

No. 632,881.

Patented Sept. 12, 1899.

C. RUTKOSKIE.

HYDROCARBON GAS GENERATING HEATER.

(Application filed June 19, 1899.)

(No Model.)

3 Sheets—Sheet 1.

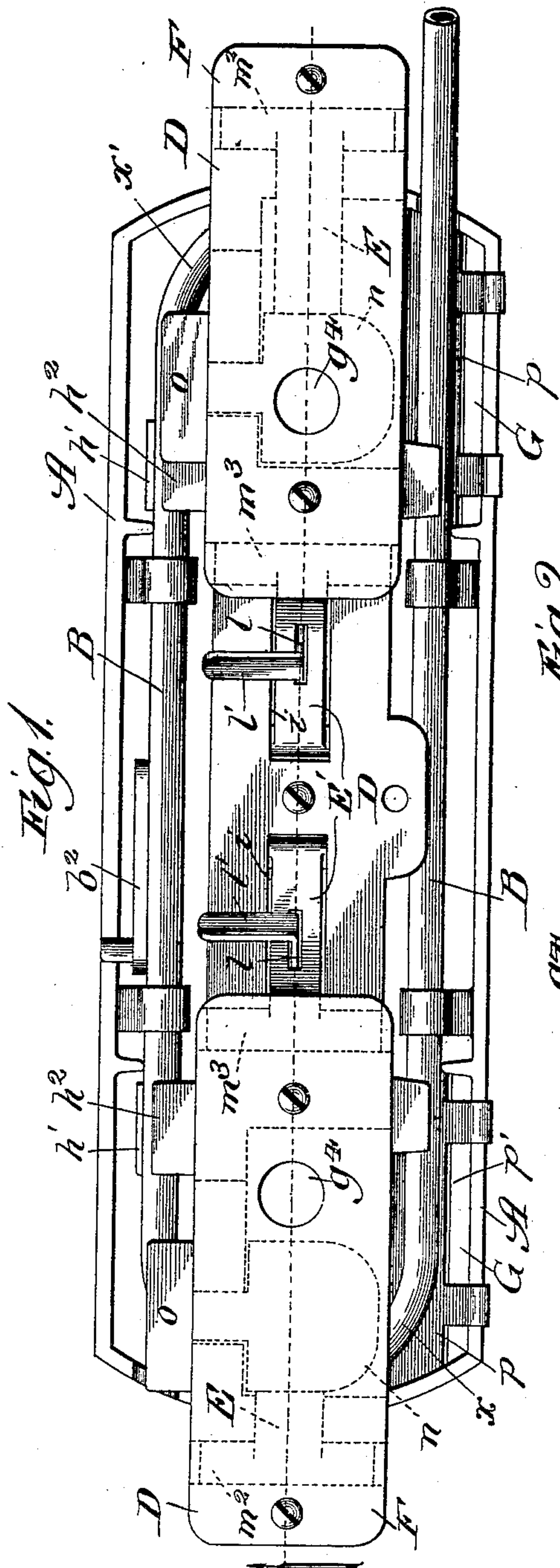


Fig. 1.

