April 26, 1938. J. B. COLE 2,115,195

SAFETY OUTLET DEVICE

Filed Feb. 16, 1937

FIG. 1.

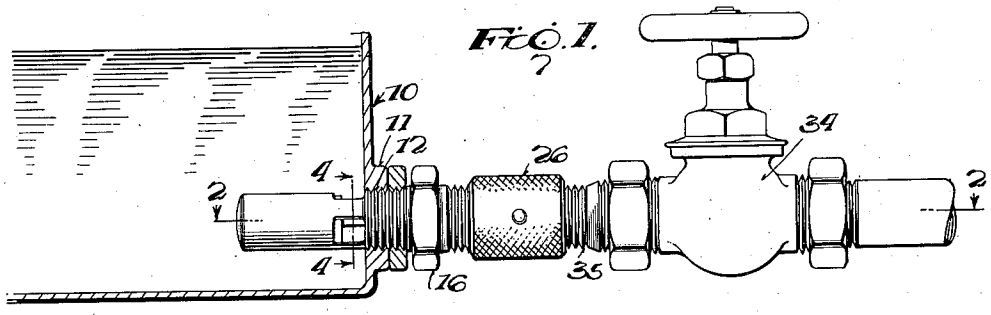


FIG. 2.

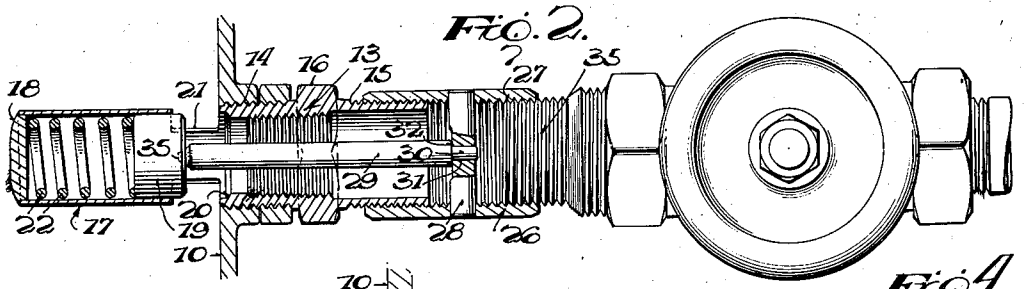


FIG. 3.

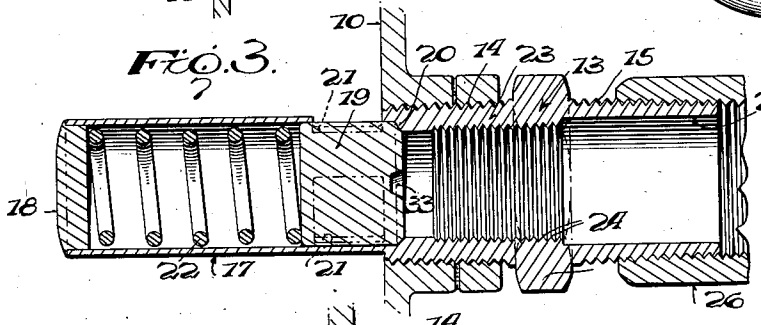
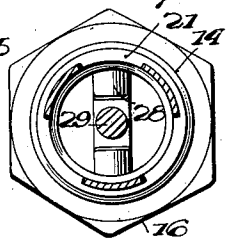


FIG. 4.



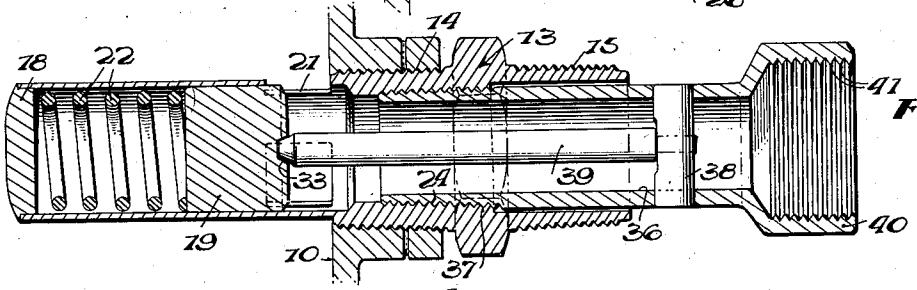


FIG. 5.

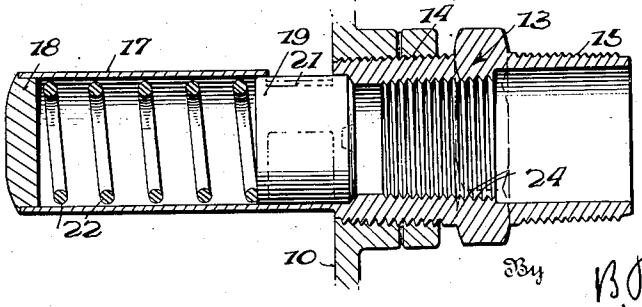


FIG. 6.

