

No. 666,020.

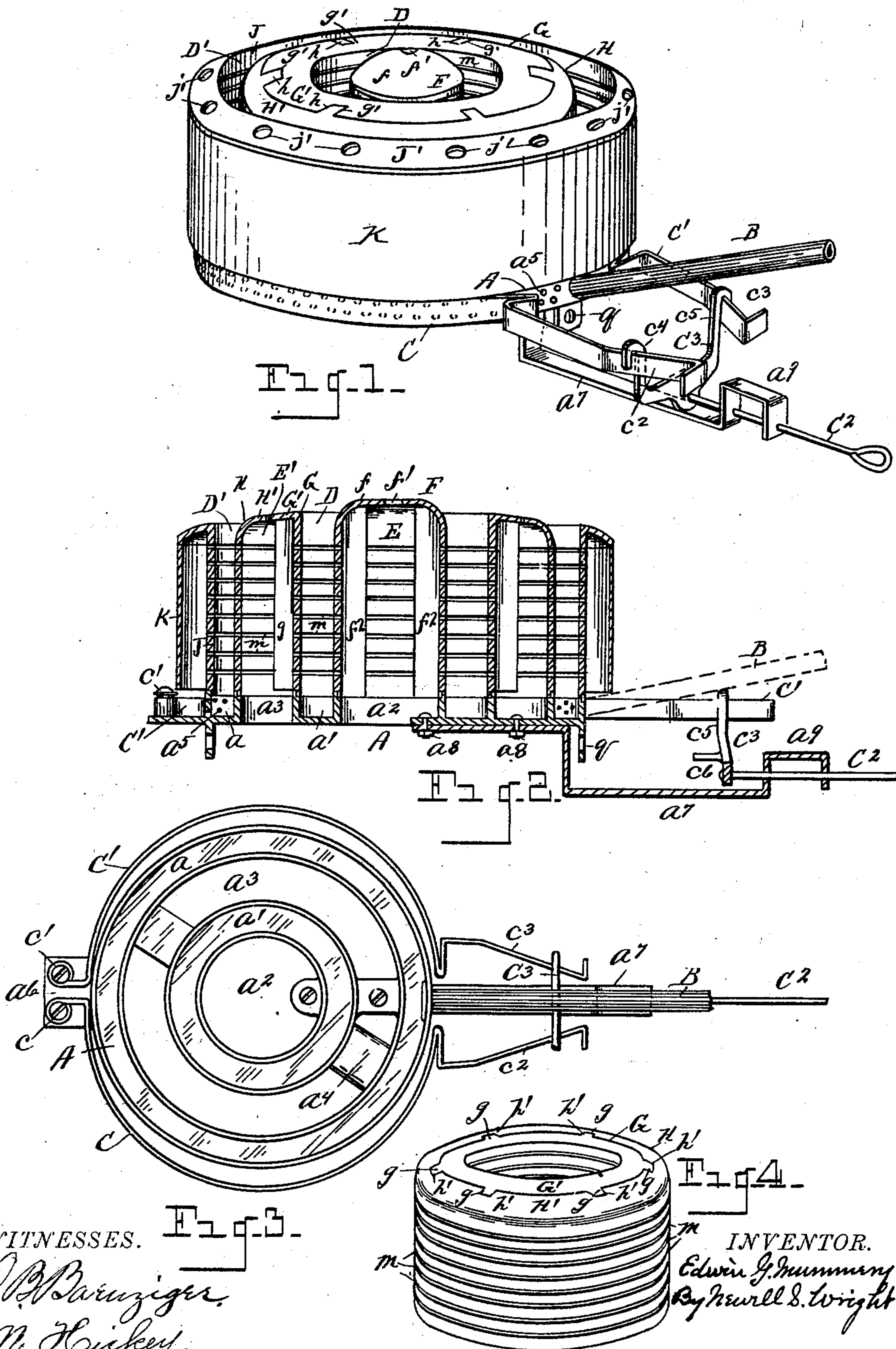
Patented Jan. 15, 1901.

E. G. MUMMERY.  
HYDROCARBON BURNER.

(Application filed Jan. 25, 1900.)

(No Model.)

2 Sheets—Sheet 1.



WITNESSES.

*O. A. Parvizger.*  
*M. Hickey.*

INVENTOR.

*Edwin G. Mummery*  
*By Howell S. Wright*

*His Attorney.*

No. 666,020.

