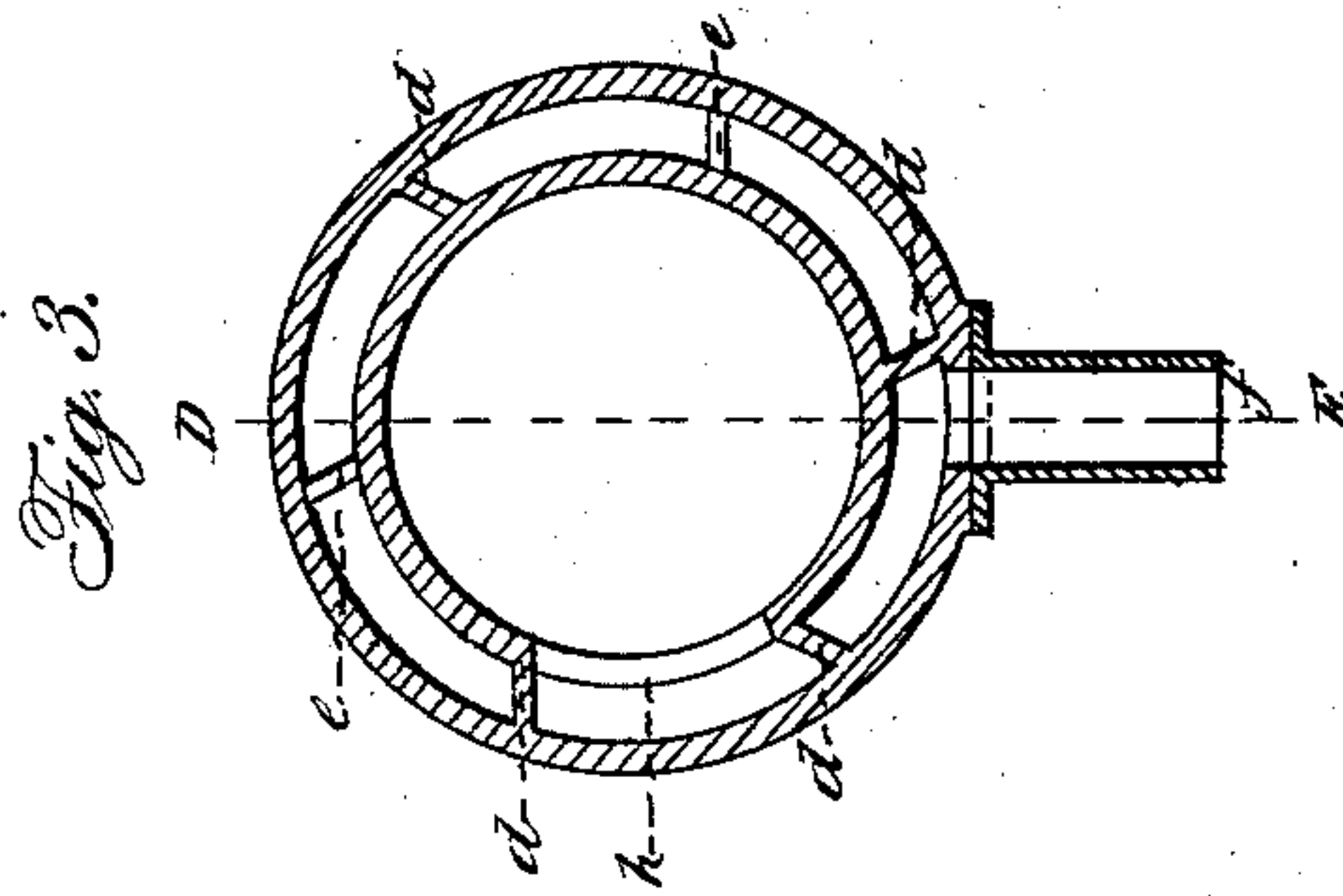
