

(No Model.)

C. H. PHELPS & E. A. EDWARDS.
HYDROCARBON BURNER.

No. 407,680.

Patented July 23, 1889.

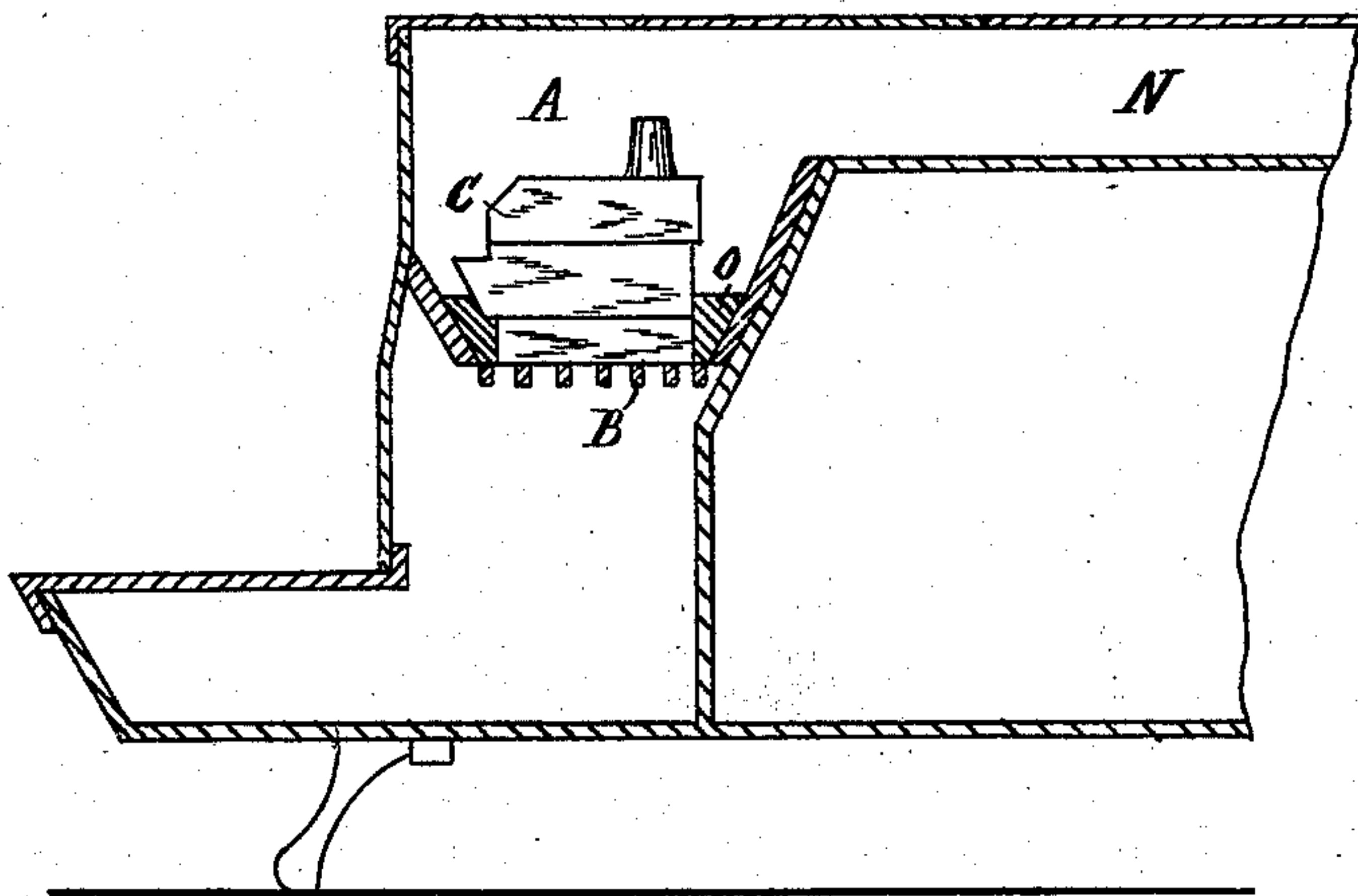


Fig. 1.

