J. PURCELL.

WATER GLASS GAGE.

APPLICATION FILED FEB. 27, 1913.

1,166,631.

Patented Jan. 4, 1916.

Fig. 1

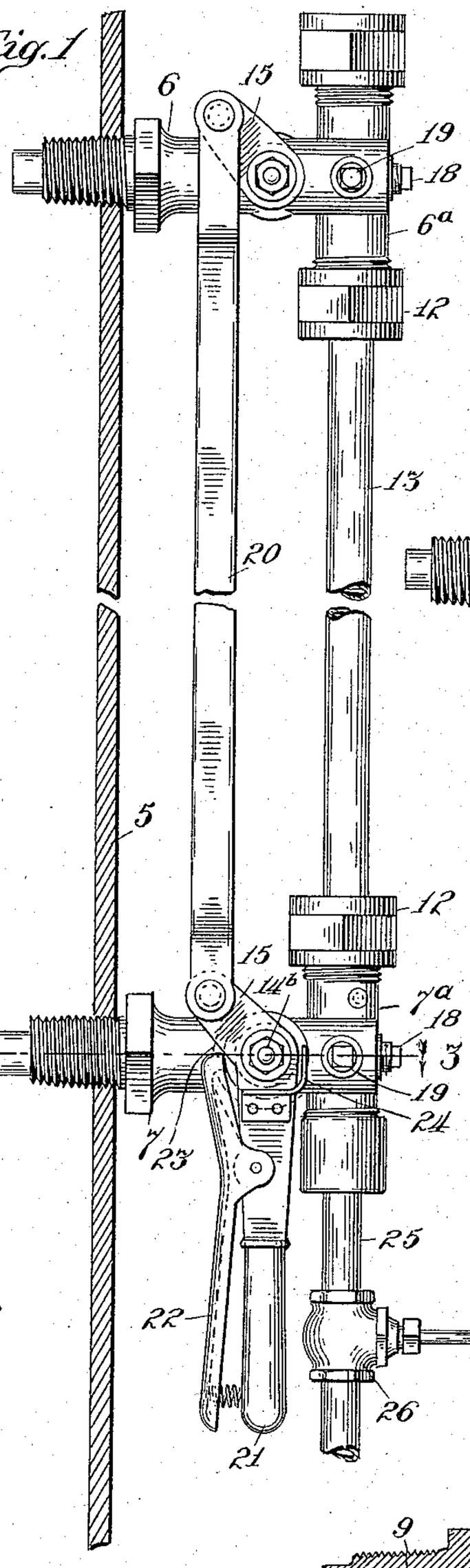


Fig. 2.