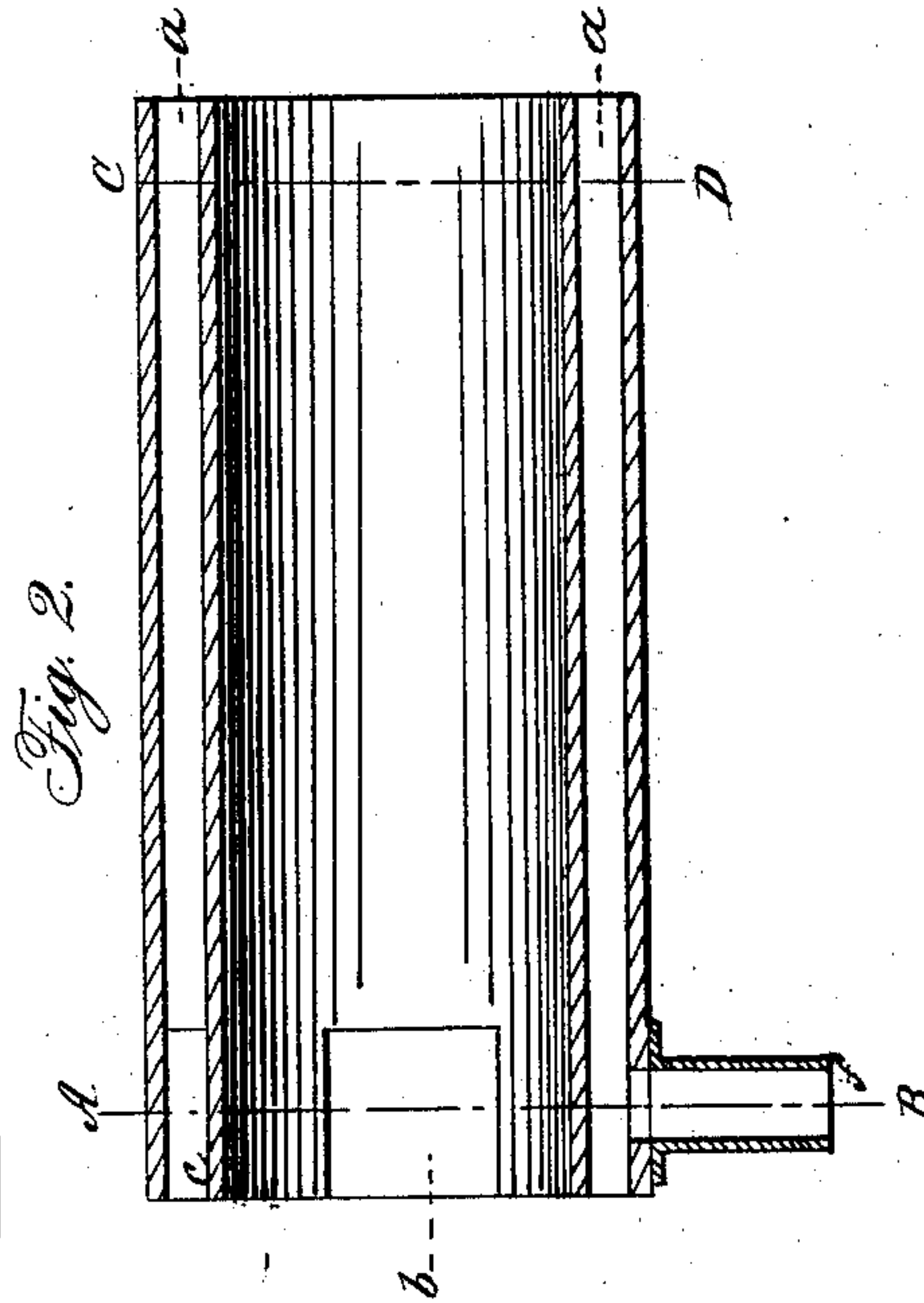
