

No. 724,248.

PATENTED MAR. 31, 1903.

C. K. BERGE.
HYDROCARBON BURNER.
APPLICATION FILED DEC. 23, 1901.

NO MODEL.

Fig. 1.

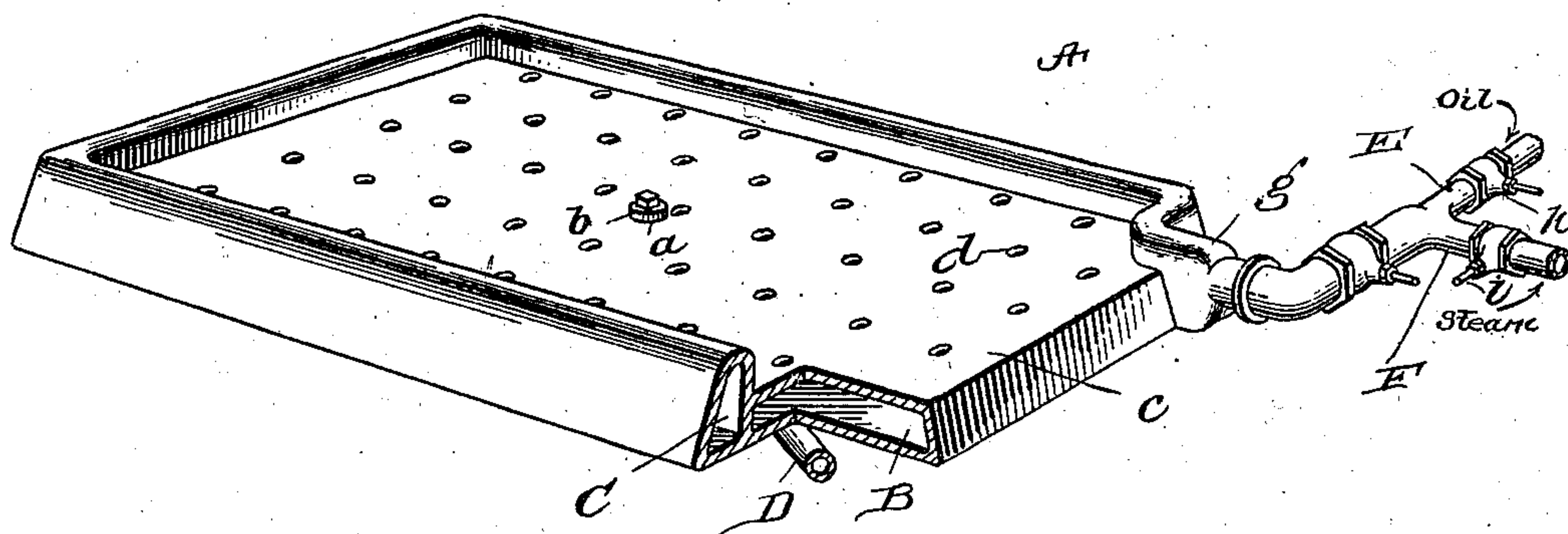


Fig. 2.

