

Oct. 19, 1943.

B. H. BOHMFALK

2,332,294

DISTILLING APPARATUS

Filed Feb. 16, 1942

2 Sheets-Sheet 1

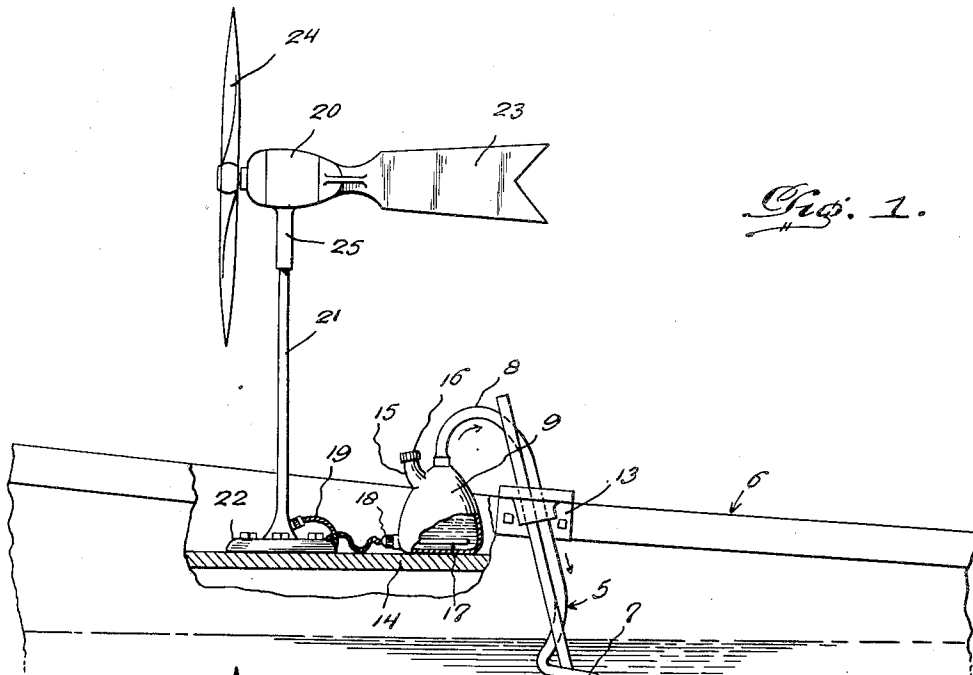


Fig. 1.

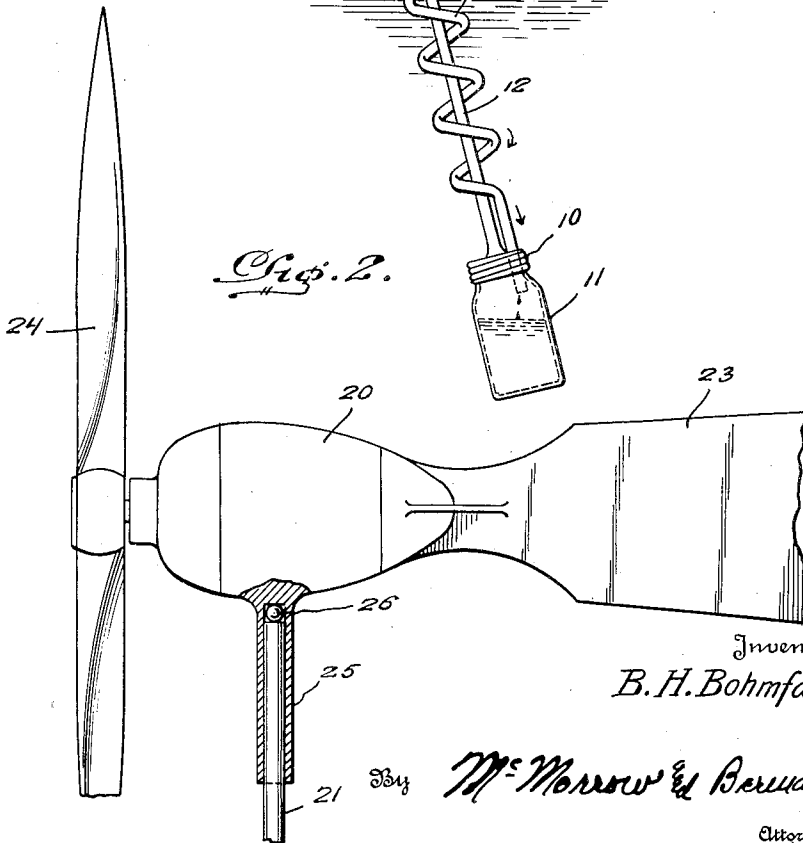


Fig. 2.

