

W. HOUSER.
 AUTOMATIC VALVE FOR STEAM AND HOT WATER RADIATORS.
 APPLICATION FILED MAY 18, 1910.

991,064.

Patented May 2, 1911.

2 SHEETS—SHEET 1.

Fig. 1

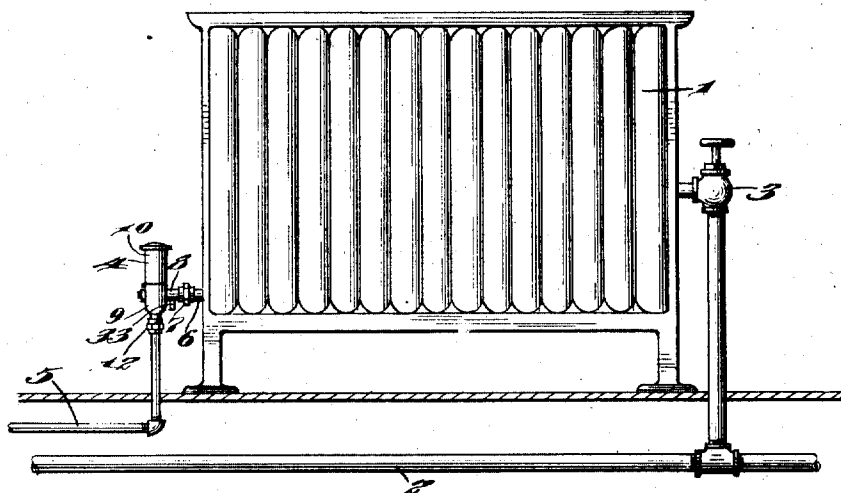
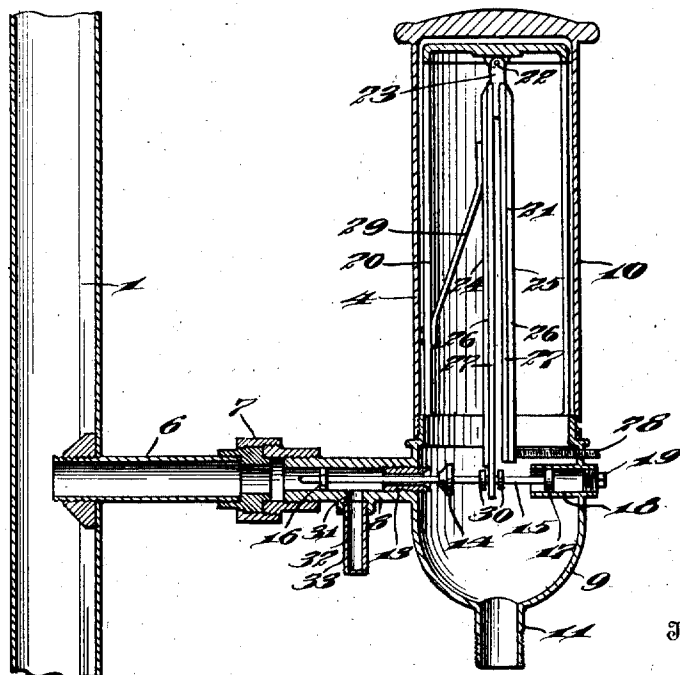


