J. B. WRIGHT.

SAFETY ATTACHMENT FOR CAR BRAKES.

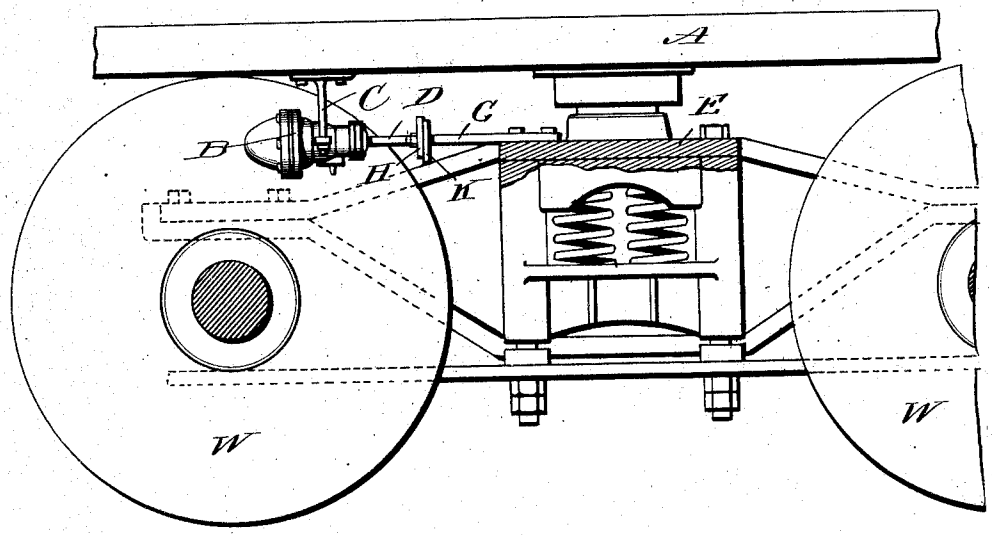
APPLICATION FILED APR. 7, 1909.

947,142.

Patented Jan. 18, 1910.

2 SHEETS—SHEET 1.

Fig. 1.



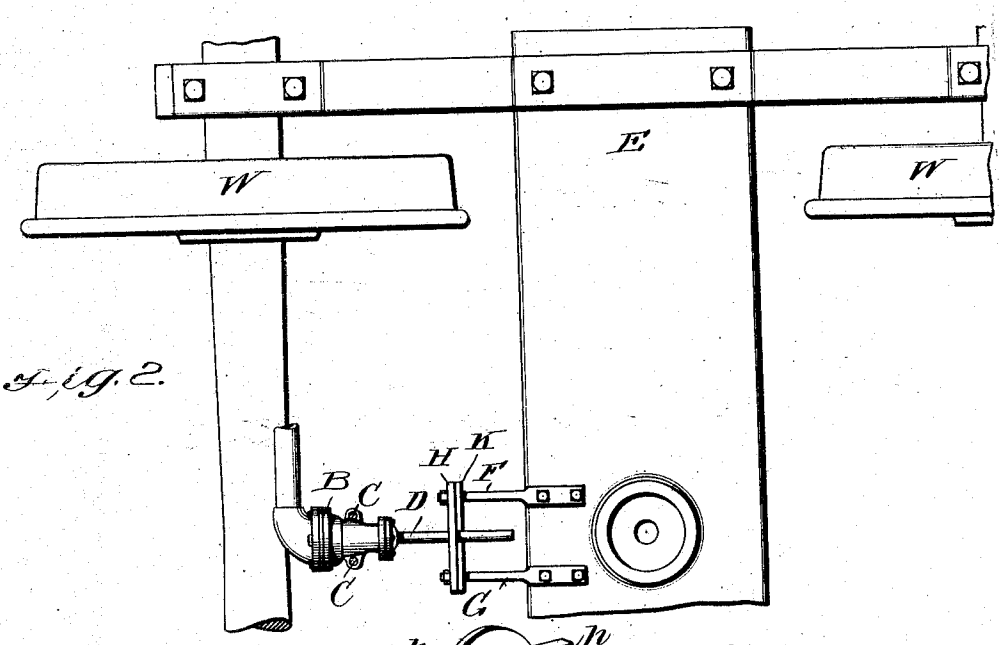
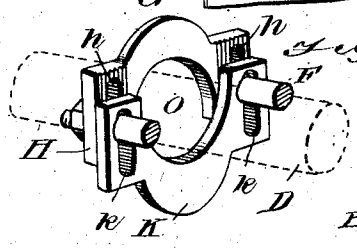


