M. D. NELON.

Carbureting Apparatus.

No. 199,928. Patented Feb. 5, 1878.

FIG. 1.

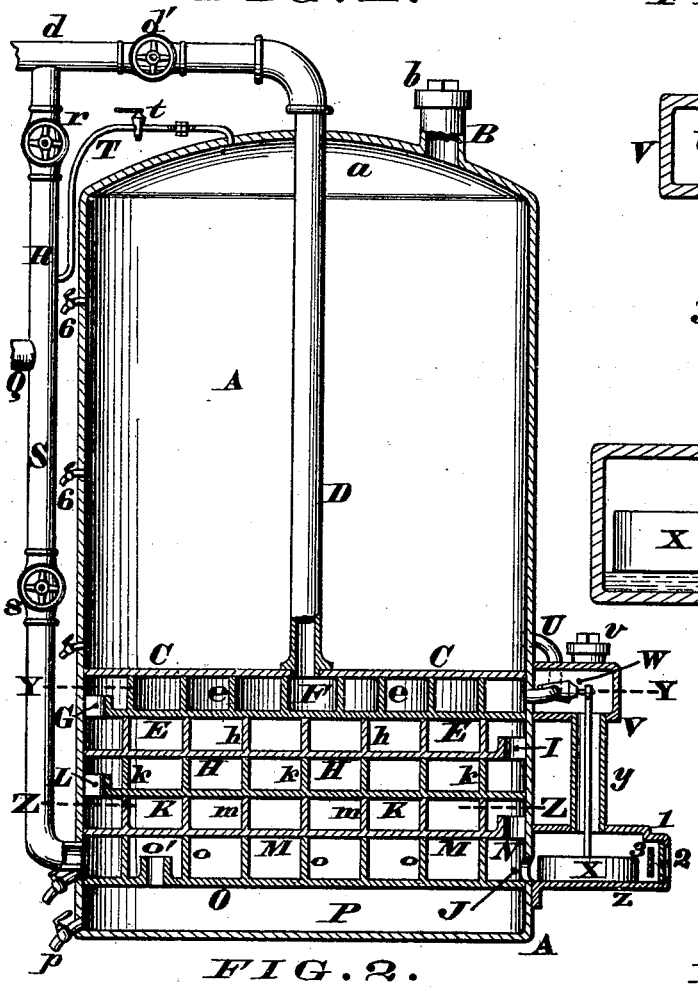


FIG. 2.

FIG. 4.

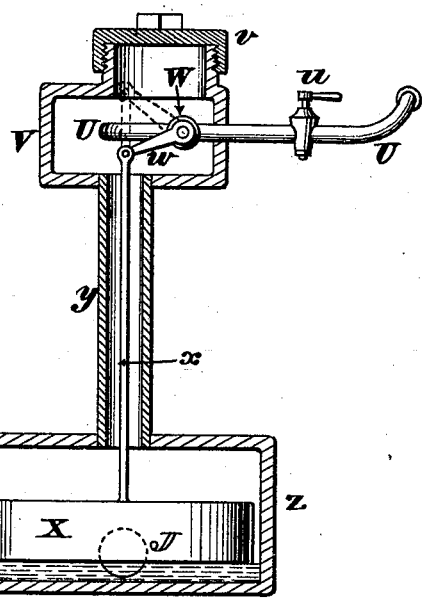


FIG. 5.

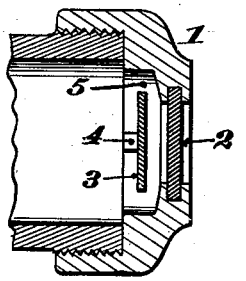
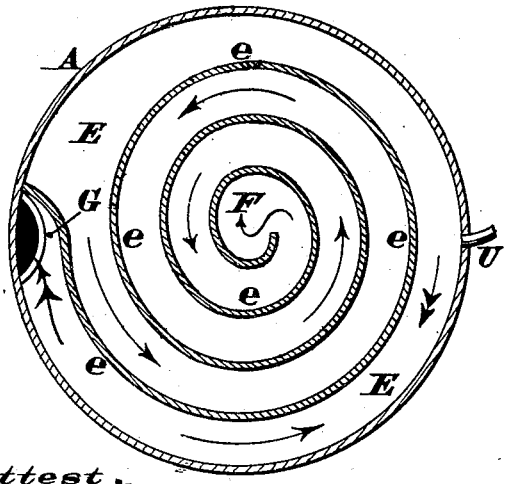
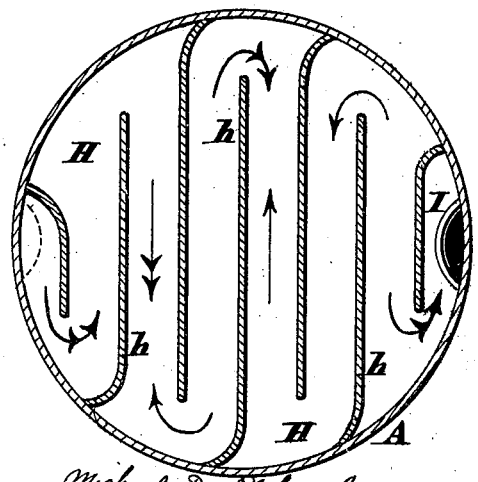


