

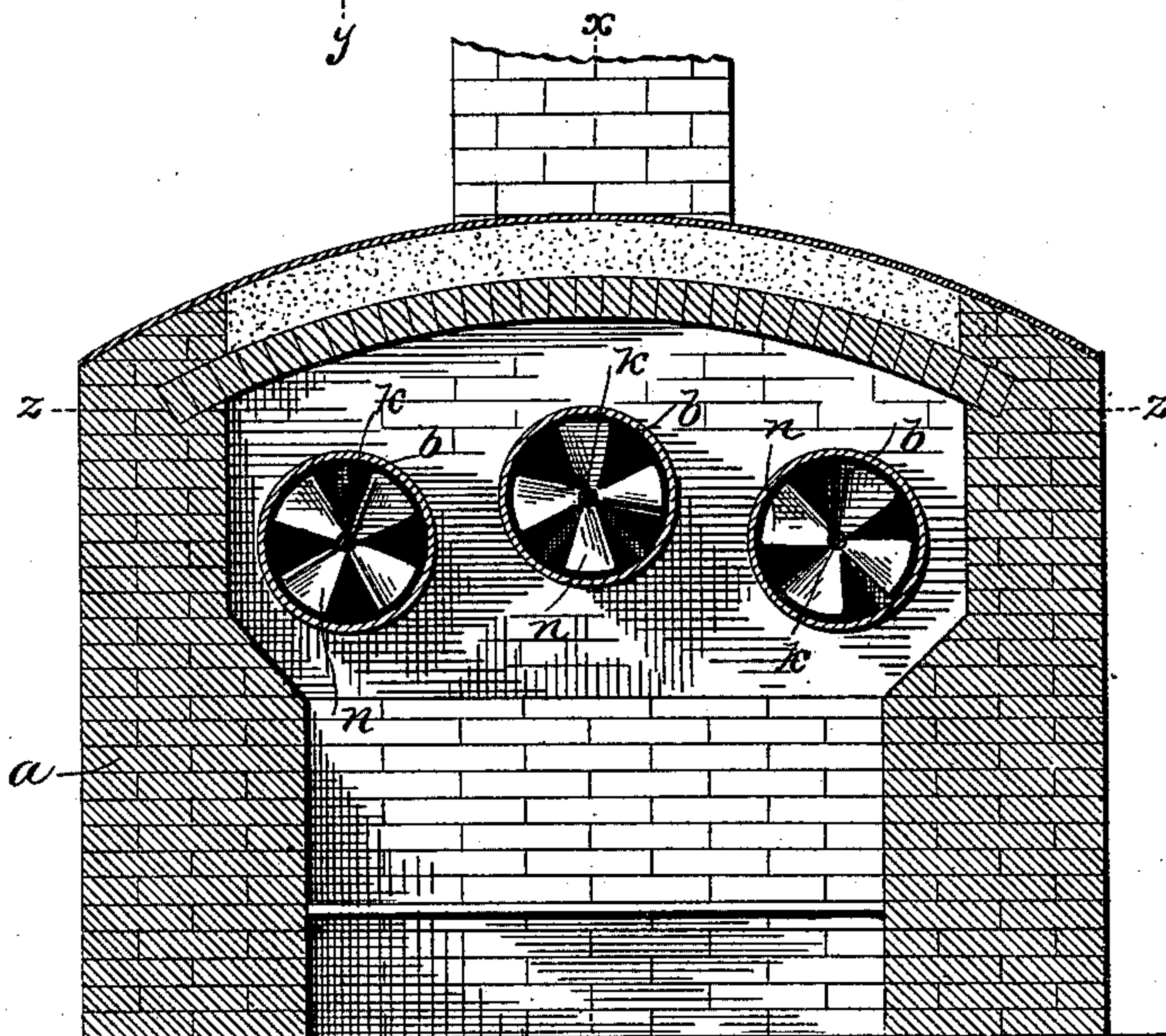
