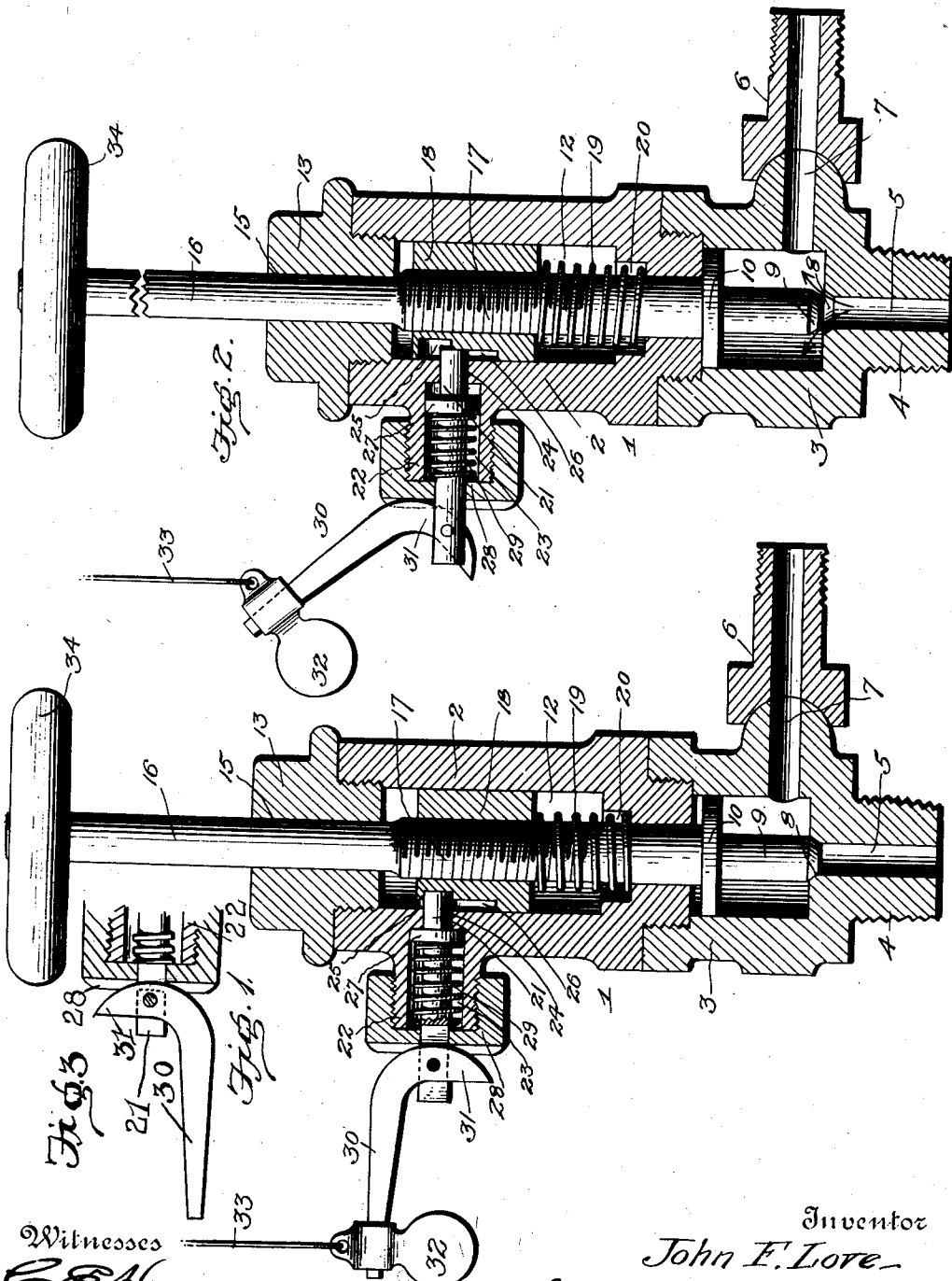


J. F. LOVE.
VALVE.

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Witnesses
C. E. Hunt,
C. H. Griesbauer.

Inventor
John F. Love.
By *A. B. Wilson & Co.*
Attorneys

UNITED STATES PATENT OFFICE.

JOHN F. LOVE, OF ZANESVILLE, OHIO.

VALVE.

