

(No Model.)

A. NOTEMAN.
HYDROCARBON BURNER.

No. 427,893.

Patented May 13, 1890.

Fig. 1.

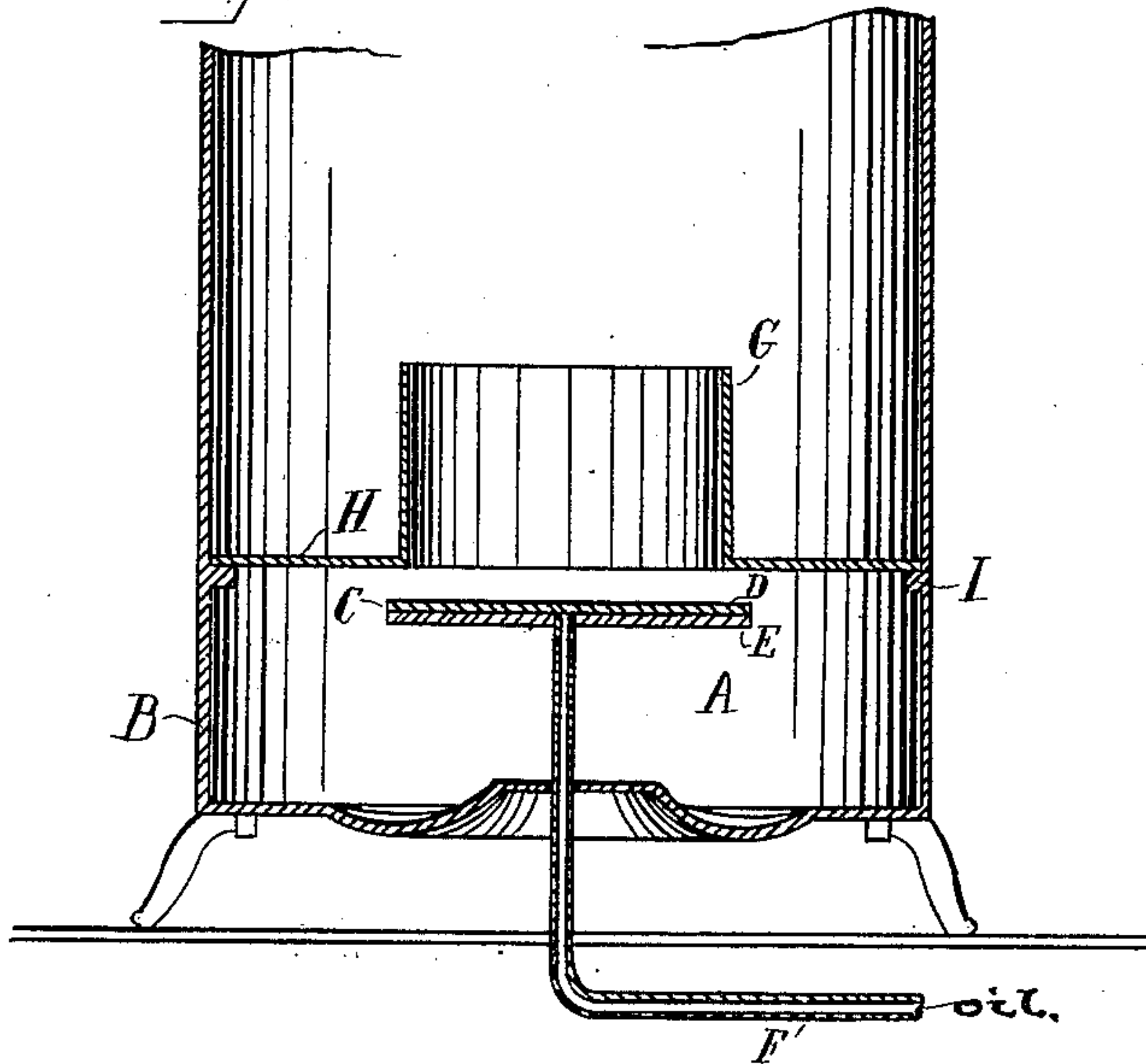


Fig. 2.