Inventor
B. H. Bohmfalk,

By *Mc Morrow & Berne*

Attorneys

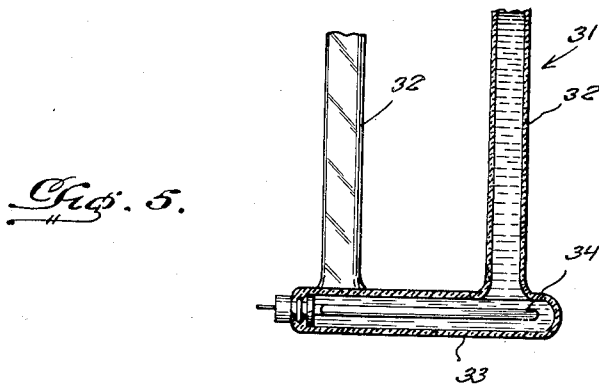
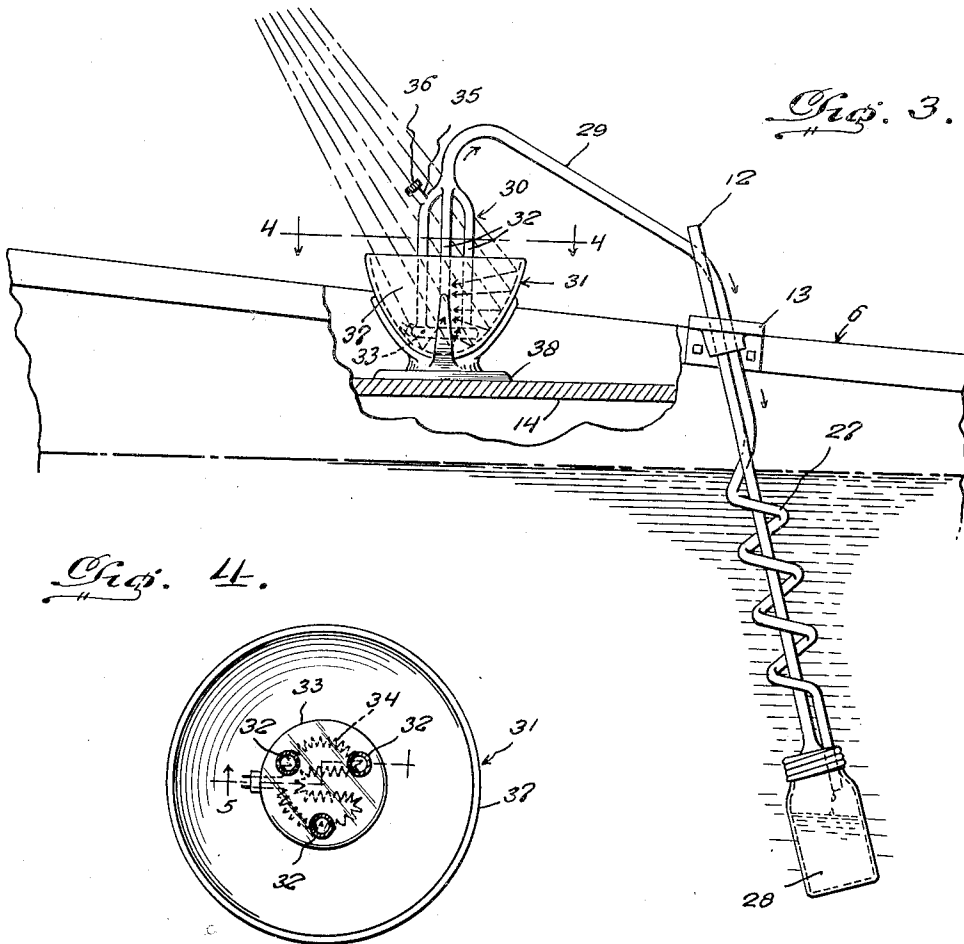
Oct. 19, 1943.