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UNITED STATES PATENT OFFICE

2,115,195

SAFETY OUTLET DEVICE

John B. Cole, Baltimore, Md.

Application February 16, 1937, Serial No. 126,036

1 Claim. (Cl. 284—14)

My invention is a safety outlet device for controlling the withdrawal of fluids.

An important object of the invention is to provide a device of the above mentioned character, a plurality of which may be connected with or installed upon a liquid container, at desired points, and will normally prevent the escape of the fluid, but which may be used with valve or valves, to permit of the withdrawal of the fluid at selected points.

A further object of the invention is to provide a device of the above mentioned character, constituting a safety device, to automatically cut off the flow of the fluid if the valve or coupling carried thereby should become broken or injured.

Another object of the invention is to provide a device of the above mentioned character, having a spring pressed valve body automatically closing in case of improper escape of fluid, with the operating parts properly enclosed or housed to insure proper operation.

A further object of the invention is to provide a device of the above mentioned character so constructed that the coupling or valve is securely attached to the same before the valve body is unseated to permit of escape of the fluid.

A further object of the invention is to provide a device for unseating the valve body which is also adapted to serve as the usual coupling for connection with the valve casing.

Other objects and advantages of the invention will be apparent during the course of the following description.

In the accompanying drawing forming a part of this application and in which like numerals are employed to designate like parts throughout the same,

Figure 1 is a side elevation of a device embodying my invention showing the same attached to a globe valve,

Figure 2 is a horizontal section taken on line 2—2 of Figure 1,

Figure 3 is a similar view showing the coupling broken away and the valve element of the safety device closed,

Figure 4 is a transverse section taken on line 4—4 of Figure 1,

Figure 5 is a longitudinal section through the safety device, showing an internally engaging key for unseating the valve element, and,

Figure 6 is a horizontal section through the safety device, showing the same used as an attachment plug.

In the drawing, wherein for the purpose of illustration is shown a preferred embodiment of my invention, the numeral 10 designates a tank or receptacle for holding a fluid, gas or liquid, which may or may not be under pressure exceeding atmospheric pressure. This tank is provided with a boss 11, having a screw-threaded opening 12, as shown.

My safety coupling device comprises a tubular body portion 13, having exterior screw-threads 14 and 15, with a polygonal intermediate portion 16, whereby the body portion may be readily turned by a wrench or suitable tool. Formed integral with the body portion 13 is a tubular housing 17, of reduced diameter, so that its periphery terminates inwardly of the base of the screw-threads 14. This tubular housing has its inner or forward end closed by a cap or end 18, which may be secured in place by any suitable means, such as welding or the like, to provide a fluid tight joint. Having a sliding fit within the tubular housing is a cylindrical valve body 19, to engage the valve seat 20, and to cover openings 21 formed in the periphery of the housing 17. This valve body 19 is moved toward its seat by a suitably stiff compressible coil spring 22. The cap 18 is placed in position after the valve body 19 and spring 22 have been introduced into the tubular housing. It is thus seen that the tubular housing encloses and protects the spring 22, and the major portion of the valve body 19 when it is in the open position, and the valve seat 20 is also protected to a considerable extent. The valve seat 20 is arranged slightly in advance of the adjacent ends of the openings 21, and the valve body 19 will effectively cut off the supply of fluid by engaging the valve seat 20 and completely closing the openings 21 shortly before the valve seat is engaged. Should the valve body not accurately engage its valve seat, due to deposits or the like thereon, the flow of the fluid would be promptly cut off by the closing of the openings 21.

The body portion 13 is provided with an inwardly radially projecting portion 23, having internal screw-threads 24. This internal screw-threaded portion extends inwardly beyond the smooth bore 25, as shown, for a reason to be described. The valve seat 20 is spaced from the ends of the screw-threads 24, as shown.

The numeral 26 designates a destructible coupling, formed of metal and having internal screw-threads 27, preferably extending throughout its entire length. One end of this coupling is adapted to be screwed upon the exterior screw-threads 15 of the body portion 13. Arranged within the coupling 26 and spaced from

its ends is a diametrically extending bridge or bar 28, rigidly attached thereto by any suitable means and this bridge or bar carries an elongated stem 29. This stem is rigidly attached to the bridge or bar 28, and the connection is preferably detachable, which is effected by having a reduced extension 30 of the stem and enter an opening 31 formed in the bridge or bar 28, affording a stop shoulder 32. The stem 29 is supported concentrically with the body portion 13 and is arranged to engage within a recess or depression 33 formed in the end of the valve body 19. The coupling 26 screws upon the screw-threaded portion 15 and the bridge or bar 28 is spaced a suitable distance from the attaching end of the coupling 28 so that the attaching end will securely engage with the screw-threaded portion 15 for two or more turns of threads and therefore cannot become accidentally separated from the body portion 13, before the stem 29 is moved forwardly sufficiently to shift the valve body 19 from its seat. This is an important safety factor in applying the coupling 26 to the body portion 13. The coupling 26 is destructible, and is preferably formed of metal, and by destructibility is meant that the coupling 26 will more readily break when struck a blow than the body portion 13, or pipe or valve to be connected with the outer end of the coupling, or the coupling may be destructible in the sense that it may be formed of a fusible metal, which will melt when subjected to undue heat. The coupling 26 is of course sufficiently strong to answer its normal working requirements.

