

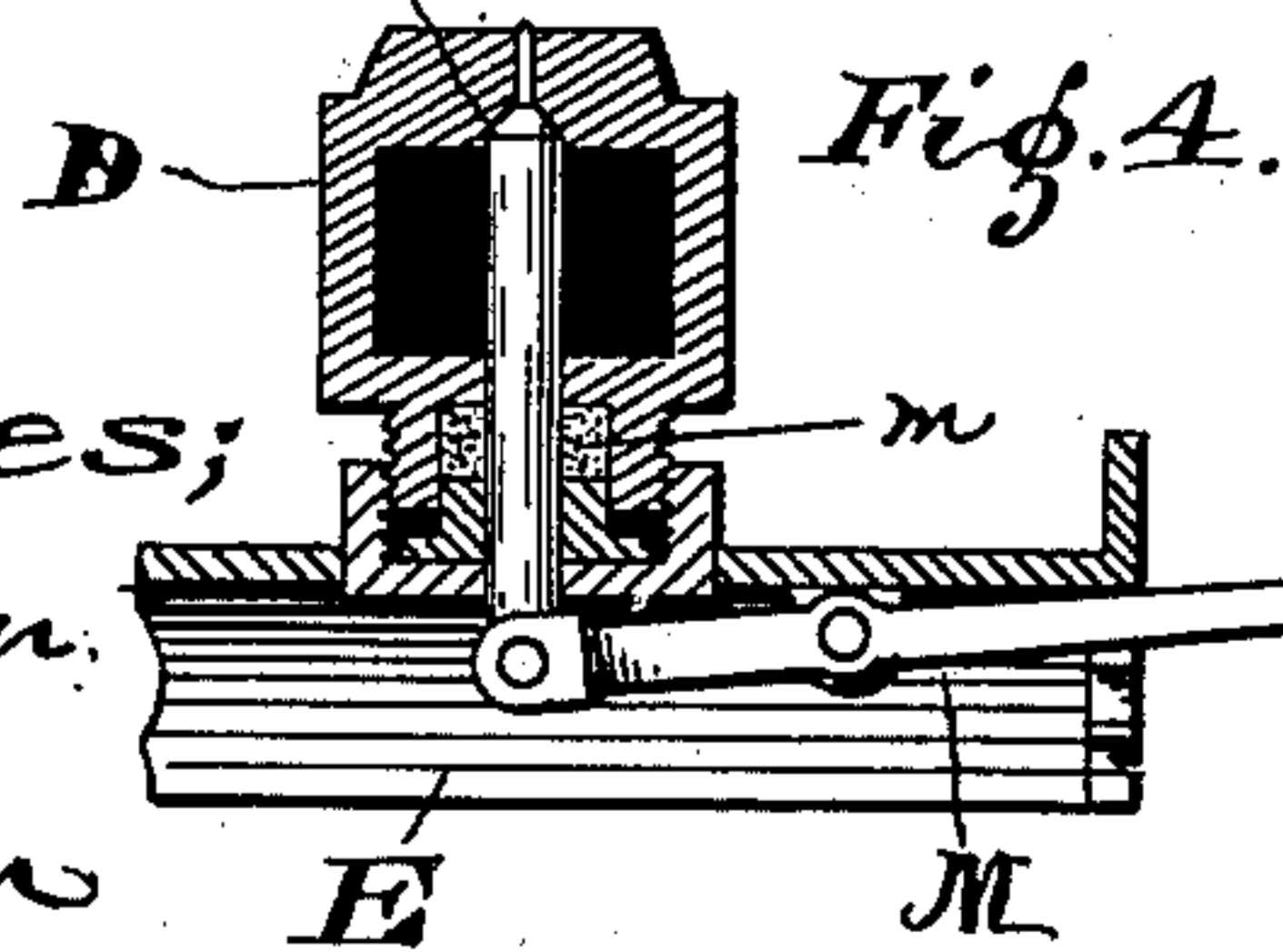
