W. L. PRATT.

Condenser and Purifier of Coal-Gas.

No. 162,766. Patented May 4, 1875.

Fig. 1.

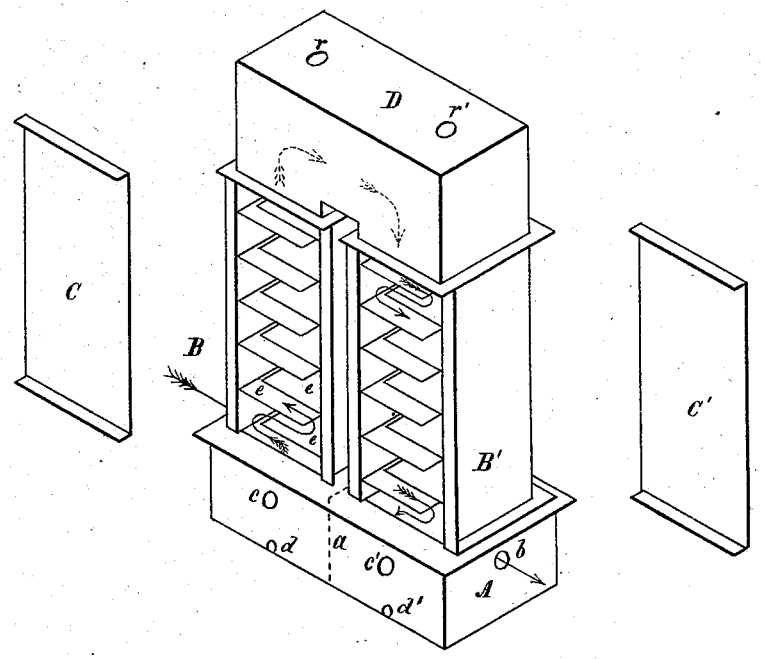
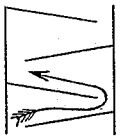


Fig. 2.



WITNESSES

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WILLIAM L. PRATT, OF ST. LOUIS, MISSOURI.

IMPROVEMENT IN CONDENSERS AND PURIFIERS OF COAL-GAS.

Specification forming part of Letters Patent No. **162,766**, dated May 4, 1875; application filed October 12, 1874.

To all whom it may concern:

Be it known that I, WILLIAM LAPP PRATT, of St. Louis, in the county of St. Louis and State of Missouri, have invented a new and Improved Condenser and Purifier for Coal-Gas; and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings and to the letters of reference marked thereon.

This invention consists in certain details of construction, by means of which the purifier is specially well adapted for the purpose for which it is designed, as will be fully described hereinafter.

In the drawings, Figure 1 is a perspective view of the purifier, the doors being removed, so as to exhibit the interior of the chambers containing the deflecting-plates. Fig. 2 is a small sectional view of interior of the purifying-chamber, showing the deflecting-plates in an inclined position.

A, Fig. 1, represents a tar-tank, divided in the middle by a vertical partition, *a*, shown in dotted lines. In each end of this tank is an aperture, as at *b*, one designed to serve as an inlet, the other as an outlet, for the gas. *c c'* are openings by which access is obtained to the interior parts for the purpose of cleaning, &c., and are provided with suitable doors. *d d'* are small outlets for the tar and other impurities that fall into the tank. Upon the top of this tank, and communicating with its interior, are two rectangular chambers, B B', about, six feet in height, provided with flanges, to which are secured doors C C'. To two opposite sides of each of these chambers is secured, in alternate succession, a series of horizontal plates, *e e*, &c., the entire width of the interior of the chamber, and extending to within about three or four inches of the opposite side. D is a return-tube, by which communication is effected between the deflecting-chambers B B'. *r r'* are simply hand-holes to give access to the interior for the purpose of cleaning, and are closed by suitable doors.

The operation of the device is as follows: The crude gas being admitted to the tank A by an orifice similar to that shown at *b*, and situated in the opposite end of the tank, it ascends the chamber B, and there comes into immediate contact with the deflectors *e e*, &c., by which it is projected, in its ascent, alternately against two opposite sides of the chamber B, until it reaches the top, from which it is conveyed by the return-tube D to the chamber B', in descending which it is again subjected to a deflecting process similar to that just passed through, and thence delivered into the tank A, from which it escapes through a pipe communicating with the orifice *b*.

It will be seen by reference to the course indicated by the arrows that the action of the deflectors upon the gas is such as to cause it to flow at each change of its course in a direction almost perpendicular to the walls of the deflecting-chamber, thus causing the denser particles and globules of tar impelled by the flowing gas to impinge with required effect upon the opposing surfaces.

The importance of this feature of the invention will appear when it is considered that as the crude gas comes from the hydraulic main it is highly charged with bituminous vapor, ammoniacal gas, sulphureted hydrogen, and other impurities, and that a large portion of these matters consists of small globbules of tar inclosing lighter gases. Now, by deflecting the flow of gas abruptly and repeatedly, as herein shown, these globules are effectually broken up by collision with the deflecting-surfaces, and the gas they contain thus liberated, and made available for use.

This purifier is designed to admit of any required number of sections, as B B', being employed one on the top of the other; or it may be extended laterally by the addition of pairs of deflecting-chambers suitably connected.

When so preferred, the deflecting-plates *e e*, &c., may be inclined, as shown in Fig. 2, so as to offer, if necessary, still more abrupt resistance to the inflowing current of gas.

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

The purifier described, having the divided tar-tank A, provided with the cleansing-openings *c c'*, the vertical chambers B B', provided with the removable doors C, and the connecting-tube D, provided with the cleansing-openings *r r'*, as described.

This specification signed and witnessed this 16th day of September, 1874.

WILLIAM LAPP PRATT.

Witnesses:
HENRY D. FIELD,
WILLIAM H. STOECKEL.