C. A. SIRIE.

APPARATUS FOR CARBURETING GAS.

No. 193,561. Patented July 24, 1877.

Fig. 1.

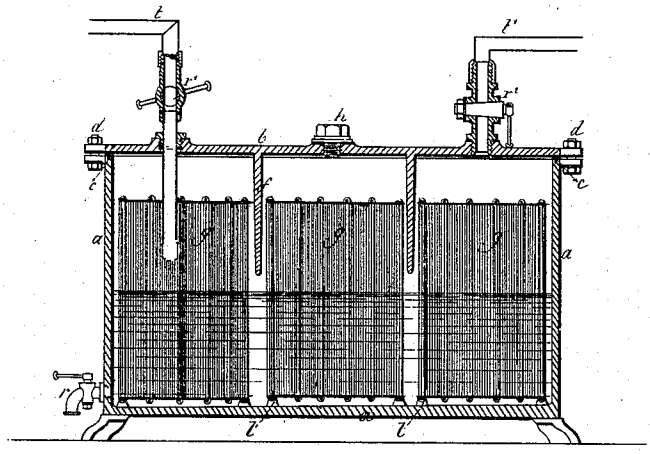


Fig. 2.

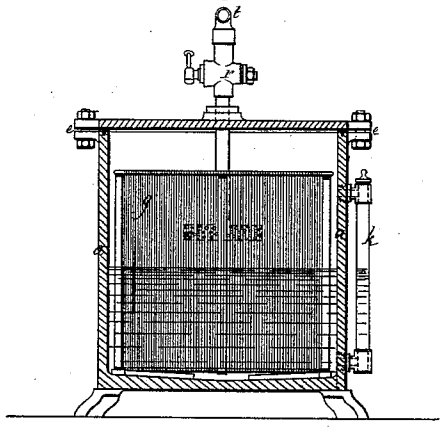
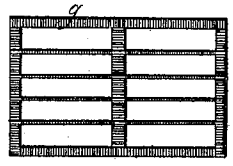


Fig. 3.



Witnesses.

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CHARLES A. SIRIÉ, OF PARIS, FRANCE.

IMPROVEMENT IN APPARATUS FOR CARBURETING GAS.

Specification forming part of Letters Patent No. **193,561**, dated July 24, 1877; application filed May 28, 1877.

To all whom it may concern:

Be it known that I, CHARLES A. SIRIÉ, of Paris, France, have invented an Improved Apparatus for Carbureting Gas, of which the following, taken in connection with the drawings, is a complete specification:

According to my present invention I construct a carbureting apparatus for lighting gas as follows: A rectangular metal box or casing is closed at top by a cover, from the inner face of which project one or more transverse ribs, extending about half way down into the casing, so as to divide this into two or more compartments, communicating with each other at bottom. The casing is partially filled with carbureting-liquid, by preference a mixture of about one part of petroleum to four parts of benzine, the level of the liquid being maintained slightly below the lower edge of the partitions. In the compartments are placed vertically light metal frames, extending from the bottom of the casing to near the top thereof, round which frames are wound lengths of cotton-wick, which are consequently partially immersed in the liquid, so that the upper part thereof will be kept saturated with liquid by capillary attraction. The illuminating-gas to be carbureted is introduced through a pipe into the one-end compartment, the inlet-pipe being made to extend down inside the casing between the layers of cotton-wick, where it terminates above the level of the liquid in a T-shaped head, having small perforations, through which the gas issues into the casing among the layers of cotton-wick. As the small perforations offer a certain resistance to the flow of the gas, its pressure inside the casing will be somewhat lower than that in the supply-pipe, whereby, owing to the dilation of the gas, this will be prevented from taking up excess of hydrocarbon vapor, as in the case when the pressure in the carbureter is equal to that in the supply-pipe.

The gas, rising from the inlet-pipe, passes among the saturated cotton-wick to the space at top of the first compartment, whence it is made to descend and to pass below the lower edge of the partition, among the frames of cotton-wick in the second compartment, and, after rising to the top of this, it passes in like manner to the third compartment, and so on, escaping eventually in the required carbureted state to the burners through the outlet-pipe in the last compartment. The bottom of the casing slopes from either side toward a channel in the middle, leading to a cock, through which the liquid can be drawn off, when required, and raised fillets are formed on the bottom of the casing, on which the cotton-wick frames stand.

Figure 1 of the drawings shows a longitudinal section of my before-described improved apparatus. Fig. 2 shows a transverse section, and Fig. 3 shows a separate view of one of the metal frames on which the cotton-wick is wound.

The cast-iron casing *a* is closed at top by a cover, *b*, secured thereto by screw-bolts *d*, passing through flanges *e*, a gas-tight joint being formed by the interposition of leather packing in a groove at *c*. On the under side of the cover are formed projecting partitions *f*, which, in extending down some distance into the casing, divide this into three compartments, communicating with each other at bottom. The casing is filled to within a short distance of the lower edges of the partitions with carbureting-liquid, by preference a mixture of petroleum and benzine in the proportions of four-fifths of the latter to one-fifth of the former, though these proportions may be varied. The bottom of the vessel is formed with an incline in the direction of its length, from the right-hand to the left-hand end, and also in a transverse direction from each side toward the middle, forming a gutter leading to the cock *p*, through which the liquid can be entirely run off, when desired, for cleaning the apparatus. The gas enters by the pipe *t*, which passes through a stuffing-box in the cover, and ends in a T-piece, having small perforations, through which the gas enters the casing, and it escapes from the latter, after having been carbureted, through the pipe *t*, leading to the burner. The inlet and the outlet pipes are provided with cocks r^1 r^2 for regulating the passage of the gas to and from the carbureter.

In each of the compartments of the casing formed by the partitions *f* is placed a metal

frame, *g*, (shown in plan at Fig. 3,) round which is wound cotton-wick. The lower part of the frames and cotton-wicks being immersed in the carbureting-liquid, the upper part thereof will also be kept saturated with the liquid by capillary attraction, so that the gas, issuing from the tube *t* and rising to the top of the first compartment, is brought into close contact with the saturated wick, and will become impregnated to a certain extent with the liquid. From the top of the first compartment the gas descends to the space between the first partition and the level of the liquid, and, in rising into the second compartment, it is again brought into close contact with the saturated cotton-wick. In like manner the gas passes from the second to the third compartment, and eventually arrives at the outlet *t'* in the required carbureted state.

The frames *g* rest at bottom upon fillets *l* formed on the bottom of the casing. Owing to the resistance offered to the passage of the gas by the smallness of the perforations of the T-pipe, the gas enters the carbureter at a lower pressure than that which exists in the pipe *t*, whereby the absorption by it of the vapor of the carbureting-liquid is facilitated. The liquid is introduced into the vessel through the stoppered hole *h*, a glass gage being provided at *k* for observing the level of the liquid therein.

The apparatus may be provided with a regulator of any known construction for maintaining a constant pressure of the gas therein.

The casing may be provided with a greater or less number of compartments and frames with wicks than that shown in the drawing.

Having thus described the nature of my said invention, and in what manner the same is to be performed, I claim—

In a gas-carbureting apparatus, the combination of the inclosing-case, its upper portion divided into compartments by partitions *f*, a frame, *g*, in each of said compartments, wound with a cotton absorbent, the inlet *t* opening within the frame in the first compartment, and the exit *t'* from the last compartment, all substantially as specified.

In testimony whereof I have signed my name to this specification before two subscribing witnesses.

C. A. SIRIÉ.

Witnesses:
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