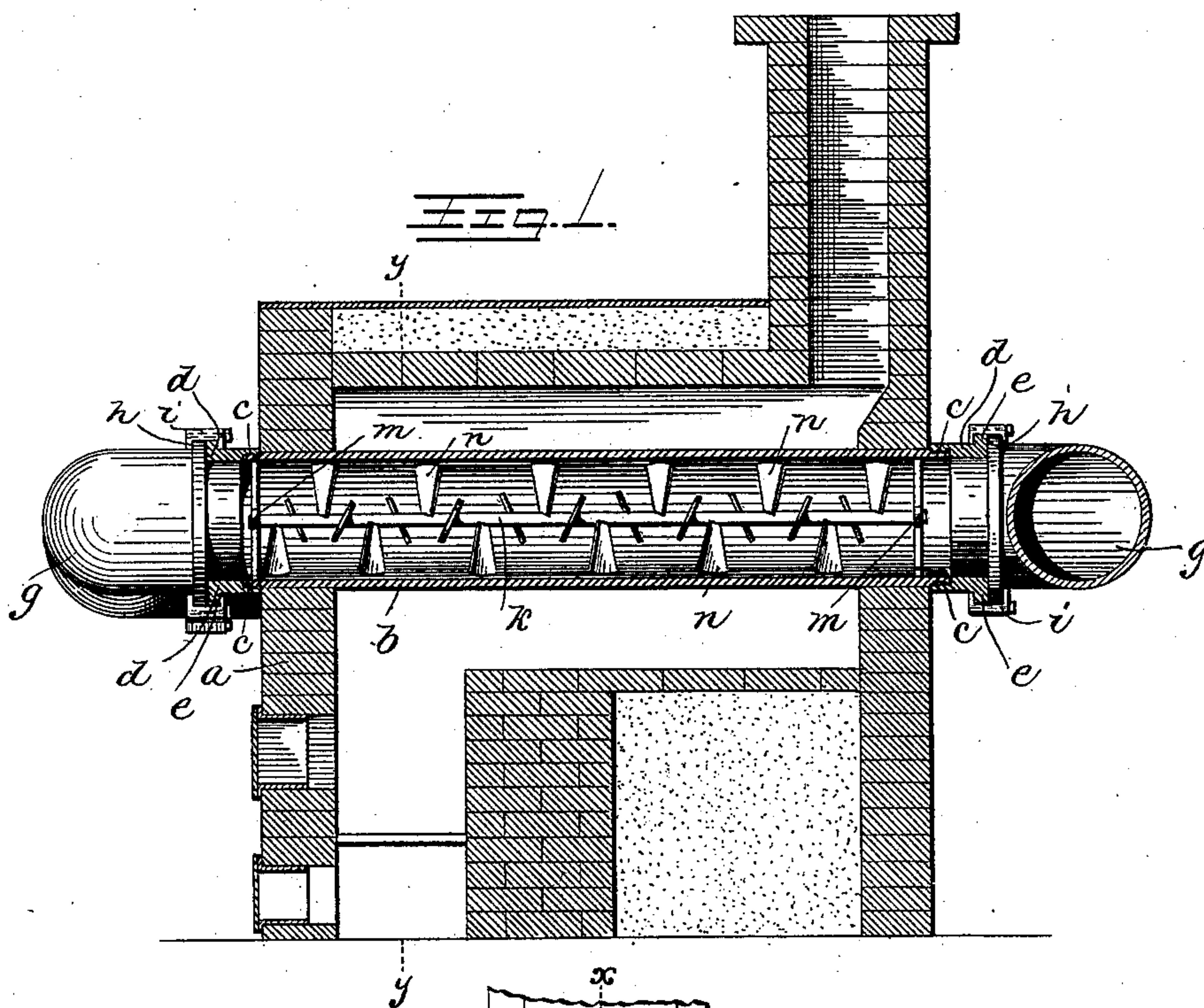
(No Model.)