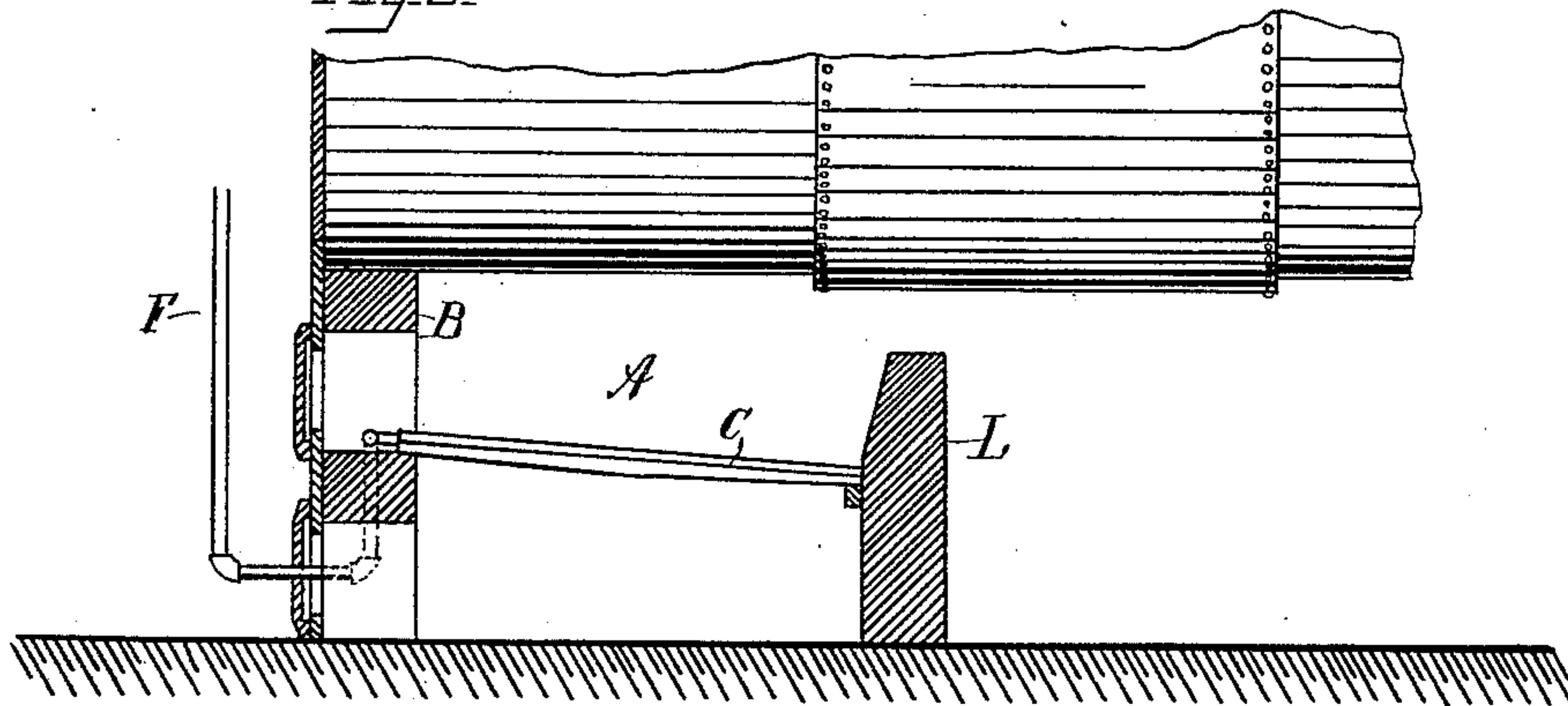


Fig. 3.

