

No. 647,117.

Patented Apr. 10, 1900.

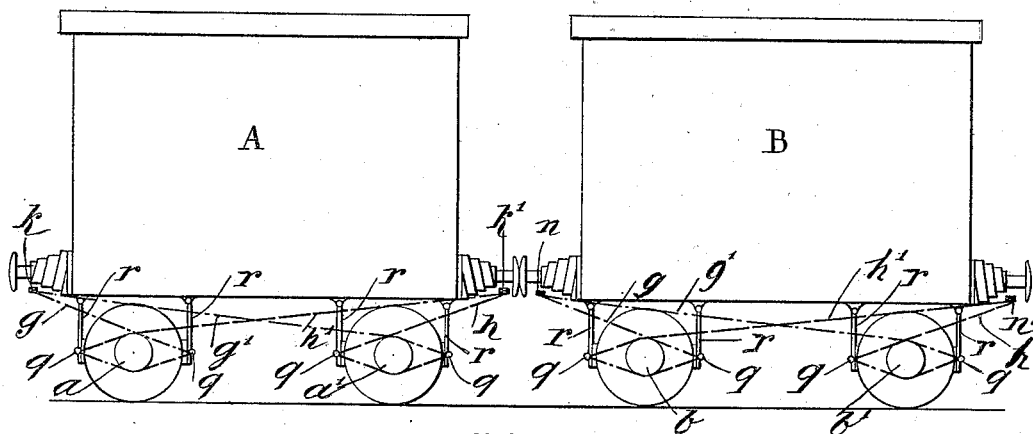
L. ROUSSEAU.
AUTOMATIC BRAKE.

(Application filed Aug. 10, 1899.)

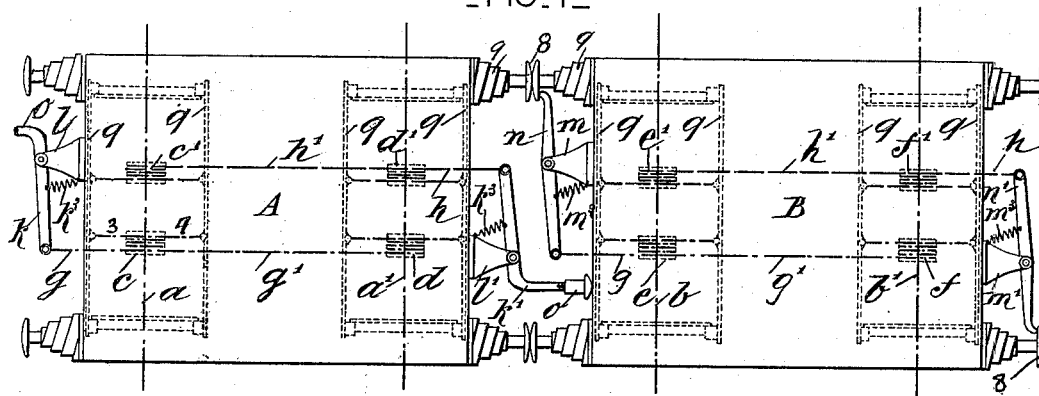
(No Model.)

