No. 871,869. PATENTED NOV. 26, 1907.

W. W. GORDON.

MEANS FOR OPERATING COCKS OR VALVES.

APPLICATION FILED NOV. 2, 1906.

2 SHEETS—SHEET 1.

Fig. 1.

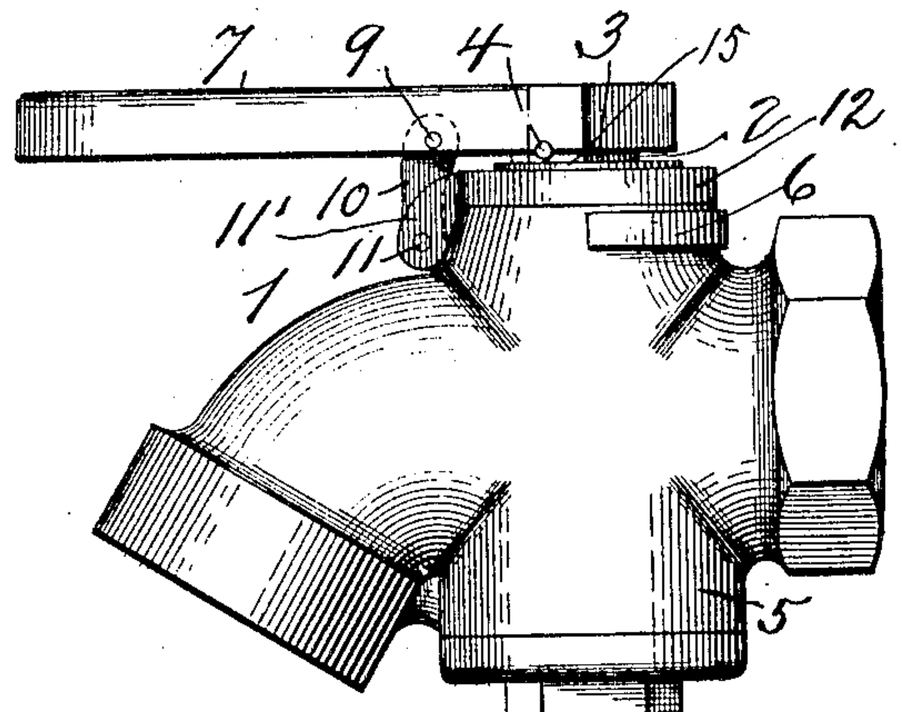


Fig. 2.