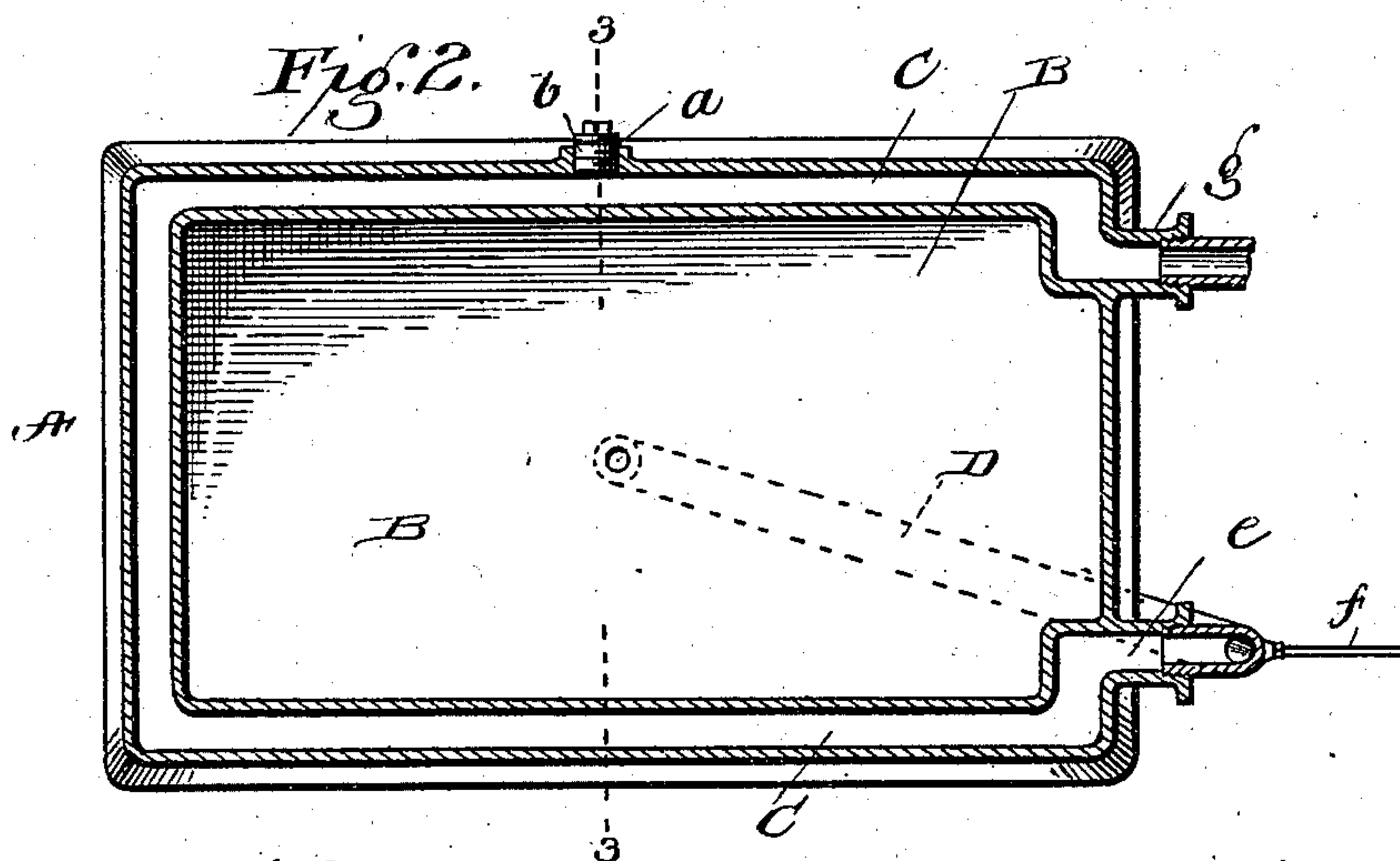


Fig. 3.

