

J. REED.
Carbureter.

No. 203,371.

Patented May 7, 1878.

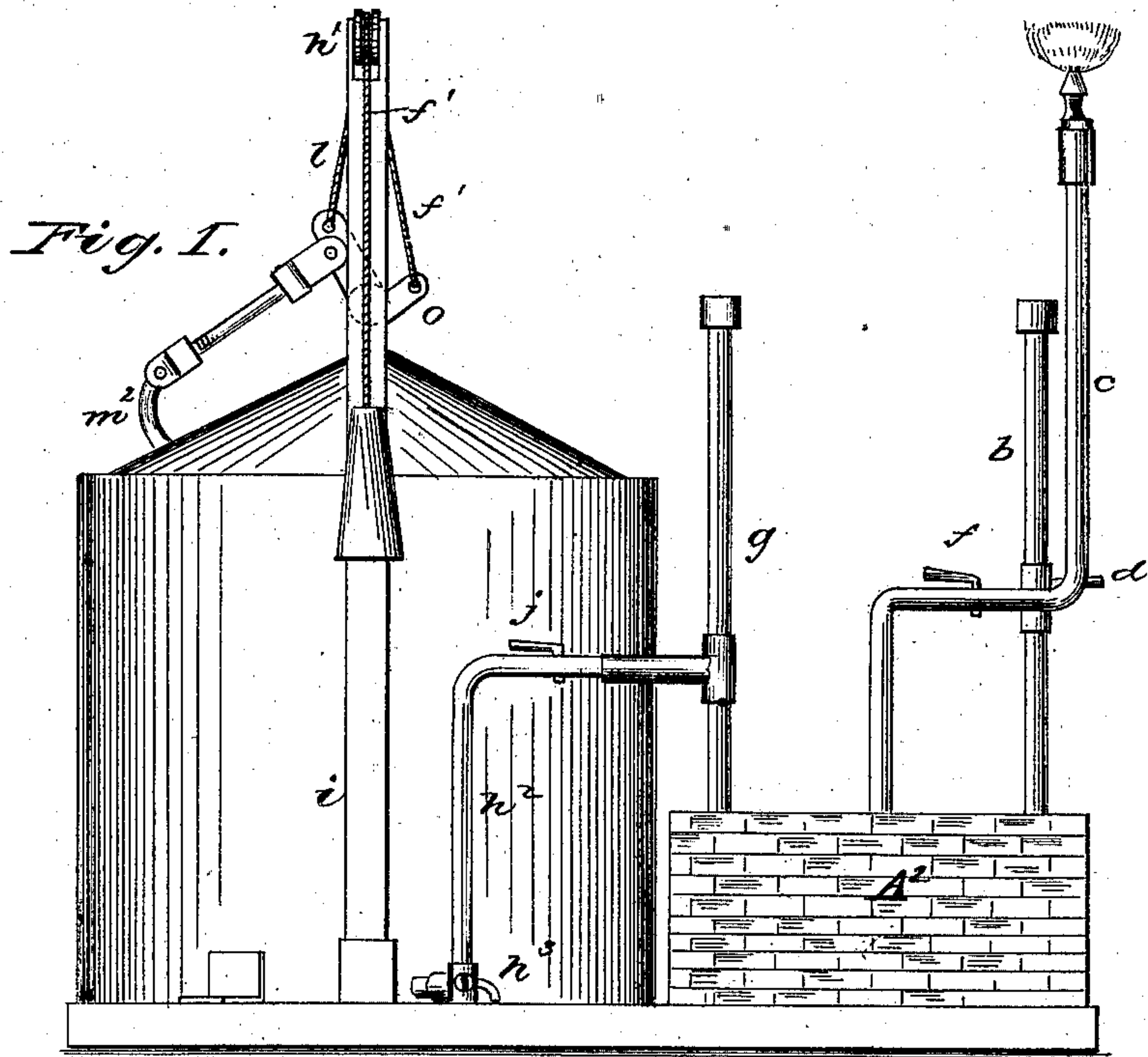
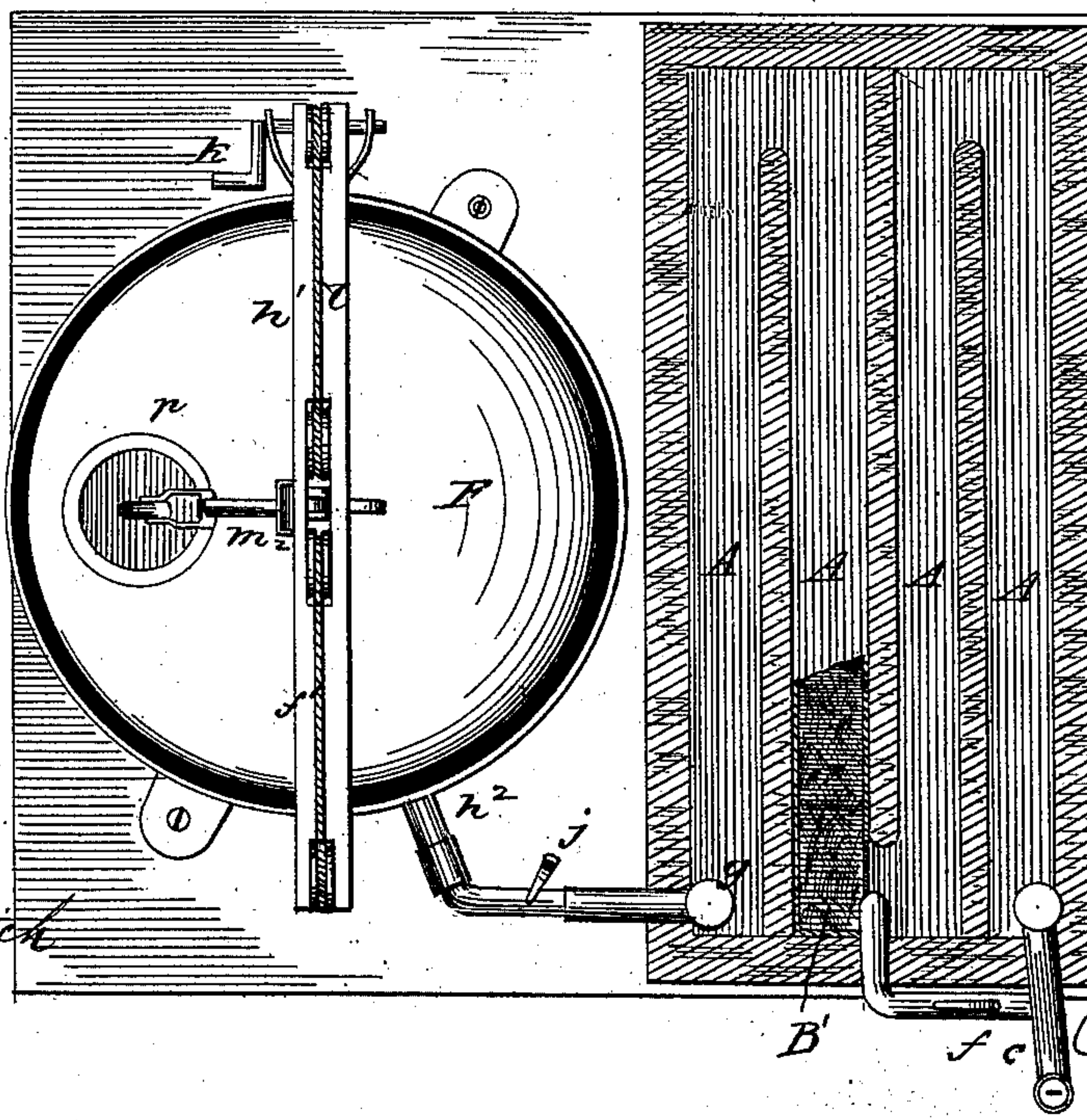


