A. E. BOSSÉ.

AMMONIA GENERATOR.

APPLICATION FILED JUNE 1, 1910.

1,054,167.

Patented Feb. 25, 1913.

Fig. 1.

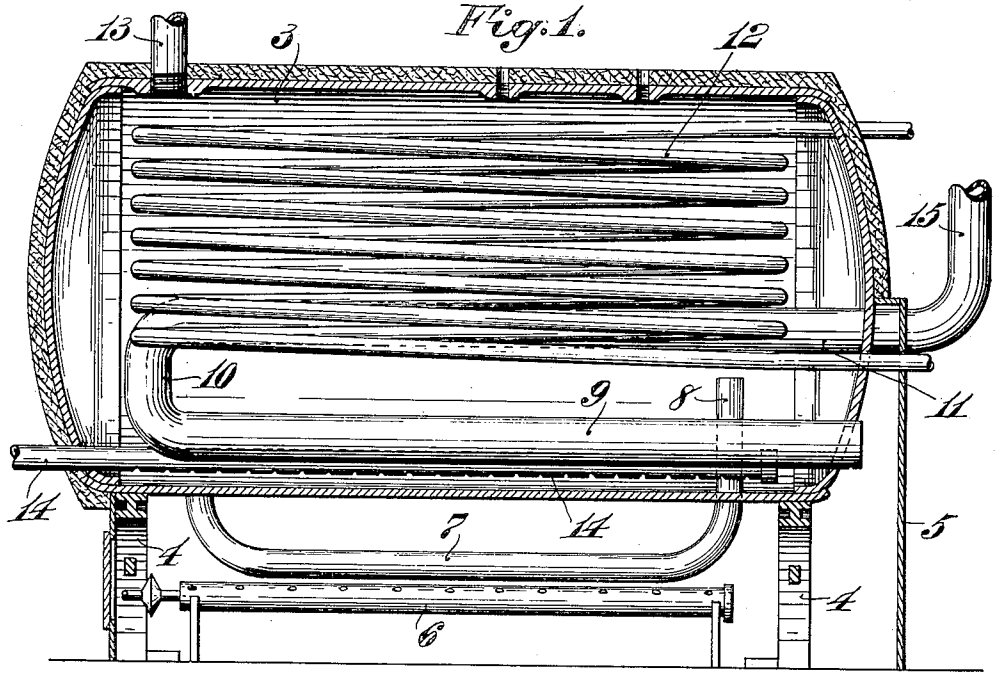
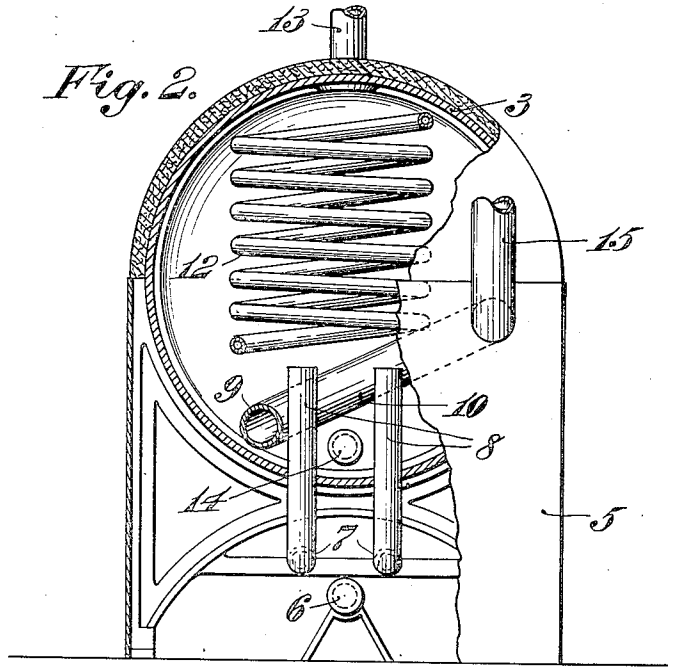


Fig. 2.



Witnesses:

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UNITED STATES PATENT OFFICE.

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AMMONIA-GENERATOR.

1,054,167. Specification of Letters Patent. Patented Feb. 25, 1913.

Application filed June 1, 1910. Serial No. 564,453.

To all whom it may concern:

Be it known that I, ADOLPHE E. BOSSÉ, a citizen of the United States, residing at Pittsburgh, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Ammonia-Generators, of which the following is a specification.