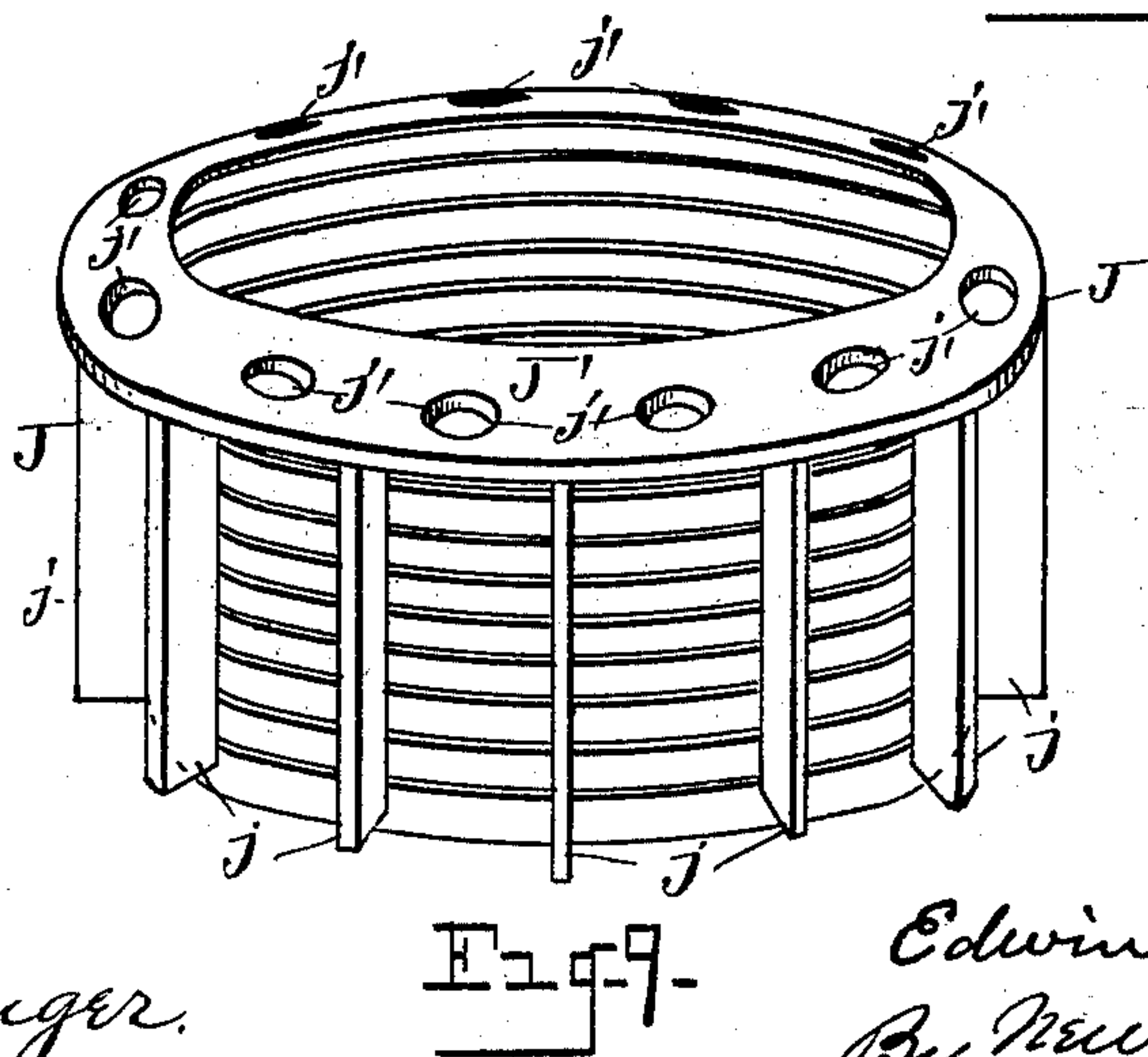