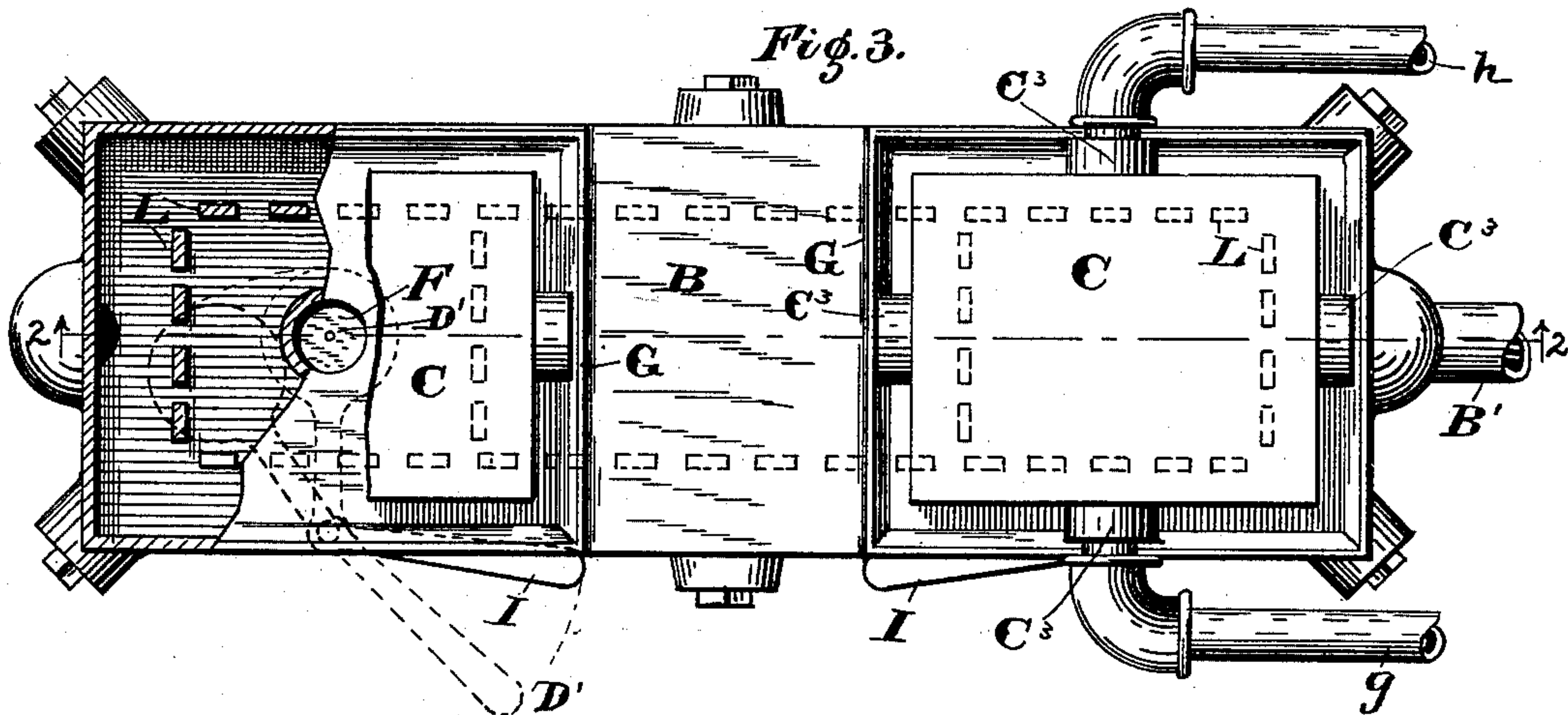
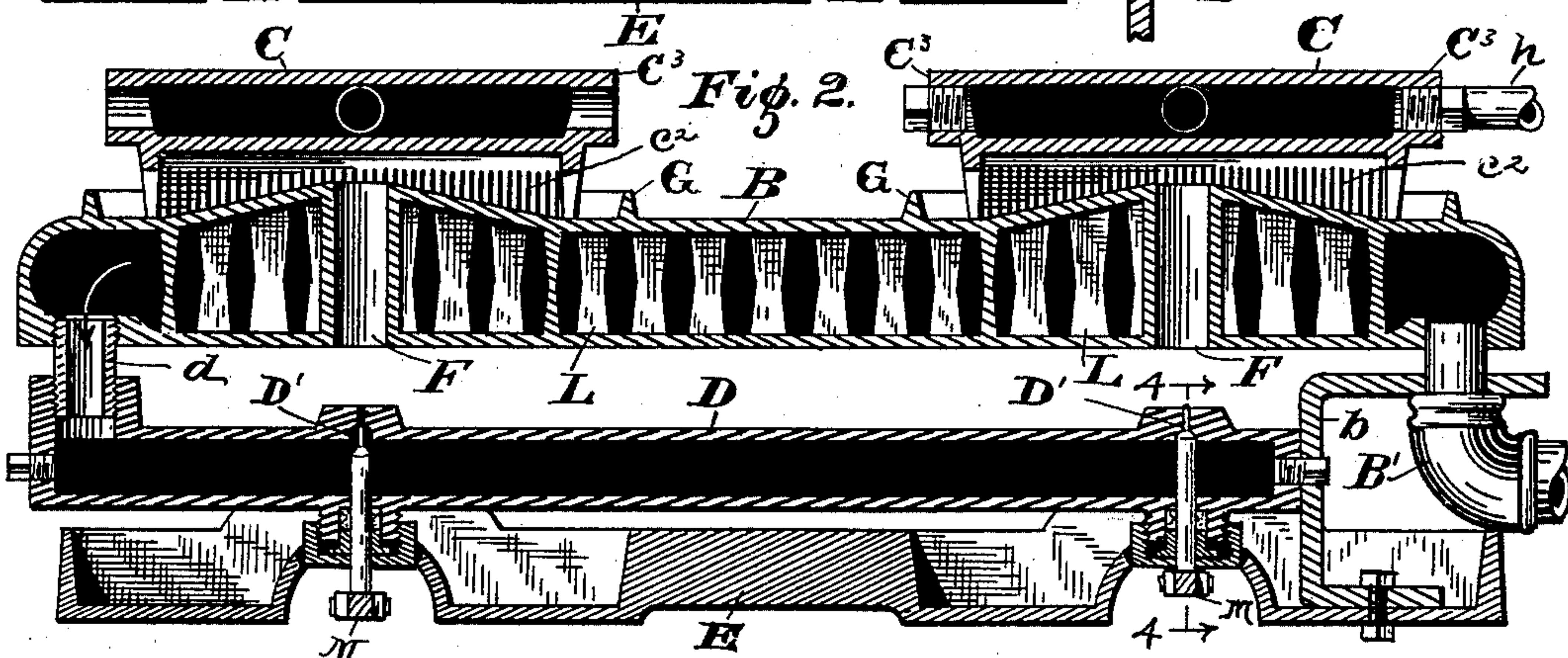