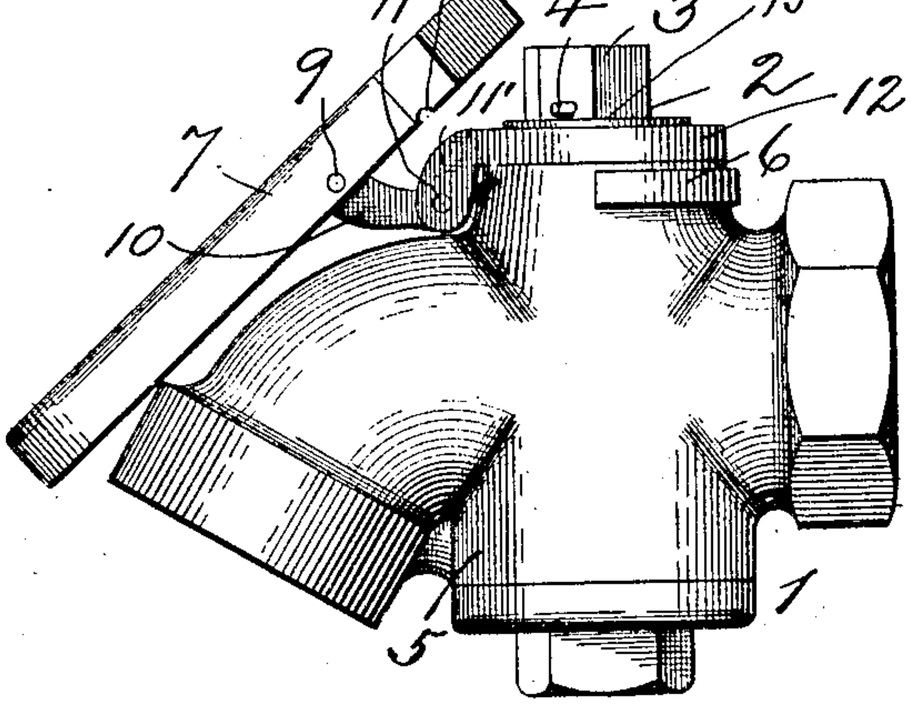
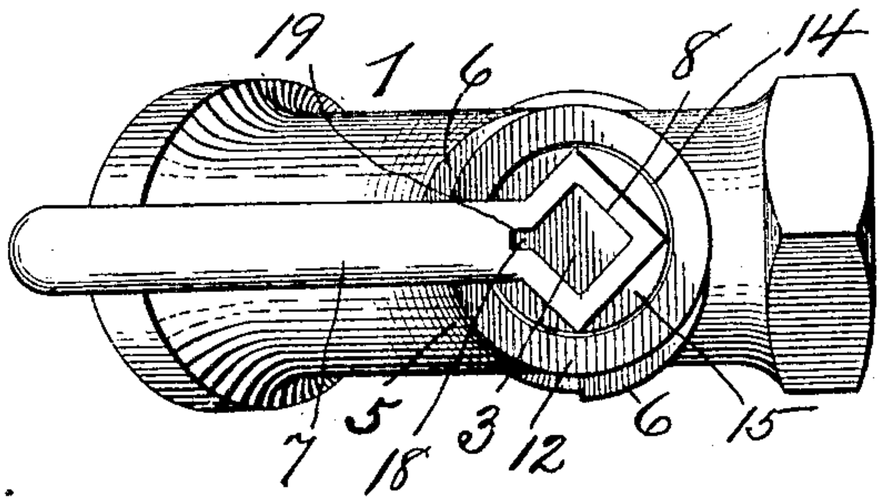


Fig. 3.



Witnesses:

A. B. Light.

C. M. Boulter.

Inventor:

William W. Gordon

By Wm. C. Boulter,

Attorney.

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Fig. 4.

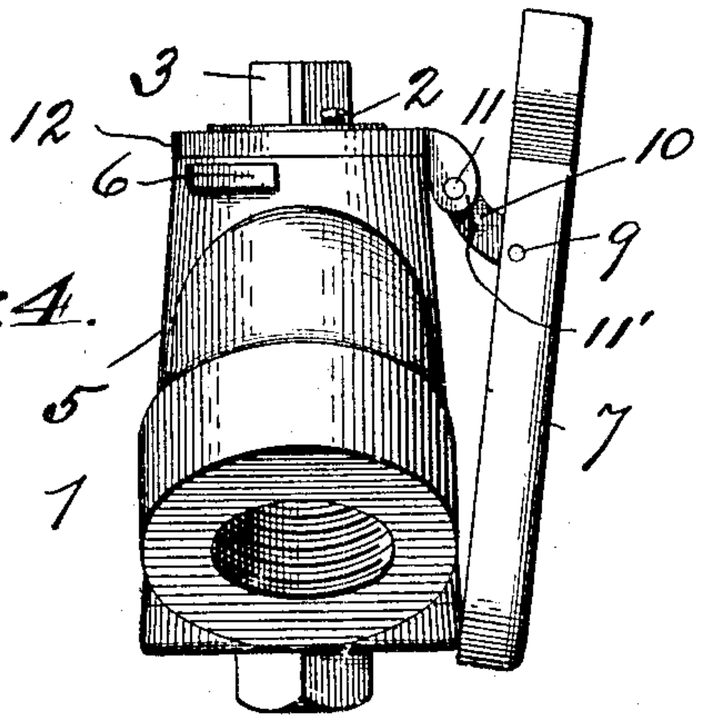


Fig. 5.

