

June 19, 1923.

W. MAXWELL ET AL

1,459,029

TRAIN STOP

Filed June 24, 1921

3 Sheets-Sheet 1

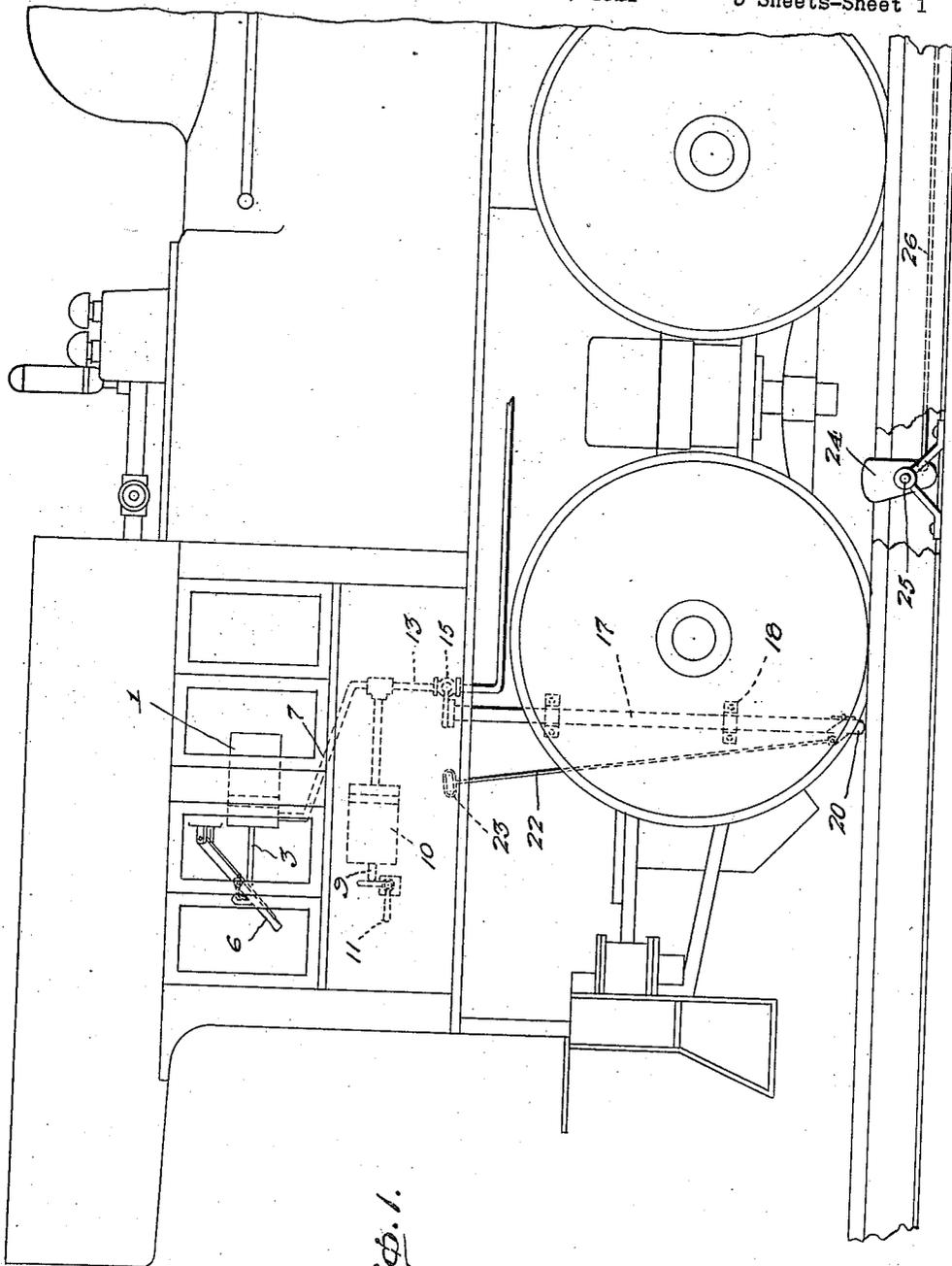


Fig. 1.

