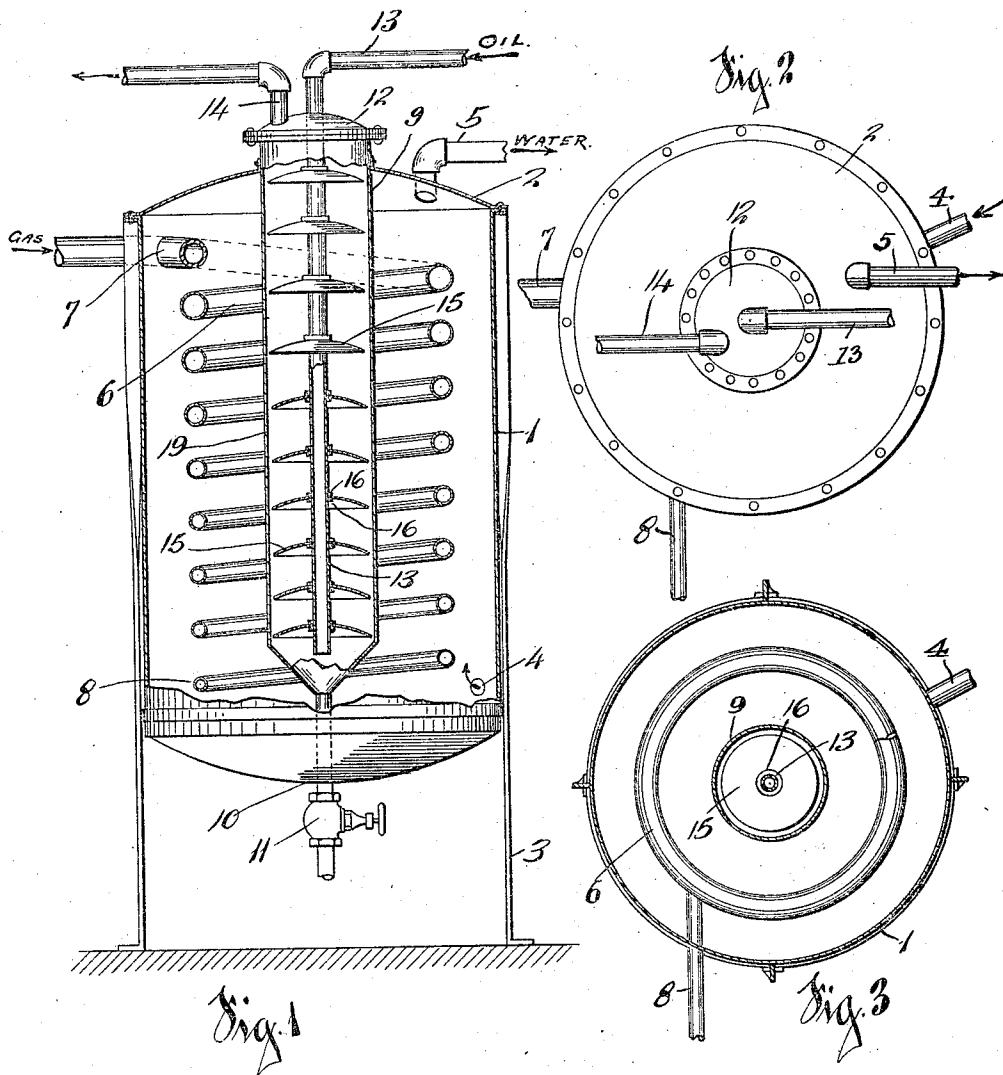


1,280,656.

Patented Oct. 8, 1918.



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UNITED STATES PATENT OFFICE.

JOSEPH BUHR, OF NORWOOD, OHIO.

CONDENSER.

1,280,656.

Specification of Letters Patent.

Patented Oct. 8, 1918.

Application filed January 9, 1915. Serial No. 1,372.

To all whom it may concern:

Be it known that I, JOSEPH BUHR, a citizen of the United States, and a resident of the city of Norwood, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Condensers, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to condensers, particularly of the water-jacketed coil type, wherein the gases to be condensed are passed through a coil, in a vessel through which a stream of cold water is pumped. It has special relation to condensers for use in the distilling of gasoline in processes wherein a dirty oil is refined by distillation. In such processes there is a supply of cold dirty oils which must be heated, and it is designed by my condenser to use these cold oils in condensation, and at the same time heat them preparatory to entering the still, as well as giving them a preparatory cleaning.