B. H. BOHMFALK
DISTILLING APPARATUS

2,332,294

Filed Feb. 16, 1942

2 Sheets-Sheet 2



Inventor
B. H. Bohmfalk,

By *McMurry & Berwall*
Attorneys

UNITED STATES PATENT OFFICE

2,332,294

DISTILLING APPARATUS

Benjamin H. Bohmfalk, Bronte, Tex.

Application February 16, 1942, Serial No. 431,144

2 Claims. (Cl. 202—234)

This invention relates to an apparatus for conditioning sea water for drinking purposes and is especially adaptable for use on life boats or rafts, whereby persons marooned on the sea may obtain drinking water in sufficient quantities to reduce suffering and prolong life.

An object of this invention is the provision of a portable still requiring only a limited space for its storage or installation for use and is of such a construction, that natural resources may be utilized for its operation, that is, the vaporization and condensation of a given amount of sea water to substantially free the latter of salt and impurities rendering said amount of water in condition for drinking.

With these and other objects in view as will become more apparent as the description proceeds, the invention consists in certain novel features of construction, combination and arrangement of parts which will be hereinafter more fully described and claimed.

For a complete understanding of my invention, reference is to be had to the following description and accompanying drawings, in which

Figure 1 is a fragmentary side elevation, partly in section, illustrating a portion of a life boat equipped with a distilling apparatus constructed in accordance with my invention.

Figure 2 is a fragmentary side elevation partly in section showing a wind operated generator for generating electricity employed in vaporizing a liquid or sea water placed in the distilling apparatus.

Figure 3 is a view similar to Figure 1 showing a modified form of the present invention wherein the invention is constructed so that sun rays may be employed as a heating medium for the vaporization of the salt water confined therein.

Figure 4 is a sectional view taken on the line 4—4 of Figure 3.

Figure 5 is a fragmentary sectional view taken on the line 5—5 of Figure 4.

Referring in detail to the drawings, the numeral 5 indicates as an entirety a portable distilling apparatus of such a construction that it may be conveniently stored within a limited space and when needed for use may be conveniently mounted for operation on a life boat 6, as shown in Figures 1 and 3 of the drawings.

The distilling apparatus includes an elongated condensing coil 7 provided at one end with a gooseneck 8 suitably secured to a vaporizing container or reservoir 9 and has its opposite end suitably secured to a closure cap 10 removably secured to a receptacle 11 employed for catching

the condensation. The cap 10 may be secured on the receptacle 11 in any well known manner, preferably being threaded thereon, as shown in Figure 1, to permit the receptacle to be easily detached from the condensing coil when desired.

The closure cap 10 has connected thereto a vent tube or pipe 12 extending through the convolutions of the condensing coil and terminating adjacent the goose neck 8.

A suitable mounting or bracket 13 is secured to the vent tube 12 and the condensing coil adjacent the goose neck 8 and may be easily mounted on the side of the life boat, as shown in the drawings. The mounting or bracket 13 will permit the reservoir or container 9 to rest upon a seat 14 of the life boat. The container or reservoir may be constructed of glass or any other material suitable for the purpose and is equipped with a filling neck 15 provided with a removable closure 16. The removable cap and filler neck will permit the filling of the reservoir or container with a desired amount of sea water.

An electric heating element 17 is mounted in the reservoir or container and is provided with an electrical connection 18 for connecting thereto an extension cord 19 which is in turn electrically connected to an electric generator 20 journaled on the upper end of a supporting post or standard 21 equipped at its lower end with a base 22 which may be detachably secured in any suitable way to the seat 14.

The housing of the generator 20 is equipped with a blade 23 for the purpose of sustaining a wind wheel 24 in the wind for the purpose of driving the generator. The wind wheel 24 is secured to the shaft of the generator and may be of any preferred type.

