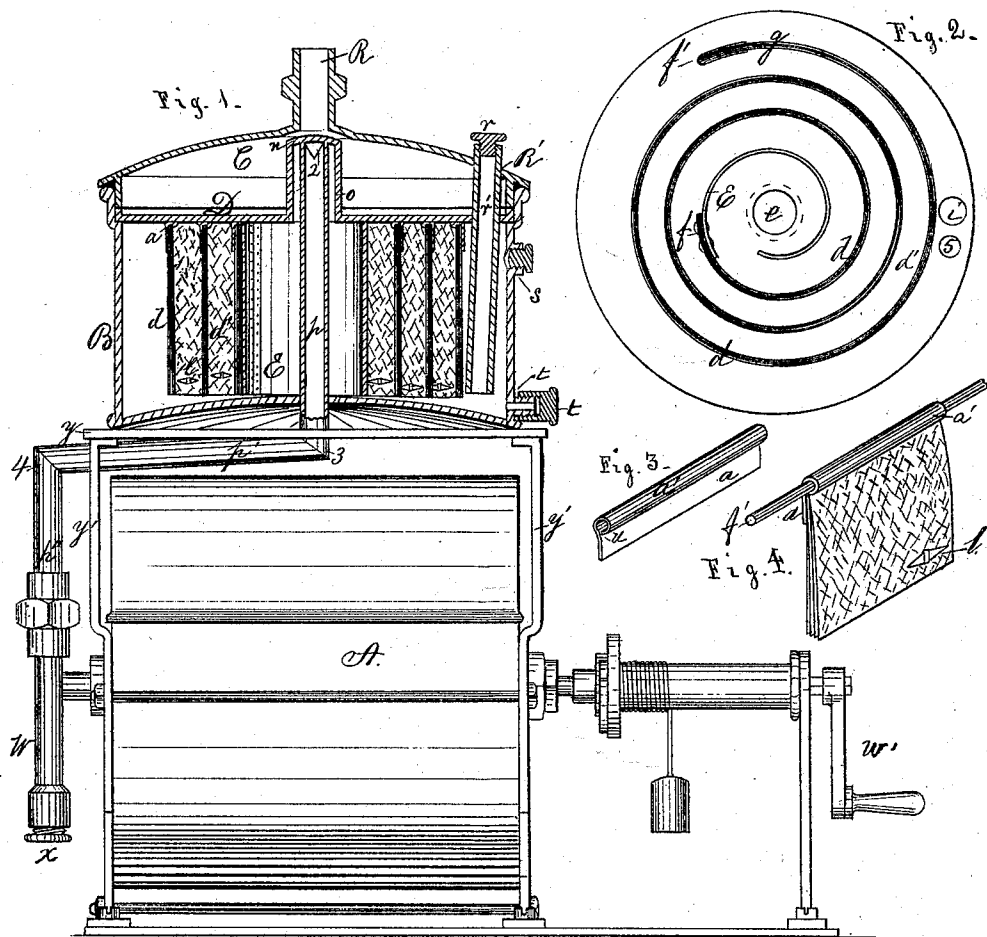


A. BARBARIN & F. ROBERTS.

CARBURETER.

No. 172,074.

Patented Jan. 11, 1876.



WITNESSES.

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ARTHUR BARBARIN AND FRANKLIN ROBERTS, OF NEW ORLEANS, LA.

IMPROVEMENT IN CARBURETERS.

Specification forming part of Letters Patent No. **172,074**, dated January 11, 1876; application filed November 28, 1873.

To all whom it may concern:

Be it known that we, ARTHUR BARBARIN and FRANKLIN ROBERTS, both of the city of New Orleans, State of Louisiana, have jointly invented certain Improvements in Carbureting-Machines, of which the following is a specification:

Our invention refers particularly to details of construction, whereby the defects existing in carbureters now in use are remedied; and consists in securing auxiliary curtains between the outer curtains, whereby six interior surfaces are exclusively employed to convey by capillary attraction the fresh hydrocarbon to the outer surfaces of the curtains, which are exposed to the air; but a reference to the annexed drawing will at once, and very clearly, indicate the nature of our improvements.