Fig. 2.

Fig. 3.



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2 SHEETS—SHEET 2.

Fig. 4.

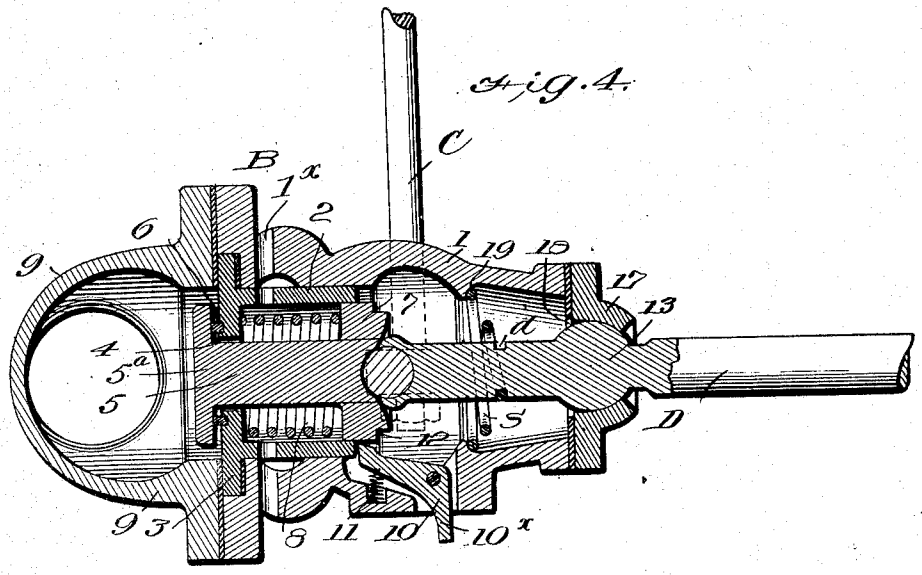


Fig. 5.

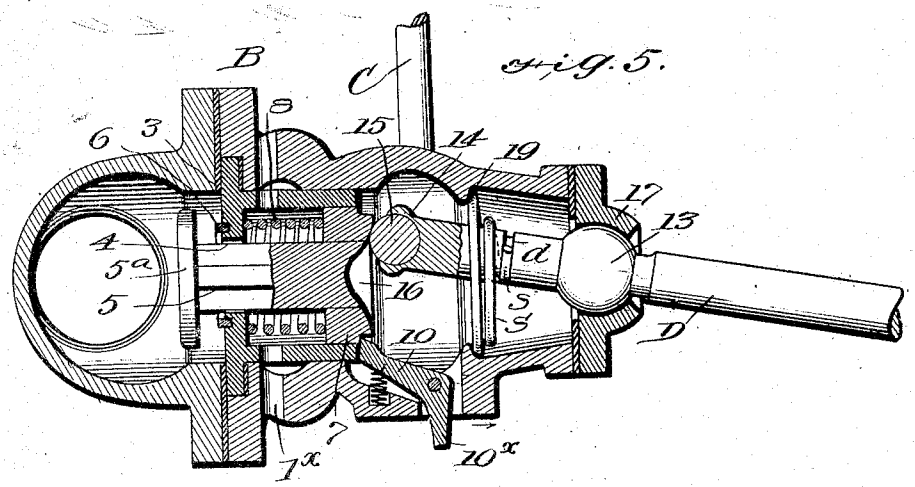
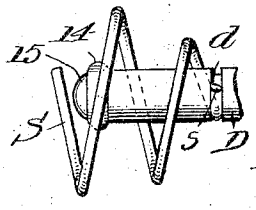


Fig. 6.



