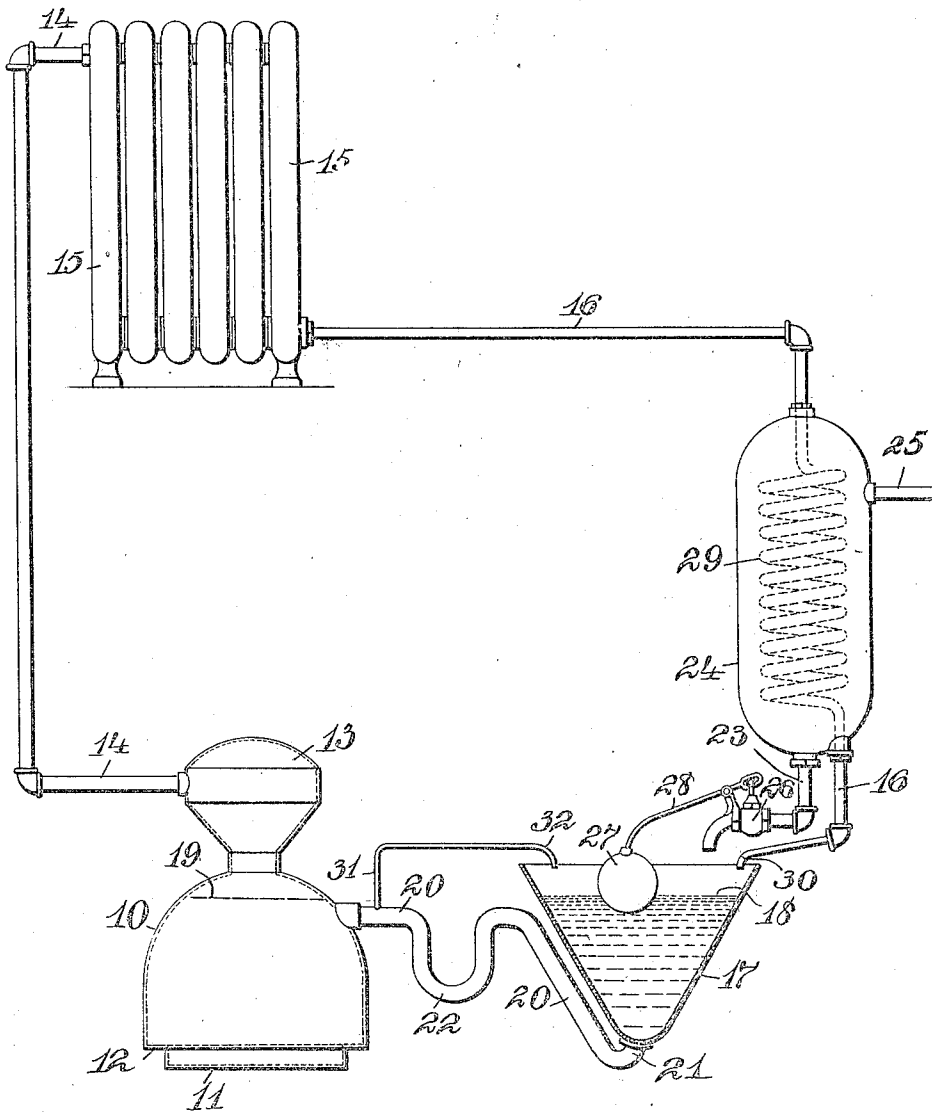


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HEATING APPARATUS.
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1,144,533.

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UNITED STATES PATENT OFFICE.

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HEATING APPARATUS.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that we, BERNARD DWOFSKY and SAM SAMBAR, subjects of the Czar of Russia, and residents of Newark, county of Essex, and State of New Jersey, have invented certain new and useful Improvements in Heating Apparatus, of which the following is a specification.

This invention relates to a heating apparatus that is adapted for use in a small heating plant, being particularly designed to be used in connection with a stove range, or gas range, whereby a house equipped with no heating apparatus, but with the cooking facilities, can utilize a part of the cooking apparatus to heat the boiler of the heating apparatus.

The invention is designed to provide a heating apparatus of this kind which is simple, is automatic in its operation and does not necessitate the use of a safety valve, and is not subjected to damage by explosion or like accidents.

The invention is further designed to provide a heating system in which the feeding of the water into the system is easily regulated, and in which the return pipe from the radiator is disposed in the water supply mechanism so that condensation of steam on its return to the radiator is insured, whereby the objectionable feature of an admission of steam is avoided, and furthermore, the feed water is slightly heated so as to remove its chill, and the heating of the water in the boiler is therefore easy.

The invention is illustrated in the accompanying drawing, in which the single figure illustrates one type of the system in a diagrammatic way, so that the operation of the mechanism and the coöperation of the parts is easily understood, but it will be evident that the dispositions of the parts can be changed, and that the particular construction of the individual parts of the system can be changed without departing from the scope of the invention.

In the type of mechanism that is illustrated in the drawing the boiler 10 is formed with a top portion that has a dome thereon, the bottom being provided with a depressed part 11, above which is the shoulder 12, so that the boiler 10 can be seated in place on a lid on the top of a stove or range, or can be placed on a gas stove, and can be particularly used in connection with a coal stove, where the heat of the stove is utilized without additional expense, since the fire

is kept in the stove for the purpose of cooking, and the heat is thus utilized in keeping the water in the boiler hot and causing it to boil.