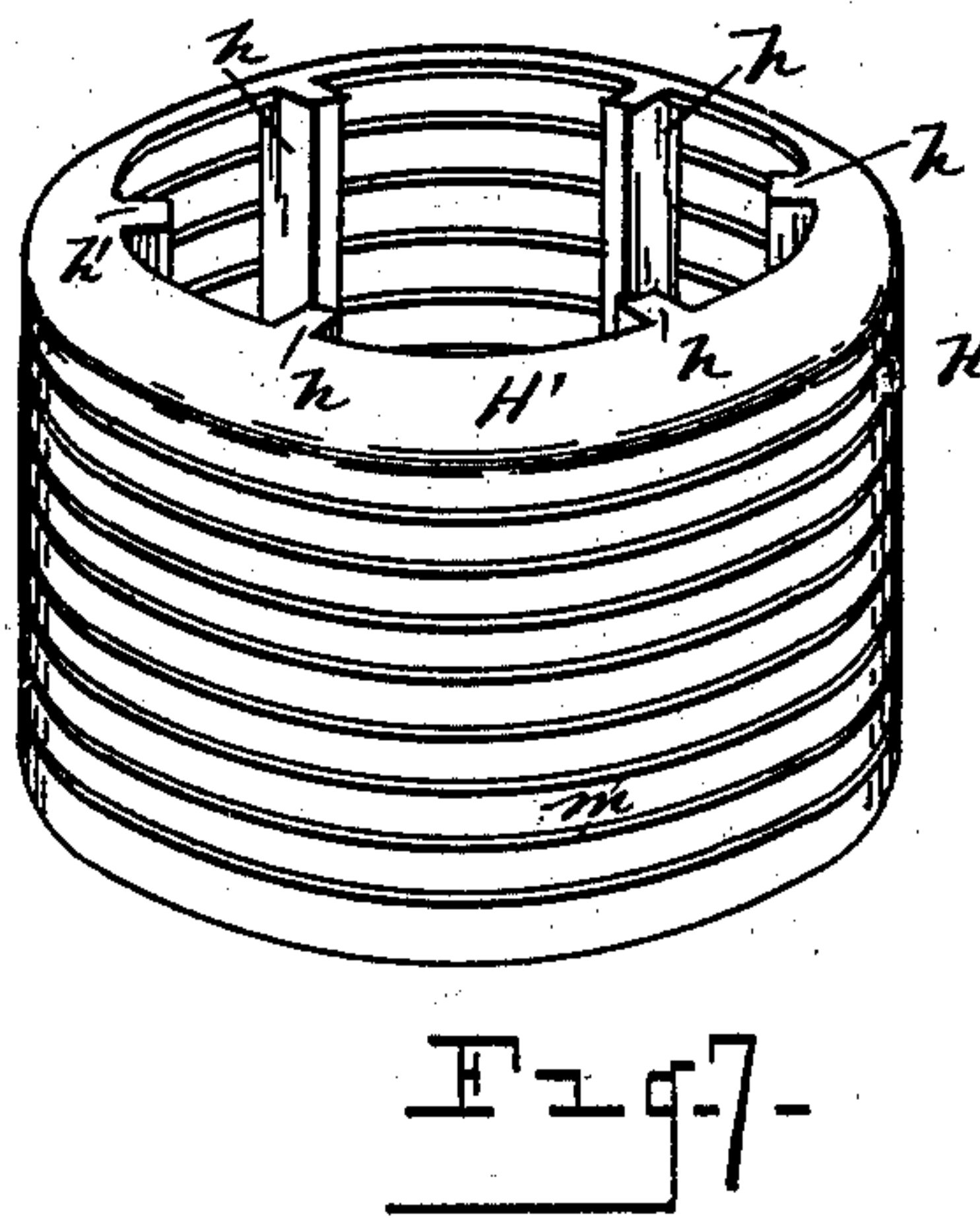
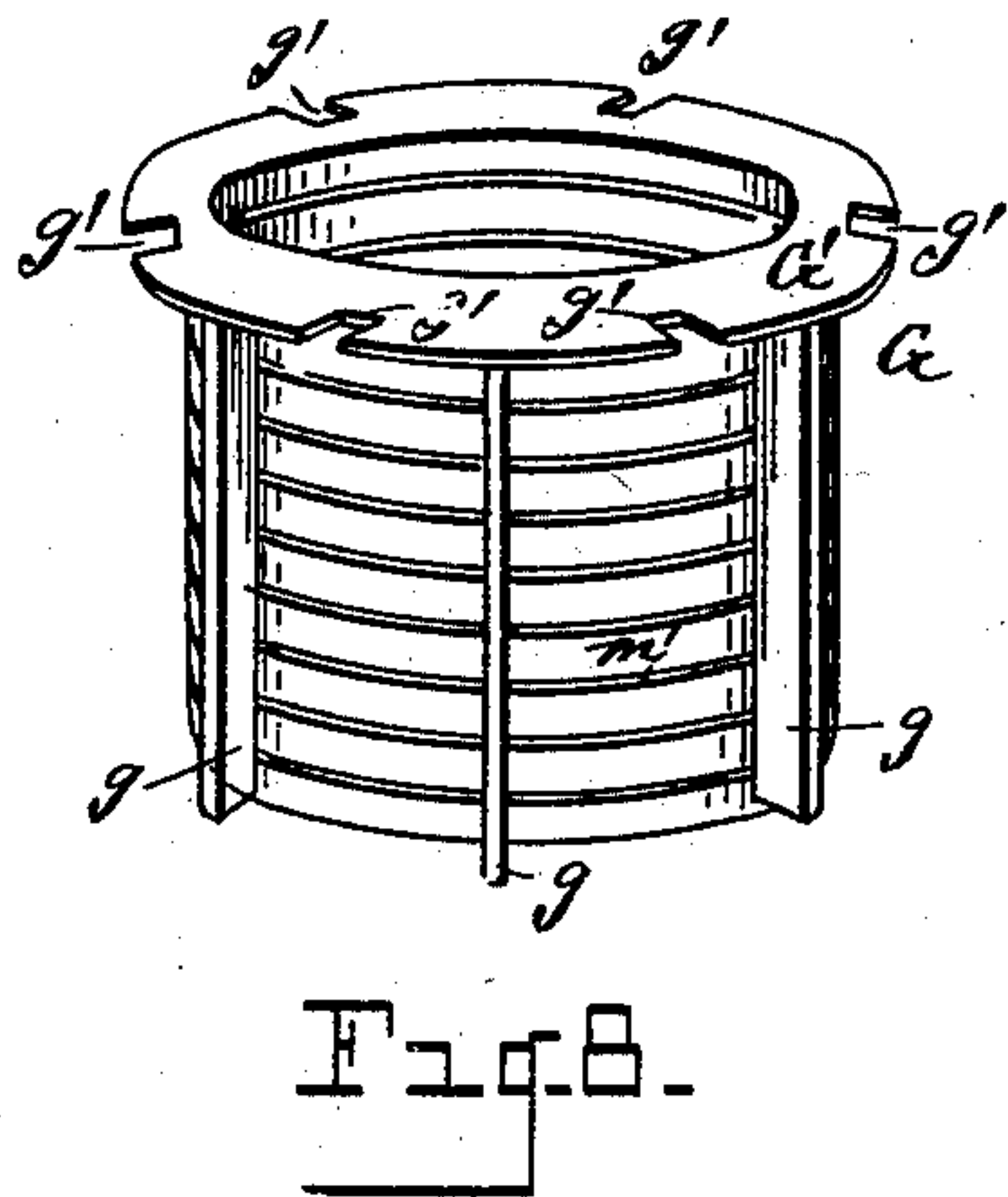
