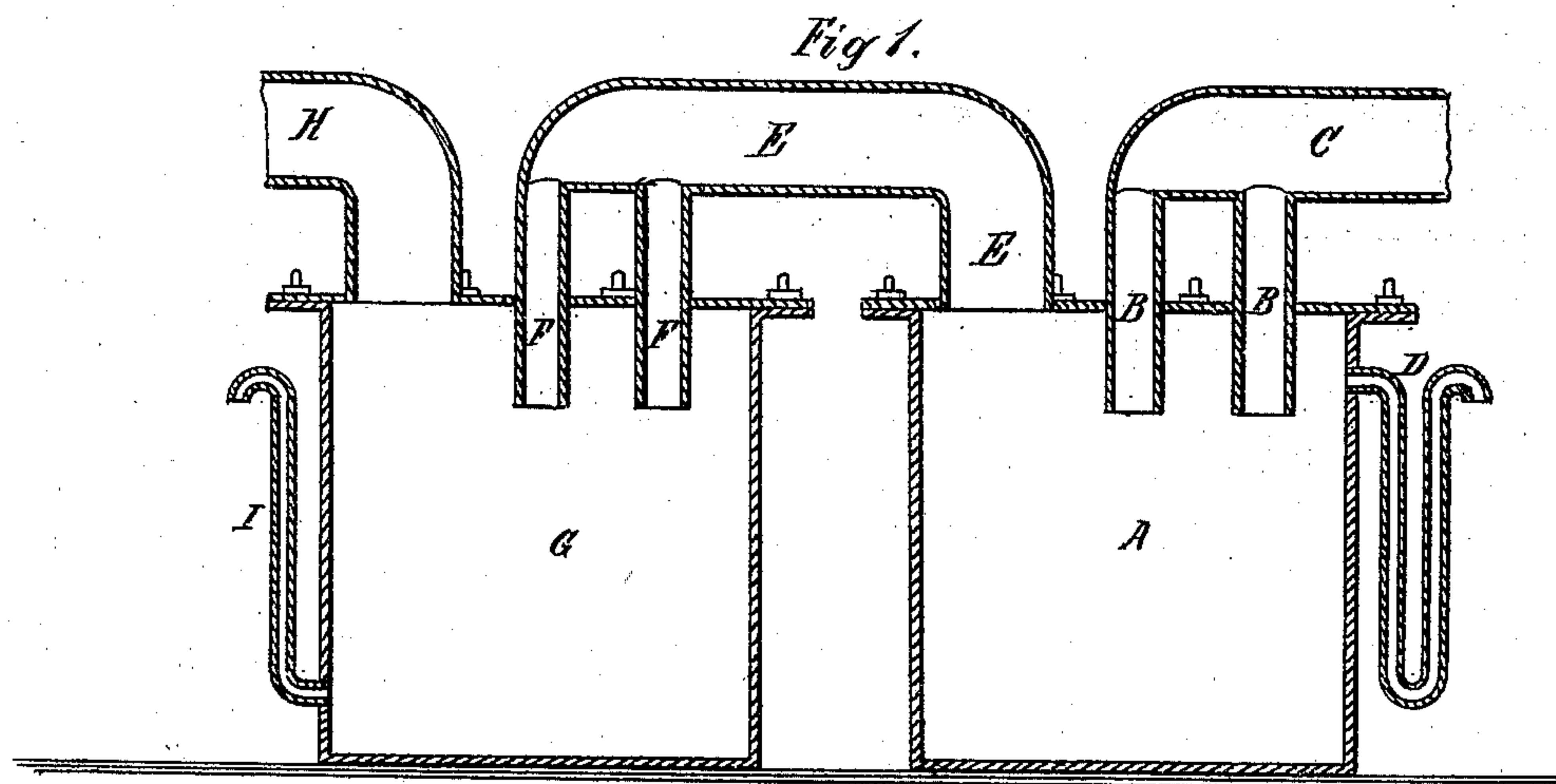


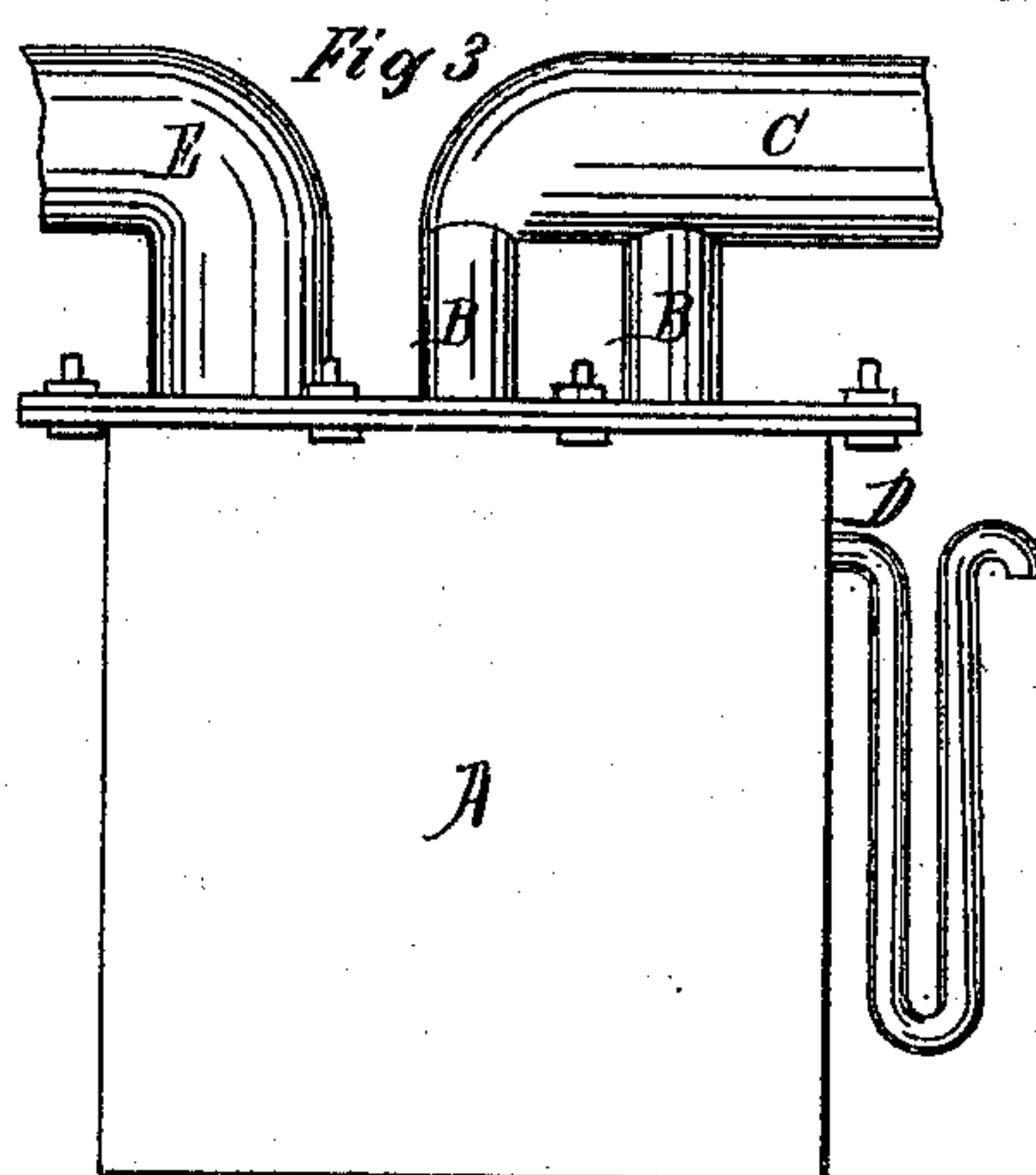
