

(No Model.)

2 Sheets—Sheet 1.

J. O. BEAZLEY.  
HYDROCARBON BURNER.

No. 504,297.

Patented Aug. 29, 1893.

Fig. 1.

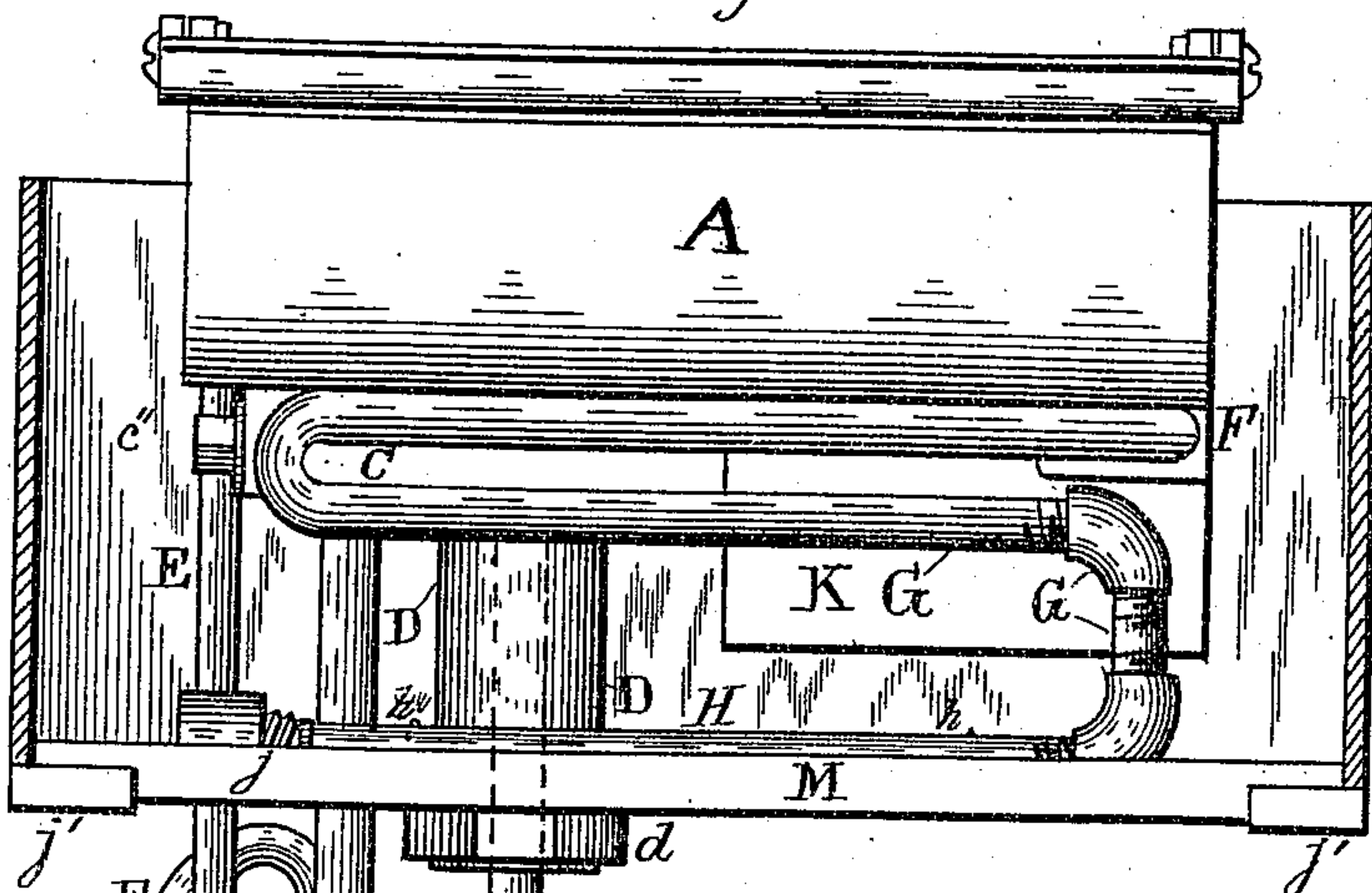
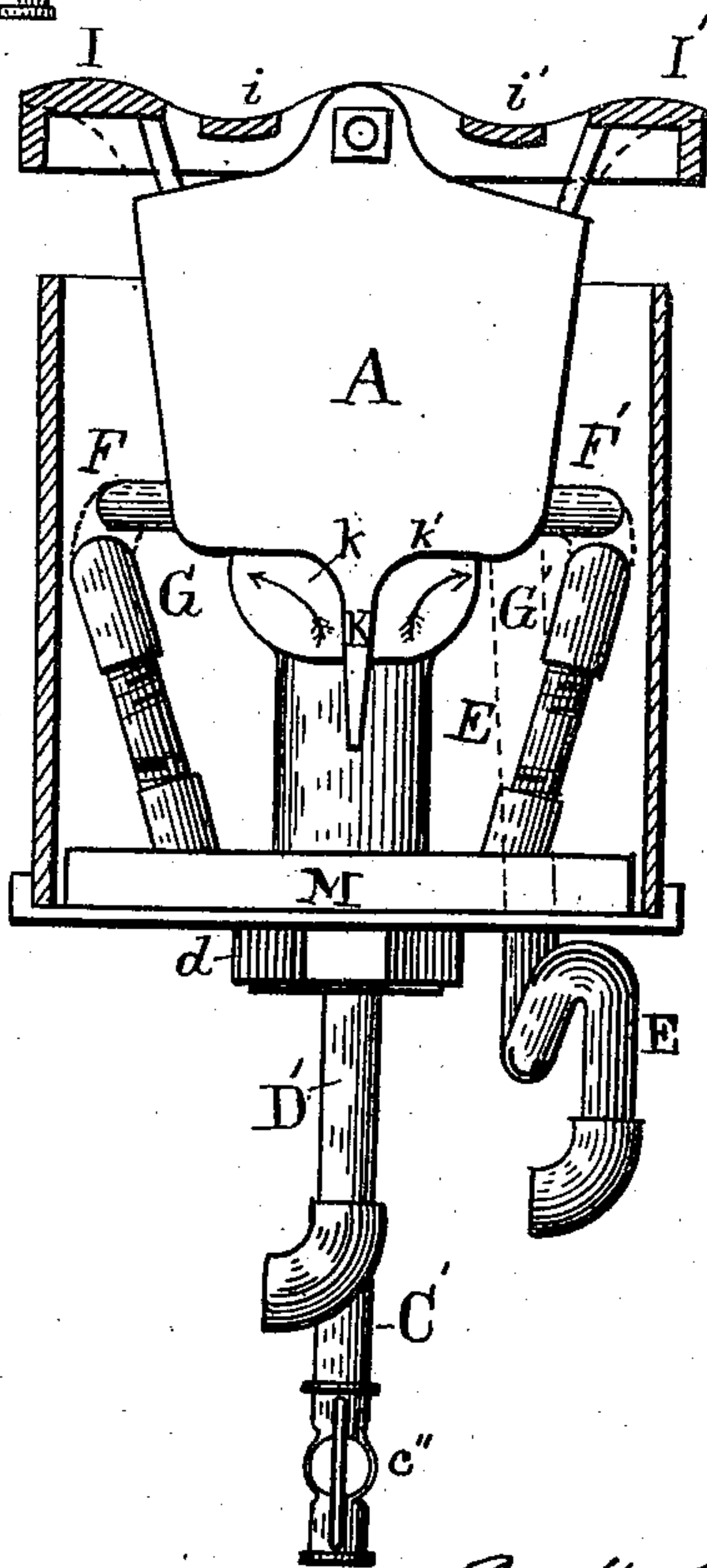


