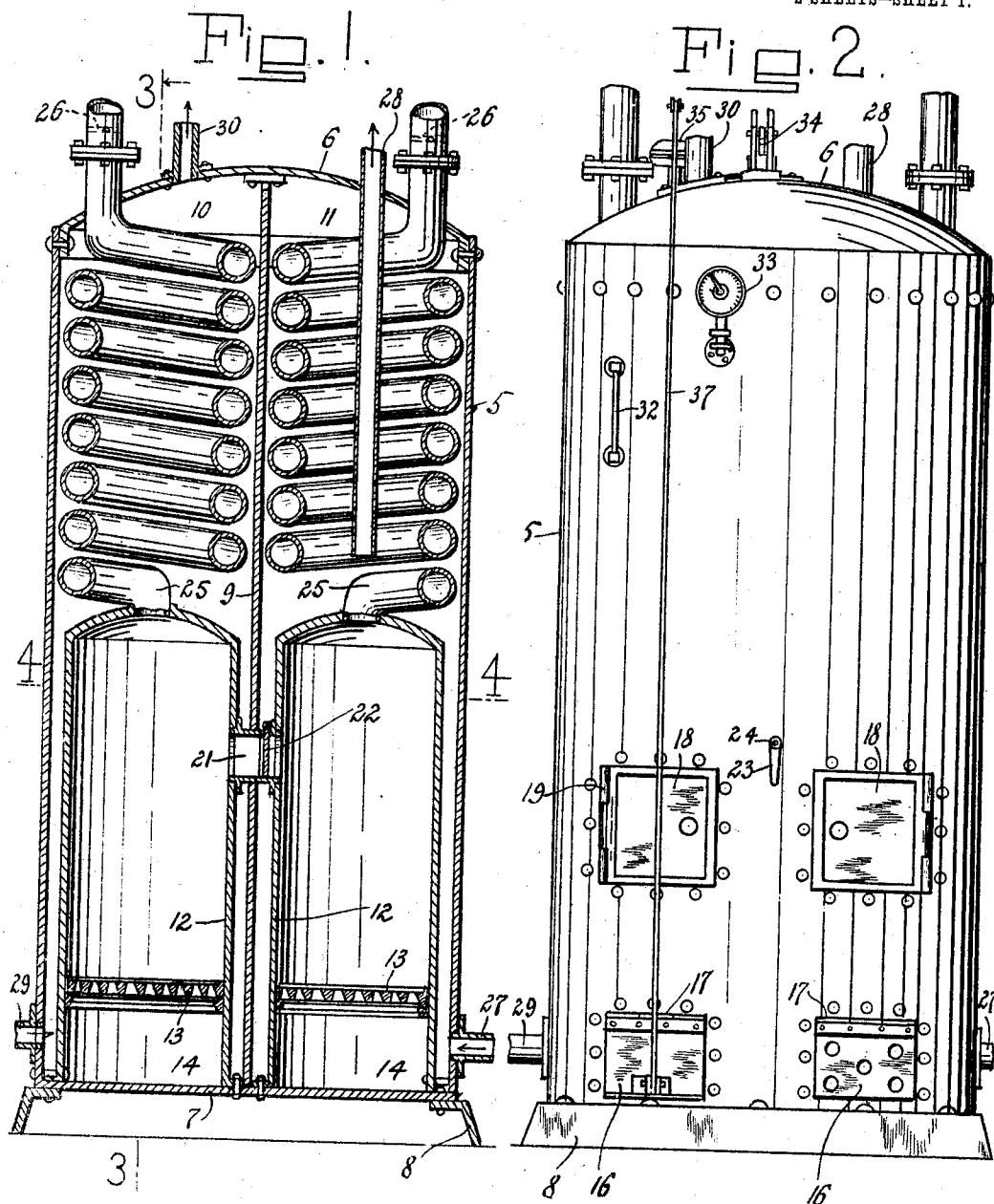


L. LUKÁCS.
COMBINATION STEAM BOILER AND WATER HEATER.
APPLICATION FILED JUNE 21, 1912.

1,037,029.

Patented Aug. 27, 1912.

2 SHEETS—SHEET 1.



WITNESSES
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Fig. 3.