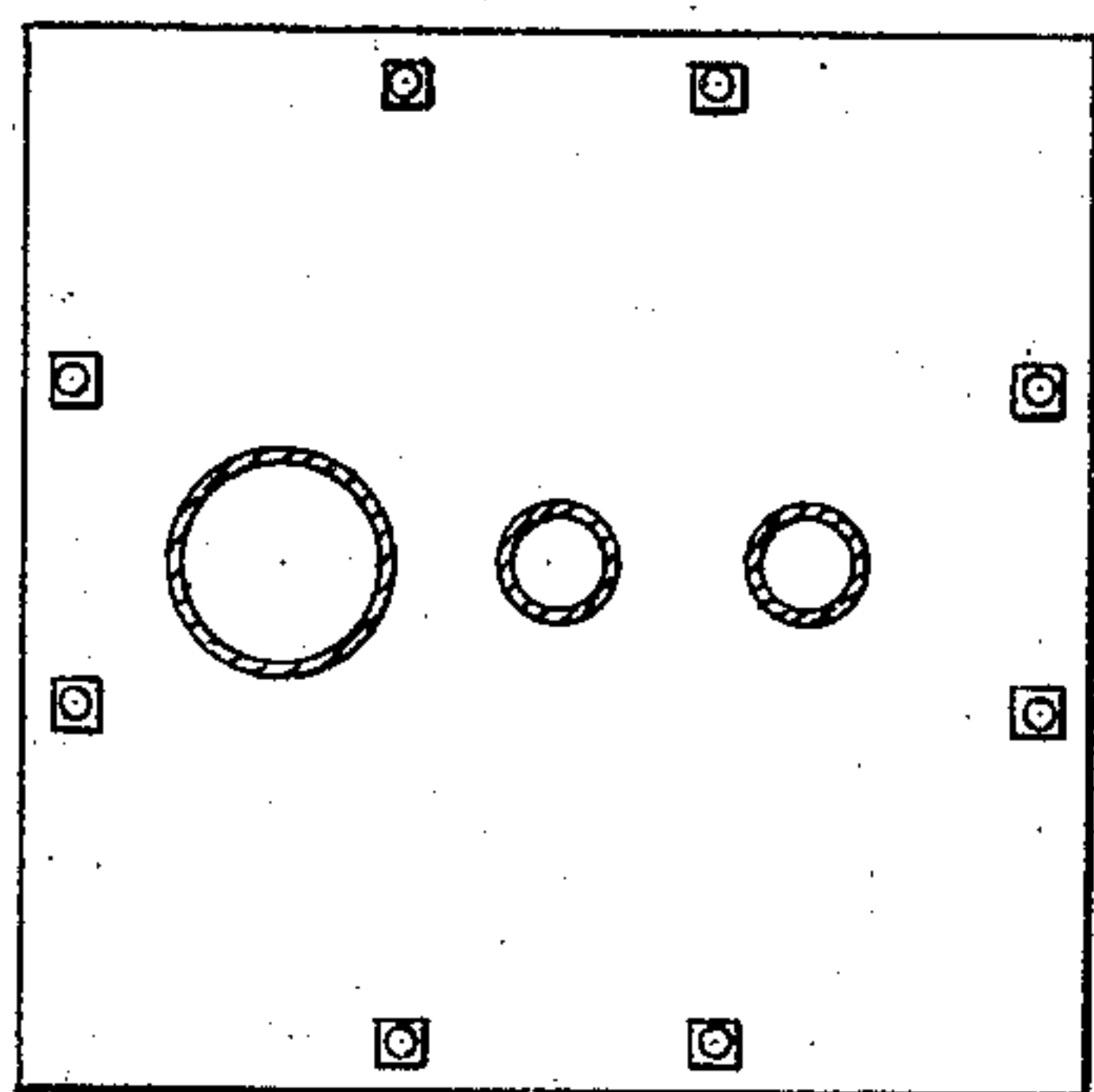
W. H. ST. JOHN & P. CARTWRIGHT.  
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Gas from Bituminous Coal.

