No. 746,107. PATENTED DEC. 8, 1903.

H. R. KUHN.

AIR BRAKE SYSTEM.

APPLICATION FILED MAR. 16, 1903.

NO MODEL.

Fig. 1

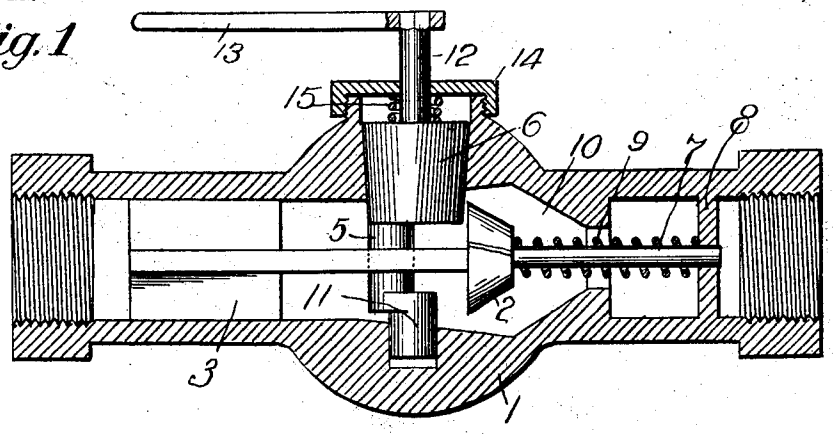


Fig. 2

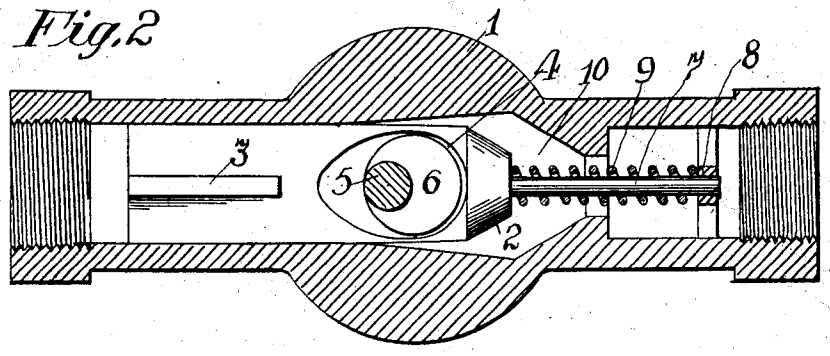


Fig 3

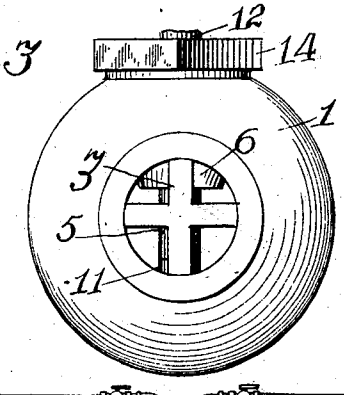


Fig. 4



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No. 746,107. Patented December 8, 1903.

UNITED STATES PATENT OFFICE.

HARRY R. KUHN, OF HOMESTEAD, PENNSYLVANIA.

AIR-BRAKE SYSTEM.

SPECIFICATION forming part of Letters Patent No. 746,107, dated December 8, 1903.

Application filed March 16, 1903. Serial No. 147,969. (No model.)

To all whom it may concern:

Be it known that I, HARRY R. KUHN, a citizen of the United States, residing at Homestead, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Air-Brake Systems, of which improvement the following is a specification.

This invention relates to certain new and useful improvements in air-brake systems, and relates more particularly to providing means whereby when a train is broken, due to passing over a grade or by any other cause, the brakes on the rear or broken-off portion of said trains are set and the brakes on the forward portion of said train remain in their normal position.

A further object of this invention is to provide means whereby each car or unit of the train is provided with a system of valves whereby the breaking of said train between any of the units will cause the forwardly-moving valve on the front unit of the broken-off portion of said train to be open and the rear valve on the forward end of said train to be closed, thereby maintaining the normal position in the forward end of said train and setting the brakes in the rear portion thereof.

In describing this invention in detail and more fully pointing out the same in the claims reference will be had to the accompanying drawings, forming a part of this specification, and in which like reference characters indicate like parts in the several views.

Figure 1 is an elevation of the valve which is interposed in the air-brake system. Fig. 2 is a longitudinal cross-section in elevation of the same. Fig. 3 is a cross-section taken on a line $x\,x$ of Fig. 1. Fig. 4 is a diagrammatic view of the air-brake system, showing my improved valve interposed in the same.

Referring to the accompanying drawings, the reference-numeral 1 indicates the casing or body of the valve, in which the valve 2 is suitably mounted. Said valve 2 is provided on one side with a web-guide 3, said guide being formed in a cross shape, two wings of which extend the entire distance of the guide and having formed therein an aperture in which the part 5 of the plug 6 operates and the other wings of which extend only a sufficient distance to form said guide.

On the forward end of the valve 2 is an extension 7, which passes through the guide-piece 8, formed integrally with or placed in the valve-body 1 and around which a spring is placed for the purpose of causing the valve 2 to move away from its seat 9 when the system is working under normal conditions.

The plug 6 of the valve has eccentrically mounted intermediate of its length the part 5, and its lower end 11 is rotatably mounted in the valve-body, and on its upper end the extension 12 is formed, on which is secured the handle 13 for the operation of the valve, the cap 14, secured to the valve-body 1 by a screw-thread and confining the spring 15 between said cap and the top of the plug 6, thereby securing the plug in its proper position. When the handle is turned in a position such as shown in Fig. 1, the valve 2 cannot be forced against its seat 10; but should the handle 13 be moved to the opposite position the eccentric portion of the plug 6 will be in such a position that it will permit the valve 2 to become seated.

The operation of my device is as follows: Adjacent to the angle-cock placed on each end of the train-pipe of every car or unit is inserted one of the valves, such as illustrated in Figs. 1, 2, and 3. Should the train be moving in one direction, the valves will be turned to such a position that should the train break the valve at the rear of the forward portion of said train will close, but the forward valve of the rear portion of said train will open, thus permitting the exhaust of air from the train-pipe on the rear portion and setting the brakes on the same. This is accomplished by the position of the part 5 on the plug 6 being turned in one or two positions, in one of which it permits the valve 2 to be closed and in the other of which said valve cannot be closed. The air in escaping from said valve will close said valve, if permitted to do so, by its velocity.

While this device has been described as applying to an air-brake system wherein a normal pressure is used, it will be seen that it could be readily applied to a vacuum system if slight changes were made in my invention without departing from the general spirit thereof.

Having thus fully described my invention,

what I desire to claim and secure by Letters Patent is—

1. A device of the character described the combination of the valve-body and rotarily-mounted part therein, having an eccentric portion adapted to operate within an opening on an extension of the valve contained therein, and eccentric part being so positioned that in one position said valve is permitted to close and in the other position said valve is not permitted to close.

2. In a device of the character described, the combination of the valve-body and tapered spring-pressed plug mounted therein said plug being rotatably mounted and carrying a part adapted to limit the movement of the spring-pressed valve, mounted within said valve-body.

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

HARRY R. KUHN.

In presence of —
LOUIS MOESER,
H. J. LEVIS.