C. F. SCHUSSLER.

Hydrocarbon Gas Apparatus.

No. 168,290. Patented Sept. 28, 1875.

Fig. 1.

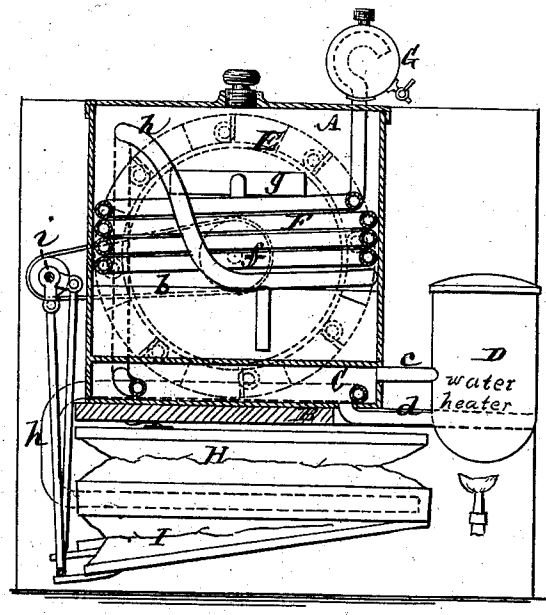


Fig. 2.

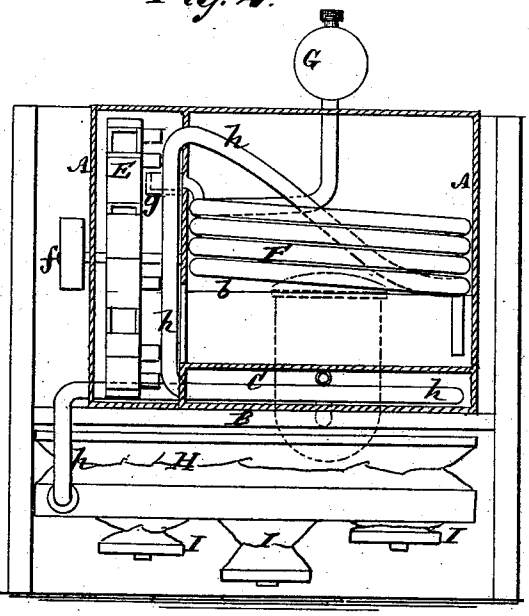
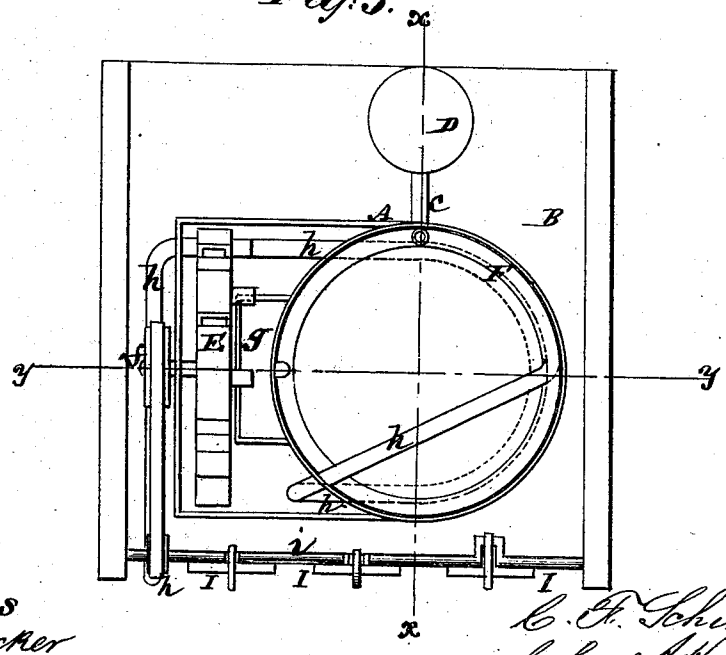


Fig. 3.



Witnesses
John Becker
Fred Haynes

C. F. Schussler
by his Attorneys
Brown & Allen

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

CARL F. SCHÜSSLER, OF HAMBURG, GERMANY.