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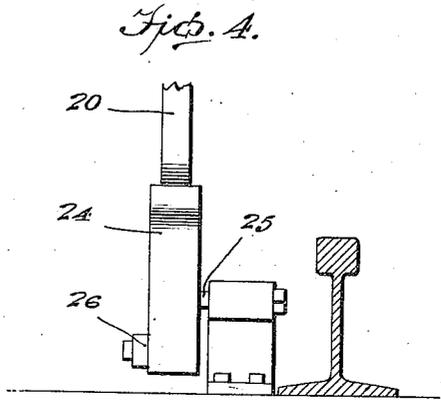
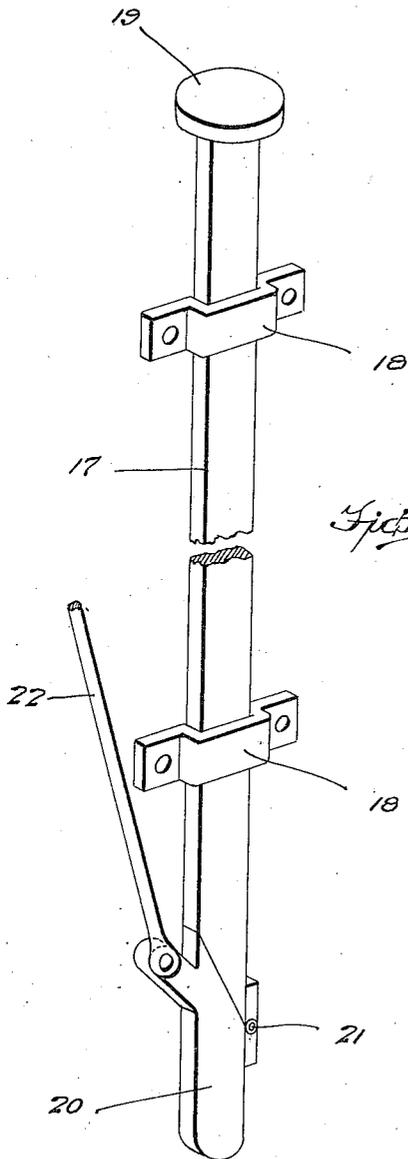


Fig. 5.

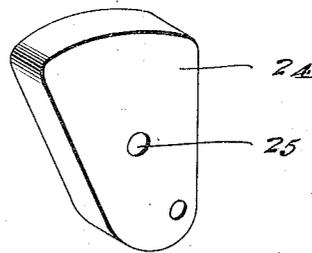


Fig. 6.



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UNITED STATES PATENT OFFICE.

WILLIAM MAXWELL AND LEROY A. BARKER, OF FREDERICKTOWN, OHIO.

TRAIN STOP.

Application filed June 24, 1921. Serial No. 480,141.

To all whom it may concern:

Be it known that we, WILLIAM MAXWELL and LEROY A. BARKER, citizens of the United States, residing at Fredericktown, in the county of Knox and State of Ohio, have invented new and useful Improvements in Train Stops, of which the following is a specification.

This invention relates to an automatic train stop, the general object of the invention being to provide means for turning off the steam to the cylinders and applying the brakes if the engineer should run by a signal or if the train should approach an open switch.

Another object of the invention is to so arrange the parts that it will be necessary for the engineer to close a valve by hand before he can start the locomotive again.

A further object of the invention is to provide manually operated means whereby the engineer can render the device inactive, when desired, and means for preventing the device from operating when the locomotive is backing.

This invention also consists in certain other features of construction and in the combination and arrangement of the several parts, to be hereinafter fully described, illustrated in the accompanying drawings and specifically pointed out in the appended claim.

In describing the invention in detail, reference will be had to the accompanying drawings wherein like characters denote like or corresponding parts throughout the several views, and in which:—

Figure 1 is a diagrammatic elevation showing the locomotive equipped with our invention.

Figure 2 is a diagrammatic view showing the different parts of the invention.

Figure 3 is an enlarged view of the sliding member which engages the track obstruction.

Figures 4, 5 and 6 are detail views.

Figure 7 is a detail view of the three-way valve.

