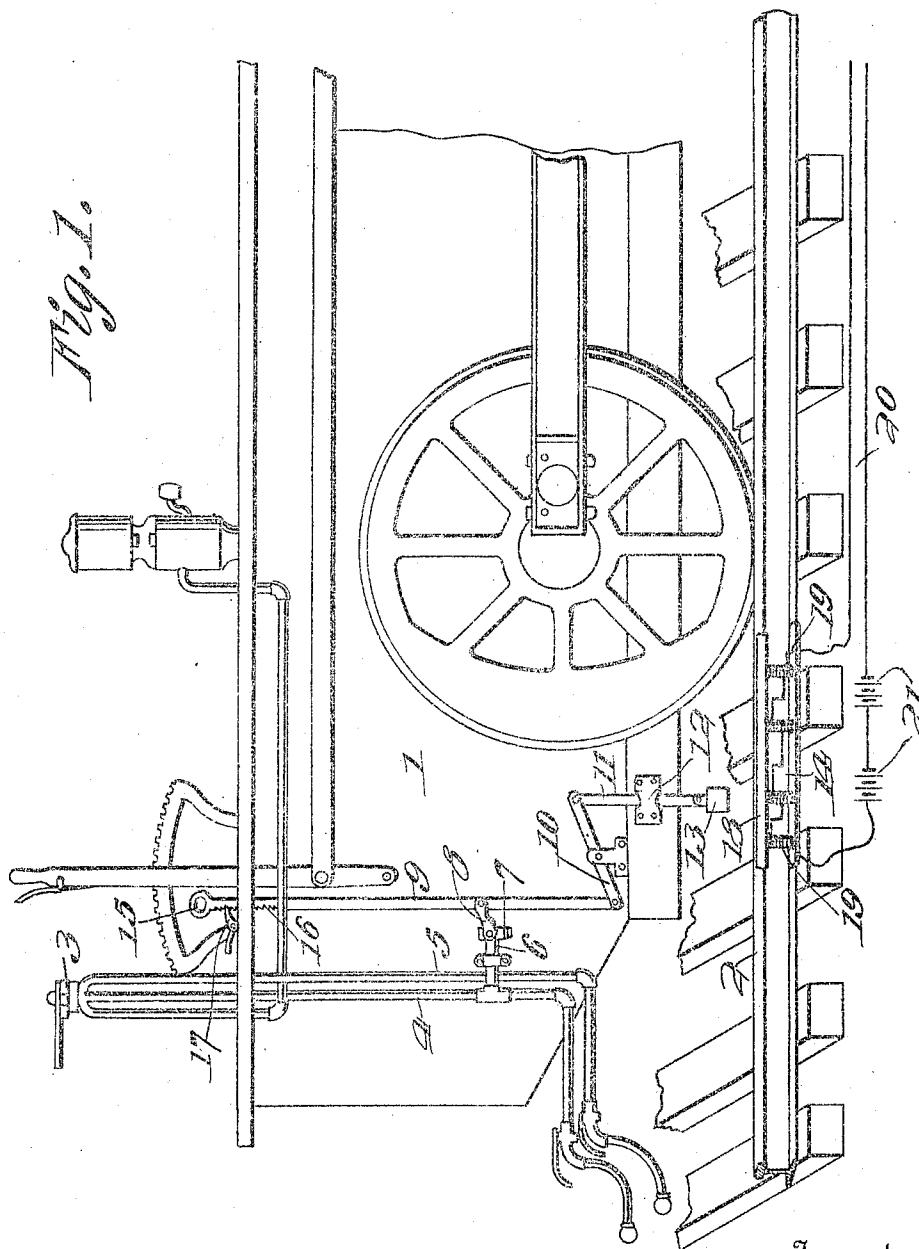


H. P. ZACKEY.  
 AUTOMATIC BRAKE APPLYING DEVICE FOR RAILWAY TRAINS.  
 APPLICATION FILED JUNE 21, 1909.

972,671.

Patented Oct. 11, 1910.

2 SHEETS SHEET 1.



Witnesses  
 E. D. B. Brown.  
 C. H. Griebner.

