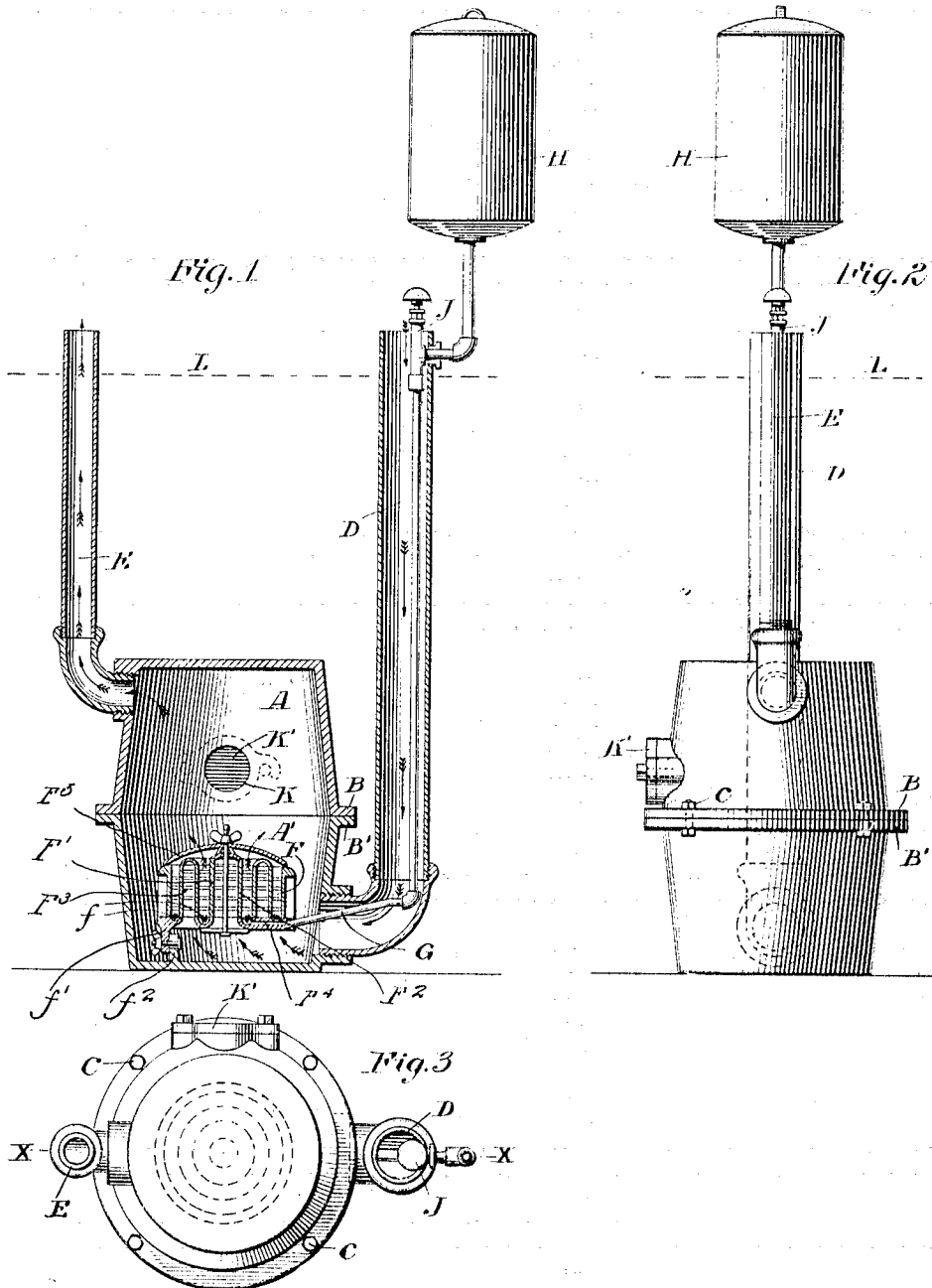


J. H. BERNHARD.
 SUBMERSIBLE WATER HEATER.
 APPLICATION FILED MAY 26, 1911.

1,048,795.

Patented Dec. 31, 1912.



Witnesses:

Wm. Hubacher
Will. J. Albert

Inventor:

J. H. Bernhard

UNITED STATES PATENT OFFICE.

JOHN H. BERNHARD, OF MCGREGOR, IOWA.

SUBMERGIBLE WATER-HEATER.

1,048,795.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JOHN H. BERNHARD, a citizen of the United States of America, and a resident of McGregor, in the county of Clayton and State of Iowa, have invented certain new and useful Improvements in Submergible Water-Heaters, of which the following is a specification.

This invention relates to what may be termed a submergible heater adapted to be placed directly in a body of water contained in any open vessel, such as a tank, bath tub, wash tub, or other receptacle for the purpose of raising the temperature of the water to any desired degree.

The object of this invention is to provide a heater of this character which is simple in construction and in the use of which the maximum amount of heat units are derived from a given amount of fuel consumed, and all danger from fire and explosion is reduced to a minimum.

