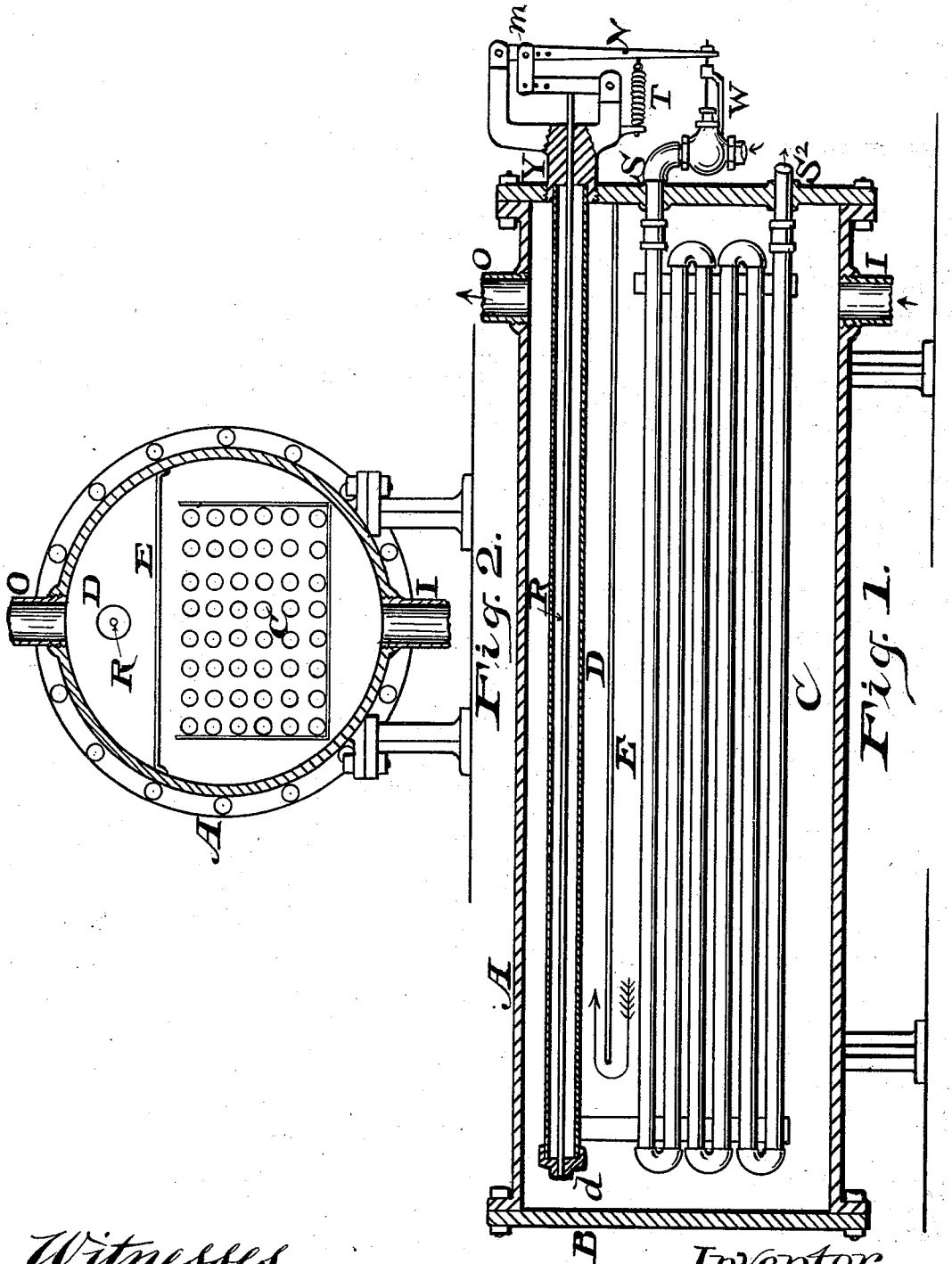
(No Model.)

F. E. PECK.

WATER HEATER.

No. 507,633. Patented Oct. 31, 1893.



Witnesses,
John C. Talcott.
C. M. Quettier.

Inventor,
Frank E. Peck,
by Geo. W. Tibbitts, Atty.

UNITED STATES PATENT OFFICE.

FRANK E. PECK, OF CLEVELAND, OHIO.

WATER-HEATER.

SPECIFICATION forming part of Letters Patent No. 507,633, dated October 31, 1893.

