

No. 638,717.

Patented Dec. 12, 1899.

W. D. HOXIE.

FORCED DRAFT SYSTEM FOR STEAM GENERATORS.

(No Model.)

(Application filed Apr. 24, 1899.)

2 Sheets—Sheet 1.

Fig. 1.

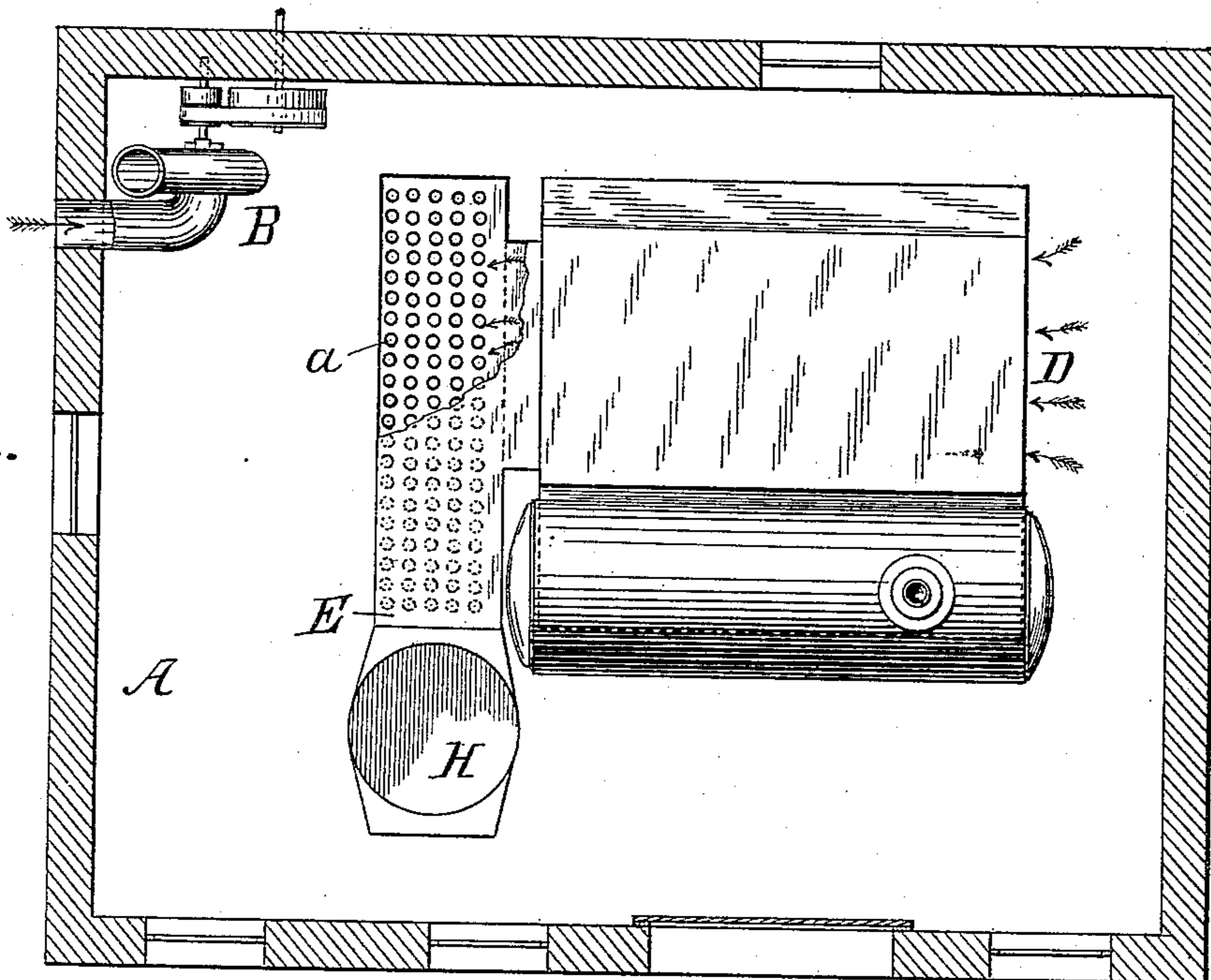
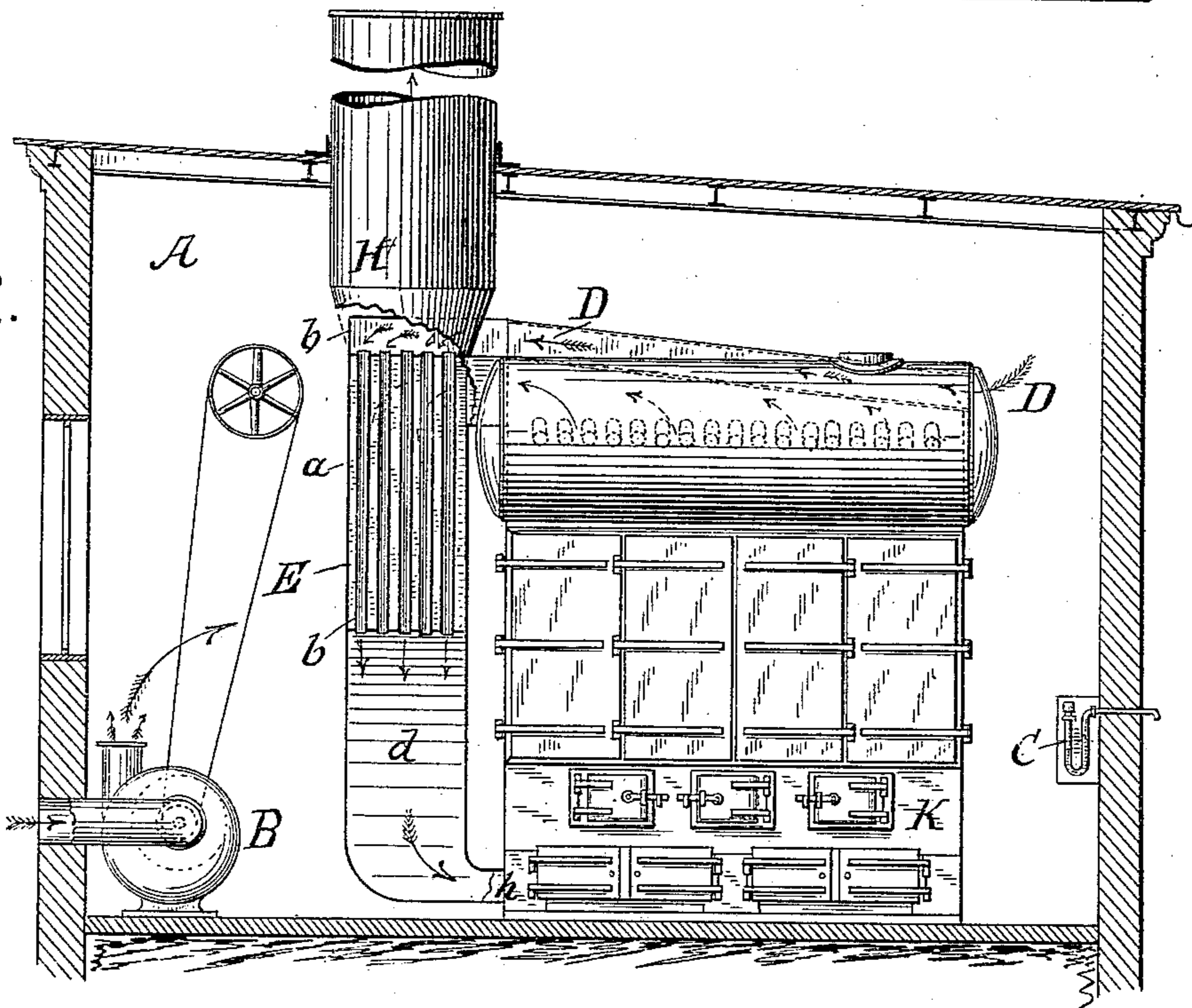


Fig. 2.