Fig. 2



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Witnesses

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Fig 3

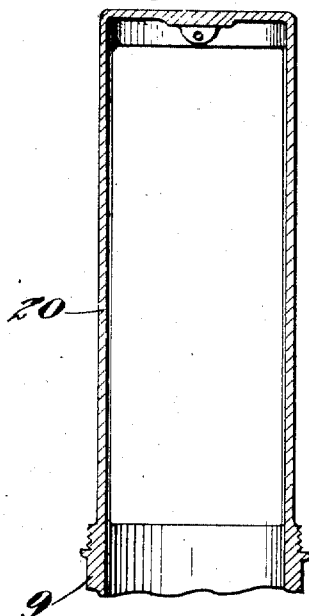


Fig 4

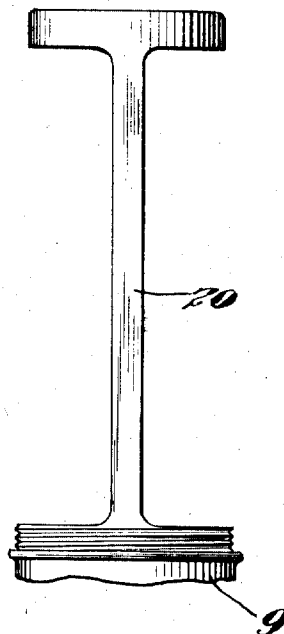


Fig 5

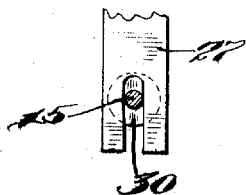
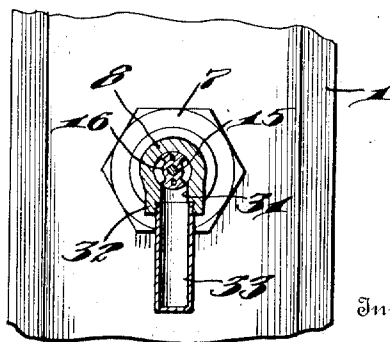


Fig 6



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UNITED STATES PATENT OFFICE.

WALTER HOUSER, OF SUMMITHILL, PENNSYLVANIA.

AUTOMATIC VALVE FOR STEAM AND HOT-WATER RADIATORS.

991,064.

Specification of Letters Patent.

Patented May 2, 1911.

Application filed May 18, 1910. Serial No. 561,932.

To all whom it may concern:

Be it known that I, WALTER HOUSER, a citizen of the United States, residing at Summithill, in the county of Carbon and State of Pennsylvania, have invented certain new and useful Improvements in Automatic Valves for Steam and Hot-Water Radiators, of which the following is a specification.

My invention relates to improvements in automatic valves for steam and hot water radiators, and more particularly for use in connection with my improved heating system, set forth in my application for Letters Patent executed on even date therewith, the object of the invention being to provide an automatic valve which will insure a uniform temperature in the radiator, and which will allow the water of condensation and gases in the radiator to escape.

A further object is to provide an improved automatic valve of this character, which may be attached to any ordinary radiator at the outlet end thereof, and which will automatically control the temperature of the radiator, and which will be of extremely simple, inexpensive construction, strong and durable in use.

With these and other objects in view, the invention consists in certain novel features of construction and combinations and arrangements of parts as will be more fully hereinafter described and pointed out in the claims.

In the accompanying drawings: Figure 1, is a view illustrating the application of my improvements to a radiator. Fig. 2, is a view in section illustrating my improved automatic valve in one position. Fig. 3, is a broken view in longitudinal section of the U-shaped frame 20. Fig. 4, is a view in side elevation of Fig. 3. Fig. 5, is a fragmentary sectional elevation showing the lower bifurcated end of strip 27, and Fig. 6, is an enlarged view in vertical section through the receptacle 33.

1, represents a radiator, 2 a steam or hot water supply pipe, 3 a valve controlling the inlet to the radiator, and 4 my improved automatic valve connected at the outlet of the radiator, and communicating with a return pipe 5.

The outlet pipe 6 from the radiator is connected by a union 7, with an integral pipe or tubular extension 8 on the base portion 9 of my improved valve casing. This base por-

tion 9 has an externally screw-threaded upper end on which a cylindrical casing 10 is screwed, and the lower end of said base has a nipple 11 connected to return pipe 5 by means of a union 12.

