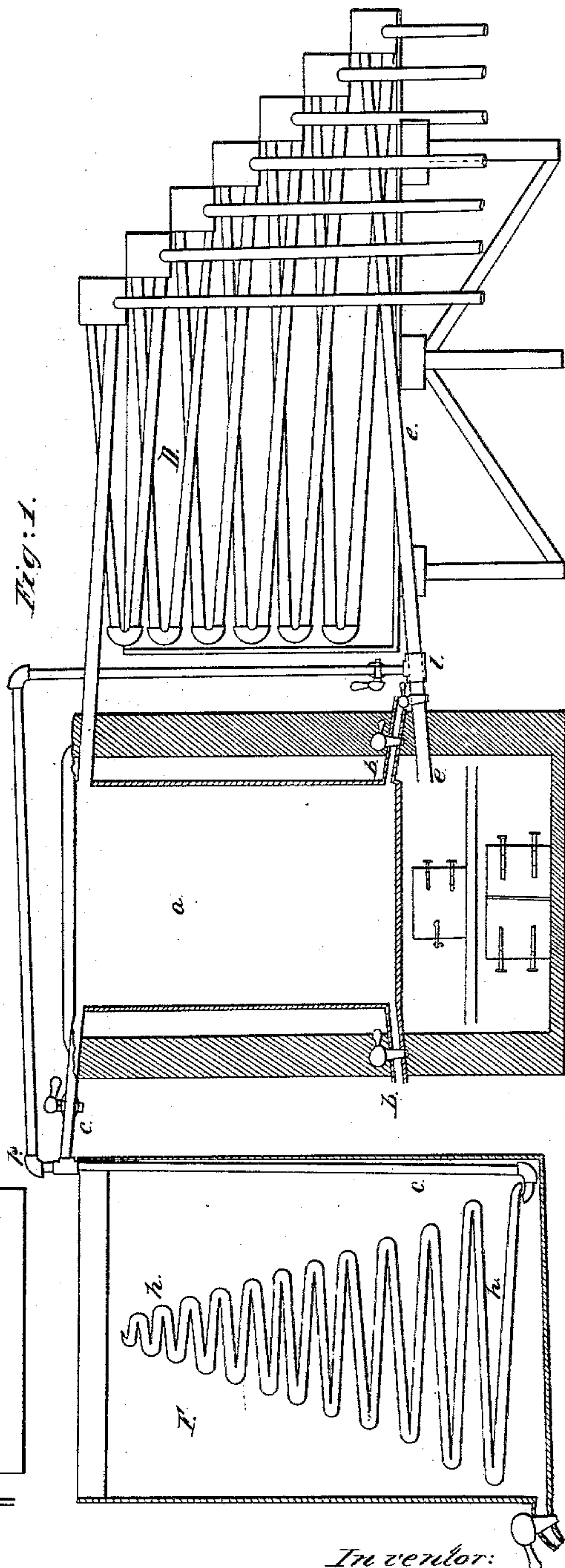
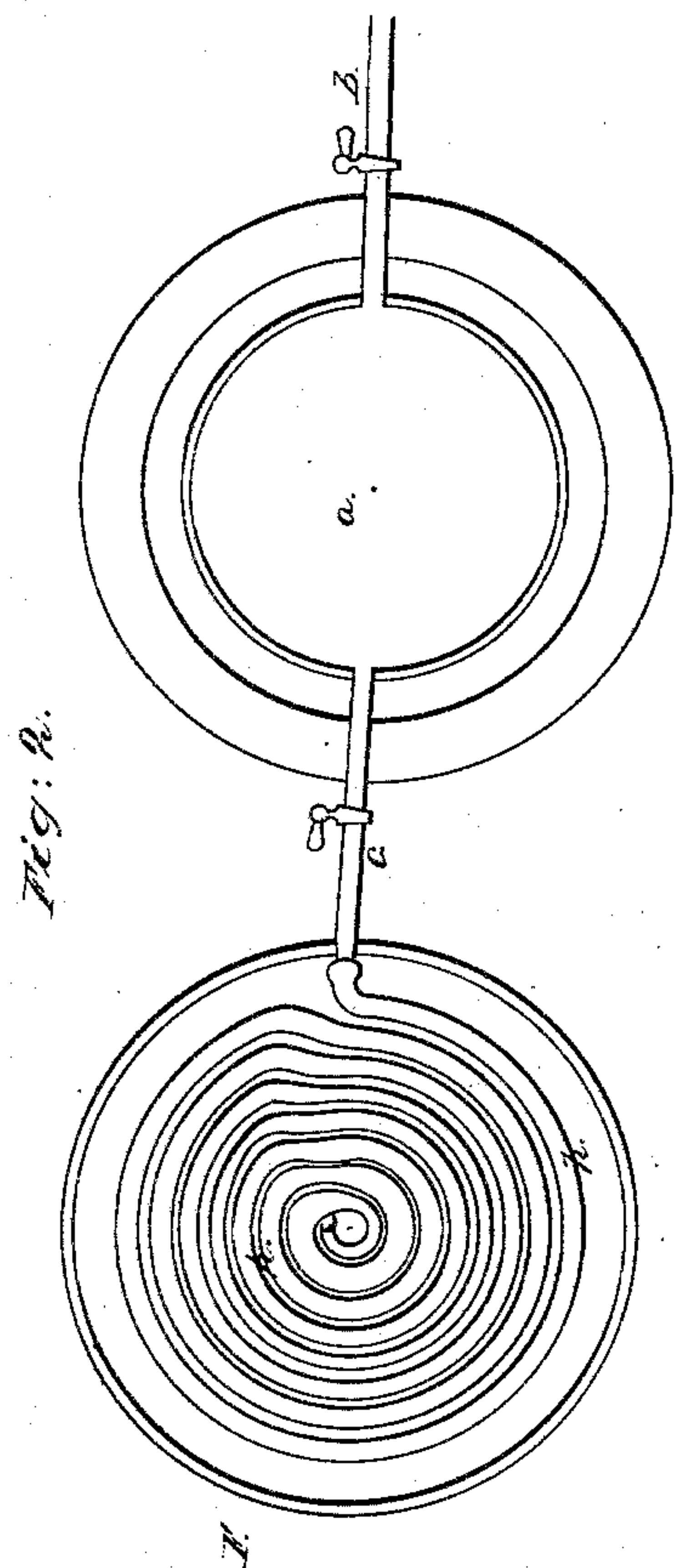


P. H. Van der Noyde.

Making White Lead.

