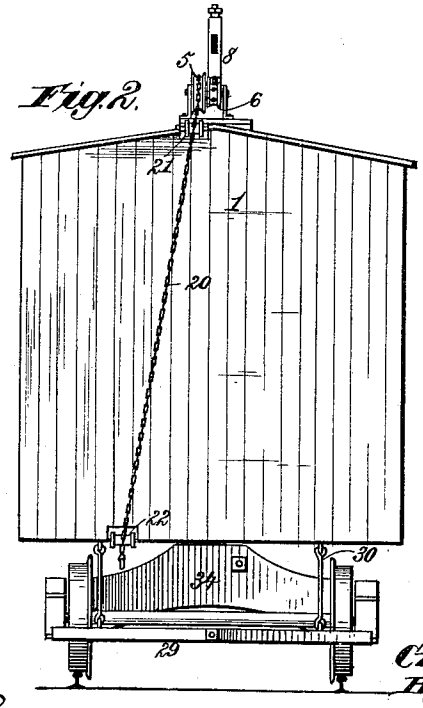


Fig. 2.



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(No Model.)

2 Sheets—Sheet 2.

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Fig. 3.

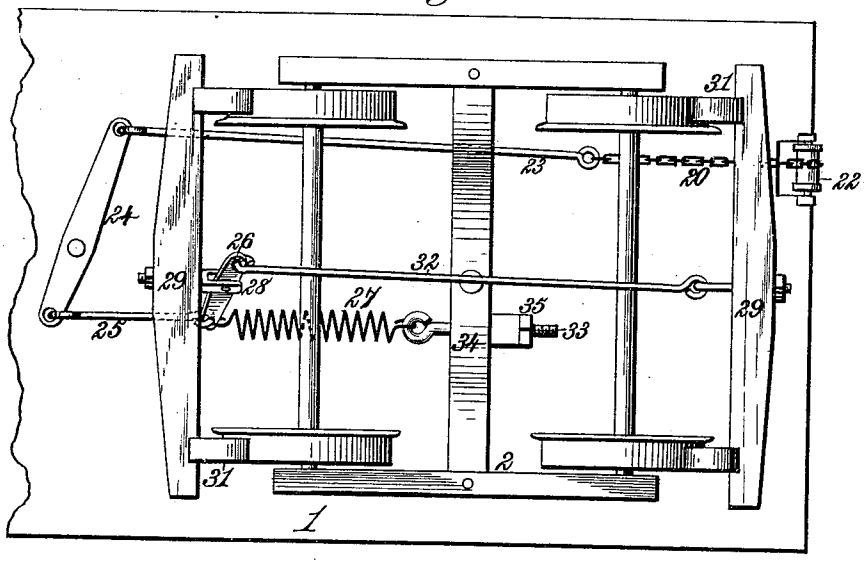


Fig. 4.

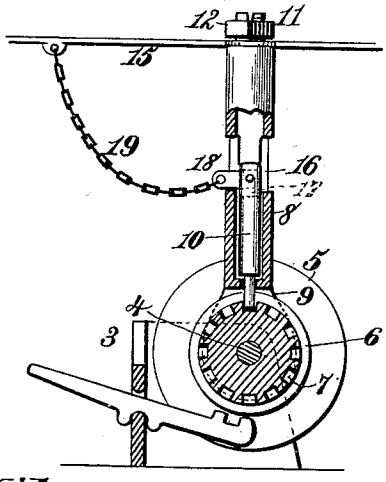
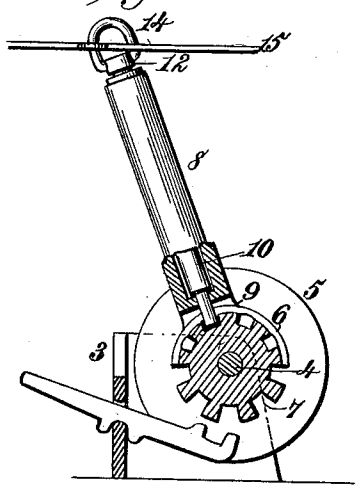


Fig. 5.