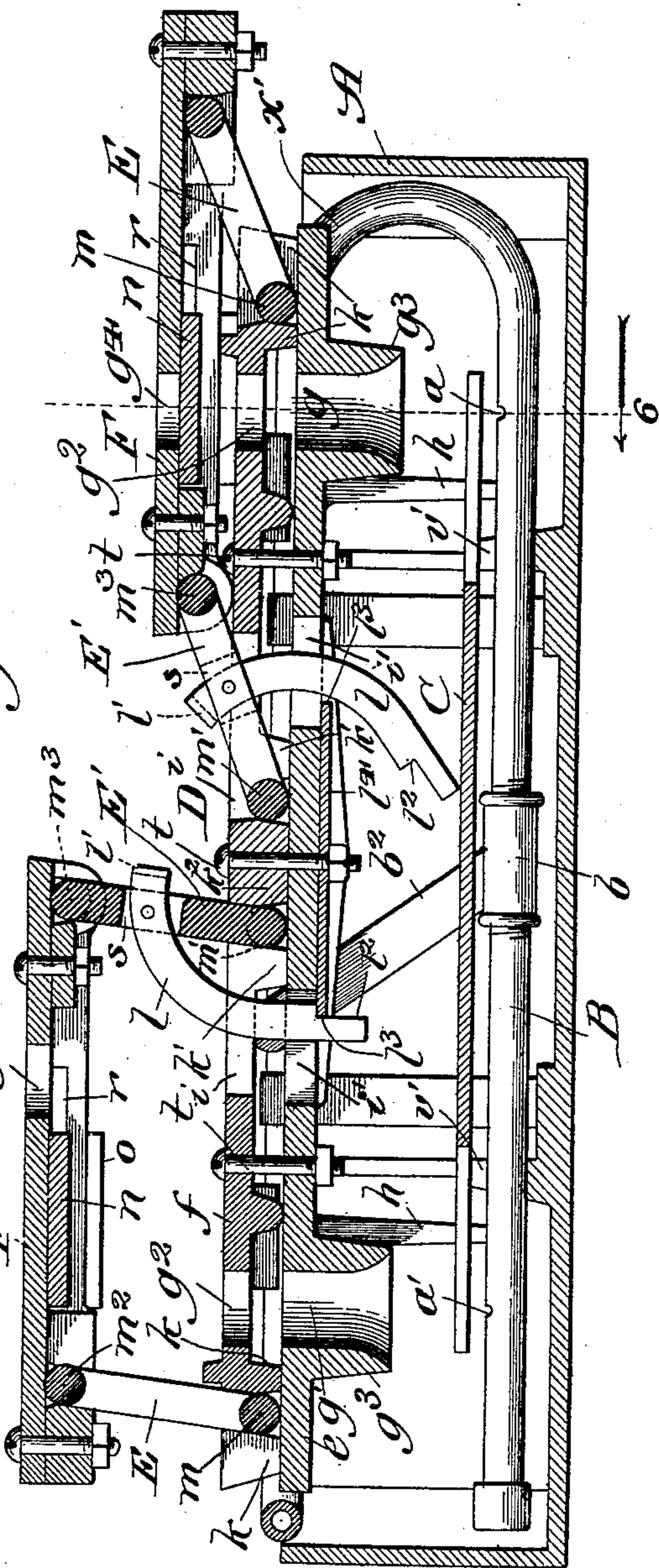


Fig. 2.

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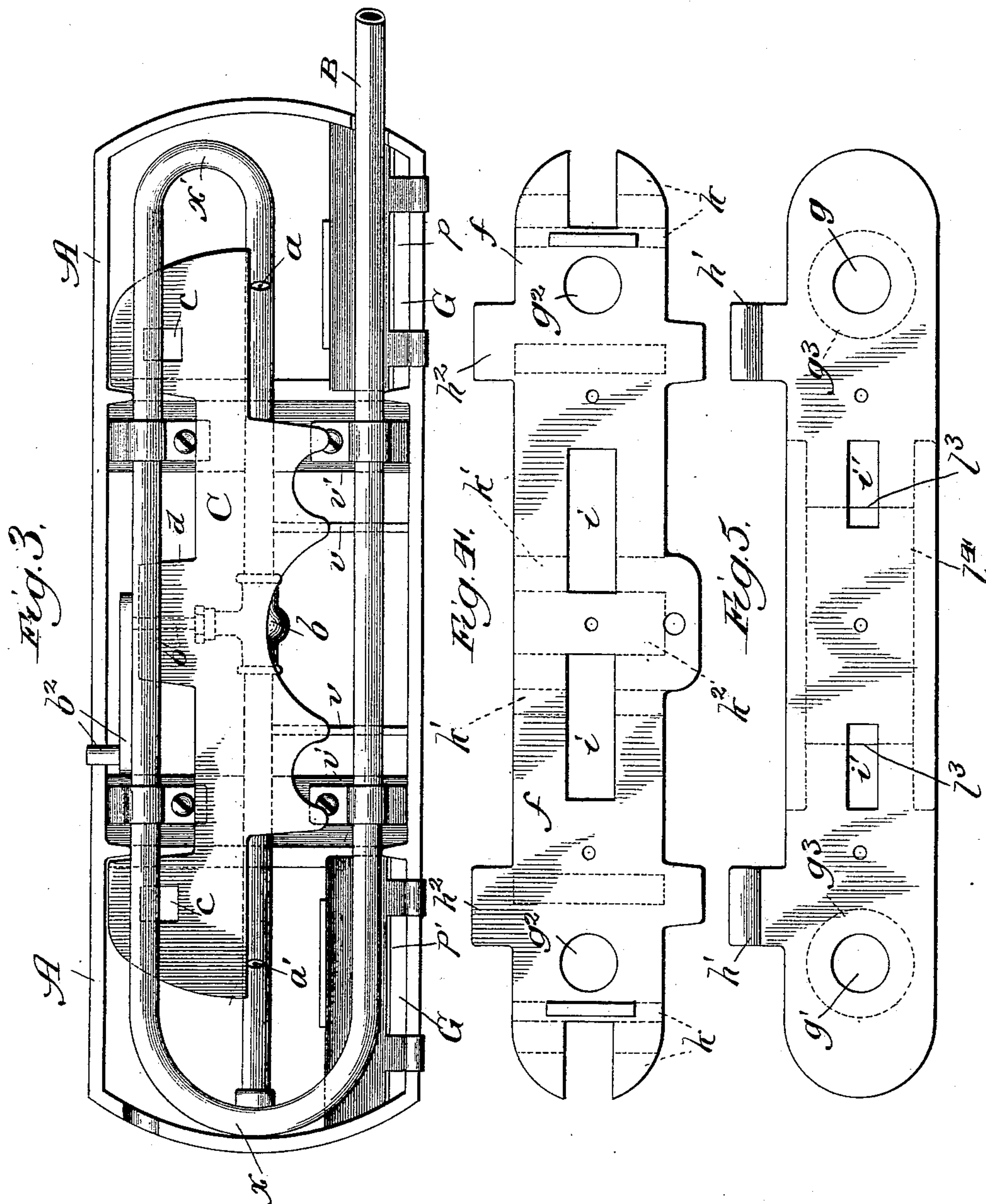
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3 Sheets—Sheet 2.