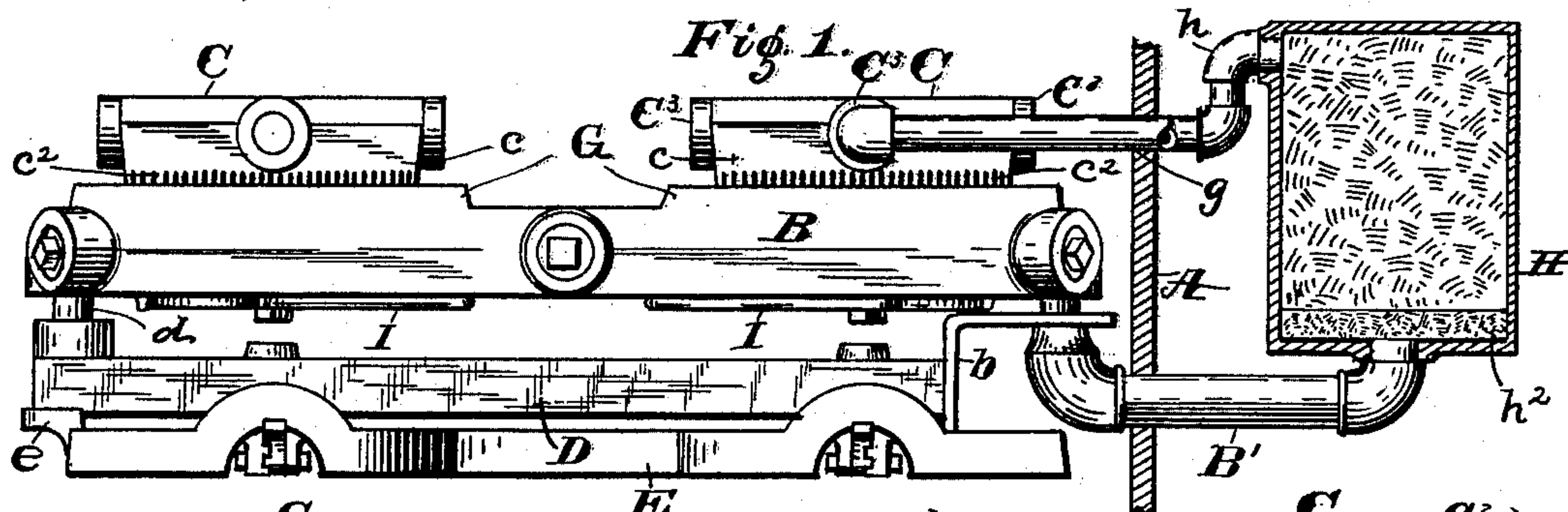
No. 609,838.