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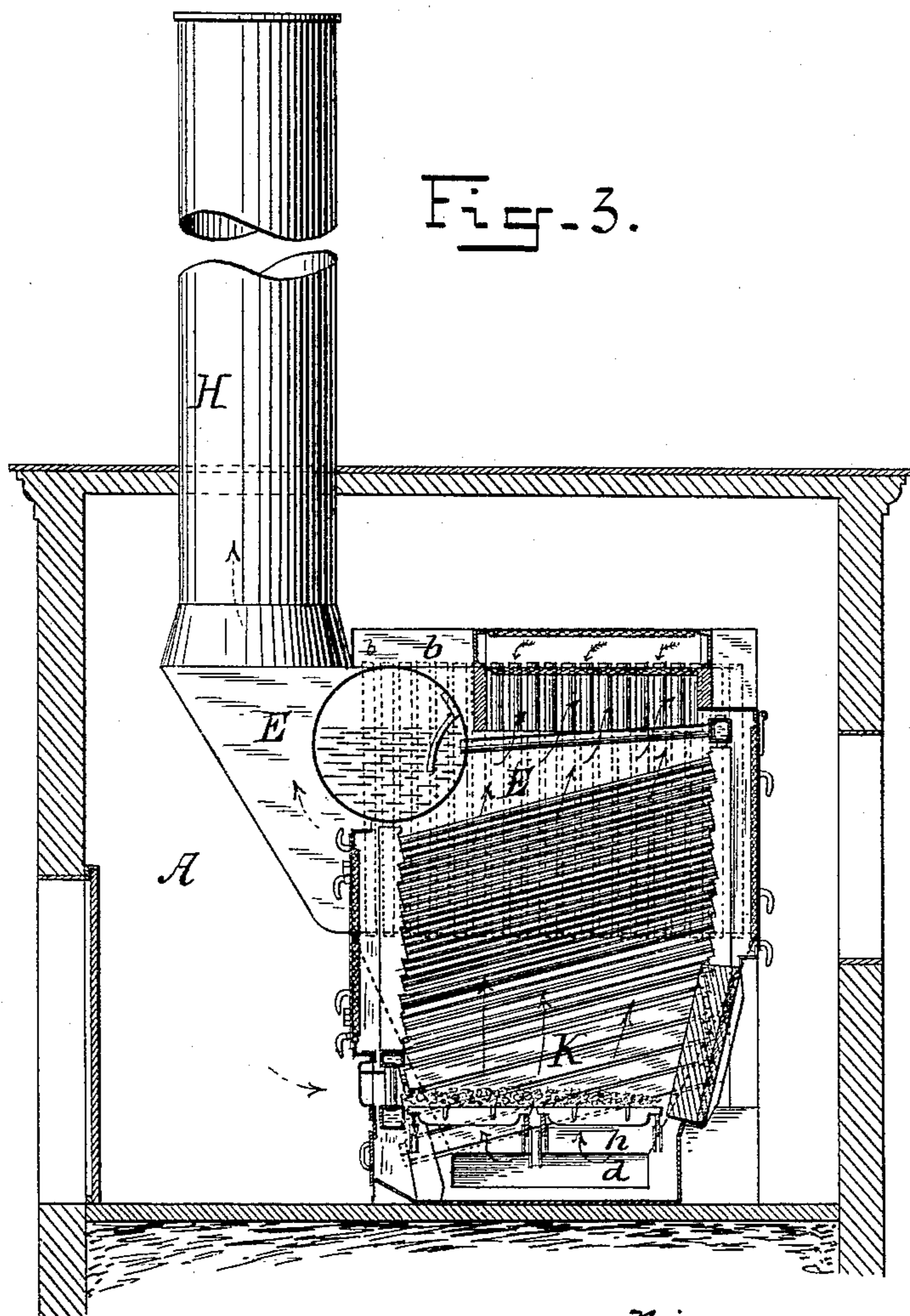
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UNITED STATES PATENT OFFICE.

