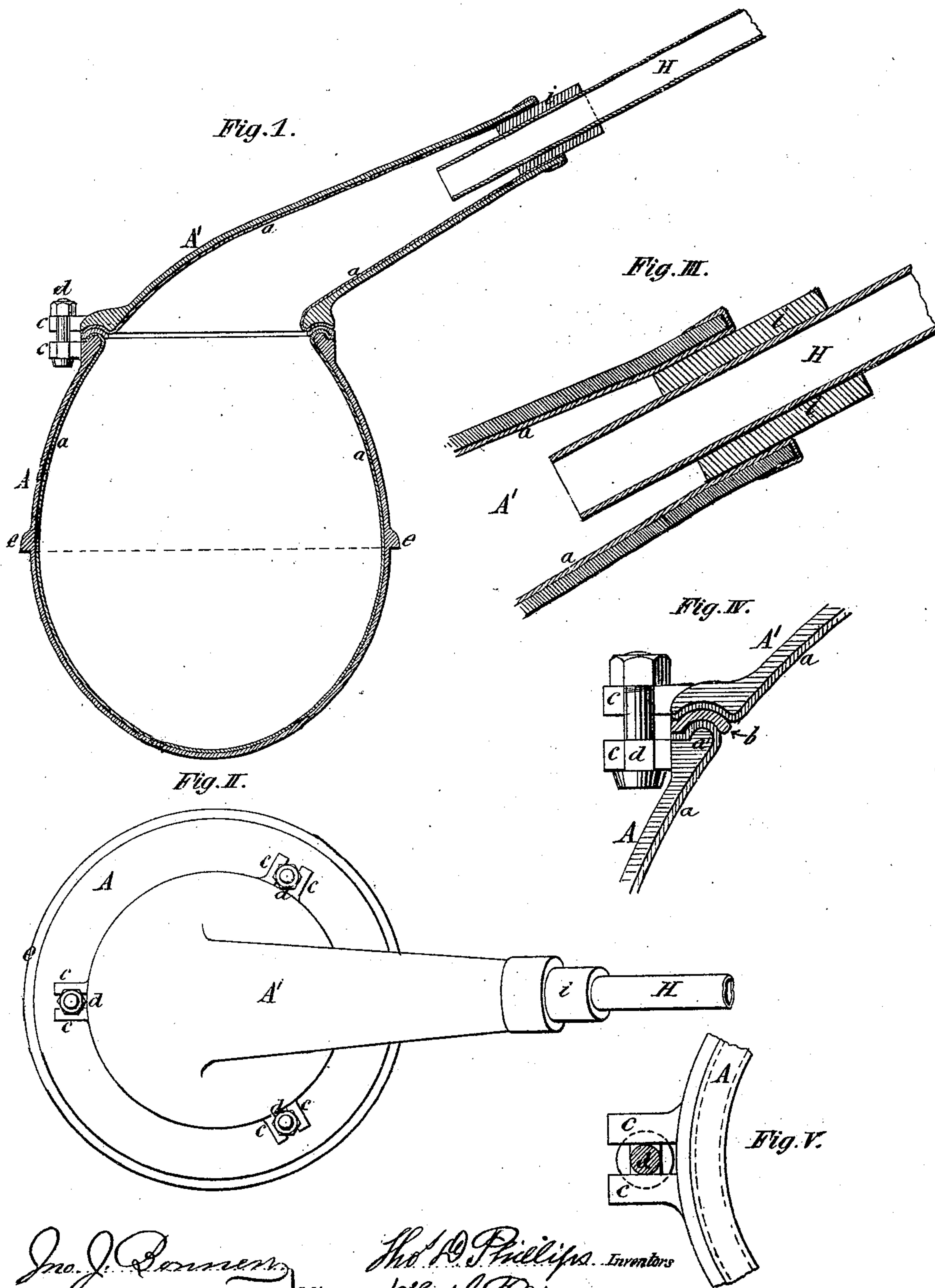


T. D. & T. S. Phillips,

Retort.

No. 109658.

Patented Nov. 29. 1870.



Jno. J. Conner.
R. B. Devenport.