The housing of the generator 20 is provided with a sleeve 25 to rotatably sleeve the post or standard 21 and an anti-friction bearing 26 may be interposed between the inner wall of the sleeve and the upper end of the post or standard to permit the generator to swing freely on the standard or post.

When the device is arranged for storing, the reservoir or container 9 or its electric heating element 17 may be disconnected from the standard or post 21. This will permit the device to be arranged in two separate parts so that they can be stored in a comparatively small space, consequently rendering the device especially adaptable for use in life boats or the like in that the device when not in use will only require a limited space for its storage. However, whenever drinking water is desired by the occupants of

the life boat, the device may be readily set up for use as shown in Figure 1 of the drawings. The device in the installed or operative position, locates the condensing coil 7 within the body of water. Sea water may then be placed in the reservoir or container 9. With the generator connected to the heating coil and the wind wheel 24 driven by the wind, electricity will be generated to heat the salt water within the container or reservoir to bring about vaporization thereof. The vaporized fluid passes through the condensing coil where it is condensed into liquid form and passes into the receptacle or container 11. The temperature of the sea water on which the boat floats is sufficiently cool to bring about rapid condensation of the vapor within the condensing coil.

Whenever the occupants desire drinking water, the distilling apparatus can be so positioned as to bring the receptacle 11 out of the body of water whence it may be detached from the condensing coil permitting a person or persons to have water free of salt and impurities in quantities sufficient to eliminate thirst and the suffering attached thereto.

Referring to my modified form of the invention as shown in Figures 3 to 5, inclusive, the condensing coil thereof is indicated by the character 27 and the liquid receiving receptacle by the character 28. In this form of the invention the condensing coil 27 has a goose neck 29 of a greater length than the goose neck 8 and is connected to a transparent container or reservoir 30 forming a part of a solar heater 31. In this instance, the container 30 consists of a series of connected vertically arranged transparent tubes 32 and a base portion 33 in which may be located an electric heating element 34. One of the tubes 32 is provided with a filling neck 35 having a removable closure 36. The container or reservoir 30 depends downwardly within a substantially bowl-shaped reflector 37 mounted on a suitable base 38 which may rest upon the seat of the life boat. The inner face of the bowl-shaped reflector is highly polished so as to reflect sun rays in concentrated form onto the tubes forming a part of the reservoir or container 30, for the purpose of heating sea water therein to bring about vaporization thereof. The vaporized sea water passes through the condensing coil 27 and

is condensed and received within the receptacle 28.

In this form of the invention, the heating coil 34 may be connected to the generator 20 by the extension cord 19. This is desirable should the weather be cloudy or stormy and it is not possible to have the use of the sun for the heating of the sea water within the reservoir or container.

It will be apparent from the foregoing description taken in connection with the accompanying drawings that a very efficient and practical apparatus has been provided which normally can be stored within a limited space of a life boat or raft and may be brought into use at any time that need therefor occurs for the purpose of rendering sea water fit for drinking purposes.

While I have shown and described the preferred embodiment of my invention, it is to be understood that minor changes in construction, combination and arrangement of parts may be made without departing from the spirit and scope of the invention as claimed.

Having thus described my invention, what I claim is:

1. In an apparatus for conditioning sea water for drinking purposes, an elongated condensing coil including at one end a goose neck, a receptacle to receive conditioned sea water from the condensing coil connected to the other end of said coil and including a vent tube extending through the convolutions of the coil and terminating adjacent the goose neck, means for detachably mounting the coil on a life boat to locate the coil in the sea water along with the container with the open end of the vent tube disposed above the water, and a sea water vaporizing unit connected to said goose neck and including heating means operated by a natural source.

2. In a sea water distilling apparatus, a pipe including a goose neck shaped portion and a coiled portion and a plurality of tube portions connected to each other by a base portion, a supporting bowl-shaped reflector having the base portion therein with the tube portions extending therefrom, said base portion, tube portions and reflector coacting with each other in forming a solar heater, and a condensation receiving receptacle connected to the coiled portion.

BENJAMIN H. BOHMFALK.