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UNITED STATES PATENT OFFICE.

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SAFETY ATTACHMENT FOR CAR-BRAKES.

947,142. Specification of Letters Patent. Patented Jan. 18, 1910.

Application filed April 7, 1909. Serial No. 488,366.

To all whom it may concern:

Be it known that I, JOHN BUNYAN WRIGHT, a citizen of the United States, and a resident of Greensboro, in the county of Guilford and State of North Carolina, have invented certain new and useful Improvements in Safety Attachments for Car-Brakes, of which the following is a specification.

My invention relates to apparatus for automatically operating the brakes of a railway train in case of accident to the trucks or from any other cause which tends to throw the trucks into an abnormal position, and it consists in the combinations, constructions and arrangements herein described and claimed.

The main object of my invention is to produce a device in which the abnormal movement of the trucks in any direction will operate to set the brakes in an air brake system instantly and thereby stop the train. To this end I have arranged a novel form of valve operating mechanism in which the operating member has a universal movement so that when it is moved in any direction it will unseat the valve and set the brake.

A further object of my invention is to provide means for not only permitting a movement of the valve operating member at various angular directions with respect to its axis, but to also permit a longitudinal movement of the valve actuating member as well.

A further object of my invention is to provide simple apparatus for effecting the above mentioned results.

Other objects and advantages will appear in the following specification and the novel features of the device will be particularly pointed out in the appended claims.

My invention is illustrated in the accompany drawings in which—

Figure 1 is a side view of a car body and trucks partially in section with my invention applied thereto; Fig. 2 is a plan view of the brake operating mechanism; Fig. 3 is a perspective view showing the adjustable plates; Fig. 4 is a vertical section through the valve casing showing the normal position of the valve; Fig. 5 is a similar view showing the valve actuating rod in its operative position; and Fig. 6 is a detail view showing the manner in which the spring is secured to the valve rod.

Referring now to Fig. 1, I have shown therein the lower portion of a car A to which the valve casing B is attached by any suitable means, such as a suspending rod C. The structure of the valve casing and valve is clearly shown in Figs. 4 and 5. The valve casing consists of a main body portion 1 of the same shown in the figures. The openings 1^x constitute exhaust ports. The casing is open at both ends and is cored at one end to receive a hollow cylinder 2 having a head 3 provided with an opening 4 through which the valve proper 5 extends. The head 5^a of the valve rests normally upon a resilient member 6 surrounding the opening. The opposite end 7 of the valve is extended to fit within the hollow cylinder and is normally pressed upon by a spiral spring 8 disposed within the cylinder. An extension 9 of the valve casing communicates with the train pipe and is secured to the main casing 1 by means of bolts or in any other suitable way. On one side of the valve casing 1 there is an opening in which a locking member 10 is pivoted. This locking member is normally pressed by means of the spring 11 against the end 7 of the valve and when the latter is moved forwardly the end of the locking member 10 springs in behind a shoulder 12 on the end 7 thereby locking the valve in its shifted position. The valve actuating member consists of a rod D having a spherical enlargement 13 and a recess 14 at one end. Within the recess 14 is disposed a hardened cylindrical ball 15 which in the normal position of the rod lies in a recess 16 in the end 7 of the valve. The normal position of the rod and valve is shown in Fig. 4. The enlarged spherical portion 13 of the rod D is arranged to be held by means of a cap 17 which is secured to one end of the casing 1. The recess 18 of the cap 17 is slightly cut away on its inner side so as to permit a longitudinal movement of the rod inwardly but not outwardly. The rod D is held in the recess 18 of the cap 17 by means of the spring S. The manner in which this spring is connected to the rod is shown in Fig. 6. In this figure it is seen that the rod is provided with a groove *d* the end of the spring *s* being secured in the groove and the opposite end of the spring bearing against a shoulder 19 on the inner side of the valve casing. This permits a movement of the rod in any direction.

