

W. C. WILKES.
 AUTOMATIC RETAINER.
 APPLICATION FILED DEC. 15, 1910.

1,001,490.

Patented Aug. 22, 1911.

Fig. 1.

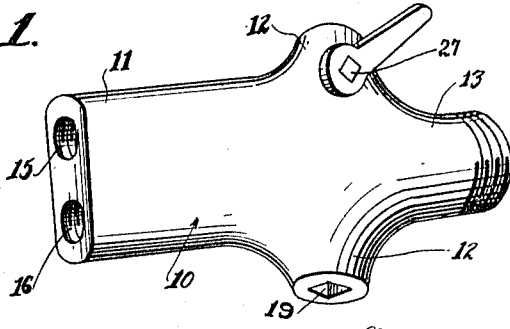


Fig. 2.

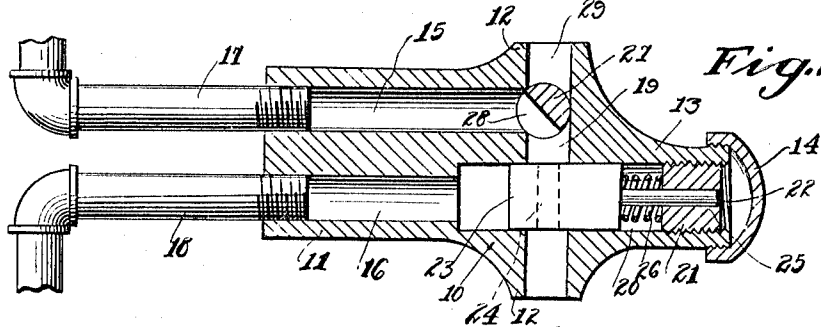


Fig. 3.

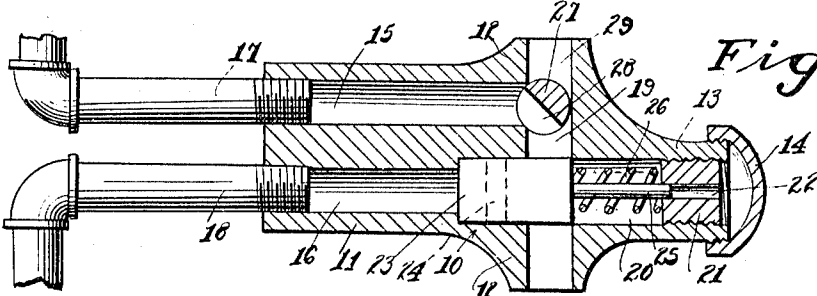
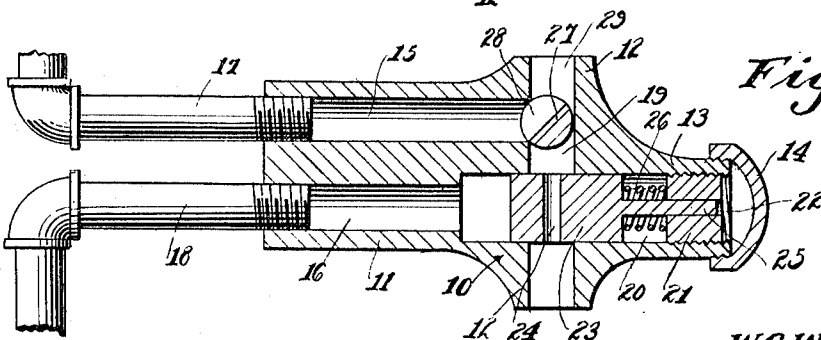


Fig. 4.



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UNITED STATES PATENT OFFICE.

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AUTOMATIC RETAINER.

1,001,490.

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To all whom it may concern:

Be it known that I, WALTER C. WILKES, a citizen of the United States, residing at Heavener, in the county of Le Flore, State of Oklahoma, have invented certain new and useful Improvements in Automatic Retainers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to pressure retaining devices of that general class designed to hold the brakes applied while the auxiliary reservoir is being recharged, the device being controlled by the pressure in the auxiliary reservoir and timing the exhaust of the triple valve.

An object of the present invention is to obviate the double piston usually employed in devices of this character, so that a simpler device is presented which will be more positive in its action due to decreased friction, and will be less liable to get out of order than ordinary devices of this character.

A further object of the invention is to provide a device of this character in which the valve casing may be formed in a single piece, so that machining of the device is reduced to a minimum.

A still further object is to provide a device of this character in which a single cylindrical plug serves as a combined piston and valve, this plug obstructing the release port of the valve and having a single transverse orifice which establishes communication between the release port and atmosphere at a certain position of the valve, this construction presenting a valve which may be constructed at a greatly reduced cost over similar valves as previously constructed.

With the above objects in view the invention consists in certain novel details of construction and combinations of parts which will be hereinafter fully described and claimed.

In the accompanying drawing forming part of this specification, Figure 1 is a perspective view of a pressure retaining device embodying my improvements, Fig. 2 is a longitudinal sectional view through the device showing the piston like valve in the position it assumes under normal auxiliary reservoir pressure, Fig. 3 is a longitudinal

sectional view through the device showing the piston like valve in the position it assumes under less than normal auxiliary reservoir pressure, Fig. 4 is a longitudinal sectional view through the device showing the piston like valve in the same position as shown in Fig. 2 but with the triple valve exhaust governor valve of the device set so as to direct the triple valve exhaust through a by-pass into the atmosphere.