Above the boiler 10 is a steam chamber 13, although it will be evident that the form of this steam chamber can be changed as desired. A pipe 14 leads from the boiler, being led from the steam chamber to a radiator 15. The pipe 14 can be provided with any form of controlling device, such as valves, these, however, being common and not being illustrated in the drawing. The pipe 14 is preferably led into the radiator at the top, but the particular point of entry is not limited to the top but can be disposed at any point found suitable. A return pipe 16 connects with the radiator, preferably at the bottom, and conducts the condensed steam in the form of water from the radiator. The receptacle 17 is not made air tight, being open to the atmosphere and is adapted to hold water and forms a reservoir for the boiler, the receptacle being so placed that the water level 18 in the receptacle is the same as the water level 19 in the boiler. A pipe 20 connects the receptacle 17 with the boiler 10, the pipe being placed below the water level with its inlet 21 preferably placed near the bottom of the receptacle, the pipe having a trap 22 therein, although if necessary the trap can be dispensed with. The pipe 20 insures the water levels in the receptacle and boiler being substantially the same.

A water supply pipe 23 is provided with an enlargement 24 which forms a chamber fed by a pipe 25 which is a portion of the water supply pipe, the pipe 23 having a faucet 26 which is opened and closed, according to the elevation and depressing of a float 27 which is connected by an arm 28 to the valve mechanism of the faucet, so that a rising water level will close the faucet by means of the float. In the pipe 16 is placed a coil 29 which is within the chamber 24 and therefore surrounded by the feed water that passes through the chamber 24. The end of the pipe 16 is provided with a suitable outlet 30 which is disposed so that it empties into the receptacle 17, this being done to economize the water.

We prefer to provide the pipe 20 with a vent pipe 31 which is connected with the pipe 20 and can be disposed with its outlet at any suitable point, but we prefer to place the outlet 32 so that if any water is passed

through the pipe 31 it will be deposited in the receptacle 17. The radiator is disposed at any suitable point, and the system is particularly designed for heating one or two rooms from an ordinary kitchen range or stove, this device being particularly adapted for heating bed rooms and the like from the kitchen stove without the employment of any additional heating apparatus than the stove and the hereinbefore described mechanism.

The operation of the device is simple, as when the water in the boiler 10 boils the steam passes through the pipe 14 into the radiator 15 and thus heats up the radiator, the radiator being of any desired type and not being limited to the form that is illustrated. The return pipe 16 conducts the water from the radiator, and any steam that is present with the water, through the coil 29 where its condensation is assured by reason of the water in the chamber 24. In the same manner the water which is being fed to the system through the chamber 24 is partially heated. The steam which, by the time it passes through the coil 29, is thoroughly condensed passes out through the outlet 30 into the receptacle 17. The receptacle 17 is supplied with water by means of the automatically operated faucet 26, and when the water level in the boiler goes down, water from the receptacle 17 passes through the pipe 20 and into the boiler so as to insure the boiler being supplied with the proper amount of water. The pipe 31 acts as a direct outlet for steam whenever the steam pressure forces the water in the boiler downward to the level of the pipe 20.

We have found this system to be efficient, and being automatic in its operation it requires very little attention and is also economical through its use of the heat from a coal stove or range, the heat of such stove being, under ordinary conditions, wasted, except for the heat that radiates from the stove into the one room in which the stove is situated.

By our improved system heat can be radiated into a separate room by placing the radiator 15 in said separate room, thus conducting heat by means of steam from the room in which the stove is situated.

Having thus described our invention, we claim:

1. A heating apparatus comprising a boiler, a radiator, a water receptacle open to the atmosphere, the level of water in the receptacle being the same as that in the boiler, a pipe connecting the boiler and the receptacle, a feed pipe arranged to discharge into said receptacle, an automatic means on the feed pipe for maintaining a predeter-

mined level of water in the receptacle, a pipe connecting the boiler with the radiator, a return pipe from the radiator to the receptacle, and a chamber in the feed pipe through which the return pipe passes.

2. A heating apparatus comprising a boiler, a radiator, a water receptacle open to the atmosphere, the level of water in the receptacle being the same as that in the boiler, a pipe connecting the boiler and the receptacle, a vent pipe on the said connecting pipe and extending above the level of the water of the receptacle, a water feed pipe for the receptacle, an automatic means on said feed pipe for maintaining a predetermined level of water in the receptacle, a pipe connecting the boiler with the radiator, a return pipe from the radiator to the receptacle, and a chamber in the feed pipe through which the return pipe passes.

3. A heating apparatus comprising a boiler, a water receptacle open to the atmosphere, the boiler and receptacle being so disposed that their water levels are substantially the same, a pipe connecting the receptacle and the boiler below the water level, the pipe having a trap therein, a vent pipe on the pipe that connects the boiler and the receptacle, a water supply pipe, a float operated mechanism on the water supply pipe for regulating the flow of water to maintain a predetermined water level in the receptacle, a radiator, a pipe connecting the radiator and the boiler, and a return pipe leading from the radiator and having its outlet in the receptacle.

4. A heating apparatus comprising a boiler, a water receptacle open to the atmosphere, the boiler and receptacle being so disposed that their water levels are substantially the same, a pipe connecting the receptacle and the boiler below the water level, the pipe having a trap therein, a vent pipe on the pipe that connects the boiler and the receptacle, a water supply pipe, a float operated mechanism on the water supply pipe for regulating the flow of water to maintain a predetermined water level, a radiator, a pipe connecting the radiator and the boiler, a chamber in the water supply pipe, and a return pipe leading from the radiator, the return pipe being formed into a coil within the chamber, the outlet of the return pipe being so disposed that it empties into the water receptacle.

In testimony that we claim the foregoing, we have hereto set our hands, this 3rd day of October, 1914.

BERNARD DWOFISKY.
SAM SAMBAR.

Witnesses:

WM. H. CAMFIELD,
M. A. JOHNSON.