Fig. 2.



WITNESSES

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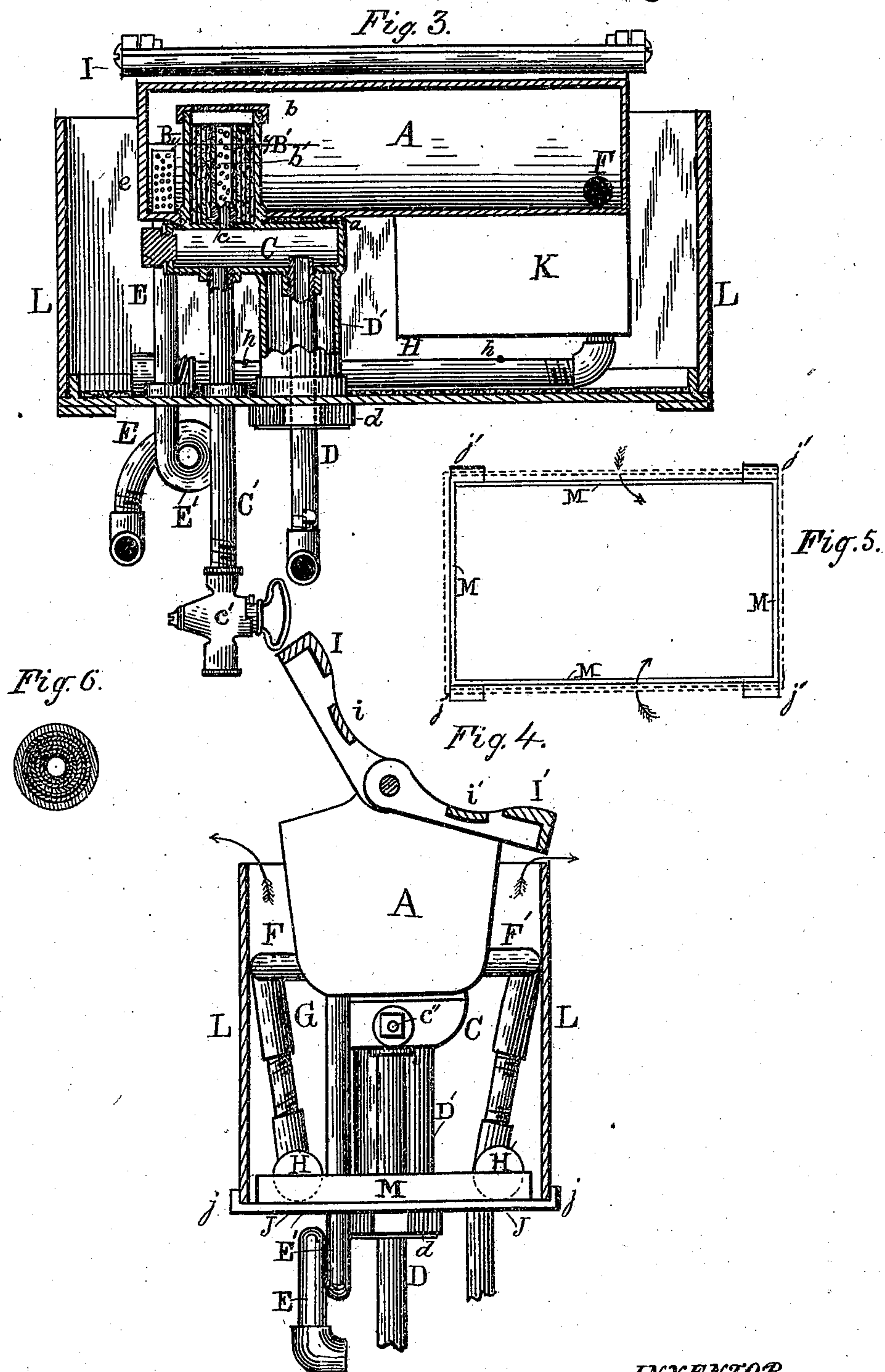
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WITNESSES  
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# UNITED STATES PATENT OFFICE.

JOSEPH O. BEAZLEY, OF BALTIMORE, MARYLAND, ASSIGNOR TO THE  
STANDARD HEATER COMPANY, OF WEST VIRGINIA.

## HYDROCARBON-BURNER.

SPECIFICATION forming part of Letters Patent No. 504,297, dated August 29, 1893.

Application filed April 19, 1893. Serial No. 470,969. (No model.)

*To all whom it may concern:*

Be it known that I, JOSEPH O. BEAZLEY, a citizen of the United States, residing at Baltimore, in the State of Maryland, 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.

This invention relates to improvements in hydro-carbon burners which will be hereinafter more fully described and pointed out.

In the accompanying drawings forming part of this specification Figure 1 is a side elevation of the burner, the front of the jacket being removed. Fig. 2 is an end elevation having the end of the jacket removed. Fig. 3 is a longitudinal vertical section through the middle of the apparatus. Fig. 4 is a transverse vertical section of the same. Fig. 5 is a plan view, on a reduced scale, of the drip pan, having the other parts removed, showing in broken lines the position of the lower edges of the jacket. Fig. 6 is a horizontal section on line *y, y* of the asbestos chamber within the mixing chamber.

A is the mixing chamber.

B is an interior chamber, which is screwed to the bottom of the mixing chamber A, and in it is a perforated pipe B' which is surrounded by a coiled sheet of asbestos cloth *b'*. The cap *b* of the chamber B has in it a few perforations to permit the steam to pass into the mixing chamber A.

Underneath the chamber A is a steam chest C.

The perforated pipe B' is surrounded by the coil of asbestos cloth and rests on the top of the steam chest C.