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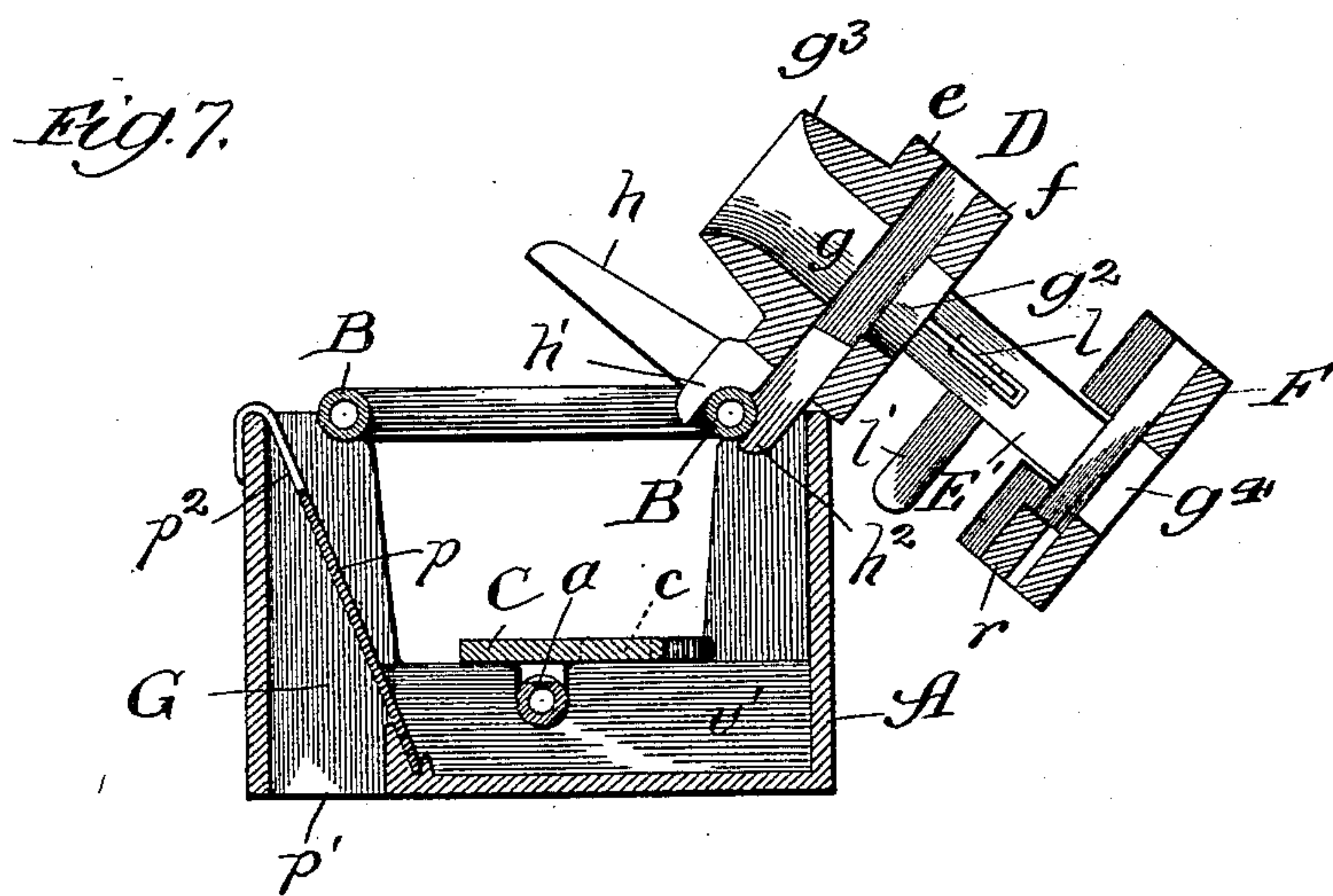