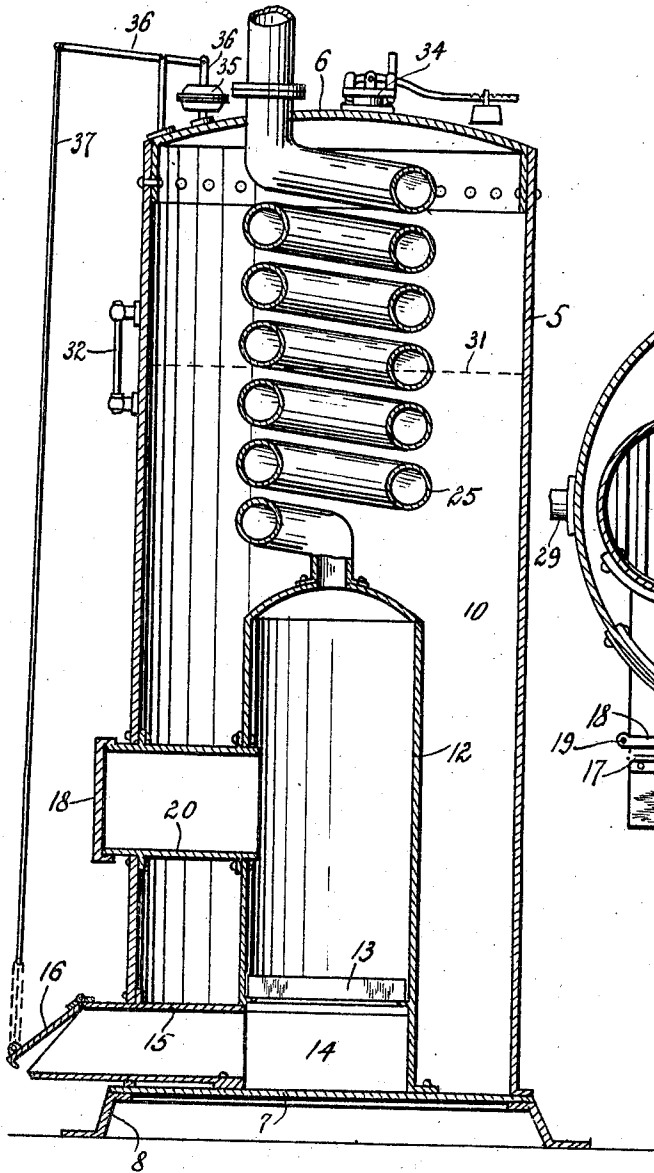
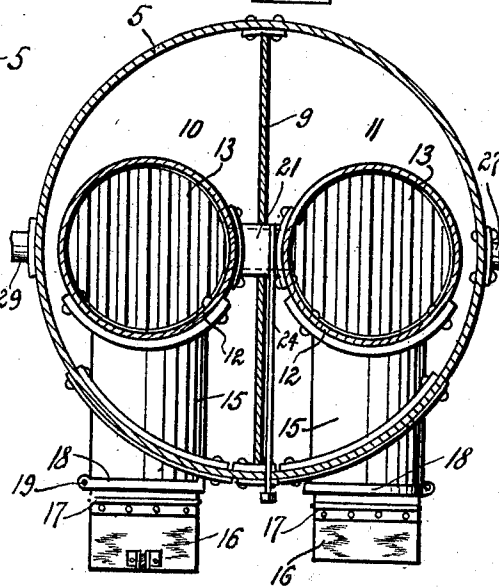


Fig. 4.



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LÁZÁR LUKÁCS, OF NEW YORK, N. Y., ASSIGNOR OF ONE-HALF TO HERMAN B. FRIEDMAN, OF NEW YORK, N. Y.

COMBINATION STEAM-BOILER AND WATER-HEATER.

1,037,029.

Specification of Letters Patent.

Patented Aug. 27, 1912.

Application filed June 21, 1912. Serial No. 705,045.

To all whom it may concern:

Be it known that I, LÁZÁR LUKÁCS, a subject of the King of Hungary, and resident of the city of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Combination Steam-Boilers and Water-Heaters, of which the following is a specification.

The present invention relates to liquid-heaters and vaporizers, and has for one of its objects to provide a simple and inexpensive device adapted to be used for the generation of steam and for heating water, for instance for bathing, washing or other purposes. The steam generated may be conducted to radiators, etc.

With these and other objects in view, which will more fully appear as the nature of the invention is better understood, the same consists in the combination, arrangement and construction of parts hereinafter fully described, pointed out in the appended claims and illustrated in the accompanying drawings, it being understood that many changes may be made in the size and proportion of the several parts and minor details of construction within the scope of the appended claims without departing from the spirit or sacrificing any of the advantages of the invention.

One of the many possible embodiments of the invention is illustrated in the accompanying drawings, in which:—

Figure 1 is a central longitudinal section taken through a combined steam boiler and water heater constructed in accordance with the present invention; Fig. 2 is a front elevation of the same; Fig. 3 is a section taken on line 3—3 of Fig. 1; and Fig. 4 is a section taken on line 4—4 of Fig. 1.

