No. 646,836. Patented Apr. 3, 1900.

G. S. JEFFRIES.

AUTOMATIC SAFETY APPLIANCE FOR RAILWAYS.

(Application filed July 21, 1899.)

(No Model.) 3 Sheets—Sheet 1.

Fig. 1.

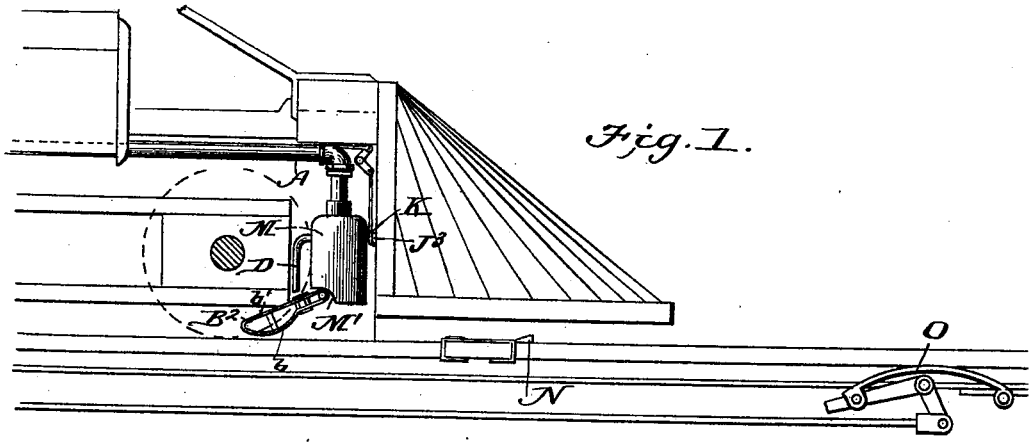

Fig. 3.

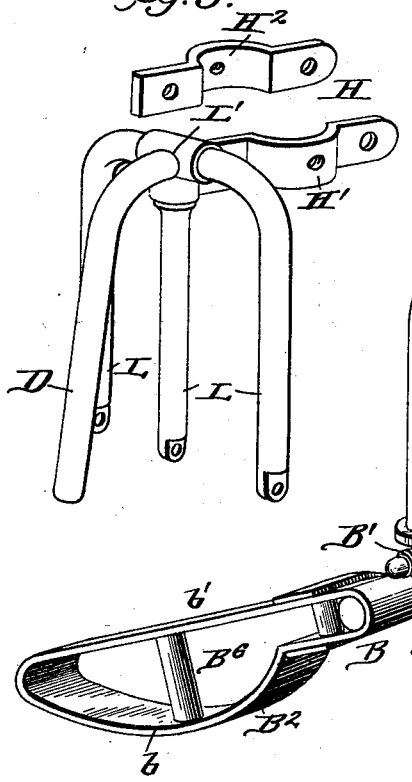

Fig. 2.

Fig. 4

Fig. 5.

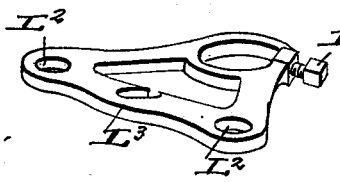

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Fig. 6.