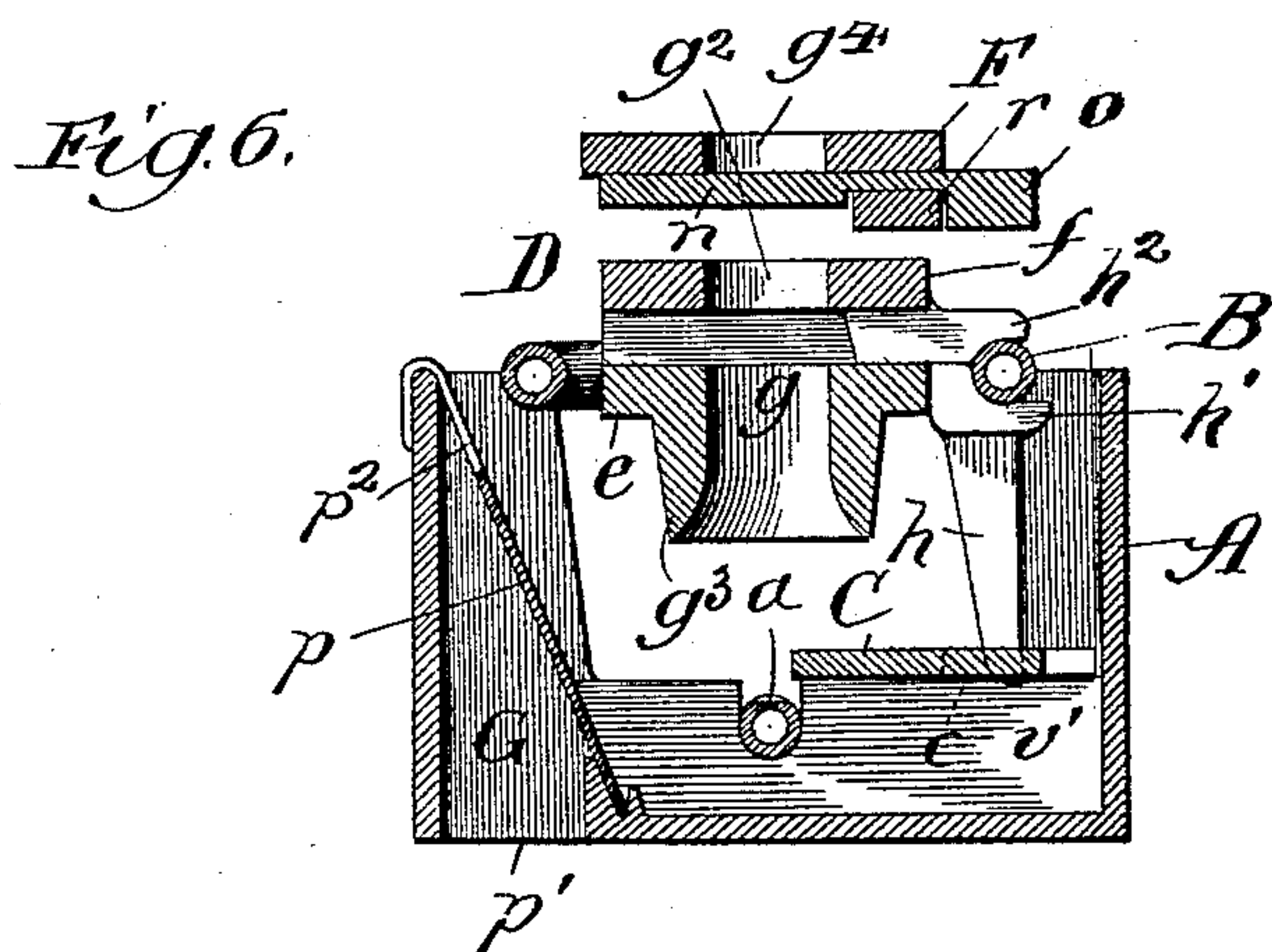
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3 Sheets—Sheet 3.



