

(No Model.)

2 Sheets—Sheet 1.

E. K. HOLLAND.
REGENERATIVE SALT FURNACE.

No. 502,360.

Patented Aug. 1, 1893.

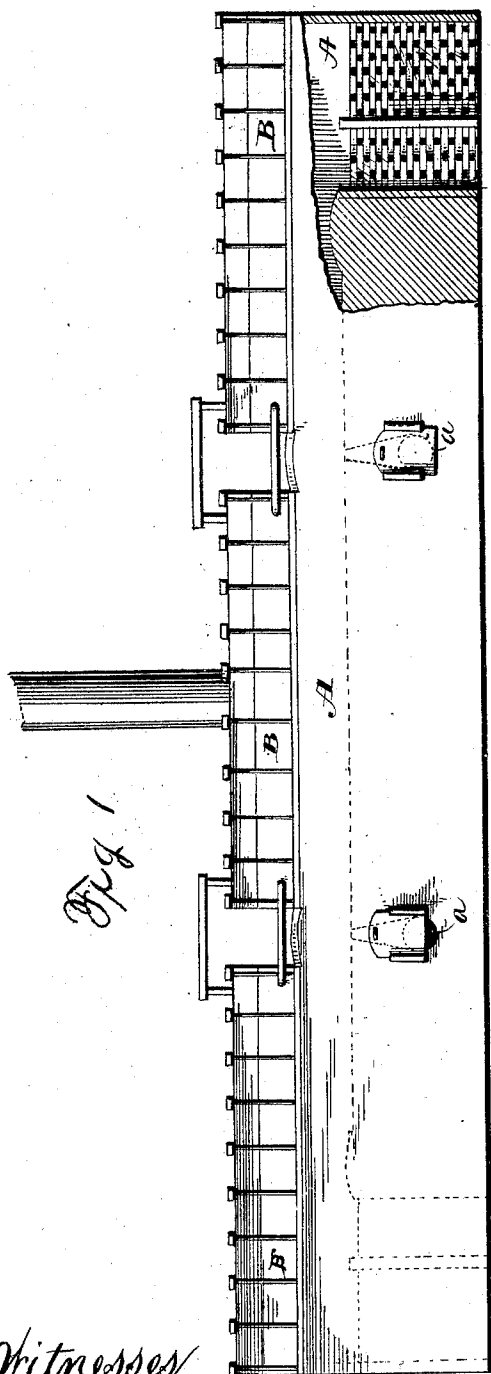


Fig. 1

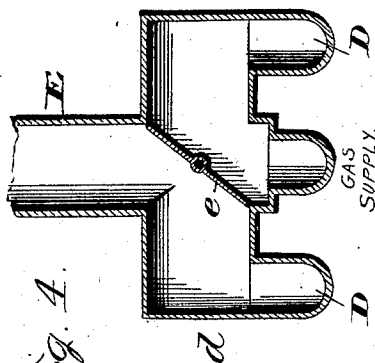


Fig. 4

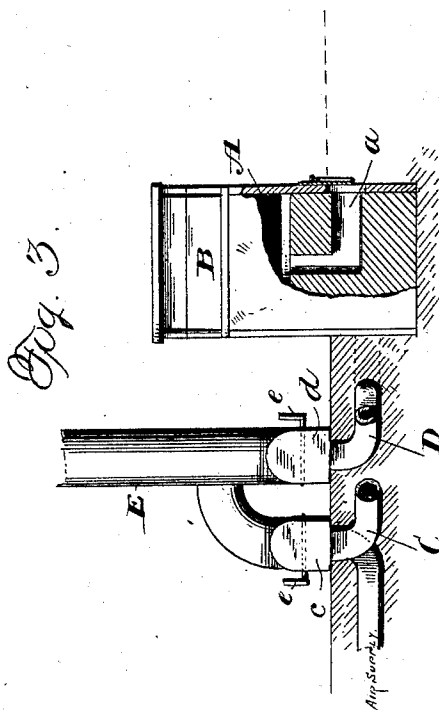


Fig. 3

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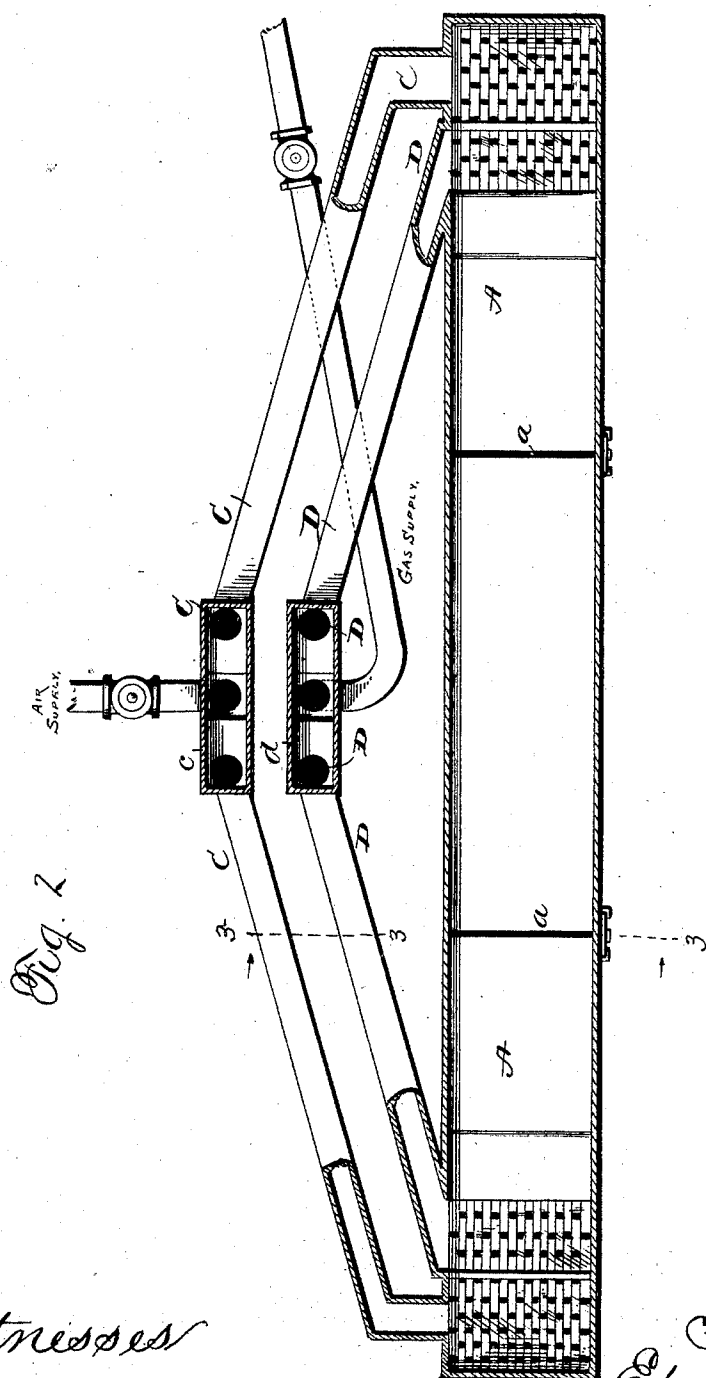
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2 Sheets—Sheet 2.

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UNITED STATES PATENT OFFICE.

EDWARD K. HOLLAND, OF CLIFTON, WEST VIRGINIA.

REGENERATIVE SALT-FURNACE.

SPECIFICATION forming part of Letters Patent No. 502,360, dated August 1, 1893.

Application filed April 25, 1893. Serial No. 471,799. (No model.)

To all whom it may concern:

Be it known that I, EDWARD K. HOLLAND, a citizen of the United States, residing at Clifton, in the county of Mason and State of West Virginia, have invented certain new and useful Improvements in Salt-Furnaces; and I do declare the following to be a full, clear, and exact description of the invention, such as 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 a part of this specification.

My invention relates to salt-furnaces, and has for its object the provision of a furnace that shall be thoroughly efficient and satisfactory in its operation, and economical in respect to its consumption of fuel, and to this end said invention consists in the furnace having the construction and arrangement shown and illustrated in the drawings in which—

Figure 1—is a side elevation of a furnace embodying my improvements; Fig. 2—a horizontal section; Fig. 3—a transverse vertical section, and reversing devices; Fig. 4—a detail view in section of the gas-box and valve.

My invention has to do with the employment of combustible gas as the heat producing medium, and one aim has been the adaptation of the necessary appliances for the purpose to furnaces constructed for using coal, &c. I accordingly show a furnace having a long, narrow chamber A of ordinary construction, adapted to support salt pans B which are open, as shown in Fig. 3.

Communicating with each end of the chamber A are two flues C and D for the passage of air and gas, said flues starting from a point at the longitudinal center of and in rear of the chamber, or furnace proper, where the two air flues communicate with an air box *c* and the two gas flues to a gas box *d* which boxes are connected with sources of air and gas respectively. A chimney E is connected with both boxes, being preferably carried upward from the top of one, and placed in communication with the other by a suitable flue. Air and gas taken into the boxes are passed from thence to one end of the chamber A where combustion ensues, whence passing

