

998,513.

Patented July 18, 1911.

Fig. 1.

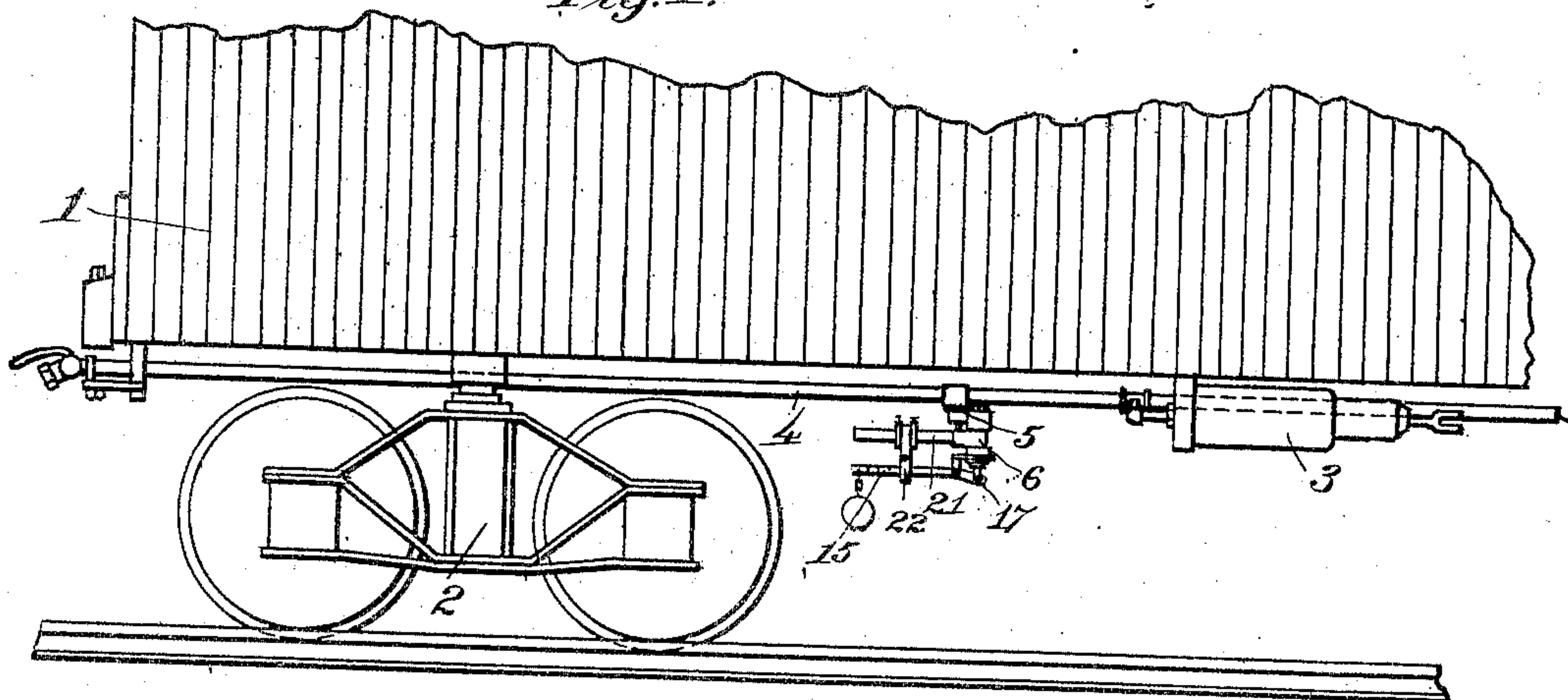
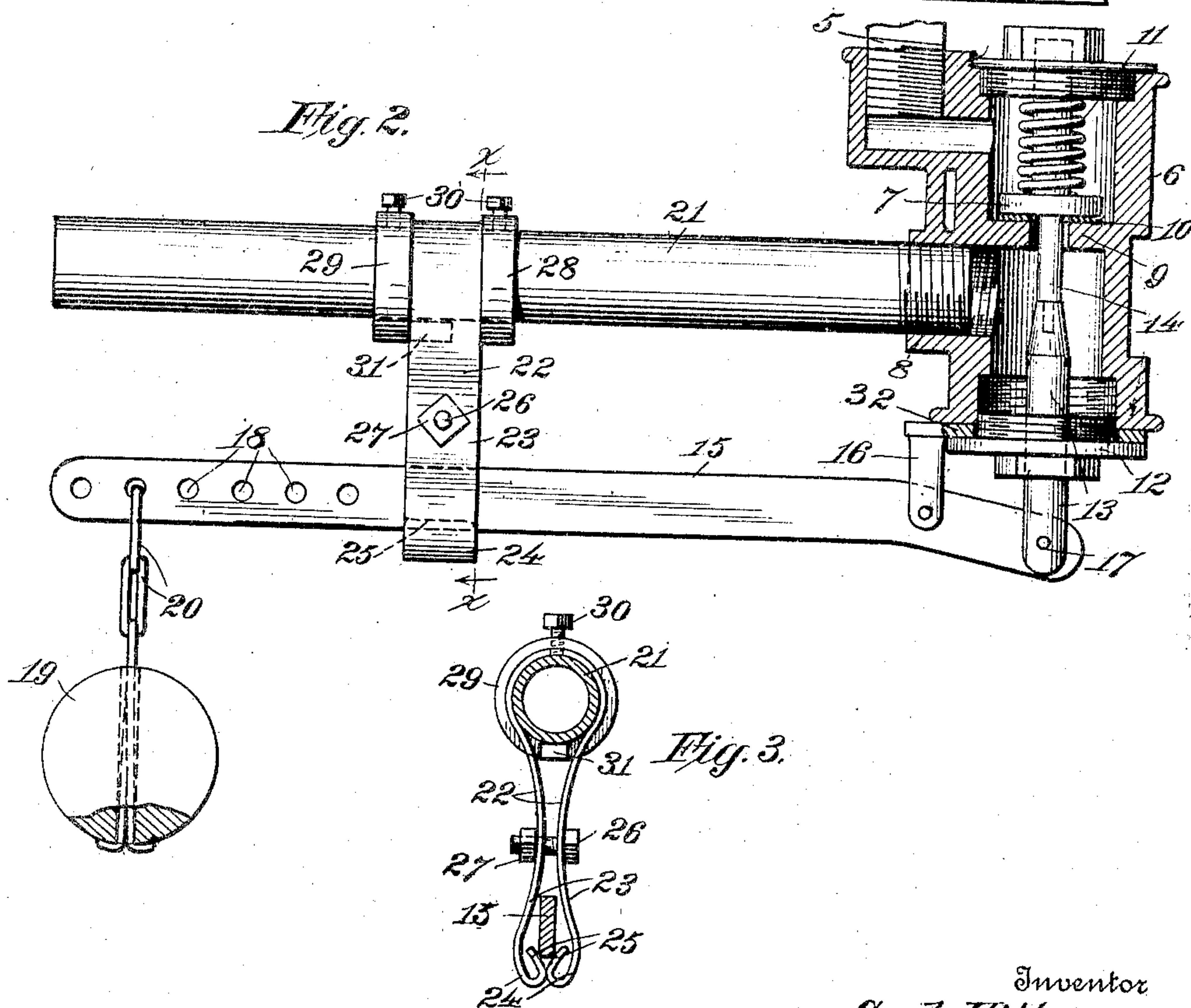