N^o 62,097.

Patented Feb. 12, 1867.



Witnesses:
L. H. Carey
Louis de Reney

Inventor:
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United States Patent Office.

P. H. VANDER WEYDE, OF PHILADELPHIA, PENNSYLVANIA.

Letters Patent No. 62,097, dated February 12, 1867; antedated January 30, 1867.

IMPROVEMENT IN THE MANUFACTURE OF WHITE LEAD.

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

TO ALL WHOM IT MAY CONCERN:

Be it known that I, P. H. VANDER WEYDE, M. D., of Philadelphia, State of Pennsylvania, have invented an Improvement in the Manufacturing of White Lead by the wet process.

The nature of my invention consists in the production of the acetic and carbonic acid in succession by the same apparatus, which acids are wanted for the conversion of the carbonated lead ores into pure white lead.

The acetic acid commonly used in this process is produced by the distillation of wood. I also obtain it as one of the products of this distillation, but use the fractional condenser, for which a patent was filed by the applicant January 21, 1866, and afterwards granted, September 11, No. 58,005. By this apparatus the different products of the distillation are obtained at one single operation, being condensed according to their different volatility; the least volatile being condensed first in the upper part of the coil and separated, the more volatile later, and the most volatile of all will only come out at the end of the coil. This separation will take place somewhat according to the higher or lower boiling point of the different substances, not perfectly, it is true, but sufficiently pure for many practical purposes; about in the following order: at the upper part of the coil will condense the picamar, of which the boiling point is 518° F.; next naphthalin, of which the boiling point is 428° F.; next creosote and capnomore, of which the boiling point is 390° F.; next proxanthogen, of which the boiling point is 270° F.; next acetic acid, of which the boiling point is 248° F.; next eupione and wood spirit, of which the boiling point is 203° F.; next wood spirit, of which the boiling point is 170° F. The chief object being to obtain the acetic acid separated from the heavier products, as creosote, &c., the greater portion of the repeated distillations necessary in the old way of proceeding is avoided, parts of the acetic acid here obtained being at once adapted to our purpose.

The principal part of my invention, however, consists in the production of carbonic acid at the end of the same operation, this carbonic acid being necessary to precipitate the lead from the acetate of lead solution as a carbonate; it is important to have a cheap and abundant supply. I obtain this supply by blowing air in the bottom of the still as soon as all the volatile products of the wood have been driven off and nothing but the charcoal left. This coal possessing at the end of the operation a high temperature, nothing is necessary but to force a current of air through to combine it with the oxygen, in fact, burn it slowly, to obtain an abundant jet of carbonic acid from the top of the still, mixed with the nitrogen of the air, which, however, is harmless in this operation. This jet is simply passed through the acetate of lead solution to precipitate the white lead.

In order to enable those acquainted with similar operations to bring my invention into practice, I give here a full description of the apparatus represented in the adjoined drawing.

A, Figure 1, is the still, in a vertical section, of which a, Figure 2, is the horizontal section. It is filled with wood, and differs in nothing from an ordinary still but in a few tubes, *b b*, at the bottom provided with stop-cocks, through which air may be blown in the wood after all the volatile parts have been driven off by distillation, and another tube, *c*, at the top, through which the resulting carbonic acid may be discharged in the acetate of lead solution. As this gas comes out quite hot it may be blown through a cooling coil not represented in the drawing, and passed through water to deprive it of ashes mechanically carried along with the blast, or it may be discharged through the condensing coil D, and brought by the tube *l m n p* in the acetate of lead solution. D is the fractional condenser described in my patent of January 21, 1866, only differing from it that the last exit tube *e*, for uncondensable gases, leads in the furnace, where they burn, thus economizing fuel, and even may be sufficient for a part of the distillation. F is the vessel containing the acetate of lead solution, which by filtering has been separated from the insoluble impurities of the ore. For this filtering my percolator and filtering machine G, patented April 10, 1866, may be advantageously employed. To keep the gas longer in contact with the solution than would be the case when simply blowing it through it passes upward along the under side of an inverted gutter, *h h*, wound spirally. To improve the opacity of the precipitate, it may be treated with pure quicklime and water or some other alkaline solution.

What I claim, and wish to secure by Letters of Patent, is—

1. To effect with the same apparatus, and one single operation, the separation of the products of the distillation of wood, chiefly of the acetic acid, the immediate transformation of the remaining charcoal into carbonic acid, and the use of those two products to the manufacturing of white lead in the manner described.

2. The spiral inverted gutter *h h*, intended either to secure a more perfect absorption of the carbonic acid or any other gas by the liquid, or to charge air or gas more perfectly with the vapor of the liquid through which it passes.

3. The treatment of the precipitate with a hot alkaline solution of quicklime, or its equivalent, and the washing out of the filters with lime-water.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

P. H. VANDER WEYDE.

Witnesses:

A. L. FLEURY,

LOUIS DE RINCENAY.