The numeral 34 designates a valve, such as a globe valve, including the casing having an externally threaded nipple 35, to engage within the coupling 26, as shown. This valve may be directly connected with the coupling or it may be connected with the coupling through the medium of section of pipe, if desired.

If the body portion 13 should possibly be broken off forwardly of the screw-threads 15, then the coupling 26 or a similar coupling could not be employed to unseat the valve body 19. To take care of this situation, I provide an internal tubular coupling-key 36, of a smaller diameter than the bore 25 and having a reduced externally screw-threaded portion 37 to engage with the internal screw-threads 24. This tubular coupling-key has a transverse bridge or bar 38, corresponding to the bar 28 and carrying a stem 39 corresponding to the stem 29. The forward end of the coupling-key 36 is so spaced from the forward end of the stem 39 that the threads 37 and 24 will engage for two or more turns before the stem 39 unseats the valve body 19, thus insuring that the tubular coupling-key 36 will be securely attached to the body portion 13 before unseating the valve body. At its rear end, the tubular coupling-key has a diametrically enlarged portion 40, having an internal diameter corresponding to that of the coupling 26, and having internal threads 41. A globe valve similar to the globe valve 34 may be attached to the portion 40 in the same manner as attached to the coupling 26.

In use, the safety-coupling-device may be applied to the tank 10, as shown in Figure 1 and when thus applied the valve body 19 will be held seated by the spring 22, as clearly shown in Figures 3 and 6. Any suitable number of these safety-coupling-devices may thus be applied to a tank or the like, thus enabling the fluid to be withdrawn from various points, as desired. When it is desired to apply a globe valve or the like to the safety-coupling-device to permit of the proper withdrawal of the fluid, the coupling 26 is first applied to the nipple 35 of the globe valve 34, and this coupling is then screwed upon the screw-threads 15. The coupling carries stem 29, and the coupling 26 will engage the screw-threads 15 for two or more turns of the threads, thus assuring secure attachment between the coupling and body portion 13, before the stem 29 unseats the valve body 19. By completely screwing up the coupling 26 the valve body 19 is moved forwardly sufficiently to uncover the openings 21 in whole or in part, to permit of the discharge of the fluid, upon the manipulation of the globe valve 34. Should it be desired to install a new globe valve 34, the globe valve and coupling 26 are turned as a unit to unscrew the coupling until the valve body 19 is seated. The coupling 26 may now be separated from the globe valve with or without moving the coupling from the body portion 13. If the coupling remains upon the body portion 13 it may be employed to unseat the valve 19, if desired. With the parts assembled as shown in Figure 2 and the valve body 19 open, should the globe valve and associated elements be struck a severe blow, the destructible coupling 26 may break off, as shown in Figure 3, which would normally result in the improper escape of the fluid. However, should this occur, the stem 29 would then be unsupported and the spring 22 would immediately seat the valve body 19, thus automatically cutting off the escape of the fluid. Should the valve body 26 be made of fusible metal and fuse due to intense heat, as upon the outbreak of a fire, the valve body 19 would automatically close, thus preventing the improper escape of the fluid. Should the body portion 13 be broken off inwardly of the screw-threads 27 or the polygonal portion 16, the valve body 19 would automatically close, and this valve body cannot then be unseated by the use of the coupling 26 and associated elements. The tubular coupling-key 36 would then be employed which would engage the internal screw-threads 24 which are arranged in advance of the screw-threads 27, as shown. The valve body 19 may be unseated by the tubular coupling key which may or may not carry a globe valve.

In Figure 6, the safety coupling device is shown separated from the coupling 26 and globe valve. This shows the device as applied in place upon any receptacle or container, and will constitute means whereby a pipe or valve may be connected with the container.

The safety coupling device may be applied to any receptacles or containers holding a fluid or gas, which may or may not be under pressure in excess of atmospheric pressure. The same may be used in connection with the gauge cocks on a steam boiler, upon radiators, and various other tanks and receptacles.

It is to be understood that the forms of my invention herein shown and described are to be taken as preferred examples of the same and the various changes in the size, shape, and arrangement of parts, may be resorted to without departing from the spirit of my invention or the scope of the subjoined claim.

Having thus described my invention, what I claim and desire to protect by Letters Patent is:

A temporary means for coupling a pipe and a valve plug including a tubular body portion and automatically seating valve body, said means comprising a tubular coupling-key having means for connection with the pipe and being of less

diameter than the tubular body portion and adapted to have threaded engagement with the interior of the tubular body portion of the plug near the inner end of the tubular body portion, and a valve opening stem engaging the valve body and attached to the tubular coupling-key outwardly of the tubular body portion of the plug whereby if the tubular coupling-key was broken off exteriorly of said tubular body portion the valve body will automatically close and the flow of liquid from the receptacle prevented.

JOHN B. COLE.