FIG. 3.





Attest,
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UNITED STATES PATENT OFFICE.

MICHAEL D. NELON, OF NEW RICHMOND, OHIO, ASSIGNOR OF ONE-HALF HIS RIGHT TO SAMUEL L. YOURTEE.

IMPROVEMENT IN CARBURETING APPARATUS.

Specification forming part of Letters Patent No. **199,928**, dated February 5, 1878; application filed August 10, 1876.

To all whom it may concern:

Be it known that I, MICHAEL D. NELON, of New Richmond, Clermont county, Ohio, have invented a new and useful Carbureting Apparatus, of which the following is a specification:

My invention consists in placing a stop-cock in the vent-tube through which air or gas passes into the tank above the gasoline, so that said vent-tube may be closed when the tank is being filled or oil drawn off from the bottom, to prevent the diminution of gas-pressure at such times; also, in the application of a reflector in the float-chamber to enable the operator to clearly see the level of the gasoline therein.

Referring to the drawings, Figure 1 is an axial section of my improved carbureting apparatus, the section being taken in the plane of the inlet and exit pipes of the apparatus. Figs. 2 and 3 are horizontal sections of the same, taken, respectively, at the lines Y Y and Z Z. Fig. 4 is an enlarged vertical section through the float-governor and its accessories. Fig. 5 is an enlarged vertical section through the cap of the float-chamber.

In the above illustrations the single-headed arrows represent the ascending flow of air or gas through the apparatus, while the double-headed arrows indicate the descending current of gasoline within the enriching-chambers.

The tank A may be of any suitable size, shape, and material; but it is preferably cylindrical, and closed at top with a dome-shaped or crowning cover, *a*, to which the neck B is secured. This neck is furnished with a screw-cap, *b*, whose removal enables the filling of the tank to a proper height either with gasoline or any other suitable hydrocarbon, which hydrocarbon rests upon a partition, C. This horizontal partition is tightly soldered or riveted within the tank, and it is imperforate, except at its center, where an opening is made to receive the lower end of exit-pipe D, that preferably occupies an axial position within the apparatus, although it may be disposed near one side of the same, if desired.

Located a suitable distance below partition C—say, about three inches—and parallel with the former one, is a second partition, E, from whose upper surface projects a flange, *e*, that fits tightly against the under side of plate C. This upwardly-projecting flange is arranged in a spiral or approximately spiral manner, as seen in Fig. 2, in order that the inflowing current of air may be gradually conducted to the central compartment F formed by said flange, and with which central compartment or fold the discharge-pipe D communicates.

G is an overflow-neck of partition E, through which neck the descending current of gasoline escapes to the compartment immediately below said partition. The third partition, H, is parallel with the second one, E, and is furnished with a series of upwardly-projecting flanges, *h*, that fit tightly against the under side of said second partition E. These flanges are not disposed in a spiral manner, as is the flange *e*, but the ones *h* are arranged as represented in Fig. 3, so as to cause the current of air or gas to circulate alternately back and forth across partition H.

I is the overflow-neck of the third partition. K *k* L and M *m* N are, respectively, the fourth and fifth partitions in the apparatus, which arrangement of partitions may be repeated as often as necessary.

O represents the last partition, having flanges *o* precisely like the ones *h*, *k*, and *m*, previously alluded to. *o'* is the overflow-neck of said partition. This last partition also constitutes the ceiling of chamber P, having a cock, *p*, through which any waste material may be discharged at intervals.

Q represents the air or gas inlet, which communicates with an ascending branch, R, and a descending branch, S, said branch pipes being provided, respectively, with suitable cocks *r* and *s*. The pipe S is adapted to discharge either air or gas into that chamber which is situated between the partitions M and O, while pipe R communicates with the lateral branch *d* of exit-tube D. This last-described branch is provided with a cock, *d'*.