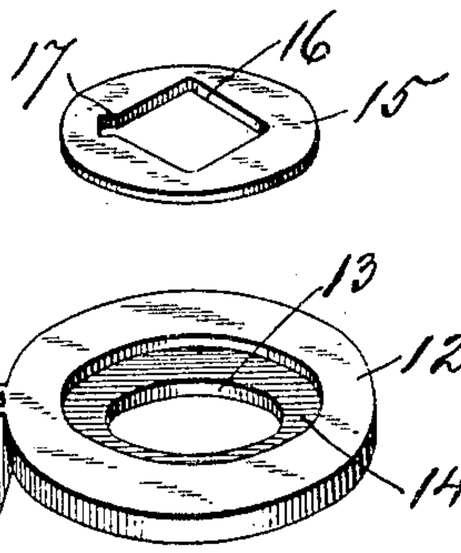
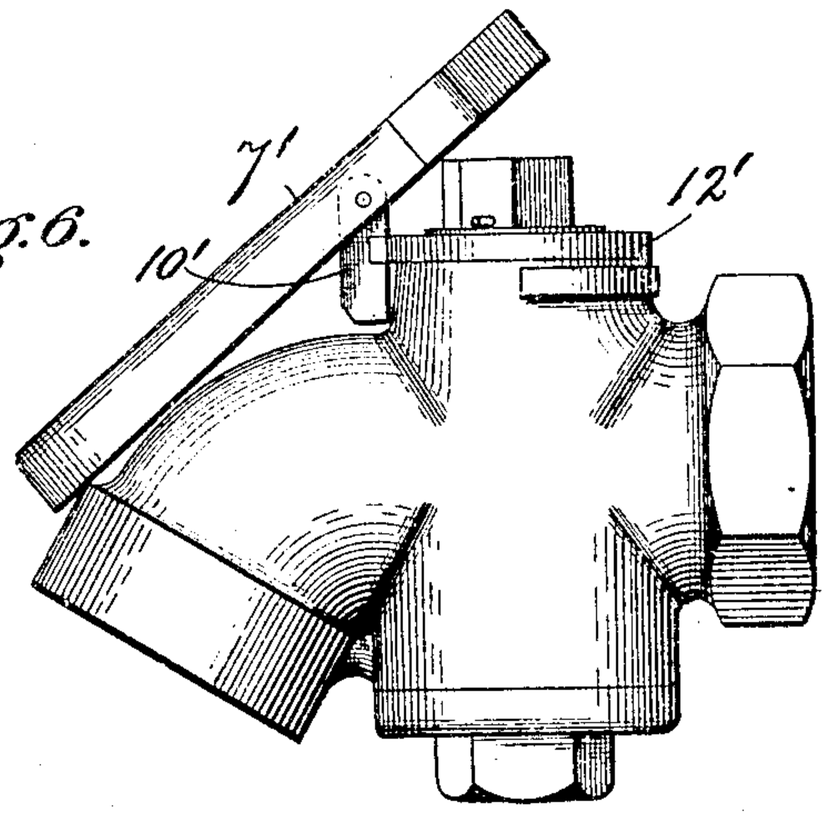


Fig. 6.



Witnesses:

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Inventor:

William W. Gordon.

By Wm. C. Boulter.

Attorney

UNITED STATES PATENT OFFICE.

WILLIAM W. GORDON, OF WASHINGTON, DISTRICT OF COLUMBIA.

MEANS FOR OPERATING COCKS OR VALVES.

No. 871,869. Specification of Letters Patent. Patented Nov. 26, 1907.

Application filed November 2, 1906. Serial No. 341,716.

To all whom it may concern:

Be it known that I, WILLIAM W. GORDON, citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Means for Operating Cocks or Valves, of which the following is a specification.

My invention relates to means for operating cocks or valves for controlling the flow of fluid through the pipes or hose in which said cocks or valves are located and it relates particularly to an operating lever or handle which is adapted to engage with the plug of a cock or valve when it is desired to rotate the latter and to free itself automatically from engagement with the plug when released by the hand so that said lever or handle will be normally out of contact or engagement with the plug of the cock or valve for a purpose hereinafter set forth.

Among the objects in view is to provide an operating lever or handle for a cock or valve which shall be so constructed and arranged that it will automatically free itself from engagement with the plug of the cock or valve when it is released by the hand and remain out of engagement until again engaged with the same by the operator whereby any accidental turning of the cock or valve due to any object striking against the lever or handle will be avoided.

A further object of my invention is to provide an operating lever or handle adapted to be fitted to practically any existing style of rotatable cock or valve without necessitating any alteration in the construction of the latter.

