

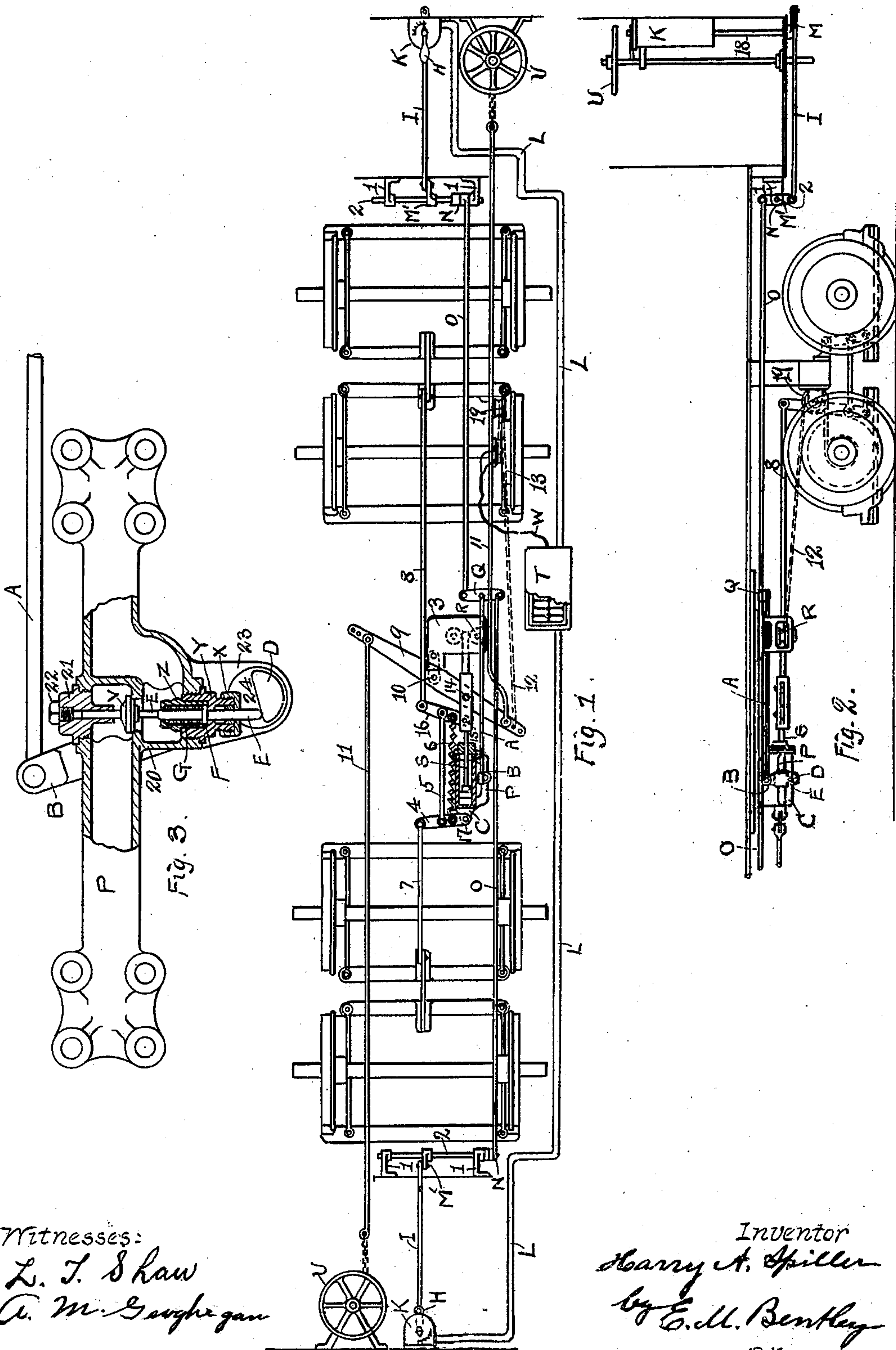
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H. A. SPILLER.
RAILWAY BRAKE.

