P. CONNIFF & F. A. PIERCE.

EMERGENCY TRAIN STOPPING DEVICE.

APPLICATION FILED JAN. 31, 1908.

903,842. Patented Nov. 17, 1908.

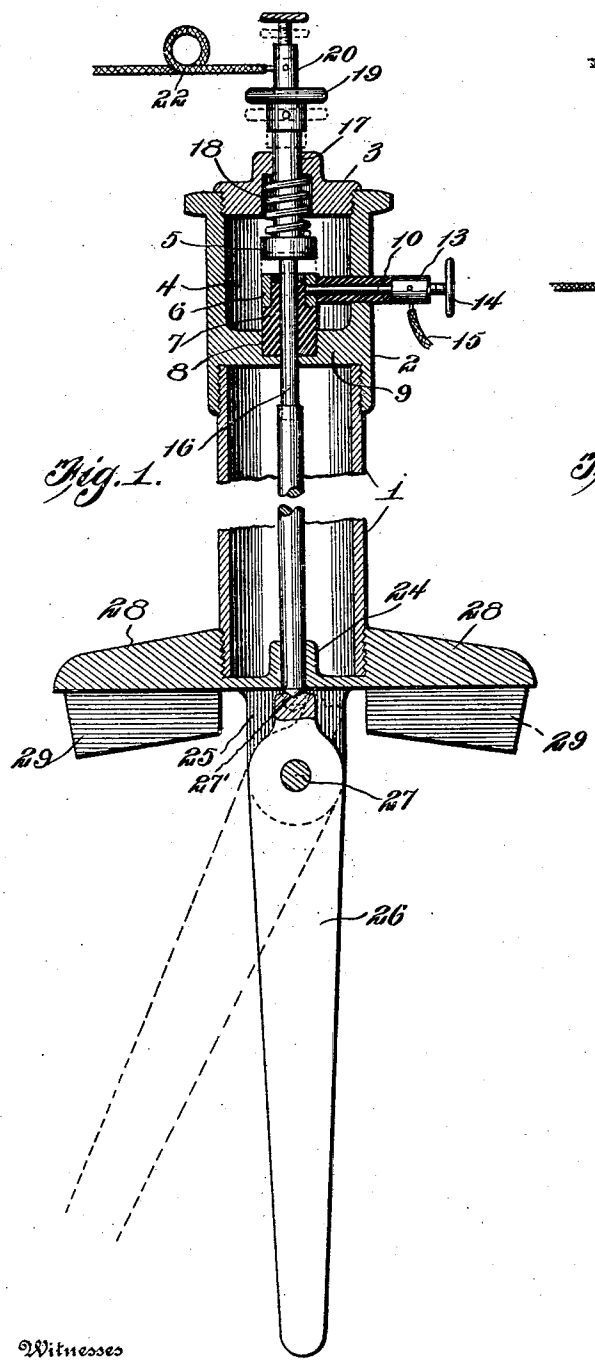


Fig. 1.

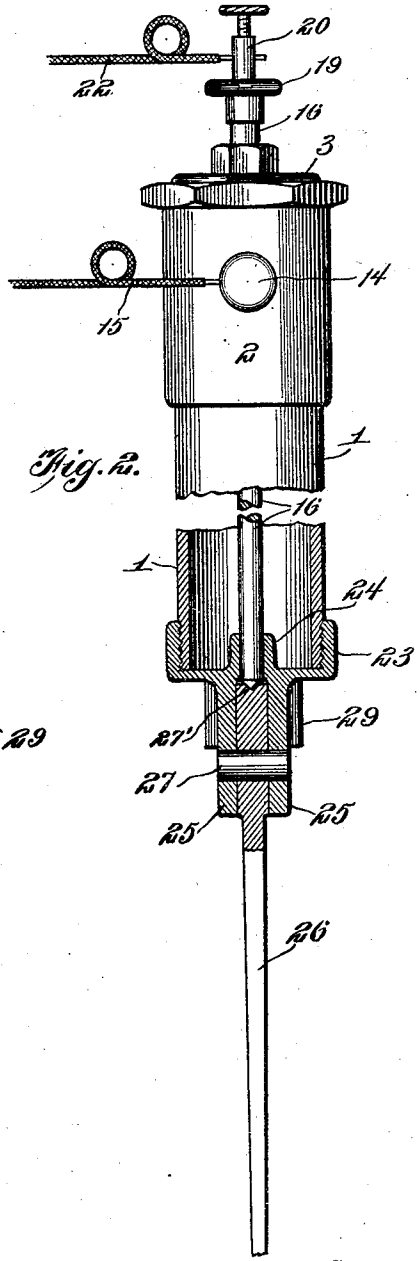


Fig. 2.

