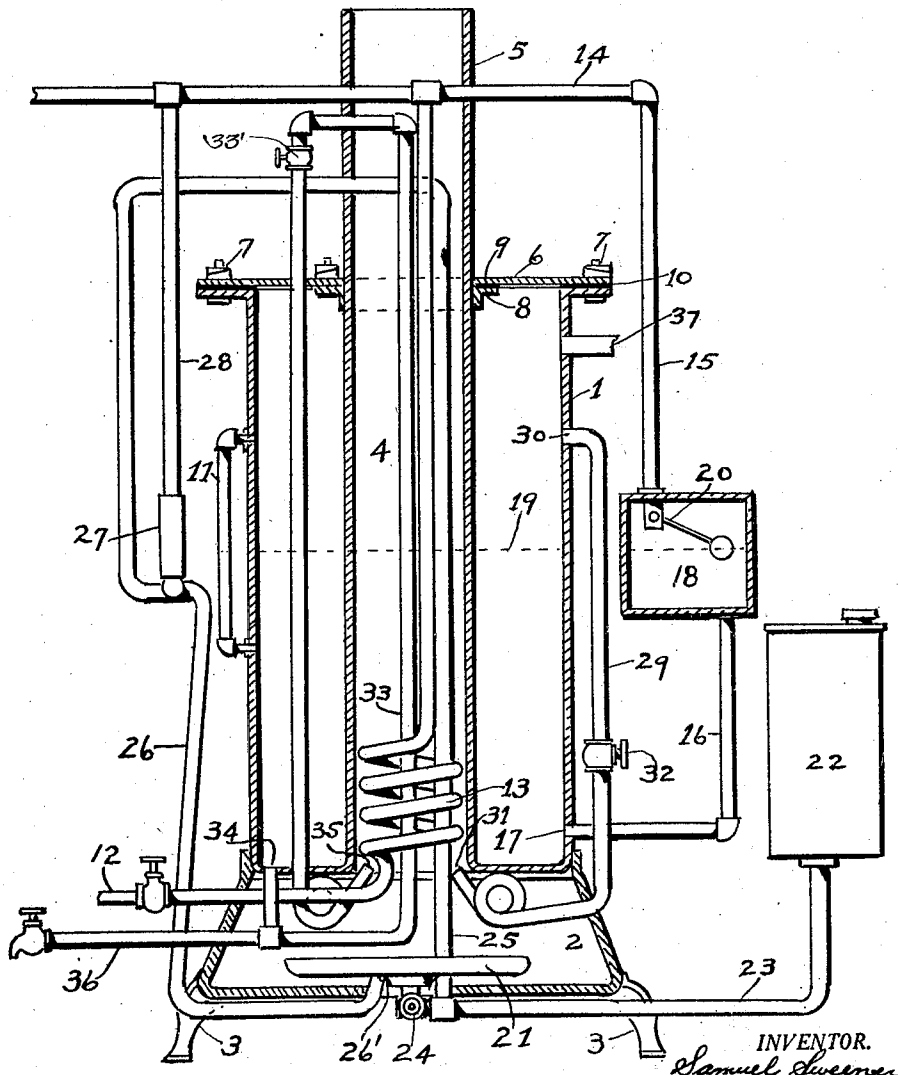
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COMBINATION HEATING AND POWER APPARATUS

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COMBINATION HEATING AND POWER APPARATUS.

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This invention relates to a combination heating and power apparatus primarily intended for use in domiciles, but it will be obvious that the device may be employed for any purposes wherein it is found to be applicable.

Important objects of this invention are to provide a unitary apparatus of the class described, in a manner as hereinafter set forth, which may be utilized to supply heat, hot water, and steam power, which includes novel means for automatically maintaining water supply in the boiler, which is simple in its construction and arrangement, strong, durable and efficient in its use, compact, substantial, and comparatively inexpensive to manufacture, install and operate.

With the foregoing and other objects in view, which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment herein disclosed can be made within the scope of the claim hereunto appended without departing from the principle of the invention.

In the drawing forming a portion of this specification and wherein like numerals of reference designate corresponding parts:

The figure is an elevation of a combination heating and power apparatus in accordance with this invention.

Referring in detail to the drawing, 1 denotes a vertically disposed boiler mounted on the combustion chamber 2, which latter is supported on the legs 3. The boiler 1 is preferably cylindrical in contour and is formed with a centrally disposed passage 4 which extends throughout the length of the boiler 1. The passage 4 at its lower end opens into the combustion chamber 2, while the wall constituting the former forms a projection 5 at the upper end of the passage 4. The projection 5 is adapted for the attachment of a heat conduit (not shown) which latter may extend to the various rooms of the domicile for heating purposes in the usual manner for hot air distribution. The draught or chimney is also intended to be attached to the projection 5 to dissipate the products of combustion forming in the combustion chamber 2.