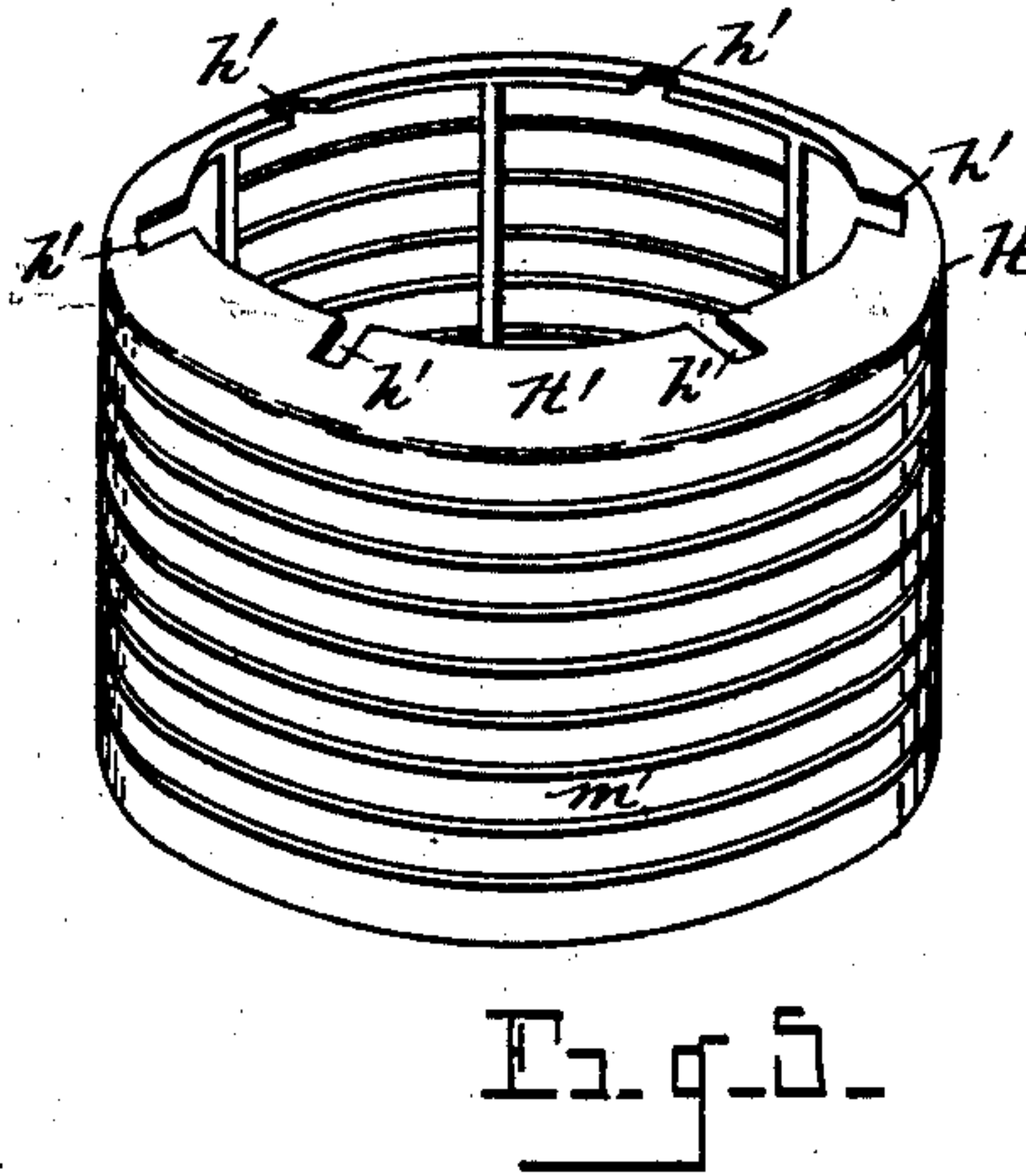
