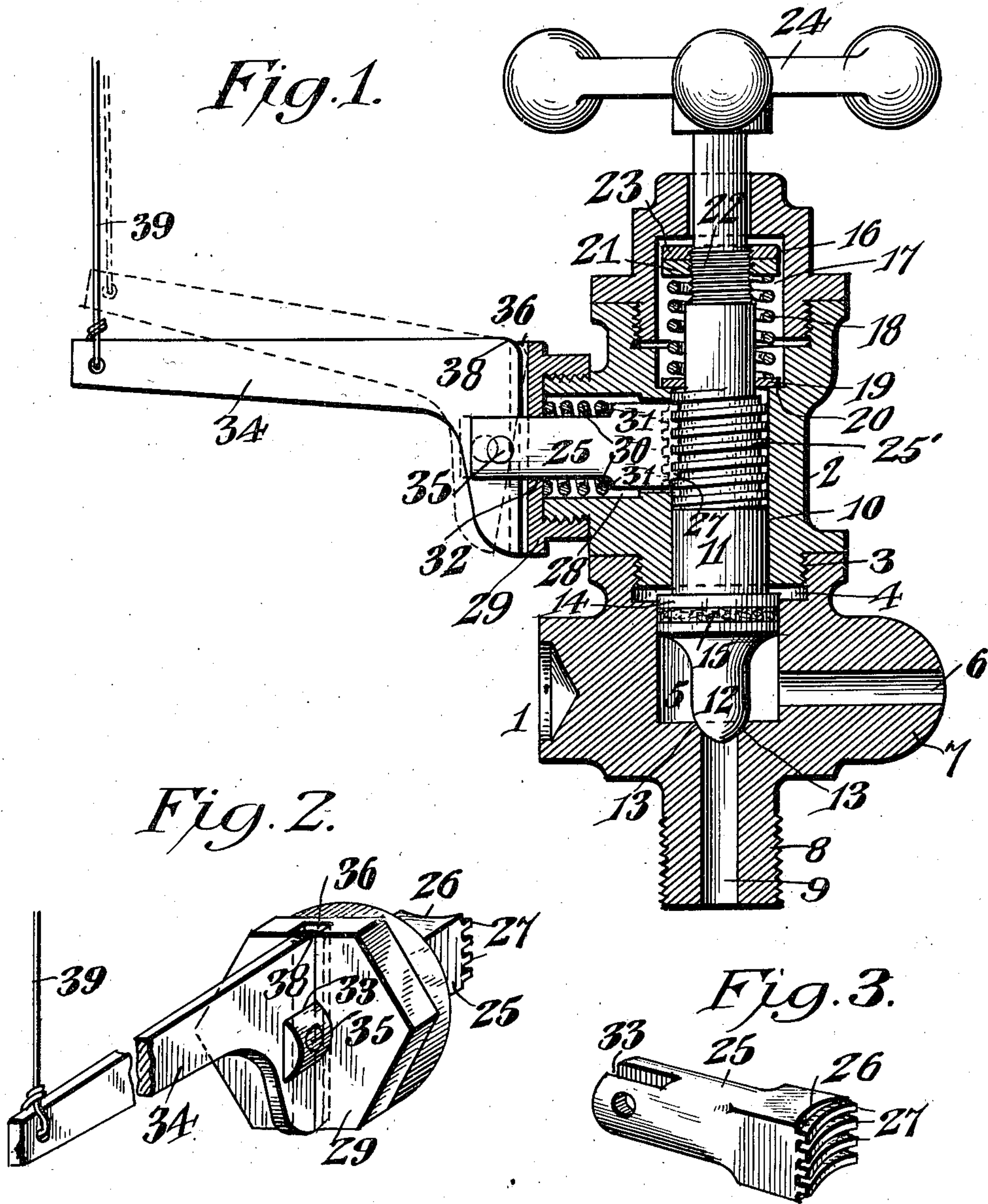


F. C. ELLISON.  
 COMBINED MANUALLY AND AUTOMATICALLY ACTUATED VALVE.  
 APPLICATION FILED OCT. 30, 1909.

966,672.