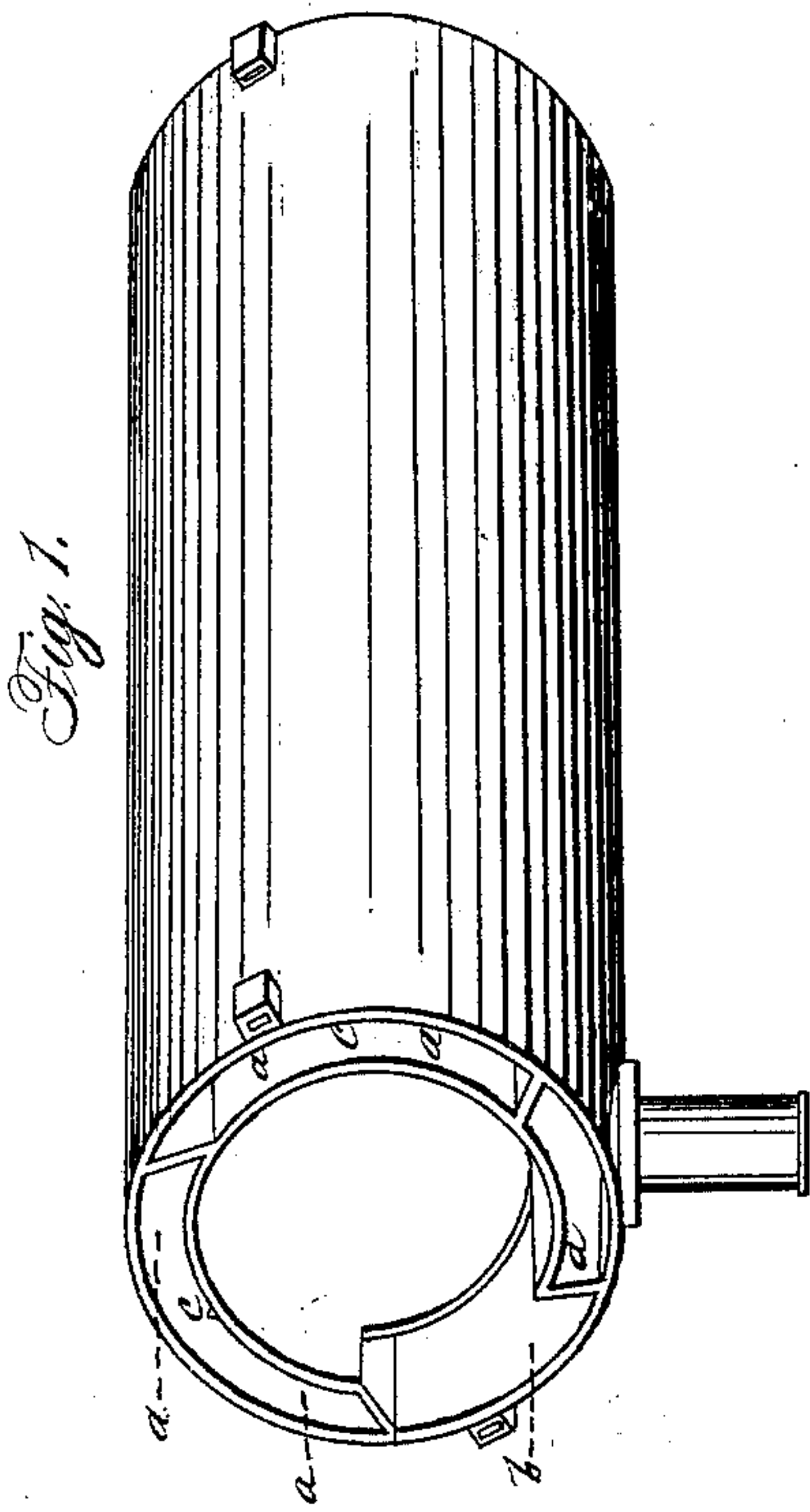
