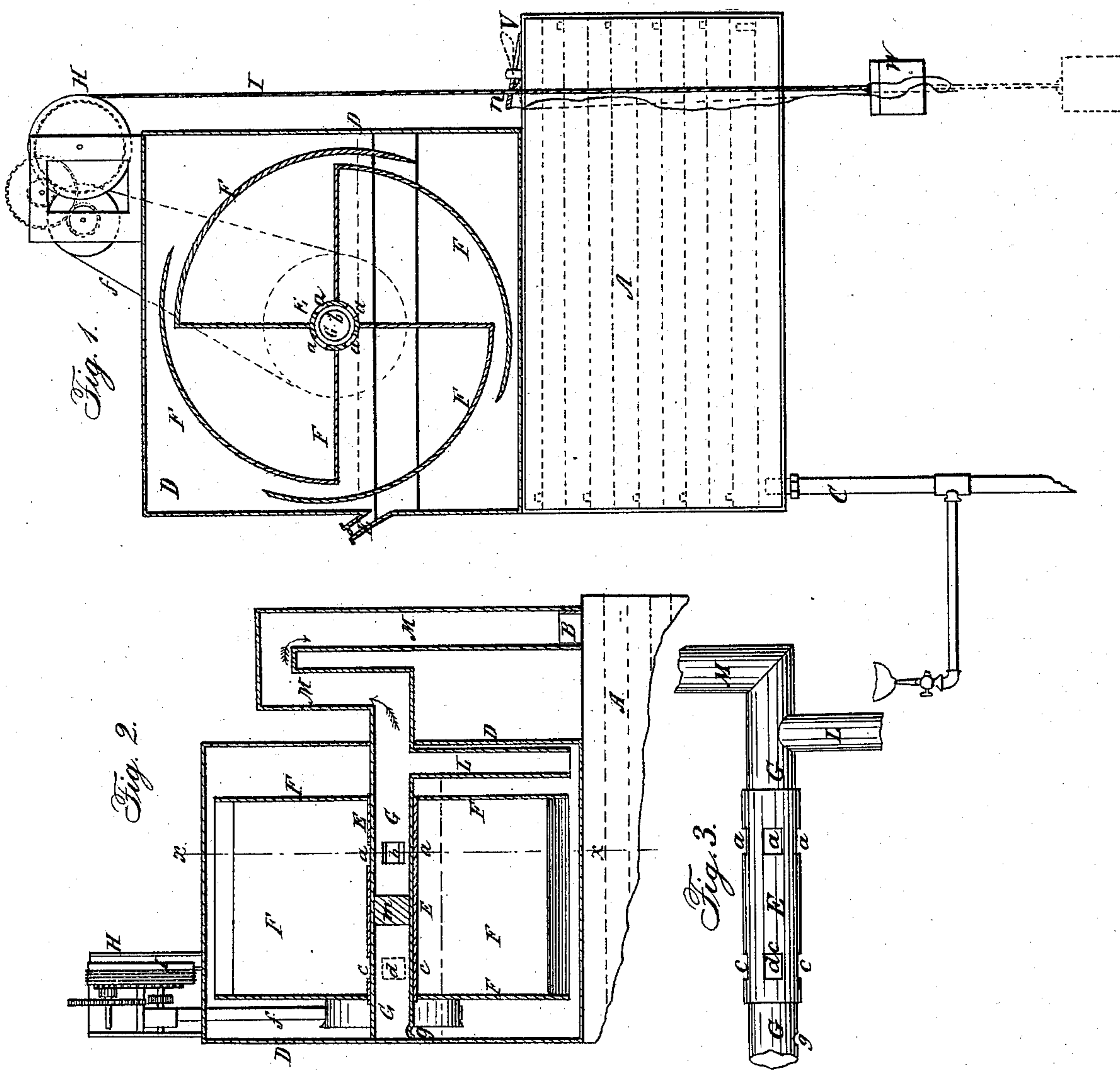


F. H. BROWN.

Carbureter.

No. 55,949.

Patented June 26, 1866.



Witnesses:

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UNITED STATES PATENT OFFICE.

FRANKLIN H. BROWN, OF CHICAGO, ILLINOIS, ASSIGNOR TO HIMSELF AND
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IMPROVED APPARATUS FOR CARBURETING AIR.

Specification forming part of Letters Patent No. 55,949, dated June 26, 1866.

To all whom it may concern:

Be it known that I, FRANKLIN H. BROWN, of the city of Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Apparatus for Carbureting Air; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, and the letters and figures marked thereon, which form part of this specification.

The nature of my said invention consists in the employment, in combination with a carbureter arranged above the burners, of an apparatus for compressing and forcing air into the carbureter, when so constructed and arranged that no air can enter the carbureter when the forcing apparatus is not in operation.

My invention further consists in a novel arrangement whereby the carbureter may be opened at any required point automatically when the aforesaid forcing and compressing device ceases to operate, so that the carbureter may operate automatically when the compressor and forcer is not in operation.

My invention further consists in the employment of any of the volatile products of petroleum or their equivalents, in combination with a series of revolving buckets so constructed and arranged as that, by their revolution through the hydrocarbon, fluid air is compressed and forced into a carbureting apparatus, as hereinafter fully set forth.

To enable those skilled in the art to understand how to construct and use my invention, I will proceed to describe the same with particularity, making reference in so doing to the aforesaid drawings, in which—

Figure 1 represents a transverse sectional view at *x* in Fig. 2; Fig. 2, a longitudinal central section, and Fig. 3 a detached view, of the hollow stationary shaft and sleeve to which the buckets are attached, revolving upon the same.

