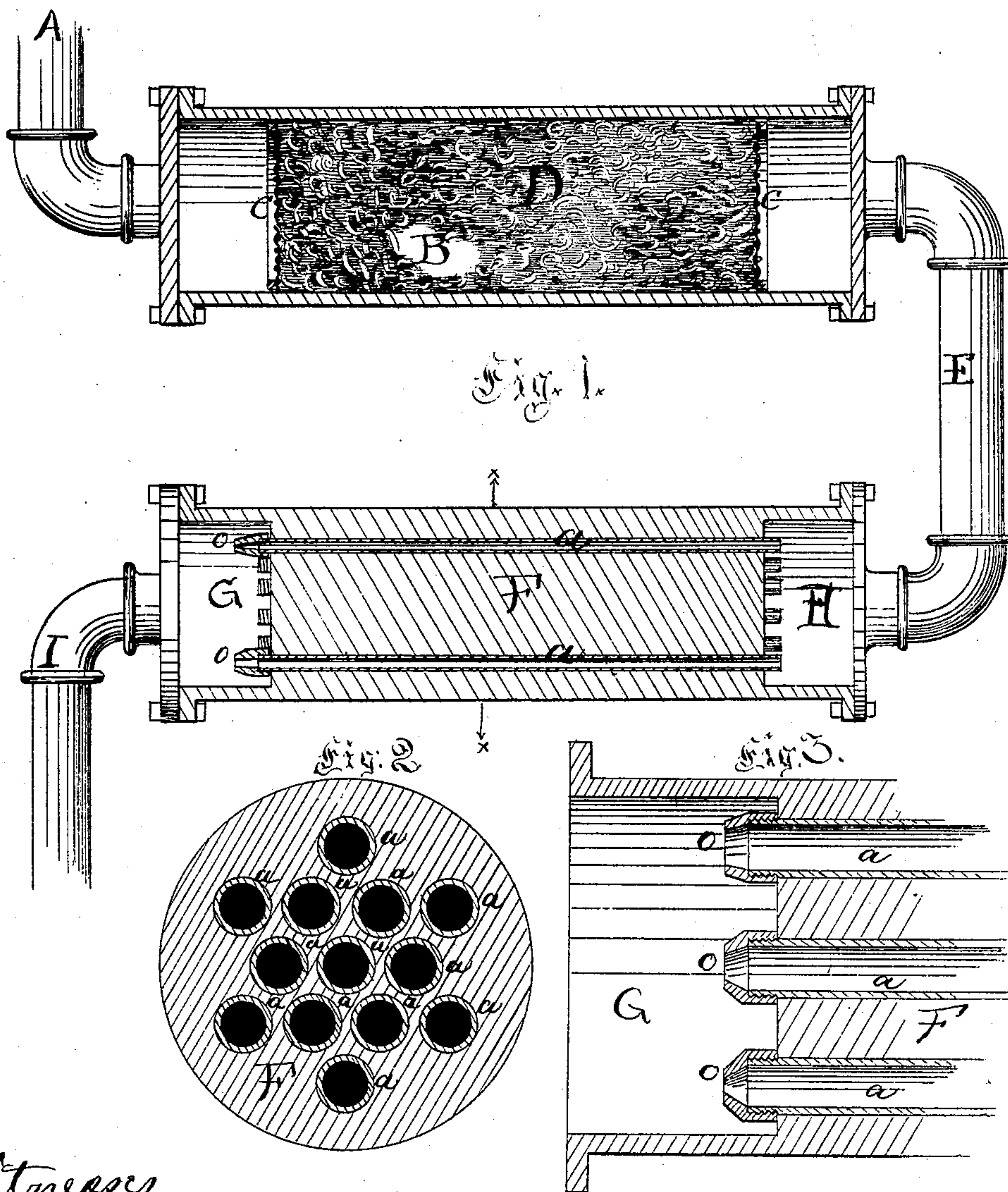


J. BUTLER.

Improvement in Gas-Retorts.

No. 130,842.

