

(No Model.)

J. S. DODGE.

AUTOMATIC CYLINDER COCK OR GLOBE VALVE.

No. 560,695.

Patented May 26, 1896.

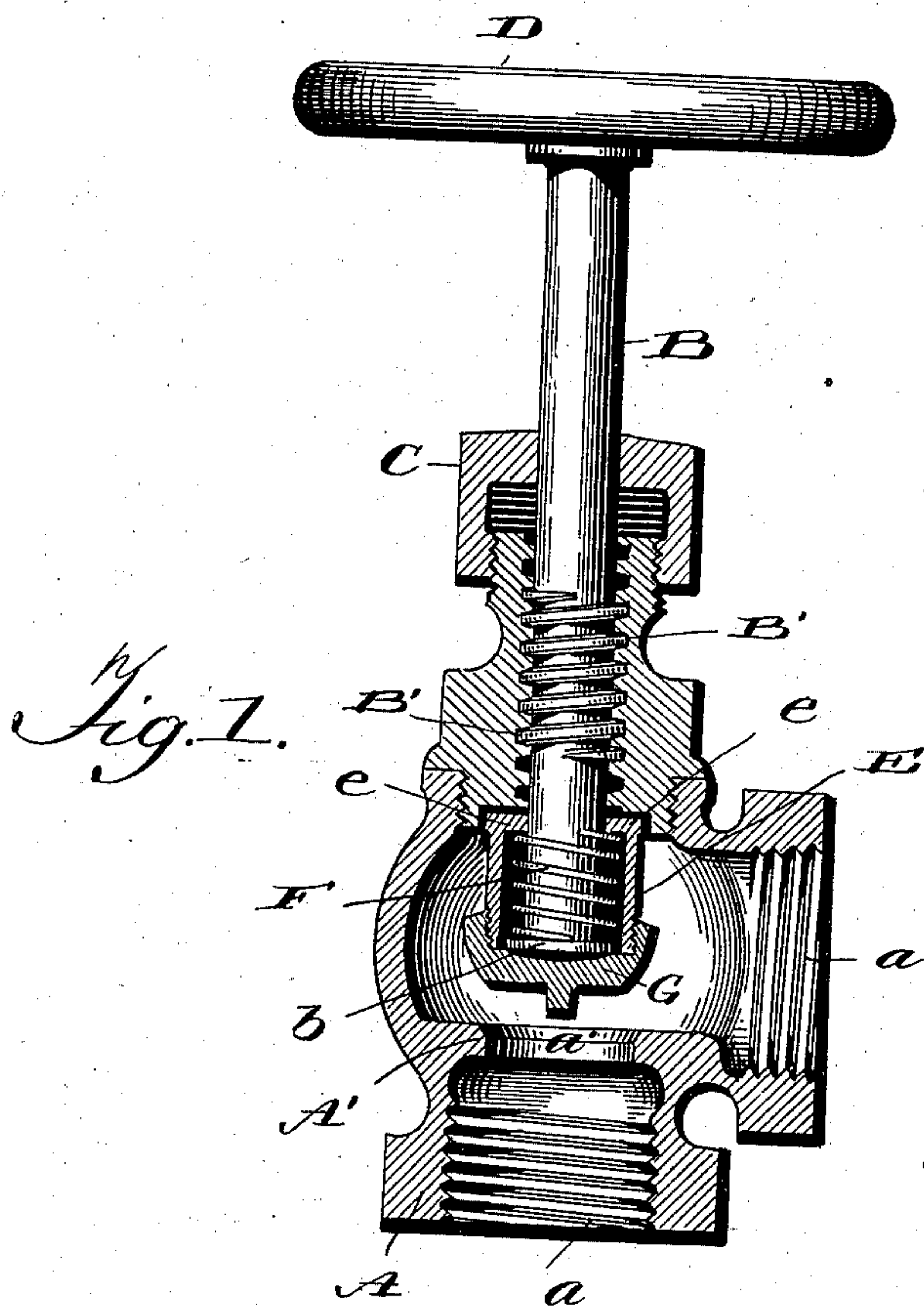
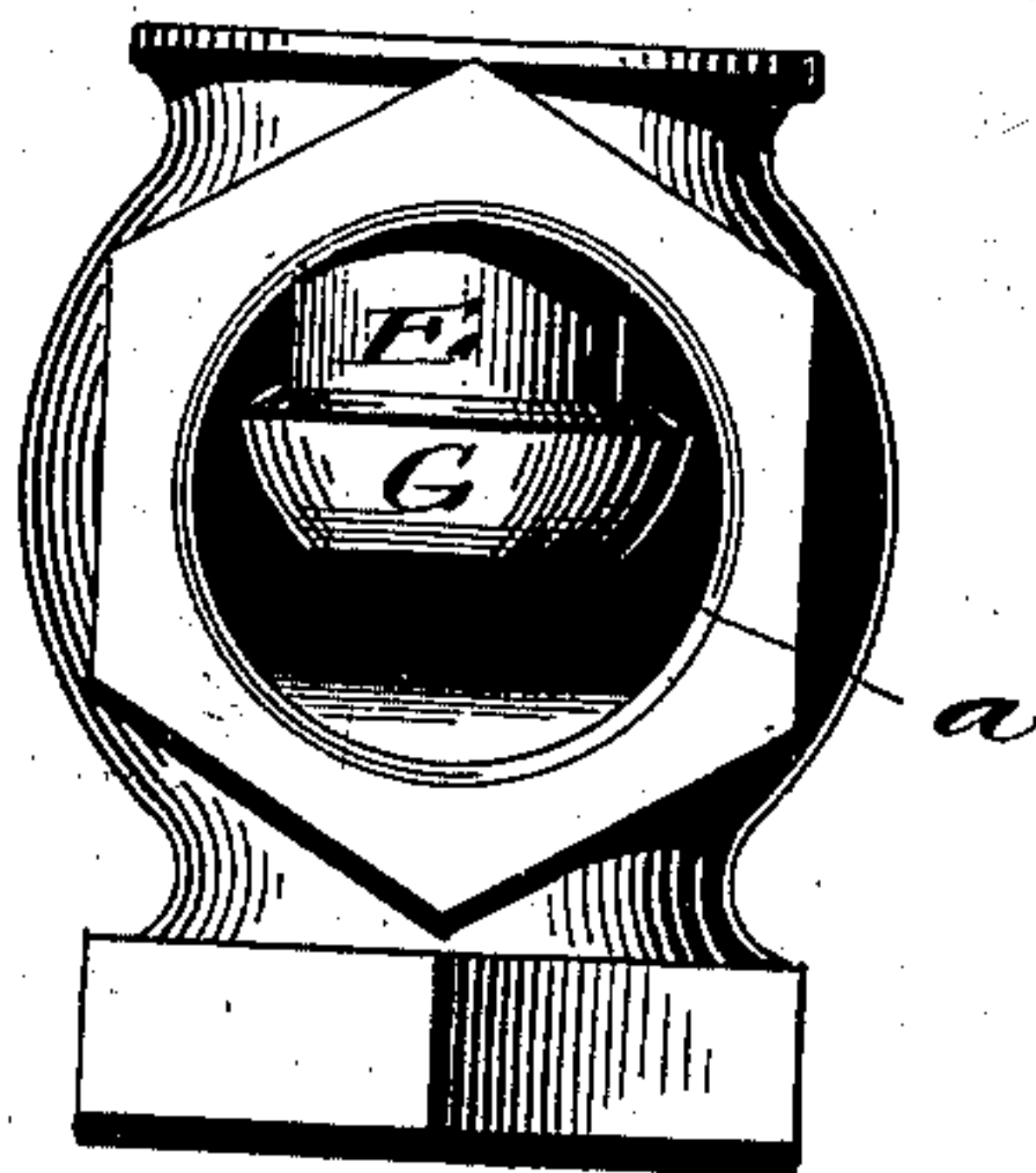