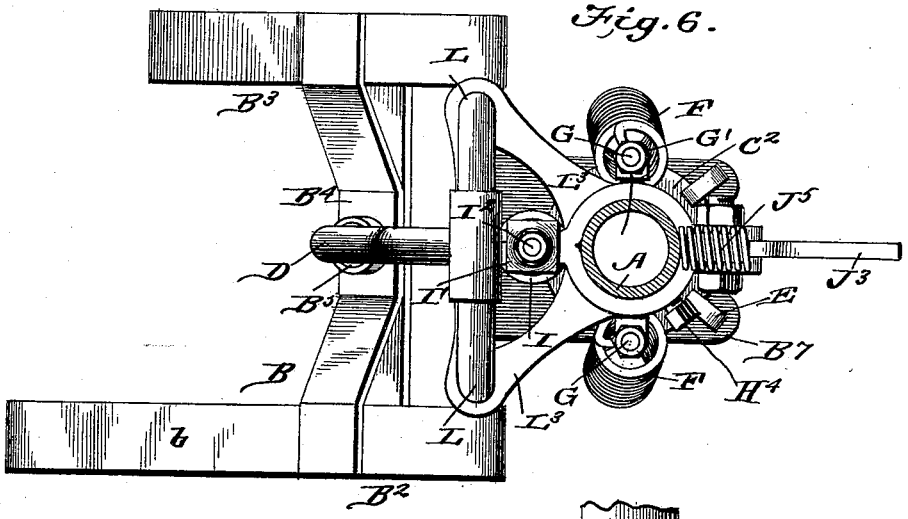

Fig. 7

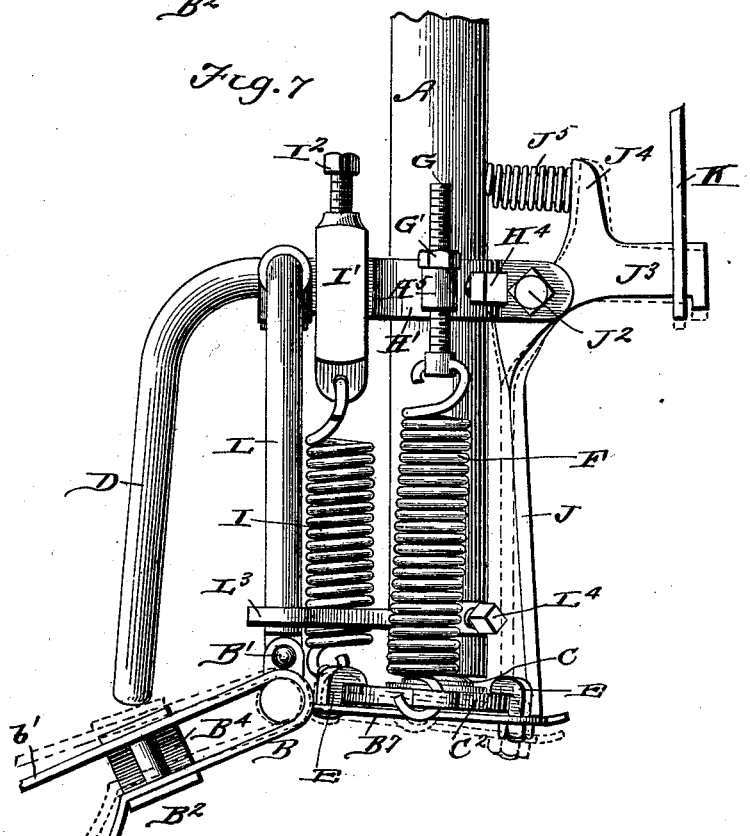

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Fig. 8.

