No. 845,458. PATENTED FEB. 26, 1907.

I. B. GILBERT.

AUTOMATIC REGRINDING VALVE.

APPLICATION FILED AUG. 6, 1906.

Fig. 1.

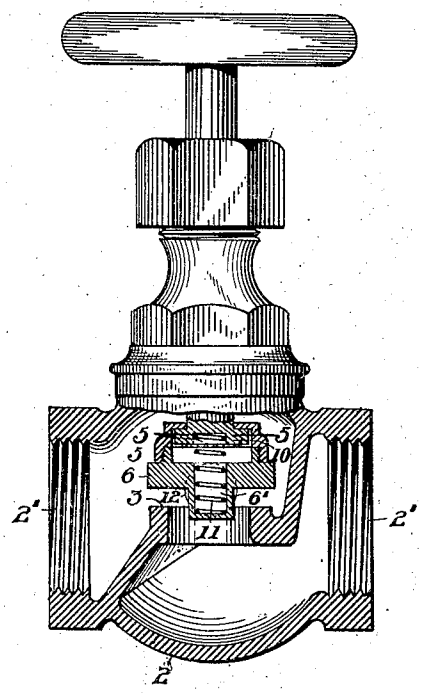


Fig. 2.

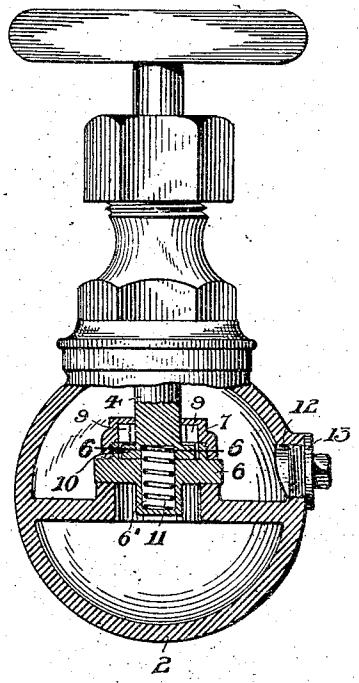


Fig. 7.

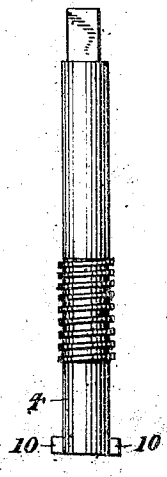


Fig. 3.

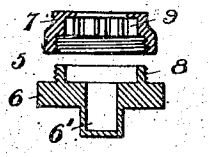


Fig. 5.

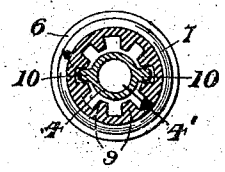


Fig. 4.

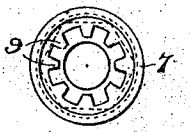


Fig. 6.

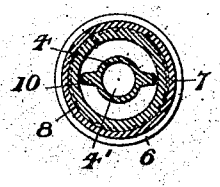
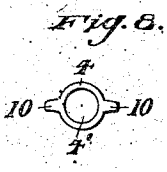


Fig. 8.



Witnesses:

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Inventor

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UNITED STATES PATENT OFFICE.

ISRAEL B. GILBERT, OF CASTLE SHANNON, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO ROBERT A. MARTIN, OF CASTLE SHANNON, PENNSYLVANIA.

AUTOMATIC REGRINDING-VALVE.

No. 845,458. Specification of Letters Patent. Patented Feb. 26, 1907.

Application filed August 6, 1906. Serial No. 329,338.

To all whom it may concern:

Be it known that I, ISRAEL B. GILBERT, a citizen of the United States, residing at Castle Shannon, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Automatic Regrinding-Valves, of which the following is a specification, reference being had therein to the accompanying drawings.

The object of this invention is to provide a regrinding-valve wherein the stem and valve-head turn together normally and operate to grind the seat upon each closing of the valve, the extent of such grinding being regulated by the resistance of the valve-head when seated to inward or backward movement on the stem, the arrangement being such that the stem and head must turn together until such backward movement disconnects them, when the stem may revolve independently. In the present adoption of the invention this backward movement is resisted by a spring, and hence the strength or resistance of that spring determines the grinding pressure of the head on the seat, which obviously may be made heavier or lighter as conditions may require.