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UNITED STATES PATENT OFFICE.

CRANMER L. MATTHEWS, OF TEMPLE, TEXAS.

CAR-BRAKE.

SPECIFICATION forming part of Letters Patent No. 329,328, dated October 27, 1885.

Application filed May 11, 1885. Serial No. 165,066. (No model.)

To all whom it may concern:

Be it known that I, CRANMER L. MATTHEWS, a citizen of the United States, residing at Temple, in the county of Bell and State of Texas, have invented new and useful Improvements in Car-Brakes, of which the following is a specification.

This invention relates to that class of railway-car brakes in which the brake mechanism of each car is in connection with devices located on the top of the car and connected to each other in such a way that the brakes of all the cars may be operated simultaneously from a single point.

The object of my invention is to provide a continuous automatic brake controlling and actuating mechanism which shall be simple in construction and so arranged as to be operated with ease and celerity to apply or take off all the brakes at once, provision being also made to admit of the brakes being operated by hand on any car of a train independent of the others, or when separated, and also to enable the mechanism to act automatically for the purpose of instantly applying the brakes in case of accident by uncoupling or derailment of the cars while in motion.

To this end the invention consists in the construction and combination of the parts of an automatic railway-car brake, as hereinafter set forth.

In the annexed drawings, illustrating my invention, Figure 1 is a side view of my improved brake-operating mechanism applied to two connected cars. Fig. 2 is an end view of a car provided with said mechanism. Fig. 3 is a bottom view of a car-truck having the brake mechanism attached. Fig. 4 is an enlarged view of the actuating mechanism with its connections upon the top of a car. Fig. 5 is a modification of the lever for actuating the brake mechanism.

The reference-numeral 1 designates the body portion of a railway-car, two of which are shown connected in Fig. 1, and 2 is a car-truck which carries the brake mechanism. On the top of each car is secured a bracket or frame, 3, in which is journaled a horizontal shaft, 4, carrying a large sheave, 5, and a disk, 6. The latter is keyed or otherwise secured to the shaft 4, and is provided with a series of peripheral depressions or sockets, 7. On the shaft 4 is also a loosely-mounted lever, 8, having a bifurcated end, 9, by which it is connected to said shaft on either side of the socketed disk. The lever 8 is tubular throughout its entire length beyond the bifurcation 9, and incloses a bolt or rod, 10, the lower end of which is adapted to engage the depressions or sockets 7 in the disk 6. The upper end of the tubular lever 8 is internally screw-threaded for the reception and retention of a screw-plug, 11, which is formed or provided with clamping-jaws 12, controlled by a set-screw, 13, as shown in Fig. 4; or the screw-plug or clamping-jaws may be dispensed with and the rod 10 be carried through the tubular lever 8 and terminate in a loop or eye, 14, as shown in Fig. 5.

The clamp 12 or the eye 14, as the case may be, is for the attachment of a stout cord or cable, 15, that passes over the train and connects the several levers and accompanying mechanism mounted on the tops of the cars.

In the form of lever 8 shown in Fig. 4 a vertical slot, 16, is formed coincident with a similar slot, 17, in the inclosed bolt or rod 10, and these slots receive a link, 18, which is connected with the cord or cable 15 by means of a short chain, 19, having suitable clamps or snaps for making the necessary connections. When, however, the bolt 10 is passed entirely through the tubular lever 8 and provided with an eye, 14, for the attachment of the cable 15, the slots 16 and 17, link 18, and chain 19 will be dispensed with, as shown in Fig. 5. The sheave 5, secured to the shaft 4, has attached to its grooved periphery a chain, 20. This chain 20 passes partly around the sheave and extends downward over guide-pulleys 21 and 22 and beneath the car-truck, where it is secured to one end of a longitudinal rod, 23, that passes through suitable openings in the truck-timbers. The other end of this connecting-rod 23 is attached to one end of a transversely-inclined swing-bar or relief-lever, 24, that is secured at its opposite end to a rod, 25, which connects with the upper end of a perpendicular brake-lever, 26, and also with one end of a power-spring, 27, as shown in Fig. 3. The perpendicular brake-lever 26 is fulcrumed at 28 to one of the brake-beams 29, that is sus-