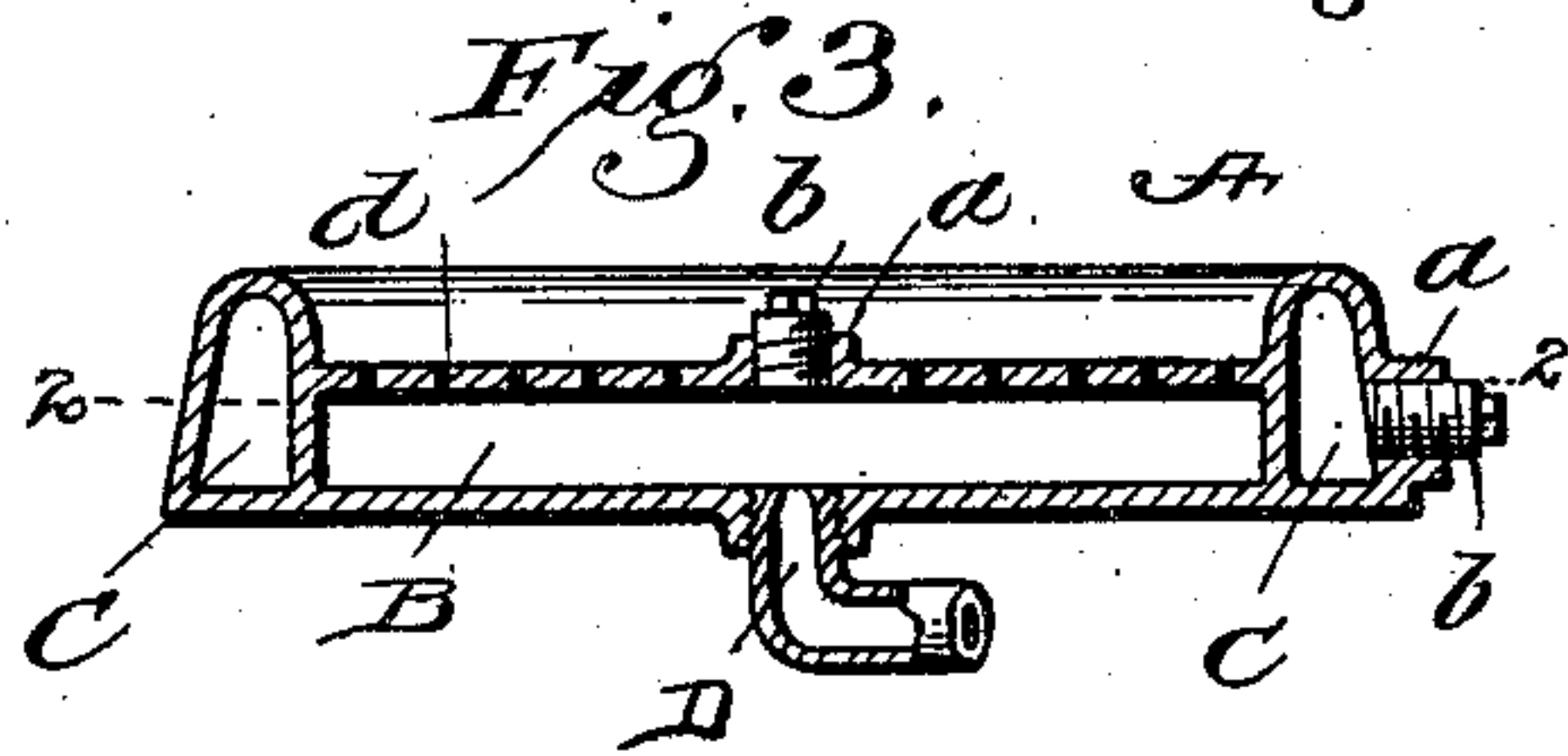


Fig. 4.