In the accompanying drawings, Figure 1 is a vertical sectional view of the valve embodying the invention, the same being shown open. Fig. 2 is a view taken at right angles to Fig. 1, the valve being closed. Fig. 3 is a detail view of the valve-head, and Fig. 4 is a bottom plan view of the head-cap. Fig. 5 is a cross-sectional view of the valve and stem, taken on line 5 5 of Fig. 1; and Fig. 6 is a similar view taken on line 6 6 of Fig. 2. Figs. 7 and 8 are detail views of the valve-stem.

Referring to the drawings, 2 designates the shell or chamber of an ordinary globe-valve having the usual pipe connections 2'.

3 is the seat, and 4 is the stem, carrying valve-head 5. This head consists of the recessed disk portion 6, which closes against seat 3, and cap 7, which is threaded to boss 8 of disk 6, the cap having a passage for stem 4 and also formed with a series of teeth 9, which are disposed inwardly or toward disk 6.

Projecting laterally from the extremity of stem 4 are teeth 10, which are similar to and are adapted to mesh or interlock with teeth 9 when the valve-head is moved outwardly or downwardly on stem 4. The head and stem are maintained normally in this interlocked relation by a coiled spring 11, confined in stem-cavity 4' and disk-cavity 6'. Thus the head must turn with the stem until it seats and thereafter until the inward movement of the stem is sufficient to disengage the interlocking teeth. Until such disengagement the valve-head grinds on the seat, thereby maintaining the surfaces of said parts in condition to always effect a seal when the valve is closed. The extent of the grinding is determined by the strength of spring 11, it being obvious that the stronger the spring the greater will be the pressure exerted until the interlocking connection between the stem and head is broken. When thus separated, the stem bears positively against the inner face of the valve-head disk, as in Fig. 2, when any necessary amount of pressure may be applied without turning the valve-head.

Formed in one side of the valve-chamber 2 is opening 12, provided with plug 13. When emery or other abrasive material is required for grinding the seat, it may be inserted through this opening without disconnecting the valve from the pipe-line.

I claim—

1. The combination of a valve head and stem adapted normally to rotate together, and means actuated by pressure of the valve-head on the valve-seat for enabling the stem to turn independently of the valve-head.

2. The combination of a valve head and stem adapted to interlock and rotate together, and a spring for holding said parts normally interlocked, the pressure of the spring being overcome and the interlocking connection broken by pressure of the stem on the valve-head when the latter is seated.

3. The combination of a stem, a valve-head having limited longitudinal movement thereon, the stem being rotatable independently of the head when the latter is moved backward or inward thereon, the stem and head having parts which interlock when the head is in outward or forward position on the stem, and a spring for holding the head normally in forward position.

4. The combination of a hollow valve-head having an opening in its upper end, a stem extending into the opening and having an enlarged inner end rotatable in the hollow head, projections on the stem and on the upper portion of the head interior adapted to interlock and cause the stem and head to

rotate together; and a spring within and bearing against the head and stem for holding said parts normally interlocked.

5. The combination of a hollow valve-head having an opening in its upper end, projections within the head adjacent the opening, a stem movable longitudinally through the open end of the head, lateral projections on the stem and within the head, and a spring bearing against the extremity of the stem and the bottom of the head-cavity and operating to hold the projections of the stem and head interior normally interlocked.

6. The combination of a recessed valve-head having a spring depression in its bottom, the stem having limited longitudinal movement in the head-cavity and formed with a spring depression in its extremity, interlocking projections in the upper portion of the head-cavity and on the stem, and a spring confined in said depressions and holding said projections normally interlocked.

7. The combination of a recessed valve-head, a recess-closing cap for the head adapted to be secured thereto, the cap having a stem-passage and internal projections around the passage, a stem extending through the cap-passage, lateral projections on the stem adapted to interlock with the cap projections, and a spring within the head-recess and holding said projections normally interlocked.

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

ISRAEL B. GILBERT.

Witnesses:
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ALEX. S. MABON.