To all whom it may concern:

Be it known that I, JAMES MERRYWEATHER, a citizen of the United States, residing at Greencastle, in the county of Putnam and State of Indiana, have invented a new and useful Train-Controlling Apparatus, of which the following is a specification.

The present invention appertains to train controlling apparatus, and relates more especially to a mechanism controlled from the track for opening the train pipe or air line of a train traversing the track, in order that the brakes can be applied and the train stopped automatically when the track mechanism is properly operated.

It is the object of the invention to provide a train controlling apparatus of the nature indicated embodying a novel and improved mechanism for carrying out the desired results, and whereby the apparatus is comparatively inexpensive and simple, can be readily installed, and will serve its office in a thoroughly practical, efficient and reliable manner.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed can be made within the scope of what is claimed without departing from the spirit of the invention.

The invention is illustrated in the accompanying drawings, wherein:

Figure 1 is a side elevation of the apparatus depicting the trucks of two trains, one in position to pass the ramp, and the other past the ramp. Fig. 2 is an enlarged sectional view on the line 2—2 illustrating the train or truck carried device, portions being broken away. Figs. 3 and 4 are sectional details taken on the lines 3—3 and 4—4, respectively, of Fig. 2. Fig. 5 is a sectional detail illustrating the means for mounting one end of the ramp. Fig. 6 is an enlarged detail of one of the ramp operating levers.

Fig. 7 is a detail view of one of the springs used in the train carried device.

The apparatus embodies a train carried device and cooperating track device, the former embodying means for opening the train or air pipe 1 of the air brake system in case of an emergency or dangerous condition, so that the brakes will be applied for stopping the train automatically.

The train carried device embodies a transverse cylindrical valve casing 2 mounted below the air pipe 1, and having upwardly projecting hangers 4 for attachment to one of the trucks T of the train. The casing 2 is provided with an upstanding nipple 5 between its ends connected by a hose section 6 with a T-coupling 1 interposed in the pipe 1, to connect the casing 2 with the air pipe, the hose section 6 permitting the pipe 1 to move upwardly and downwardly relative to the casing 2 as the car body moves upwardly and downwardly relative to the truck.

The casing 2 is provided with a lower longitudinal outlet slot or opening 7, and an oscillatory valve 8 is mounted within the casing, said valve embodying a cylindrical portion 9 disposed concentrically within the casing and having a depending wing 10 provided with a curved surface bearing upon the lower portion of the casing 2 to normally close the slot 7, whereby to normally prevent the escape of air from the air pipe 1. The casing 2 has a removable end 3 whereby the parts can be assembled and separated.

A pair of opposite alining rock shafts 11 coaxial with the casing 2 have their adjacent ends fitted in a bore 12 with which the cylindrical portion 9 of the valve 8 is provided, and said ends of the shafts 11 are secured to the valve by means of pins 13, the shafts being threaded into the valve if desired. The ends of the casing 2 are provided with packing means 14 embracing the shafts 11 to prevent leakage.

The remote ends of the shafts 11, which are disposed at the opposite sides of the track, are journaled in hangers 15 attached to the bolster or other part of the truck, said hangers 15 having bearings 16 at their lower ends, and caps 17 attached thereto through which the shafts 11 are journaled. Collars 18 are secured upon the shafts 11 by set screws or otherwise and bear against the inner ends of the bearings 16 to prevent the longitudinal movement of the shafts.

In order that the shafts 11 can be oscillated by the ramp, the remote ends thereof are provided with normally depending crank arms 19 upon the angular terminals of which are mounted for rotation anti-frictional rollers 20. The arms 19 are normally...
in pendent position, when the valve 8 is closed, and when either one of the arms 19 is swung toward a horizontal position, the valve 8 will be swung open, to allow the air to be discharged from the pipe 1 for applying the brakes.

As a means for holding the crank arms 19 raised, to hold the valve 8 open, the cap 17 of the bearing 16 at one side of the truck is provided with a depending semi-circular wing or segment 21 provided at the ends of its curved edge with stop lugs 22 to limit the upward movement of the respective arm 19.

A spring 23 is carried by the lower portion of the segment 21 between the ends of its curved edge, and said spring has a yieldable notch portion 24 for receiving the arm 19 when it is in depending position. This spring 23 has yieldable cam portions 25 extending diagonally in opposite directions to the notch portion 24, whereby when the arm 19 is swung downwardly to depending position, it will properly engage the spring 23, so that said spring will hold the arm 19 in proper position so that it cannot swing accidentally, although the arm can be swung by the ramp.