WILLIAM D. HOXIE, OF NEW YORK, N. Y., ASSIGNOR TO THE BABCOCK & WILCOX COMPANY, OF SAME PLACE.

FORCED-DRAFT SYSTEM FOR STEAM-GENERATORS.

SPECIFICATION forming part of Letters Patent No. 638,717, dated December 12, 1899.

Application filed April 24, 1899. Serial No. 714,270. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM D. HOXIE, a citizen of the United States, residing at New York, (Brooklyn,) in the county of Kings and State of New York, have invented certain new and useful Improvements in Forced-Draft Systems for Steam-Generators, of which the following is a specification, reference being had therein to the accompanying drawings.

The invention consists in a forced-draft system for steam-generators in which air is forced into an air-tight compartment containing a steam-generator, the air surrounding the generator being maintained under a pressure slightly above the atmosphere. The supply for combustion is directed and circulated from the closed compartment to the furnace through ducts or tubes arranged within the boiler-casing adjacent to the course of the escaping products of combustion.

In the accompanying drawings an embodiment of the invention is shown in connection with a water-tube generator.

Figure 1 represents a plan view, partly in section; Fig. 2 a similar front view, and Fig. 3 a sectional side view, of the generator and closed compartment.

A is the air-tight compartment in which the generator is placed, B a fan-blower for forcing air therein, and C a siphon-gage communicating with the interior of the compartment and the outside atmosphere for indicating the difference in air-pressure without and within the compartment.

The generator shown is of the inclined water-tube type inclosed within a casing in the usual way.

In the present embodiment of the invention an open air-duct D is arranged within the casing of the top of the generator, into which the air-supply for combustion enters. This duct D communicates with a series of vertical pipes *a*, arranged within a combustion-chamber E, located at the side of the generator, which forms a passage for the heated products of combustion from the combustion-chamber of the furnace K to the uptake H. The vertical pipes *a* are fixed within this chamber E to partition plates or sheets *b*, as

shown in Figs. 1 and 2, and communicate with a chamber *d*, that extends to the base of the generator and opens into the ash-pit *h* of the furnace. The direction of the air taken from the compartment A and conveyed to the ash-pit *h* through the duct D, pipes *a*, and chamber *d* is indicated by the arrows, as shown in Figs. 1 and 2, and in the direction of the waste products of combustion from the furnace to the uptake, (indicated by the arrows,) as shown in Fig. 3.

In this system the air for combustion is wholly derived from the compressed air in the closed compartment and can therefore be easily and efficiently regulated by suitable dampers in the air-ducts and by the degree of compression in the compartment.

The temperature of the air may be reduced when heated above a desired degree by slightly opening or jarring the ash-pit doors at the base of the generator or by admitting air from the compartment by a suitable device at any other point in its transit through the ducts.

Heretofore in forced-draft systems arrangements have been proposed for supplying boiler-furnaces with air driven directly by a fan along the heated surfaces presented by the boiler and into especially-designed chambers adjacent to the fire-room, into which a portion of the boiler is projected, and into chambers affixed to the boilers adjacent to the furnaces and air admitted to the latter, both above and below the fire, by means of valves alternately operated, and I therefore make no claim to the same; but I am not aware that a generator has heretofore been placed wholly within an air-tight compartment in which air under pressure is maintained and heated in a distinct chamber and from which the supply for combustion is taken and by which the defects of former systems met with in practice have been remedied.

What I claim, and desire to secure by Letters Patent, is—

In a forced-draft system for steam-generators, the combination of an air-tight compartment, into which air is forced and maintained under compression, with a steam-generator

and an independent air-heating device, wholly
inclosed in said compartment, the air-supply
for combustion being transferred by means of
suitable ducts or passages leading from the
5 compartment to the air-heating device and
from the latter to the furnace, substantially
as described.

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

WILLIAM D. HOXIE.

Witnesses:

CHAS. W. FORBES,

GEORGE A. ROWELL.