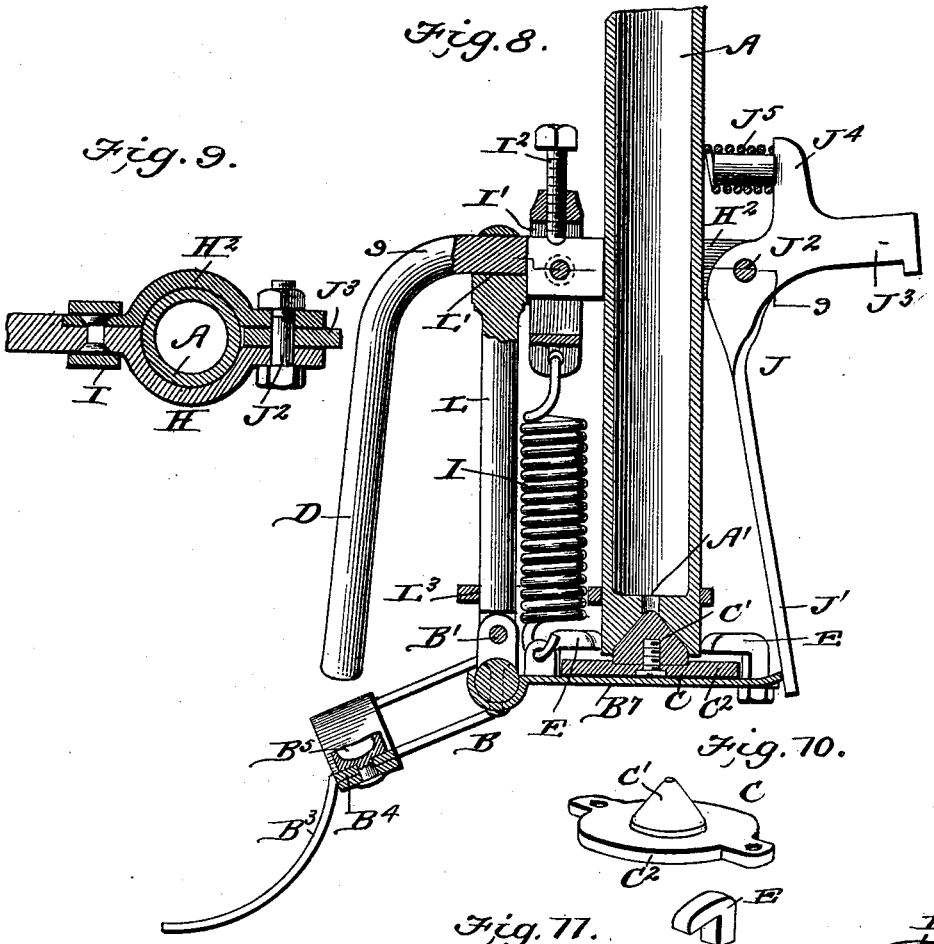
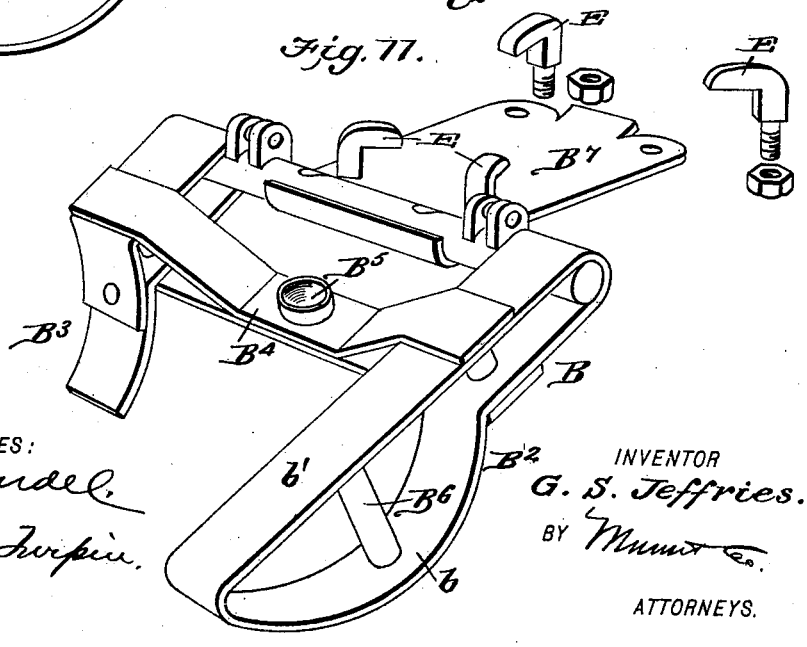


Fig. 9.

Fig. 10.

Fig. 11.



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UNITED STATES PATENT OFFICE.

GIDEON S. JEFFRIES, OF READING, PENNSYLVANIA.

AUTOMATIC SAFETY APPLIANCE FOR RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 646,836, dated April 3, 1900.

Application filed July 21, 1899. Serial No. 724,657. (No model.)

To all whom it may concern:

Be it known that I, GIDEON S. JEFFRIES, residing at Reading, in the county of Berks and State of Pennsylvania, have made certain new and useful Improvements in Automatic Safety Appliances for Railroads, of which the following is a specification.

This invention is an improvement in apparatus of the class shown in my former patent, No. 624,337, dated May 2, 1899, having for an object to provide means whereby the application of the air-brakes of a train may be controlled independently of the engineer or other person upon the train through the medium of an obstruction upon the track and devices whereby such obstruction will operate to release the air in the train-pipe and so set the brakes on the train.

The invention consists in certain novel constructions and combinations of parts, as will be hereinafter described, and pointed out in the claims.

In the drawings, Figure 1 is a side view of a portion of a locomotive provided with my improvements. Fig. 2 is a perspective view of the improved devices as set for use, with the valve adjusted to close the train-pipe. Fig. 3 is a detail view of the support and stop for the lever and the clamp for securing such part to the train-pipe. Fig. 4 is a detail perspective view of the screw-operated device for adjusting the tension of the spring which actuates the lever. Fig. 5 is a detail perspective view of the brace-plate or bracket. Fig. 6 is a sectional plan view of the improved devices. Fig. 7 is a side view of same. Fig. 8 is a vertical longitudinal section of the improved devices. Fig. 9 is a cross-sectional view on about line 9 9 of Fig. 8. Fig. 10 is a detail view of the valve, and Fig. 11 is a detail view of the lever which carries the said valve.

As in my former invention above referred to, I provide the train-pipe A with a vent A′, which when opened releases the pressure in the train-pipe and effects the setting of the brake in the well-known manner. I also employ in the present construction a lever which carries the valve for closing the vent in the train-pipe, a stop for limiting the opening movement of said lever, and a latch for holding the lever when opened; but these parts possess novel features, as will be more fully described.