Patented Aug. 30, 1898.

L. T. SCHERER.
HYDROCARBON BURNER.

(Application filed Oct. 22, 1896.)

(No Model.)



Witnesses;
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UNITED STATES PATENT OFFICE.

LOEPHUS T. SCHERER, OF HALL, INDIANA, ASSIGNOR OF ONE-HALF TO
HOWARD C. JONES, OF SAME PLACE.

HYDROCARBON-BURNER.

SPECIFICATION forming part of Letters Patent No. 609,838, dated August 30, 1898.

Application filed October 22, 1896. Serial No. 609,700. (No model.)

To all whom it may concern:

Be it known that I, LOEPHUS T. SCHERER, a citizen of the United States, residing at Hall, in the county of Morgan, State of Indiana, have invented an Improvement in Hydrocarbon-Burners, of which the following is a specification.

This invention relates to improvements in mechanism for burning crude petroleum for fuel purposes, and has for its objects the construction of a burner in which the paraffin and other thick gummy products of the crude oil will be removed, so as to prevent the clogging up of the parts of the burner, and to provide a construction whereby the crude oil will be vaporized and thoroughly mixed with air, so as to be completely consumed and provide a hot fire without smoking.

I accomplish the objects of this invention by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a view in side elevation of my burner and showing the retort for removing the paraffin, &c., in vertical section. Fig. 2 is a view in vertical section of the burner, on a larger scale than that shown in Fig. 1, on the line 2 2 of Fig. 3, looking in the direction of the arrows. Fig. 3 is a plan view of the burner, having portions of one end broken away to show the underlying parts. Fig. 4 is a detail on the line 4 4 of Fig. 2.

Similar letters of reference indicate like parts throughout the several views of the drawings.

A represents a portion of the side wall of a stove of any usual construction.

B is the body portion of the burner and is a superheating-chamber for the oil-vapors, which are generated in the cap C, as will be more fully described. Communicating with the chamber B is the tube D, which has valve-closed openings for the discharge of the vapors, and underlying the tube D is the horizontal pan E. The pan E is provided at one end with the bracket e, which rests on the stove and supports that end of the burner, and the other end of the burner is sustained by means of the pipe B', which passes through the wall of the stove and is secured to the under side of the chamber B. The tube D

and pan E are both supported from the tube B' by means of the hanger b in the manner as clearly shown in Fig. 2.

The construction shown in the drawings is specially designed for cook-stove use and has two burners proper underlying the stove-lid holes. Approximately midway between the longitudinal center of the body B and each of its ends are the openings F, which extend through said body and are surrounded by the tubular walls, as shown, so as to shut off communication with the hollow interior of the body.

A flange G is formed on the upper surface of the body B in the shape of a square, approximately of the same width as the body and arranged around each of the openings F, and the surface of the body is made to slope upwardly from the flange toward the opening, as shown in Fig. 2. The cap C consists of a square metal casting which is hollowed out to form a chamber and which is provided with the under side marginal flange c. This flange is provided with the kerfs c².

The four openings C³ into the chamber in the cap are the core-seats, two of which will be closed on one of the caps and the other two on the same cap will be connected, one with the reservoir containing the crude oil to be used as fuel and the other with the vessel H for removing the paraffin and heavy ingredients of the oil that would clog the burner.

The reservoir containing the supply of crude oil is not shown in the drawings, as it may be of any usual and desired construction.

g is the pipe through which the supply from the tank is delivered to the cap, and h is the pipe from the cap to the vessel H.