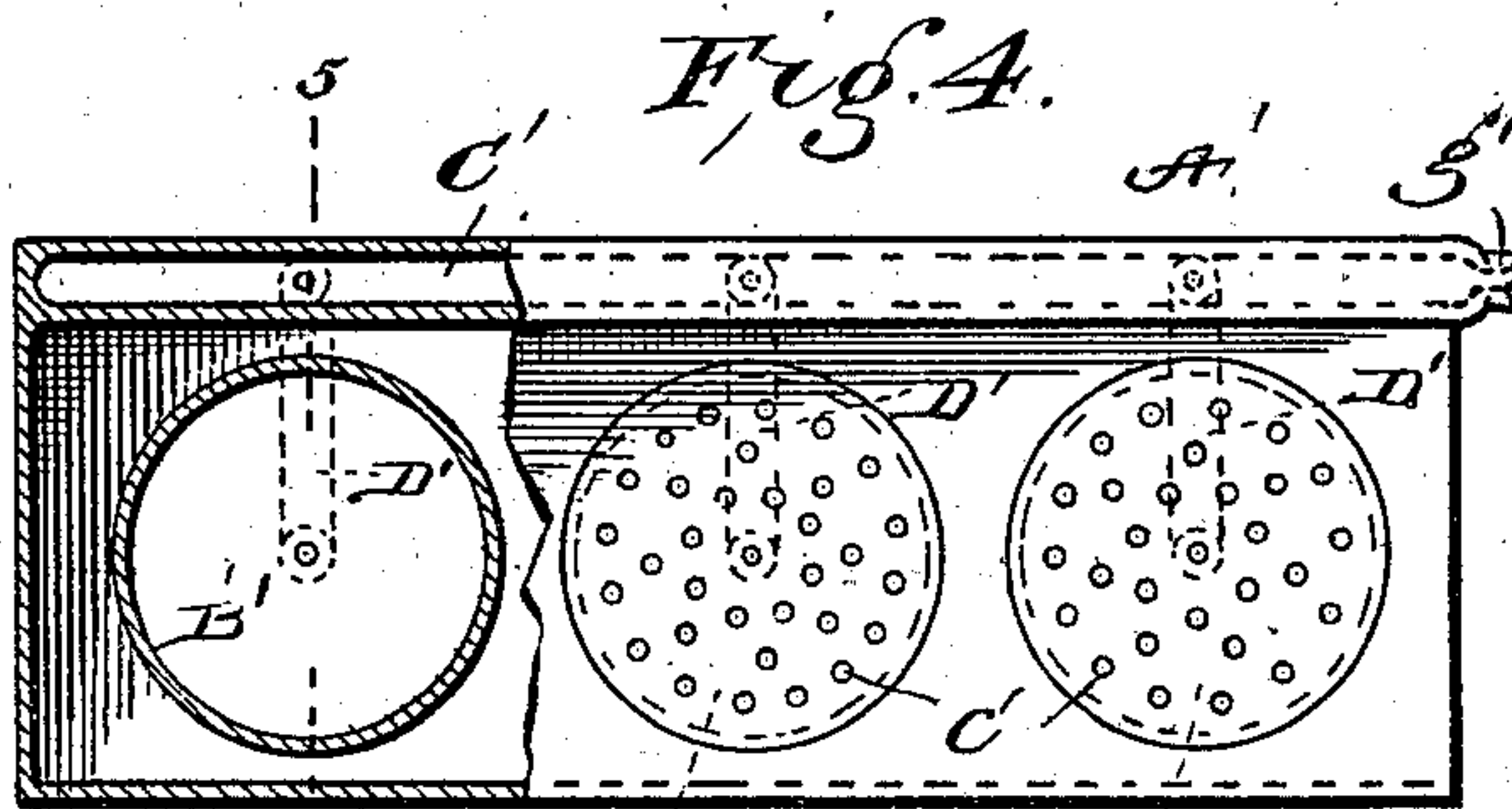
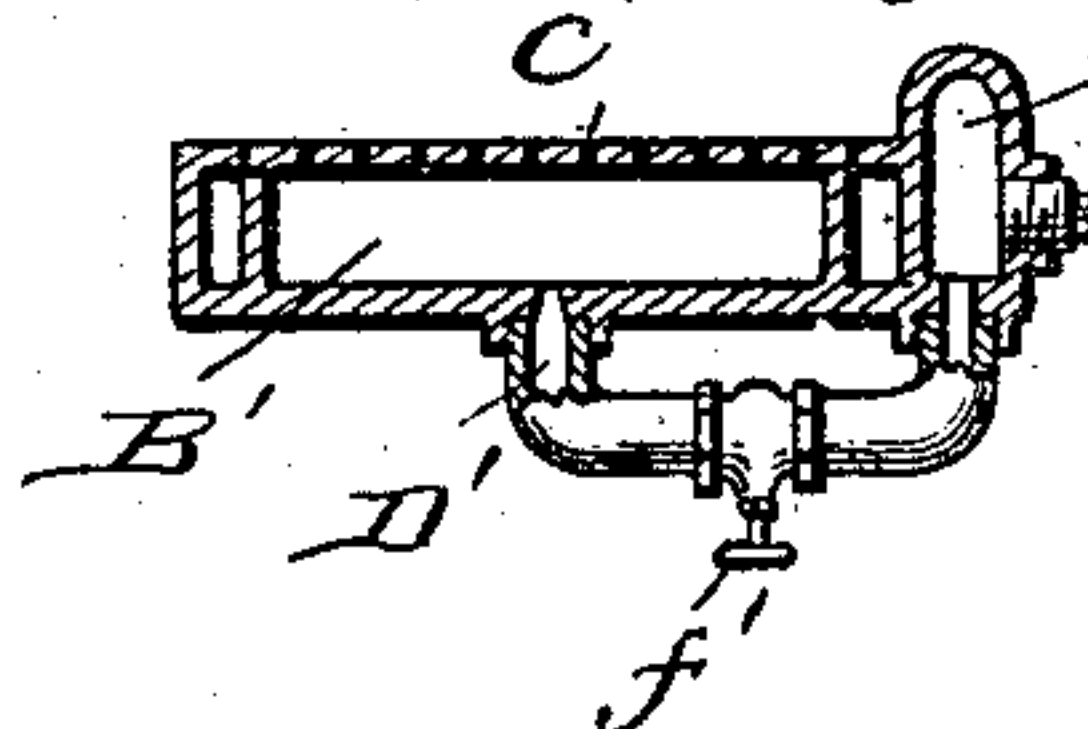