A pair of upwardly projecting springs 26 have their lower ends secured, as at 27, to the curved edge of the segment 21 and are provided at their upper free ends with portions 28 projecting into the path of the respective arm 19, whereby when said arm is swung upwardly it will move past the portion 28 of the corresponding spring 26, so that the arm 19 will be held adjacent the corresponding lug 22. The springs 26 can be readily released manually for restoring the device to normal position, when the train is to be started, after having been stopped automatically.

The track mechanism embodies a ramp 29 comprising a resilient strip of suitable length, and having its terminals mounted for movement between pairs of rollers 30 carried by the standards 31 attached to underlying cross ties of the railway track R. The terminals of the ramp are thus mounted for sliding movement with little or no friction, and the ends of the ramp 29 are provided with upturned hooks 32 engageable with the upper rollers 30 for preventing the withdrawal of the ramp from the guide rollers 30. Ordinarily, the ramp 29 is straightened out so as to be in inoperative position, and the hooks 32 are therefore moved away from the rollers 30, as seen in Fig. 5.

To bring the ramp into operation, it is bowed or bent upwardly between its ends, and to this end, a longitudinal series of transverse rock shafts or levers 33 are journaled in bearings 34 secured upon the ties between the ends of the ramp, and are provided with upwardly projecting crank arms 35 and upwardly projecting arms 36. Antifrictional rollers 37 are mounted for rotation upon the angular ends of the arms 35 to work under the ramp 29. A longitudinal operating rod 38 is pivoted to the arms 35, whereby said rod 38 can be operated manually, mechanically or electrically, for swinging the levers to raise and lower the ramp, the arms 35 being arranged at acute angles with respect to the arms 35, in order that the arms 35 can be readily swung to horizontal and vertical positions when the rod 38 is reciprocated.

Straps 39 are disposed below the ramp and have upwardly offset terminals 40 secured to the ramp, said straps forming guides for the rollers 37, said rollers being disposed snugly between the straps 39 and ramp 29.

When the rod 38 is moved to the right, as seen in Fig. 1, the levers will be swung upwardly to raise the ramp 29, and when the rod 38 is moved to the left, the levers will be swung downwardly, and this will straighten out the ramp so that it will be inoperative.

The crank arms 19 are provided at the opposite sides of the truck in order that one of said crank arms will be able to cooperate with the ramp in either position of the truck. Normally, when the ramp is down, the crank arm 19 can pass thereover without interference, and without opening the air pipe 1. However, in case of emergency or danger, the rod 38 is pulled to bow the ramp 29 upwardly, so that it will lie in the path of the respective arm 19, and when the truck passes the ramp, the arm 19 will be swung upwardly by the ramp, and this will open the valve 8 and allow the air to escape for applying the brakes, the valve being held open by the engagement of one arm 19 with the respective spring 26. In Fig. 1, the right hand truck is positioned to pass the ramp, showing the arm 19 in depending position, and the left hand truck in Fig. 1 has passed the ramp, and this illustrates the arm 19 swung upwardly with the valve opened to stop the train.

The ramp is operable to swing the arm 19 when the train is moving in either direction, it being noted that the crank arms 35 of those levers spaced from the center of the ramp are of shorter length than the crank arm 35 of the lever adjacent the center of the ramp, whereby the ramp will be bowed so that its opposite halves are inclined gradually from the ends to the center of the ramp, for the effective and gradual upward movement of the arm 19.

Having thus described the invention, what is claimed as new is:

1. In a train controlling apparatus, an oscillatory valve, a normally depending crank arm connected to said valve, spring...
means for holding the arm in depending position, stops for limiting the upward movement of the arm in either direction, and springs for holding said arm against said stops.

2. A train controlling apparatus embodying an oscillatory valve, a bearing, a shaft journaled through said bearing and attached to said valve and having a depending crank arm adjacent said bearing, the bearing having a depending segment, a spring carried by the lower portion of said segment for normally holding the arm in depending position, said segment having stops for limiting the upward movement of said arm in either direction, and springs carried by the segment for holding said arm when swung adjacent said stops.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

JAMES MERRYWEATHER.

Witnesses:

ELAM M. DENNY,

WILLIAM M. SUTHERLIN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."