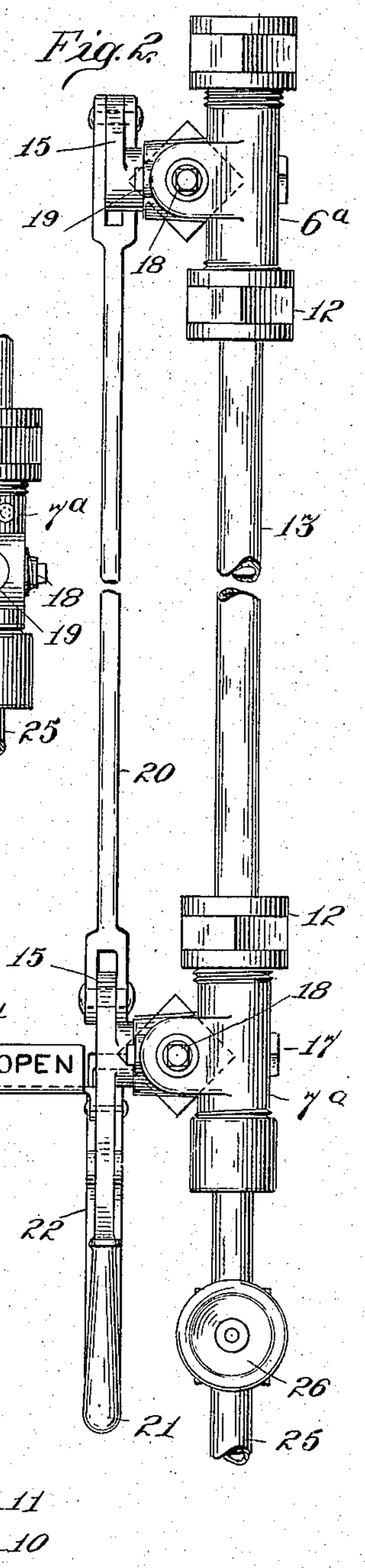


Fig. 4

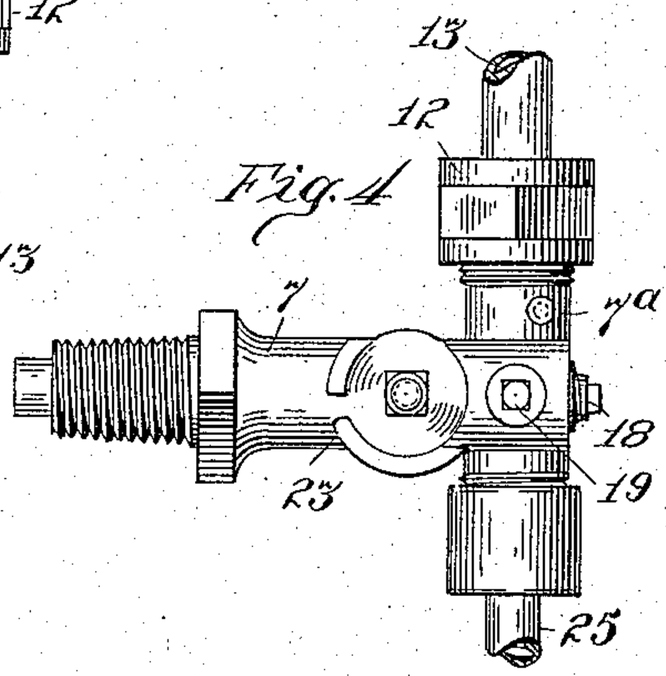
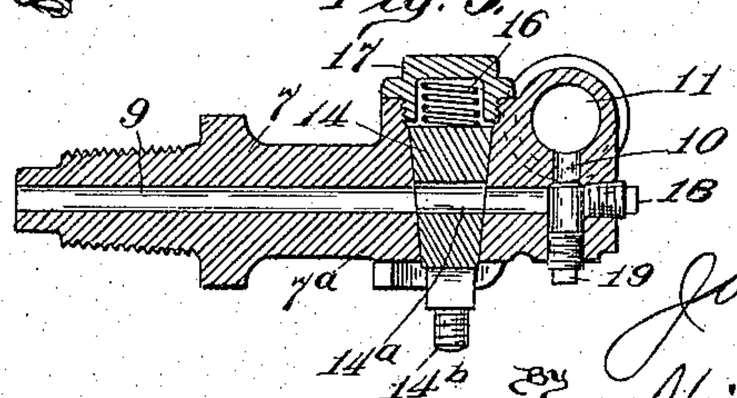


Fig. 3.



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WATER-GLASS GAGE.

1,166,631. Specification of Letters Patent. Patented Jan. 4, 1916.

Application filed February 27, 1913. Serial No. 751,003.

To all whom it may concern:

Be it known that I, JOHN PURCELL, a citizen of the United States, and resident of Topeka, in the county of Shawnee and State of Kansas, have invented certain new and useful Improvements in Water-Glass Gages, of which the following is a description, reference being had to the accompanying drawing, which forms a part of my specification.