Application filed December 24, 1892. Serial No. 456,294. (No model.)

To all whom it may concern:

Be it known that I, FRANK E. PECK, a citizen of the United States, and a resident of Cleveland, county of Cuyahoga, and State of Ohio, have invented certain new and useful Improvements in Water-Heaters, of which the following is a specification.

This invention relates to thermostats for water-heaters, and has for its object to simplify and reduce the cost of constructing and maintaining such devices.

The invention consists in the simple constructions and combinations as hereinafter described and pointed out in the claim.

In the accompanying drawings—Figure 1 is a longitudinal section of my new water heater. Fig. 2 is a cross-section of the same.

A represents a cylindrical body, having its ends closed by heads B, B′, fastened on by bolts or other suitable means. This body or casing may be of suitable size and capacity to fulfill needed requirements, and is supported in a horizontal position resting on suitable legs or base. In the bottom or lower side is provided a cold water inlet I and in the top, a hot water outlet O, near the front end of the cylinder. C represents a coil of steam pipe, supported in a horizontal position in the central part of the said cylinder, the top coil of which has a steam inlet, S, in one head B, and the lower coil has a steam outlet S^2, in the same head. V is a balanced valve connected with the steam inlet S. The body of said cylinder is divided horizontally by a partition E, above said coils and extends from the front head B, to within a short distance of the rear head B′, the purpose of which is to cause the water to flow from the inlet, I, along and among the steam coils, for heating it, around the farther end of said partition, as indicated by the arrow, before it can reach the outlet, O.

D is a pipe made of brass or other metal susceptible of quick expansion and contraction, by change of temperature. Its forward end is firmly secured in the neck of a yoke Y, fixed in the head B, and within said pipe B is provided a steel rod R, having its rear end secured to a cap *d*, which closes the rear end of said tube, D, said pipe and rod extending to within a short distance of the rear head of the cylinder. The forward end of the rod R protrudes through the neck of said yoke Y, and is employed for operating a lever attachment connected to said yoke for controlling the aforesaid steam inlet valve. The valve stem of said valve is supported in an arm or bracket W, attached to the valve body. To the lower short arm of said yoke Y is pivoted a short lever L, and to upper long arm of the yoke is pivotally connected a depending lever N, the lower end of which is connected with the valve stem. The upper end of lever L is connected to the lever N near its pivoted end, by a link M having several bolt-holes *m* to permit of adjustment in the length of the link; and the protruding end of rod R bears against the lever L, near its pivotal end.

T is a spring attached to the yoke and the lever N designed for drawing on the lever, when pressure by the rod R is withdrawn.

From the foregoing it will be seen that the working of this device is simply as follows: As the water becomes heated the tube D will expand and thereby withdraw the rod R and release its push on lever L, and allow the spring to act upon lever N and close the valve, shutting off the ingress of steam. When the water becomes cooled, by withdrawing hot water or otherwise, the tube again contracts, causing the rod R to again push on lever L and thus through the medium of said levers, open the valve and admit more steam. The levers are so constructed and arranged that a slight movement of the rod is several times multiplied in the lever N, so that a few degrees variation in the temperature in the pipe D serves to operate the valve. It is therefore very sensitive and quick to act.

Having described my invention, I claim—

In a device of the character described, the combination with a horizontal cylinder, steam circulating pipes therein, a horizontal partition above said pipes extending from the front head of the cylinder nearly to the rear head, and cold water inlet and outlet pipes near said front head, and in the bottom and top of the cylinder respectively; of a yoke inserted in the front head, a closed expansible tube rigidly secured to and closed at one end by

the stem of said yoke, extending above said partition and beyond its inner end, and out of contact with all surrounding parts, a cap closing the inner end of said tube, a rod leading from said cap at the inner end of the tube loosely through the stem of the yoke and having a smaller coefficient of expansion than the surrounding tube, a lever pivoted in one arm of the yoke and against which said rod bears, a depending lever pivoted in the other arm of the yoke, a link pivoted to the free end of the first lever and having a number of bolt-holes whereby it is adjustably bolted to the depending lever near the pivot of the latter, a spring moving the levers in the direction of the expansion of said tube, a valve in the steam supply pipe, and connections between the lower end of said depending lever and valve as and for the purpose set forth.

FRANK E. PECK.

Witnesses:
GEO. W. TIBBITTS,
E. J. PINNEY.