In these views 1 indicates a cylinder which is arranged in the cab of the locomotive and has its piston 2 provided with a rod 3, the outer end of which is hooked, as at 4, to engage the latch handle 5 of the throttle lever 6. A pipe 7 enters the front end of the cylinder. A second cylinder 8 is mounted in the cab and the piston rod 9 of the piston 10

of the cylinder engages a part of the air-brake lever 11. A pipe 12 enters the rear of this cylinder 8. These pipes 7 and 12 are coupled to a pipe line 13 which leads to an airtank 14. A three-way valve 15 is located in said pipeline, the ports in which are arranged to connect the tank with the cylinders in one position of the valve and to connect the cylinders with an exhaust port in the valve casing in the other position of the valve. This valve is provided with a handle 16 which is in reach of the engineer.

A rod 17 is slidably mounted on a part of the locomotive by means of the brackets 18 and the upper end of said rod is provided with a head 19 which is adapted to engage the handle 16. A block 20 is hinged to the lower end of the rod 17 by the hinge 21. The parts are so arranged that when the locomotive is backing and this block strikes an obstruction it will swing on its hinge and will not move the rod but when the locomotive is moving forwardly and the block should strike an obstruction, said block will be held against swinging movement so that it will be compelled to ride up the obstruction and thus force the rod upwardly and cause the upper end of said rod to engage the handle 16 of the valve 15 and move the same upwardly.

In order to provide means for permitting the block to be moved into inoperative position by the engineer we provide a link 22 which has one end connected with the block and has a handle 23 at its upper end which is located within easy reach of the engineers.

The track obstruction is made in the form of a cam member 24 which is pivotally mounted at 25 to a support along the track. A connection 26 connects this member 24 with the bell crank 27 which is connected with a part of the signal means 28 in such a manner that when the signal is set the obstruction will be in raised position so that it will engage the block 20 of a train if the engineer should fail to stop before reaching the member 24.

This member 24 can be connected with switch operating means so that when a switch is open the obstruction will be raised to prevent a train from entering the open switch.

From the above it will be apparent that if the engineer should fail to stop at a set signal the rod 17 will be forced upwardly by the block 20 striking the member 24 and this

upward movement of the rod will cause the handle 16 to move upwardly and thus open the pipe line 13 to permit the compressed air in tank 14 to flow into the cylinders 1 and 8. As will be seen the piston 2 in cylinder 1 will be moved rearwardly to cause the hooked end of its piston rod to first release the latch of the throttle and then move the throttle to shut off the steam. Piston 10 of cylinder 8 is moved forwardly so that its piston rod will actuate the brake lever to apply the brakes. The pipe 7 is of comparatively large dimensions so as to make the piston 2 move quickly to the rear while pipe 12 is of small dimensions so that piston 10 moves slowly to apply the brakes so that the steam is shut off immediately upon the opening of the valve while the brakes are applied gradually. This will bring the train to a stop and before the engineer can start it up again it will be necessary for him to push the handle 16 downwardly to reset the device. This movement of the handle 16 will shut off the supply of compressed air from the tank and will permit the air in the cylinders 2 and 8 to escape so that the throttle can be opened and the brakes released.

If the engineer wishes to render the device inactive for any reason it is simply necessary for him to push upon the handle

23 of link 22 to swing block 20 above the members 24.

It is thought from the foregoing description that the advantages and novel features of the invention will be readily apparent.

We desire it to be understood that we may make changes in the construction and in the combination and arrangement of the several parts, provided that such changes fall within the scope of the appended claim.

What we claim is:—

In combination with a throttle and brake levers of a locomotive, a pair of cylinders, pistons therein having their rods engaging the throttle and brake levers, a compressed air tank, a pipe line connecting the same with the cylinders, a valve in the line, a vertically movable rod having its upper end engaging a part on the valve, a block hinged to the lower end of the rod, a member on the track for engaging said block for forcing the rod upwardly, the hinge permitting the block to swing without moving the rod when the locomotive is backing and manually operated means for swinging the block upon its hinge to render the device inoperative.

In testimony whereof we affix our signatures.

WILLIAM MAXWELL.
LEROY A. BARKER.