The designed object is accomplished by that certain construction and arrangement of parts to be hereinafter more specifically pointed out and claimed, whereby the oil to be heated is passed over baffle plates in a compartment of the condensing vessel for the vaporized oils.

In the drawings,

Figure 1 is a central vertical section of the condenser.

Fig. 2 is a top plan view thereof.

Fig. 3 is a horizontal section thereof.

In condensers of the type generally used today, wherein the water-jacketed coil is employed in gasoline distillation, it is necessary to pump through the vessel about six gallons of water for each gallon of gasoline distilled. It is designed by my improved condenser to so utilize the inflowing cold oils for the still that the necessary water used shall only be about a gallon and a quarter per gallon of gas condensed, while at the same time the oil to be distilled will be heated, thereby saving the water and in heating cost for the stills, as heretofore mentioned.

The vessel 1 is of ordinary type having a top 2 and standards 3. The vessel has a water intake pipe at 4 and an outlet for water at 5. The coil 6 for the gases to be condensed, enters the vessel at 7, and gradually diminishing in cross section leaves the vessel at the bottom at 8.

The coil has a radius of a little more than half the size of the radius of the vessel, and a space is left inside the coil, down the center of the vessel, for the auxiliary cooler through which the cold oils are to pass.

A narrow cylindrical vessel or compartment 9 of substantially the length of the main vessel, is provided for this purpose, having an outlet through the bottom of the main vessel at 10, said outlet provided with a valve 11 for flushing when desired. The top 12 of the vessel 9 has openings for the entrance of the inlet pipe 13 at the center thereof, and the outlet pipe 14 at the side thereof. The inlet pipe 13 extends substantially the entire length of the vessel 9, opening at the bottom, and has mounted on it a series of baffle plates 15, 15.

The baffle plates are of nearly the same diameter as the vessel 9 and are made convex in shape for a purpose to be described. It is preferred to mount these baffle plates on the pipe by means of locking nuts 16, 16, screwed onto the pipe.

The operation of the condenser is as follows. The hot gases from the still flow into the cooling coil 6 at the top of the main vessel and out at the bottom. The cold water supply is introduced at 4, passes through the vessel and escapes at 5 from the top thereof. The cold oils enter the compartment 9 at the top and flow to the bottom thereof through the pipe 13. At the bottom they emerge and flow up this chamber, being continually forced to the sides and caused to circulate by the baffle plates so that all of the oil comes into as close contact as possible with the water in the cooler. The function of the cold oil is to take heat out of the water so that less water is necessary to condense a given amount of gasoline gas, and this heat taken out warms up the cold oil so that when it flows out of the inner vessel at 14 to the still it will take less heat to distil when it is in turn to be distilled.

The cold oils being dirty will in flowing over the baffle plates deposit a certain amount of sediment on the upper surface of these plates, and they being convex will be easily washed off and cleaned by an occasional flushing. When the condenser is first filled with cold water, it will be understood that a sufficiently low temperature will be obtained, not to require for an hour or so any additional supply of cold water.

By referring to specific shape of parts or

other mere details of design it is not desired to limit the claims that follow, as it is desired in the claims to cover all equivalent structures whenever general terms are used.

5 It is believed that the structure of the condenser is now adequately described and its operation noted and that it is not necessary to mention such modifications as would present themselves to the ordinary mechanic at
10 any particular point of installation.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. In a condenser, a vessel with means for
15 maintaining a continuous current of cooling medium therethrough, a condenser coil therein, a central chamber in the vessel out of communication with the vessel or the coil, said chamber being adapted to receive

liquids, and baffles in the chamber for serving as receiving surfaces for deposit of sediment, and causing full contact of the liquids with the sides of the chamber, for the purpose described. 20

2. In a condenser, a vessel, a condenser coil therein, a central chamber in the vessel out of communication with the vessel or the coil, said chamber being adapted to receive liquids at the bottom and transfer them to the top of the vessel, and baffles in the chamber for serving as receiving surfaces for deposit of sediment, and causing full contact of the liquids with the sides of the chamber, for the purpose described. 25 30

JOSEPH BUHR.

Attest:

S. C. ROETTINGER,
KATHERINE SMITH.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."