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UNITED STATES PATENT OFFICE.

CASIMIR RUTKOSKIE, OF ST. JOSEPH, MICHIGAN.

HYDROCARBON-GAS-GENERATING HEATER.

SPECIFICATION forming part of Letters Patent No. 632,881, dated September 12, 1899.

Application filed June 19, 1899. Serial No. 721,134. (No model.)

To all whom it may concern:

Be it known that I, CASIMIR RUTKOSKIE, a citizen of the United States, residing at St. Joseph, in the county of Berrien and State of Michigan, have invented a new and useful Improvement in Hydrocarbon-Gas-Generating Heaters, of which the following is a specification.

My invention relates to an improvement in the class of heaters which are designed to be used inside a stove to burn liquid hydrocarbon as the fuel by gasifying it with the heat generated from its combustion in the heater.

The object of my invention is to provide an improved construction of such a heater in matters of detail, particularly with a view to rendering its action more controllable than is possible in other heaters of the same class.

Referring to the accompanying drawings, Figure 1 is a plan view of my improved heater; Fig. 2, a section taken at the line 2 on Fig. 1 and viewed in the direction of the arrow, showing one of the adjustable flame-spreaders in its raised position over the burner-plate and the other flame-spreader in its normal lowered position; Fig. 3, a plan view of the heater with the burner-plate and parts carried by it removed; Fig. 4, a similar view of the top section of the burner-plate with the flame-spreaders removed; Fig. 5, a similar view of the bottom section of the burner-plate; and Figs. 6 and 7 are cross-sectional views of the heater, the former showing the adjustable burner-plate in its normal lowered position and the latter showing it in its raised position for starting the heater.

A denotes the shell of the heater, shown in its preferred oblong form with rounded ends.

B is the oil-pipe, extending from the supply-reservoir of hydrocarbon oil (not shown) along the top of the shell near one side and from one end thereof to the opposite end, where it is bowed across that end, as shown at x , to the opposite side, along which it extends to the first-named end of the shell, where it is bowed slantingly downward, as shown at x' , toward the longitudinal center of the base of the shell, along which it extends to and terminates below the bowed end x and is there closed. In the base-section of the pipe B, at suitable points on opposite sides of the transverse center of the shell, are provided the jet-

openings a and a' , midway between which is a shut-off valve (indicated at b) for the farther jet-opening a' , having on its rotary stem b' an operating-handle b^2 , extending upward in the shell into conveniently accessible position toward the side thereof which is the front side of the heater when in place in a stove or range.

C is an adjustable shield-plate loosely resting above the plane of the base-section of the oil-pipe on ledges $v v'$, cast in the shell and provided in its ends, at one side of its longitudinal center, with openings $c c$ to admit legs depending from the adjustable burner-plate, as and for the purpose hereinafter described, and between the ends of the shield-plate it has a lateral extension d for covering the valve device to protect it from the heat.

