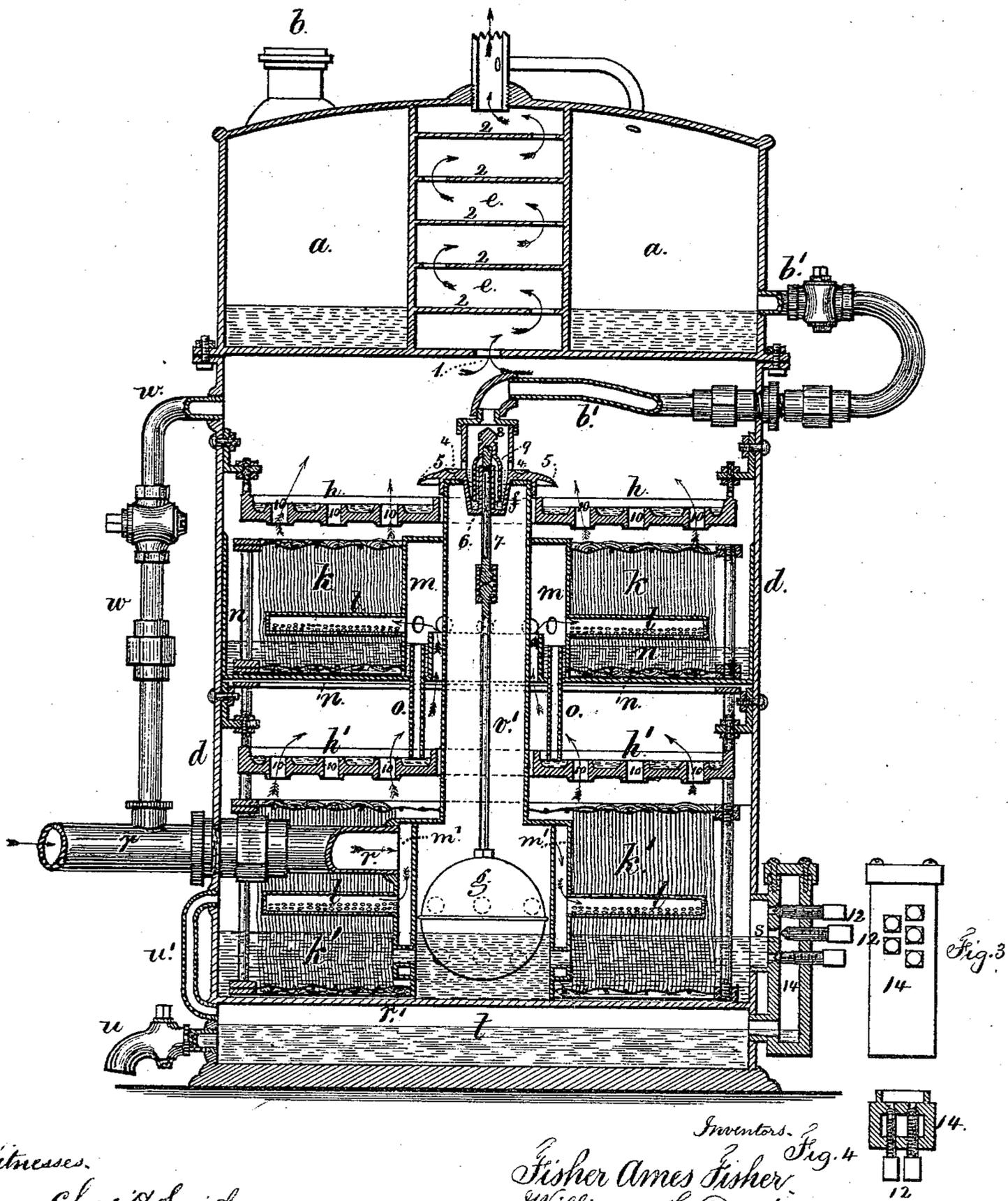


# F. A. FISHER & W. H. DARBY. Carbureting Apparatus.

No. 148,602.

Patented March 17, 1874.

