O. H. ERICKSON.

VALVE OPERATING DEVICE.

APPLICATION FILED FEB. 19, 1912.

1,055,152. Patented Mar. 4, 1913.

Fig. 1

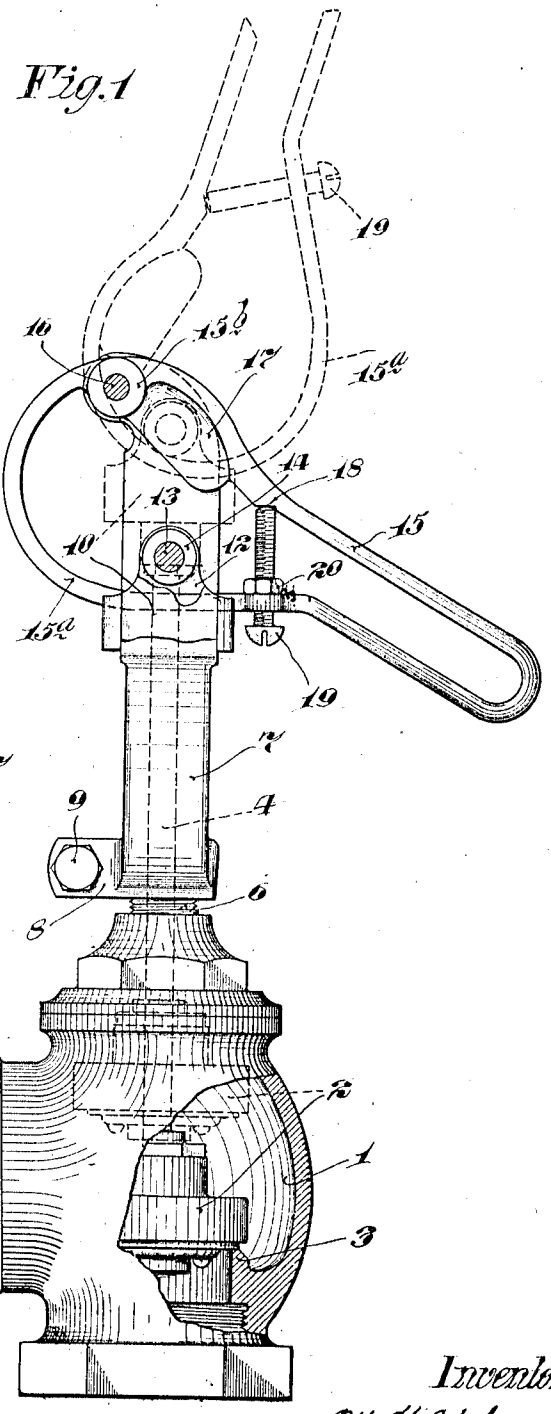
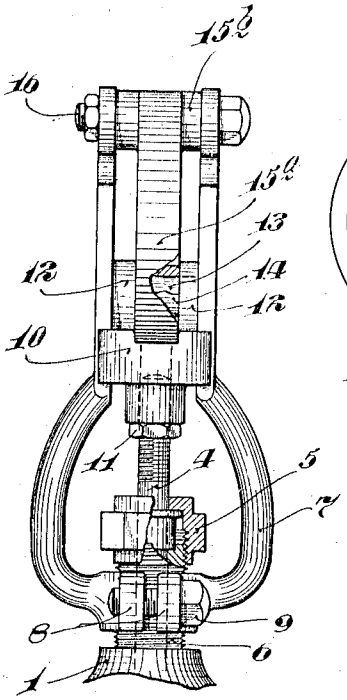


Fig. 2



Witnesses:
Geo. Knutson
E. C. Skinkle

Inventor:
Otto H. Erickson
By his Attorneys
Williamson & Merchant

UNITED STATES PATENT OFFICE.

OTTO H. ERICKSON, OF MINNEAPOLIS, MINNESOTA.

VALVE-OPERATING DEVICE.

1,055,152. Specification of Letters Patent. Patented Mar. 4, 1913.

Application filed February 19, 1912. Serial No. 678,624.

To all whom it may concern:

Be it known that I, OTTO H. ERICKSON, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Valve-Operating Devices; and I do hereby 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.

My invention has for its object to provide an extremely simple and highly efficient valve actuating device especially adapted for use to open and close the valves of steam and hot water radiators, but adapted, nevertheless, for more general use.

Generally stated, the invention consists of the novel devices and combinations of devices hereinafter described and defined in the claims.

The invention is illustrated in the accompanying drawings wherein like characters indicate like parts throughout the several views.

Referring to the drawings, Figure 1 is a view in side elevation with some parts broken away, showing the improved valve operating device applied to a valve such as used in connection with hot water and steam radiators; and Fig. 2 is a rear elevation of the valve operating device, some parts being broken away.