The vessel H is placed outside of the stove and is provided with the bottom disk of porous earthenware h². The remaining upper space is filled with broken charcoal, lime, shavings, &c., to remove the gummy particles from the heated oil as it comes from the cap C. The oil passes from the vessel H through the pipe B' to the chamber inside of the body B, through said chamber to the end opposite the point of entrance, and thence

through the tubular outlet *d* into the tube D. The tube D has two outside openings, which are closed by means of the needle-valves D'. These openings are directly under the holes F through the body B, and when the valves are withdrawn the oil runs out and collects in the underlying pan E, where it is ignited and the oil in the tube D heated until it becomes vaporized and discharges as a gas through the valve-openings. The force of the discharge is sufficient to carry the gas up through the tubular openings F in the body B into the chamber under the cap C, and it carries in with it a sufficient quantity of air to insure complete combustion of the particles of carbon contained in the gas. The gas and air thus introduced into the chamber under the cap will escape through the slots *c*² and will be ignited on the outside. Once set in action the heat generated around the caps will heat up the oil contained in the hollow body B and thoroughly vaporize it, so that only gas will issue from the valve-openings and the oil will no longer discharge into the pans E.

To carry the heat down into the oil of the chamber B, I provide a series of lugs L, reaching from the upper to the lower plate and arranged with sufficient openings between them to allow the oil to circulate freely in every direction. These lugs are an important feature of my invention. They retain the heat, so as to counteract the cooling which would otherwise occur around the tube F and also serve to force a somewhat circuitous circulation of the oil, so that it is retarded and consequently exposed to the heat for a longer period and thereby more completely vaporized.

I are the levers pivotally secured to under side of the body B. They are provided with plates on their inner ends large enough to cover and close the opening through the body B. The levers are pivotally secured to the body so as to swing horizontally, the outer end forming a handle which projects out into convenient reach. By swinging the plate around the column of gas passing through to the caps can be partially or wholly shut off.

The construction of the needle-valves D' is clearly shown in Fig. 4, so that a detailed description is unnecessary. The needle on the end of the valve-stem effects the closure and also serves to keep the opening from becoming clogged up. The ordinary stuffing-box construction is employed to make a tight joint around the valve-stem and prevent the leakage of oil around the stem.

A lever M, pivoted to the under side of the pan and connected with the lower end of the valve-stem, controls the valve. The pan is arched at the intersection of the valve to en-

able the lever to work without projecting below the bottom of the pan.

Having thus fully described my invention, what I claim as new, and wish to secure by Letters Patent of the United States, is—

1. A hydrocarbon-burner comprising a retort, a burner resting on the retort and having a hollow chamber in its upper portion, a feed-pipe entering said chamber, means for conveying the oil from said chamber to the retort, and a burner-tube arranged below and communicating with the retort, said tube being provided with discharge-openings, and the burner being adapted to heat the retort and the hollow chamber in the top of the burner.

2. In a hydrocarbon-burner, the combination with the retort, of a cap or burner proper resting on the retort and provided with a hollow chamber in its upper portion, said burner being adapted to heat said hollow chamber and the retort, means for supplying fuel to said hollow chamber, means for conveying the fuel from the said chamber to the retort, and means for supplying vapor to the burner from the retort.

3. In a hydrocarbon-burner, the combination of a retort, a burner-cap resting thereon and having a hollow chamber in its upper portion, said burner being adapted to heat said hollow chamber and the retort, means for supplying fuel to said chamber, a filter, a pipe leading from the hollow chamber in the cap to the filter, a pipe leading from the filter to the retort, and means for supplying vapor to the burner-cap from the retort.

4. The combination with the retort having ribs on its upper side forming rectangles, having conical upper surfaces inclosed by said ribs, and provided with inclosed openings extending vertically from its bottom to the apexes of said conical surfaces, kerfed caps extending over said conical surfaces and surrounded by said ribs, said caps having hollow chambers in their upper portions, means for supplying fuel to said hollow chambers, means for conveying the fuel from the said chambers to the retort, and means for feeding the fuel from the retort and through the inclosed vertical openings therein to the kerfed caps.

5. The combination with the retort having vapor-tubes extending vertically there-through, of vertical lugs surrounding said tubes and connecting the top and bottom of the retort and caps resting on the retort over said tubes.

In testimony whereof I hereunto affix my signature in the presence of two witnesses.

LOEPHUS T. SCHERER.

Witnesses:

JOSEPH A. MINTURN,
HOWARD C. JONES.