To all whom it may concern:

Be it known that I, FREDERICK E. LAPIERRE, a subject of the King of Great Britain, residing at Cardiff, in the Province of Alberta and Dominion of Canada, have invented and useful Improvements in Automatic Train-Stopping Apparatus, of which the following is a specification.

This invention relates to improvements in automatic train stopping apparatus, and has particular application to apparatus for cutting off the motive power of the motor car and applying the brakes.

In carrying out the present invention, it is my purpose to provide apparatus of the class described whereby the train may be brought to a standstill automatically in the event of the same passing a danger signal, wherein the component parts will be so arranged and correlated as to reduce the possibility of derangement to a minimum, and which may be installed and maintained at small cost.

With the above and other objects in view, the invention consists in the construction, combination and arrangement of parts hereinafter set forth in and falling within the scope of the claims.

In the accompanying drawings: Figure 1 is a cross sectional view through a trackway and locomotive thereon showing my invention installed. Fig. 2 is a top plan view of the same. Fig. 3 is a horizontal sectional view through the apparatus. Fig. 4 is a similar view. Fig. 5 is a vertical sectional view thereon. Fig. 6 is a detail view of the track obstacle.

In the present instance, I have illustrated my invention as used in conjunction with the road signal system and arranged along the trackway adjacent to the respective road signals are track obstacles, each embodying a vertical post 1 and a horizontal arm 2 pivoted between its ends up to the upper end of the post 1 and arranged at right angles to the trackway. The end of the arm 2 adjacent to the trackway is bent upwardly at right angles to itself as at 3 and formed with a shoe 4 extending longitudinally of the trackway and having the upper edge curved. The other end of the arm 2 is preferably weighted as at 5 for countercalancing purposes and secured to the arm 2 concentrically of the axis thereof is a pinion 6 meshing with rack teeth 7 formed on the curved edge of a segmental plate 8 pivoted upon the post 1 below the arm and connected with the upper extremity of a vertical lever 9 pivoted between its ends as at 10 upon the post and having the lower end thereof connected through suitable means 11 with the signal blade of the adjacent semaphore so that when the semaphore blade goes to danger position, the arm 2 will be swung to horizontal position, while when the signal blade is moved to clear position, the arm will be actuated to vertical position, as illustrated by the dotted lines in Fig. 1.

The car carried mechanism embodies a vertical shaft 12 rotatably mounted within a bearing in the roof of the cab of the locomotive or motor car and one end of the shaft projects above the roof, while the other end extends below the roof. Pivotally connected to the shaft 12 adjacent to the upper end thereof is a horizontal arm 13 having the outer end thereof equipped with a bearing block 14 and this arm 13 normally rests in a notch 15 formed in a bearing strip 16 secured to the roof of the cab. The block 14 on the arm 13 projects beyond one side of the motor car and is adapted to ride over the shoe 14 when the latter is in active position and as the block rides over the shoe the arm is moved out of the notch 15. A leaf spring 17 has one end secured to the shaft 12 and the other end bearing upon the arm 13 and acts to hold the arm normally in the notch 15. Secured to the shaft 12 below the roof of the motor car is an arm 18 and connected to one end of the arm 18 is a spring 19. The remaining end of the spring is suitably fastened to the roof of the cab and the spring acts to rotate the shaft 12 in one direction when the arm 13 is lifted out of the notch 15. Fixed upon the lower end of the shaft 12 is a spur gear 20 meshing with a segmental rack 21 secured to a vertical shaft 22 journaling in vertically alining bearings within the cab and disposed in parallelism with the shaft 22. The lower end of the shaft 22 is connected through suitable mechanism 25 with the throttle valve lever, while the lower end of the shaft 24 is connected through appropriate mechanism 26 with the engineer's brake valve 27. In the rotation of the shaft 12 under the action of the spring 19, the gear 20 rotates the shafts 22 and 24 with the effect to close the throttle valve and actuate the engineer's brake valve so that the motive power of the car will be cut off and the brakes applied.
While I have herein shown and described one preferred form of my invention by way of illustration, I wish it to be understood that I do not limit or confine myself to the precise details of construction herein described and delineated, as modification and variation may be made within the scope of the claims and without departing from the spirit of the invention.

I claim:

1. In train stopping apparatus, the combination with a controlling element of the motor car, of a vertical shaft, an arm pivoted to said shaft adjacent to the upper end thereof, a strip disposed in proximity to said arm and formed with a notch adapted to receive the arm to hold the same in normal position, means for lifting said arm out of said notch, means for rotating said shaft when said arm is moved out of the notch, and connections between said shaft and the controlling element of the motor car whereby said element may be actuated in the rotation of said shaft.

2. In automatic train stopping apparatus, the combination with a controlling element of the motor car, of a vertical shaft capable of rotation, connections between said shaft and the controlling element of the motor car whereby said element may be actuated in the rotation of said shaft, an arm pivoted to said shaft and disposed at right angles thereto, means holding said arm in normal position, means for moving said arm out of normal position, and means for rotating said shaft upon the movement of said arm out of normal position.

3. In automatic train stopping apparatus, the combination with a controlling element of the motor car, of a vertical shaft capable of rotation, connections between said shaft and the controlling element of the motor car whereby said element may be actuated in the rotation of said shaft, an arm pivoted to said shaft and disposed at right angles thereto, means holding said arm in normal position, means for moving said arm out of normal position, an arm secured to said shaft and projecting outwardly therefrom at right angles thereto, and a spring connected to said last arm and adapted to swing the latter to rotate said shaft when the first-mentioned arm is moved out of normal position.

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

FREDERICK E. LAPIERRE.

Witnesses:

NORAH M. BLISS,
H. K. VALENS.