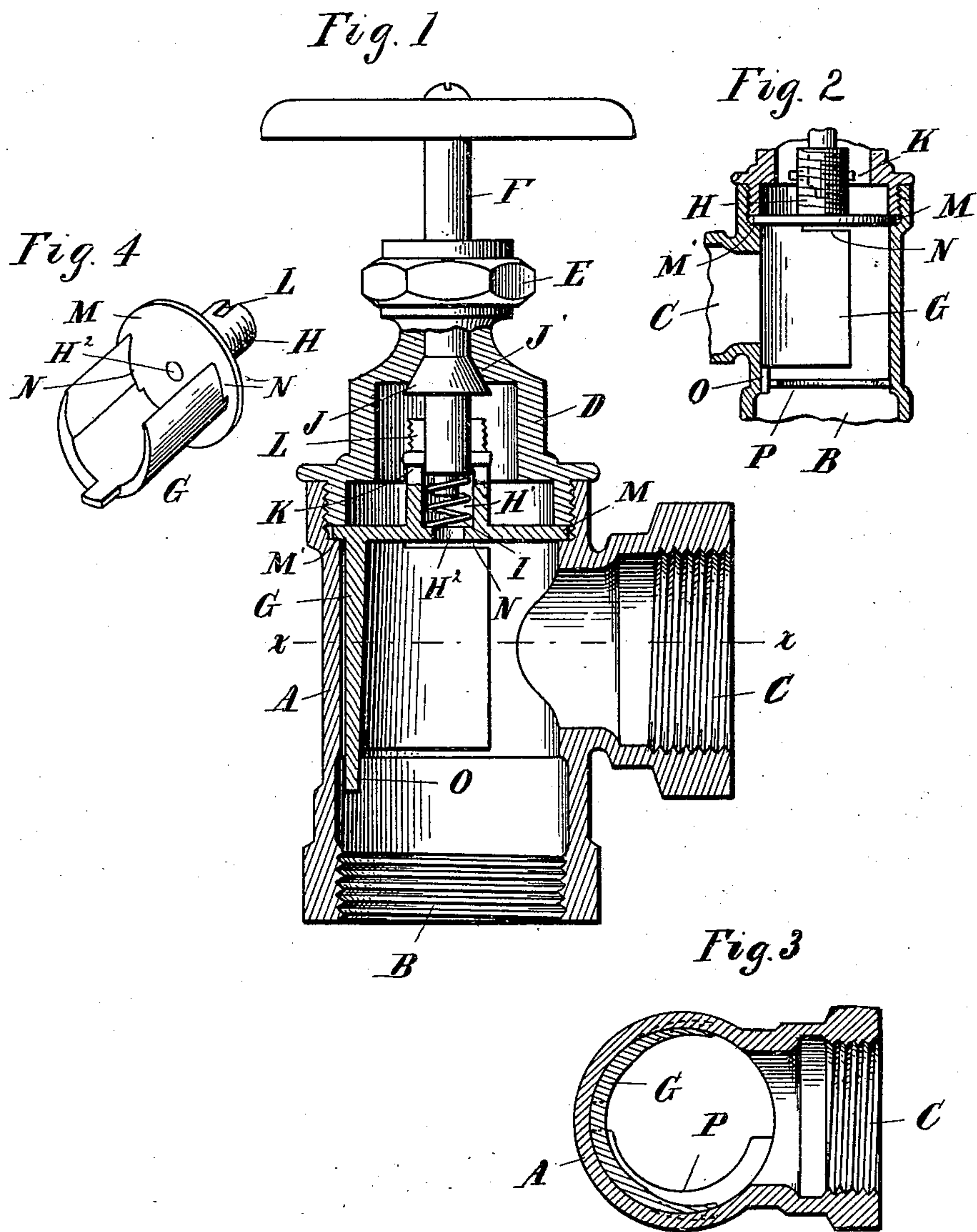


(No Model.)

A. WEBER.
VALVE.

No. 477,392.

Patented June 21, 1892.



Witnesses:
P. M. Hulbert
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Attys

UNITED STATES PATENT OFFICE.

ADOLPH WEBER, OF DETROIT, MICHIGAN, ASSIGNOR OF TWO-THIRDS TO THOS. S. CHRISTIE AND BENJAMIN NOBLE, OF SAME PLACE.

VALVE.

SPECIFICATION forming part of Letters Patent No. 477,392, dated June 21, 1892.

Application filed July 27, 1891. Serial No. 400,900. (No model.)

To all whom it may concern:

Be it known that I, ADOLPH WEBER, a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Valves, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to new and useful improvements in valves; and it consists in the peculiar construction of a so-called "angle-valve," and especially in the construction of the valve-plug thereof, all as more fully hereinafter described.

In the drawings, Figure 1 is a vertical central section through the valve embodying my invention. Fig. 2 is a like section showing the valve-plug in closed position. Fig. 3 is a horizontal section on line $x x$ in Fig. 1. Fig. 4 is a detached perspective view of the plug.

A is a cylindrical casing having the inlet-opening B and the exit-opening C at substantially right angles to each other.

D is a screw-cap secured upon the valve-casing and provided with a stuffing-box E.