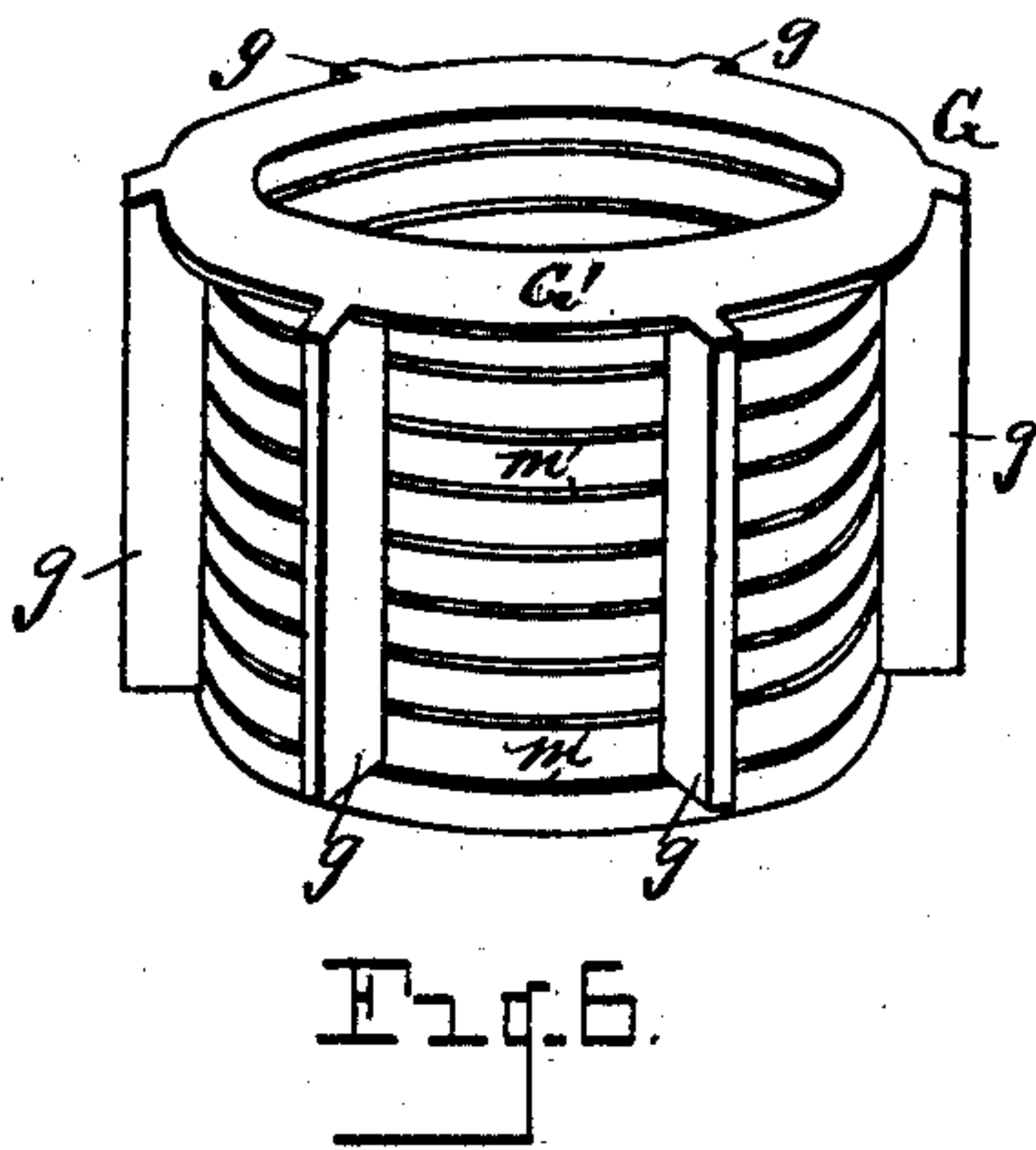
Patented Jan. 15, 1901.

