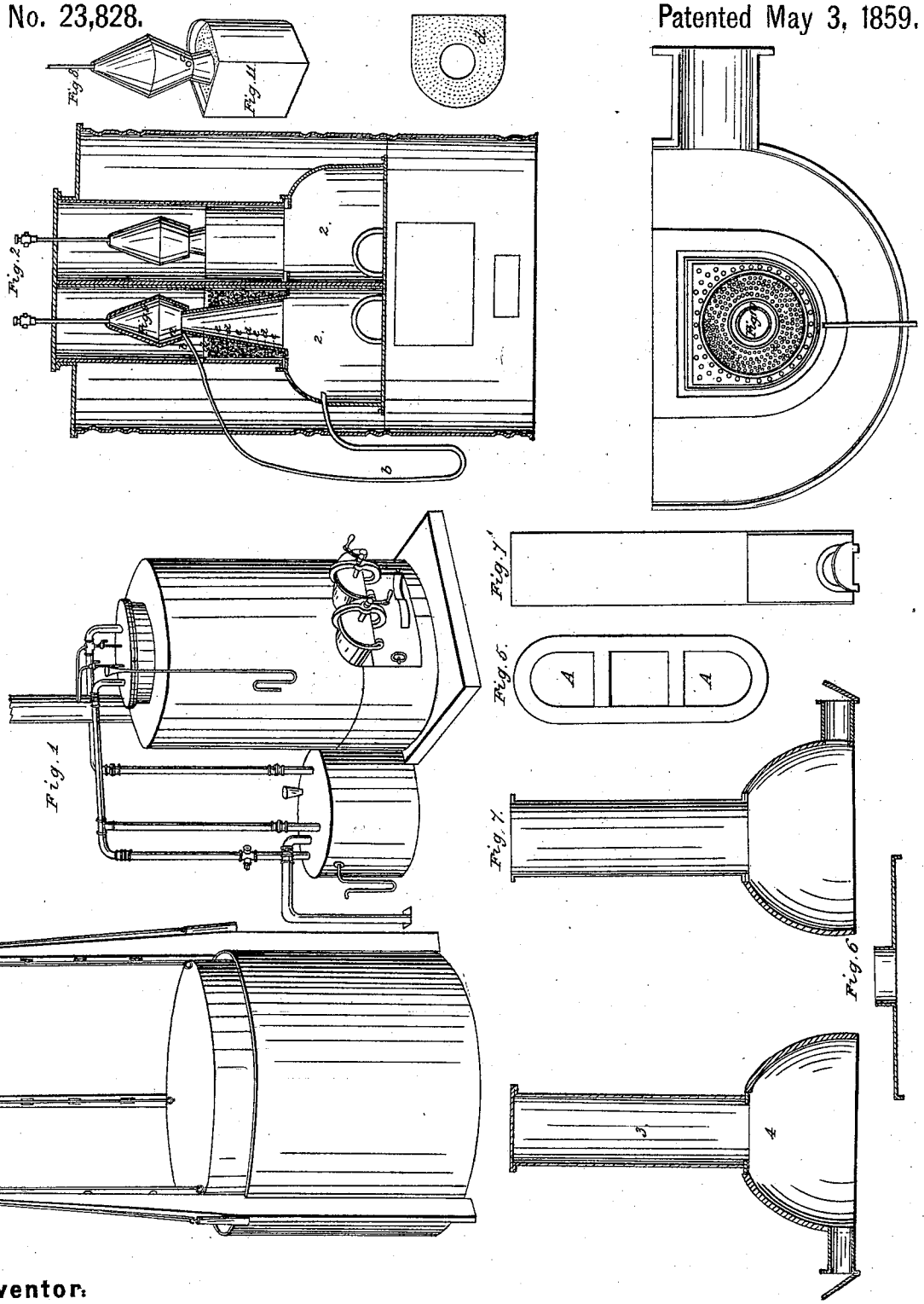
M. P. COONS.

Making Oil Gas.

No. 23,828. Patented May 3, 1859.



Inventor:

E. G. Guest
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Witnesses:

Mathias P. Coons

AM. PHOTO-LITHO. CO. N.Y. (OSBORNE'S PROCESS.)

UNITED STATES PATENT OFFICE.

MATTHIAS P. COONS, OF BROOKLYN, NEW YORK.

APPARATUS FOR GENERATING GAS.

Specification of Letters Patent No. 23,828, dated May 3, 1859.

To all whom it may concern:

Be it known that I, MATTHIAS P. COONS, of the city of Brooklyn, county of Kings, and State of New York, have invented a new and useful Improvement in Apparatus for Generating Illuminating-Gas, and may also be used for other purposes; and I do hereby declare that the following is a clear, full, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a perspective view of the entire arrangement of the apparatus, conducting pipes, gasometer &c. Fig. 2 a longitudinal sectional elevation.

The nature of my invention consists in the construction combination and arrangement of an apparatus for generating gas while at the same time it may be used for other purposes, and by which different qualities of illuminating gas may be generated from different classes of materials at the same time, and in its peculiar arrangement and construction, it is made portable, and convenient of transportation. And it will be seen that by its peculiar construction and arrangement the apparatus may be indefinitely extended in its capacity for generating gas.

I construct my retorts in separate and distinct parts two of which form an oblong represented by Fig. 5, A A and when two are only used they are united as represented by Fig. 2. I would here state that the object in having a plurality of retorts is that gas may be generated from different materials at the same time and each quality of gas may be conducted into coolers or purifiers as they may severally require and also for the convenience of extending the generating capacity—for example hydrogen and bicarbureted gas may be generated at the same time the one requires to be conducted into a washer or cooler while the other is discharged directly into the holder and as wood of all species can be used all animal matter, animal vegetable or mineral oils—mineral coal cotton and other seed.