The numeral 1 indicates the casing and the numeral 2 the valve head of the said so-called radiator valve. When the valve is closed, the valve head 2 is seated on a flange 3 of the casing 1. The valve head 2 is provided with a long upwardly projecting stem 4 that works through a suitable stuffing box 5 on the top of the valve casing 1. The valve casing 1 is provided with an upwardly projecting threaded sleeve 6 through which the stem 4 is arranged to move vertically, and to the upper end of which the stuffing box 5 is shown as applied.

The valve mechanism, so far described, is or may be assumed to be of ordinary well known construction, such as usually found in connection with radiator valves.

My improved valve actuating attachment comprises a yoke-like standard 7 made up of laterally spaced legs integrally connected at their lower ends, but formed with clamping prongs 8 and with a threaded seat that directly engages the threaded sleeve 6 of the valve casing 1. A machine screw 9, applied to the prongs 8, serves to rigidly but adjustably clamp the standard onto the said threaded sleeve 6. The upper portions of the legs of the standard 7 are parallel and afford a vertical guide for a cross head 10 to which the threaded upper end of the valve stem 4 is rigidly but adjustably secured. The threaded end of the stem 4 is preferably screwed into the depending hub of the cross head 10 and is locked thereto by a jam nut 11. Just inside of the legs of the standard 7, the cross head 10 is provided with laterally upwardly projecting ears 12 through which a short spindle 13 is passed. An anti-friction roller 14 is journaled on the spindle 13 between the ears 12. The sides of the cross head 10, as will be noted, are grooved to receive the parallel upper portions of the legs of the standard 7.

A valve actuating lever 15 is pivotally connected by a bolt 16 to the extreme upper ends of the legs of the standard 7. This lever 15 is of special and peculiar construction, being formed by an endless metal band, the free end portion of which is bent to form a handle, and the main body portion of which is of circular form, the lower curve of which extends eccentric and approximately on the line of involute curve 15^a from the hub 15^b of the said lever 15. The upper portion of said lever 15, adjacent to its hub, is formed with a reinforced or stiffening rib 17, just out of which is a shoulder or bearing surface 18 that is engaged by the end of an adjusting screw 19 which works with screw threaded engagement through the opposite side of the said lever, and is preferably normally locked by a jam nut 20. The eccentric portion 15^a of said lever 15 works in the space between the roller 14 and the top of the central portion of the cross head 10, and is engageable with the former when the lever is raised, and with the latter when the lever is forced downward. When the lever is forced downward, it tightly closes the valve head 2 against its seat 3, but when the said lever is raised, it positively raises the said valve head into an open position, as indicated by dotted lines in Fig. 1. When the valve is closed by the lever, that portion 15^a of the lever which engages with the cross head 10 stands so near to a dead center in respect to the pivot 16 that friction between the said lever and cross head will lock the said lever

and the said valve in their downwardly pressed positions. Also when the lever is raised, as shown by dotted lines in Fig. 1, the roller 13 is brought so near to the pivot 16 that friction will hold the said valve and lever in their uppermost positions.

By adjustments of the screw 19, the looped body portion of the lever 15 may be sprung so that its curved eccentric portion 15ª will be adjusted accurately for forcing the valve head 2 against the seat 3. The stiffening rib 17 prevents springing of the lever between its pivot 16 and shoulder 18 and causes all of the spring or adjustment produced in the lever by the adjusting screw 19 to take place in the opposite or lower portion of the said lever. Approximately, the required adjustment of the lever attachment in respect to the valve seat 3 may be attained by rotating the standard 7 on the threaded sleeve 6. Also by rotating the said standard on the said threaded sleeve, the lever may be turned to either side or to any desired position. Then when the screw 9 is tightened, the said standard will be securely locked to the said threaded sleeve.

The valve operating attachment, above described, may be easily applied to standard radiator valves and the like, and affords means for very quickly and easily opening or closing the said valve at will. In fact, the lever may be moved either to open or close the valve by a simple engagement of the foot therewith.

What I claim is:—

1. A valve operating device, comprising fixed laterally spaced guides, a cross head movable on said guides and having a pair of spaced abutments, a valve stem connected to said cross head, and a lever pivoted to said guides and having a looped eccentric portion working between and operative on both of the abutments of said cross head.

2. A valve operating device comprising a standard, a cross head movable on said standard, a valve stem connected to said cross head, and a lever pivoted to said standard and having a looped resilient eccentric portion operative on said cross head.

3. A valve operating device comprising a standard, a cross head movable on said standard, a valve stem connected to said cross head, and a lever pivoted to said standard and having a looped eccentric portion operative on said cross head, the said lever having means applied thereto for springing and thereby adjusting the looped eccentric portion thereof.

4. A valve operating device comprising a standard, a cross head movable on the said standard, a valve stem connected to said cross head, and a lever pivoted to said standard and having a looped eccentric portion operative on said cross head, the said lever having means applied thereto for springing and thereby adjusting the looped eccentric portion thereof and the said cross head having a portion working in the loop of said lever in close engagement with the eccentric portion thereof, whereby said cross head will be positively moved in both directions by said lever.

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

OTTO H. ERICKSON.

Witnesses:

HARRY D. KILGORE,

F. D. MERCHANT.