The lever B is pivoted at B′ between its ends, is arranged at its rear end for operation by an obstruction on the track, and supports at its forward end the valve C, which is best shown in Figs. 8 and 10. At its rear end the lever B has the portion B^2, which runs alongside the rail, and the portion B^3, which runs over the rail, such parts being arranged for operation by obstructions placed alongside or upon the rail, as shown in the drawings and as fully described in my former patent. The portions B^2 and B^3 are connected by a cross-brace B^4, which extends between said portions and is provided between its ends with a socket B^5 for the end of the stop B, as will be understood from Fig. 8. The portion B^2, which runs alongside the rail, is composed of a strip or plate of metal bent into bow form, providing the lower rounded portion *b* and the top strap *b′* and is reinforced by the post B^6, bearing between the plates *b* and *b′*.

The valve C is held loosely to the lever B, so it and the lever have each a limited movement independent of the other. This is important for several reasons, among which may be mentioned the fact of its preventing the opening of the valve by a slight accidental movement of the lever; also, the greater accuracy secured in seating the valve in its port in the train-pipe, its independent movement permitting it to conform better to the shape of its valve-seat. The valve is rested on the broad plate or bearing B^7, furnished by the front arm of the lever B, and is held thereto by overlying parts which hold the valve to the lever B and yet permit its independent movement, as desired. In the specific construction shown the valve is composed of a plug C′ and a laterally-extending base C^2, which rests upon the plate B^7 of the lever B and beneath the hook-lugs E, which are secured to the plate B^7 and overlie the base C^2, resting normally sufficiently high above the base C^2 to permit the desired limited movement of the valve independently of the lever.

As shown in Fig. 8, the valve may be constructed with the plug C′ separate from and

suitably secured to the base-plate C^2. This may be preferred, as it permits the renewal of the plug whenever necessary and its removal in order that it may be conveniently repaired when desired.

The lever and the valve are independently spring-actuated, the springs F for actuating the valves being arranged on opposite sides of the train-pipe A and connected at their lower ends with the opposite sides of the valve, their upper ends being secured to the screw-bolts G, which pass through eyes H^5 on the clamp H and receive nuts G', so the springs F can be adjusted to exert greater or less tension upon the valve.

The spring I, which actuates the lever, is arranged in rear of the train-pipe A, is connected at its lower end with the lever and at its upper end to the box I', which fits over the lapped portions of the clamp H and receives the screw I^2, which may be adjusted to vary the tension of the spring I. By means of the devices for independently adjusting the springs for actuating the lever and the valve such springs can be properly set to secure the seating of the valve in the train-pipe in such manner as to secure a perfect closure of such pipe.

When the lever is operated by the obstruction on the track to open the valve, it is held by the lower arm J' of the latch J, which latch J is pivoted at J^2, has an arm J^3 for engagement by the bar K, which has connections leading to the locomotive-cab, so the latch can be released when desired. This latch has above its pivot J^2 an arm J^4, and a spring J^5 bears between said arm J^4 and the train-pipe and operates to force the latch to the position shown in full or dotted lines, Fig. 7. When the lever B is operated to open the valve, the arm J' of the latch will first ride up on the plate of the lever, as shown in full lines, Fig. 7, and hold the lever with the valve open. If the lever should be operated beyond the full-line position shown in Fig. 7, then the latch will ride upon the step formed by the base-plate C^2 of the valve C, as shown in Fig. 7, and will hold the valve and lever in such position.

The pivotal support of the lever is provided by the arms L, which depend from the support furnished by the clamp H. This clamp H has its members H' and H^2 arranged to be fitted around the train-pipe A and bolted or riveted together, the member H' being extended to form a stop-arm D, which is passed through an opening L', formed in the crown of the arms L.

The box I' (shown in detail in Fig. 4) fits over the ears of the clamp H in rear of the train-pipe A and between the same and the arms L, and the arms L pass downward through openings L^2 in the brace-plate L^3, which fits around the train-pipe and is secured thereto by the set-screw L^4 or in other suitable manner. The clamp H is also secured to the train-pipe by a screw H^4, so it and the brace-plate can be properly set upon such pipe, and as the brace-plate and the clamp H carry the several parts of the device it is evident that when properly set they insure the proper arrangement of all the parts of the apparatus.

In order to protect the apparatus from snow, ice, and the like, I provide a hood M, which is shown in Fig. 1 and incases the lower end of the train-pipe and the parts immediately adjacent thereto. This hood or casing M is provided with an opening at M', through which the lever B projects in position for operation by an obstruction on the track.