Each of the retorts are supplied with a separate mouth piece and the generating chamber being enlarged as represented by 2, 2, and by Fig. 3. The generating chamber and the barrel of the retort are cast in separate parts as shown by 3, 4 so as to extend the heating surface—these parts are united as follows each having corresponding projecting flanges. I place between these parts a rim plate in form of Fig. 5, having upon its outer edge a T flange corresponding in width with and fitting the other flanges while at the same time it also projects inwardly for the purpose of a rest for the diaphragm Fig. 11, the cap piece or cover being a full plate of same form with projecting L flange also fitting the projecting flange on the top rim of the retort represented by 6 and are then secured to each other by packing and screw bolts as is usual in similar cases, by which means the several retorts are secured to each other and placed over one fire chamber and incased by sheet iron and inlaid with brick in the usual manner in such cases. When an enlargement and extension of the capacity for generating gas is required I insert and secure in the same manner as described one or more square retorts between the retorts just described in form as represented by Fig. 7, 7 one a side view the other front view. Thus it will be seen that the capacity for the generation of gas may be almost indefinitely extended and no other alterations required except the plates Figs. 5 and 6.

Having thus described the external construction and arrangement of my combination gas generating retort I will now proceed to describe the nature of the internal arrangement construction and operation of the same.

When I operate a retort with two chambers and generate hydrogen gas from wood in one retort or chamber and fatty or oily matter in the other I conduct the gas from wood into a tank of water and from thence into the holder while at the same time the gas from the latter is conducted directly into the holder and if I use more chambers and use other and more materials my arrangement admits of washing or purifying such gases as may require it, while at the same time others not requiring it may be conducted direct into the holder thereby a saving of gas is effected.

It is well known that all fatty (oily) resinous glutinous or saccharine matter produces while in a state of combustion oily tarry and acid fluids which escape with the gas generated and is separated by the whole being conducted into purifying tanks by which much of the gas generated is lost as well as a loss of material and in their

discharge produce an unhealthy as well as an unpleasant odor, and for the purpose of obviating that difficulty, and also to prevent the unpleasant effects produced by the emission of gas and smoke issuing from the fusion chamber on opening its mouthpiece I have invented a purifying diaphragm and by its arrangement also admits the escape of all gaseous and other combustible matter which may remain in the retort, into the chimney thus preventing its escaping through the mouthpiece into the room. A perspective view of which is represented by Figs. 8 and 11, and a sectional elevation by Fig. 9 and a transverse section by Fig. 10. This diaphragm consists of a conical tube having at its base a flange or ring attached, corresponding in form and dimensions to the inside of the barrel of the retort, to the outer edge of which is a rim thus forming a cup as represented by Fig. 11 in the center of which is the conical tube as represented by *e*—, at the upper end of this cone and attached thereto is a chamber in diameter equal to the base of the tube, and of corresponding height the particular form is not material but have selected the form as represented by Fig. 9, at the junction of the upper end of the tube and chamber and on the inside is a gutter or trough as represented by 12, having a discharge pipe attached as represented by *b*. And at the upper extremity of this chamber is attached an escape pipe as represented by Fig. 8, and *c c*, by which it will be seen that a direct communication is obtained between the generating chamber and the chimney for the purpose as heretofore stated. It will also be seen that the pipe *b* communicates with the trough and generating chamber. The flange or bottom of this cup is perforated with numerous small holes and I prepare a series of thickly perforated plates in form fitting the inner side of the cup as represented by, *d*, at the bottom of this cup I place a layer of cellular packing composed of metal scraps, lava, or some other substance of a similar nature and upon this layer I place a plate, *d* and again a layer of cellular packing and so alternate until the cup is filled as represented by, *e*.

Having thus constructed and arranged my diaphragm it is inserted into the barrel of the retort and rests upon plate, 5. When the cover Fig. 6 is properly packed and secured, the gas pipes being attached and the escape pipes are inserted into the chimney and supplied with stop cocks as shown by C Fig. 1, the apparatus is then prepared for operation.

Having now endeavored to minutely describe the entire arrangement of my invention I will now endeavor to describe its practical operation. It will be observed that the arrangement of the diaphragm with the alternate layers of cellular packing with the intermediate plates being perforated with minute holes and the cellular packing producing its millions of heat radiating points and though being cellular or "porous" yet semicompact, through which the gas can only escape all matter not fully decomposed is forced upward into the chamber Fig. 9. This chamber being of a lower degree of temperature than the generating chamber or cellular packing it becomes a condensing chamber and thus all decomposed matter is concentrated upon the inner walls of this chamber and runs down into the trough and from thence either into the retort and again submitted to the action of heat or conducted outside at pleasure. The practical operation and effects of the escape pipes C have been described and thus it will be seen that this entire arrangement may be practically operated in any and all places desired without the usual annoyance of the emission of smoke and unpleasant and unhealthy odors.

I do not claim the use of a perforated diaphragm as a means of purifying gas nor the connection of said diaphragm to a retort except when the same is combined as set forth but

What I do claim as my invention and desire to secure by Letters Patent is—

1. The form and mode of arrangement of the retorts as specified for the purpose of combining a series of gas generating retorts as combined for extending or diminishing its capacity of generating gas indefinitely in the manner specified.

2. I also claim the combination of a diaphragm surrounding a condensing chamber an escape pipe, the whole arranged and operated as set forth and described.

MATTHIAS P. COONS.

Witnesses:

ALLAN RUTHERFORD,

WILLIAM RAYNER.