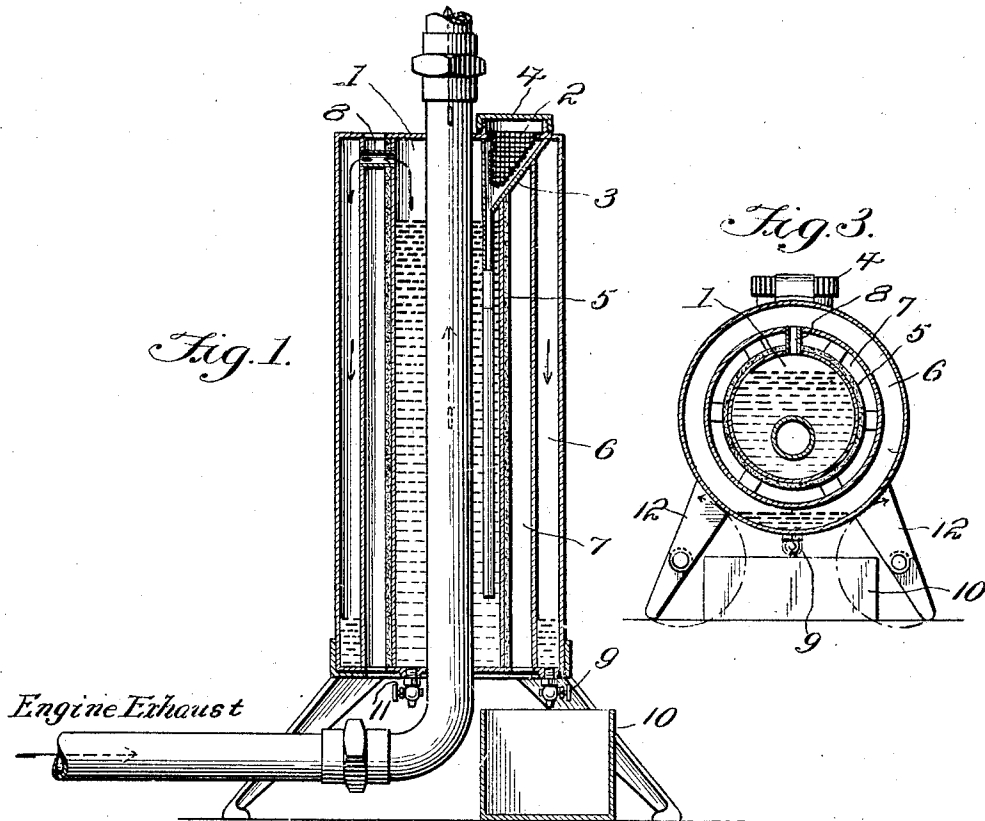
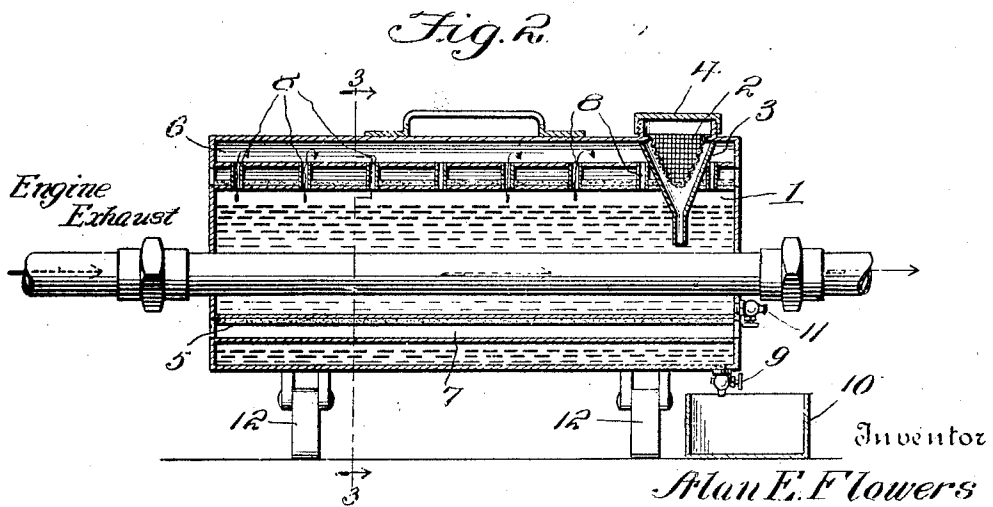


A. E. FLOWERS.
SYSTEM OF WATER DISTILLATION.
APPLICATION FILED APR. 11, 1919.

1,346,537.