Fig. 2.



Witnesses:
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Inventor:
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Att'y.

UNITED STATES PATENT OFFICE.

JOHN SEYMOUR DODGE, OF MAYERVILLE, MISSISSIPPI, ASSIGNOR OF ONE-HALF TO W. H. HIGGS, OF WOODLANDS, WEST VIRGINIA.

AUTOMATIC CYLINDER-COCK OR GLOBE-VALVE.

SPECIFICATION forming part of Letters Patent No. 560,695, dated May 26, 1896.

Application filed April 19, 1895. Serial No. 546,374. (No model.)

To all whom it may concern:

Be it known that I, JOHN SEYMOUR DODGE, a citizen of the United States, residing at Mayerville, in the county of Issaquena and State of Mississippi, have invented certain new and useful Improvements in Automatic Cylinder-Cocks or Globe-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, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to certain new and useful improvements in globe-valves; and it has for its object, among others, to provide such a construction as to permit of the valve being used as a check-valve or be opened and closed in the usual manner. I accomplish this by arranging the disk of the valve so that it will be held up to the stem by means of a spring, whereby when the stem is raised by means of the screw in the usual manner the disk of the valve will be raised therewith and thus moved from its seat by the tension of said spring, and the valve will be maintained in such position until pressure is placed upon the valve, when it will seat itself by compressing the spring without any movement of the stem, and the latter will immediately raise the valve from its seat when the pressure is withdrawn. The valve serves automatically as a check-valve and has a movement in the usual manner under ordinary circumstances. The construction herein shown is what I at present consider the preferable way of carrying out the invention but I do not wish to be understood as limiting myself to the details of construction now to be described.

