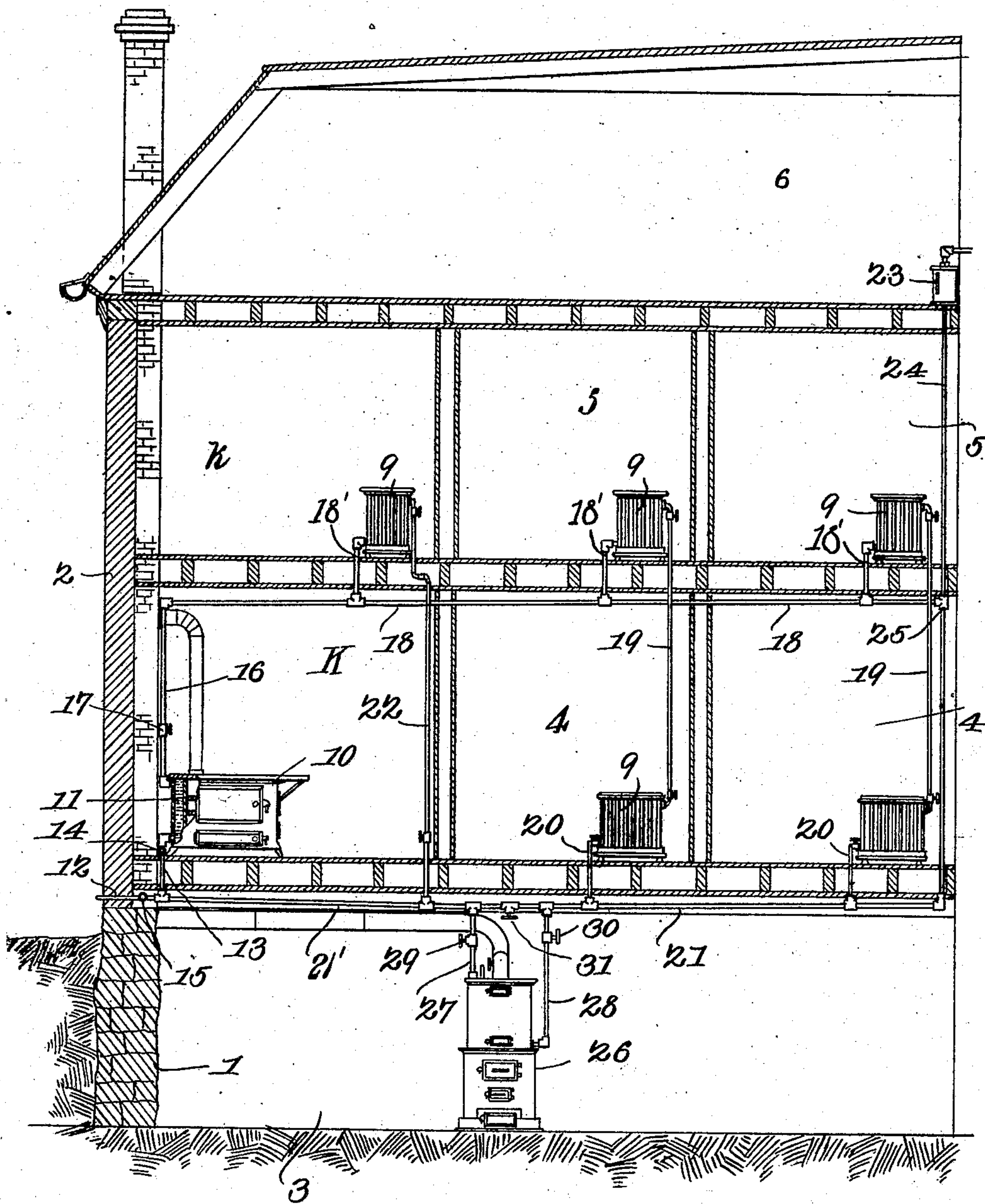


No. 854,969.

PATENTED MAY 28, 1907.

J. F. STAUDT.  
HEATING SYSTEM.  
APPLICATION FILED SEPT. 23, 1905.



Witnesses

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# UNITED STATES PATENT OFFICE.

JOHN F. STAUDT, OF STAUDTSVILLE, PENNSYLVANIA.

## HEATING SYSTEM.

No. 854,969.

Specification of Letters Patent.

Patented May 28, 1907.

Application filed September 23, 1905. Serial No. 279,817.

*To all whom it may concern:*

Be it known that I, JOHN F. STAUDT, a citizen of the United States, residing at Staudtsville, in the county of Schuylkill and State of Pennsylvania, have invented a new and useful Heating System, of which the following is a specification.

This invention has relation to heating systems and it consists in the novel construction and arrangement of its parts as hereinafter shown and described.

The object of the invention is to provide a system having two heaters, one of which may be used in cold weather and both of which are intended to be used in extreme cold weather for the purpose of heating water which is circulated through radiators in a novel manner, the said radiators being located at different levels and in various rooms or compartments throughout the building. The heater which may be used when the weather is not extremely cold is preferably a cooking stove while the other heater is preferably a furnace which is located in the cellar of the building.

