Oct. 20, 1925. 1,558,178

J. A. JUNG

FLOAT BALL REGULATOR

Filed Feb. 4, 1925

Fig. 1.

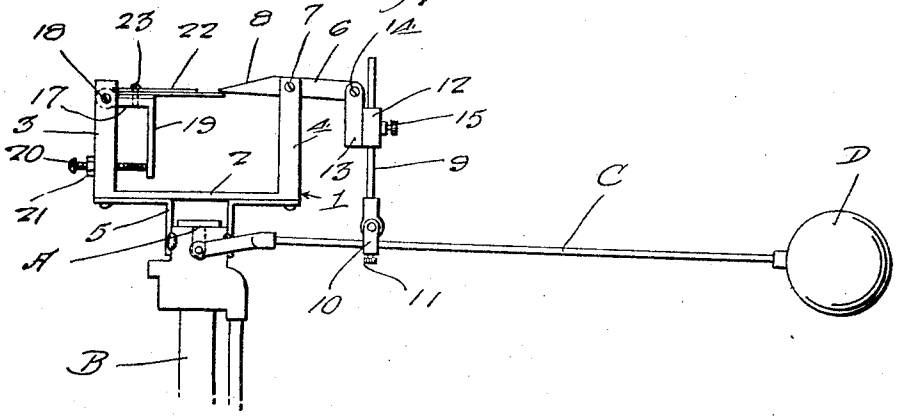


Fig. 2.

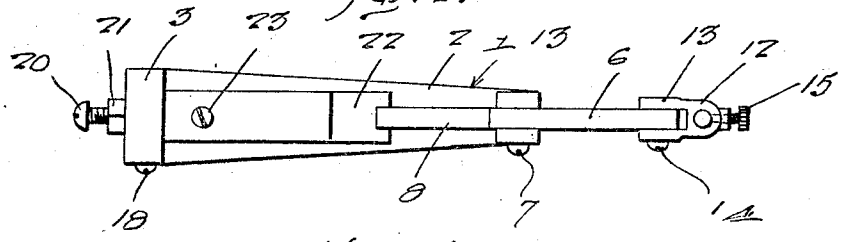
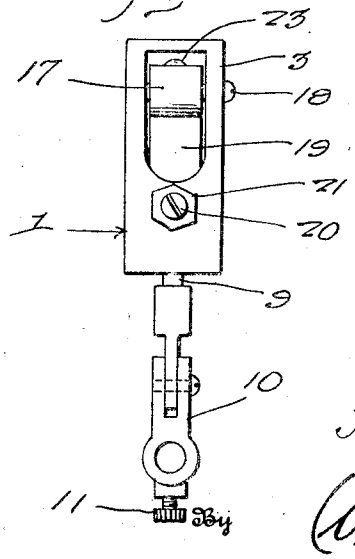


Fig. 3.



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UNITED STATES PATENT OFFICE.

JOSEPH A. JUNG, OF SPRINGFIELD, OHIO.

FLOAT-BALL REGULATOR.

Application filed February 4, 1925. Serial No. 6,744.

To all whom it may concern:

Be it known that I, JOSEPH A. JUNG, citizen of the United States, residing at Springfield, in the county of Clark and State of Ohio, have invented certain new and useful Improvements in a Float-Ball Regulator, of which the following is a specification.

The present invention relates to improvement in the float control means used in tanks and the like for closing the supply valve.

The principal object of the invention is to provide means for insuring the tight closing of the supply valve in order to prevent leakage which is quite common in structures now in general use.

Another important object of this invention is to provide means of this nature which may be adjusted in various particulars to accommodate the valve and float structure being used.

A specific object of the invention is to provide a structure which will momentarily prevent the closing of the supply valve as the water rises to the desired level in order to cause the float to partially sink, at which time the structure will trip so that the float will come to the surface with considerable momentum so as to force the valve to a tight closed position.

A still further very important object of the invention is to provide an improved structure of this nature which is both simple and efficient, one which is thoroughly reliable in operation, inexpensive to construct and install, not liable to readily get out of order, strong, durable, and otherwise adapted for the purpose for which it is designed.

With the above and numerous other objects in view as will appear as the description proceeds, the invention resides in certain novel features of construction, and in the combination and arrangement of parts as will hereinafter be more fully described and claimed.

In the drawing—

Figure 1 is a side elevation of my improved structure showing the same associated with a conventional form of small float.

Fig. 2 is a top plan view thereof on an enlarged scale, and

Fig. 3 is an end elevation thereof.