2 Sheets—Sheet 1.

— FIG. 2 —

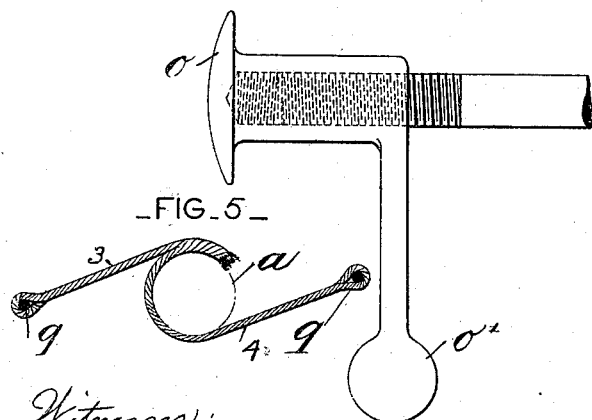


— FIG. 1 —

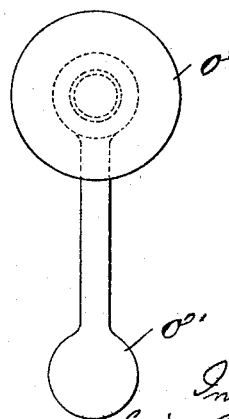


— FIG. 3 —

— FIG. 4 —



— FIG. 5 —



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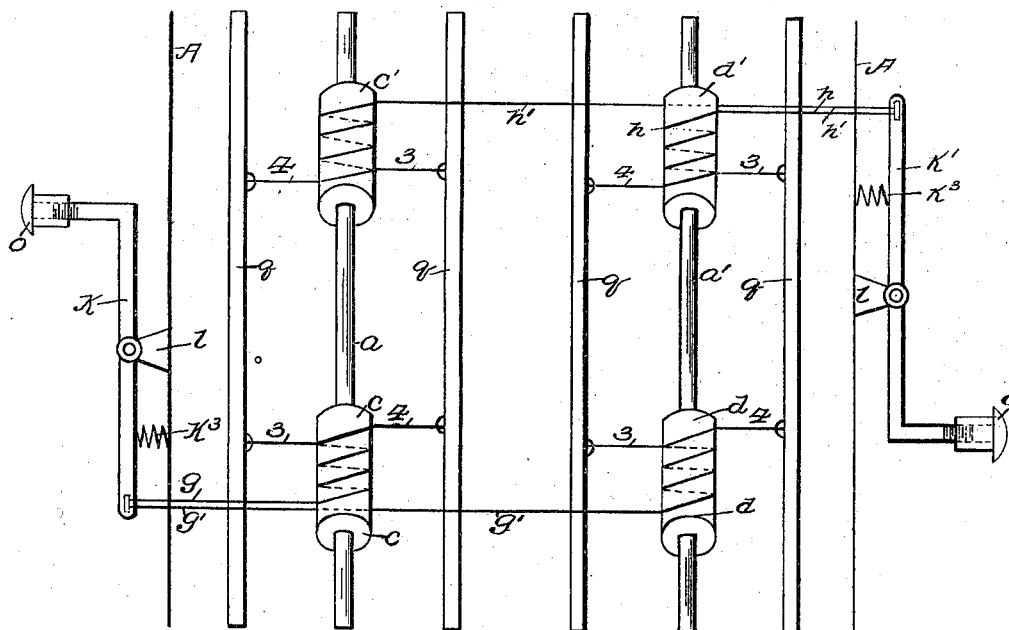


Fig. 6.

Witnesses
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UNITED STATES PATENT OFFICE.

LOUIS ROUSSEAU, OF PARIS, FRANCE.

AUTOMATIC BRAKE.

SPECIFICATION forming part of Letters Patent No. 647,117, dated April 10, 1900.

Application filed August 10, 1899. Serial No. 726,764. (No model.)

To all whom it may concern:

Be it known that I, LOUIS ROUSSEAU, manufacturer, a citizen of the Republic of France, residing at No. 6 Rue Saint Sabin, Paris, France, have invented a certain new and useful Automatic Brake for Railway-Carriages, of which the following is a specification.

My invention relates to brakes adapted to operate automatically when the car on which they are mounted acquires a higher speed than that of the car which immediately precedes it in the train.

In the drawings, Figure 1 is a plan view of two cars with my brake devices attached. Fig. 2 is a side view of the same. Figs. 3 and 4 are side and end views of one of the buffers. Fig. 5 shows a feature of a brake-drum winding. Fig. 6 is a diagrammatic view showing the drums and their windings and connections to the brake-beams.

A B are cars connected in a train; but more cars may evidently be used without changing the applicability of my brake apparatus.

$a a'$ are axles of car A, and $b b'$ the axles of car B, and on the axles are mounted, so as to turn readily, brake-drums $c c' d d'$ on car A, and $e e' f f'$ on car B. The rope or chain g is wound on drum c in a left spiral, and rope or chain g' is wound on drum d in the same direction. At the inner ends the ropes are divided into branches 3 4, a branch being connected to each of the brake-beams q , which are supported by hangers r and have brake-shoes 7, adapted to be drawn against the car-wheels 6 and to be released therefrom. The outer ends of ropes $g g'$ are connected to one end of a lever k , pivoted in brackets l on one end of a car A. The other end of said lever projects so as to bear against the next car ahead.

k^3 are springs which tend to throw the ends of levers $k k'$, having buffers o , outward. Preferably the buffers are adjustably screwed onto the levers, as shown, whereby they may be made to bear with the desired pressure on the car ahead. By adjusting the buffers o away from the car ahead sufficiently it will be out of operative reach of said car ahead, as is necessary, for example, when the train is to be backed by the front car or engine.

o' is a weight connected to the buffer by an

arm to prevent the buffer unscrewing when it has been set or adjusted on its lever. Ropes $h h'$ extend from one end of lever k' at the opposite end of car A, around $d' c'$, being wound oppositely to the ropes $g g'$ on drums $c d$, and the inner divided ends are connected to the brake-beams q , as shown and as described in connection with drums $c d$. The ends of the cars have buffers 8, normally pressed forward by springs 9.