Fig. 5.



Witnesses

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HYDROCARBON-BURNER.

SPECIFICATION forming part of Letters Patent No. 724,248, dated March 31, 1903.

Application filed December 23, 1901. Serial No. 86,958. (No model.)

To all whom it may concern:

Be it known that I, CHARLES K. BERGÉ, a citizen of the United States, residing at Mobile, in the county of Mobile and State of Alabama, have invented certain new and useful Improvements in Hydrocarbon-Burners; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to hydrocarbon-burners, and has for its general object to provide a burner which while simple and compact in construction and requiring but a minimum amount of attention is calculated to convert crude oil into gas and by thoroughly consuming the latter produce a great degree of heat in proportion to the amount of oil used.

With the foregoing in mind the invention will be fully understood from the following description and claims when taken in conjunction with the annexed drawings, in which—

Figure 1 is a perspective illustrating my improved burner and the pipes connected therewith; Fig. 2, a horizontal section of the burner, taken in the plane indicated by the line 2 2 of Fig. 3; Fig. 3, a central transverse section taken in the plane of line 3 3 of Fig. 2; Fig. 4, a top plan view, with part broken away, of a modification; and Fig. 5 a transverse section taken in the plane indicated by the line 5 5 of Fig. 4.

Referring by letter to said drawings, and more particularly to Figs. 1 to 3 thereof, A is my improved burner, which may be of any shape and size, according to the use to which it is to be put or the place in which it is to be employed. The burner also may be made or produced in any approved manner without departing from the scope of my invention, although I prefer for the sake of cheapness and durability to cast it of iron or other metal suitable to the purpose. I also prefer when the burner is cast to provide apertures *a* in its top and side to permit of the removal of the cores used in the casting, these apertures being closed by screw-plugs *b* or other suitable means subsequent to the removal of the cores.

In the preferred embodiment of the invention the burner comprises a gas-receiving chamber B, the top wall *c* of which is forami-

nated, as indicated by *d*, a gas-generator C, which surrounds the chamber B in the plane thereof, as shown in Figs. 2 and 3, and also extends upwardly beyond the plane of the wall *c* of said chamber, as shown in the latter figure, and a conduit which extends from the projecting discharge end *e* of the generator to the center of the bottom of the chamber or reservoir B and is equipped with a needle or other suitable valve *f*. The other projecting end *g* of the generator is preferably of a length to extend through a wall of the furnace or other fire-box in which the burner is located and is connected to an oil-supply pipe E, equipped with a needle or other suitable valve *h* and connected in turn to a steam-supply pipe F, also equipped with a needle or other valve *i*. Crude oil may be fed through the pipe E to the generator C by gravity or by any other means. The valve *i* is opened and steam is admitted to the generator C and commingled with the gas when it is desired to operate the burner with a full supply of oil for a long-continued period, this with a view of lessening the liability of the burner being injured by the intense heat.