Patented July 13, 1920.



By

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UNITED STATES PATENT OFFICE.

ALAN E. FLOWERS, OF COLUMBUS, OHIO.

SYSTEM OF WATER DISTILLATION.

1,346,537.

Specification of Letters Patent.

Patented July 13, 1920.

Application filed April 11, 1919. Serial No. 289,456.

To all whom it may concern:

Be it known that I, ALAN E. FLOWERS, a citizen of the United States, residing at Columbus, in the county of Franklin and State of Ohio, have invented certain new and useful Improvements in Systems of Water Distillation, of which the following is a specification.

The present invention relates to liquid stills and has for its particular object the provision of portable distilling apparatus adapted to supply pure distilled water in such quantities as may be desired for drinking purposes, use in storage batteries, etc.

It is proposed by means of this invention to evaporate raw water by utilizing heat from the exhaust of an internal-combustion engine, and to condense the resulting steam in an air-cooled condenser. This condenser is combined with the evaporator to form a complete, compact unit. The unit, as designed, is portable, light in weight and at the same time rugged in construction.

This invention will be more fully described hereinafter with reference to the accompanying drawing in which the same is illustrated as embodied in convenient and practical forms, and in which—

Figure 1 is a sectional, elevational view, taken through the center of the proposed still in its vertical form as applied to an exhaust pipe likewise disposed,

Fig. 2, an embodiment of the still as applied to an exhaust pipe horizontally disposed, and

Fig. 3, a sectional view taken on line 3—3 of Fig. 2.

The same reference characters are used to designate like parts in the several figures of the drawing.

The still, which is of metal, is so designed as to form a compact structure adapted to be placed on the exhaust pipe of an engine in such a position that the pipe passes through the boiler 1 of the still. The water to be distilled is introduced through screen 2 and funnel 3 by removing the filler cap 4 located in the top of the boiler. The water running into boiler 1, through which the hot exhaust pipe passes, will surround the latter, and becoming rapidly heated by reason of direct contact therewith, will ascend in the form of steam to the upper part of the boiler. The outer surface of boiler 1 is covered with a heat-insulating shell 5 which further aids in

the retention of heat within the boiler and assists in the rapid evaporation of the water.

An annular condensing chamber 6 surrounds boiler 1 and is separated therefrom by an annular air space 7, the latter being open at both ends for the free passage of air therethrough. Steam ports 8 are provided connecting the steam space in the upper part of boiler 1 with the condensing chamber 6.

Steam from the water in boiler 1 will, on ascending to the upper portion thereof, pass out through steam ports 8 into the condensing chamber 6, where, due to the sudden change in temperature from the boiler to the air-cooled condensing chamber 6, the steam will be condensed, and the resulting water descend into the lower part of the chamber from which it may be readily removed by means of drain-cock 9 into any convenient receptacle, such as catch-basin 10. Boiler 1 is also provided with a drain-cock 11 through which water may be withdrawn if desired.

The still, as shown, is provided with hinged or collapsible supporting legs 12, but any other means whereby the still is held in position about the exhaust pipe, may well be used.

While the details of construction have been described more or less precisely, it is not intended that the scope of this invention be limited thereto, as changes in form, the proportion of parts, and the substitution of equivalents, as circumstances may suggest or render expedient, may be made without departing from the spirit of the invention.

What I claim is:—

1. A system of water-distillation consisting of an engine exhaust pipe, a boiler through which said exhaust pipe passes, a condensing chamber surrounding said boiler and in open communication with the steam space thereof, and an air space between said boiler and the condensing chamber.

2. A still comprising in combination, a central boiler, heating means therefor, a condensing chamber surrounding said boiler and in open communication with the steam space thereof, and an air space between said boiler and the condensing chamber.

3. In a still, the combination of a central cylindrical boiler, means for introducing the water into said boiler, means passing through said boiler for heating the water therein, a heat-insulating shell covering said boiler, an annular condensing chamber surrounding

said boiler and separated therefrom by an air-space, steam ports connecting the boiler and the condensing chamber, means for withdrawing water from the boiler, and means
5 for withdrawing water from said condensing chamber.

4. The combination with an internal-combustion engine exhaust pipe, of a still mounted thereon, said still comprising a cy-
10 lindrical boiler through which the exhaust pipe passes, means for introducing water

into said boiler, means for removing water therefrom, a heat-insulating covering for said boiler, an annular condensing chamber surrounding said boiler, an annular air-space
1 between the condenser and boiler, steam ports connecting said chambers, and means for withdrawing water from said condensing chamber.

In testimony whereof I have affixed my
2 signature.

ALAN E. FLOWERS.