Fig. 2.



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EMERGENCY APPLIANCE FOR AIR-BRAKES.

998,513.

Specification of Letters Patent.

Patented July 18, 1911.

Application filed June 28, 1910. Serial No. 562,316.

To all whom it may concern:

Be it known that I, CARL HILL, a citizen of the United States, residing at Ocilla, county of Irwin, and State of Georgia, have invented certain new and useful Improvements in Emergency Appliances for Air-Brakes, of which the following is a specification.

My invention relates to air brakes for railway trains and particularly to emergency appliances for air brakes whereby the brakes shall be automatically applied in case of derailment of any portion of the train.

The object of my invention is to provide a device which may be applied to an air brake system of a train whereby the brakes will be applied to the entire train should any portion of the same become derailed.

A further object of my invention is to provide a device as mentioned which may be regulated or adjusted according to the nature of the road or road bed over which the train is to run.

Other objects will appear hereinafter.

With these objects in view my invention consists generally in providing the train pipe on each car with an exhaust valve which when open will cause the brakes to be applied to the entire train, and equipping the valve with means whereby the valve will be automatically operated when any pair of wheels of the car leave the track by means of the jolt or jar incident thereto.

My invention further consists in various details of construction and arrangements of parts all as will be fully described hereinafter and particularly pointed out in the claims.

My invention will be more readily understood by reference to the accompanying drawings forming a part of this specification and in which—

Figure 1 is a side elevation of a portion of a car illustrating the train pipe thereof equipped with the emergency appliance embodying my invention in its preferred form, Fig. 2 is a vertical section through the appliance and illustrated upon a much enlarged scale, and Fig. 3 is a section on the line $x-x$ of Fig. 2.