Fig. 2.



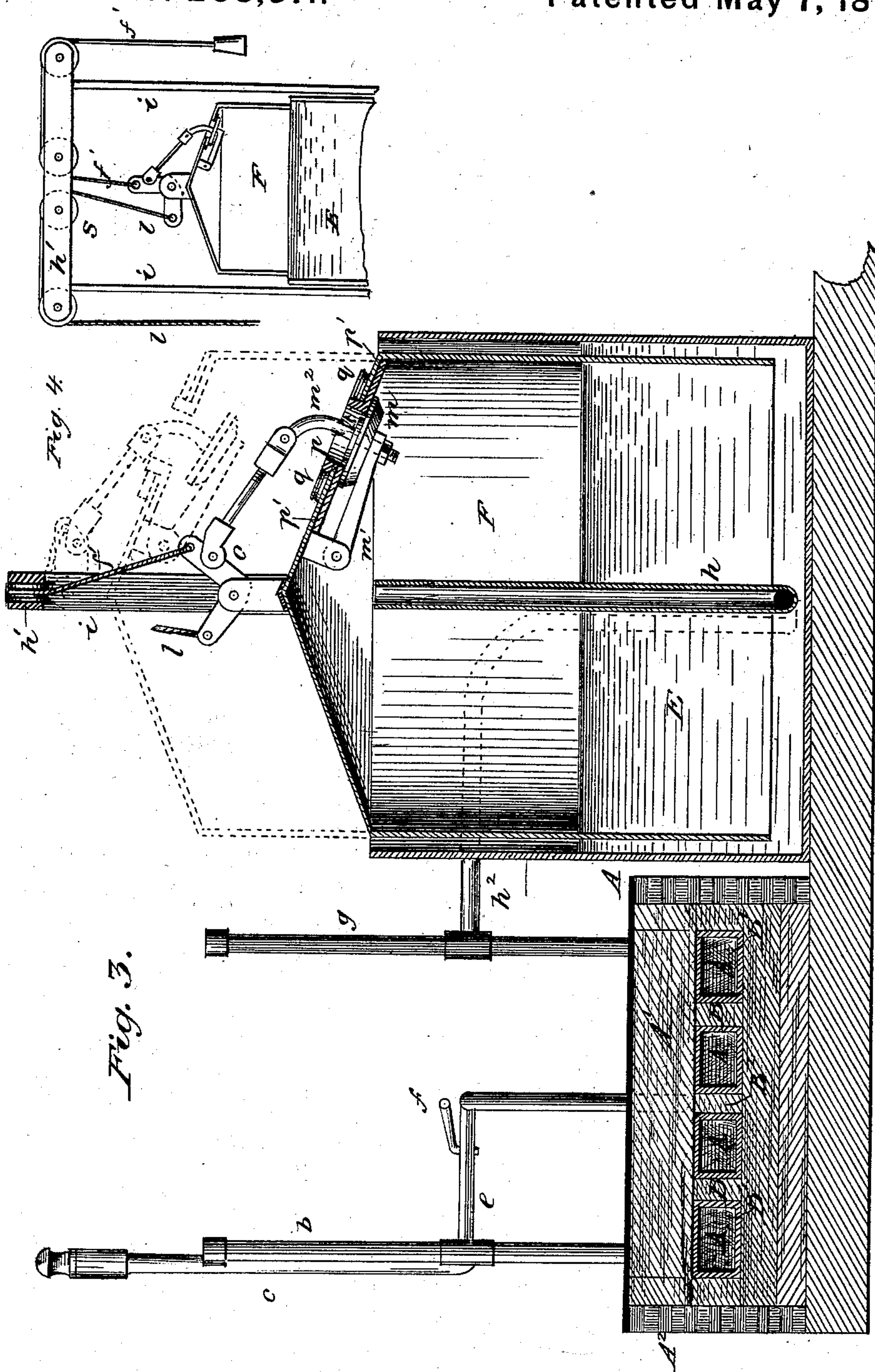
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UNITED STATES PATENT OFFICE.

JOSIAH REED, OF TROY, OHIO.

IMPROVEMENT IN CARBURETERS.

Specification forming part of Letters Patent No. **203,371**, dated May 7, 1878; application filed March 29, 1878.

