W. W. Bierce,

Apparatus for Carburetting Gas.

No. 61,918. Patented Feb. 12, 1867.

Fig. 1.

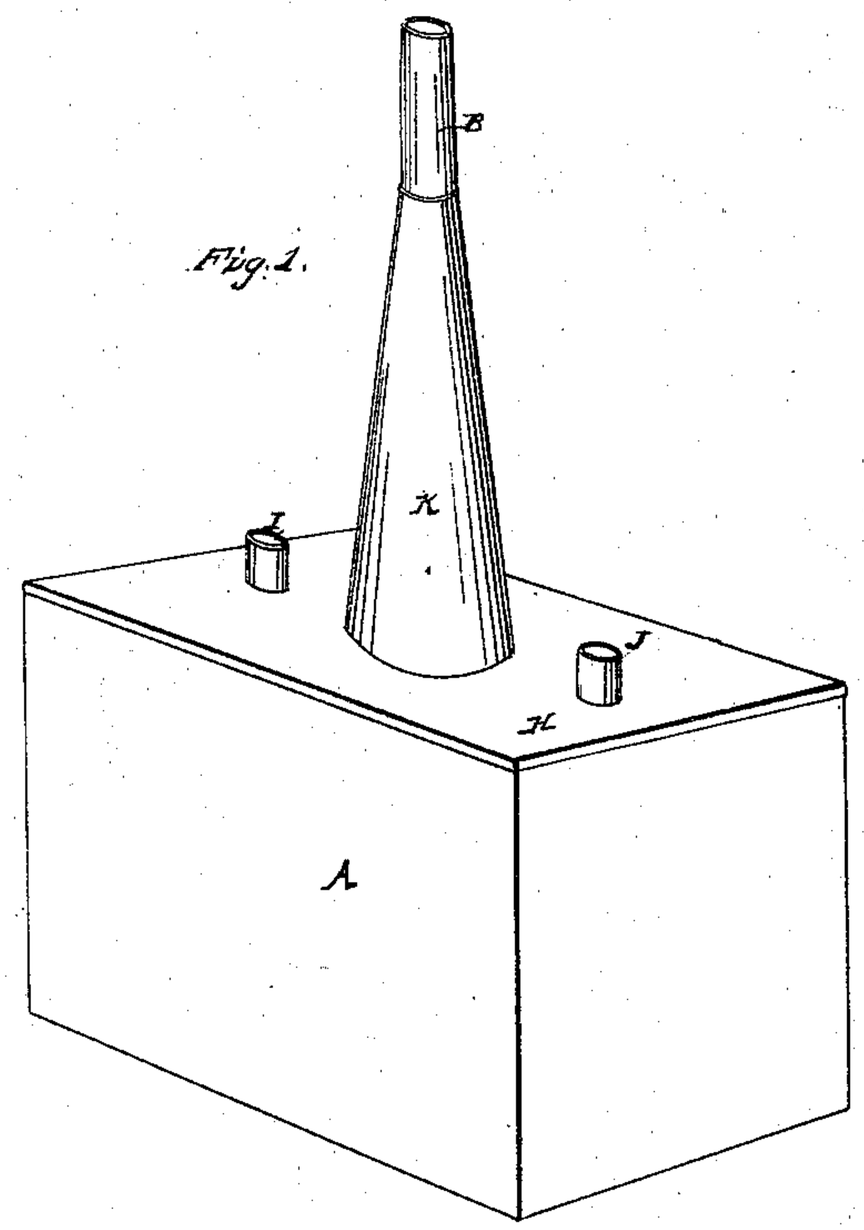
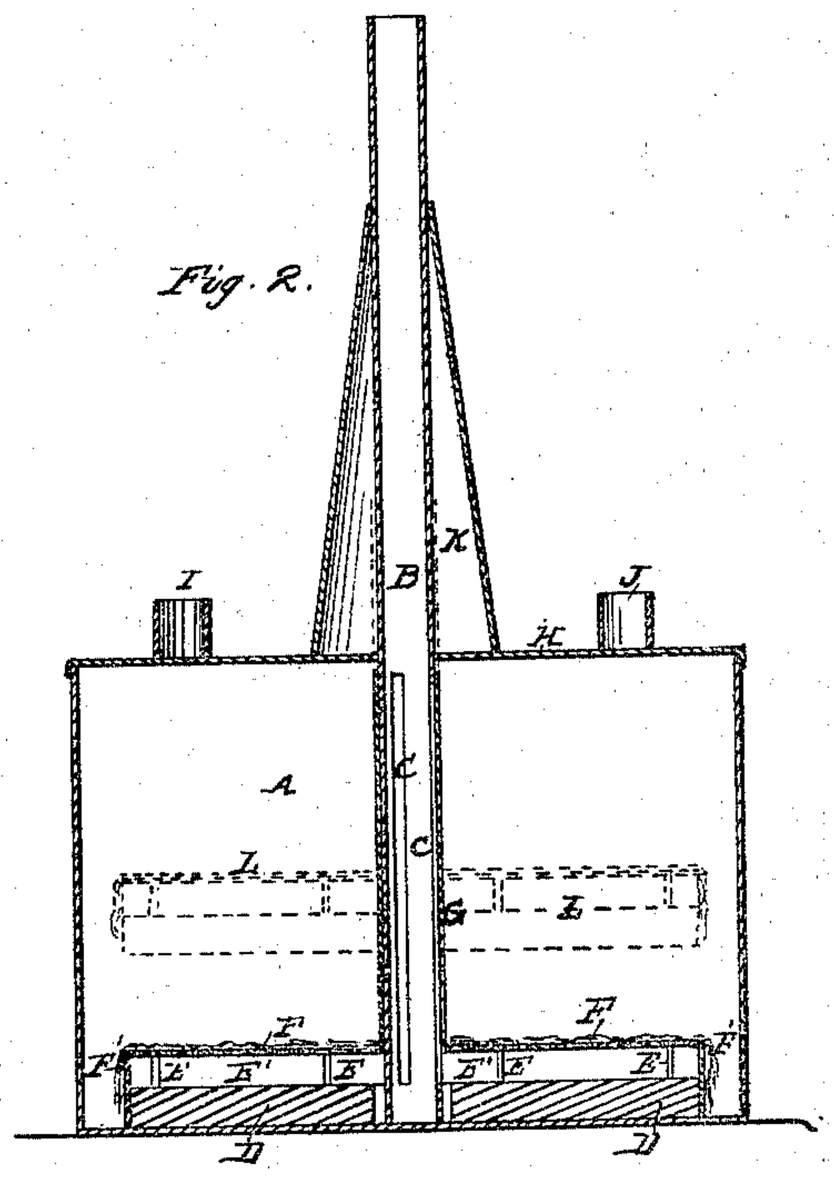