Witnesses

Thos. D. Phillips. Inventors

Thos. S. Phillips

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Attys.

United States Patent Office.

THOMAS D. PHILLIPS, OF CASSADAGA, AND THOMAS S. PHILLIPS, OF BUFFALO,
ASSIGNORS TO BENONI S. BROWN AND THOMAS S. PHILLIPS, OF BUFFALO, N. Y.

Letters Patent No. 109,658, dated November 29, 1870.

IMPROVEMENT IN ENAMELED CAST-IRON RETORTS.

The Schedule referred to in these Letters Patent and making part of the same.

We THOMAS D. PHILLIPS, of Cassadaga, in the county of Chautauqua, and THOMAS S. PHILLIPS, of the city of Buffalo, in the county of Erie and State of New York, have invented an Improved Retort, of which the following is a specification.

The object of our invention is the production of an improved retort that can be used as a substitute for the ordinary glass ones, and which will avoid the objections attending the use of the latter, especially by dentists, in the manufacture of nitrous-oxide gas.

Among the objections which are urged against the glass retort are the following:

The great liability of the retort's breaking, which results in a loss of the retort, and the more serious consequences which follow an explosion during the process of distillation. The great care required in handling them, the time necessarily employed in filling them through the small opening at the end of the neck thereof, and the extra expense involved by the use of the nitrate of ammonia in a granulated state, which costs about five cents more per pound than the material does in the form in which it is first produced, *i. e.* in lumps.

Our invention consists of a retort made of cast-iron, with the neck portion cast separate from the body, both of which are enameled or lined on the inside and at the abutting or contiguous edges with porcelain, and the joint between the two made tight by means of an interposed packing of India rubber or other suitable material, which, in connection with the lined edges, prevent the contents of the retort coming in contact with the iron, whereby is produced a retort of the most durable character, which can be readily filled by detaching the parts, handled without extra care, and used without fear or apprehension of its breaking at a time, perhaps, that its use is most needed.

In the accompanying drawing—

Figure I is a section of a retort on a scale of one-half size.

Figure II is a plan thereof.

Figure III is a section of the end of the neck or mouth of the retort, of full size.

Figure IV is a fragmentary section through the joint, and

Figure V, a plan of Fig. IV, also of full size.

Like letters of reference designate like parts in all the figures.

A is the body of the retort;

A', a neck-portion thereof; and

a, the porcelain lining of both parts, to which it is

applied in the usual manner in which kettles, &c., are lined with the same material, it being understood that enamels containing lead as an ingredient should not be used.

The upper edge of the body of the retort is made angular or rounded, as shown at *a'*, for a purpose presently to be explained, while the contiguous edge of the neck-portion is cast with a groove made to receive and conform with said rounded edge.

b is the rubber or other suitable packing interposed in the joint thus formed.

The parts A A' are secured together by means of slotted flanges or ear projections *c c*, clamped together by bolts *d*, as represented.

The body A is cast with a ledge or shoulder, *e*, on its outer surface, extending around it so as to form a suspension support for the retort when placed in a hole in the stove or furnace in which it is heated.

H represents a glass tube or nozzle projecting and fitted in this upper end of the neck of the retort by means of a surrounding packing-ring or thimble, *i*, of rubber or other suitable material, with which connects the rubber or other flexible pipe that conveys the gas to the receiver when employed in the distillation of nitrous-oxide gas.

The packing *i* serves to arrest the liquid as it works up along the neck of the retort, which, with the ordinary glass retort it sometimes does, and passes over in considerable quantity into the receiver or purifying vessel.

The rounded upper edge of the body A prevents the liquid from working in the joint and destroying the packing, which we have found from experiment it sometimes will do when this joint is made reversed, or with the incline from the inner edge running in an opposite direction.

The construction of the joint enables the neck portion to be readily disconnected for filling the retort or emptying it of the residuum.

What we claim as our invention is—

A retort, as a new article of manufacture, made of cast-iron, in two parts, A A', lined with porcelain on the inside and at the edges of the joint, and secured together with an interposed packing, *b*, as hereinbefore set forth.

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Witnesses:

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