No. 891,672. PATENTED JUNE 23, 1908.

R. T. CRANE.

VALVE.

APPLICATION FILED SEPT. 11, 1907.

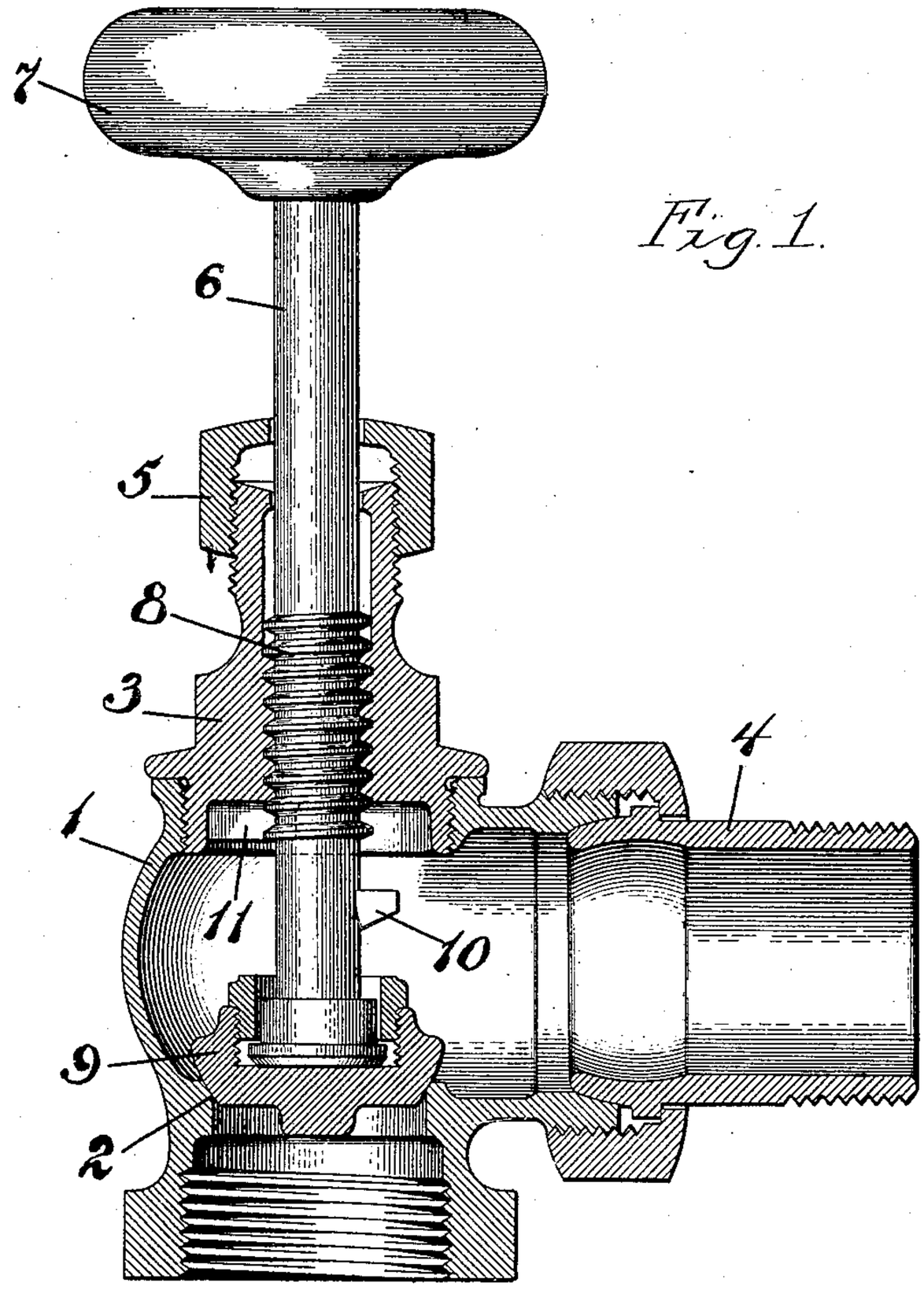

Fig. 1.