Similar letters of reference denote the same parts of my invention in the several figures.

A represents a carbureter, which may be constructed in any of the usual forms; B, the inlet-pipe for air, and C the pipe leading to the burners.

D represents a close vessel or case having in its top a suitable aperture for admitting air, and the filler *e* at one side for admitting the hydrocarbon fluid or water by means of which the pressure is produced through the carbureter, as hereinafter specified. Said case or inclosure D, with its interior arrangement, is represented as being arranged upon the top of the carbureter; but it may be arranged in any other convenient position. Through the center of said inclosure extends a hollow shaft or pipe, G, as shown, supported and fixed at each end in the walls of the casing, and extending through the same at one end, which is connected, by the pipe M to the inlet B, to the carbureter, said hollow shaft or tube G being divided into two chambers or compartments by the partition *m*. Upon said pipe G there is arranged the sleeve E, to which the close buckets F are attached, as shown, the front edge or lip of each passing by the adjacent bucket, as shown, and for the purposes hereinafter specified.

To one end of the revolving buckets there is attached a drum, by means of which, the belt *f*, and clock-work or system of wheels H, and weight W the buckets are revolved, as also the sleeve E upon the shaft G.

At one side of the partition *m* in the stationary tube G is an aperture (marked *b*) opening into said tube, while at the other side of the partition *m*, and upon the opposite side of the tube G, is a similar aperture, (marked *d*.)

Through the sleeve E there are two openings for each bucket, one in line with the opening *b*, (marked *a*,) and one in line with the opening *d*, (marked *c*.)

The lower part of the chamber D is filled with fluid. Water may be used; but by the use of hydrocarbon fluids the air is partially carbureted before it enters the carbureter proper, and this insures a more thorough and complete result than can be attained by the use of any other fluid.

n represents a valve-lever attached to the valve *v*, to which is attached a cord, *s*, whose opposite end is attached to the weight W, so that when the weight runs down and requires winding up the tension of the cord *s* opens the valve V and admits air at that point, so

that the air still continues to be carbureted to a certain extent automatically, and thus prevents the extinguishing of the lights, while the decreased action will give notice that the apparatus needs winding up to be again set in motion. When the weight is raised, and the tension upon the cord *s* relaxed, a spring closes the valve *v* and excludes the air.

It may be observed that by increasing the size of the apparatus for compressing and forcing the air into the carbureter, it may be applied to carbureters arranged below the burners, the advantage of arranging the carbureter above the burners being to take advantage of the specific gravity of the carbureted air, and thus obtain the requisite pressure at the burners by a smaller and less expensive compressing apparatus.

Care must be taken in supplying the compressing-chamber *D* with fluid not to fill it higher than the lower side of the pipe *G*, as otherwise the apparatus will not operate.

L represents a tube leading down from the tube *G* to allow any condensation of the gas to flow down into the reservoir, the upward turn of the pipe *M* being to prevent such condensed gas from flowing down into the carbureter, or any fluid which might accidentally enter the pipe *G*.

Having described the construction of my invention, I will now describe its operation.

The fluid being supplied to the carbureter *A*, and also to the compressing-chamber *D*, the apparatus is wound up and set in operation.

The descent of the weight, by means of the intermediate connections, revolves the buckets or compressing-wheel *F*. When the edge of the bucket enters the fluid the air contained in the bucket has no escape, except through the opening *a* in the sleeve *E* and the opening *b* in the hollow shaft, which are so arranged as to coincide at this point, and, by reason of the size of the opening *b*, until the air in the bucket is nearly or wholly displaced by the fluid, and so on successively, the air being thus compressed and forced into the carbureter in a uniform and continuous flow. As the buckets rise successively upon the opposite side the fluid therein is discharged into the tube *G* at the opposite side of the partition *m* by the coincidence of the openings *c* with the aforesaid aperture *d*, which fluid is discharged from said tube at the orifice *g*.

The arrangement of the openings *a* and *b* is

such as to completely close the entrance of air into the tube *G*, except when the edge of the bucket has dipped below the surface of the fluid, so that at whatever time the machine may cease to operate no air can enter the carbureter, which consequently will not operate, except when the compressor or forcer is in motion; but when the weight runs down, and requires winding up, then an opening is made as aforesaid, and for the purposes aforesaid, to admit air into the carbureter, the valve therefor being arranged at any point which may be preferred.

When the carbureter is arranged above the burner, I do not claim, broadly, the use of a device for forcing or blowing air into the carbureter, but only the employment of such a device as will compress the air and force it into the carbureter when in motion, and which wholly excludes the air when the device is not in operation, so that the carbureter cannot operate unless the device for forcing the air into the same is in operation.

Having described the nature, construction, and operation of my invention, I will now specify what I claim and desire to secure by Letters Patent—

1. The combination of a series of revolving buckets, *F*, and a hollow stationary shaft, *G*, provided with the openings *a* and *b*, arranged and operating substantially as and for the purposes specified.

2. The combination of a series of revolving buckets, *F*, and a stationary hollow shaft, *G*, when provided with the partition *m* and the openings *a* and *b* and *c* and *d*, arranged and operating as and for the purposes shown and described.

3. In combination with a carbureter, *A*, arranged above the burners, the employment of a device for compressing and forcing air into the same, substantially as and for the purposes herein specified and shown.

4. The employment of an automatically-closing valve, *V*, in combination with a close carbureter arranged above the burners, and a device for compressing and forcing air into the carbureter, and a weight or its equivalent for operating the same, substantially in the manner and for the purposes specified.

FRANKLIN H. BROWN.

Witnesses:

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