Figure 1 is a vertical section of a small carbureter as placed upon and supported by a metal disk or plate, *y*, and frame *y'* *y'*, secured to an ordinary meter-pump, *A*.

B represents the shell of the carbureter; *C*, the top of same; *R*, the gas-conduit; *R'*, the oil-inlet, with its screw-cap *r* and pipe *r'*; *s*, the air-vent; *t*, the draw-off pipe, provided with the screw-cap *t'*; and *p*, the central air-pipe, to supply the carbureter with air. Within the shell *B* is fitted and secured air-tight a circular metal plate or disk, *D*, upon which the fibrous material is fastened and supported, so as to form an extended spiral or volute scroll-curtain, *d*, as shown at Fig. 2, which represents a bottom view of the same, forming a passage, *d'*, of any suitable length and width, for the purpose of conducting the air and gas which may be forced into it. To fasten the fibrous material permanently to the disk *D* we employ a sheet-metal strip, *a*, of about three-quarters of an inch in width, and of any suitable length, and fold one of its edges, *a'*, lengthwise, so as to produce a narrow elongated groove or clasp on one side, and a larger elongated surface on the other side, as shown at Fig. 3. Fibrous material (cotton fabric will answer) of the proper length and width is then folded over, so as to form four or more independent curtains in contact with each other. These are placed upon an

ordinary wire, *b'*, so as to be supported by the same, and form six or more distinct interior or unexposed and two distinct exterior or exposed surfaces, as shown at Figs. 1 and 4. When this is accomplished both the wire and that part of the curtain hanging upon the same are inserted into the groove or clasp *u*, and firmly secured in the same by serrating the lower part of the clasp underneath the wire and against the other part of the strip, as shown at Fig. 4.

To facilitate operation in the construction and application of these curtains to the disk *D* we reserve the right of using and applying sections or short metal strips in lieu of a single metal strip, as before described, whenever it may be advisable so to do.

The object of securing these curtains in the manner described is to prevent the possibility of their getting loose, as well as to facilitate the labor of the workman when soldering the upper part of the grooved edge of the metal strip *a* to the disk *D*, by bringing the larger surface of the strip in direct contact with the heated soldering-iron to prevent the charring or burning of the fibrous material, besides which the flexibility of the strip or sections of strips admit of a larger variety of forms which may be given to the hanging curtains in lieu of the spiral shape represented upon the drawing, to which form we do not confine ourselves.

By our arrangement it will readily be perceived that the six interior surfaces of the hanging curtains (before referred to) are not acted upon by the air or gas which may be forced into the carbureter, provided that the outer fibrous curtains be sufficiently thick, but that they are exclusively employed to convey the fresh hydrocarbon charges to the said outer surfaces of the curtains exposed to the direct action of the air or gas by means of their capillary property and immediate contact with each other, as well as with those of the outer curtains, as fast as the same may be evaporated.

To prevent the separation of the lower ends of these curtains, and to compel their immediate contact with each other, so as to form

an even surface and regular channel, d' , into which the air or gas may be forced to be carbureted, we secure the same together at certain distances by means of the ordinary paper fastener l .

To prevent the collapse of the end f of the curtains after securing the same to the disk D a short vertical metallic spiral guide, E , is secured to the center of the said disk, so as to surround the central hole e , for the purpose of supporting the said end f by sewing or otherwise connecting the same together, as well as to avoid the escape of air or gas at that particular point, while at the same time serving the purpose of central support to the disk D when the same is in position within the carbureter.

To prevent the collapse of the discharge end g of the curtains, an additional support, f' , consisting of a folded vertical metal strip, is soldered upon the edge of the disk D , at the terminus of the fibrous curtains for the purpose of holding the said discharge end in its proper position, by inserting the same within the fold and clasping both together, as shown.