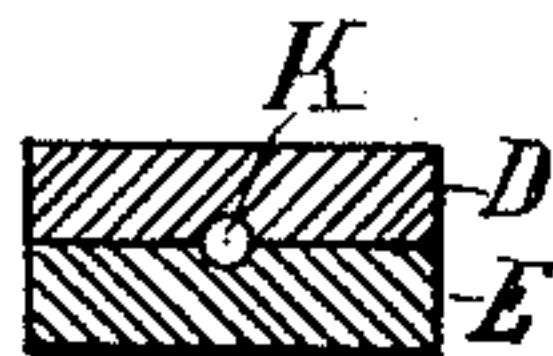
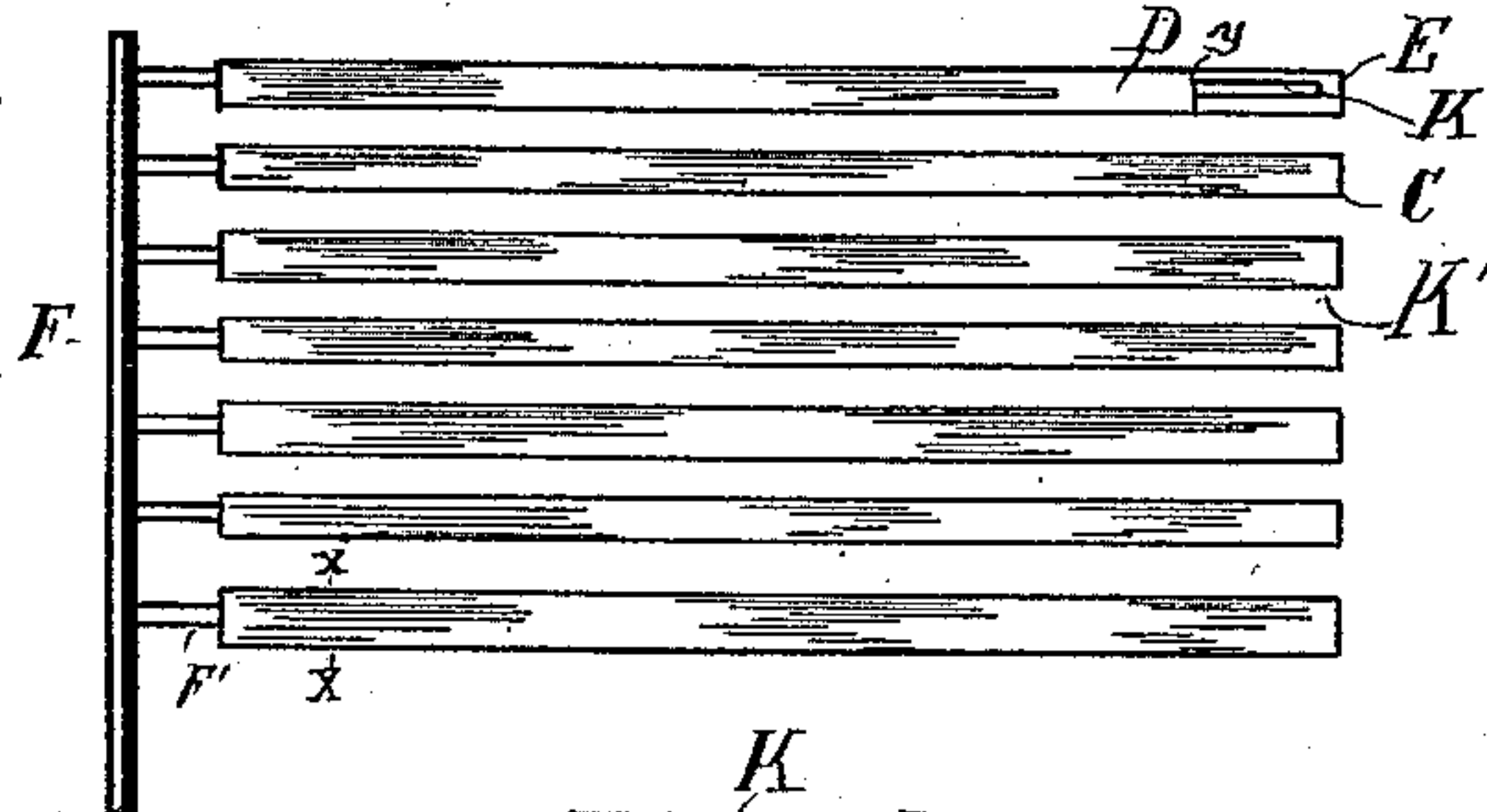


Fig. 4.

Witnesses:

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UNITED STATES PATENT OFFICE.

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HYDROCARBON-BURNER.

SPECIFICATION forming part of Letters Patent No. 427,893, dated May 13, 1890.

Application filed January 26, 1888. Serial No. 261,998. (No model.)

To all whom it may concern:

Be it known that I, ALONZO NOTEMAN, of Toledo, in the county of Lucas and State of Ohio, have invented certain new and useful Improvements in Hydrocarbon-Burners; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawing, and to the letters of reference marked thereon, which form part of this specification.

This invention relates to a novel apparatus for converting liquid fuel into vapor or gas and burning the same, consisting in its essential parts of parallel plates, the adjacent surfaces of which are placed close together, and a fluid-supply pipe or passage communicating with the space between the plates, said plates having an extended area of heating-surfaces, between which the fluid is confined in its passage between the plates, and by which the liquid is converted into vapor or gas before it issues from between the plates.

The invention may be employed under many circumstances where it is desired to convert liquid into vapor or gas and burn the same.

The invention is herein shown as applied to a liquid-fuel burner adapted for heating or cooking, and also as applied to the furnace of a steam-boiler.