The invention consists in the novel construction and arrangement of the operating means as hereinafter fully described, illustrated in the drawing and pointed out in the appended claims.

In the drawings:—Figure 1 is a side elevation of a cock or valve with my invention applied thereto, showing the operating lever or handle in the position which it assumes when engaged with the cock or valve for turning the same, the cock or valve being here in its open position. Fig. 2 is a view similar to Fig. 1, showing the operating lever or handle in the position which it automatically assumes when released by the hand. Fig. 3 is a plan view of Fig. 1. Fig. 4 is a view taken at right angles to Fig. 2, but showing the parts in the position which they assume after the cock or valve has been given a quarter turn to close the same and the lever or handle has been released by the hand. Fig. 5 is a perspective view of the apertured disk and collar. Fig. 6 is a view similar to Fig. 1 showing a slight modification in the manner of pivoting the operating lever or handle.

While my invention is applicable to practically any existing style of rotatable cock or valve as used in various classes of machinery for controlling the flow of fluid through pipes or hose, yet it is particularly intended for use with the angle cocks or valves at present used in the line of air brake pipe of railway cars, as well as in steam and signaling pipes of such cars.

Heretofore the air brake pipes have usually been equipped with angle cocks or valves, one at each end of a railway car, for the purpose of cutting off the flow of air and preventing the escape thereof when the cars are uncoupled from each other, as for instance, when the said cars are being shifted for the making up of trains, and after the cars have been again coupled together, the cocks or valves are turned to again permit the flow of air past the cocks or valves and such cocks or valves have usually been provided with operating levers or handles which are locked in engagement with the same and constantly remain in such engagement. It has often happened that an operating lever or handle has become accidentally turned so as to entirely close the cock or valve in the pipe and cutting off the flow of air to all the cars of the train in rear of the one where said cock or valve is located and as the engineer has had no means of knowing that the said cock or valve has been accidentally turned, serious accidents have occurred, due to the failure of the air brakes to operate on those cars of the train in rear of the one provided with the said cock or valve.

The accidental turning of a cock or valve, as just described, has been due to the striking of some object, as for instance a safety chain or a piece of ballast during the movement of the train, against the lever or handle, which being in locked engagement with the cock or valve, causes the latter to be turned in a turning movement of the handle.

In my invention it is utterly impossible for a cock or valve to become accidentally turned since the operating lever or handle is entirely out of engagement with the cock or valve except at such times when it is purposely engaged with the said cock or valve and turning the same into the desired closed or open position.

In the accompanying drawings, 1 indicates an angle cock or valve such as is at present used with an air brake pipe, and 2 indicates the rotatable plug of said cock or valve arranged in the shell or casing 5 and having an angular projecting end 3 adapted to be engaged by an operating lever or handle.

18 indicates a projecting portion or teat on the end 3 of the plug.

4 indicates a pin removably seated in an aperture in the squared end of the plug of the cock or valve and heretofore provided for the purpose of maintaining an operating lever or handle in position upon the squared end of the plug.

The shell or casing 5 is provided with projecting portions or shoulders 6 forming abutments against which the operating lever or handle heretofore used has been adapted to strike, so as to limit the turning movements of the lever or handle and consequently those of the plug of the cock or valve.

The parts so far described are identical with those used in the present regular air brake equipment of railway cars.

The operating means which I employ and constituting my invention, comprise a lever or handle 7, one end of which is provided with an aperture 8 of a configuration corresponding to that of the projecting end 3 of the plug of the cock or valve and adapted to fit loosely over said end. I provide a pivotal connection for the lever or handle and so locate the pivotal point that one end or portion of the handle will overbalance the opposite end or portion which is adapted to engage the plug of the cock or valve so that the handle will always automatically tilt into a position to free its plug-engaging end from engagement with the said plug, as represented in Figs. 2 & 4. In order to obtain the described effect, I have shown the lever or handle as being pivoted at the point 9, said point being somewhat adjacent to the engaging end of the handle, but it is obvious that the same effect could be produced by locating the pivotal point at the center of the length of the handle and weighting the outer end of said handle to cause it to tilt as described.