2 Sheets—Sheet 1.

A. TAYLOR.
GAS APPARATUS.

No. 360,977.

Patented Apr. 12, 1887.



WITNESSES:

L. G. Brown, Jr.
J. A. Lewis

Fig. 2.

INVENTOR

Alfred Taylor

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ATTORNEY

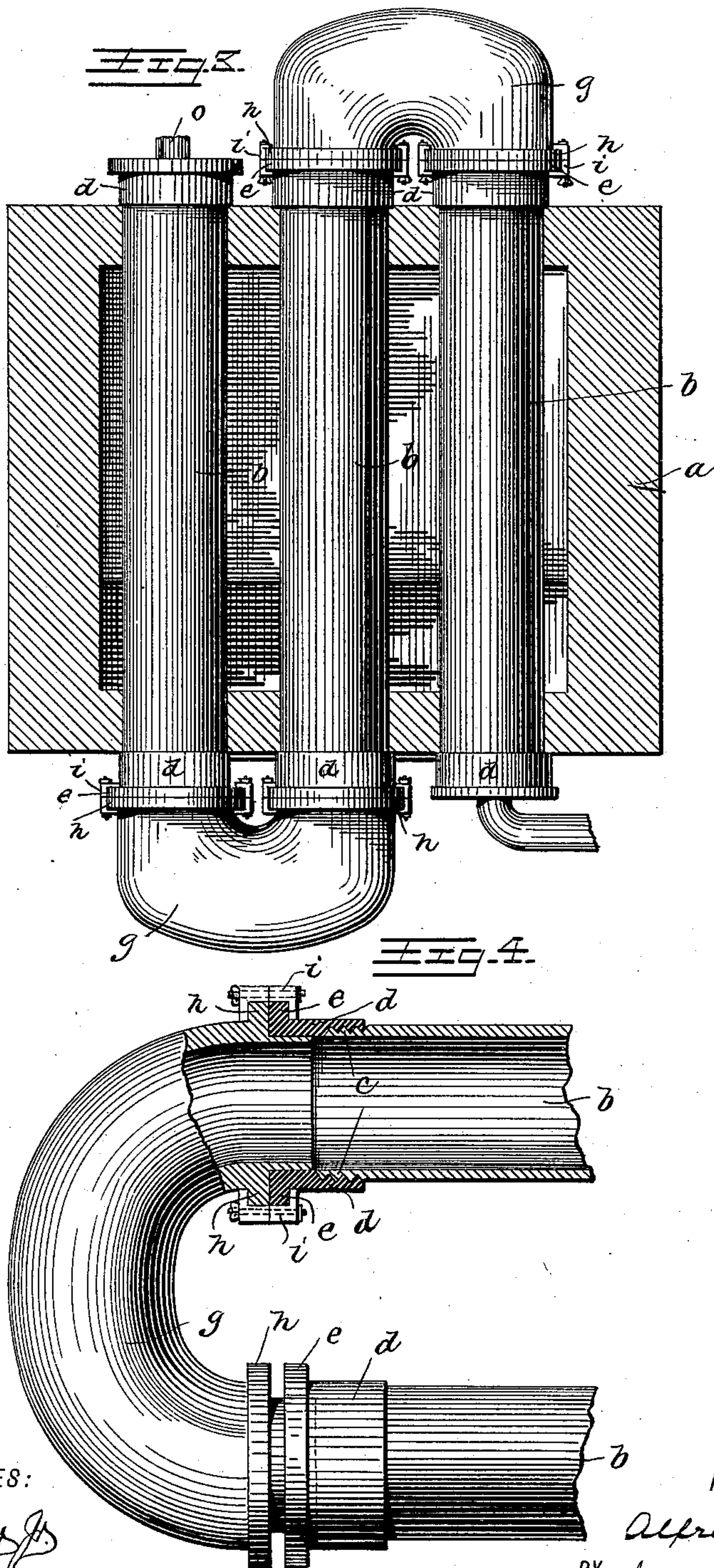
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WITNESSES:

J. G. Smith

Ida A. Lewis

INVENTOR

Alfred Taylor

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ATTORNEY

UNITED STATES PATENT OFFICE.

ALFRED TAYLOR, OF NEW YORK, N. Y.

GAS APPARATUS.

SPECIFICATION forming part of Letters Patent No. 360,977, dated April 12, 1887.

Application filed March 13, 1886. Serial No. 195,073. (No model.)

To all whom it may concern:

Be it known that I, ALFRED TAYLOR, of New York, in the county and State of New York, have invented a new and useful Improvement in the Manufacture of Gas; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, forming part of this specification, in which—
Figure 1 is a vertical sectional view of the retort on the line *x x*, Fig. 2. Fig. 2 is a vertical cross-section on the line *y y*, Fig. 1. Fig. 3 is a horizontal longitudinal section through the retort-furnace on the line *z z*, Fig. 2, showing the position of the retort. Fig. 4 is a detached view of the coupling devices.