APPLICATION FILED MAY 6, 1903.

NO MODEL.



Witnesses:

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RAILWAY-BRAKE.

SPECIFICATION forming part of Letters Patent No. 753,929, dated March 8, 1904.

Application filed May 6, 1903. Serial No. 155,822. (No model.)

To all whom it may concern:

Be it known that I, HARRY A. SPILLER, a citizen of the United States, residing at Boston, county of Suffolk, and State of Massachusetts, have invented certain new and useful Improvements in Railway-Brakes, of which the following specification and accompanying drawings set forth the principles thereof and also as an illustration that form of my invention which I now consider the best out of the various forms in which its principles may be embodied.

This invention relates to improvements in railway-brakes; and it consists of certain construction and arrangements for controlling the application, locking, and release of the brakes.

On the drawings, Figure 1 is a plan of the running-gear of a double-truck car having four axles, with which may be embodied the apparatus comprising the particular form of the invention illustrated herein. Fig. 2 is a side elevation of a part of the same; and Fig. 3 is a side elevation, partly in section, of the by-pass of the fluid-receptacle and adjacent parts.

The construction illustrated herein embodies certain improvements upon the construction disclosed in the application for patent, Serial No. 102,365, filed April 11, 1902, by George C. Anthon, wherein a fluid-lock for an electric brake is controlled from the platform of a car by an electromagnet.

My present purpose is to provide a mechanical substitute for such electromagnet.

The general operation of the apparatus illustrated herein is as follows: During the application and retention of the brakes the fluid-lock (shown in Fig. 2 and the center of Figs. 1 and 2) automatically acts to hold the brakes in their applied position. When it is desired to release the brakes, one of two devices at the two respective ends of the car is moved to operate mechanism for releasing the fluid-lock to permit a spring to withdraw the brakes. When it is desired to again apply the brakes, the same device at the end of the

car is used, but in the opposite direction, to operate through switch connections to apply the brakes and operate the fluid-lock.

Referring to the drawings, it should be noted that, as shown herein, the parts are in their normal positions, the brakes being neither applied nor locked. The brake-lever 9 is pivotally supported, as from the car-frame, at 10. To apply the brakes, the lever 9 is moved anticlockwise on its pivot 10 either by means of the draw-bar 11, operated by the hand-wheels U, or by the chain 12, operated by the electromagnetic clutch 13, which is controlled by either handle H at the ends of the car.

The brake-lever 9 is connected to the brakes and fluid-lock as follows: The cylinder C of the fluid-lock is suitably fixed to the car-frame, and the outer end of its piston-rod S is pivoted at 14 to the brake-lever 9. To the rod S at 15 is pivoted the lever 16, to the end of which the brake-applying rod 8 is pivoted. Another brake-applying rod 7 is pivoted to the end of the lever 4, which is pivoted to a fixed part, as at 17, to the left end of the cylinder C. The brake-applying rods 7 and 8 may operate the brake-shoes in any desired or known manner, such as by the construction shown in side elevation in Fig. 2. The levers 4 and 16 are pivotally tied together midway by a rod 5. A spring 6, joining levers 4 and 16, tends to draw to the left the piston-rod S and the adjacent end of the lever 16, and thereby force the rods 7 and 8 apart toward the respective ends of the car to release the brakes.

It follows from the above-described construction, Fig. 2, that when the brake-lever 9 is moved anticlockwise by the brake-applying means the piston-rod S and the levers 16 and 4 are moved to the right, the upper end of the lever 16 being moved to the left and the brake-rods 7 and 8 being pulled together to apply the brakes to the wheels. At the same time the piston-rod S moves the piston to the right, forcing the fluid through the by-pass P to the left and, Fig. 3, up through the check-valve V, which prevents the return of the fluid by

the pressure of the spring 6, and thereby automatically locks the brakes in their applied position.