Other objects and advantages of the invention will hereinafter appear, and the novel features thereof will be specifically defined by the appended claims.

The invention is clearly illustrated in the accompanying drawings, in which—

Figure 1 represents a substantially vertical central section through a valve and its seat

embodying my invention. Fig. 2 is an elevation of the casting forming the body portion of the device.

Referring now to the details of the drawings by letter, A designates the casting of usual form having the internally-threaded necks or nipples *a* for the desired pipe connections and the valve-seat *a'* formed by the diaphragm *A'*; but as this forms no part of the present invention and is so well known to those skilled in the art a further description thereof is not deemed necessary.

B is a valve-stem passed through the usual stuffing-box C and having the threaded portion B' within the neck of the casting, which is provided with a thread to engage the threads of the stem in the usual manner, so that by rotation of the stem by its handle D the valve may be raised or lowered in the usual manner to seat or unseat the same. The lower end of the valve-stem is provided with an annular shoulder or flange *b*, as shown, and around this lower portion of the stem is fitted the shell E, the upper end of which has the inwardly-projecting flange *e*, between which and the annular flange or shoulder on the lower end of the stem is confined the spring F, which in this instance is shown as a coiled spring; but other forms of spring may be employed, if preferred. The lower end of the shell is threaded, onto which is threaded the shank or neck of the valve or disk G, the lower or outer face of which is ground or otherwise treated to make it fit the valve-seat to constitute a tight fit. As seen in Figs. 1 and 2, the upper face of the disk is extended to form a shoulder or bearing-surface, against which the steam acts.

With the parts constructed and arranged substantially as above set forth the operation will be readily understood, especially when taken in connection with the annexed drawings. Briefly stated, it is as follows: Normally the valve or disk is held up to its stem by means of the spring. It is forced downward or away from the stem by compression of the spring. When the valve or disk is held up to its stem, it may be raised or lowered with the stem by rotation of the latter in the

usual way and serves in the usual manner. With the valve off its seat sufficient pressure upon the top of the same will compress the spring and force the valve down to its seat.
 5 The stem does not move under these conditions, but the valve or disk moves independently thereof. So long as there is pressure on the top of the valve it will maintain its seat; but when the pressure is removed it will assume its normal position through the medium of the spring, as will be readily understood. The advantages of such a construction will manifest themselves to and be appreciated by those having occasion to use this class of
 15 devices.

Modifications in detail may be resorted to without departing from the spirit of the invention or sacrificing any of its advantages.

I am aware that it has been proposed to
 20 make a mushroom-valve with its inlet in such a manner that the pressure will be on the top side of the valve, so that the full pressure coming in at the inlet will assist the screw or valve-spindle in keeping the valve closed, the
 25 inlet being at an angle of about forty-five degrees to the stem, and I do not seek to cover such construction in this application.

What is claimed as new is—

1. The combination with the casting A, nipples and diaphragm with the valve-seat, of a
 30 shell having at its upper end an inwardly-extending annular flange and a passage for the valve-stem, the disk screwed onto the lower end of the shell forming the valve and
 35 having a shoulder at substantially right angles to the stem against which the steam acts, the valve-stem extending into the shell at right angles to one of said nipples and provided with a flange at its inner end, said valve-
 40 stem being threaded into the neck of the casting and a spring within said shell between its flange and the flange of the valve-stem and adapted to be compressed when the valve is

forced downward, and away from its stem, substantially as described.

2. The combination with the casting A, nipples and diaphragm with valve-seat, of a shell having at its upper end an inwardly-extending annular flange and a passage for the valve-stem, the valve-disk carried by the
 50 lower end of the shell and having a shoulder at substantially right angles to the length of the stem against which the steam bears, the valve-stem extending into the shell at right angles to one of said nipples and provided
 55 with a flange at its inner end, said valve-stem being threaded into the neck of the casting, a spring within said shell between its flange and the flange of the valve-stem and adapted to be compressed when the valve is forced
 60 downward and away from the stem, the flange of the stem resting normally on the top of the valve, substantially as described.

3. The combination with the casting having diaphragm with opening and valve-seat, of a
 65 valve-stem having a handle, a threaded portion and a flange at its lower end, the shell around the lower portion of the stem and having a threaded lower end and an internally-extending flange at its upper end through
 70 which the valve-stem loosely passes, a valve having a shoulder at right angles to the length of the stem a threaded neck engaging the threaded lower end of the said shell and normally bearing with its upper face against the
 75 flange of the stem, and a spring within said shell and bearing on said flanges of the shell and stem, to normally hold the valve up to the stem, substantially as described.

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

JOHN SEYMOUR DODGE.

Witnesses:

S. C. ELLIOTT,
 R. M. SMITH.