Communicating with the top of the tank, and with branch R below its cock *r*, is a small tube, T, whose valve *t* is left slightly open, so as at all times to admit air to said tank, except when the latter is being filled with gaso-

line. By this means said valve acts as a vent to insure the regular discharge of gasoline at the bottom of said tank, which discharge takes place through a pipe, U, whose external portion is furnished with a cock, *u*. This pipe passes through a box, V, and the discharging end of said pipe is introduced into that chamber which is formed between the plate C and the second partition E, and at a point diametrically opposite the overflow-neck G of said partition, as more clearly shown in Fig. 2.

The use of the stop-cock in the vent-tube enables me to fill the reservoir or draw the oil off from the bottom while the lights are being supplied from the machine, without diminishing the supply of gas, by simply closing the vent-tube by means of the stop-cock.

Box V is provided with a screw-threaded cap, *v*, whose removal enables the inspection of internal valve W, which latter has a spigot attached to arm *w*, from which depends a rod, *x*, of float X. Rod *x* plays freely within a tube, *y*, that connects box V with float-box *z*, whose bottom is about on a level with partition O. J is a port that affords communication between the tank and the float-chamber *z*. This chamber is furnished with a screw-cap, 1, having a window, 2, in it, behind which window a reflector, 3, is secured with ears 4, that are attached to said cap. A space, 5, is left around the plate 3, so as to allow gasoline to have free access to the window. Without this plate-reflector 3, box *z* would be so dark as to prevent the level of the gasoline in the same being visible through the window; but by applying said plate in the manner shown this difficulty is effectually overcome.

Gage-cocks 6, of which as many may be used as necessary, serve to indicate the height of gasoline in tank A.

My apparatus is first charged by packing all the chambers between plate C and partition O with sawdust or any other porous material that will absorb sufficient gasoline, and at the same time allow a comparatively free passage either of gas or air through said chambers. This filling is packed in between the flanges *e*, *h*, *k*, *m*, and *o*; but none is packed in chamber P or above plate C.

Tank A is now filled with gasoline, and cock *u* opened, so as to allow the hydrocarbon to flow through cock W and enter the space between plate C and partition E. As soon as this compartment is filled high enough the gasoline escapes over neck G, and descends into the compartment immediately below said partition. The fluid circulates between flanges *h*, and finally escapes at neck I, which is diametrically opposite the neck G previously alluded to. This devious route of the gasoline down through the apparatus is continued until the fluid has accumulated on partition O, and is about to escape over the neck *o'*, when float X is elevated, thereby closing the inner cock W, and at once preventing the descent of any more gasoline through the various chambers. While this descent of the gasoline is taking place, air or gas is entering the apparatus through pipes Q S, and flows through the various packed spaces between flanges *o*, and escapes through neck N into the chamber above partition M. The air then flows through the packed spaces between flanges *m*, and escapes through neck L into the chamber above partition K, and so on until it reaches the neck G of the upper enriching-chamber. In this chamber the air or gas circulates in the spaces between the spiral flanges *e*, and is finally conducted into the central compartment F, and thence out through exit-pipe D *d d'*.

It will be noticed that the air is compelled to traverse the apparatus in a very circuitous route, and that it is continually opposed to the inflowing current of gasoline.

If it should be noticed that the air escaping from branch *d* is too highly charged with such vapors, cock *r* can be opened, so as to mingle a greater or less quantity of fresh air with the escaping vapor. Evidently the same result will take place in case ordinary street-gas is run through the carbureter, and if the gas should become too rich by its contact with the gasoline, it can be tempered before escaping from the apparatus by properly manipulating cock *r*, so as to admit gas into the branch *d*.

The cock *u*, being an external device, enables the ready stoppage of the flow of gasoline whenever it is desired to inspect or repair any part of the apparatus; and, in case the internal cock W should require adjustment or attention of any kind, it can be readily accomplished by simply removing the screw-cap *v* of box V.

Furthermore, the detachment of screw-cap 1 allows the ready removal of any sediment or obstructions that may accumulate in float-chamber *z*, and it also permits the reflector 3 being cleansed and polished up, if necessary.

When I place the discharge-pipe D at one side of the plate C, I dispense with the spiral flange *e* on plate E, and arrange thereon flanges, as *h*, in the manner shown on plate H, Fig. 3.

I claim as my invention—

1. The vent-tube T, provided with stop-cock *t*, and connecting reservoir A and tube R, substantially as and for the purposes set forth.

2. The window 2 and reflector 3, applied to the external float-chamber, substantially as described.

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Attest:

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CHARLES SCHAMMEL.