The release of the fluid-lock and brakes is accomplished by operating the valve V to open the by-pass P. As shown in Fig. 3, the by-pass is formed with a seating-shell 20, up into which is screwed a cup Y, closed at its lower end by the screw-cover X. Into the upper part of the cup Y is screwed a cap Z. A rod E extends vertically through the parts X, Y, and Z and is formed with a flange F, which abuts against the cup Y. A spring G is interposed between the flange F and the inside of the top of the cap Z and tends to keep the rod E normally out of operative engagement with the valve V. The valve V reciprocates vertically in the plug 21, which is screwed into the by-pass tube P. A nut 22 provides means for adjusting the plug of the valve. A bracket 23 extends downwardly from the by-pass tube P and carries a rock-shaft 24, carrying a segment or equivalent cam device D. A crank B is connected to the rock-shaft 24 and is operated by the rod A. When the rod A is drawn to the right, the shaft 24 is rocked clockwise to oscillate the part D, which lifts the rod E and the valve V. The rod A may, however, be moved to the left without lifting the rod E, as may be seen. The operation of the rod A is controlled as shown in Figs. 1 and 2. To the bar Q are pivoted the outer end of the rod A and the inner ends of the rods O. The rods O extend toward the ends of the car, and their outer ends are pivoted to cranks N on shafts 2, journaled in brackets 1, mounted on the car-frame. Cranks M' are also mounted on the same shaft 2, and to these cranks are pivoted rods I, pivoted in turn to cranks M on the vertical controller-shafts 18, which cranks are rotated by handles H only when the said handles are turned in a clockwise direction. To release the fluid-lock, either of the handles H is moved clockwise from its zero position shown, and rod I is thereby moved longitudinally toward the end of the car at the left and toward the center of the car at the right-hand controller, and rod O is pushed toward the center of the car at the left and pulled toward the end of the car at the right. The bar Q is rocked to the right on a center which is its pivot-point with the other rod O. It will be understood that the other rod O is automatically locked fast at the platform. This pulls the rod A to the right, turns the cam D clockwise, Fig. 3, and forces up the rod E to lift the valve V. The spring 6, Fig. 2, can then force the rods 7 and 8 apart to release the brakes, the piston-rod S being forced to the left, so that the fluid flows back through the by-pass P to the right. By this construction a clockwise movement from the zero position of a handle H at either end of the car (relative to the respective directions

of travel of the car) results in releasing the fluid-lock.

As noted above, the handles H also operate the electric controllers K, which control the operation of the electromagnetic clutch 13. These controllers may be of any suitable known construction, such as disclosed in the application for patent above referred to. The controllers K are suitably connected by the cables L and wires W with the storage battery T and the clutch 13, the battery serving as the main source of current or as an auxiliary supply to the trolley in case the car is electrically operated. If desired, the electromagnetic clutch 13 and controller K may be replaced by other suitable means for applying the brakes. To operate the clutch 13, one of the handles H is moved in an anticlockwise direction from its zero position shown. This operation, however, will not operate the mechanism above described in such manner as to release the fluid-lock—that is to say, when a handle H is moved anticlockwise from its zero position a rod I is moved longitudinally toward the end of the car, and the bar Q is rocked to the left on a center which is the pivot-point of the other rod O. This pushes the rod A to the left and, Fig. 3, turns the cam D anticlockwise without moving the rod E and valve V. As soon as the fluid-lock has been automatically operated to hold the brakes in their applied position the handle H may be moved back clockwise to its zero position shown, since it is not necessary to continue the operation of the clutch 13. This return movement of the handle H will cause the cam D to oscillate clockwise, but not sufficiently to lift the rod E and only far enough to be in position so that when it is desired to release the lock the further clockwise movement of the handle H beyond its zero position shown will result in opening the valve V.

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

1. The combination with a brake, of electromagnetically-controlled means for applying it, a fluid-lock for the brake, mechanically-operated means for releasing the lock, and a common operating device which controls both said means.

2. The combination with a brake, of means for applying it, a fluid-lock for the brake, mechanically-operated means for releasing the lock, and an operating device which controls both said applying and releasing means.

