(No Model.)

H. C. REW.

GAS COOLING APPARATUS.

No. 290,929. Patented Dec. 25, 1883.

Fig. 1.

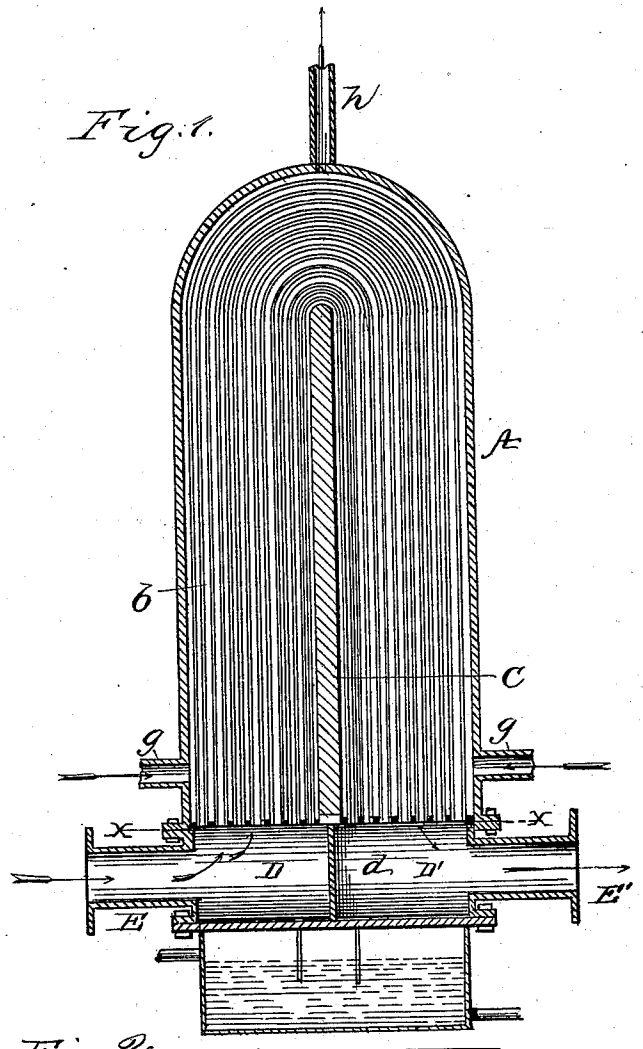
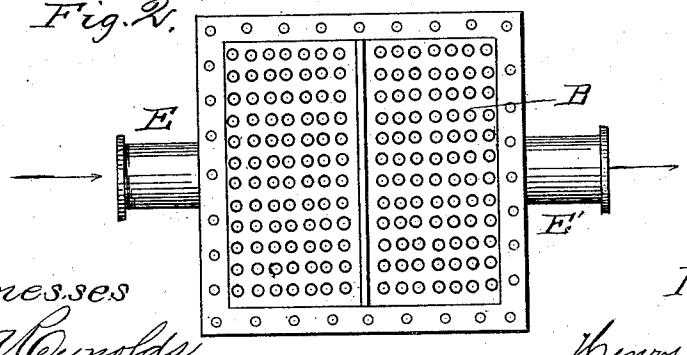


Fig. 2.



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UNITED STATES PATENT OFFICE.

HENRY C. REW, OF CHICAGO, ILLINOIS.

GAS-COOLING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 290,929, dated December 25, 1883.

Application filed May 9, 1883. (No model.)

To all whom it may concern:

Be it known that I, HENRY C. REW, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Gas-Cooling Apparatus; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form part of this specification.

My improvement relates to that class of inventions known to the art as "gas-coolers" or "condensers," having for its object to condense the gas and the utilization of the condensing-liquid when spent or after it has become heated as a medium for house-heating and such like purposes.

To this end my invention consists in the construction and operation of the apparatus herein shown, of which a more complete description will be hereinafter given.

In the accompanying drawings hereunto annexed, Figure 1 represents a vertical section of my apparatus, and Fig. 2 is a sectional view of the lower compartments on line *x x*, Fig. 1.

Reference being had to the letters marked thereon, A represents an outer casing or shell, having at its bottom a perforated diaphragm, B, on which are arranged series of tubes *b*, said tubes communicating with the perforations in the diaphragm, and approximating, as shown, to an inverted-U shape, which form allows compensation in the bend thereof for any expansion or contraction due to variations of temperature.

Extending upward in the casing from the diaphragm is a vertical transverse partition, C, reaching not quite to the top of the interior of said casing, it being spanned by the tubes, an end of which is to each side thereof. This partition is for dividing the column of water supplied to the casing at opposite sides, whereby the pipes are equally cooled.

To the bottom of the casing is a chamber divided into compartments D D′ by the wall *d*, one of said compartments being provided with an inlet-pipe, E, for the gas, and the other compartment having an outlet, E′, which pipes are secured thereto in any suitable manner.

To opposite sides of the casing A, at near the bottom, are supply-pipes *g g*, said pipes being for the purpose of feeding to the casing in the space between the tubes a continual and uniform supply of water from any desired source, whereby the hot gas which passes through the tube is cooled or condensed. In the top of the casing is an escape or discharge pipe, *h*, for the water as it becomes heated.

My invention is designed to operate as follows, and is for the following purposes: Gas to be cooled is supplied at inlet E to compartment D, and rising or ascending in the tubes passes down through and out at E′, as indicated by arrows, to the holder or any receptacle for receiving it. While the gas is being supplied in the apparatus and circulating through the tubes, water is supplied to the casing at *g g*, filling the space between the tubes and cooling or condensing the gas in its passage therethrough. The water becomes heated or considerably elevated in temperature in consequence of the hot gas passing through the tubes, and this heated water, being of lighter specific gravity, is forced up and out at the pipe *h* in the top by the fresh and cooler water which is supplied to the casing at the bottom. My object is to utilize this heated water that is forced out as a medium for heating and other purposes, and for which a separate application has been made, as it is obvious that said water may be conducted off in any suitable manner to heaters, and when utilized and again cooled be returned to the source from whence it came, and the process repeated indefinitely.

If desired, troughs or receptacles may be arranged below the tubes for the collection of any tar or other products of condensation.

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

1. In an apparatus for cooling or condensing gas, the casing having supply and discharge pipe, as described, in combination with the diaphragm having the inverted-U tubes with

the compartments D D′, divided by wall *d*, one of said compartments having an inlet-pipe for the gas and the other an outlet, and with the strengthening-partition C, substantially as set forth.

2. In a gas cooling or condensing apparatus, the combination of the lower compartments, D D′, having inlet and outlet pipes, as described, with the diaphragm having the bent tubes, vertical partition, and casing, said casing having supply-pipes to opposite sides thereof, and a discharge-pipe in its top, whereby water can be supplied thereto, and when heated forced out and utilized, in the manner and for the purpose herein set forth.

In testimony that I claim the foregoing as my own I affix my signature in the presence of two witnesses.

HENRY C. REW.

Witnesses:
B. F. MORSELL,
O. E. DUFFY.