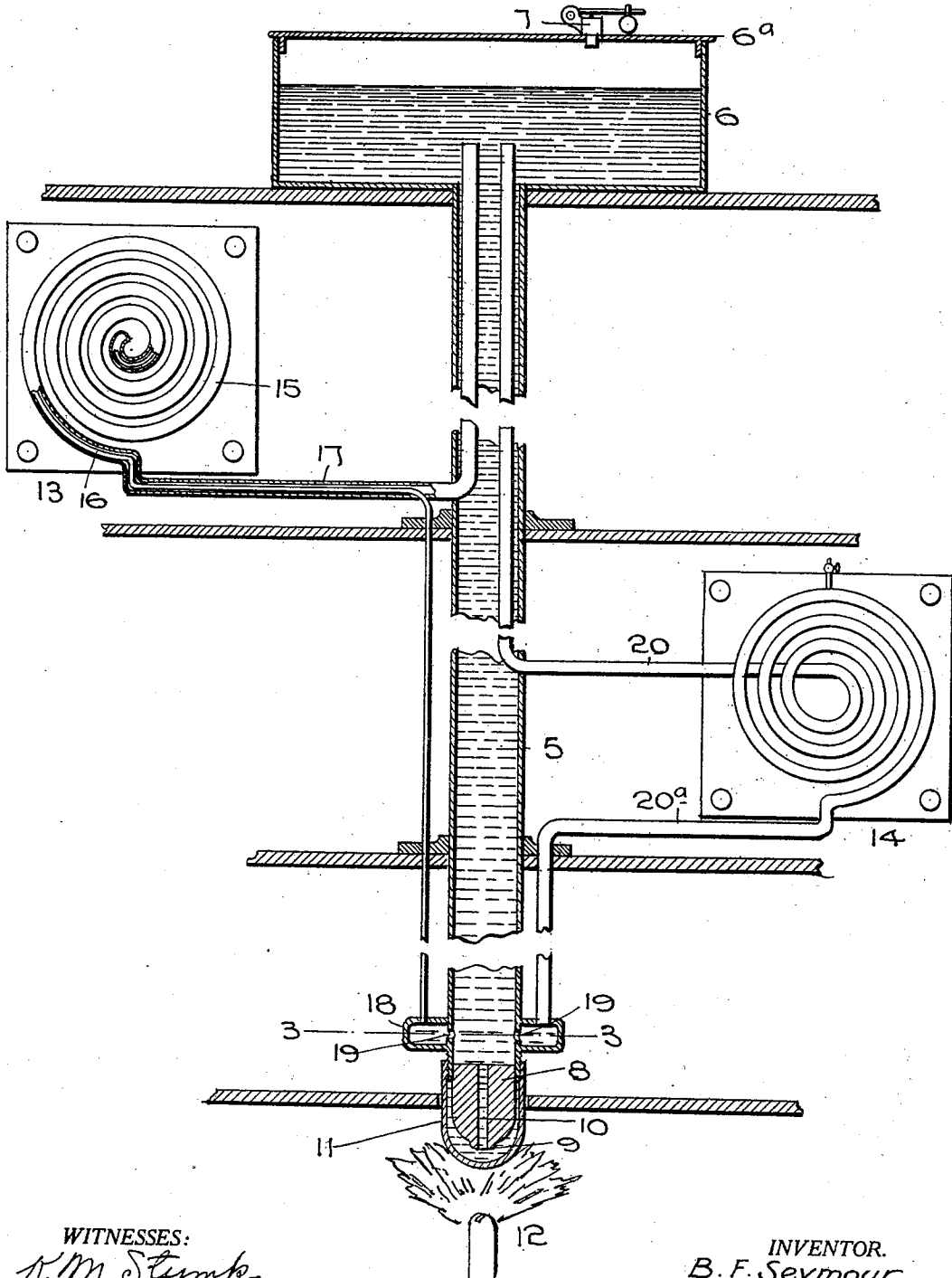


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HEATING SYSTEM.
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946,276.

Patented Jan. 11, 1910.



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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, BENJAMIN F. SEYMOUR, a citizen of the United States of America, residing at Denver, in the county of Denver and State of Colorado, have invented certain new and useful Improvements in Heating Systems, of which the following is a specification.

My invention relates to a new and useful system for heating the rooms of dwellings or public buildings and has for its object to provide an apparatus of the class named which being simple in construction, may be produced and installed at small expense and which, requiring the consumption of but a minimum of fuel to produce the heat necessary to comfortably warm the apartments to which it is applied, is most economical in use.

In practice, my apparatus operates on the principle of the ordinary test tube used in chemical experiments, by means of which a fluid substance may be heated almost instantaneously for the reason that but a very small portion of its contents are at one time subjected to the calorific influence of the heating medium employed, which portion, when heated to a certain temperature, rises to the surface of the liquid in the vessel and is at once replaced by a second similar quantity of fluid.

My apparatus consists, to this end, of a metallic stand pipe which extends vertically through the building in which the system is installed and which connects by means of branch or service pipes with the various radiators disposed in the apartments it is desired to heat. The rounded or pointed lower extremity of the stand pipe is, in practice, subjected to the calorific influence of a suitable heating apparatus which may be of any desired character or design as the low degree of heat required to produce and maintain the necessarily high temperature of the fluid in the pipe, renders it immaterial whether the fuel used is coal, gas, a mineral oil or any other combustible substance.