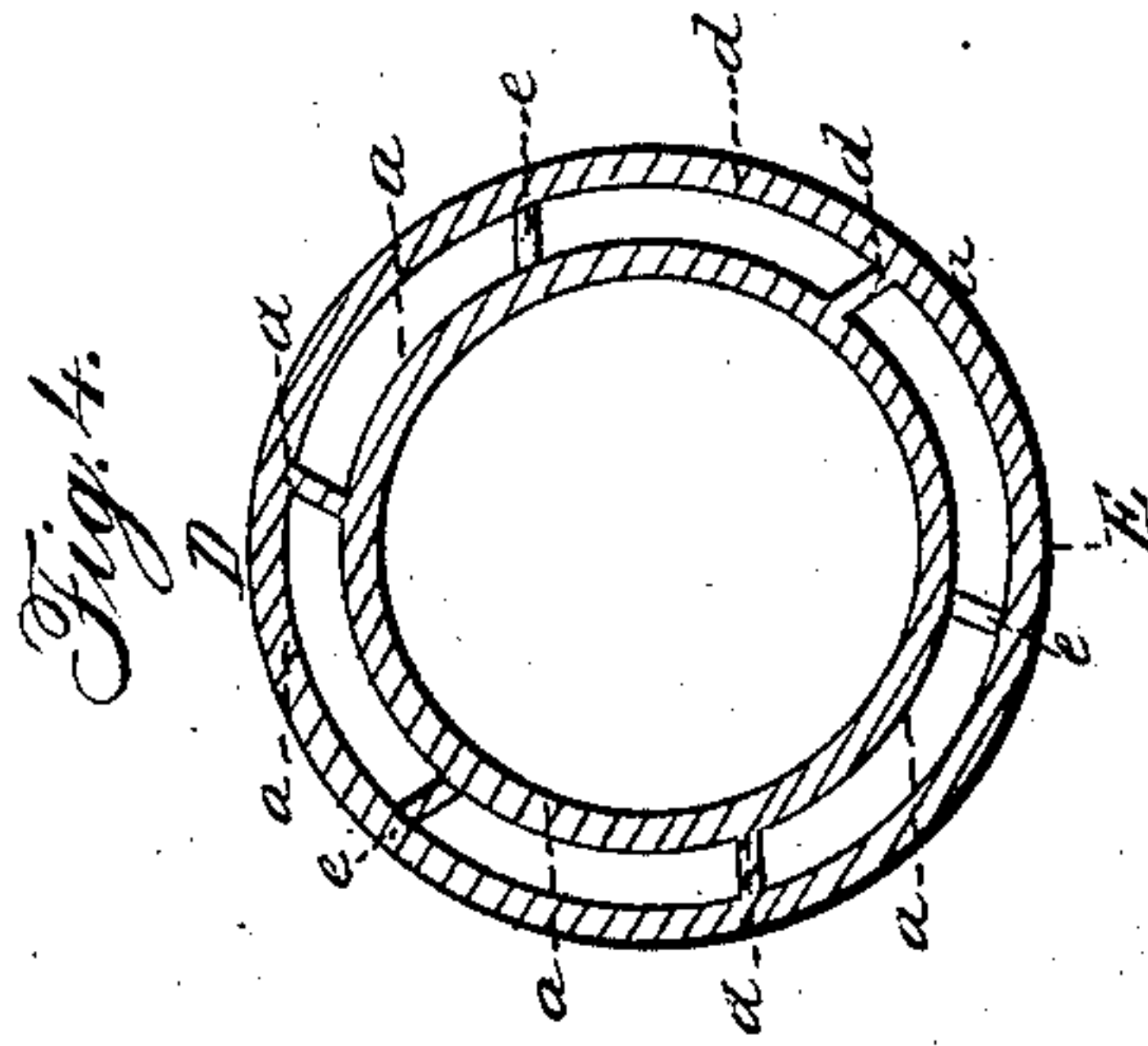