In the practical operation of the burner the valve *f* is closed, the valve *h* is opened to admit a sufficient quantity of oil to the generator C, and said generator is initially heated by a torch applied thereto or other suitable means. When the generator is heated sufficiently to convert the oil therein into gas, the valve *f* is opened to permit the gas to pass through the conduit D to the gas chamber or reservoir B, and such gas escaping through the apertures *d* in the top wall of said chamber or reservoir is ignited. With this done the intense heat produced by the combustion of the gas acts directly against the portion of the generator which projects beyond the wall *c* and quickly converts the oil in the generator into gas, which, passing through the conduit D, keeps the chamber or reservoir B fully charged at all times. The operation of the burner is thereafter continuous and it obviously requires but a minimum amount of attention.

In Figs. 4 and 5 of the drawings I have illustrated a modified form of burner A, adapted to be arranged against one side of the fire-box of a furnace and serve in con-

junction with a similar burner on the opposite wall of the fire-box. The said burner A', like the burner A, is preferably cast of iron, and it comprises three (more or less) gas reservoirs or chambers B', the foraminated walls c' of which are preferably formed by separate plates suitably connected to the body of the burner, a gas-generating passage C', exterior to the burner-body and the walls of said passage, extending upwardly above the foraminated plates c', so that the fluid in such passage can be heated by the combustion of the gas issuing from the perforation in the plate C', and conduits D', interposed between and connecting the generator C' and the chambers or reservoirs B' and having needle or other suitable valves f'. One end g' of the generator C' projects beyond the remainder of the burner in the same manner and for the same purpose as the end g of the generator C in burner A and is connected to an oil-supply pipe E, similar to that before described.

It will be seen on reference to the drawings that my improved burner comprises a generator and a body, said parts being directly united to each other, and that the body has a chamber in communication with the generator, so that the heat radiating from ignited gas issuing from the foraminated top or covering of the gas-chamber will be applied directly to said generator.

The operation of the burner A' is similar to that of the burner A, with the exception that the gas is carried from the generator to a plurality of chambers or reservoirs instead of a single chamber or reservoir.

When the burners are placed in the fire-box of a furnace or the like, the air entering through the draft-openings usually provided in said fire-boxes will obviously support the thorough combustion of the gas.

It will be appreciated from the foregoing that my improved burner, notwithstanding its efficiency, is simple, compact, and inexpensive in construction; also, that by reason of the pipes used in conjunction with the burner being adapted to be placed outside of the fire-box in which the burner is arranged there is no liability of said pipes being burned, and consequently the apparatus as a whole is exceptionally durable.

It will be seen that the connection D is directly united to the under side of chamber B, while the same relation follows with respect to the equivalent parts D' and B'.

I have entered into a detailed description of the construction and relative arrangement of the parts embraced in the present and preferred embodiments of my invention in order to impart a full, clear, and exact understanding of the same. I do not desire, however, to be understood as confining myself to such specific construction and arrangement of parts, as such changes or modifications may be made in practice as fairly fall within the scope of my claims.

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

1. A hydrocarbon-burner comprising a body having an interior chamber provided with a perforated top, and a generating-passage exterior thereto, the inner wall of said passage forming the wall of said chamber, and the walls of said passage extending upwardly above said perforated top, a connection extending from the said passage to the under side of said burner-body and open directly into said interior chamber, and means arranged to supply oil and steam to said passage.

2. A hydrocarbon-burner comprising a body having an interior chamber provided with a perforated top, and a generating-passage exterior thereto, the inner wall of said passage forming the wall of said chamber and the walls of said passage extending upwardly above said perforated top, and a connection extending from the said passage to the under side of said burner-body and opening directly into said interior chamber.

3. A hydrocarbon-burner comprising a substantially rectangular body having a flattened base portion and interiorly chambered, the interior chamber being provided with a perforated top, a generating-passage extending along the sides and end of the said body, the inner wall of said passage forming a wall of the chamber of said body, and the walls of said passage extending upwardly above the perforated top, and a connection extending from the said passage to the under side of said burner-body and opening directly into said interior chamber.

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

CHARLES K. BERGÉ.

Witnesses:

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