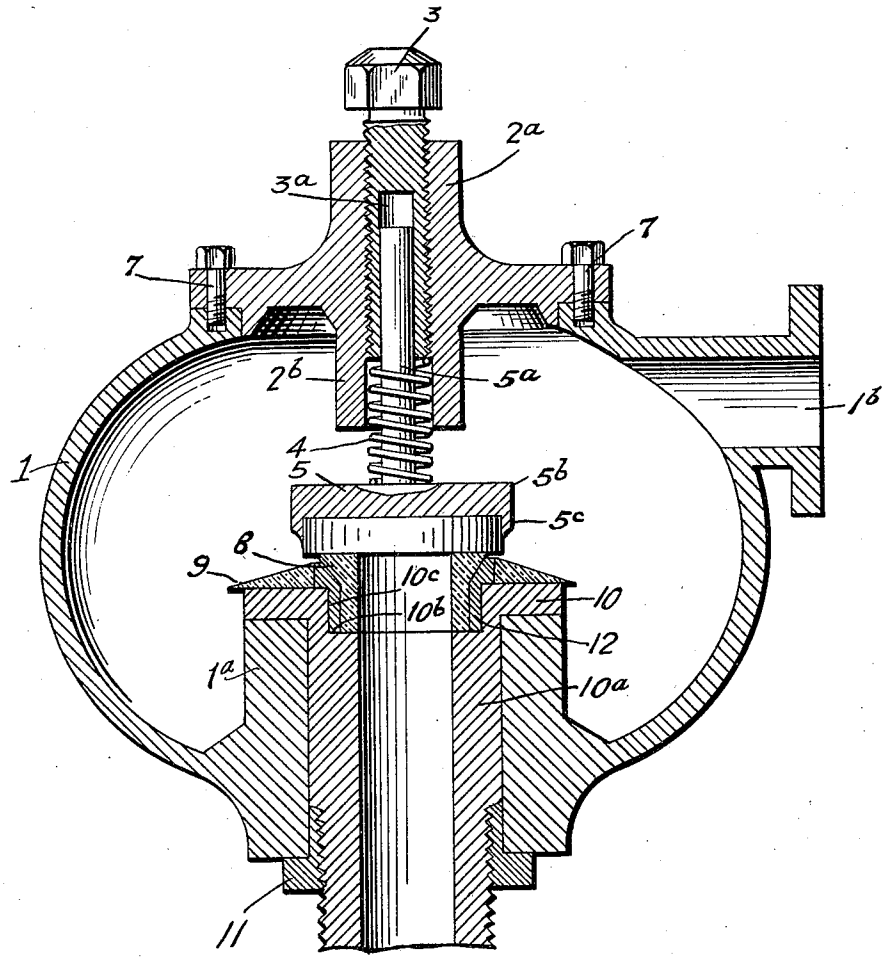
Dec. 6, 1927. 1,651,778

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SLIP PUMP OVERFLOW VALVE

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UNITED STATES PATENT OFFICE.

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SLIP-PUMP OVERFLOW VALVE.

Application filed January 28, 1925. Serial No. 5,352.

This invention relates to slip pump overflow valves, that is, to an improved valve for regulating the pressure within a slip pump while permitting such pump to overflow for relieving or regulating the pressure.

It is a well known fact that a continual or incessant impact of liquid against a valve-wall (as against other objects) tends to erode or wear away and weaken such wall and eventually the valve-wall will either burst or begin to leak, thus not only resulting in loss of time and money spent in renewing the valve, but also probably causing much damage to adjacent objects and persons, even to the extent of a loss of human life where the valve is used for or in connection with scalding liquid, acids, poisonous materials etc.

Therefore, one object of the invention is to provide an overflow valve which is attachable to a slip pump or other container and is provided with simple and very effective means to prevent the overflowing or discharging liquid from forcefully impinging or exerting impact against the wall of the valve-globe.

Another object is to provide a valve of this character with an improved form of non-corrodible valve-seat which is removable and replaceable, which is relatively hard and unyielding, and which is provided with moulded embracing and securing means to secure it in place during use.

Another object is to provide a non-corrodible and non-yielding protecting annulus around the valve seat which assists the moulded embracing and securing means in holding the valve-seat in place and is itself held in its protecting position by said moulded embracing and securing means.