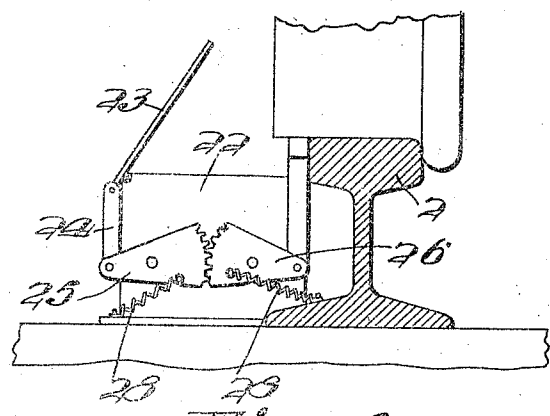
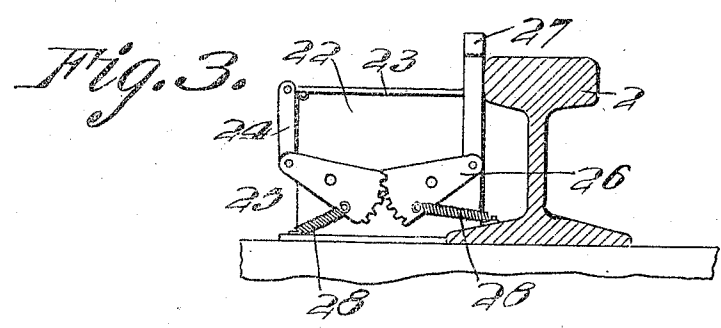
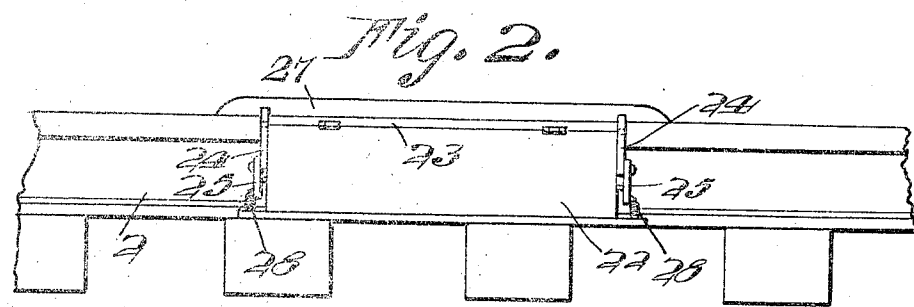
Inventor  
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 Attorneys

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2 SHEETS—SHEET 2.



*Fig. 4.*

Witnesses  
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# UNITED STATES PATENT OFFICE.

HARRY P. ZACKEY, OF MARTINSVILLE, NEW YORK.

AUTOMATIC BRAKE-APPLYING DEVICE FOR RAILWAY-TRAINS.

972,671.

Specification of Letters Patent.

Patented Oct. 11, 1910.

Application filed June 21, 1909. Serial No. 503,460.

*To all whom it may concern:*

Be it known that I, HARRY P. ZACKEY, a citizen of the United States, residing at Martinsville, in the county of Niagara and State of New York, have invented certain new and useful Improvements in Automatic Brake-Applying Devices for Railway-Trains; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in automatic brake applying devices for steam, electric or compressed air railway trains.

The object of the invention is to provide a device of this character by means of which the brake operating mechanism of a train will be automatically actuated should the train for any reason run into an open switch or pass a danger signal.

A further object is to provide an electric controlling device for the brake operating mechanism of a train which will be set for operation by the opening of a switch or the movement of a semaphore or danger signal and which will be simple in construction and positive and reliable in operation.

With the foregoing and other objects in view, the invention consists of certain novel features of construction, combination and arrangement of parts, as will be more fully described and particularly pointed out in the appended claim.

In the accompanying drawings, Figure 1 is a diagrammatic perspective view of a portion of a locomotive and a part of a railway track showing the application of the invention; Fig. 2 is a side view of a portion of a railway track, showing the manner in which the electric operating mechanism is protected from the weather; Fig. 3 is an end view of the electro-magnet protecting box or casing showing the cover operating mechanism thereof in an inoperative position and the cover closed; Fig. 4 is a similar view showing the manner in which the cover operating mechanism is actuated to open the cover of the box.