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To all whom it may concern:

Be it known that I, JOHN F. LOVE, a citizen of the United States, residing at Zanesville, in the county of Muskingum and State of Ohio, have invented certain new and useful Improvements in Valves; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in automatically opening valves.

The object of the invention is to provide a valve of this character having means whereby the operating mechanism may be released from a distance and the valve thereby automatically opened.

A further object is to provide a valve of this character from which there will be positively no leakage when the parts are in either an open or closed position.

With these objects in view, the invention consists of certain novel features of construction, combination and arrangement of parts as will be fully described and particularly pointed out in the appended claims.

In the accompanying drawings, Figure 1 is a vertical sectional view of the valve showing the parts in a closed position; and Fig. 2 is a similar view showing the parts in an open position; Fig. 3 is a detail fragmentary sectional view showing a modified arrangement of the operating lever.

Referring more particularly to the drawing, 1 denotes the valve, which preferably consists of a casing, comprising an upper section, 2, and a lower section, 3. The upper section, 2, is provided on its lower end with a reduced threaded projection which is adapted to be screwed into engagement with a threaded recess formed in the upper end of the lower section. On the lower section, 3, is formed a threaded nipple, 4, by means of which the valve is connected with the object to which it is to be applied. In addition to the connection on the lower end of the section, 3, through which the inlet passage, 5, of the valve is formed, I provide on one side of said section a laterally projecting connection, 6, which may be in the form of a ball joint for either a pipe or clamp connection and through this connection is formed the discharge passage, 7, of the valve. In the section 3 at the upper end of the inlet passage, 5, is formed a valve seat, 8, with which is adapted to be engaged a plunger valve, 9,

said valve having formed thereon a radially projecting collar, 10, which is adapted to work in the recess in the section, 3, and to form a fluid-tight joint with the upper end of said passage when the valve is in an open position.

The upper section, 2, of the valve casing is provided with a recess or centrally disposed passage, 12, which is closed at its upper end by a plug, 13, through which is formed a centrally disposed guide passage, 15, through which the stem, 16, of the valve passes, and is guided in its movements in the casing. The stem, 16, for a portion of its length in the recess, 12, of the valve is threaded, as shown at 17, and on said threaded portion is adapted to be screwed an operating nut, 18, which slides freely in the recess or passage, 12, of the upper section, 2, of the casing, and around said stem between the lower end of the nut, 18, and the lower wall of the recess, 12, is arranged a coiled spring, 19, the pressure of which is exerted to force the nut, 18, upwardly and thereby raise the valve out of engagement with the seat 8 and thus open the inlet port or discharge passage in the lower end of the valve casing. The lower end of the spring 19 is preferably seated in a depression, 20, formed in the lower end of the recess, 12.

The nut, 18, is held down and the valve, 9, thereby held in closed position by means of a locking pin, 21, which is slidably mounted in a nipple, 22, formed on one side of the upper section of the valve casing, as shown. The nipple 22 is provided with a recess or passage, 23, which communicates at its inner end with a reduced passage, 24, which opens into the recess, 12, in the valve casing. The inner end of the locking pin, 21, is adapted to slide through the reduced passage, 24, and to project into the recess, 12, and into engagement with a socket, 25, formed in one side of the nut and to thereby hold said nut down and the valve in a closed position. The nut, 18, is further provided with a short groove or channel, 26, which communicates at its upper end with the socket, 25, whereby when the locking pin is retracted until the inner end thereof is opposite to the upper end of the groove, 26, the spring, 19, will force the nut, 18, and the valve, 9, upwardly, thereby opening the port, 5, as will be understood. The groove, 26, serves to limit the upward movement of the nut, 18, and also to hold said nut against turning, whereby when the nut is

again forced downwardly until the socket, 25, is opposite to the end of the locking pin, said pin will be forced into engagement with the socket and thereby lock the nut down and the valve in closed position.