Patented Aug. 27, 1872.



Witnesses
R. D. Smith
J. C. Lyons

Inventor
John Butler
per his Attorney
Charles Rogers

UNITED STATES PATENT OFFICE.

JOHN BUTLER, OF NEW YORK, N. Y.

IMPROVEMENT IN GAS-RETORTS.

Specification forming part of Letters Patent No. 130,842, dated August 27, 1872.

To all whom it may concern:

Be it known that I, JOHN BUTLER, of the city, county, and State of New York, have invented new and useful Improvement in Gas-Retorts; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing and to the letters of reference marked thereon making a part of this specification.

The object of my invention is to provide a retort of novel and peculiar construction, designed to be used in making gas from hydrocarbons, and used in connection with an invention patented to A. I. Ambler, August 29, 1871, for superheating hydrogen and hydrocarbon vapors, as held under pressure in mechanical and chemical combination, (as set forth in said Ambler's patent,) for decomposing and converting the same into permanent gas for illuminating and heating purposes.

The nature of my invention consists in the employment or use of two cylinders, one of which is made in a novel and peculiar manner. This cylinder is one of, or a portion of, the retort, and made or composed of wrought-iron tubes, molded in a cluster in the sand. The mold being in a cylindrical form the iron is poured into the mold and around the said tubes, filling all the space between the tubes with solid cast-iron, thus forming a solid cast-iron retort with wrought-iron tubes. At the eduction end of the retort these wrought-iron tubes pass out of and beyond the solid portion of the cylinder into a chamber, the latter of which is formed by a continuation of the shell of the cylinder. This will be more fully explained.

To enable others skilled in the art to make and use my invention I will proceed to describe its construction and operation.

Figure I represents a longitudinal sectional elevation, showing the inner portion of both cylinders of the retort. Fig. II shows a cross-section of the cylinder containing the tubes or pipes. Fig. III is an enlarged view, showing how the ends of the pipes are contracted.

Letters of like name and kind indicate like parts in each of the figures.

A represents the induction pipe or tube through which the hydrocarbons pass into the cylindrical retort B. Near each end of this retort B are fitted several thicknesses of wire gauze or cloth, *c*, which fill or cover the

entire area of the diameter of the cylinder through which the vapors pass into the interior or body of the cylinder or retort, which is filled with iron-turnings or similar scrap-iron, D, the latter of which absorbs and retains the oxygen, while the hydrogen and vapors under pressure pass on through another wire-cloth head or partition into and through the connecting-pipe E into the retort F. This retort is made of solid cast-iron in a cylindrical form, with wrought-iron tubes *a a a* of suitable size, cast solid in the mass of iron so that the pipes through the retort F are lined with wrought-iron. At each end of the retort and at the ends of the tubes are chambers G and H. The ends of the wrought tubes project or extend through the mass of iron into the chamber G. On ends of these tubes are provided screw-threads for the purpose of screwing on nozzles O to obstruct somewhat the passage of gas or vapor, and by this means subject them longer to the action of heat or roasting process, which more thoroughly decomposes the vapors and forms more permanent and fixed gas, which passes out of the eduction-pipe I into the condenser, the latter of which may be of any convenient and suitable form, a particular description of which is deemed unnecessary, as a patent has been already granted to me for this. This retort is designed to be attached to the Ambler patent, heretofore referred to, and to receive the material from the eduction-pipe of the Ambler machine, and enters the retort through the induction when it is acted upon by heat under pressure, as before described, in mechanical and chemical combination.

Having fully described my invention, what I claim as new, and desire to secure by Let-Patent of the United States, is—

1. The retort F cast solid with wrought-iron tubes *a a a*, substantially as herein described, and for the purposes set forth.

2. The detachable nozzles O in combination with the tubes *a a a* and retort F, for the purposes set forth.

3. The retort B, as herein shown and described, in combination with the retort F, substantially for the purposes set forth.

JOHN BUTLER.

Witnesses:

CHAS. ROGERS,
A. T. SMITH.