To all whom it may concern:

Be it known that I, JOSIAH REED, of Troy, in the county of Miami and State of Ohio, have invented certain new and useful Improvements in Carbureters; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification, and in which—

Figure 1 represents a side elevation of my improved carbureter. Fig. 2 is a plan view, partly in section, of the same, with the air-valve swung around to show it more fully. Fig. 3, Sheet 2, is a vertical section thereof, with the air-valve also shifted; and Fig. 4 is a detached view of the same.

Corresponding parts in the several figures are denoted by like letters.

This invention appertains to an improvement in carbureters, for the production of carbureted air for illuminating purposes from gasoline and air, or for the enriching of ordinary coal-gas.

The chambers A A A are made preferably of galvanized iron, or any other suitable material, about eight feet long, eight inches wide, and six inches deep, or in similar proportions.

B B B are spaces between the chambers or cells, about four inches in width, which receive intervening layers of hydraulic cement. These spaces are filled with cement in order to increase the extent of outside surface of contact of the cells with the surrounding earth, whose temperature is always, at a suitable depth, greater than the temperature of the cells, wherein cold or low temperature is caused by the rapid evaporation of the gasoline contained therein. The cement employed is the hardest, and consequently the most durable, known to the art, wherefore a comparatively thin layer thereof may be employed, and its conducting capacity thereby increased, and it is rendered a better conductor by the hydrocarbon of the oil, which hardens it. The external surface of each cell is thereby indirectly connected with the surrounding earth. Were the cells all in one general case, as is usual with carbureters, some of them would have

but little or no surface of contact, and could not receive much heat from the surrounding earth to counteract the cooling tendency that invariably accompanies rapid evaporation.

The object of my invention is to provide a carbureter of such construction as to give a large amount of evaporating-surface, combined with the largest possible amount of surface of contact with the surrounding earth. It stands about in the same relation to the ordinary tub-shaped carbureter that a flue-boiler does to a boiler of cylindrical shape.

The cells may be varied in number from two to four, or more, to suit the capacity of the carbureter or machine, and are thoroughly painted or coated with asphaltum. These cells are supplied with a kinked, curly, fibrous filling or material, B' B', made from picked sisal or sea-grass rope, which increases the amount of evaporating-surface. This material is particularly suited to this purpose, as it is light, elastic, and does not pack or gum, and, while it acts as an absorbent, it does not obstruct the free passage of the gas or air.

In locating the cells A A, an excavation or hole is made in the ground at the desired point, say, about eight or nine feet deep, according to the nature of the soil and climate, and of sufficient size in its other dimensions to provide about sixteen inches space around the carbureter or machine. A vault, A¹, of brick or masonry, is built in the excavation, with a wall of about four inches in thickness, and the intervening space between the vault and carbureter is filled with a casing of hydraulic cement, which is about the same thickness as the wall of the vault—about four inches—and high enough to receive plank placed thereon to support the superincumbent weight of earth until the cement hardens.

Before the placing of the plank in position, above alluded to, the bottom of the excavation or hole is treated with a coating or floor of cement, which is made perfectly level. Upon this floor of cement is laid a second and finer course of cement, which is troweled down until solid.

The carbureter is now placed in position upon the cement floor of the excavation. Cement is filled in around and upon its cells and in the spaces between the same, to form a cas-

ing, B², for the carbureter of about four inches in thickness, and thus completely incase the cells in a strong inclosure, which serves as a carrier or conductor of heat between the earth and the contained liquid.

It will be further observed that by this inclosure of cement excluding moisture the cells will be protected from oxidation; or even, in the event of that, the hardened-cement inclosure will have formed cells though the iron or metal may have become oxidized. Further, the gasoline or liquid will be prevented from escaping through leakage, and a uniformity of temperature be maintained.

Connected to one of the cells is a filling-pipe, *b*, to which is connected a second pipe, *c*, having the burner, and provided with a stop-cock or cut-off, *d*.

e is another pipe, extending from the burner-pipe *c*, and connecting with another cell, or at a point communicating with two adjacent cells, and having a cut-off, *f*, the object of which is to regulate the quality of the gas to be fed to the burner, as it is obvious that the nearer the gas is taken from the supplying-point the less vapor of gasoline it will contain, and vice versa. *g* is a vent-tube, which, of course, is opened when filling the carbureter.