Fig. 1.



Witnesses.

Chas. H. Smith.  
Harold Serrell.

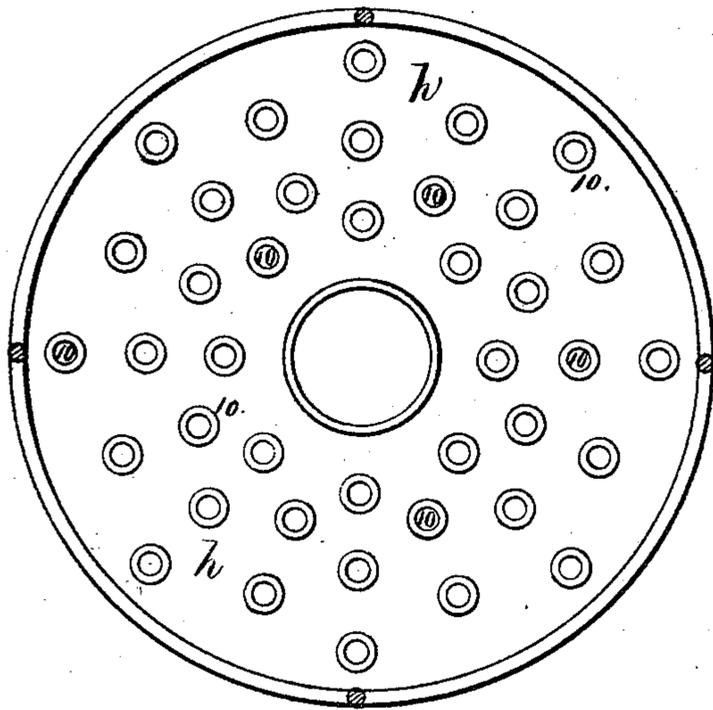
Inventors.  
Fisher Ames Fisher.  
William H. Darby.  
per Lemuel N. Serrell  
att'y.

F. A. FISHER & W. H. DARBY.  
Carbureting Apparatus.

No. 148,602.

Patented March 17, 1874.

Fig. 2.



Witnesses,

Char H Smith,  
Harold Surrall

Inventors,

Fisher Ames Fisher,  
William H. Darby,

per Lemuel W. Surrall

att'y

# UNITED STATES PATENT OFFICE.

FISHER AMES FISHER AND WILLIAM H. DARBY, OF ELIZABETH, NEW JERSEY, ASSIGNORS TO FISHER & TALLMAN, OF SAME PLACE.

## IMPROVEMENT IN CARBURETING APPARATUS.

Specification forming part of Letters Patent No. 148,602, dated March 17, 1874; application filed October 14, 1873.

*To all whom it may concern:*

Be it known that we, FISHER AMES FISHER and WILLIAM H. DARBY, of Elizabeth, in the county of Union and State of New Jersey, have invented an Improvement in Carbureting Apparatus, of which the following is a specification:

In the gasoline-vessel or liquid-hydrocarbon reservoir, we provide a chamber, through which the vapors pass previous to going through the pipes leading to the burners. This chamber acts as a condenser to remove any portion of the vapors that might otherwise condense in the pipes. In combination with the supply-pipe and valve shown in Letters Patent No. 140,998, we make use of a basin, in which are nipples forming overflow-tubes that conduct the liquid hydrocarbon to all portions of the wicking, so as to saturate the same uniformly. We also make use of two or more sections of wicking, with intermediate overflow basins and tubes, so that the liquid hydrocarbon is thoroughly distributed to the wicking, and all the portions that can be vaporized by the air are ordinarily removed before the liquid reaches the bottom. If the supply of liquid continues from any cause during the time that the apparatus is not in action, the inlet air-tube might be flooded. To prevent this, we employ a separate receiving-chamber below the wicking, into which any overflow is allowed to pass after the liquid reaches the level at which the escape is positioned. This escape is at one of a series of screw-valves.

In the drawing, Figure 1 shows the apparatus complete by a vertical section. Fig. 2 is a plan of the basin and overflow tubes, and Figs. 3 and 4 show the screw-valves.