Another object is to provide a heater of this character so constructed as to render it absolutely water-tight to protect the parts contained therein when the heater is submerged.

With the above and other objects in view, which will more fully appear as the nature of the invention is described, the invention consists in the novel construction, combination and arrangement hereinafter set forth and claimed.

In the accompanying drawings: Figure 1 represents a vertical section of a heater constructed in accordance with this invention; Fig. 2 is a side elevation thereof; Fig. 3 is a top plan view of the heater.

In the embodiment illustrated, a combustion chamber or casing is shown composed of upper and lower sections A and A¹ closed at one end and provided at their other ends with laterally extending flanges B and B¹, which, when the sections are assembled, contact with each other and are secured together in any suitable manner, preferably by bolts C. This casing may be of any suitable shape and size, and is here shown substantially barrel-shaped, the lower section A¹ being provided with a nipple near its bottom in one side wall thereof which is threaded internally to receive the exteriorly threaded end of an air inlet pipe D which is of a suitable length to extend above the water line of the vessel in which

said casing is to be submerged. An outlet pipe E is connected at one end to the upper end of the section A and extends above the water level of the vessel in which the casing is submerged and is designed for carrying off the products of combustion. These inlet and outlet pipes may be of any desired size, varying according to the size of the casing in connection with which they are employed.

A suitable oil reservoir H is supported by the air inlet pipe D and has a tube G leading therefrom through the pipe D for supplying fuel to a burner F disposed within the casing, preferably near the bottom of the section A¹. A needle or other valve J is disposed in the upper end of the pipe G for controlling the fuel supply from the tank H to the burner. As clearly shown the upper right angular portion of the fuel supply tube G projects through the pipe D adjacent to the upper end of the same, whereby the reservoir H is rigidly supported above the end of the pipe and further supports the fuel supply tube or pipe in its operative position.

The burner E is preferably constructed as shown in Fig. 1 comprising a plurality of concentrically arranged annular partitions F¹ which form oil chambers F² with air spaces F³ between them, and into which oil is designed to flow from the pipe G which communicates with the bottom of said oil chambers F² through a conduit F⁴. Disposed within these chambers F² at the bottoms thereof, are asbestos or other suitable wicks f which are arranged in coils, and when ignited vaporize the fuel supply to the burner. This burner F is provided with a suitable cover F⁵ preferably convexo-concave in shape, and which is here shown secured to the burner by means of a bolt passing centrally therethrough. This cover serves to retain the heat within the burner and to distribute it evenly throughout the casing, thereby equally heating all parts of said casing. This burner F as shown is provided with a depending lug f¹ which is secured to an upwardly extending forked lug f² which projects from the bottom of the casing, by a bolt or any other suitable means.

The upper section A of the casing is preferably provided with an aperture K closed by a suitable closure K¹, here shown in the form of a hinged door connected water-tight

to the casing, and which is designed to be opened for igniting the burner; for cleaning or other purposes.

As shown in Fig. 1, the fuel supply tube 5 G yielding supports one end of the burner F and by the employment of the upwardly-projecting slotted lug f^2 and the depending lug f^1 , forming a part of the burner, the latter can be accurately adjusted in a horizontal position and rigidly secured by the binding 10 bolt previously referred to, whereby the fuel through the burner is evenly distributed.

In the use of this heater, it may be readily moved from place to place, the parts thereof 15 being rigidly connected. The burner is ignited through the opening K after the supply of fuel has been admitted thereto through the valve J and said opening K being securely closed by the door K^1 , said casing is submerged in a vessel of water which it is 20 desired to heat, such for instance, as a trough used for stock or similar purposes, and is left in said trough until the water contained therein is heated to the desired temperature, 25 when the heat may be cut off by means of the valve J and the heater may be removed and placed in another vessel or wherever desired.

I claim as my invention:

30 1. A submergible heater comprising a water tight casing, air inlet and outlet connections to said casing, a burner located in

the latter adjacent to the bottom thereof, a fuel supply pipe extending the full length of the inlet pipe, the lower end of which is connected to the burner, a branch pipe project- 35 ing laterally from the fuel supply pipe and extending through the air inlet pipe adjacent to the upper end thereof, and a fuel reservoir supported by the lateral extension from the fuel supply pipe, whereby the said 40 reservoir is supported above the air inlet pipe and the fuel supply pipe also supported and held in operative position.

2. A submergible heater comprising a water tight casing, a burner adjustably sup- 45 ported within the same, air inlet and outlet pipes communicating with said casing, a fuel reservoir located above the air inlet pipe, a fuel supply pipe leading from said reservoir and extending through the entire length of 50 said pipe, a branch pipe projecting laterally from the fuel supply pipe and extending through the air inlet pipe adjacent to the upper end thereof, and supported thereby, said fuel supply pipe being connected to one 55 end of the burner and supported thereby, and means for adjustably supporting the opposite end of said burner.

JOHN H. BERNHARD.

Witnesses:

EDWIN T. FROELICH,
ALONZO BURLINGAME.