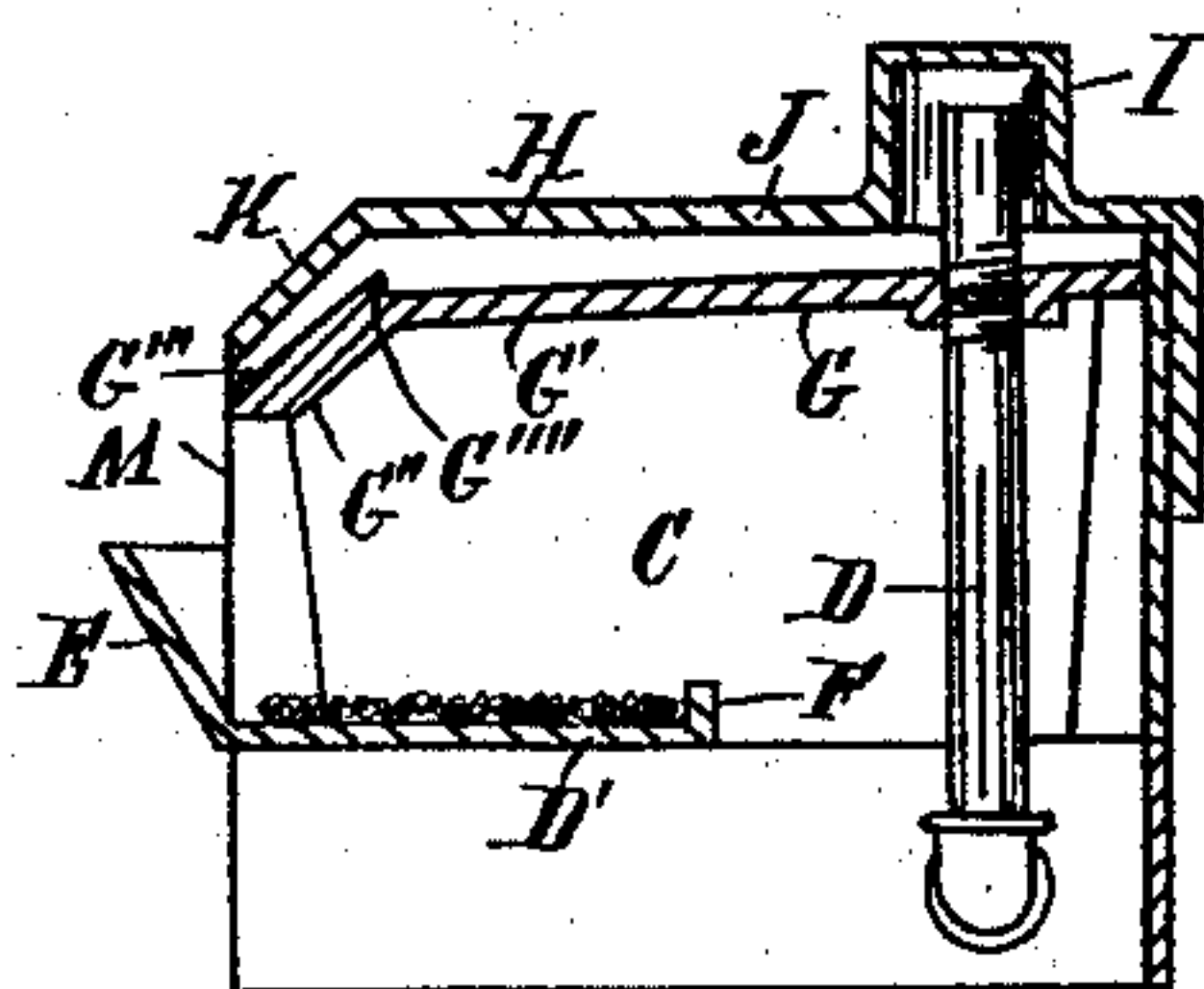


Fig. 2.