On applying the disk D with its suspended curtains within the shell B of the carbureter, the lower end of the vertical spiral guide E bears upon the center of the convex bottom of the same, and supports the disk in its proper position. The edge of the disk is then soldered around, and to the inner surface of the shell, air-tight, and the lower end of the vertical section p of the air-pipe, previously provided with the cap n at its upper end, is introduced through the sleeve o and the central hole e of the disk D , extending in its downward course through the center of the spiral guide e , and through the bottom of the carbureter, a little below the outside surface of the same, so as to be easily connected to its horizontal section p' by any suitable means. After this is accomplished, the cap n , previously secured to the upper end of the vertical section p of the air-pipe, fitting and forming the cover of the sleeve o , is soldered to the same air-tight, and then the outside end of the vertical section p of the air-pipe passing through the bottom of the carbureter, on being soldered to the same, precludes leakage, as well as a collapse of the bottom of the apparatus. The top or cover C is next applied and soldered to the shell B , when the carbureter is ready for operation.

In manufacturing large carbureters, owing to the quantity of hydrocarbon which they require, we have found it necessary to prevent the collapse of their bottom, (frequently caused by the weight of the oil,) to run the central vertical section p of the air-pipe entirely through the cap n of the sleeve o , through the top and bottom of the carbureter, so that after soldering the cap n to a proper distance upon the said vertical pipe and to the sleeve

o , both the upper and lower ends of the said vertical air-pipe may be properly secured to the top and bottom of the carbureter, to preclude all possible chance of leakage, and of a collapse of the bottom of the apparatus.

Although upon the drawing no stop-cock is shown to regulate the flow of air into the carbureter, yet the same may be applied for that purpose at any convenient point of the air-pipe p ; and in lieu of the V-shaped opening or air-outlet 2, cut in the upper part of the vertical pipe p for the admittance of air through the space formed by the sleeve o into the spiral channel d' , other suitable openings upon the said pipe at or near the same point may be employed with equal advantage.

To free the horizontal section p' of the air-pipe of the water which may, from condensation or other cause, fill the same, the end 3 of the said pipe should always be higher than the end 4, which is connected with the vertical section p' of the air-pipe, so that the water accumulating in the same may, of its own gravity, drop back into the drip-pipe w , and from which it may be withdrawn by means of an ordinary stop-cock, or by unscrewing the cap x .

The operation of our carbureter is as follows: After the machine has been properly located, and the main gas-pipe of the building connected to the gas-conduit R of the carbureter, the screw-cap r of the oil-inlet R' is withdrawn, and a funnel screwed in its stead to the inlet's throat; then the vent s is opened and the gasoline poured into the funnel to be conveyed into the carbureter by means of the pipe r' of the oil-inlet, which runs through the hole i of the disk D , and extends to near the bottom of the carbureter. As soon as a few drops of the oil begins to trickle out of the vent the operation is stopped, the funnel withdrawn, and the screw-caps of the oil-inlet and vent are returned to their respective places. Water is then poured into the pump-casing up to and a little above the central axis of the pump-shaft, and the weight wound up by means of the crank w' . When this is completed, the air and gas stop-cocks are opened, and the air, through the action of the weight and of the pump, is forced into the carbureter through the V-shaped opening of the central vertical section p of the air-pipe, follows the space left between the inner surface of the sleeve o and the outer surface of the pipe, descends into the channel d' formed by the spiral guide e , and the fibrous curtains thereunto attached become saturated with the hydrocarbon vapor, and escapes through the perforation 5 into the gas-conduit R , from whence it is conveyed by pipes for consumption.

Although on the drawing the carbureter is represented as being placed above the pump, so as to form a compact self-generating gas apparatus, it is proper to state that the ma-

chines work with equal advantage when the carbureter and air-pump are placed apart from each other. This we have to do occasionally, especially when the size of the apparatus exceeds sixteen lights.

We have also ascertained by practical experiment that the weight of our machines can be wound up when the lights are burning without extinguishing the same, and that our machines will operate longer at their full-rated capacity than any other machine known to us. This is attributable to the peculiar manner of constructing our curtains, and especially to our new method of supplying fresh charges of the hydrocarbon to the within exposed or evaporating surfaces of the fibrous material as fast as evaporated.

Having described our invention, what we desire to secure by Letters Patent is—

1. A carbureter provided with auxiliary curtains secured between the outer curtains, in the manner and for the purpose set forth.

2. In a carbureter, the curtains *d*, secured both to the strip *a'* and disk *D*, and spiral guide *E*, and metal strip *f'*, in the manner and for the purpose described.

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Witnesses:

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