Patented Aug. 9, 1910.



F. C. Ellison, Inventor

By

*E. J. Siggers*  
*J. H. Siggers* Attorneys

Witnesses

*Jas. E. McLaughlin*  
*C. Bradley*



# UNITED STATES PATENT OFFICE.

FREDERICK C. ELLISON, OF CHARLESTON, WEST VIRGINIA.

COMBINED MANUALLY AND AUTOMATICALLY ACTUATED VALVE.

966,672.

Specification of Letters Patent.

Patented Aug. 9, 1910.

Application filed October 30, 1909. Serial No. 525,498.

*To all whom it may concern:*

Be it known that I, FREDERICK C. ELLISON, a citizen of the United States, residing at Charleston, in the county of Kanawha and State of West Virginia, have invented certain new and useful Improvements in Combined Manually and Automatically Actuated Valves, of which the following is a specification.

10 This invention relates to a valve of that type which, under normal conditions, can be opened and closed by turning the valve stem, and under abnormal conditions can be automatically opened from a remote point.

15 The invention has for one of its objects to improve and simplify the construction and operation of devices of this character so as to be comparatively simple and inexpensive to manufacture, reliable and efficient in use, and composed of comparatively few parts.

Another object of the invention is the provision of an improved means for releasably holding the valve seated.

25 With these objects in view and others, as will appear as the description proceeds, the invention comprises the various novel features of construction and arrangement of parts which will be more fully described hereinafter and set forth with particularity in the claims appended hereto.

30 In the accompanying drawing, which illustrates one embodiment of the invention, Figure 1 is a vertical longitudinal section of the valve. Fig. 2 is a perspective view of the releasable valve stem engaging means and its operating device. Fig. 3 is a perspective view of the releasable valve stem engaging means detached.

40 Similar reference characters are employed to designate corresponding parts throughout the views.

Referring to the drawing, 1 designates the body or base section of the valve casing, and 2, the upper section which is attached to the base section by means of an external threaded boss 3 screwing into the internally threaded counterbored portion 4. The section 1 has a chamber 5 from which extends a lateral passage 6, there being a spherical boss 7 formed on the casing at the end of the outlet for connection with a pipe. Depending from the section 1 is a nipple 8 also for connection with a pipe or equivalent device, and this nipple has a central passage 9 which communicates with the chamber 5.

The section 2 of the casing has a central bore 10 disposed axially in alinement with the chamber 5 for receiving the valve stem 11. The stem is formed at its lower end with a head 12 shaped to engage the seat 13 at the inner end of the passage 9, the head being enlarged to form a follower or piston 14 that carries a peripheral packing ring 15 for snugly fitting the chamber 5 and preventing leakage upwardly through the bore 10 of the casing. A cap nut 16 is screwed into the upper end of the section 2 of the casing and this nut is formed with a chamber 17 for accommodating a helical spring 18 arranged around that portion of the stem that passes through the cap nut. This spring has its lower end bearing against a collar or washer 19 seated in an internal shoulder 20 formed by counterboring the section 2 of the casing, and the upper end of the spring bears against a nut 21 engaging the screw threaded portion 22 of the valve stem. This nut forms an adjustable abutment whereby the tension of the spring can be set to any desired point, and the nut is held in place by a jam nut 23. The spring thus tends to move the valve stem in a direction for unseating the valve. On the upper end of the stem is a hand wheel 24 or equivalent device for facilitating the turning of the stem and this turning causes longitudinal movement of the latter to open and close the valve. For this purpose, the stem has a square or standard thread 25' at the portion thereof disposed in the bore 10 of the upper section of the casing. This thread is engaged by a spring-pressed follower 25 which has its end face concave to correspond with the radius of the threaded portion of the valve stem, and on this concave face 26 are spiral ribs 27 to engage the thread 25' of the stem. This follower constitutes a releasable stem-engaging means and forms a nut whereby the rotation of the stem will cause longitudinal movement thereof.