C' is an outlet pipe, having a check valve *c'*, for discharging the water from the chest C, for cleansing it.

D is the water supply pipe, which is connected with any tank or other means for supplying water or steam. The water from the pipe D rests upon the bottom of chest C and whatever sediment may be therein, is deposited upon the bottom, while steam is being

generated; and by means of the outlet pipe C' and valve *c'* the sediment can be discharged.

Around the water pipe D, underneath and connected to the chest C, is a sleeve D', which is cast solid with the chest, having its lower end threaded and a nut *d* fitted to it so that when the apparatus is put together the nut secures the drip pan J to the chest C and the mixing chamber A.

E is the oil supply pipe connected with an oil tank, not shown, having a coil E' beneath the drip pan J to make the supply of oil more regular in case of back pressure. The upper end *e* of oil pipe E within the mixing chamber A, is perforated to cause the oil to be sprayed into the chamber.

F and F' are the pipes for conveying the mixed material or gas down to the burners in the drip pan J. There is one on each side of the chamber A, near the bottom, as shown in Figs. 2 and 4, and opening into the horizontal pipes H, H' by the descending pipes G, G'. The main pipes F, F' are returned underneath, for the purpose of continuing the gas longer under the action of the heat, and more coils can be used if necessary.

In the horizontal pipes H, H', provided with any number of jets in the drip pan J, are burners *h, h'*.

J is the drip pan.

I, I' are the deflectors, one on each side on the top of the mixing chamber A, which are hinged at each end, and when in use are adjusted to deflect or spread the flame when required, as seen in Fig. 2.

K is a diaphragm cast with the chamber A, having the re-entering angles *k, k'* curved for the purpose of deflecting the flame outwardly in the direction of the arrows.

L is the jacket which rests outside of the flanges M, M, of the drip pan J.

At the four corners of the pan J are the lugs *j'*, in which are secured suitable legs, to support the apparatus in a stove or furnace and also act as supports for the jacket L. The chamber B, steam chest C, and sleeve D around the water supply pipe are all cast together in one piece; there is a plug *c''* in the



end of the chest C in the draw hole which is for the removal of the core of the chest, &c., after being cast.

When the apparatus is to be put together  
 5 the asbestos coil *b'* surrounding the perforated pipe *B'*, is placed in the chamber B and its cap *b* is screwed on the steam chest C with the attached chamber B, is then attached to the bottom of the mixing chamber A, by first  
 10 inserting the cylinder B into the orifice in the bottom of A, and screwing it to the same, and a packing of asbestos cloth *a* is placed between the two surfaces to insure tightness. The tube *B'* rests over orifice *c* and on the top  
 15 of steam chest C, all as seen in section in Fig. 3. The drip pan J, having the pipes E and C', is then applied to the bottom of the sleeve D', and the nut *d* is screwed on to the end of sleeve D' which projects through an orifice in  
 20 the drip pan J, and the pipes E and C' are inserted in their appropriate places and screwed tightly to the chamber A, and steam chest C, respectively. The water supply pipe  
 25 screwed into the bottom of the steam chest C. The pipes F, F', are attached to the mixing chamber A, one on each side, and to the horizontal pipes H, H', which are attached to the drip pan J, by the vertical pipes and elbows  
 30 G, G'.

L, L, is the jacket which rests upon the four projections *j'*, at the corners of the drip pan J, inside of the rims *j*, and proper ventilation is provided under the edges of the jacket, for

combustion, on each side, through the spaces 35 between the jacket L and the rims M, which are about a half inch wide, as shown by the arrows.

To start the fire in the burner, the oil is slowly admitted to the mixing chamber A, 40 through pipe E. The bottom of chamber A being slightly inclined the oil runs down to pipes F F' and through them to the horizontal pipes H, H' and a light being applied to the burners *h, h'*, the fire is started. The jacket is then 45 put in place and the water supply pipe being duly opened the apparatus is fully in operation.

I claim—

1. In a hydro carbon burner, wherein water 50 is converted into steam to unite with the vapor of oil, a separate steam chest, located between the water supply pipe and the mixing chamber; said chest being provided with an outlet pipe and valve for discharging any sediment 55 from the water.

2. The combination of the mixing chamber A, the asbestos chamber B, the intermediate steam chest C, the oil pipe E the water supply pipe D the outlet pipe C' and gas pipes 60 F, F', and H, H', having burners *h, h'*, all substantially as and for the purpose described.

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

JOSEPH O. BEAZLEY.

Witnesses:

W. H. GOODS,  
 THOS. H. YOUNG.