In the drawings, the numeral 5 indicates the, preferably, cylindrical boiler shell, which is provided with heads 6 and 7. The whole structure is adapted to rest on legs or standards 8, 8. The shell is provided with a longitudinal partition 9, dividing the same into compartments 10 and 11 which do not communicate with each other. In the lower portions of each of these compartments is arranged a fire-box 12, which may also be made cylindrical, as clearly shown in Fig. 4 of the drawings. Near the bottom of each fire-box is supported a grate 13 on which fire may be built. Below these grates

are located the ash-pits 14, to which access may be had through collars 15, the outer ends of which extend beyond the cylindrical shell 5, and are provided with dampers 16, 16, which are hinged at 17 to the collars 15. For the admission of fuel, doors 18 are provided, which are hinged at 19 to collars 20, extending through the shell to the fire-boxes 12. The two fire-boxes communicate with each other through a tubular member 21, which extends through the partition 9 and contains a disk valve 22, which is adapted to be actuated by means of a handle 23, the latter being attached to the spindle 24 of the valve. By means of this valve the communication between the two fire-boxes may be controlled for a purpose hereinafter to be described. From the top of each fire-box extends a flue 25, extending up toward and to the head 6 and through the said head, to be connected with the chimney. The flues which serve to conduct the heated air and products of combustion toward the chimney are bent in the form of coils. Obviously the flow of the products of combustion will thereby be retarded and their heat effectively given up to the water that surrounds the said flues and the fire-boxes in the compartments. In each flue there is arranged a damper 26 of the well known construction, adapted to be operated manually to control the draft in the flue.

The compartment 11 forms the water heating section of the device, the water entering the said compartment through a supply pipe 27. A pipe 28 is tapped into the compartment 11 at its top for the purpose of conducting the heated water to the place at which it is to be used. The compartment 10, which forms the steam boiler, is provided with a water supply pipe 29 near its bottom and with a steam pipe 30 in the head 6. The normal water level is indicated by the line denoted by the numeral 31, the height of the water within the boiler being indicated by a water-gage 32 of any suitable construction. To indicate the pressure of steam in the boiler, a steam gage 33 may be provided, and a safety valve 34 may be made use of for preventing the pressure of the steam from exceeding a certain predetermined point. The damper 16 of the compartment 10 may be set by hand, or it may be actuated automatically through the

steam pressure by a mechanism 35, which is connected by the intermediary of a plurality of levers 36 and a rod 37 with the said damper. The particular construction of the mechanism 35 need not be described, as the same does not form an essential part of the invention.

The operation of this device is as follows: In cold weather, when both hot water and steam are used, fire is placed into both fire-boxes 12, 12. The valve 22 is set to open a communication between the two fire-boxes so as to equalize the temperature in the two compartments of the shell. Water, admitted to the two compartments through the supply pipes 27 and 29, rises in the compartment 11 up to its top, and is to be shut off as soon as it rises to the height indicated by the line 31 in the steam boiler compartment. The water in the heater compartment 11 surrounds entirely the fire-box and the coiled flue, and will be thus quickly and economically heated, to be conducted through the pipe 28 to the place at which it is to be used. In the boiler compartment the water is converted into steam and conducted through the pipe 30 to radiators or other places. The operation of the several attachments of the boiler compartment need not be described as they are well known. It is, however, mentioned that the damper 16 thereof is closed by the steam pressure as the same exceeds the normal, and is opened automatically to an extent proportionate to the decrease of pressure in the boiler.

If mainly steam is needed, the fire-box in the compartment 10 is only fired, the valve 22 being left open so that the products of combustion will escape through both flues of the device, generating thereby steam and heating the water in the heater compart-

ment. If only hot water is needed, the valve 22 is closed and fire is placed only in the fire-box which is arranged within the compartment 11.

What I claim is:—

1. In a device of the character described, the combination with a boiler divided by a longitudinal partition into two non-communicating compartments, of a water supply pipe leading to each compartment, an outlet pipe also connected with each compartment, a fire-box arranged within each compartment, and a flue in the form of a coil extending through each compartment and connected to each respective fire-box.

2. In a device of the character described, the combination with a boiler divided by a longitudinal partition into two non-communicating compartments, of a water supply pipe leading to each compartment, an outlet pipe also connected with each compartment, a fire-box arranged within each compartment, said two fire-boxes communicating with each other, a valve adapted to control said communication, and a flue in the form of a coil extending through each compartment and connected to each respective fire-box.

3. The combination with a shell forming a hot-water heater, of a fire-box arranged within the same, an inlet and an outlet pipe connected with said shell, and a flue in the form of a coil extending through said shell and connected to said fire-box.

Signed at New York, in the county of New York and State of New York, this 12th day of June, A. D. 1912

LÁZÁR LUKÁCS.

Witnesses:

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S. BIRNBAUM.