E. G. MUMMERY.  
HYDROCARBON BURNER.

(No Model.)

(Application filed Jan. 25, 1900.)

2 Sheets—Sheet 2.



WITNESSES.

*O. B. Paruziger.*  
*M. Hickey.*

INVENTOR.

*Edwin G. Mummery.*  
*By Newell S. Wright.*  
*His Attorney.*



# UNITED STATES PATENT OFFICE.

EDWIN G. MUMMERY, OF DETROIT, MICHIGAN, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO THE SUN VAPOR STOVE COMPANY AND B. HOWARD LAWSON, OF SAME PLACE.

## HYDROCARBON-BURNER.

SPECIFICATION forming part of Letters Patent No. 666,020, dated January 15, 1901.

Application filed January 25, 1900. Serial No. 2,745. (No model.)

*To all whom it may concern:*

Be it known that I, EDWIN G. MUMMERY, a citizen of the United States, residing at Detroit, county of Wayne, State of Michigan, have invented a certain new and useful Improvement in Hydrocarbon-Burners; and I 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, reference being had to the accompanying drawings, which form a part of this specification.

My invention has for its object certain new and useful improvements in a hydrocarbon-burner.

I carry out my invention as more fully hereinafter described and claimed, and illustrated in the accompanying drawings, in which—

Figure 1 is a view in perspective showing the burner assembled. Fig. 2 is a vertical section through the burner. Fig. 3 is a plan view of the channeled base. Fig. 4 is a view showing two foraminous walls assembled and illustrating a modification in the construction thereof. Fig. 5 is a detail view of the outer wall H shown in Fig. 4. Fig. 6 is a detail view of the inner wall G shown in Fig. 4. Figs. 7 and 8 are detail views of the outer and inner walls shown assembled in Fig. 1. Fig. 9 is a detail view of the surrounding foraminous wall J.

My present invention pertains more particularly to the construction and arrangement of certain foraminous walls of the burner.

It also pertains to means for regulating the supply of air into the outer channel of the base, as well as to other features of construction embodied in the drawings submitted herewith.

My present invention is a further improvement upon various devices of this class for which Letters Patent of the United States have heretofore been granted to me. In United States Patent No. 568,956, issued to me October 6, 1896, for example, a channeled base was shown in which the outer wall of the outer vaporizing trough or channel was shown provided with a series of perforations or openings therethrough below the foraminous walls to admit air into said trough at the base of

the combustion-chamber and close to the bottom of the trough. One feature of my present invention is designed more particularly to regulate the amount of air admitted through said openings in the wall of the vaporizing-trough. As respects certain of the foraminous walls my present invention aims to so construct them that each of the walls may be removed and replaced without disturbing the companion wall, should it be desired. Accordingly my present invention is shown in the drawings provided with a channeled base, (indicated at A,) said base, as shown herewith, provided with two vaporizing troughs or channels  $a$  and  $a'$ . The interior vaporizing-trough  $a'$  is formed with an inner air-inlet opening, (indicated at  $a^2$ .) Between the interior and exterior vaporizing-channels is an opening  $a^3$ .

B is a feed-pipe opening into the exterior trough  $a$ , the exterior trough leading into the interior trough through a covered channel  $a^4$ . The construction of the channeled base alone forms no feature of my present invention, but may be constructed in a manner customary to burners of this class as heretofore made. The outer wall of the outer trough is shown provided with a series of perforations, (indicated at  $a^5$ ,) as in my patent above referred to.