Another object is to provide a valve of this character having a wide liquid-holding space around the valve-seat, so the liquid in said space acts as a shield to prevent the flowing liquid from forcefully inpinging on and eroding the wall of the valve-globe or liquid container.

Another object is to provide a valve of this character having its outlet a considerable distance above the valve-seat, so the inflowing liquid is introduced a considerable distance below the surface of the surrounding liquid which minimizes the movement of the liquid against the wall of the valve-globe.

Another object is to provide a valve of this character with a removable and replaceable bushing provided with means for securing the valve-globe to a pump or liquid container.

Other objects and important features are pointed out or implied in the following details of description in connection with the accompanying drawings in which:

The single figure of drawings is a central vertical sectional view.

In the drawings it is seen that the valve-globe 1 includes a hollow boss 1^a and an outlet 1^b, the latter being a considerable distance above the top of the boss 1^a and above the valve-seat (presently described) for a purpose or object previously explained.

The valve-globe is provided with a removable cover 2 which is provided with a tubular central part including an upwardly projecting end 2^a and a downwardly projecting end 2^b. The part 2^a is internally screw-threaded and has an adjusting screw 3 fitted therein, while the part 2^b has the upper end of a tensioning spring 4 seated therein. The valve-member 5 includes a guiding shank 5^a and a flanged disc 5^b, the latter having its annular flange 5^c fitted around a valve-closing disc 6 of rubber or other yielding material.

The cover 2 is secured in place by means of any appropriate number of screws or fasteners 7. The screw 3 is formed with a tubular lower end or provided with a guiding aperture 3^a in which the guiding shank 5^a is slidably fitted. The lower end of the screw 3 provides a seat against which the upper end of the spring 4 is seated, so when this screw is screwed up or down, it decreases or increases the tension or pressure of the spring 4, thereby determining the pressure of liquid or fluid necessary for raising the valve-members 5 and 6 from the valve-seat 8. This valve-seat is of porcelain or other non-yielding and non-corrodible material, and its lower part is a hollow cylinder, while its upper part is frusto-conical.

The frusto-conical part of the valve-seat 8 is surrounded by an annulus 9 of non-yielding and non-corrodible material such as porcelain and having an internal diameter greater than the outside diameter of the part of the valve-seat which it surrounds. It is seated on an annular flange 10 which is formed on the upper end of a tubular member or bushing 10^a and is seated on the upper end of the hollow boss 1^a. The member 10^a has its upper end counter-bored to form a

shoulder or shelf 10^b on which the lower end of the valve-seat 8 is seated. The wall 10^c of the counter-bore is of greater diameter than the part of the member 8 which it surrounds. Therefore, the space around the greater part of the valve-member 8 provides an annular receptacle for receiving melted securing material such, for instance, as lead, as shown at 12. When this securing material has congealed, it unites the parts 8, 9 and 10—10^a, so these united parts can be removed and replaced through the opening which is normally covered by the cover 2. The externally threaded lower end of the member 10^a is provided with a securing nut 11, and such threaded end extends below the securing nut and is adapted to be screwed into an outlet of any form of pump or fluid container.

I have no intention of limiting my patent protection to the exact construction and arrangement of parts here shown, but changes may be made within the scope of the inventive ideas as implied and claimed.

What I claim as my invention is:

1. A valve-unit including in combination, a tubular member having a counter-bore which terminates in an annular shoulder, a valve-seat of annular form seated on said shoulder and having its outer periphery spaced from the inner periphery of said counter-bore and thereby forming an annular space around the valve-seat, securing means moulded in said annular space, said tubular means being provided with an annular flange around said counter-bore, an annulus on said flange and spaced from said valve-seat, and securing means moulded in the space between said annulus and said valve-seat for combining with said flange to hold the said annulus and valve seat securely in position.

2. A valve-unit including in combination, a tubular member having a counter-bore which terminates in an annular shoulder, a valve-seat of annular form seated on said shoulder and having its outer periphery spaced from the inner periphery of said counter-bore and thereby forming an annular space around the valve-seat, securing means in said annular space, said tubular member having an annular flange around said counter-bore, an annulus on said flange and spaced from said valve-seat, said annulus and valve-seat being of relatively non-corrodible material, and an annular securing element of relatively non-corrodible material filling the space between said annulus and said valve-seat, said securing element being adapted to be melted for releasing said valve-seat and permitting another to be substituted therefor.

In testimony whereof I affix my signature.

JOHN RICE.