Referring to the drawing in detail, it will be seen that A designates any suitable or conventional cut off valve for the supply pipe B which usually rises in the tank. This valve A is controlled in the usual manner by rod C operated by the float D. These elements which I have just catalogued are shown only for demonstrating the operation of my invention as it may be of any desired or conventional form.

The numeral 1 designates the supporting frame of my improvement which in the present instance is shown as U-shaped to include the base 1 and the upstanding standards 3 and 4. This supporting frame is attached to the upper end of the supply pipe B in the present instance by suitable bracket arms 5. A trip lever 6 is pivoted intermediate its ends to the upper end of said core as at 7 and the end of the lever adjacent standard 3 is beveled on its upper edge as at 8. This end of the lever terminates about midway between the standards 3 and 4. A bar 9 has its lower end pivotally attached to a U-shaped clamp 10 which engages the rod C by a set screw or the like 11.

This bar 9 is slidable through a sleeve 12 of a bracket 13 pivoted at 14 to the outer end of the trip lever 6. The bar 9 is adjustably supported in the sleeve 12 by means of a set screw or the like 15.

A regulating lever 17 is pivoted at one end to the upper end of the standard 3 as at 18 and its free end is provided with an angular extension 19 depending therefrom toward the base 2. A screw or bolt 20 is threaded through the standard 3 intermediate the latter's ends for engaging the extension 19 and adjusting the lever 17. A nut lock 21 is preferably associated with this bolt 20 so as to retain it in the desired adjusted position. A spring 22 is attached to the lever 17 by a screw 23 or the like and is of sufficient length to extend beyond the free end thereof and terminate within the path of the inner end of the trip lever 6.

It is preferable to make this spring in two superimposed laminations, the lower of which extends beyond the end of the upper and is disposed to terminate in the path of the inner end of the lever 6.

I have now described the parts of my improved apparatus sufficiently in order that the operation thereof may be clearly understood. As the float B rises and approaches the limit of its upward movement for closing the valve A, the inner end of the trip

lever 6 will engage the top of the spring 22 and thus retard the upward movement of the float. As the float rises, of course, it will flex the spring 22 and eventually the inner end of the lever 6 will trip by this spring for freeing this float in order that it may come to the surface of the water. This last movement of the float, it will be seen, will have greater speed and momentum than would be the case if the float moved upwardly on top of the water and therefore will close the valve A through the rod C with considerably greater force than otherwise, thereby insuring the closing of the valve. Both the spring 22 and the lever 6 are adjustable as previously explained in order that the apparatus may be properly regulated to suit the conditions that will be found in different conventional makes of float controlled valves now on the market.

It will be apparent that with this apparatus it is possible to close the supply valve quickly and tightly, thereby lengthening the life of the valve. It will further be apparent that the embodiment of the invention which has been disclosed by way of example possesses a comparatively simple, efficient, reliable and inexpensive structure which may be applied to a large variety of conventional float control apparatus now on the market.

The present embodiment of the invention attains all of the features of advantage enumerated as desirable in the statement of the invention and the above description and it is apparent that numerous changes in the details of construction, in the dimensions, in the materials, and in the combination and arrangement of parts may be resorted to without departing from the spirit or scope of the invention as hereinafter claimed or sacrificing any of its advantages.

Having thus described my invention, what I claim as new is:—

1. In an apparatus of the class described, a supporting structure, a spring on the supporting structure, a movable member adapted to be actuated by the float and to trip past the spring.

2. In an apparatus of the class described, a supporting structure, a spring on the supporting structure, means for regulating the spring, and a movable member adapted to be actuated by the float to trip past the spring for momentarily retarding the movement of the float.

3. An apparatus of the class described including a supporting structure, a spring mounted on the supporting structure, a lever lockable on the supporting structure and having one end disposed to trip by the end of the spring, and means on the lever for attaching the same to a float.

4. An apparatus of the class described including a supporting structure, a spring mounted on the supporting structure, a lever lockable on the supporting structure and having one end disposed to trip by the end of the spring, means on the lever for attaching the same to a float, and means for regulating the spring.

5. An apparatus of the class described including a supporting structure, a regulating lever pivoted on the supporting structure, a spring fixed on the lever, means for adjusting the lever, a trip lever pivotally mounted on the supporting structure so that one end moves to trip past one end of the spring, and means on the trip lever for attaching it to a float.

In testimony whereof I affix my signature.

JOSEPH A. JUNG.