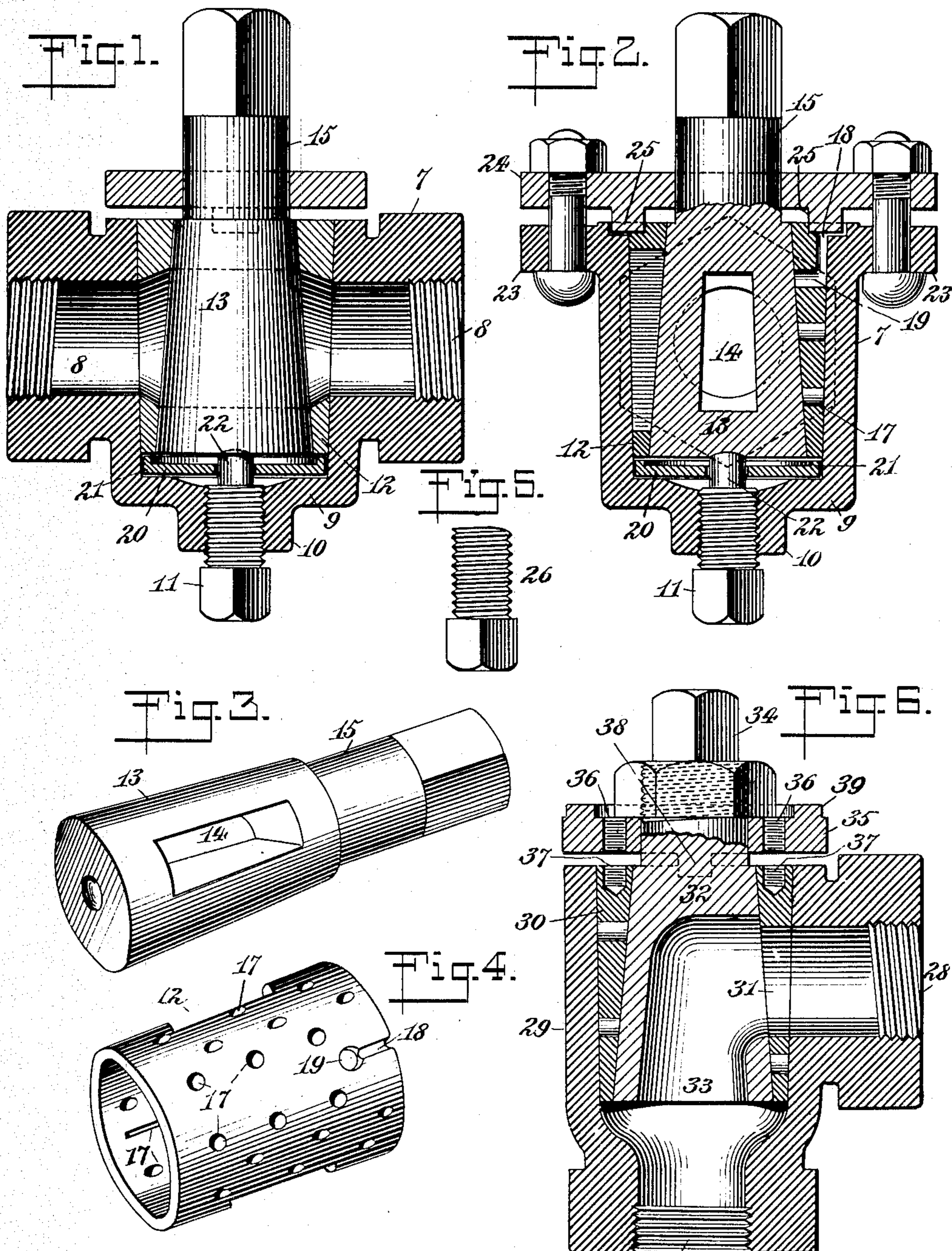


No. 860,217.

PATENTED JULY 16, 1907.

C. J. JACKSON.  
VALVE.

APPLICATION FILED JUNE 15, 1906.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

CHARLES J. JACKSON, OF PLAINFIELD, NEW JERSEY.

## VALVE.

No. 860,217.

Specification of Letters Patent.

Patented July 16, 1907.

Application filed June 15, 1905. Serial No. 265,324.

*To all whom it may concern:*

Be it known that I, CHARLES J. JACKSON, a citizen of the United States, and a resident of Plainfield, in the county of Union and State of New Jersey, have made and invented certain new and useful Improvements in Valves, of which the following is a specification.