The gasoline is contained in the vessel *a*, and supplied at *b*. *b'* is the pipe and cock leading to the vaporizing-chamber formed by the case *d*. The vessel *a* may be upon the case *d*, or at a distance, and the illuminating-vapor passes through the hole 1, or by a pipe at this point, to the condenser *e* that is within the reservoir *a*, and contains the partitions 2 that cause the illuminating-vapors to pass from side to side, and thereby any portion that might condense in the pipes is liquefied and returned into the vaporizing-vessel *b*, the reservoir *a* and condenser *e* being in all cases

at a higher level than the said vessel *d*. In practice it is found that the gasoline-holder is of a low temperature in consequence of the vaporization of the gasoline; hence it is eminently adapted to act as a condenser.

The cup *f*, overflow-trough 4, drip-edge 5, tube 6 for the stem 7 of the valve 8, and the inverted cup 9, are substantially the same as in said Patent No. 140,998, and the float *g* operates to close the valve 8 against the seat at the end of the pipe *b'*, and stop the supply of liquid whenever there is an accumulation in the lower part of the carbureting-vessel. The overflow and drip from 5 passes into the basin *h*, in which are numerous tubular thimbles 10, and these are all dressed off true at the upper ends, and the basin *h* is adjusted so as to be level, in order that the hydrocarbon liquid may accumulate in the basin *h*, and then pass off uniformly over the edges of the thimbles 10 and drip upon the wicking *k*. The wicking at *k k'* is in suitable frames similar to those shown in Letters Patent Nos. 140,998, 112,026, and 127,409, and between the wickings are the branch pipes, *l*, from the central air-pipe *m*, as in the Patents 127,409 and 140,998, but, instead of having only one range of wickings, we employ two or more, so as to make the apparatus compact, and not have the wicking in too great lengths, because the capillary action does not saturate long wicks with sufficient uniformity. The tray *n* into which the liquid hydrocarbon accumulates is provided with an overflow-pipe, *o*, reaching down below the surface of the liquid in the next basin *h'*, so that the vapors passing up from below must enter the tube *m* and be distributed through the lateral branches *l*. The overflow from the tray *h'* passes down over the wickings *k'*, and the air from the pipe *r* enters the chamber *m'* that surrounds the central tube *v'* and goes by the lateral branches *l* among the wickings *k'*. The partition *r'* in the bottom portion of the vessel *d* retains the liquid hydrocarbon, and the accumulation keeps the wicking *k'* saturated, and, when it rises high enough, operates the float *g* and closes the supply-valve 8, but through long disuse there may be an accumulation that might rise and flood the air-pipe *l*. This risk is prevented by an overflow at *s* into the cham-

ber or receptacle *t*, from which it may be drawn by the cock *u*. The pipe *w* allows the pressure in *t* and *d* to equalize, and the point of overflow is adjusted by opening one or more of the screw-valves, 12, that close openings at different heights in the escape-tube or chamber 14. The pipe *w* and cock is provided and extends from the air-pipe to the gas holder or illuminating vapor-chamber in the upper part of the apparatus, so as to dilute the gas, as may be necessary to prevent smoking.

We claim as our invention—

1. A condensing apparatus for the uncombined vapors from a carbureting apparatus, formed within the vessel holding the gasoline or other liquid hydrocarbon, substantially as and for the purposes set forth.

2. The basin *h*, with the overflow-nipples 10, in combination with the supply-valve 8 and wicking *k*, substantially as set forth.

3. The openings *s* and valves 12, above the division *r'* in the carbureting apparatus, in combination with the receptacle *t* in the bottom of such carbureter, substantially as and for the purposes set forth.

4. In a carbureting apparatus, two or more sections of wicking placed one above the other, in combination with the intervening basin *h'* and overflow-nipples 10, substantially as set forth.

Signed by us this 21st day of August, A. D. 1873.

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FISHER AMES FISHER.  
WILLIAM H. DARBY.

Witnesses:

WM. M. TALLMAN,  
HOWARD RIBALDS.