Like letters of reference indicate like parts in the furnace.

My invention relates to the manufacture of gas from hydrocarbon or other oils; and it consists in the apparatus hereinafter described.

In the manufacture of gas from hydrocarbon oil the method which I desire to follow is that where the oil is allowed to flow in fine streams or drops into a pipe or vessel through which a current of steam passes, by which the oil is carried with the steam into a retort situate within the heating-furnace, where the oil and steam are superheated and converted into a fixed gas, which gas, passing from the retort, is conducted to a gasometer or other receiver. It is necessary in the process that the oil or vapor be sufficiently heated to form a fixed gas that will not condense when removed from the influence of the heat. The object of my invention, therefore, is to provide suitable appliances, as hereinafter described, for bringing the vapor or oil in direct contact with the heated surface of the interior of the retort.

I will now describe my invention, so that others skilled in the art may manufacture and use the same.

In the drawings, *a* represents the furnace, which may be constructed in any usual manner, having retorts *b* situated therein, the ends of the retort-pipes extending beyond the outer face of the furnace-walls, at which point they are provided with a screw-thread, *c*, with which a threaded collar, *d*, engages, said collar *d* having a flange *e*. The joint between the collar and retort-pipe is rendered perfectly

tight by the use of cement, in the usual manner. These retort-pipes *b* are connected with each other at their ends, outside of the walls of the furnace, by the U-shaped coupling-joint *g*, the ends of which fit within the flanged collars *d*, and are provided with flanges *h*, which fit against the flanges *e*, and are secured by a clamp, *i*, which holds the collar of the coupling-pipe *g* tightly against the collar *d*. Inside of the retort-pipes *b* are shafts *k*, journaled in suitable bearings, as at *m*. On these shafts are inclined wings or blades *n*, which extend nearly to the inner circumference of the retort. If desired, these wings may be formed in the shape of a worm. Leading into the first part of the series of retorts is a steam-pipe, *o*, into which the steam and oil are delivered in the usual manner, and thereby carried into the retorts.

The operation is as follows: The steam and oil, passing through the pipe while under pressure, enter the first retort, the retort being heated by the furnace, and the blast, striking the wings or spiral worm *n*, causes the oil and steam to be projected against and pass along the inner surface of the retort-pipes, where it is heated and converted into a fixed gas. Owing to the action of the worm or wings, the oil and steam are completely atomized during their passage through the retort, and are not allowed to pass through in a mass, the outer portion of which alone would be brought in contact with the heated surface of the retort.

When the lower surface of the retort-pipes has become weakened by the heat, the clamps *i* may be loosened, and the retort-pipes and collars may be partially rotated, so as to bring a new portion of the retort-pipe to the direct action of the flames, and so on until the pipes have become so burned over their entire surface as to be rendered useless. When this is the case, the collars *e* are removed from the ends of the pipe-section, the pipe-section is removed from the furnace, and a new section is inserted in its place without interfering or disturbing the masonry or brick-work.

The advantages of my improvement are, that the oil-vapors are completely atomized in the retort, and are more perfectly brought into contact with the heating-surfaces thereof than has been done heretofore, and also that the

furnace as constructed and described by me is capable of enduring a much longer time than those now in use.

I am aware that deflectors situated within
5 the retort-pipes are not new, and also that movable scrapers for stirring sawdust in retorts used in the manufacture of gas by the distillation of wood are not new, and I do not desire to claim the same, broadly; but,

10 Having thus described my invention, what I desire to claim and secure by Letters Patent is—

15 1. In apparatus for the manufacture of gas, the combination of a retort and furnace, suitable inlet feed-pipes for the passage of the hydrocarbon and steam to the retort, and a revoluble atomizer situate within the retort, so

as to be rotated by the passage of the vapor of steam and oil, substantially as and for the purpose specified. 20

2. In apparatus for the manufacture of gas, the combination of a retort and furnace provided with oil and steam pipes with a longitudinal rotary shaft and atomizers situate within the retort and connected to the shaft, 25 so as to be rotated by the current of vapor of steam and oil, substantially as and for the purpose specified.

In testimony whereof I have hereunto set my hand this 8th day of March, A. D. 1886.

ALFRED TAYLOR.

Witnesses:

JAMES K. BAKEWELL,
C. S. DRURY.