E is a water-tank, up through the bottom of which is passed a pipe, *h*, connected to a pipe, *h*², leading into one of the cells, and having a waste-cock, *h*³, for the withdrawal of water that may have accidentally entered it. *F* is the air holder or receptacle, suspended in the tank *E* by a weighted chain or cord, *f'*, passing over a pulley, *s*, journaled in the beam or cross-piece *h*¹, supported upon uprights *i*, that may be secured in position to the tank *E*. This receptacle is for holding atmospheric air, which is fed to the cells *A A* through the pipe *h* and the pipe *h*², leading from it to said cells. The supply of air may be regulated by a cock, *j*, to vary the brilliancy of the light.

k is a crank, suitably journaled in position, and connected to the air-receptacle *F* by a cord, *l*, or its equivalent, to enable the said receptacle to be returned to its elevated position after the discharge of the air, when, by the opening of its valve, it is refilled with air. *m* is a valve, fitted air-tight upon the under side of the top of the receptacle *F*, so as to cover an opening therein, and connected to pendants upon the inside of the said receptacle by a lever, *m*¹.

To the upper side of the valve *m* is secured its stem *m*², pivoted to one arm of a bell-crank, *o*, fulcrumed at its angle to the top of the receptacle *F*. This stem is threaded and connected to the valve by a clevis, to permit of the increasing or diminishing of its leverage. To one arm of this crank or lever is attached the cord or chain *f'*, and to that arm to which the stem of the valve is attached is fastened the free end of the cord or chain *l* of the crank *k*.

It will be seen as the air-receptacle is descending its valve *m* will be kept closed by the weighted cord or chain *f'* and the pressure of the confined atmospheric air, and its air thus caused to escape through the pipe *h* into the cells, the proper channel to receive it. Upon elevating the said receptacle by the crank *k*, it will be observed that its valve *m* will be opened, and a fresh supply of atmospheric air thus allowed to enter the said receptacle, which valve, upon the release of the crank, will be closed, and thus held by the weighted cord or chain *f'*.

p is a neck placed in the valve-opening, and provided upon its inner end with a marginal flange, *p'*, fitting against the under side of the top of the air-receptacle *F*, and to which the lever of the valve *m* is pivoted. The outer circumference of the neck *p* is provided with a screw-thread, to permit of the adjustment thereto of a threaded ring or nut, *q*, by which it is locked in place, as clearly shown.

This arrangement renders the valve attachment easily connected and disconnected, and it may be manufactured separately from the air-receptacle to which it is applied.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a carbureter, the cells *A*, with vent *g*, cement *B*, and adjusting-pipe *e*, with cut-off *f* and eduction-pipe *c*, substantially as shown, and for the purpose described.
2. The cells *A A*, as receptacles for gasoline, sisal hemp, and, for the passage of air, inclosed in a casing of cement, B², and vault A², in combination with adjusting-pipe *e*, eduction-pipe *c*, tank *E*, and air-receptacle *F*, substantially as shown, and for the purpose specified.
3. The tank *E* and air-holder *F*, having an automatic valve, *m*, weighted cord or chain *f*, cord *l*, and crank *K*, connected to said valve, in combination with the carbureter *A A*, connected by pipe *h*² to said air-holder *F*, substantially as and for the purpose set forth.
4. The automatic valve consisting of the valve-disk *m*, provided with a lever, *m*¹, and stem *m*², in combination with the weighted cord or chain *f'*, chain or cord *l*, and crank *K*, substantially as shown and described.
5. The combination of adjusting-pipe *e*, having cut-off *f*, eduction-pipe *c*, cells *A A*, vent *g*, sisal-hemp B¹, tank *E*, and air-receptacle *F*, substantially as shown, and for the purpose described.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

JOSIAH REED.

Witnesses:

HENRY F. RUPP,
J. WM. WISTER.