The obstruction on the track may be the part N, secured upon the rail, or the part O, located alongside the rail, as more fully described in my former patent before referred to.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In an apparatus substantially as described the combination of the train-pipe, the lever arranged for operation by an obstruction on the track, and the valve supported by said lever and having a movement with and independent of the lever substantially as set forth.

2. In an apparatus substantially as described the combination of the train-pipe, the valve, and the lever supporting the valve and arranged for operation by an obstruction on the track and having keeper devices by which the valve is held to the lever and in which said valve is permitted to move to a limited extent independently of the lever substantially as set forth.

3. In an apparatus substantially as described the combination of the lever arranged at one end for operation by an obstruction on the track, the valve carried thereby and having a limited movement independent of the lever, and springs whereby the valve and lever are independently operated substantially as set forth.

4. The combination with the train-pipe and the lever arranged for operation by an obstruction on the track, of the valve for closing the train-pipe and lugs on the lever and overlying the valve and adapted to permit a limited movement of the valve independent of the lever substantially as set forth.

5. In an apparatus substantially as described the combination of the lever and the valve carried by and held loosely to said lever substantially as set forth.

6. In an apparatus substantially as described the combination of the train-pipe the valve having a plug and a base-plate extended laterally beyond the plug, the lever and the keeper-lugs on said lever and overlying the base-plate of the valve substantially as set forth.

7. In an apparatus substantially as described the combination of the train-pipe, the lever arranged for operation by an obstruction on the track and having a broadened arm

forming a support for the valve, the valve resting on said support, and keeper devices on the lever and overlying the valve whereby to secure the same to the lever substantially as set forth.

8. The combination with the train-pipe and the lever, of the spring-actuated valve carried by and held loosely to the lever substantially as set forth.

9. The combination with the train-pipe and the lever arranged for operation by an obstruction on the track of the valve held loosely to said lever, the springs engaged with the opposite sides of said valve whereby to actuate the same independently of the lever, and the spring for actuating the lever substantially as set forth.

10. In an apparatus substantially as described the combination of the train-pipe, and the valve-carrying lever provided with the valve for closing the train-pipe and with a shoe for operation by an obstruction on the track, such shoe being composed of a plate of metal bent in bow form and a reinforcing-post arranged within said bow substantially as set forth.

11. In an apparatus substantially as described the combination of the train-pipe, the lever having a valve for closing the train-pipe and arranged for operation by an obstruction on the track, and a carrier for said lever having depending arms to which the lever is pivoted and a brace-plate held to the train-pipe and provided with guide-openings through which the said depending arms pass substantially as set forth.

12. The combination of the train-pipe, the lever arranged for operation by an obstruction on the track, and having a valve fitted to the train-pipe, the carrier for said lever having depending arms to which the lever is pivoted, and the clamp securing said arms to the train-pipe and having one of its members extended to form a stop by which to limit the movement of the lever and its other member secured to said first member substantially as set forth.

13. In an apparatus substantially as described the lever supporting the valve and having one arm adapted for operation by an obstruction on the track such arm consisting of a bowed side plate arranged to run alongside the rail, a plate lateral thereto arranged to run over the rail, and a cross-brace connecting such parts substantially as set forth.

14. In an apparatus substantially as described the combination with the train-pipe of the lever, the valve supported thereon and having a lateral portion or base-plate, and the latch for holding the valve open, said latch being arranged to rest upon the lever and the lateral portion or base-plate of the valve in the different positions of the valve-supporting lever substantially as set forth.

15. The combination of the train-pipe, the valve-supporting lever, and the latch for securing such lever to hold the valve open, said latch being pivoted and provided above said pivot with an upwardly-projecting arm and with a spring located entirely above the pivot and operating upon said arm substantially as set forth.

16. In an apparatus substantially as described the combination of the train-pipe, the lever arranged for operation by an obstruction on the track, the valve held loosely to said lever whereby it has a limited movement independent of said lever, the spring for actuating the valve independently of the lever, the spring for actuating the lever, and means for adjusting said spring substantially as set forth.

17. The combination in an apparatus substantially as described of the train-pipe, the lever, the valve carried by said lever and movable to a limited extent independently of the lever, the independent springs for actuating said valve and lever, and screw-operated devices by which the tension of said springs may be adjusted independently substantially as set forth.

18. In an apparatus substantially as described the combination of the train-pipe, the lever having a valve arranged to close said train-pipe, and operating devices in connection with said lever and valve, and a hood or casing fitted over the end of the train-pipe and the parts immediately adjacent thereto and having an opening through which the end of the lever projects substantially as set forth.

GIDEON S. JEFFRIES.

Witnesses:
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B. C. GODFREY.