Referring now to the drawing in which like characters of reference designate similar parts, 10 designates a valve casing including a shank 11 which is approximately elliptical in cross section, and is equipped at one end with outstanding approximately cylindrical branches 12, these branches merging into a cylindrical extension 13 which forms a continuation of the shank and which is equipped with a cap nut 14. The casing is preferably formed in a single piece.

The casing above described is provided in its shank with a pair of longitudinal ports 15 and 16, the outer ends of which are threaded to receive pipes 17 and 18 which communicate with the triple valve exhaust and with the auxiliary reservoir respectively, these latter named parts not being shown. The casing is further provided with a transverse straight port 19 which communicates with the longitudinal ports and opens out at its opposite ends through the branches 12 into the atmosphere, this port forming what will be subsequently referred to as a release port. The longitudinal port 16 which communicates with the auxiliary reservoir, is enlarged at its inner end forming a cylindrical chamber which intersects the release port and which is threaded at its outer end for the reception of an adjusting nut 21, this nut being axially provided with an orifice 22 the purpose of which will presently appear.

Slidably fitted in the chamber is a cylindrical plug 23, this plug as will be clearly observed by referring to Fig. 2, being exposed to auxiliary reservoir pressure, so that the plug serves as a piston, and this plug is provided with a transverse opening 24 which when the plug is in a certain position, registers with and forms a continuation of the release port 19. The plug by virtue of this opening serves as a valve to cut off and establish communication between the release port and atmosphere, and will hereinafter

be referred to as a valve. The valve is provided axially with a stem 25 which loosely fits in the axial opening 22 of the adjusting nut, and seated on this stem is a helical spring 26, the opposite terminal convolutions of which bear against the opposing faces of the adjusting nut and valve, this spring operating to hold the valve in such a position that the opening 24 thereof will be out of communication with the release port, and the latter sealed when the pressure in the auxiliary reservoir falls below normal. It might here be stated that this spring is of such strength as to hold the valve in this last described position until the pressure in the auxiliary reservoir reaches normal or about 70 pounds which pressure acting against the valve will move the valve to the position shown in Figs. 2 and 4 against the pressure of the spring and establish communication with the atmosphere, the spring returning the valve to closed position when the pressure in the auxiliary reservoir falls below normal.

Arranged in the casing is a plug valve 27 having an orifice 28 in one side which when the plug is turned in a certain position establishes communication between the triple valve exhaust port 15 and the release port 19, and when the valve is turned to an opposite position cuts off communication between these ports as clearly shown in Fig. 4, and when in this position it will be observed that the exhaust from the triple valve escapes through that end of the release port 19 remote from the valve, and which may be termed a by-pass 29, into the atmosphere. The valve 27 thus governs the admission of the triple valve exhaust into the release ports and is designed to be rotated to the position shown in Fig. 4 when it is desired for any reason to cut out the automatic release of the triple valve exhaust into the atmosphere through the instrumentality of the single piston like valve 23.

By retracting or advancing the adjusting nut 21, the pressure of the helical spring against the valve may be regulated so as to adapt the valve to establish communication between the release port and atmosphere when the pressure in the auxiliary reservoir reaches any predetermined degree.

Now in operation when the brakes are set, the pressure in the auxiliary reservoir as is well known falls below normal or 70 pounds,

and then the pressure of the spring 26 will overcome the auxiliary reservoir pressure upon the valve 23 and move the latter to closed position, thus cutting off communication between the triple valve exhaust and atmosphere so that the brakes are maintained set. Now when the engineer's brake valve is rotated to charge the train pipe and auxiliary reservoir, the increasing pressure in the reservoir will move the valve 23 against the pressure of its spring until when the pressure in the reservoir is normal or in other words sufficient to reset the brakes, the valve will have moved into the position shown in Fig. 2 in which position communication between the triple valve exhaust and atmosphere is established and the brakes thereby released. Thus the auxiliary reservoir is recharged while the brakes are maintained set so that there may always be a sufficient quantity of air under pressure in the auxiliary reservoir to set the brakes immediately after release.

What is claimed, is:—

In an air brake mechanism, a valve casing having ports, one of which is in communication with the exhaust of the triple valve, and another in communication at both ends with the atmosphere, and also in communication with said triple valve exhaust port and forming a release port, said casing being further formed with a chamber which is in communication with the auxiliary reservoir, a single piston like valve in said chamber exposed to auxiliary reservoir pressure, said valve obstructing said release port and having a transverse orifice opening through its opposite sides adapted to register with and form a continuation of said release port when the valve is in a predetermined position, a spring seated in said chamber and maintaining said valve in a position to seal said release port under less than ordinary auxiliary reservoir pressure, and a valve arranged in said casing and operating to cut off or establish communication between said triple valve exhaust port and said release port.

In testimony whereof, I affix my signature, in presence of two witnesses.

WALTER C. WILKES.

Witnesses:

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F. E. WRIGHT.