My invention relates to an improvement in valves, and more particularly to that kind or character thereof generally known and referred to as a blow-off cock, adapted for use for boiler blow-off, water column blow-off, and which may also be employed between check and boiler, and between water column and boiler, the object being to provide a device of this character which shall be simple and economical in construction, effective in use, and wherein the plug may be easily and readily adjusted or tightened in the body or casing, or entirely removed therefrom.

With these and other ends in view, the invention consists in certain novel features of construction and combinations of parts, as will be hereinafter fully described and pointed out in the claims.

In the accompanying drawings Figures 1 and 2 are sectional views of my improved device. Fig. 3 is a view in perspective of the detached plug. Fig. 4 is a similar view of the bushing. Fig. 5 is a detached view of the screw employed for the purpose of removing the plug and bushing from the body. Fig. 6 is a sectional view showing my improvement as applied to an angle valve.

Referring to the drawings, 7 represents the casing or body of the valve, provided with inlet and outlet ports 8 and with a central chamber to contain the plug, the bottom 9 of said chamber being somewhat depressed and provided with a sleeve 10 into which is threaded the adjusting screw 11. The walls of this chamber slightly converge toward the bottom, in order that the bushing 12 contained therein may be easily and readily forced out of the same. This bushing 12, made in the form of a hollow truncated cone, and of any desired material, such as metal, vulcanized asbestos, etc., has its outer walls converging toward the lower end in conformity with the shape of the chamber in which it is contained, its inner surface converging towards its upper end, as clearly illustrated in Figs. 1, 2 and 6, it being materially thicker at its upper end than at its lower end.

In Fig. 3, I have illustrated in perspective the plug or valve proper 13, made in the form of a truncated cone, its lower end being of larger diameter than its upper end, and made with a valve opening 14 therein, a stem 15 extending outwardly from its upper or smaller end and having the extreme end thereof squared to fit a wrench or other tool, by means of which the same is turned in the casing to open or close the valve.

This plug is contained within the bushing 12, and nicely fitted therein to prevent the escape of steam between said plug and bushing, the taper of said plug corresponding to that of the inner surface of the bushing, the latter, however, being provided with a number of slits, holes or openings 17, if desired, for containing a lubricating substance or compound, such as graphite, grease or heavy oils, etc., and also if desired, with a groove or channel 18 leading from its upper edge to the opening 19, whereby oil or other lubricating substance may be supplied between the surfaces of said plug and bushing to insure the easy turning of the former within the latter.

Within the bottom of the chamber formed in the body is contained a plate or disk 20, provided on its edge with the upwardly extending flange 21, which when the parts are assembled, bears against the lower edge of the bushing 12, said plate or disk being also provided with a central opening for the passage of the restricted end 22 of the adjusting screw 11, the extreme end of which latter bears against the lower end of the plug 13.

On the upper end of the body or casing are formed the ears or lugs 23, to which is bolted the plate 24, the latter being provided with the lugs 25 adapted to bear upon the upper edge of the bushing 12 and tightly and securely hold the latter in its proper position within the body.

In assembling the parts, the plug 13 is inserted in the bushing 12, these two parts being then inserted within the body, the disk 20 having first been properly placed within the lower end of the chamber. The bushing is then forced down tightly in the body and the plate 24 bolted or otherwise secured in place, the lugs 25 thereon bearing on the bushing and preventing any movement of the latter. The screw 11 is then inserted in place and turned until its restricted end 22 bearing against the lower end of the plug, will force the latter up tightly in the bushing until the same becomes steam tight therein. By reason of the lubricating substance with which the perforations in the packing are filled, the plug may be easily and readily turned, to open and close the valve. If, however, it should become stuck, or wedged tightly within the bushing and rendered incapable of being turned therein, the screw 11 may be slightly turned outwardly, and by a slight tap of a hammer, wrench or other tool, on the end of the stem 15, it will be slightly forced downwardly in the bushing, readily yielding to the blow by reason of its cone-shape, whereupon it may be easily turned to open or close the same, the screw being subsequently turned up to hold the plug in its proper position.

When it is desired to take the valve apart, it is simply necessary to remove the plate 24, and substitute the screw 26, shown in Fig. 5, for the screw 11. The end of

this screw 26 will, when turned home, bear upon the disk or plate 20, and by forcing the same upwardly by means of the screw, will force the bushing outwardly from the body. It will be understood, of course, that in order to remove the bushing, it is necessary only to slightly start it outwardly by means of said screw, after which it may be easily and readily lifted out of the body by means of its flaring wall or surface.