A tubular valve seat 13 is screwed into pipe 8, and has a beveled end with which a valve 14 contacts. This valve 14 is secured upon a rod 15, one end of said rod being secured in a sliding guide 16, mounted to slide in pipe 8, and the other end provided with a disk or guide 17, mounted to move in a cylindrical guide 18 integral with base 9, and closed at its outer end by a removable plug 19, as shown.

An upwardly projecting U-shaped frame 20 is provided on the base 9 and inclosed in cylinder 10, and to the upper end of said frame my improved thermostatic fork 21 is secured by a pivot-pin 22. This thermostatic fork comprises a plug 23, to opposite sides of which, compound bars 24 and 25 are secured. These compound bars each consist of strips of two metals, for example, steel and brass. The steel being illustrated at 26 and the brass at 27. One member of this fork is engaged by a set screw 28 so as to regulate the position of the fork to secure its proper operation. The other member of this fork is engaged by a flat spring 29, secured to frame 20, so as to assist in holding the fork in proper position. This member of the fork, which is engaged by spring 29, has its brass strip longer than the steel strip, and the brass strip at its free end is bifurcated, straddles rod 15, and is located between two disks or shoulders 30 on the rod, so that the movement of this member of the fork will move the valve. Due to the difference in the expansion of the two metals constituting the members of the fork, when the temperature in the valve casing rises to a point above that desired, the fork will assume the shape shown in Fig. 3, and will move the valve 14 to closed position. As the temperature falls, the contraction of the metals will cause it to assume the position shown in Fig. 2, which will open the valve and permit the temperature in the radiator to rise. By means of this valve the temperature at the radiator is automatically controlled, and as the valve opens the water of condensation is allowed to escape.

In the pipe or tubular extension 8, an opening 31 is provided having a screw-

threaded boss 32 around the same, in which a tubular receptacle 33 is screwed. This tubular receptacle 33 is adapted to catch the mud and sediment and may be removed from time to time and cleaned.

Various slight changes might be made in the general form and arrangement of parts described without departing from my invention, and hence I do not limit myself to the precise details set forth, but consider myself at liberty to make such changes and alterations as fairly fall within the spirit and scope of the appended claims.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. In a device of the character described, the combination with a casing, a valve in said casing, and a rod secured to the valve and guided in the casing, of a thermostatic fork, a frame in said casing supporting said fork, one member of said fork engaging said rod, a spring bearing against said member engaging the rod, and a set screw engaging the other member of said fork, substantially as described.

2. In a device of the character described, the combination with a casing, a valve in said casing, and a rod secured to the valve and guided in the casing, of a thermostatic fork, a frame in said casing supporting said fork, one member of said fork engaging said rod, a set screw engaging the other member of said fork, and each member of said fork comprising two strips of different metals rigidly secured together, substantially as described.

3. In a device of the character described, the combination with a hollow base having a tubular extension thereon, of a removable

seat in said tube, a valve adapted to engage the seat, a rod secured to the valve, a guide on said rod movable in the tube, a disk on said rod, a tubular guide in said base into which said disk projects, a removable plug in the end of said tube, a screw-threaded opening in said first-mentioned tube, a depending tubular receptacle secured in said opening, a casing on said base, and a thermostatic fork mounted in said casing and engaging said rod, substantially as described.

4. In a device of the character described, the combination with a hollow base having a tubular extension thereon, of a removable seat in said tube, a valve adapted to engage the seat, a rod secured to the valve, a guide on said rod movable in the tube, a disk on said rod, a tubular guide in said base into which said disk projects, a removable plug in the end of said tube, a screw-threaded opening in said first-mentioned tube, a depending tubular receptacle secured in said opening, a casing on said base, a thermostatic fork in said casing comprising two bars secured together, each bar consisting of two strips of different metals secured together, one strip of one bar having a bifurcated end and straddling the rod, shoulders on said rod at the opposite sides of said strip, a set screw engaging one of said bars, and a spring engaging the other of said bars, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WALTER HOUSER.

Witnesses:

WALLACE REMALEY,
HARRY HOUSER.