D is the burner-plate, shown as formed of a lower plate-section e and an upper plate-section f , rigidly fastened flatwise together, as by bolts t , and spaced apart by transverse ledges, shown to be provided at intervals on the bottom of the upper plate-section. In the lower plate-section e , near its ends, are the burner-openings g and g' in positions to coincide, respectively, with the jet-openings a and a' when the burner-plate D is in place, and from about these openings there depend the tubular bell-mouthed extensions $g^3 g^3$. Adjacent to each burner-opening there projects laterally forward on the plate-section e a tongue h' , from which depends rigidly a downwardly-tapering finger h to coincide with and engage an opening c in the shield-plate C, as hereinafter described. In the upper plate-section f are provided burner-openings g^2 , coincident with the burner-openings in the plate-section e , and elongated slots $i i$, at opposite sides of the transverse center, coinciding with similar but shorter slots i' in the lower plate-section. The tongues h' on the plate-section e form, with similar tongues h^2 , projecting from the upper plate-section, sockets at which the burner-plate D rests on the forward upper section of the oil-pipe B, forming thus the fulcrum for the burner-plate, on which it is adapted to be raised to the position represented in Fig. 7 and lowered to that represented in Fig. 6 as though hinged. The connection between the burner-plate and its support on the oil-pipe is, however, prefer-

ably separable, as shown, whereby the burner-plate and parts upon it may be entirely removed when desired—as, for instance, to use the shell A as a mere fire-pot for coal, wood, or other fuel.

Between the pairs of spacing-ledges k k at opposite ends of the upper plate-section f are pivotally confined the lower cross-heads m of I-shaped legs E, and between each spacing-ledge k' and the central spacing-ledge k^2 between them on the said plate-section is pivotally confined the lower cross-head m' of an I-shaped leg E', containing a slot s , in which is pivotally fastened an arc-shaped prop l , provided with a laterally-projecting handle l' on its upper end and with an offset l^2 in its lower end to engage a shelf or stop l^3 , formed by the edge of a strip l^4 , fastened to the under side of the plate-section e to project beyond the inner edge of a slot i' therein, through which and the coincident slot i in the upper plate-section f the prop is adapted to protrude at its lower end.

The upper cross-heads m^2 m^3 on each pair of the legs E E' are pivotally connected with the base of and thus carry a flame deflecting or spreading plate F, containing a burner-opening g^4 to coincide with the opening g^2 in the burner-plate when the spreader-plate is in its normal lowered position. (Shown of that at the right-hand side in Fig. 2.) A slide-valve n , supported in a guide r on the under side of each spreader-plate F, is adapted to be moved back and forth to open and close the opening g^4 to the respective burner-openings g^2 g through the medium of a flange o , forming a handle and covering at the front side of the heater the space between the top of the upper plate-section f and bottom of the spreader-plate F when lowered, so as to prevent in that condition of the spreader-plate and with the valve n closing the opening g^4 the flame from shooting out at the front of the heater and directing it through the space between the upper plate-section and spreader-plate at the back of the heater across the upper discharge ends of the air-chambers G G, and thus against the baking portion of the stove to heat the same. These air-chambers, one of which is provided near each end of the shell, lead from air-inlet openings p' p' in its base and are formed with the inner side of the shell and sheet-metal caps p fastened against that side in inclined position to afford the upwardly-tapering shape illustrated of the air-chambers open, as indicated at p^2 , along their upper ends, Figs. 6 and 7.

To start the heater, the burner-plate D is first turned back to the position in which it is represented in Fig. 7, thereby causing the fingers h in describing the arc incidental to turning the burner-plate on its fulcrum and in clearing the openings c in the shield-plate C to shove the latter backward till it covers the jet-openings a a' . Then the oil-supply is turned on through the pipe B, and instead of spurting up out of the jet-openings a a' , as it

would do were they not covered by the shield-plate, it is checked by the latter to distribute the flow over the bottom of the shell till a sufficient quantity for kindling has been admitted therein, when the oil is ignited to heat the pipe B and vaporize the oil within it to produce a flame at each jet-opening, at the appearance of which the burner-plate D may be turned back to its normal position, (represented in Fig. 6,) thereby reengaging the fingers h with the openings c to shift the shield-plate forward on its supports and uncover the jet-openings. At any time during the operation of the heater the jet-opening a' may be shut off by properly turning the valve b , thereby economizing in consumption of fuel when only one burner is required.

With the spreader-plates F down in the position illustrated of that at the right-hand side in Fig. 2 and the openings g^4 closed by the valves n and the flanges o covering the front of the spaces between the plates F and f the flame shoots out backward against and quickly heats the baking portion or rear part of the stove equipped with the heater and across the outlets p^2 of the air-chambers, whereby the flame is forcibly mixed with the air, and combustion is accordingly enhanced. As will be understood, in the lowered position of a spreader-plate F, with the opening g^4 uncovered by the valve n , the flame emerges through said opening. The spreader-plates, or either of them, may be raised on their supporting-legs, as by the handles l' , and sustained by the props l engaging the stops l^2 in the raised position, from which the spreader-plates may be conveniently lowered, dropping mainly by gravity on disengaging the props from their stops. By raising the spreader-plates the flame is spread and brought closer to the stove-holes to adapt it better for broiling and the like, and they also prevent the flame from flaring through the stove-opening when, for example, a spider is raised and from diffusing the odor of burning oil through the room.