No. 130,545.

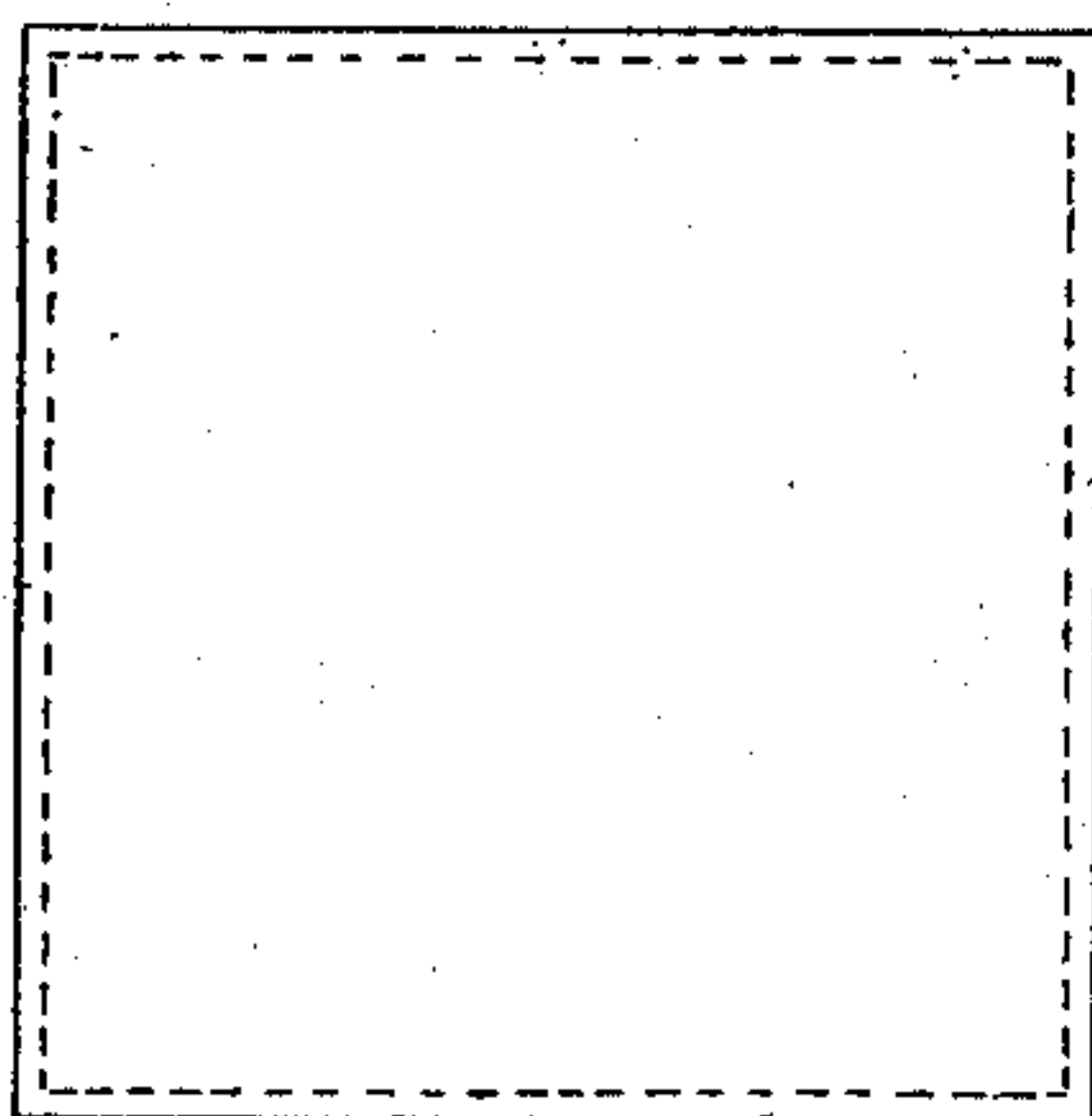
Patented Aug. 13, 1872.