The boiler 1 is provided with a cover 6 which is secured to the flanged peripheral upper edge of the boiler 1 by means of clamping members 7 or in any other suitable manner. The cover 6 seats on a flanged collar 8 secured to the periphery of the passage wall. Suitable gaskets 9 and 10 are respectively interposed between the collar and the cover, and between the flanged edge of the boiler and the cover to render the boiler steam proof.

A water gauge 11 of the usual construction is carried at the side of the boiler to indicate the amount of water within the latter.

The water supply pipe 12 extends in the combustion chamber 2 and has a portion constructed to form a coil 13 which is situated and secured, in any suitable manner, in the lower end of the passage 4. From the coil 13 the supply pipe 12 extends vertically through the passage 4 and communicates with the horizontally disposed pipe 14. It will here be noted that the water on its passage through the coil 13 is heated and in consequence pipe extensions to the pipe 14 connected with the coil 13, may be utilized for hot water transmissions to faucets, radiators, etc.

Water is supplied to the boiler 1 through the pipes 15 and 16, the former being connected with the pipe 14, and the latter communicating with the boiler 1 at the lower end thereof, as indicated at 17. The pipes 15 and 16 communicate with a tank 18 which latter is positioned at an elevation to determine the height of water level, indicated at 19, to be maintained within the boiler 1. A float operated valve 20 is arranged in the tank 18, to automatically supply and shut off the water supply to the boiler, thereby maintaining a pre-determined water level within the latter.

The heating element 21 preferably employed in connection with my improved device consists of a combination oil and gas burner. A fuel reservoir 22, suitably supported, is provided and communicates with the burner 21 through the pipe 23 which latter carries a fuel control valve 24. A vertically disposed pipe 25 communicates with the pipe 23 and extends through the combustion chamber 2 and the passage 4. The relative positions of the reservoir 22 and pipe 25 is such that the lower portion of the latter will at all times be filled with fuel

oil a distance commensurate to the elevation of the reservoir 22. The lower portion of the pipe 25 being exposed to the heat from the element 21, the liquid fuel therein will vaporize and in the form of a gas return as a fuel to the heating element 21 through the pipe 26 forming a continuation of the pipe 25, and being connected to the element as indicated at 26'.

The pipe 26 is provided with a thermostatic regulator 27 for controlling the supply of fuel to the heating element 21 passing through the pipe 26. The regulator 27 is actuated by the temperature of the water in the pipe 14 which latter is connected to the regulator 27 by the conduit 28.

It will be noted that after gas is generating the liquid fuel or oil may be shut off by the valve 24 and the heating element 21 supplied with gas only in a manner as above described.

The boiler 1 is designed for generating steam and the portion of the boiler above the water level constitutes a steam chamber. A pipe 29 communicating with the steam chamber, as indicated at 30, has its outlet 31 arranged adjacent to the heating element 21 to supply steam for the purpose of dissipating the products of combustion through the passage 4. The pipe 29 is provided with a regulating valve 32.

Another pipe 33, provided with a regulating valve 33', communicates with the bottom of the boiler 1, as indicated at 34, and extends upwardly through the passage 4 and downwardly to the heating element 21, having its outlet 35 arranged adjacent to the heating element 21 for the purpose described relative to the pipe 29. A boiler drain 36 connects with the pipe 33.

The steam from the steam chamber of the boiler 1 by suitable connections 37 may be transmitted and utilized for power or for any other purposes desired.

The use of my improved device provides a unitary apparatus for supplying hot water, hot air, steam and power for any purposes required and will function automatically.

What I claim is:—

In combination an apparatus of the character described comprising a cylindrical boiler provided with a centrally disposed vertical passage extending throughout the length of the boiler and projecting above the upper end of the latter, a combustion chamber arranged below said boiler, a heating element mounted in said combustion chamber, a water supply conduit extending through said passage and having the lower portion thereof coiled and positioned adjacent to said heating element for supplying heated water to said boiler, means connected in said water supply conduit exteriorly of said boiler for regulating the water supply to said boiler, a liquid fuel reservoir mounted in an elevated position relatively to said heating element, a fuel supply pipe connecting said reservoir with said heating element, said fuel supply pipe provided with a communicating extension conduit extending through said passage and adapted to be heated for vaporizing said liquid fuel, said extension conduit communicating with said heating element, means for automatically controlling the vaporized fuel supply to said heating element, and a steam supply conduit communicating with said boiler, and with the lower end of said passage for dissipating the products of combustion from said heating element, substantially as described and for the purpose set forth.

In testimony whereof I affix my signature.

SAMUEL SWEENEY.