F is the valve-stem passing through the stuffing-box, and G is the valve-plug. The valve-plug is provided on top with a nipple H, which is provided with a cylindrical socket H', into which the lower end of the valve-stem partly projects, pressing against a small coil-spring I, housed in the lower portion of the socket, and adapted by its pressure to seat the conical enlargement J, formed on the valve-stem, into a corresponding conical seat J', formed in the under side of the cap of the valve. The valve-stem is provided at its lower end with two lateral projections formed by a transverse pin K or otherwise, which engage into the vertical guide-slots L, formed in the nipple. In the bottom of the socket H' is a small hole H², which communicates into the hollow interior of the plug.

The valve-plug consists of a circular disk forming the plug and a segmental cylindrical flange depending from the under side thereof and forming the body of the valve-plug, the lateral opening of which is adapted to register with the exit-opening in the valve-casing. The diameter of the body of the plug is smaller than that of the top, thereby forming an an-

nular rim M around the top, which engages upon an annular shoulder M', formed on the inside of the valve-casing to support the valve-plug in position free to be turned, the tension of the spring I holding it to its seat. The segmental cylindrical flange or body of the plug is approximately crescent-shaped in cross-section—that is, the open ends or wings thereof are made tapering—and, furthermore, they are severed from the top of the plug by saw-kerfs N. Before inserting the plug into the valve-casing these wings are sprung outwardly to a slight extent, as shown in dotted lines in Fig. 3, so that when the plug is in position in the valve the tendency of the wings is to press against the walls of the casing. This not only makes the wings fit tightly against the walls of the casing, but the whole plug, on account of the latter being more than one-half of a circle, so that the pressure of the wings, which is especially exerted on the free ends, crowds the back of the plug against the casing as well. The plug thereby adjusts itself against the valve-casing and makes the valve close steam and water tight. A lug O is formed on the lower edge of the body of the plug, and this, in connection with a segmental circular flange or stop P in the inner wall of the casing, limits the movement of the plug to one-half of a circle corresponding to the open and closed positions of the valve.

In Fig. 1 the valve is shown in open position, which allows the fluid entering at B an unobstructed water-way through the hollow plug to the exit C, and as communication is afforded through the opening H² to the top of the latter it is fully balanced. By giving the stem a half-turn the valve is closed, the turning of the plug being effected by the engagement of the projecting ends of the pin K into the guide-slots L of the nipple.

My improved construction of valve has the advantage that it takes little power to open and close it, that it is not apt to stick, and that it can be readily repaired, if it becomes leaky, by expanding the wings of the plug, as described.

My valve is especially adapted for a radiator-valve, as leakage around the stem is absolutely prevented even if the stuffing-box should not be quite tight, as the conical en-

largement J' on the stem is for itself adapted, if properly fitted, to form a tight joint. I am aware that this feature of my valve is not broadly new; but I have found that in all constructions of valves in which a spring is interposed between the valve-stem and the top of the plug the spring is always liable to exert its pressure unevenly, and thus tend to produce an uneven wear of the parts. To prevent this, I interpose the spring directly between the lower housing, which prevents its displacement, in connection with a projection on the end of the valve-stem, which projects into the eye of the coil-spring, and in addition I project the stem into the housing of the spring, so that the parts are all maintained in the same axial relation to each other.

I have not herein broadly claimed the combination of a cylindrical plug having a perforated cap with side flanges, the cap for the valve, the loosely-fitting stem, and an interposed spring, as I have made the same the subject-matter of a concurrently pending application filed November 28, 1890, Serial No. 372,940.

What I claim as my invention is—

1. The combination, with the cylindrical valve-casing and screw-cap through which the valve-stem passes, of a substantially cylindrical valve-plug provided with an annular rim around the top of the plug, the annular shoulder formed on the casing, upon which said rim is seated, the nipple formed in the center of the valve-plug and projecting upwardly into the cap of the valve-casing, the socket formed in said nipple, the coil-spring housed in the lower end of said socket, and the valve-stem projecting into the top of said socket, substantially as described.

2. The combination, with the cylindrical valve-casing and screw-cap through which the

valve-stem passes, of a substantially cylindrical valve-plug provided with an annular rim around the top of the plug, the annular shoulder formed on the casing, upon which said rim is seated, the nipple formed in the center of the valve-plug and projecting upwardly into the cap of the valve-casing, the socket formed in said nipple, the coil-spring housed in the lower end of said socket, the valve-stem projecting into the top of said socket, the conical enlargement formed on the valve-stem, and the corresponding conical seat formed in the cap of the valve, substantially as described.

3. As a new article of manufacture, a radiator angle-valve consisting of the valve-casing A, having inlets and outlets B C, the screw-cap D, having stuffing-box E and conical valve-seat J', the valve-stem provided with the conical enlargement J, the valve-plug G, having the segmental cylindrical body of crescent-shaped cross-section and the disk-shaped top of larger diameter to form an annular rim around the plug, the saw-kerfs N, severing the end wings of the body from the top of the plug, the annular shoulder M' on the valve-casing, the nipple H on the valve-plug, forming a cylindrical housing, the spring I, housed in said nipple, the valve-stem projecting into said nipple and provided with the transverse pin K, the guide-slots L in said nipple, the lug O, depending from the valve-plug, and the segmental flange or stop P on the valve-casing, all combined and operated substantially as described.

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

ADOLPH WEBER.

Witnesses:

JAMES WHITTEMORE,
N. L. LINDOP.