In the lighting up of the burner it is found very desirable to have these openings in the outer wall in order that the initial flame may extend as low as possible in the vaporizing-trough, as described in said patent; but when the burner has become heated and under full operation it has been found desirable for certain reasons to close said perforations in the outer wall of the outer vaporizing-trough. To accomplish this purpose, I provide the base A with two jaws C and C', pivotally united to an arm  $a^6$  of the base and at one side thereof, as indicated at  $c$  and  $c'$ . These jaws are arc-shaped intermediate their extremities and extend to opposite sides of the base of the burner and to the front thereof, as shown, and are made to be closed against the openings or perforations of the outer wall of the trough or to be opened away from said perforations at the will of the operator. This opening and closing of the jaws may be effected within the scope of my invention by



any suitable means. As shown, the base A is formed with a forwardly-projecting arm  $\alpha^7$ , which may be united to the base in any suitable manner—as, for example, by bolts  $\alpha^8$ —the outer end of said arm being preferably looped to form a guide portion, (indicated at  $\alpha^9$ ,) and through which said guide portion is passed an operating-rod  $C^2$ , made to reciprocate through the guide portion of said frame. On the inner end of the rod  $C^2$  is carried a slide  $C^3$ , engaging both of the jaws C and  $C'$ , the adjacent ends of said jaws being constructed with angular-shaped portions, (indicated at  $c^2$  and  $c^3$ ,) the construction and arrangement of the outer ends of said jaws and of said slide being such that when the slide is forced inward the jaws will be closed against the perforated outer wall of the channeled base A and so that when said slide is pulled outward said jaws will be opened or spread away from the said outer wall. To this end the slide may be formed with upwardly-projecting fingers, (indicated at  $c^4$  and  $c^5$ ,) looped at their upper ends to embrace the upper edges of the adjacent portions of said jaws. By so constructing the slide and the adjacent ends of the jaws it will be apparent that the jaws will readily be opened and closed as said slide is reciprocated. The slide may be formed with a stop  $c^6$  to limit the inward movement thereof, said stop also preferably engaging a perforated lip  $q$  of the base and effectually holding the jaws in closed position when the stop is engaged in said lip.

Above the walls of the channeled base having the channels  $a$  and  $a'$  are located foraminous walls, forming combustion-chambers D and  $D'$ , the air-inlet  $\alpha^2$  of the base opening into an inner air-chamber, (indicated at E,) while the air-inlet  $\alpha^3$  opens into a corresponding air-chamber, (indicated at  $E'$ .)

Upon the inner wall of the interior channel  $a'$  is located a foraminous wall F, which may be provided with a cap or top  $f'$ , having therein a perforation  $f''$ . This wall is preferably kerfed and is provided on its interior with integral ribs  $f^2$ . This foraminous wall F, it will be observed, is located between the combustion-chamber D and the air-chamber E and admits air therethrough into the combustion-chamber D. The outer wall of the combustion-chamber D is shown at G, and the inner wall of the combustion-chamber  $D'$  is shown at H.

J is a surrounding foraminous wall constituting the outer wall of the combustion-chamber  $D'$ . These walls F, G, H, and J rest upon the upper edges of the walls forming the vaporizing troughs or channels of the base, as shown more particularly in Fig. 2. Outside the surrounding wall J is a drum K.

As shown in Figs. 1, 2, and 8, the wall G is formed with an outwardly-projecting flange  $G'$  at its upper end. Said wall is also formed with vertical integral ribs  $g$  on the outside thereof, and the flange  $G'$  is provided with a series of recesses (indicated at  $g'$ ) in its outer

periphery. The wall H, as also shown in Figs. 1, 2, and 7, is formed with an inwardly-projected flange  $H'$  and with inwardly-projecting vertical ribs  $h$ , the ribs  $h$  at their upper ends fitted into the corresponding recesses  $g'$  in the flange  $G'$ . When the two walls are assembled, as indicated in Fig. 1, the inner edge of the flange  $H'$  is adjacent to the outer edge of the flange  $G'$ . It will be apparent that as so constructed the walls about the air-chamber  $E'$  and forming the adjacent fire-walls of the combustion-chambers D and  $D'$  may each be separately removed from the base of the burner whenever it may be desired without interfering with the companion wall, inasmuch as the ribs  $h$  extend upward through the corresponding orifices  $g'$ , so that either of said walls may be removed and replaced independently of the other and without disturbing the other.

In Figs. 4, 5, and 6 a modification in the construction of the walls about the air-chamber E is shown, the arrangement of the recesses and corresponding ribs being reversed. In this case the inner wall G is provided, as shown, with the outwardly-projecting flange  $G'$  and with outwardly-projecting ribs  $g$ . So, also, the outer wall H is formed with an inwardly-projecting flange  $H'$ ; but in this modification the inwardly-projecting flange  $H'$  is constructed with inwardly-opening recesses  $h'$ , constructed to receive the corresponding vertical outwardly-projecting ribs  $g$  of the companion wall, said ribs  $g$  projecting upward flush with the upper surface of the flange  $G'$  and opening upward through the corresponding recesses  $h'$  in the flange  $H'$ .