Fig. 2.



United States Patent Office.

W. W. BIERCE, OF CLEVELAND, OHIO.

Letters Patent No. 61,918, *dated February* 12, 1867.

IMPROVED APPARATUS FOR CARBURETTING GAS.

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, W. W. BIERCE, of Cleveland, in the county of Cuyahoga, and State of Ohio, have invented certain new and useful Improvements in an Apparatus for Carburetting Gas; and I do hereby declare that the following is a full and complete description of the construction and operation of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a perspective view of the apparatus.

Figure 2 is a vertical longitudinal section.

Like letters of reference refer to like parts in the views.

This apparatus consists of a gas-tight zinc galvanized iron box or case, A, fig. 1, which may be of any convenient shape and size, according to the required capacity of the apparatus. From the centre of the bottom of this case ascends the tube or pipe B, on the three corresponding sides of which are cut the lengthened slots C. D is a board or float of soft wood, to which is attached by the pins E a sheet of perforated tin or a wire gauze, F, of the shape and size of the float. To this perforated tin is connected the sleeve G, which opens into the space E′ between the float and tin. It will be seen that this sleeve encases the pipe B, upon which it slides, so that when the float is at the bottom of the box, as shown in the drawing, it is of just sufficient length to cover the slot above referred to. The surface of the perforated plate is covered with a sheet of cotton flannel or batting, F′, or any other material of a suitably fibrous texture. This flannel is made sufficiently large as to allow of its depending from the top to a little distance below the float, and thereby surrounding it upon all sides, enclosing the space E′ and making of the same a gas-chamber, to which reference will hereafter be made. This box is provided with a cover, H, in which are the two pipes I J, I being the eduction and J the supply pipe. Either, however, may be used for this purpose. The supply pipe is fitted with a screw-cap, by the means of which it is made gas-tight. K is a shield surrounding the induction pipe B, the upper end of which is soldered to the pipe and the lower spreading end to the top of the box or cover. The purpose of this shield is to prevent the escape of the gas. It also serves as a brace to support the pipe.

Having thus described the apparatus, the practical operation of the same is as follows: A certain carburetting fluid, as any of the hydrocarbons, is poured into the box through the supply pipe J, the quantity being more or less according to the number of burners or gas consumed. The board D then floats upon the fluid and rises up in the direction indicated by the dotted lines L, at the same time pushing the tube G up into the shield, the dependent sides of the cotton covering F′ being thus immersed in the fluid; therefore by capillary action the entire piece soon becomes charged with the fluid, and is thereby diffused over a large amount of surface, in consequence of which a much more rapid evaporation takes place than could be if the fluid lay undiscriminated at the bottom of the box. The vapor thus eliminated from the fluid ascends to the top of the box, through which the gas to be treated is made to pass, as follows: the gas from the metre, to which the apparatus is attached, is inducted into the box by the pipe B, through which it descends into the chamber E′ or space between the board and perforated tin. It will be seen that the gas can escape from the pipe only at that certain point and through the section of the slot C embraced in the chamber. The lower sections of the pipe and slot being immersed in the fluid prevents the gas from descending below the board or float, and whereas the upper section of the pipe and slot is covered by the sliding pipe G, it is therefore prevented from escaping above the float and cotton covering; hence the gas, in order to ascend to the top of the box, must pass through the perforated tin or gauze and cotton covering, and in so doing become thereby charged with the vapor from the fluid; and after passing through this it is further acted upon by the accumulated vapors filling the upper part of the box, through which it passes, and from which it escapes through the eduction pipe I, from thence to the burners. By this arrangement of the float and the slotted pipe, it will be obvious that the amount of fluid which may be in the box can in no way obstruct the induction of the gas unless it is entirely full, as a certain section of the slot is at all times uncovered between the top and bottom of the float at whatever distance it may be from the top of the box, thus the fluid covering the pipe below the float, and the sliding pipe G all above.

Of the economy resulting from the use of this apparatus, in connection with the metre, I instance the following: By carburetting the gas in the manner described is to increase largely the amount of light from a given quantity of gas and thereby enable the consumer to increase the number of burners, or by the reduction of the

number of burners, or by reducing the size of the same, reduce the consumption and expense, and at the same time receiving an equal volume of light, which will, under ordinary circumstances, make a saving of a large per cent. in the first cost of gas. The peculiar construction of this apparatus is such as to fully charge the inductive gas with the carburetting fluid, for it is impossible for it to pass through the apparatus without being thus charged, which is not the case with many apparatus constructed for this purpose; hence the gas is with certainty and directly acted upon by the fluid or the vapor therefrom without any complicated mechanical appliances. It is also convenient in form and size, and easily attached to the metre, requiring but little skill to manage it, and that with but small expense and with perfect safety.

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

1. The float D, perforated tin F, and covering F′, as arranged, in combination with the sleeve G, tube B, and slot C, for the purpose and in the manner as substantially described.

2. The shield K, pipe B, and sleeve G, in combination with the case A, for the purpose and in the manner as herein set forth.

W. W. BIERCE

Witnesses:

J. W. BURRIDGE,

W. H. BURRIDGE.