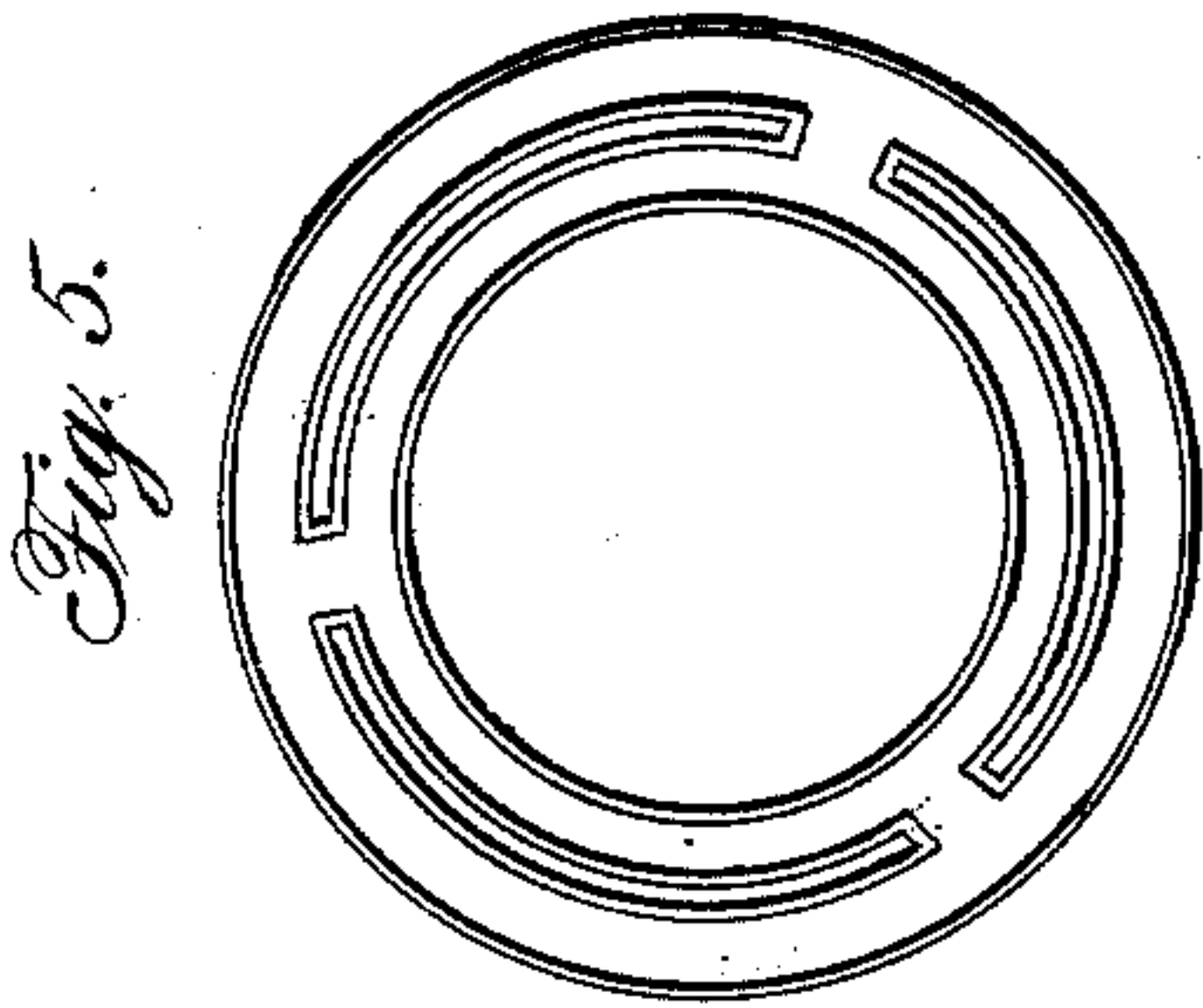