In the construction shown in Figs. 1, 2, and 8 the flange  $G'$  projects over the upper ends of the ribs  $g$ ; but in this modified form of construction it is evident that either of the walls may be separately removed and replaced readily whenever desired without disturbing the companion wall.

The surrounding wall J (shown in detail in Fig. 9) is provided with an outwardly-projecting flange  $J'$  and with vertical ribs  $j$ , said flange being perforated intermediate the upper ends of said ribs, as indicated at  $j'$ . The flange  $J'$  projects outwardly over the upper edge of the drum K.

The kerfs in the various foraminous walls are indicated at  $m$ .

Where the perforations in the wall of the vaporizing-channel of the base are of a size to freely admit a sufficient amount of air to effect immediate combustion when the burner is first being lighted, said openings are found to admit too much air after the burner has become heated to secure good combustion. When the burner is in heated condition, it is obvious that the hydrocarbon admitted into the base of the feed-pipe is quickly vaporized, either within the adjacent end of the feed-pipe itself or upon its initial delivery into the base, and an excessive amount of air entering through the perforations in the channeled



base is found to hinder the free spread of the vapor throughout the vaporizing-channels, especially as the heat of the burner tends to draw in a current of air through said perforations.

5 Under no fire, as when the burner is being lighted or heated, this difficulty is not met; but by my present invention this difficulty is effectually overcome.

What I claim as my invention is—

10 1. In a hydrocarbon-burner provided with a channeled base perforated on its periphery, jaws arranged to be opened and closed to open and close said perforations in the base.

15 2. In a hydrocarbon-burner provided with a channeled base perforated on its periphery, pivoted jaws arranged to open and close said perforations, and means to actuate said jaws.

20 3. In a hydrocarbon-burner, the combination with a channeled base perforated on its periphery, of jaws pivotally connected with said base and extended about the periphery of the base, and means engaging the outer ends of said jaws to close and open said jaws to close and open said perforations.

25 4. In a hydrocarbon-burner, the combination with a channeled base provided with perforations on its periphery, of jaws arranged to open and close said perforations, and a reciprocatory slide engaging said jaws to actuate the same.

30 5. In a hydrocarbon-burner, provided with a base, two single separable foraminous walls above said base forming the opposite sides and top of an air-chamber, either one of said walls removable from the burner without disturbing the other.

35 6. In a hydrocarbon-burner, two adjacent foraminous walls, the one provided at its upper end with an outwardly-projecting flange, and the other provided at its upper extremity with an inner-projecting flange, one of said walls provided with vertical ribs and the flange of the other of said walls with recesses to receive said ribs, and whereby one of said walls may be removed from the burner without disturbing the companion wall.

40 7. In a hydrocarbon-burner, two adjacent foraminous walls, the inner wall formed with an outwardly-projecting flange at its upper end, and with vertical outwardly-projecting

ribs, the outer wall formed with an inwardly-projecting flange, and with inwardly-projecting vertical ribs, the flange of one of said walls formed with recesses to receive the ribs of the companion wall, and whereby either of said walls may be removed without disturbing the companion wall. 55

8. In a hydrocarbon-burner, an outer foraminous wall provided with an outwardly-projecting flange at its upper end and with vertical outwardly-projecting ribs, and in combination therewith a surrounding drum, said flange perforated intermediate the upper ends of said ribs, and resting upon the upper edge of said drum. 60

9. In a hydrocarbon-burner, two foraminous walls located adjacent the one to the other and forming a chamber therebetween, one of said walls provided with vertical ribs, and the other of said walls with a recessed flange at its upper end to receive the corresponding ribs, and whereby one of said walls may be removed from the burner without disturbing the other. 65

10. In a hydrocarbon-burner, foraminous walls located adjacent the one to the other and forming a chamber therebetween, one of said walls constructed with an inwardly-projecting flange at its upper end and with vertical ribs, the other of said walls constructed with vertical ribs, and an outwardly-projecting recessed flange at its upper end to receive the vertical ribs of the corresponding wall. 70

11. In a hydrocarbon-burner, two separable foraminous walls forming an intermediate chamber, said walls at their upper ends provided with flanges projecting the one adjacent to the other whereby said intermediate chamber will be closed at its upper end when said walls are assembled, said walls the one removable from the burner without disturbing the other. 75

In testimony whereof I sign this specification in the presence of two witnesses.

EDWIN G. MUMMERY.

Witnesses:

N. S. WRIGHT,  
M. HICKEY.