My invention relates to water glass gages more especially intended for use on locomotive, stationary, and marine boilers; having for its object the provision of means whereby the water and steam in the boiler to which the same is attached may be quickly and positively shut off from the water glass, and whereby a positive operation of the gage will be obtained through the simultaneous and instant operation of the cocks located at opposite ends of the water glass.

The invention is applicable to all types of water glass gages which have an upper and lower connection with the boiler by means of suitable cocks.

The purpose of my invention is to overcome the difficulties heretofore encountered where independently operated top and bottom water glass cocks were employed, due to the fact that with such previous constructions, the two cocks very frequently were not properly operated, either one cock being closed while the other was opened, or the cocks were not entirely or fully opened, thus resulting in serious conditions, the occurrence of which is not possible where my invention is employed, as a single action or movement will result in the positive and similar operation of both cocks, as will be more fully understood from the following detailed description.

In the drawing:—Figure 1 is a side elevation of my invention shown applied to the outer wall or shell of a boiler. Fig. 2 is a front view thereof. Fig. 3 is a longitudinal sectional view of one of the cocks, taken on line 3—3 of Fig. 1, looking downwardly. Fig. 4 is a side elevation of the same or lower valve, with portions broken away and the operating member or lever removed.

In the exemplification of my invention as illustrated in the drawings, 5 represents the wall or shell of a boiler, provided with suitable openings into which are screwed the cocks 6 and 7; the lower cock 7 being arranged slightly above the crown sheet of the fire-box, which is indicated by reference numeral 8 in Fig. 1.

The two cocks 6 and 7 are substantially identical in construction, so as to permit them to be interchangeable through slight changes, and, therefore, a description of one cock will suffice for both.

The cocks 6 and 7 are provided with a longitudinal passage 9, see Fig. 3, which communicates by means of the passage 10 with the right angularly disposed passage 11 which extends through the body portions 6^a and 7^a of the respective cocks 6 and 7 and terminates in the enlarged portions 12 which receive the ends of the water glass 13. The glass 13 inserted in the oppositely presented portions 12 of the upper and lower cocks 6 and 7, provides a continuous passage for water or steam from the boiler through both top and bottom cocks 6 and 7.

The cocks are each provided with a plug valve 14 which is preferably tapered, as clearly shown in Fig. 3, and fitted into the cock with a ground joint. The plug valve 14 is provided with a passage 14^a, adapted to register with the longitudinal passage 9 so as to provide a continuous passage through the cock when the plug valve is in the position shown in Fig. 3. The passage 14^a in the valve 14 is preferably made slightly larger in diameter than the longitudinal passage 9, so as to allow for slight wear between valve 14 and its seat. The outer or free end of the plug valve 14 is preferably squared so as to permit it to be provided with an arm 15, keyed or otherwise secured thereto, whereby movement of the plug valve 14 is induced through movement of the arm 15. In the particular exemplification, the arm 15 is provided with a squared opening adapted to receive the squared end of plug valve 14, the extreme end whereof is threaded as shown at 14^b to receive a nut whereby the arm 15 is maintained in place.

The plug valve 14 is maintained on its seat by a spring 16 which bears on the enlarged end of the plug valve and is seated within the hollow cap 17, which latter is shown screwed into the opening in the body

of the cock as very clearly shown in Fig. 3. It is evident from this construction that as the plug valve 14 and its seat become slightly worn, a tight fit will still be maintained through the action of spring 16; and in view of the fact that passage 14ª, through the plug valve 14, is made slightly larger than longitudinal passage 9, a free flow will at all times be permitted even though the valve and seat become somewhat worn.

The outer ends of the cocks are each provided with an opening or hole in line with the longitudinal passage 9 and practically constitute a continuation thereof. This hole is provided with a suitable screw threaded plug 18 so as to prevent the escape of water or steam to the outside of the cock. The opening, closed by the screw plug 18, is arranged as shown and described, in order that a wire or other suitable instrument may be inserted therethrough and into longitudinal passage 9 so as to permit the passage to be cleaned of any scale, corrosion, or other obstruction, which would tend to impede the flow of water or steam therethrough. The right angularly extended port or passage 10,—and which also extends to the outer surface of the cock,—has its outer end closed by a suitable screw plug or cap as shown at 19 in Fig. 3. It is evident from the construction shown and described that the cocks may be readily cleaned from time to time so that a free flow of water or steam may constantly be obtained.