Witnesses

Louis R. Heinrichs

C. Bradway.

Inventor

Philip Conniff

Franklin A. Pierce

By Victor J. Evans

Attorney

THE NORRIS PETERS CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

PHILIP CONNIFF AND FRANKLIN A. PIERCE, OF WASHINGTON, DISTRICT OF COLUMBIA.

EMERGENCY TRAIN-STOPPING DEVICE.

No. 903,842. Specification of Letters Patent. Patented Nov. 17, 1908.

Application filed January 31, 1908. Serial No. 413,650.

To all whom it may concern:

Be it known that we, PHILIP CONNIFF and FRANKLIN A. PIERCE, citizens of the United States, residing at Washington, in the District of Columbia, have invented new and useful Improvements in Emergency Train-Stopping Devices, of which the following is a specification.

This invention relates to apparatus for automatically bringing steam or electrically propelled trains to a standstill under emergency conditions so as to avert accidents, collisions and the like, and it relates more particularly to a trip-actuated circuit closer for closing a circuit in which may be contained electro-magnetically actuated means for letting out the air from a train pipe to set the brakes, cutting off the supply of motive fluid to the engine cylinder, or opening the power circuit of the electric motors, as the case may be.

The invention has for one of its objects to provide a circuit closer of comparatively simple and inexpensive construction, composed of few parts, readily installed, and efficient in use, the closer being combined with a trigger device which is adapted to be operated by trips arranged along the track over which the train or car passes, and which are adapted to be thrown into operative position when danger of collision, accident or the like is probable.

A further object of the invention is to provide a device of the character referred to in which the contact members of the switch or circuit closer are arranged in a suitable housing so as to be protected from the elements, and the contact members are normally separated so as to maintain an open circuit, and are adapted to close the circuit when the trigger is tripped.

Another object of the invention is to so arrange the trigger of the device and movable contact-carrying element that they mutually co-act to hold each other in normal or set position.

With these objects in view and others, as will appear as the description proceeds, the invention comprises the various novel features of construction and arrangement of parts which will be more fully described and set forth with the particularity in the claims appended hereto.

In the accompanying drawing, which illustrates one of the embodiments of the invention, Figure 1 is a vertical longitudinal section of the combined circuit closer and trip device, with portions broken away. Fig. 2 is a side view thereof, partially in section and showing portions broken away.

Similar reference characters are employed to designate corresponding parts throughout the several views.

Referring to the drawing, 1 designates a tubular support which has on its upper end a casing 2 attached by threads or other suitable means. The top of the casing is closed by a cap nut 3 to form a weather-proof chamber 4 in which the contact elements 5 and 6 of the switch or circuit closer are contained. The contact element 6, like the other element, is in the form of a ring and is supported on a bushing 7 of insulation that is set into a counterbored opening 8 in the transverse partition 9 of the casing 2. Connected with the element 6 is a metal rod 10 which is covered by a sleeve 11 of insulation that fits in an opening 12 in the casing, and on the outer end of the rod is a binding post 13 provided with a clamping screw 14, whereby the wire 15 of the circuit, controlled by the switch, is connected with the latter. The other contact element 5 is fixed on a rod 16 that is mounted for reciprocatory movement in the bushing 8 and opening 17 of the cap 3, and disposed between the element 5 and cap 3 is a helical spring 18 which serves to move the rod 16 downwardly to bring the element 5 into contact with the element 6 when the trigger of the device is tripped. The outer end of the rod 6 is provided with a knob or grip 19 whereby the attendant can conveniently raise the rod for opening the circuit and re-setting the device, there being a binding post 21 on top of the knob 19 to which the other wire 22 of the circuit is connected.