10 indicates a short arm or link to which the lever or handle is pivoted at 9 and the opposite end of said link is pivotally connected at 11 with ears 11′ on a collar 12 having an annular aperture 13 through which loosely passes the plug of the cock, and said collar is also provided with an annular seat 14 within which fits an annular plate or disk 15 having an aperture 16 of a configuration corresponding to that of the projecting end of the plug, said end fitting within the said aperture. When the collar and disk have been placed in position over the projecting end of the plug, the pin 4 is inserted in position and thus retains said collar and disk in place.

The aperture on the disk has a portion 17 within which engages the portion 18 on the projecting end of the plug while the aperture in the operating handle is provided with a similar portion 19 to receive the said portion 18. The portion 18 is in alinement with the bore in the plug and serves therefore to indicate the position of said bore and by the provision of said portion and the portions 17 and 19 in the disk and handle, the latter can only be placed over the projecting end of the plug when the said portion 18 registers with the portion 19.

The lower edge of the operating lever or handle is provided with notches 20 within which seat the ends of the pin 4 when the handle is in the position indicated in Fig. 1. The notches 20 could, however, be omitted if desired. In the turning movements of the handle to effect corresponding movements of the plug of the cock, the collar 12 will of course be rotated and the ears 11′ by abutting against the shoulders 6 limit the turning movement of handle and plug. When one of the ears lies against a shoulder as indicated in Fig. 1, the cock or valve is in its open position while when the other ear lies against the other shoulder, as indicated in Fig. 4, the cock or valve will be in its closed position.

In Fig. 6 I have shown a slight modification wherein the link 10′ to which the operating handle 7′ is pivoted, is rigidly connected with or integral with the collar 12, instead of being pivotally connected with said collar as in the first described construction. While I have shown two different ways of pivoting the lever, yet it will be understood that any other arrangement might be adopted without departing from the scope of my invention, the only essential requirement being that the lever shall have such pivotal connection that it will always automatically tilt to free its engaging-end from engagement with the plug of the cock or valve when said handle has been released by the hand.

I would state that by the use of the collar 12, the same acts as a dust guard to prevent dust and dirt finding entrance to within the valve casing around the plug therein. Also by the provision of the disk and collar and the pin, which latter, when in position lies against or practically against the upper face of the disk, the cock or valve will be prevented from being accidentally moved down-

wardly by contact with any object which would allow the escape of the fluid around the seating of the plug of the cock or valve.

What I claim is:—

1. Means for operating a cock comprising a collar having an aperture for the passage of the plug of the cock and also having an annular seat in one of its faces, an annular disk adapted to fit within said seat and having an angular aperture through which the plug is adapted to extend, said aperture having a configuration corresponding to that of the plug of the cock, and an operating handle pivotally connected with the collar and having an angular opening at one end corresponding to that of the plug of the cock and adapted to fit over the said plug when the handle is raised into operative position, and said handle being adapted to automatically drop when released by the hand to cause its plug-engaging end to free the plug.

2. The combination with a cock and its plug having an angular projecting end, of a collar seated upon the shell of the cock and having an aperture through which the said end of the plug extends and also having an annular seat in its upper face, an annular disk fitting within said seat and having an aperture through which extends the said projecting end of the plug, said aperture having a configuration corresponding to that of the said projecting end, and a handle pivotally connected with the said collar and having an opening of a configuration corresponding to that of the projecting end of the plug and into which opening in the handle the projecting end of the plug is adapted to project when the handle is raised into operative position, said handle being adapted to automatically drop when released by the hand to cause its plug-engaging end to free the plug.

3. The combination with a cock and its plug having an angular projecting end, of a collar seated upon the shell of the cock and having an aperture through which the said end of the plug extends and also having an annular seat in its upper face, an annular disk fitting within said seat and having an aperture through which extends the said projecting end of the plug, said aperture having a configuration corresponding to that of the said projecting end, and a handle pivotally connected with the said collar and having an opening of a configuration corresponding to that of the projecting end of the plug and into which opening in the handle the projecting end of the plug is adapted to project when the handle is raised into operative position, said handle being adapted to automatically drop when released by the hand to cause its plug-engaging end to free the plug, and a pin removably seated in an aperture in the projecting end of the plug above the annular disk to maintain the latter and the collar in position.

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

WILLIAM W. GORDON.

Witnesses:

WM. E. BOULTER,

C. M. BOULTER.