3. The combination with a car, of a brake therefor, means for applying the brake, a fluid-lock for the brake, means for releasing the lock, a controller at the end of the car, and connections between the controller and said applying and releasing means, whereby the operation of the controller in opposite directions respectively operates each of said means.

4. The combination with a car, of a brake therefor, means for applying the brake, a fluid-lock for the brake, means for releasing the lock, a controller at each end of the car, and operating connections between said controllers and said applying and releasing means, whereby similar movements of each controller in opposite directions respectively operate each of said means.

5. The combination with a car, of a brake therefor, means for applying the brake, a fluid-lock for the brake, mechanism for releasing said lock, controlling devices at the ends of the car, and mechanical connections between the releasing mechanism and said controlling device, whereby similar movements of each operating device effect the same result.

6. The combination with a car, of a brake therefor, a fluid-lock for the brake, mechanism, for releasing said lock, a rod connected to said mechanism, a bar to which the end of said rod is pivoted, two oppositely-extending rods pivoted to said bar at opposite sides of said pivot, and devices at the respective ends of the car for reciprocating said oppositely-extending rods.

7. The combination with a car, of a brake therefor, a fluid-lock for the brake, mechanism for releasing said lock, a vertical controller-shaft at each end of the car, and connections between said mechanism and shafts whereby a similar movement of either shaft effects a like result.

8. The combination with a car, of a brake therefor, a fluid-lock for the brake, mechanism for releasing the lock, a rod connected to said mechanism and extending longitudinally of the car, a crank to which said rod is connected, a rock-shaft on which said crank is mounted, a second crank mounted on said shaft, a second horizontal rod pivoted to said second crank, a third crank to which said second rod is connected, and a vertical controller-shaft on which said third crank is mounted.

9. The combination with a car, of a brake therefor, a fluid-lock for the brake, mechanism for releasing the lock, an electric controller, and operating connections between the shaft of said controller and said releasing mechanism.

10. The combination with a car, of a brake therefor, a fluid-lock for the brake, mechanism for releasing the lock, a brake-controller, and operating connections between said controller and said releasing mechanism.

11. The combination with a car, of a brake

therefor, a brake-lever, means for operating said lever, a fluid-lock for said brake controlled by said operating means, means for releasing said lock, a controller, operating connections between said controller and said operating means, and mechanical connections between said controller and said releasing means.

12. The combination with a brake and applying devices therefor, of a fluid-lock, a valve controlling the lock, and a device constructed and arranged to operate said valve by one direction of movement and the said applying device by the opposite direction of movement.

13. The combination with a fluid-lock, of a valve controlling the lock, and an oscillating segment controlling said valve.

14. The combination with a fluid-lock, of a valve controlling the lock, a rod arranged to operate said valve, and an oscillating segment controlling said rod.

15. The combination with a fluid-lock, of a valve controlling the lock, an oscillating segment controlling the valve, a crank for oscillating the segment, and means for operating the crank.

16. The combination with a fluid-lock, of a valve controlling the lock, a rod for operating the valve, means for normally retaining said rod out of operative engagement with the valve, and an oscillating segment controlling said rod.

17. The combination with a fluid-lock, of a valve therefor, a bracket, a rock-shaft in the bracket, an oscillating segment on said shaft, and a rod movable by said segment to operate said valve.

18. The combination with a fluid-lock, of a valve therefor, a rod reciprocally supported in operative position with respect to said valve, and an oscillating segment for moving said rod.

19. The combination with a brake-lever, of a fluid cylinder-lock, a piston-rod therefor, operated by said brake-lever, a lever pivoted to said piston-rod, a second lever having a stationary pivot, a rod pivoted to and joining the last-mentioned levers, and brake-applying rods connected to said joined levers.

In witness whereof I have hereunto set my hand, before two subscribing witnesses, this 1st day of May, 1903.

HARRY A. SPILLER.

Witnesses:

GEO. C. ENGLAND,
RUSSELL ROBB.