Referring more particularly to the drawings, 1 denotes a portion of the cab and rear end of the locomotive, and 2 denotes the railway track. Arranged in the cab of the locomotive, is the usual engineer's brake valve 3 which connects with the train air pipe 4 and the whistle air pipe 5 (see Fig.

1) whereby the air in said pipes is controlled to operate the brakes and the whistle in the usual manner. Connected with the train pipe 4 is a branch pipe 6 in which is arranged an angle cock 7, the operating lever or handle 8 of which is connected to an operating rod 9, the lower end of which is connected by a pivotally mounted lever 10 to an operating rod 11 which is slidably mounted in a suitable guide bracket 12 secured in proper position on the side of the locomotive, as shown. On the lower end of the rod 11 is arranged a steel block 13 which forms the armature of an electro-magnet 14 hereinafter described. The upper end of the operating rod 9 extends upwardly and projects into the cab and is provided with an operating handle 15. The upper portion of the rod 9 which projects into the cab is provided with a series of ratchet teeth 16 with which is adapted to be engaged a holding pawl 17 which is pivotally mounted in the cab, as shown, and is adapted to be released or disengaged from the ratchet teeth 16 by the hand or foot of the engineer to permit the operating rod to be forced downwardly to an operative position for closing the angle cock 7.

The electro-magnet 14 comprises a bar 18 which is connected with a series of magnet coils 19 whereby said bar 18 is magnetized when the coils are energized. The coils are arranged in an electric circuit 20 which may be connected with any suitable batteries or with any other source of electrical supply. In the circuit 20 is also arranged a switch or circuit closer (not shown), but which is adapted to be operated by the movement of a switch or the operation of a danger signal whereby the circuit 20 will be closed and the magnet coils energized to magnetize the bar 18 and to cause the same to attract the armature block 13 thereby retracting the rod 11 and actuating the lever 10 to cause the same to project or force the operating rod 9 upwardly and thereby open the angle cock connected therewith, thus releasing the air from the train pipe and applying the brakes. When the operating rod 9 has thus been projected upwardly, the pawl 17 will play loosely over the ratchet teeth and will hold the rod up and the angle cock open until released by the engineer or other person in the manner described.

In connection with the magnet coils 19 and bar 18, I provide a box or casing 22 whereby

said coils and bar are protected from snow or ice. The box or casing 22 is provided with a cover 23 which is hinged to the upper edge of the box and has connected to its hinged edge operating links 24, the lower ends of which are connected to segmental gears 25 pivotally mounted on the opposite ends of the box 22 and in operative engagement with similar gears 26 also pivoted on the ends of the box and which are connected with an operating plate or bar 27 arranged on the inner side of the box adjacent to the outside edge of the track rail and projecting at a suitable distance above the same and in position to be engaged by the tread of the locomotive wheels whereby when the forward wheels of the locomotive pass over said bar or plate 27, the same will be depressed which in turn will operate the gears 25 and swing the cover of the box to an open position to expose the magnet bar 18 so that it will attract the armature block 13 and operate the air releasing mechanism in the manner hereinbefore described. The segmental gears 25 and 26 are provided with coil springs 28 which are adapted to actuate the same to close the cover of the box after the train has passed over the same.

From the foregoing description, taken in connection with the accompanying drawings,

the construction and operation of the invention, will be readily understood without requiring a more extended explanation.

Various changes in the form, proportion and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of the invention, as defined in the appended claim.

Having thus described my invention, what I claim is:

In combination with the train controlling device of a railway train, a vertically movable operating rod connected to said device, a lever fulcrumed intermediately of its ends and pivoted at one end to said operating rod, a vertically movable rod pivotally connected at its upper end to the other end of said lever, an armature carried by said last mentioned rod and an electro-magnet arranged adjacent the railway track to attract said armature.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

HARRY P. ZACKEY.

Witnesses:

CHAS. CRANDALL,  
JOSEPH F. BROWN.