Referring now to Figs. 1 and 2, it will be seen that the rod D is held normally in

a horizontal position and that the end of the rod is in close proximity to the bolster E of the trucks. Extending from the bolster are the two arms F and G at the ends of which are attached the plates H and K. The construction of these plates is clearly shown in Fig. 3. They consist of the arc-shaped body portions provided with the vertical slots *h* and *k* respectively through which the ends of the arms F and G project. These plates H and K are movable so that the opening between them may be varied in order to allow an adjustment of the arms with respect to the rod D. Obviously these plates might be of other forms than that shown in the figure, the main object being to provide mechanism for actuating the rod D when the trucks are out of their normal position and which may be adjusted relatively to the position of the rod.

From the foregoing description of the various parts of the device, the operation thereof may be readily understood. If for any reason the wheels W of the car A should leave the track, the jolting will cause an undue movement of the bolster in one direction or another. The end of the rod D which projects through the opening *o* in the plates but which is not in contact with the plates is now engaged by one edge of the plates and is forced from its normal position. Fig. 5 illustrates the position of the rod D after it has been engaged by the plates H or K. The rod is rotated around the ball and socket connection 13—18 and the valve is cammed forward by the engagement of the spherical member 15 in the end of the rod thereby opening the valve against the tension of the spring 8 allowing the air to escape through the ports 1^x, and permitting the brakes to set. Moreover at the first movement of the valve the locking member 10 springs into place in the manner already described and the valve remains in its open position until the end 10^x of the locking member is moved in the direction indicated by the arrow when the valve will again spring into position under the influence of the spring 8 if the rod is in its normal position.

I desire to particularly call attention to the fact that any movement of the rod D in a direction at an angle to its axis or in a longitudinal direction along its axis in the direction of the valve will cause the opening of the latter. In actual practice it is not possible to unduly move the trucks, when the mechanism is set up as described, without causing the unseating of the valve and the consequent stopping of the train. The ball bearing camming action of the rod D facilitates the operation of the device and lessens the liability of the valve's failing to open by reason of any friction between the end of the rod and the end of the valve.

I am aware that other forms of the device based upon the same general idea might be made, but I consider as my own all such modifications as fairly fall within the spirit and the scope of the invention.

I claim:—

1. In apparatus of the class described, the combination with a train pipe provided with an escape opening, of a valve normally closing the opening and a cam member having a universal movement and adapted to engage the valve, when moved in any direction to open the latter.

2. In apparatus of the class described, the combination with a train pipe provided with an escape opening, of a valve normally closing the opening, a rod pivoted for universal movement, the end of the rod being adapted to engage the end of the valve to force the latter open when the rod is moved in any direction, a car truck, and means attached to said truck for engaging the rod during an abnormal movement of the truck.

3. In apparatus of the class described, a valve casing, a train pipe opening valve located therein, a cam member mounted on said casing for universal movement, and adapted to open said valve, a car truck, and means secured upon said car truck and adapted to engage said cam member, said means being adjustable with respect to said cam member.

4. In a device of the class described, the combination with a train pipe, of a spring actuated valve for opening the same, said valve being provided with a recess, a rod mounted in the valve casing for universal movement, the end of the rod being normally in said recess and adapted when moved in any direction to cam the valve open, and a spring secured to said rod and arranged to keep the latter in a central position.

5. In an apparatus of the class described, the combination with a train pipe provided with an opening, of a spring actuated valve arranged to close said opening, a rod having a spherical enlargement arranged to seat in the valve casing, thereby providing for the universal movement of the rod, the end of the rod being adapted to engage the valve to cam the latter open, a locking member carried by the valve casing and arranged to lock the valve in its open position, a car truck and means carried by said truck for moving the rod.

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