C. M. CRESSON.

Gas Retort.

No. 11,742.

Patented Oct. 3, 1854.



Witnesses:

Harvard Rand
Wm. E. Hitchcock.

Inventor:

C. M. Cresson.

UNITED STATES PATENT OFFICE.

CHARLES M. CRESSON, OF PHILADELPHIA, PENNSYLVANIA.

GAS-RETORT.

Specification of Letters Patent No. 11,742, dated October 3, 1854.

To all whom it may concern:

Be it known that I, CHARLES M. CRESSON, M. D., of Philadelphia, in the State of Pennsylvania, have invented a new and Improved
5 Apparatus for Manufacturing Gas for Heating or Lighting Purposes, which I denominate a "Cellular Retort"; and I do hereby declare that the following is a full and exact description thereof, reference being had
10 to the accompanying drawings and to the letters of reference marked thereon.

The nature of my invention consists in a retort so constructed that its exterior walls or shell instead of being solid or of only one
15 thickness of metal or other material is made up of a number of longitudinal cells (Figures 1 and 2 *a a a* &c) extending from end to end or nearly so. The said cells to be made completely air-tight and connected
20 with each other or with the central cells of the retort in such manner (*b*) that any vapor or gas generated or contained either in the central cell or in any one or more of the exterior cells may be made to permeate or
25 traverse all the other cells either in succession or otherwise so as it may be retained and made to circulate within the cells of the retort for as long a time as the manufacturer may desire or deem best for obtaining the
30 most favorable results from the materials he is using, whether the same be mineral or vegetable or animal or atmospherical.

In order to enable any competent workman to construct my cellular retort I give
35 the following description of one of the methods of construction without limiting my claim to such particular method but reserving the right to use any other method or materials that will produce substantially a
40 cellular retort such as is before specified.

The material which I find to answer best is cast iron and I cast my retort in one mass or piece with the cells cored out in the mold so that when it comes from the mold it has
45 all its cells complete and gas tight with proper transverse channels (Fig. 2, *c*, . . .) to convey the gases or vapors from cell to cell in succession and through each cell from one end of the retort to the other so that the
50 said gases and vapors may pass from end to end of the retort as many times as there are separate cells.

The form which I prefer for my retort is cylindrical or cylindroidal so that the concentric portions of the shell shall be concentric
55 cylinders, or cylindroids and the longitudinal ribs or partitions of cells nearly radial but not exactly so. The transverse passages

from center to cell and from cell to cell I find it convenient to make at or near the
60 ends by stopping off in the mold a small portion of the metal at one or more segments of the inner shell and also at the opposite ends alternately of contiguous ribs or cell partitions allowing the other segments
65 of the inner shell and the other alternate ends of the ribs or cell partitions to extend out so as to be flush with the ends of the outer shell and thus be made gas tight by
70 luting against the lids of the retort in the same manner and at the same time as the outer shell is luted and made tight.

When the retort is to be made of wrought iron the several parts of its shell must be riveted together gastight and if made of
75 clay or brick they must be built up gastight with proper fireproof materials. The number of the cells and their size relatively to the capacity of the retort may be varied according to the nature of the materials from
80 which the gas is to be made. They cannot be fewer than two to produce any useful effect and should not be fewer than four nor should their number be so increased as to
85 make them too small to be properly cleaned by a scraper or spatula or other convenient tool.

When ordinary gas making materials are used I prefer making six cells of such size that a retort two feet in diameter of inside
90 shall be about thirty four inches outside which will leave the cells about three inches wide radially.

I do not claim the construction of a retort with an interior diaphragm that having been
95 done before and used both by myself and others, nor do I claim the use of a movable or fixed case within a common retort which is also in common use, neither do I claim connecting a retort or generator with any
100 other retort or retorts or regenerators as that has also been done by myself and others.

What I do claim is—

The construction and use of a gas retort with a cellular shell or exterior wall instead
105 of the usual solid shell or wall; the cells being made to communicate with each other and with the interior substantially as before specified and described so as to form either one consecutive series or several collateral
110 series of communicating cells.

C. M. CRESSON.

Witnesses:

EDWARD HURST,
JOSEPH F. SMITH.