IMPROVEMENT IN HYDROCARBON-GAS APPARATUS.

Specification forming part of Letters Patent No. **168,290**, dated September 28, 1875; application filed August 2, 1875.

To all whom it may concern:

Be it known that I, CARL FERDINAND SCHÜSSLER, of Hamburg, Germany, have invented certain new and useful Improvements in Apparatus for the Manufacture of Hydrocarbon-Gas; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing, which forms a part of this specification.

This invention relates to an apparatus for impregnating atmospheric air with hydrocarbon, or, in other words, for carbureting said air, thereby producing an economical and powerful illuminating-gas.

The invention consists in a novel construction of the apparatus, in which is combined a close receptacle for the hydrocarbon liquid, a scoop-wheel or lifter for discharging the latter into a coiled pipe or circulating-duct down which the liquid passes or returns, and means for forcing a current of atmospheric air under pressure into and through the coiled pipe in a reverse direction to the flow of the liquid through said pipe, whereby the air absorbs the vapors of the liquid in the coil, and the required gas is accordingly produced.

The invention also consists in a combination, with the carbureter, of a hot-water apparatus for heating the hydrocarbon liquid, to facilitate the production of the gas.

Figures 1 and 2 represent vertical sections of the apparatus, mainly on the lines *x x* and *y y*—that is, in planes at right angles to each other; and Fig. 3, a plan of the same with the top and gas-receiver removed.

A is a closed vessel or reservoir for the hydrocarbon liquid, which is entered through a nozzle at top till it reaches a level indicated by the letter *b*. This reservoir may be made of sheet-copper or other suitable material, and be placed on a cupboard, stand, or shelf, B. Underneath this reservoir A is a close chamber or compartment, C, forming, as it were, a hollow bottom to the reservoir, and which is in communication, by upper and lower pipes *c d*, with a water-vessel, D, that is heated in any suitable manner—as, for instance, by a burner arranged below it. The hot water from this vessel D circulates, by the pipes *c d*, through the chamber C, for the purpose of raising the temperature of the hydrocarbon liquid or fluid in the reservoir A and thereby facilitating the production of the gas. E is a scoop-wheel or lifter, arranged within the reservoir A, at one side, and fast to a shaft, *f*, which passes through a stuffing-box in the side of the reservoir, and is revolved or set in motion by clock-work or other motive power. By means of this scoop-wheel E the hydrocarbon liquid is lifted within the reservoir A—that is, from the lower part to the upper portion thereof—and is delivered into a trough or basin, *g*, from whence it flows through a coil, F, entering the latter at its top and ultimately passing out at its bottom within the lower portion of the reservoir A, thus returning the lifted liquid to the main body of the liquid in the reservoir. In this way a continuous current of hydrocarbon liquid is passed through the coiled tube from the top to the bottom, and it is this stream of liquid with which the atmospheric air to be carbureted is brought in contact, said air being introduced under pressure or forced through the coil in an upward or reverse direction to the flow of the liquid through the coil. The air thus absorbs the vapors of the carbureting liquid, and may be passed off into a receiver, G, from whence it passes to the burners.

The atmospheric air is forced or introduced under pressure to the coil F, at or near its bottom, by means of a pipe, *h*, from an air-vessel, H, which latter also serves as a regulator of the pressure, and into which the air is forced by means of bellows I set in motion by a crank-shaft, *i*, which is actuated by the clock-work that drives the scoop-wheel E, or by any other motive power. Any other blower or blowers may be substituted for the bellows. The atmospheric air rises through the pipe *h* from the vessel or pressure-regulator H to the coil F.

I claim—

The combination of the hydrocarbon-reservoir A, provided with a lifting-wheel, B, for elevating the hydrocarbon fluid, the coiled tube F passing through the reservoir and through the heating-chamber C, and the feed-water heater D communicating therewith by means of the pipes *c d*, and the blast apparatus H, whereby the hydrocarbon fluid and air are passed in opposite directions through the tube, and heated during their passage, substantially as herein described.

C. F. SCHÜSSLER.

Witnesses:

VERNON H. HARRIS,

FERD TUSCH.