In Fig. 6, I have shown my improvements as applied to an angle valve or cock, wherein 27-28 represent the inlet and outlet ports of the body or casing 29, the wall of the casing slightly converging toward the lower end, as in the case of the device above described. In the casing is inserted the bushing 30, also shaped and formed like that shown in Fig. 4, with the exception, of course, of the location of the port or opening 31. In this bushing 30, is contained the plug 32, provided with the angle port 33, and of the shape of a truncated cone, its lower end being larger than its upper end, the latter being provided with a stem, and squared at its extreme end 34.

To the casing is secured the plate 35, provided with threaded screw openings 36, registering with similar threaded openings 37 formed in the upper end of the bushing and adapted to receive screws (not shown), said plate being also provided with lugs 38 to bear upon the wall of the body or casing, and also upon the upper edge of the bushing 30, in order to hold the latter down tightly in place.

When it is desired to remove the bushing, the plate 35 of Fig. 6 is detached and reversed, whereupon the circumferential flange 39 formed on said plate, will bear upon the upper edge of the body or casing. By means of the screws (not shown), threaded in the openings 36 and 37, the bushing may be then slightly raised or started from its position in the casing 29, whereupon by removing the plate, it, said bushing, with its contained plug, may be readily lifted out of the body or casing.

It will be understood from the foregoing that my invention is exceedingly simple, and unlike the valves or cocks now commonly employed, it may be easily and readily taken apart when desired, is so constructed and arranged that the plug is capable of being easily and readily adjusted lengthwise in the bushing so as to render the same steam tight therein, and that there is but little or no danger of the same becoming stuck or tightly wedged in the bushing.

Having fully described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. A blow-off cock having in combination a body provided with inlet and outlet ports, a bushing contained

within said body and having the outer surface of its walls converging toward one end, means carried by the body adapted to bear against the larger end of the bushing to seat said bushing, a cone-shaped plug contained within the bushing having its outer surface converging oppositely to the outer surface of the bushing, means for moving the plug lengthwise and seating it in the bushing, and means adapted to engage the smaller end of the bushing to unseat the bushing.

2. In a valve, the combination of a casing having inlet and outlet ports and an intermediate chamber, said chamber having converging walls, a bushing having its outer surface converging to fit said chamber, said bushing having its inner surface converging oppositely to the outer surface, a cone-shaped plug seated in the bushing, means adapted to bear against the larger end of the plug to seat the plug in the bushing, a plate within the casing having a peripheral edge adapted to engage the smaller end of the bushing to unseat said bushing, and a screw adapted to operate through the casing to cause the plate to bear against the bushing.

3. In a blow-off cock, the combination with a body provided with inlet and outlet ports, of a bushing contained within said body and having the outer surface of its walls converging toward the lower end, of means contained within said body and adapted to bear against the lower smaller end of said bushing for raising the latter, an adjustable cone-shaped plug contained within said bushing, and a plate secured to said body for holding said bushing in position, substantially as described.

4. In a blow-off cock, the combination with a body provided with inlet and outlet ports, of a bushing contained within said body, the inner surface of the walls of which converges towards the upper end thereof, a cone-shaped plug contained within said bushing, its upper smaller end being provided with a stem, a plate secured to said body and bearing against said bushing for holding the latter in position in said body, and a screw threaded into the lower end of said body and having its end bearing against the lower larger end of said plug, whereby the latter may be tightened in said bushing, substantially as described.

5. In a valve, the combination with a casing provided with inlet and outlet ports, of a bushing within the casing having inner and outer walls tapered in opposite directions whereby the bushing is made thicker at one end than at the other, said bushing having openings in its walls filled with a lubricant, a cone-shaped plug fitting within the bushing, and means for securing the bushing in position in the casing.

6. In a valve, the combination with a casing provided with inlet and outlet ports, of a cone-shaped bushing fitting the casing and having inner walls tapered substantially opposite to the external taper of the bushing, said bushing having an opening through its sides and a groove or channel leading from its upper edge to said opening.

Signed at New York, borough of Manhattan, in the county of New York, and State of New York, this 14th day of June, A. D. 1905.

CHARLES J. JACKSON.

Witnesses:

GEORGE COOK,  
M. VAN NORTWICK.