*Fig 2*



*Fig 4*



Witnesses.

John D. Thompson  
Walter Wm. Robinson

Inventor.

W. H. St John  
Peter Cartwright



# UNITED STATES PATENT OFFICE.

WILLIAM H. ST. JOHN AND PETER CARTWRIGHT, OF NEW YORK, N. Y.

IMPROVEMENT IN PURIFYING AND CONDENSING ILLUMINATING GAS FROM BITUMINOUS COAL.

Specification forming part of Letters Patent No. 130,545, dated August 13, 1872.

## SPECIFICATION.

*To all whom it may concern:*

Be it known that we, WILLIAM H. ST. JOHN and PETER CARTWRIGHT, both of the city, county, and State of New York, have invented and discovered a new and Improved Process or Mode of Condensing Illuminating Gas made from Bituminous Coal, &c.; and we do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawing and to the letters of reference marked thereon, making a part of this specification, of which said drawing—

Figure I shows a vertical section of the apparatus; Fig. II, the top of a tank; Fig. III, the front of a tank; and Fig. IV the bottom of a tank.

Our invention consists of an improved process or mode of condensing illuminating gas by passing it, first, through coal-tar, and then through ammoniacal liquor. To free the gas before it reaches the purifiers, from coal-tar, naphthaline, and other impurities, it has, heretofore, been passed through condensers, scrubbers, and washers. We have found that passing the gas through coal-tar and ammoniacal liquor, substantially in the manner herein-after described, has all the condensing and purifying effects, and, to a greater degree, than the above-mentioned old and expensive method.

To enable others skilled in the art to make and use our invention, we will proceed to describe its use, application, and operation.

We construct two tanks of cast-iron or other equivalent material. The one, A, on Fig. I in the accompanying drawing, is partly filled with coal-tar. Two or more pipes, B B, convey the gas through the top of the tank from the inlet-pipe C, which connects with the hydraulic main. These pipes B B dip into the coal-tar in the tank several inches. A siphon, D, placed near the top of the tank A prevents the tar from rising in the tank higher than several inches above the ends of the pipes B B. The gas issuing from the pipes B B bubbles up through the tar and passes into the pipe E, from which, by pipes F F, it is conveyed into the second tank G. This tank is

partly filled with ammoniacal liquor. The pipes F F extend several inches below the surface of the ammoniacal liquor, and the gas bubbling up through the ammoniacal liquor goes off into the outlet-pipe H. The second tank G has a siphon, I, from the bottom, to convey off any tar or impurities which may be deposited in the tank, and is so adjusted as always to leave the ends of the pipes F F submerged several inches in the liquor and yet prevent the tank from filling, so as to impede the free outlet of the gas. We use several pipes, B B F F, to convey the gas into the tanks in order that it might the more thoroughly permeate the tar and ammoniacal liquor in the respective tanks. The number and size of the tanks and pipes are regulated by the quantity of gas required to pass through them.

The operation is as follows: The gas leaving the hydraulic main through the pipes C B B escapes beneath the surface of the coal-tar in the first tank A, and bubbling up freely through the tar it passes through the pipes E F F into the second tank G, and under the surface of the ammoniacal liquor; rising from the liquor it passes through the outlet-pipe H to the purifiers, leaving behind the coal-tar and many of its impurities, which are carried off by the siphons D I.

We do not claim, by itself, as our invention, either of the tanks, siphons, or pipes.

What we claim as our invention, and desire to secure by Letters Patent, is—

1. The condensation of illuminating gas made from bituminous coal, &c., by passing it successively through coal-tar and ammoniacal liquor, substantially as above set forth.

2. The apparatus, as shown and described in the foregoing specifications, charged with the materials specified and used for the purpose set forth, and this we claim whether the constructed apparatus be precisely in the form described by us or otherwise, if it produces substantially the same results.

WM. H. ST. JOHN.

PETER CARTWRIGHT.

Witnesses:

JOHN J. THOMASSON,

WALTER WM. ROBINSON.