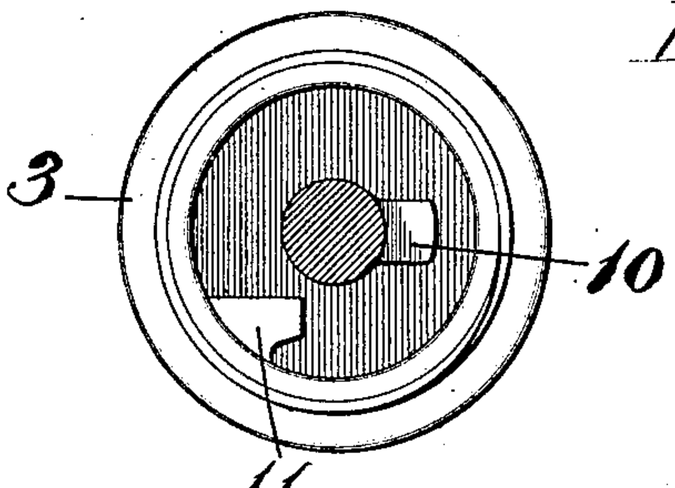

Fig. 2.

Witnesses:
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UNITED STATES PATENT OFFICE.

RICHARD T. CRANE, OF CHICAGO, ILLINOIS.

VALVE.

No. 891,672. Specification of Letters Patent. Patented June 23, 1908.

Application filed September 11, 1907. Serial No. 392,310.

To all whom it may concern:

Be it known that I, RICHARD T. CRANE, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Valves, of which the following is a specification.

My invention relates to valves, and has for its primary objects; the provision of a valve which will not stick in its open position, and which may be operated with more certainty and ease than the valves heretofore employed. Other objects and advantages will be apparent to those skilled in the art. One embodiment of the invention as applied to radiator valves is shown in the accompanying drawings, wherein

Figure 1 is a longitudinal section through the valve provided with my improvement, and

Figure 2 is a bottom view of the bonnet of the valve showing the stop for coöperating with the stop on the stem.

In valves of this general type as heretofore constructed much inconvenience has been experienced by reason of the valve sticking in its extreme open position, due to the opening of the valve to its extreme position when cold, and the subsequent expansion of the contacting parts when heated. When this sticking occurs, the user has no means of knowing whether the valve is in open or closed position, and so is in doubt as to which way to turn the stem. As a result he may apply an extreme amount of force in the wrong direction, rendering the valve extremely difficult of operation in the proper direction and straining the valve parts. My invention is designed to obviate these difficulties by the provision of means for stopping the opening of the valve in such a manner that no sticking of the valve in open position can occur. Then in case the valve sticks against a twisting of the stem in both directions, the user knows that the valve is in closed position and so is informed which is the proper direction in which to turn the stem.

Referring to the drawing, 1 is the valve body provided with the seat 2, 3 is the bonnet, screw threaded to the body in the usual way, 4 is a union secured to the valve body as shown, 5 is the gland seated upon the top of the bonnet, 6 is the stem provided at its upper end with the handle 7 and having the threaded portion 8 engaging the bonnet, and 9 is the disk in which the lower end of the valve stem is swiveled in the usual manner. Upon the valve stem 6 just above the disk 9, the stop 10 is provided, which stop is adapted to contact with the stop 11 (Figure 2) projecting from the lower surface of the bonnet. The purpose of this stopping arrangement is to prevent the disk from being raised to such a point that it jams against the valve casing. In valves as heretofore constructed such engagement between the disk and the casing occurs and when the valve is opened cold and subsequently heated the expansion of the parts causes the disk to stick in its open position with the result as heretofore set forth. It will be apparent that in applicant's construction all binding or sticking is avoided, as the only parts in contact are the stop members 10 and 11, and as these parts contact at their sides, they are free to move vertically past each other and no amount of expansion or contraction will result in sticking when the valve is in open position. When the stem resists turning in both directions, the user is advised that the valve is in closed position, and consequently knows which is the proper direction in which to turn the stem.

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

1. In combination in a radiator valve, a body provided with a valve seat, a bonnet secured thereto and provided with a projecting stop member at its lower side, a valve stem threaded through the bonnet and carrying at its lower end a valve disk, and a stop secured to the stem above the disk and adapted to engage the stop member along a surface substantially parallel to the axis of the stem when the disk is in open position, whereby binding due to changes in temperature is avoided when the disk is in open position.

2. In combination in a radiator valve, a casing provided with a bonnet, a valve stem threaded in the bonnet and provided with a disk, a stop member in the casing beneath the bonnet, and a stop carried by the stem and adapted to contact with the side of the stop member when the disk is in open position.

3. In combination in a valve, a casing, a

stem threaded therein and carrying a disk, a projecting stop on the stem, and a coöperating stop on the casing arranged to engage the side of the stop on the stem when the disk is in open position, and to clear such stop and be carried to a plane therebeneath when moved to closed position.

In testimony whereof I have hereunto signed my name in the presence of the two subscribed witnesses.

RICHARD T. CRANE.

Witnesses:
A. M. HAUSER,
CHAS. A. G. WAYMAN.