Car B, as shown, differs from car A only in the arrangement of the operating-levers, here marked $n n'$ and corresponding to $k k'$ of car A. On car B said levers at one end bear against the rear side of the buffer 8 of their own car, Fig. 1. $m^2 m^3$ are springs like $k^3 k^3$ above described. It is not essential to use these two forms together, but either may be used separately—that is, all the cars may have the same form and arrangement of levers. The form shown on car A is preferred because it gives ample room for use of buffers o and because the lever has about double the play which is had with the levers as shown on car B.

In order to allow running backward, buffer o must be adjusted so that the levers will not be operated to set the brakes by the degree of approach of cars which would result from such backing.

It is not essential that ropes $g g'$ be integral with the opposite ropes 3 4, so long as ropes $g g'$ so operate the drums as to apply the brakes by ropes or branches 3 4.

Operation: Should the locomotive or car (not shown) which pulls car A to the left, Fig. 1, be suddenly checked in speed, car A by its inertia will tend to strike against such locomotive or car, the locomotive and car A coming closer together by compression of the buffer-springs. This oscillates lever k , causing it to pull on ropes $g g'$, turning drums $c d$ in the direction to wind up branches 3 4, thus drawing the brakes against the wheels. The speed of car A being thus quickly checked, car B will move closer to car A, but to a less extent than car A approaches the locomotive, which turns lever k' on its pivot, pulling on ropes $h h'$, which is without effect, since the application of the brakes by coils $c d$ has left ropes 3 4 of coils $c' d'$ slack by the rearward movement of k' , and the approach of car B to car

A in this case is only about sufficient to take up the slack. Car B, however, moves far enough to cause coils *e f* to apply the brakes to car B, but not so hard as the brakes of car A are applied. Car B being supposed to be the last car of the train, lever *n'* will not be operated.

If the engine or other car be at the right end of the train, the brakes will be applied by levers *n'* and *k'* instead of by *k* and *n*, as will be evident. I do not limit myself to the use of brakes at both ends of the cars. If the cars always move in one direction, but one set of coils and one lever (*k* or *k'*, *n* or *n'*) will be required.

I claim—

1. The combination with cars of a train having suitable wheels and axles, of brakes, means for applying the brakes to the car-wheels consisting of drums on the car-axles, movable levers at the ends of the cars, which levers are adapted to be moved abnormally when the preceding car is suddenly checked, ropes connected to one end of said levers extending to and around the drums, and having branches 3, 4 connected to the brakes thus applying them to the car-wheels as described.

2. The combination with a car having suitable axles, wheels, and brakes on opposite sides of the wheels, of drums on the axles, ropes coiled thereon, a rope-operating lever pivoted at one end of the car and adapted to be operated by undue approach of the car to another car when in a train, the inner end of

the rope being divided the branches being connected to the opposite brakes, as described.

3. The combination with a car having suitable axles, wheels, and brakes, of coils *c, d*, on the axles, lever *k* pivoted at one end of the car and adapted to be operated by undue approach of the car to a preceding car when in a train, ropes *g, g'* connected to lever *k* extending to and around the drums, and brake-applying ropes 3, 4, as set forth.

4. The combination with a car having suitable axles, wheels, and brakes, of a plurality of sets of drums and brake-operating coils on each axle, a pivoted lever at each end of the car, the levers being connected respectively to different sets of coils, said coils terminating in branches connected in opposite directions to said brakes, as set forth.

5. The combination of a car having suitable axles, wheels, and brakes, drums on the axles, ropes coiled on the drums for operating them, connections between the drums and brakes for operating them, a lever pivoted at an end of the car and adapted to operate said ropes, said lever having an adjustable buffer *o* and a weight *o'* to prevent accidental change of adjustment.

Signed at Paris, France, this 31st day of July, 1899.

LOUIS ROUSSEAU.

Witnesses:

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