Referring now to the drawings 1 indicates the body of the car and 2 one of the trucks thereof. Arranged beneath the body 1 is the usual brake cylinder 3 and train pipe 4. Connected to the train pipe 4, as

by a short pipe or nipple 5 is a valve casing 6 having a valve 7 and exhaust 8. The valve casing is provided with a diaphragm or partition 9 forming a seat 10 for the valve 7. The valve is normally held upon its seat by a spring 11 and also by the air pressure in the train pipe. It is obvious that by unseating the valve 7 the air in the train pipe will be exhausted and the brakes applied. The lower end of the valve casing 6 is provided with a removable or screw head 12 through which extends a plunger 13 and upon the upper end of the plunger rests a valve stem 14. By pushing the plunger inwardly the valve 7 is unseated.

I have above described a particular form of valve which may be employed in conjunction with my invention but it is to be understood that any form of valve controlling the air in the train pipes and adapted to be operated by the means and in the manner hereinafter described may be employed without departing from the scope of my invention.

15 indicates a lever pivotally mounted or fulcrumed between ears 16, preferably depending from the valve casing, and having the end of its short arm connected as at 17 to the plunger 13. The opposite end of the lever 15, that is the outer end of the long arm thereof, is provided with a plurality of perforations 18.

19 indicates a weight connected by links 20 to the long arm of the lever 15, the upper link being adapted to engage any of the perforations 18. The weight 19 is of sufficient magnitude to overcome, through the lever 15, the tension of the spring 11 and air pressure on the valve 7.

The long arm of the lever and the weight hanging thereto is supported in raised position so that the valve 7 is normally closed, but said arm and weight are so held that they will be instantly released by the sudden jar or jolt incident to any pair of wheels of the car leaving the track. To this end I provide a pair of spring arms or jaws for normally holding said arm and weight in raised position and provide means for supporting said arms or jaws.

21 indicates a pipe extending from the exhaust port of the valve casing and forming a support for the spring jaws and 22—22 indicate the jaws. The jaws are formed of a strip of spring metal doubled upon itself to partially embrace the pipe or

support 21 and depend therefrom, and the ends of said arms are curved outwardly as at 23 and then inwardly as at 24 terminating in upwardly and outwardly flared portions 25 which form a seat for the arm of the lever 15, said arm normally lying between the bowed portions 23—24 as shown clearly in Fig. 3. A bolt 26 passes through the arms 22 above the bowed portions thereof and is provided with a bur 27 whereby the tension of the arms may be adjusted to regulate the resistance of the ends of the arms to the passage of the lever 15 between them. Should the wheels of the car leave the track, the jolt will cause the weight 19 to pull the arm of the lever 15 downwardly thereby opening the valve as before described, and as the lever is supported by the arms 22, the device may be nicely regulated by means of the bolt 26 and the position of the weight in the holes 18 to operate only with jolts exceeding a predetermined magnitude. The device may be thus adjusted for use upon different roads of varying degrees of roughness, that is, if the road is very rough the device is adjusted so that a greater jolt is necessary to release the lever than is necessary upon a comparatively smooth road.

To hold the spring arms 22 in position I provide a pair of collars 28—29 on the pipe 21, one upon each side of the arms as shown in Fig. 2. These are secured to the pipe by set screws 30, and the collar 29 is formed with a laterally projecting lug 31 which extends between the arms 22. The collars prevent longitudinal movement of the arms on the pipe and the lug 31 prevents rotary movement of the same.

It is obvious that the lever 15 should lie directly beneath the pipe 21 and to this end I form the pivot lugs 16 upon a collar or washer 32, when the above described form of valve is used, which collar is interposed between the head 12 and the valve casing. By this construction the lever may be properly positioned before the head 12 is tightened.

With the appliance above described the

brakes of the entire train may be controlled from the locomotive cab or from the individual cars in the usual manner as the device does not interfere with the normal operation of the brake system. However should any pair of wheels at any place on the train become derailed the jar will immediately open the valve 7 on the respective car and apply the brakes to the entire train.

Having described my invention what I claim as new and desire to secure by Letters Patent is:

1. The train pipe of an air brake system, in combination with an exhaust for the same, a valve normally closing said exhaust, a lever pivotally mounted adjacent said valve and connected at one end thereto, the other end of said lever being weighted, means for normally supporting the weighted end of said lever, said means being adapted to release said end when the wheels of the car leave the track due to the jolt incident thereto, substantially as described.

2. The train pipe of an air brake system, in combination with an exhaust for the same, a valve normally closing said exhaust, a lever pivotally mounted adjacent said valve and connected at one end thereto, the other end of said lever being weighted and a pair of spring arms normally supporting the weighted end of said lever between them, substantially as described.

3. The train pipe of an air brake system, in combination with an exhaust for the same, a valve normally closing said exhaust, a lever pivotally mounted adjacent said valve and connected at one end thereto, the other end of said lever being weighted, a pair of spring arms normally supporting the weighted end of said lever between them and means for adjusting the tension of said spring arms, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CARL HILL.

Witnesses:

D. W. BOLAND,
M. S. GERMANY.