An embodiment of my invention is illustrated in the accompanying drawing which represents a fragmentary, vertical section through my apparatus as applied to a building.

Referring to the drawings, let the reference character 5 designate the above mentioned stand pipe which, extending through the various floors of the building in which

my system is installed, may be of any desired diameter and which communicates at its upper extremity with a fluid supply tank 6, closed by means of a removable cover 6^a and provided with a safety or pop-valve 7, through which steam generated in the receptacle may escape into the atmosphere.

The orifice of the pipe 5 at its lower extremity is closed by means of a protruding plug 8 whose lower convex portion is formed with a central protuberance 9 and which has a central, vertical passage 10 through which the fluid contained in the pipe may flow into a cup shaped thimble 11 which being screwed upon the external surface of the pipe, incloses the protruding portion of the plug in spaced relation thereto. By vertical adjustment of the position of the thimble upon the extremity of the pipe, the space between the two members 8 and 11 may be varied and the quantity of the liquid contents of the thimble which are subjected to the calorific influence of the subjacent heating medium 12, may thus be regulated in accordance with the heat developed thereby so that under all circumstances, a fixed ratio may be maintained between the degree of heat and the quantity of fluid directly subjected to its influence. In connection with this feature of my invention, I wish it understood that the conformed members 8 and 11 may be of any shape or construction suited to effect variation of the quantity of water contained in the space between them, the semi-spherical form illustrated being preferable.

The reference characters 13 and 14 designate radiators designed to distribute the heat developed in the stand pipe, through the apartments in which they are disposed and although I do not wish to limit myself to the use of any specific form of radiator in connection with my heating system, I preferably employ those illustrated in the drawings as they are well adapted to promote the continuous circulation of the heating fluid and to diffuse the heat emitted therefrom.

The radiator 13 is formed of a coil composed of two concentric tubes 15 and 16, the outer one, 15, of which is closed at its inner end and connects at its opposite extremity with the service pipe 17, which projecting through an aperture in the wall of the stand pipe 5, extends upwardly within the same and terminates a certain distance

below the water-level in the receptacle 6. The inner tube whose open, inner extremity is spaced from the closed end of the surrounding tube, extends through the coil 5 and the therewith connected service pipe and continues downwardly through an aperture in the latter's wall to terminate in the interior of an annular, hollow collar 18 which surrounds the stand pipe near its base 10 and communicates with the interior thereof by means of apertures 19.

The radiator designated by the numeral 14 consists of a coil formed of a single tube, one extremity of which connects with the service pipe 20 which projecting into the stand pipe extends upwardly therein, like the above named conduit 16, while its opposite extremity connects with a pipe 20^a which projects into the annular chamber 18.

When the apparatus is in operation, the small quantity of water contained in the space between the members 11 and 8 at the lower extremity of the pipe 5, is heated and rises after it has attained a certain temperature, to the level of the water in the tank 6, to be replaced by a similar quantity of fluid which enters the thimble 11 through the passage 10 in the plug. The heated fluid which thus collects in the tank, flows through the service pipes 17 and 20 into the respective radiators from which it is discharged into the annular collar 18 to slowly return through the apertures 19, into the stand pipe 5. It will thus be observed that by the means illustrated and described, the water contained in the tank and the therewith connected stand pipe, is continuously circulated through the radiators associated with the latter entering them at a high temperature and being discharged when cooled into the lower portion of the pipe where it is again brought to the required temperature.

Having thus described my invention what I claim is:—

1. In a heating system, a vertical pipe having at its lower extremity a compart-

ment and a narrow passage connecting the latter with the interior of the pipe, a tank connected with the upper end of the pipe, 50 a radiator connected with the lower portion of the pipe above the said compartment and a conduit connecting the said radiator with the water space of the said tank.

2. In a heating system, a vertical pipe 55 closed at its lower extremity and having at its lower portion a surrounding chamber and apertures which connect the interior of the said chamber with that of the pipe, a tank connected with the upper end of the 60 pipe, and radiators connected with the said chamber and with the said tank.

3. In a heating system, a vertical pipe, an apertured plug closing its lower extremity, a cup tightly joined to the pipe and 65 surrounding the plug, a tank connected with the upper end of the pipe and radiators communicating with the interior of the tank and with that of the pipe above the said 70 passage.

4. In a heating system a vertical pipe having at its lower end a compartment connected with its interior by a narrow passage, means to vary the capacity of the said compartment, a tank connected with 75 the upper end of the pipe and radiators communicating with the interior of the tank and with the pipe at a point above the said passage.

5. In a heating system, a vertical pipe 80 having a reduced passage at its lower extremity, a cup tightly joined to the pipe, surrounding the said extremity and adjustable relative thereto a tank connected with the upper end of the pipe and radiators 85 communicating with the exterior of the said tank and with the lower portion of the pipe.

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

BENJAMIN F. SEYMOUR.

Witnesses:

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K. M. STUMP.