through chamber to its opposite end the products of combustion are conveyed to the chimney through the proper flues C, D. The air and gas may be delivered at either end of the chamber A by the proper manipulation of butterfly valves *e* placed in each box so as to alternately connect the flues C and D leading to the chamber ends with the sources of supply of air and gas and the chimney. Thus at will the course of the air and gas through the furnace can be reversed, which is highly important since a more uniform temperature is thereby attainable throughout the length of the furnace. Obviously, otherwise, the end of the furnace remote from the point of entrance of the heating medium, would not have the temperature of the said point. Another benefit of this reversal is the prevention of deposits of soot, &c., upon the checker work, provided at each end of the furnace for each of the flues C, C, D, D.

To aid the combustion in chamber A I provide two apertures *a*, and *a* having suitable dampers or covers, that are adapted to convey air into said chamber from without. The apertures *a*, *a* are not both opened at the same time, but only the one most distant from the end of the chamber into which the air and gas are delivered, and care should be taken, in opening it that it be not opened so far as to result in the cooling of the furnace.

I claim—

1. In a salt furnace the combination of the combustion chamber A with the shallow open pans B forming the upper wall of the chamber, the flues C and D communicating with each end of said chamber and in the rear thereof communicating with air and gas boxes respectively, which are adapted for connection with sources of air and gas, a chimney connected with both boxes, and dampered apertures *a a* in the combustion chamber between the end connections of the flues C and D, all substantially as shown and described.

2. The combination with the chamber A having the shallow open pans, forming the upper part of the chamber, the air and gas boxes at the longitudinal center and in the rear of said chamber, of the air and gas flues C and D connecting said air and gas boxes

respectively with the ends of the chamber, a chimney connected with both of said boxes, a valve pivoted at its center in each box to allow the air and gas to be delivered to either
5 end of the said chamber, and the checker work at each end of the chamber, all substantially as shown and described.

In testimony whereof I affix my signature in presence of two witnesses.

EDWARD K. HOLLAND.

Witnesses:

HATTIE MYERS,
BELLE MYERS.