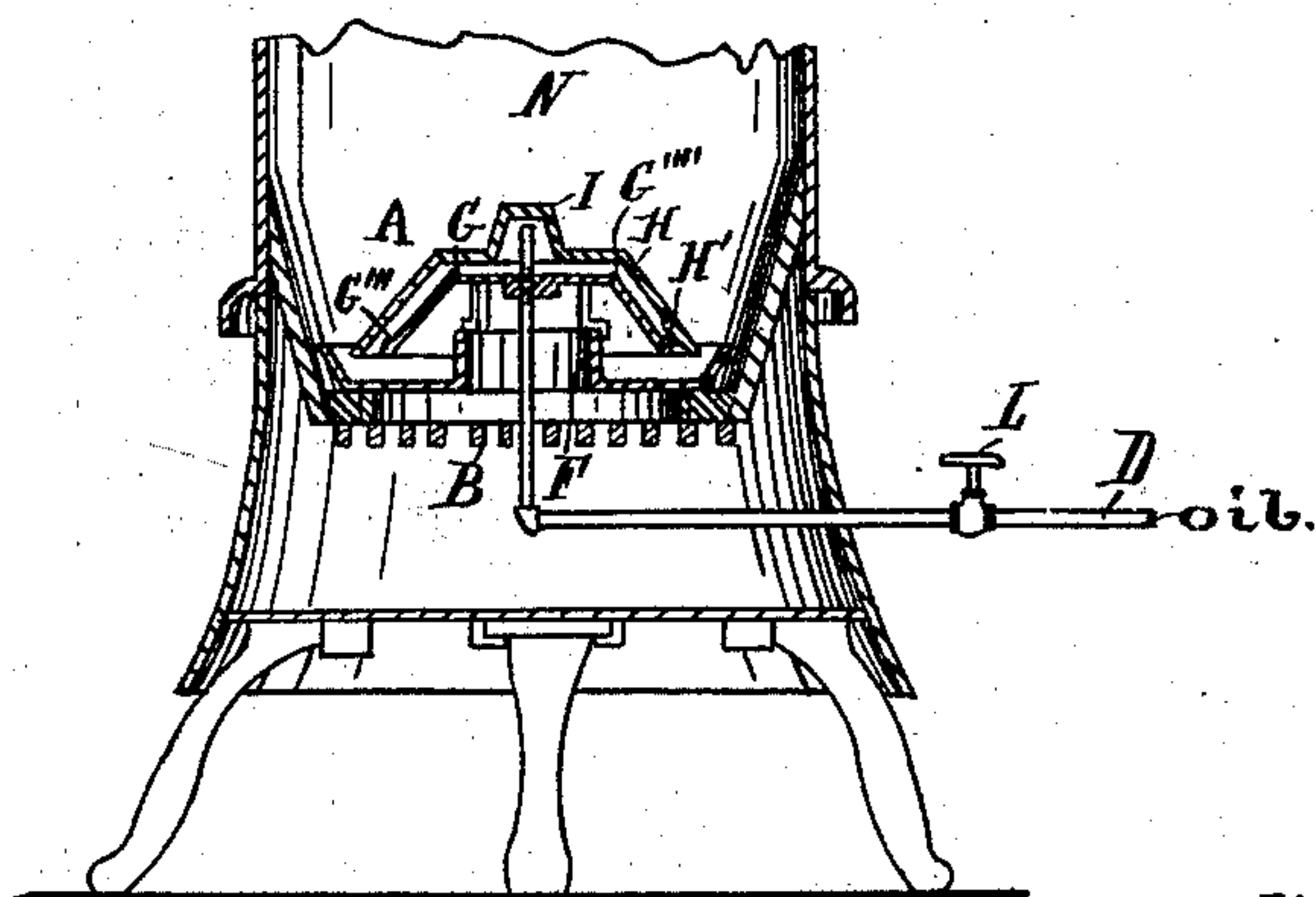


Fig. 3.

WITNESSES

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UNITED STATES PATENT OFFICE.

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HYDROCARBON-BURNER.

SPECIFICATION forming part of Letters Patent No. 407,680, dated July 23, 1889.

Application filed March 29, 1889. Serial No. 305,244. (No model.)

To all whom it may concern:

Be it known that we, CHARLES H. PHELPS, of Cleveland, in the county of Cuyahoga, and EVAN A. EDWARDS, of Toledo, in the county of Lucas, State of Ohio, have invented certain new and useful Improvements in Hydrocarbon-Burners; and we 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 drawings, and to the letters of reference marked thereon, which form part of this specification.