pended by hooks or links 30 30 from the bottom of the car-body, and provided with brake-shoes 31 31, as usual. To the lower end of the perpendicular lever 26 is attached a rod, 32, that connects with the forward brake-beam. The spirally-coiled power-spring 27 is connected at its rear end to the brake-lever 26, and to the rod 25, that connects with the relief-lever 24, as before remarked. This spring extends forward, and is connected at its front end to a threaded bolt, 33, that passes through one of the truck-beams 34, and is adjustably secured thereto by a nut, 35, or similar device.

In practice the spring 27 and its connections are so adjusted as to apply the brakes when said spring is sufficiently relieved of the tension that is exerted thereon by the locked position of the socketed disk 6 and its lever 8, as will be hereinafter explained.

When several cars provided with my improved brake-actuating mechanism are coupled together, the several lever devices on the tops of the cars will be connected by the cable 15, which is made in sections suitably connected in proper lengths, according to the number of cars in the train. These cable-sections are fastened to the upper ends of the hollow levers 8, either by means of the clamps 12 or the eyes 14, as the case may be. When the cable is connected to the tubular lever 8 by means of the eye 14 on the end of the inclosed rod or bolt 10, it is capable of acting directly on said bolt in controlling or releasing the socketed disk 6 and sheave 5. If the lever 8 and cable 15 are connected by means of the clamp 12, as shown in Fig. 4, in which the bolt and lever are slotted, as before described, for engaging a link, 18, the short chain 19 becomes necessary to connect the bolt, link, and cable. By means of either form of connection the cable 15, when drawn taut, will actuate all the levers 8 and their inclosed bolts 10, so as to engage with and rotate the disks 6 and sheaves 5 sufficiently to draw on the chains 20, that extend beneath the several cars. These chains 20 exert a traction on the several longitudinal rods 23, each of which acts upon and stretches a power-spring, 27, through the intermediate connections before described. Each power-spring is thus in a state of tension, and the brake-beams and their shoes are held away from the car-wheels. If, now, it is desired to apply the brakes, it is only necessary for the brakeman, from his station in the caboose or other convenient location, to slacken the cable 15 sufficiently to enable the springs 27 to exert their force in bringing the brakes against the periphery of the car-wheels. The brake mechanism is preferably actuated from the rear end of the train, and in that case, when the cable 15 is taut, the several levers 8 each inclines backward at an angle of about forty-five degrees. In the caboose or upon the car from which the cable 15 is to be operated is a wheel or drum, (not shown,) to which said cable is secured, and by which its tension is controlled. It will be understood that in practice, while the train is in motion the cable 15 should be tightened to such degree as to fully extend the springs 27, and hold the brake-shoes at their greatest distance from the car-wheels. As the levers 8 are of such length as to permit a considerable range of movement at their upper ends without rotating the disks 6 and sheaves 5, which are of comparatively small circumference, sufficiently to materially affect the tension of the springs 27, it is obvious that the ordinary forward-and-back oscillation of the cars, and the consequent fluctuations in the tautness of the connecting-cable 15, will not affect the brake-controlling mechanism to such extent as to cause a premature application of the brakes. In case the cars become uncoupled while in motion, the increased tension upon the cable 15 will incline the levers 8 still more—say to about fifty degrees—when the bar or rod 10 will be drawn from its engagement with the socketed disk 6, thereby slackening the chain 20 and permitting the spring 27 to exert its power in applying the brakes.

Cars on which this brake mechanism is not used may be coupled in any part of the same train with other cars supplied with said mechanism, the cable 15 being simply run over the tops of all the cars and connected to those having my improved devices.

The cable may be operated in the caboose by a device similar to that already described for use on the tops of the cars, except that instead of a tubular lever and connections a large brake-wheel will be provided and arranged to operate vertically instead of horizontally, as usual with brake-wheels.