The section 2 of the casing has a lateral opening or chamber 28 communicating with the bore 10 for accommodating the follower 25, and the cap nut 29 closes this latter opening and forms an abutment for the outer end of a spring 30 which holds the follower in engagement with the stem, the inner end of the spring bearing against shoulders or projections 31 on the follower. The cap 29 has an opening 32 through which the follower projects and the projecting end of the



follower is formed with a diametrical slot 33 for accommodating an operating lever 34 which is connected with the follower by a pivot 35. The outer face of the nut 29 has a diametrical slot 36 in which the lever engages, and the heel portion 38 of the lever rides in the bottom of the slot and forms a sliding fulcrum. The outer end of the lever may be connected with any suitable device such as a pull cord 39, whereby the lever can be operated from a remote point.

When the parts are in the position shown in Fig. 1, the valve is locked in closed position, and though the spring 18 is under tension, it cannot open the valve because of the engagement between the inwardly spring-pressed follower 25 with the valve stem. The valve can be opened, however, by turning the hand wheel 24. In case it is desired to open the valve from a remote point, it is merely necessary to pull on the cord 39 to tilt the lever to the dotted line position, whereby the follower is retracted for disengaging the teeth 27 from the screw thread 25'. The spring 18 is thus allowed to act for automatically opening the valve. As soon as the pull on the cord 39 is released, the follower 25 will move inwardly for engagement with the valve stem so that the valve can be again closed by turning the hand wheel 25.

From the foregoing description, taken in connection with the accompanying drawing, the advantages of the construction and of the method of operation will be readily apparent to those skilled in the art to which the invention appertains, and while I have described the principle of operation of the invention, together with the device which I now consider to be the best embodiment thereof, I desire to have it understood that the device shown is merely illustrative, and that such changes may be made when desired as are within the scope of the claims appended hereto.

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

1. The combination of a casing, a rotary and longitudinal movable valve stem, a valve carried thereby, a seat in the casing, a spring arranged to move the stem longitudinally, a thread on the stem, a spring-

pressed element engaging the stem whereby the latter moves longitudinally during rotation, and a device for disengaging the element from the thread of the stem for permitting said spring to move the latter.

2. The combination of a casing, a seat therein, a valve arranged to engage the seat, a stem connected with the valve, a thread on the stem, a member directly engaging the thread for holding the valve in one position and for imparting longitudinal movement to the stem during rotation thereof, a spring tending to move the stem longitudinally while the element engages the said thread, and means for releasing the element from the thread to permit the spring to move the valve stem.

3. The combination of a casing, a seat therein, a valve arranged to engage the seat, a stem, a thread on the stem, a spring arranged on the stem to move the valve open, means for manually turning the stem, a spring-pressed follower, spiral ribs on the follower for meshing with the thread of the stem, a spring pressing on the follower for holding it in engagement with the stem, and means for releasing the follower to permit the first-mentioned spring to open the valve.

4. The combination of a casing, a seat therein, a valve arranged to engage the seat, a stem for the valve, a thread on the stem, a spring surrounding the stem at a point outwardly from the thread, an adjustable abutment on the stem on which one end of the spring bears, a fixed abutment in the casing for the other end of the spring, a member extending at right angles to the stem and having spiral teeth or ribs engaging the thread of the stem whereby the valve can be opened and closed by the rotation of the stem, a spring pressing on the member for holding it in engagement with the stem, and a device for releasing the member from the stem against the tension of the last-mentioned spring to permit the first-mentioned spring to open the valve.

In testimony whereof I affix my signature in presence of two witnesses.

FREDERICK C. ELLISON.

Witnesses:

E. R. YATES,  
C. V. RODES.