My invention relates to a generator for use in absorption refrigerating systems and in such connection it has particular relation to the construction and arrangement of a device for liberating and absorbing the ammonia gas from the aqua ammonia used in such refrigerating systems.

The object of my invention is to provide a simple and efficient device for use as a combined generator and absorber in ammonia absorption refrigerating systems, in which the heat applied for driving off the ammonia gas will be utilized to the fullest possible extent, and in which the body of contained liquor may be quickly heated to the distilling temperature.

My present invention relates more particularly to the novel means of applying the heat for the aforesaid purpose.

The nature and characteristic features of my invention will be more readily understood from the following description taken in connection with the accompanying drawings forming part hereof, in which—

Figure 1 is a vertical longitudinal central section of an ammonia generator embodying the main features of my present invention, and Fig. 2 is a transverse section thereof, partly in elevation.

Referring to the drawings 3 is the cylindrical shell of the generator proper, preferably arranged with its longitudinal axis horizontal. The shell or tank 3 is supported on a suitable frame work 4 and the lower portion of said shell is surrounded by a housing 5 forming a combustion chamber within which is arranged the longitudinally extending burner 6. Arranged beneath the shell or tank 3, and within the combustion chamber formed by the housing 5, are two or more pipes 7, extending horizontally in proximity to the burner 6. Each of the pipes 7 communicates at one end with the bottom of the shell or tank 3 and has its other end 8 passing through said shell and extending upwardly to a point some distance above the bottom thereof. The outlets of the burner 6 are so arranged as to cause the flame to impinge against the pipes 7 so that the liquid contained within said pipes will be rapidly heated and on account of the differences in level between the two ends of said pipes a brisk circulation therethrough will be caused when the burner is lighted. Extending from a point within the housing 5 through one end of the shell or tank 3 is a flue pipe 9 which passes along horizontally near the bottom of the shell or tank 3 to the forward end thereof at which point it is bent as at 10 and returns horizontally backward as at 11 passing out through the end of the shell or tank 3 and being thence bent upward as at 15 to thereby carry away the products of combustion from the interior of the housing 5. Within the interior of the shell or tank 3 is also arranged a coil 12 through which water or other cooling media may be circulated to reduce the temperature of the contained liquor at the proper time in the operation of the device. A pipe 13 extending upwardly from the top of the shell or tank 3 serves to carry off the distilled ammonia gas from the interior of the generator, and a pipe 14 extending along the bottom of the shell or tank 3 and having a series of perforations serves to permit the return and re-absorption of the spent ammonia gas after the same has been used in the refrigerating system proper.

In the operation of the device the shell or tank 3 initially contains a suitable quantity of aqua ammonia of the desired degree of strength and when the burner 6 is lighted the heat acting directly on the pipes 7 will cause the aqua ammonia to rapidly circulate therethrough and when the body of liquor has been heated to the proper degree of temperature the ammonia gas will be driven off and will pass away through the pipe 13 into the refrigerating system. The products of combustion from the burner 6 will remain within the combustion chamber imparting some of the heat directly through the shell or casing 3 and will finally pass off through the pipe 9 which passes through the liquor in a U shape, so that when the products of combustion finally pass away through the vertical pipe 15 the greater part of the heat will be extracted therefrom and imparted to the liquor contained within the shell or tank 3.

Having thus described the nature and

characteristic features of my invention, what I claim as new and desire to secure by Letters Patent is:—

1. An ammonia generator comprising a tank, a burner located beneath the same, a housing surrounding the lower portion of the tank forming a combustion chamber within which said burner is arranged, a U shaped flue passing through the tank from the combustion chamber forming an outlet for the products of combustion, a cooling coil arranged within the tank above said U shaped flue, and a perforated return pipe extending within said tank beneath said flue.

2. An ammonia generator comprising a tank, a burner located beneath the same, a housing surrounding the lower portion of the tank forming a combustion chamber within which said burner is arranged, a series of pipes communicating with the interior of the tank and extending in proximity to the burner, the outlets of the burner being arranged to cause the flame to impinge against said pipes, and a U shaped flue passing through the tank from the combustion chamber forming an outlet for the products of combustion, and a cooling coil arranged within the tank above said U shaped flue.

In testimony whereof, I have hereunto signed my name in the presence of two witnesses.

ADOLPHE E. BOSSE.

Witnesses:
H. W. Evans,
Evelyn C. Sproull.