The burner illustrated consists of metal plates, which are placed horizontally, or substantially so, and one upon the other, together with a supply-pipe which communicates with the space between the plates, whereby the oil delivered through said supply-pipe passes between the plates from the pipe toward the periphery of the plates, and is therein vaporized or converted into an inflammable gas, which issues from between the plates at the peripheries of the latter. The flame produced by the admission of the vapor or gas serves to heat the plates and maintain them at high temperature, the heating of the plates preferably being facilitated by means of suitable deflectors arranged to direct the flames over the surface of one of the plates.

In said drawings, Figure 1 is a vertical sectional view of an ordinary cylinder-stove with

the burner arranged therein. Fig. 2 is a side elevation of the combustion-chamber beneath the boiler, showing the burner constructed in the form of grate-bars. Fig. 3 is a plan view of the burner shown in Fig. 2, showing the connection of the oil-feeding pipe with the burners. Fig. 4 is a cross-sectional view, on an enlarged scale, of one of the duplex bars, taken upon line *x x* of Fig. 3.

A designates the combustion-chamber, having walls B.

C designates the burner, as shown in Fig. 1, consisting of an upper plate D and a lower plate E, said plates being of approximately the same surface area.

F designates the oil-supply pipe leading from the source of supply (not shown) to the upper surface of the lower plate E, whereby oil, being fed through the pipe F, is caused primarily to pass between plates D and E and finds an exit at the peripheries thereof, whereupon, the oil being ignited, the upper plate soon becomes heated, the heat is communicated to the lower plate, and thereafter the oil in its movement toward the periphery of the plates is vaporized or converted into gas and issues as such.

In order to concentrate the volume of air and deflect the same toward the upper surface of plate D, I have shown in Fig. 1 a cylinder G, open at each end and of somewhat less diameter than plates D and E and placed directly over said plates, the cylinder terminating at its base with a concentric flange H of an area corresponding to the size of the stove.

The cylinder is suspended within the stove by means of lugs I upon the inner side of the stove, and upon which the flange rests. When, however, the burner is to be used in the furnace of a boiler, the current of air being led from below the series of plates D and E, the inner walls of the combustion-chamber serve the purpose of the cylinder shown in Fig. 1.

In Figs. 3 and 4 are shown the sections D and E of burner C, formed with a circular opening K, Fig. 3 showing this construction by having a part of one of the sections broken away at *y* to also show the termination of the circular opening near the end of the section. This construction is desirable where a greater

degree of heat is desired than is necessary in an ordinary stove, as by this means the burner may be composed of a number of sections and a corresponding number of air-spaces K'. Oil is fed to each section by means of branch pipes F', leading from the oil-supply pipe F.

In Fig. 2 the burner C is shown as inclined slightly from the furnace-door to the bridge-wall L, which tends to cause the oil to gravitate toward the rear end of the burner while being vaporized.

In operation oil is admitted to pipe F and flows to and between plates D and E, (as many of said plates being used as is desirable,) and upon flowing to the edge of said plates is ignited, when the plates soon become sufficiently heated to generate the oil into gas. Air is admitted to the stove or furnace through the usual channel and unites with the gas in combustion. Where the burner is composed of sections, the air passes through the several spaces formed in sufficient number for this purpose, in which event the cylinder and flange shown in Fig. 1 may be omitted. This construction is equally well adapted for stoves, ranges, or other heating apparatus as for boiler-furnaces.

I claim as my invention—

1. A burner for converting liquid fuel into gas and burning the same, comprising two parallel plates, the adjacent surfaces of which are placed close together, and an oil-supply pipe communicating with the space between the plates, said plates being formed to provide a

narrow exit, slot, or opening at which the gas is burned, and having an extended area of heating-surface, between which the fuel is confined in passing from the supply-pipe to the said slot or opening.

2. A burner for converting liquid fuel into gas and burning the same, comprising two parallel plates, one of which rests upon the other, and an oil-supply pipe communicating with the space between the plates, substantially as described.

3. A burner for converting liquid fuel into gas and burning the same, comprising two parallel circular plates, one of which rests upon the other, and a supply-pipe communicating with the space between the plates at the center of the same, substantially as described.

4. A burner for converting liquid fuel into gas and burning the same, comprising two plates having their adjacent surfaces parallel and close to each other, an oil-pipe supplying oil to the space between said plates, and a burner-casing surrounding said plates and provided with a part or wall arranged adjacent to one of the plates and operating to deflect or maintain the flames against or in contact with said plate, substantially as described.

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

ALONZO NOTEMAN.

Witnesses:

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JAMES E. RAYMER.