The construction shown and described is preferred in all its details, being the best for my purpose, so far as I am now aware. The details may, however, be variously changed and differently combined by those skilled in the art without departure from my invention. Hence I do not intend that my invention shall be regarded as limited thereto.

Obviously though the more important parts coöperating with the shell are shown and described in duplicate they may be single.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a heater of the character described, the combination with the shell, of an oil-pipe having a jet, a burner-plate removable and adjustable on said shell and provided with a burner-opening to coincide with said jet, a shield-plate adjustably supported above the plane of said jet and a connection between said shield-plate and burner-plate for actu-

ating the shield-plate to cover and uncover the jet by adjusting the burner-plate, substantially as described.

2. In a heater of the character described, 5 the combination with the shell, of an oil-pipe having a jet, a burner-plate hinged at one side of said shell to be raised and lowered on its support and provided with a burner-opening to coincide with said jet, a finger projecting 10 from the base of said burner-plate, and a shield-plate adjustably supported above the plane of said jet and engaged by said finger in raising and lowering the burner-plate to shift it to cover and uncover said jet, substantially as described. 15

3. In a heater of the character described, the combination with the shell, of an oil-pipe having jets in its section extending along the 20 base of the shell, a shut-off valve between said jets provided with an operating-handle, a burner-plate hinged at one side of said shell to be raised and lowered on its support and provided with burner-openings to coincide with said jets, a shield-plate adjustably supported 25 above the plane of said pipe-section, and a connection between said shield-plate and burner-plate for actuating the shield-plate to cover and uncover said jets and valve by moving the burner-plate on its hinge, substantially as described. 30

4. In a heater of the character described, the combination with the shell, of an oil-pipe having a jet in its base-section, and a burner-plate provided with a burner-opening to coincide 35 with said jet and hinged at the front side of the shell to be raised and lowered on its support, substantially as described.

5. In a heater of the character described, the combination with the shell, of an oil-pipe 40 having a jet, a burner-plate provided with a burner-opening to coincide with said jet, and a spreader-plate having a burner-opening and pivotally supported on said burner-plate to be raised and lowered thereon, substantially as 45 described.

6. In a heater of the character described, the combination with the shell, of an oil-pipe having a jet, a burner-plate provided with a burner-opening to coincide with said jet, a 50 spreader-plate having a burner-opening and pivotal leg connections toward its opposite

ends with said burner-plate to adapt it to be raised and lowered thereon, and propping means for the spreader-plate in its raised position, substantially as described. 55

7. In a heater of the character described, the combination with the shell, of an oil-pipe having a jet, an air-chamber at the rear side of the shell, a burner-plate provided with a burner-opening to coincide with said jet, a 60 spreader-plate pivotally supported on said burner-plate to form an intervening space between them in the lowered position of the spreader-plate, and a flange for covering the front side of said space to direct the flame 65 through the opposite side thereof across the current of air from said air-chamber, substantially as described.

8. In a heater of the character described, the combination with the shell, of an oil-pipe 70 having a jet, an air-chamber at the rear side of the shell, a burner-plate provided with a burner-opening to coincide with said jet, a spreader-plate having a burner-opening and supported on said burner-plate to form an intervening space between them, and a slide- 75 valve in said space for said spreader-plate opening and provided with a flange for covering the front side of said space to direct the flame through the opposite side thereof across 80 the current of air from said air-chamber, substantially as described.

9. A heater comprising, in combination, a shell A, an oil-pipe B having jets *a a'* in its base-section, a shield-plate supported over 85 said base-section, air-chambers G in the shell, a burner-plate D provided with burner-openings to coincide with said jets, spreader-plates F provided with burner-openings, and slide- 90 valves supported underneath said spreader-plates for the openings therein and provided with flanges for covering the front sides of the spaces between the spreader-plates and burner-plate to direct the flame through the opposite sides of said spaces across the air- 95 currents from said chambers, substantially as described.

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In presence of—

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