On the lower end of the support 1 is a cap-like member 23 that is provided with an opening 24 through which the lower end of the rod 16 projects, the said member forming a guide for the latter. Depending from the member 23 are spaced lugs 25 between which is disposed the upper end of the trigger 26 which is mounted on the lugs by the pivot 27 located vertically in line with the rod 16. The upper end of the trigger is

formed with a depression 27 into which the lower end of the rod engages so as to hold the trigger in central or set position whereby the trigger in turn will hold the circuit-closer set or in open position. The trigger is mounted to swing in either direction, according to the direction in which the train is traveling, and to limit the swinging movement of the trigger when it violently strikes a tripping device arranged in the track, the member 23 has laterally-extending arms or projections 28 that are equipped with rubber or other buffers 29 against which the trigger strikes. When the trigger is tripped, its upper end disengages from the rod 16 so that the latter can move downwardly under the expansion of the spring 18, and the movable parts assume the position indicated by dotted lines, Fig. 1. It will be noted that the trip is held tilted to one side when the circuit closer is closed by reason of the lower end of the rod 16 bearing against the side of the upper extremity of the trigger. The trigger is so mounted that it will gravitate to central or set position when the rod 16 is raised by the attendant pulling upwardly on the knob 19, and when the trigger assumes a central position, the rod 16 will engage in the depression 27′ as soon as the attendant releases the knob 19. It will thus be seen that the device can be readily re-set and the circuit closer effectively responds to the tripping of the trigger.

The device may be mounted at any suitable point on the locomotive or car and the trigger 26 is intended to be so disposed that it can be struck by tripping devices arranged along the track and adapted to be erected under emergency conditions.

From the foregoing description, taken in connection with the accompanying drawing, the advantages of the construction and of the method of operation will be readily apparent to those skilled in the art to which the invention appertains, and while we have described the principle of operation of the invention, together with the apparatus which we now consider to be the best embodiment thereof, we desire to have it understood that the apparatus shown is merely illustrative, and that such changes may be made when desired as are within the scope of the claims.

Having thus described the invention, what we claim is:—

1. In an apparatus of the class described, the combination of a housing, a circuit closer within the housing and composed of relatively-movable contacts, a movable element carrying the movable contact and extending out of the housing at both ends, a pivoted trip-actuated trigger arranged outside the housing and disposed with its pivot in line with the said element, the said element being held in set position by the trigger, means pressing the element against the trigger, and a grip on the end of the element opposite from the trigger for moving the element to open the circuit closer and permit the trigger to automatically set.

2. In an apparatus of the class described, the combination of a circuit closer including a movable contact element, a member carrying the element, means acting on the member to tend to close the circuit closer, and a trip-actuated trigger held normally in set position by the member and holding the latter in set position.

3. In an apparatus of the class described, the combination of a circuit closer including relatively-movable contacts, a member carrying the movable contact, means for weighting the member, a pivoted trigger arranged at one end of the member, and means between the trigger and member whereby they mutually co-act to hold each other in set position.

4. In an apparatus of the class described, the combination of a support, a movable element therein, means controlled by the element, a trigger disposed at one end of the element and normally engaged thereby for holding the element in set position, means acting on the element for holding it in engagement with the trigger, and means for moving the element independently of the trigger for permitting the latter to automatically re-set prior to the re-setting of the element.

5. In an apparatus of the class described, the combination of a supporting structure, a weighted element mounted thereon, means controlled by the element, a pivoted trip-actuated trigger disposed in line with the element to be engaged by the latter, and means between the element and trigger for maintaining the latter in central position.

6. In an apparatus of the class described, the combination of a supporting structure, a vertically movable element mounted thereon, means for urging the element downwardly, a trigger disposed below the element and provided with a depression in its upper end for receiving the lower extremity of the element, and a pivot disposed vertically in line with the element and on which the trigger swings.

7. In an apparatus of the class described, the combination of a supporting structure, a vertically movable rod therein, a trigger normally holding the rod raised and held in central position by the latter, and buffing devices carried by the structure for limiting the movement of the trigger.

8. In an apparatus of the class described, the combination of a housing, a rod therein and arranged with its extremities projecting out of the housing, a grip on one end of the rod, a trigger engaging the opposite end for

holding the rod raised, a fixed contact within the housing, a binding post exterior to the housing and connected with the contact, a movable contact on the rod and disposed within the housing, means for actuating the rod when the trigger is released, and a binding post carried by the rod.

In testimony whereof we affix our signatures in presence of two witnesses.

PHILIP CONNIFF.
FRANKLIN A. PIERCE.

Witnesses:
JOHN L. FLETCHER,
C. BRADWAY.