In the drawing:—the figure represents a vertical sectional view of a building equipped with the heating system.

The foundation 1 supports the walls 2 and incloses the cellar or basement 3. On each floor of the building is a series of rooms or compartments designated as 4 and 5 respectively. The top of the building is provided with an attic or garret 6. Each of the rooms 4, and 5 is provided with a radiator 9. A heater 10 is located in the room K which is preferably a kitchen. Said heater is provided with a water-back 11. The water supply pipe 12 leads into the building and is connected by means of the pipe 13 with the water-back 11 of the heater 10. Said pipe 13 is provided with a valve 14 and the supply pipe 12 is provided with a valve 15. The pipe 16 also connects with the water-back 11 and is provided with a valve 17. The pipe 18 is connected with the pipe 16 and is slightly inclined with its lower end adjacent the said pipe 16. The pipe 18 is provided with branches 18' which connect with the lower ends of the radiators 9 in the rooms 5 which are located upon the second floor of the building. The pipes 19 are connected at their upper ends to the upper ends of the last said radiators and are connected at their lower ends to the upper ends of the radiators 9 located in the rooms 4 of the first floor

of the building. The pipes 20 connect the lower ends of the last said radiators with the pipe 21 which in turn through the extension 21' connects with the pipe 13. Said pipe 21 and extension 21' form a return pipe. In the compartment *k* which is located above the room K is a radiator 9 which is also connected at its lower end by means of a pipe 18' with the pipe 18. The pipe 22 is connected at its upper end to the upper end of the radiator 9 located in the room *k* and at its lower end is connected with the return pipe section 21' at a point between the connections of the pipes 20 with the section 21 and the pipe 13.

The pipe section 21' is connected with an expansion tank 23 located in the attic or at some suitable elevated point by means of a pipe 24 which is also connected with the pipe 18 as shown at 25. In the cellar 3 is located a furnace or water heater 26 which is connected with the return pipe section 21 by means of the pipe 28 having the valve 30. The pipe 27 having the valve 29 connects the heater 26 with the return pipe section 21'. The valve 31 is provided upon the return pipe at the meeting ends of the sections 21 and 21' thereof and at a point between the connection of the pipes 27 and 28 therewith.

The operation is as follows:—Inasmuch as the heater 10 is preferably in the form of a cooking stove fire is maintained in the same substantially continuously. Thus in cool weather the valve 17 may be opened and the water heated in the water-back 11 will ascend through the pipe 16 and pass along the pipe 18 and through the pipes 18' into the lower ends of the radiators 9 located in compartments *k*, and 5. From the compartment *k* the water will descend from the top of the radiator 9 through pipe 22 and thence through the return pipe section 21' and through pipe 13 to the water-back 11. As the pipe 22 passes through the room K in which the heater 10 is located it is obvious that no other heating appliance is necessary to keep the room K at a comfortable temperature. From the radiators 9 located in the rooms 5 the water will descend through the pipes 19 and enter the tops of the radiators 9 located in the rooms 4. From the last said radiators the water will pass through the pipes 20 into the return pipe section 21 and as the valve 31 has previously been opened the said water will pass through return pipe section 21' and pipe 13 into the



water back 11. In extremely cold weather the circulation above described is maintained notwithstanding a fire is started in the heater 26 and the valve 31 is closed. The fire in  
5 the heater 10 will maintain the circulation as above described through pipes 16, 18, 18', radiator 9, located in room *k*, pipe 22, and through pipe section 21' to 13 and water-  
back 11. As the water in pipe 21 which has  
10 been led thereto through the pipes 20 is prevented from returning directly to the heater 10 by reason of the fact that the valve 31 is closed the said water will descend through  
the pipe 28 and pass through a heater 26 and  
15 pass up out of the same through pipe 27 and into pipe section 21' upon the opposite side of the valve 31, from which point the water again passes through pipe 13 to the heater 10  
as above described. It will thus be ob-  
20 served that in extremely cold weather the water is heated twice or super-heated at a single circulation throughout the major portion of the building. The water that passes  
through the radiator 9 in the room *k* is heat-  
25 ed once at each circulation through the said radiator but as the said compartment is located over the room *K* which contains the heater 10 its temperature is consequently  
maintained at a comfortable degree by rea-  
30 son of its proximity to the heating appara-

tus. The novelty of the present invention does not reside so much in the means for heating the room *k* as it does for heating the other rooms by the system indicated. How-  
ever, means for heating the room *k* may be 35 employed and is so illustrated which means does not interfere materially with the operation of the heating system in general.

Having described my invention what I claim as new and desire to secure by Letters- 40 Patent is:—

A hot water heating system comprising in combination two water heaters; a pipe estab-  
lishing communication between said heaters,  
upper and lower radiators, supply pipe con- 45  
nections between one of said heaters and the upper radiators, return pipe connections between the lower radiators and the other of  
said heaters, a pipe connection between one  
of the upper radiators and the pipe connect- 50  
ing the heaters, pipe connections between the other upper radiators and the lower radiators, respectively.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature 55  
in the presence of two witnesses.

JOHN F. STAUDT.

Witnesses:

CHARLES A. CLOUSE,  
JAMES M. McELHENNY.