The locking pin, 21, has formed thereon a radially projecting collar, 27, which is adapted to slide in the recess 23 of the nipple, 22, and between said collar and a cap, 28, screwed on the outer end of the nipple, is arranged a coiled spring, 29, the resilience of which is exerted to force the locking pin inwardly. Pivottally connected to the outer end of the locking pin, 21, is an operating lever, 30, on the inner end of which is formed a right-angularly projecting head, 31, having a curved or segmental outer edge adapted to bear in a groove formed in the outer end of the cap, 28, whereby when the lever, 30, is pulled upwardly, said head, 31, will bear against the end of the cap, and thereby draw the locking pin, 21, outwardly to disengage the inner end thereof from the socket, 25, in the nut, 18, thus releasing the latter and permitting the valve to open in the manner hereinbefore described. On the outer end of the lever, 30, is arranged a weight, 32, having formed therein an aperture to which is tied an operating cord, 33, which may be extended to any portion of the building whereby the valve may be operated at a distance. By reversing the lever, 30, on the end of the locking pin, 21 as shown in Fig. 3, said lever may be operated in a reverse direction by any suitable mechanism not shown.

By providing the collar, 10, on the stem of the valve, 9, in position to engage the upper end of the recess formed in the lower section of the valve casing, any leakage of the valve when in an open position will be prevented. On the upper end of the valve stem is arranged a hand wheel, 34, and when it is desired to close the valve, the stem is turned by means of the wheel, thus screwing the nut, 18, downwardly and tightening the spring, 19, until the locking socket, 25, is opposite to the end of the locking pin, at which time the spring 29 will force said pin into the socket and thereby hold the nut down. After the nut has thus been screwed down, the valve stem is turned in the opposite direction and thus screwed downwardly in the nut 18 until the valve 9 engages the seat, 8.

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

1. In a device of the character described, a valve having a stem, an adjustable operating device on said stem, a spring projected locking pin adapted to engage said operating device and to hold said valve in its closed position, and means to release said locking pin, substantially as described.

2. In a device of the character described, a spring retracted valve having a threaded

stem, an operating nut adapted to be engaged with said threaded stem, a spring projected locking pin adapted to engage said nut and thereby hold said valve in closed position, and means to release said pin, substantially as described.

3. In a device of the class described, a spring retracted valve having a threaded stem, an operating nut having a locking socket and a guide groove adapted to be engaged with said threaded stem, a spring projected locking pin adapted to engage said socket to lock the valve in closed position and to engage said guide groove to guide and limit the movement of said nut, and means to release said locking pin, substantially as described.

4. In a valve of the character described, an upper section having a longitudinally disposed passage, a lower section having a recess and inlet and discharge passages, a valve stem slidably mounted in said upper section of the casing, a valve on the lower end of said stem to close the inlet passage in the lower section of the casing, a collar on said valve stem adapted to form a fluid-tight closure at the upper end of the recess in the lower section of the valve when the latter is in an open position, a threaded section formed on said valve stem in the passage of the upper section of the valve casing, a holding nut screwed on said threaded section of the stem, said nut having formed therein a locking socket and a guide groove, a coiled spring on said stem adapted to engage said nut and to force the latter upwardly to open said valve, means to lock said nut down and the valve in closed position, and means to release the same, substantially as described.

5. A valve comprising a casing formed in upper and lower sections, said upper section having a centrally disposed passage and said lower section having a centrally disposed recess, and inlet and discharge passages, a valve seat at the upper end of said inlet passages, a valve to engage said seat, a stem formed on said valve and projecting upwardly through the passage in the upper section of the casing, a plug to close the upper end of the passage, said plug having a guide passage through which the stem of said valve projects, a nut adapted to be screwed onto said stem within the passage of the upper section of the valve, said nut having a locking socket, a spring to normally force said nut upwardly and thereby open the valve, a spring-projected locking pin adapted to engage said locking socket, a releasing lever connected to the outer end of said pin, and an operating element connected to said lever whereby the latter may be operated at a distance, substantially as described.

6. A valve of the character described, comprising a casing having in its lower end

inlet and discharge passages, a valve adapted to open and close said inlet passage, a stem on said valve, a nut on said stem, said nut having a locking socket and a guide groove, 5 a spring to engage said nut and force the same upwardly to open said valve, a spring-projected locking pin adapted to engage said locking socket, thereby holding said nut down and the valve in a closed position, a 10 reversible operating lever pivotally connected to the outer ends of said locking pin, a weight on the outer end of said lever, a

flexible operating element connected to said lever, and a handle on the upper end of said valve stem whereby the latter is operated to 15 close the valve, substantially as described.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

JOHN F. LOVE.

Witnesses:

A. CLYDE REASONER,
HARRY EMRY LOVE.