In the construction as illustrated, the cocks 6 and 7 are so arranged that the plug valves 14 of the respective cocks, will be disposed in a horizontal direction so as to permit of their rotation vertically through the action of the arms 15, the outer ends whereof are pivotally secured to the connecting link or rod 20, so that the plug valves 14 of both cocks 6 and 7 will be compelled to operate in unison.

In the exemplification, the outer end of plug valve 14 of cock 7 is provided with a suitable handle or lever 21, secured thereto so as to control the operation of the valve; and this handle or lever 21 is preferably shown provided with a spring controlled latch 22, pivotally secured to the handle and arranged to engage in notches placed at predetermined points in the enlarged portion or rib 23, on the body portion of the cock, as clearly shown in Figs. 3 and 4. It is evident from the construction shown and described that handle or lever 21 cannot be moved without releasing latch 22 from engagement with the notch, thus preventing the accidental closing or any operation of handle or lever 21 by jars or other outside causes. It is also apparent that unless handle or lever 21 is so rotated as to allow the latch 22 to engage with a notch in the rib of the cock, it will immediately become evident that the valves of the cocks have been improperly rotated.

As a further means of indicating the condition of both cocks 6 and 7, I prefer to provide the indicator 24, which may consist of an angular plate properly secured to the handle or lever 21 so as to oscillate therewith; the one side or surface of indicator 24 being provided with the inscription or word "Open", as shown in Fig. 2, while the other side or surface, extending at a proper angle to the first mentioned surface, may be provided with the word "Closed".

The lower cock 7 is also preferably provided with a drain or waste pipe 25, passage wherethrough is controlled by a suitable valve as at 26.

It is apparent from the construction shown and described that immediate and simultaneous operation of both cocks 6 and 7 may be obtained through the proper movement of lever 21; the simultaneous action being obtained by means of the connecting link or bar 20 and the arms 15 connected to the ends of both valves 14 of both cocks 6 and 7.

Alterations may be made, without, however, departing from the spirit of my invention, and I do not wish to be understood, therefore, as limiting myself to the exact construction shown and described.

What I claim is:—

1. A water glass gage for boilers, comprising a pair of cocks spaced apart and arranged one above the other, a rotatable plug-valve extending transversely through each of said cocks, members secured to the outer ends of said valves, a link pivotally connected to the free end of each member whereby movement of one valve will be imparted to the other, a lever connected with one of said valves, a spring-controlled latch-member secured to said lever whereby the latter may be locked in its adjusted position, and means mounted on said lever whereby the position of the valves may be determined.

2. A water glass gage for boilers, comprising a pair of cocks spaced apart, one above the other, the lower cock being provided with circumferentially arranged stops or notches, both of said cocks being provided with longitudinal passages extending therethrough, while the outer ends of the cocks are provided with off-set passages disposed perpendicular to the longitudinal passages and with transversely disposed passages for establishing communication between the longitudinal and the perpendicular passages, removable means for closing the outer ends of the longitudinal and transverse passages, a rotatable tapered plug valve in each of said cocks arranged transversely of the longitudinal passages and each having an opening of greater diameter than the longitudinal opening with which it is adapted to register, members secured to the outer ends

of the valve, a link pivotally connected to the free end of each member whereby movement of one valve will be imparted to the other, a lever connected with one of said valves, a spring-controlled latch-member secured to said lever and adapted to engage said stops or notches on the lower cock whereby the lever is locked in its adjusted position, and means on said lever whereby the position of the valves may be determined.

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