The advantages of my improvements are many and important. One man in the caboose of a freight-train, of whatever length, can apply the brakes to every car in the train instantly by merely loosening or slackening the cable sufficiently, thus obviating the ordinary necessity of passing over the cars to apply the brakes. Should it become necessary, however, to pass over the cars for any purpose, the stretched cable affords a convenient hand-rail, thereby avoiding danger of train-men falling off or between the cars. In the frame 3, beneath each socketed disk 6, is pivoted a pawl, 36, that can be made to engage one of the notches or cogs in the periphery of said disk. This pawl is to be operated by hand, and when tipped will release the disk 6 and sheave 5, thereby releasing the spring 27 through the intermediate connections, and permitting the brakes to be applied. The brakes on any one car can thus be actuated by hand independent of the others, if required.

The automatic lever mechanism can be used in going one way as well as the other, it being only necessary, in case a change in the course of the car is required, to detach the automatic chain 19 from the cable and pass it, together with the automatic link 18, through the opening in the tubular lever and fasten

the chain to the cable in the opposite side of the lever. This is not necessary, however, in backing or switching. Should the train become separated in two parts, all the cars in front of the place of separation will have the brakes applied automatically before they have separated more than from two to four feet, and meanwhile the cars in rear of the breach will be under the perfect control of the brakeman in the caboose, thus avoiding the usual danger of collisions between the detached parts of the train, as is common in such cases. It is also obvious that in the event of the cars leaving the track-rails any considerable distance, or in case of ditching, the brakes will be automatically applied and loss of life and property prevented or lessened.

What I claim as my invention is—

1. In an automatic car-brake, the combination, with brake-beams suspended beneath the car, and a perpendicular brake-lever fulcrumed to one of said beams and connected to the other brake-beam by a rod, as 32, of a power-spring having an adjustable support at one end and connected at its other end to the brake-lever, a pivoted relief-lever, a rod, as 25, for connecting said relief-lever to the brake-lever and power-spring, a brake-controlling mechanism located on the top of the car, and means for connecting said mechanism with the pivoted relief-lever, substantially as described.

2. In an automatic car-brake, the combination of brake-beams suspended beneath a car, a brake-lever pivoted to one of said beams, an adjustable power-spring connected directly to said brake-lever, a pivoted relief-lever, a rod, 25, for connecting the brake-lever and relief-lever, a rod, 32, for connecting the brake-lever to the opposite brake-beam, a brake-controlling mechanism located on the top of each car, a rod and chain for connecting said mechanism to the relief-lever, and a cable, 15, for connecting the brake-controlling mechanism of the several cars, substantially as described.

3. In an automatic car-brake, a controlling mechanism consisting of the sheave 5 and socketed disk 6, fixed to a shaft, 4, journaled in a frame on the top of the car, in combination with a tubular lever, 8, loosely mounted on said shaft 4, a bolt, 10, inclosed in said tubular lever and adapted to engage the socketed disk, and a cable, 15, connected to the several levers and bolts on the different cars, substantially as described.

4. In an automatic car-brake, the combination, with the brake-beams 29 29, power-spring 27, relief-lever 24, and connections, of a socketed disk, 6, and a sheave, 5, fixed to a shaft, 4, journaled in a frame on the top of the car, said sheave being connected by a chain, 20, to the brake-actuating mechanism beneath the car, a tubular lever, 8, mounted loosely on the shaft 4, the bolt 10, inclosed in said tubular lever, and the cable 15, for connecting the several levers, substantially as described.

5. In an automatic car-brake, the combination of the brake-beams 29 29, power-spring 27, relief-lever 24, brake-lever 26, connecting-rods 23 25 32, chain 20, sheave 5, and socketed disk 6, mounted fast on a shaft, 4, lever 8, mounted loosely on said shaft, and having a bolt, 10, for engaging said disk, and the cable 15, for connecting the brake mechanism of several cars, substantially as described.

In testimony whereof I affix my signature in presence of witnesses.

CRANMER L. MATTHEWS.

Witnesses:

C. A. BRAND,
J. J. LOWRY,
J. W. MOFFETT.