Our invention relates to hydrocarbon-burners for use in grates or stoves, and has for its object to construct a burner in which the liquid fuel shall be discharged from a stand-pipe into a dome or retort to be vaporized therein, and in which the vapor generated shall be caused to pass between heated plates and find an exit at the peripheries thereof, at which point atmospheric air, after being heated to a certain degree, is commingled with the vapor to support combustion.

A further object is to construct the burner of such parts as will be easy to cast and readily assembled without the need of skilled labor.

The invention consists in the parts and combination of parts hereinafter described, and pointed out in the claims.

In the drawings, Figure 1 is a sectional elevation of an ordinary cook-stove having a burner in proper position upon the grate, the side of the stove being removed to show the interior of the same. Fig. 2 is a longitudinal vertical section through the burner to disclose the interior arrangement thereof. Fig. 3 is a sectional elevation of a cylindrical stove with a cylindrical burner in position therein, this view being taken through the center of the stove and burner, respectively, the oil-supply pipe being shown in full lines.

A designates the combustion-chamber of the stove; B, the grate, upon which is placed the burner C, with which is connected the oil-pipe D. Burner C is formed of a lower bottom D', having an upwardly-inclined peripheral portion E, and being turned at right angles upon the inner edge, as at F.

G designates the lower burner-plate, formed with a horizontal portion G', through which pipe D passes. Said plate is inclined downwardly, as at G'', the lower edges of the inclined portion being formed with a ledge G''', extending along the entire periphery of the same, and may be formed with a corresponding ledge G'''' upon the horizontal portion of the plate, as shown in Fig. 2.

H designates the upper burner-plate, held in position a short distance above the lower plate in any preferred manner. As shown in Fig. 2, this plate rests upon the sides of the base portion, and in Fig. 3 the plate is held in proper position relative to the bottom plate by lugs H', formed upon the interior thereof and resting upon ledge G'''. Plate H is formed with an annular raised portion I, forming a retort, a horizontal portion J, which lies normally in parallel relation with plate G, and a downwardly-inclined portion K, lying in parallel relation with the inclined portion G'' of plate G. When the parts are in proper position, with pipe D extending through the lower burner-plate and into the annular retort I, cock L is turned, permitting the hydrocarbon fluid to flow onto plate G, and from thence to the bottom plate D, where it is ignited, (this plate being preferably supplied with an asbestos wicking, as shown in Fig. 2.) The heat, rising and heating plate G and the entire products of combustion, finally passing through opening M, formed between the upwardly-inclined portion E of plate D' and the downwardly-inclined portions of plates G and H, is drawn over the top of plate H as it passes through the flue N of the stove, thereby heating plates G and H, as well as retort I, and causing the oil as it flows into said retort to vaporize and be entirely consumed as it finds an exit between the inclined portions of said plates.

The ledge or ledges formed upon plate G retard the flow of oil momentarily, thereby causing the same to be thoroughly vaporized, the vapor as it issues from between the plates being met by a current of partially-heated atmospheric air drawn in through the opening formed by the inner upturned edges F of plate G and intermingles to support combustion of the vapor.

The burner can be used in any character of combustion-chamber of stoves or grates, as any intermediate spaces between the burner and sides of the combustion-chamber may be closed with fire-clay or any non-combustible material, as shown at O, Fig. 1.

What we claim is—

1. In a hydrocarbon-burner, a burner-plate formed with a downwardly-extending portion provided with a ledge, an upper plate sustained at some distance from the lower plate and formed with a corresponding downwardly-extending portion, and having a hood forming a chamber, in combination with an oil-supply pipe extending through the lower plate and into the hood formed in the upper plate, as and for the purpose set forth.

2. A hydrocarbon-burner comprising a base portion, a base-plate formed with an upwardly-inclined outer edge and an upturned inner edge, in combination with two parallel burner-plates having downwardly-inclined end portions and an oil-supply pipe in communication with the space between the burner-plates, as and for the purpose set forth.

In testimony that we claim the foregoing as our own we hereby affix our signatures in presence of witnesses.

CHARLES H. PHELPS.
EVAN A. EDWARDS.

Witnesses:

J. M. SHALLENBERGER,
H. S. SHERMAN,
WILLIAM WEBSTER.