

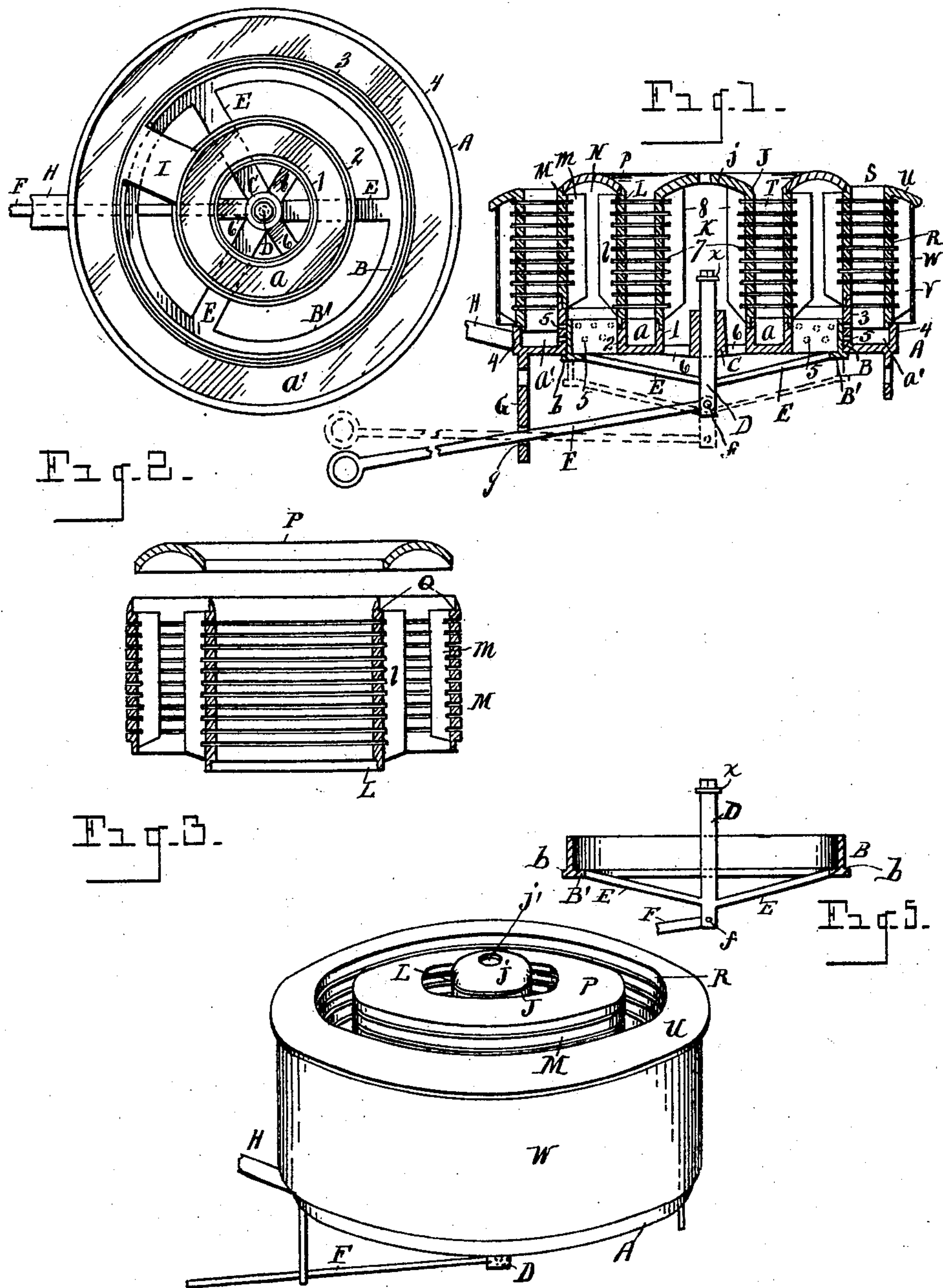
**No. 682,629.**

**Patented Sept. 17, 1901.**

**E. G. MUMMERY.**  
**HYDROCARBON BURNER.**


(Application filed Sept. 24, 1900.)

(No Model.)



**WITNESSES:**

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# UNITED STATES PATENT OFFICE.

EDWIN G. MUMMERY, OF DETROIT, MICHIGAN.

## HYDROCARBON-BURNER.

SPECIFICATION forming part of Letters Patent No. 682,629, dated September 17, 1901.

Application filed September 24, 1900. Serial No. 30,898. (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.

This invention relates to certain improvements in a hydrocarbon-burner, and has for its objects a novel construction of the base, novel means for regulating the air-supply to a vaporizing-channel of the base, and also novel constructions of the foraminous walls forming the air-chambers and combustion-chambers of the burner above the base.

The invention also relates to the general construction, combination, and arrangement of devices and appliances hereinafter described and claimed and illustrated in the accompanying drawings, in which—

Figure 1 is a view of a burner in vertical section. Fig. 2 is a plan view of the base. Fig. 3 is a detail view in vertical section through the walls forming an air-chamber of the burner, showing the top of the air-chamber in detached position. Fig. 4 is a view in perspective illustrating the invention. Fig. 5 is a detail view of the controlling band or sleeve.

In the drawings, A represents a channeled base, the same being shown herewith constructed with inner and outer concentric channels, the inner channel being indicated at *a* and the outer channel at *a'*. The inner channel *a* is formed with inner and outer flanges, (indicated by the numerals 1 and 2,) and the outer channel *a'* is formed with an inner flange 3 and an outer flange 4. The inner flange 3 of the outer channel *a'* is made of greater height than the corresponding outer flange 4, and said inner flange 3 is formed also with a series of perforations, (indicated at 5,) to allow the passage of air through said perforations into the outer channel of the base and below the upper edge of the flange 3, so that air to support initial combustion may be supplied to the hydrocarbon fuel

near the bottom of said channel. It will be understood that it is obviously desirable in starting the burner into operation to heat the base as quickly as possible, so as to get a speedy and rapid vaporization of the hydrocarbon fuel admitted into the base, and it will be seen that the more quickly the base can be heated the more quickly will the fuel be vaporized and the more speedily can the burner be brought into full operation. Moreover, by supplying air to the fuel in the channel of the base to support initial combustion the combustion may thereby be made more perfect, in consequence of which odors of imperfect combustion will be prevented. At the same time it has been found that when the base has become heated a more satisfactory operation of the burner may be secured by excluding the air initially supplied through the perforations of the base to the fuel near the bottom of the vaporizing-channel. This is accomplished in the present invention by means of a vertically-movable band or sleeve (indicated at B) constructed to have a close fit against the inner surface of the inner flange 3 when moved up into position, so as to close the perforations 5 in said flange. The sleeve or band B may be vertically movable in any suitable manner.

As shown, the base A is formed with a central hub, (indicated at C,) through which is sleeved a standard D, provided with arms E, supporting said sleeve or band. With the standard D is connected an operating-lever F, jointly connected with the standard at its inner end, as indicated at *f*. The lever may be fulcrumed in any suitable manner. As shown, the base A is constructed with a depending arm G, provided with an orifice, (indicated at *g*,) through which the lever is passed, the lever being fulcrumed in said arm upon the outer or lower edges of the orifice, as the case may be. It will readily be seen that as the outer end of the lever is moved upward or downward a corresponding movement will be given to the standard D, and consequently to the sleeve or band B supported thereon. The hub C forms a guide for the movement of the standard, and thereby insures an accurate movement of the sleeve or band B to open or close the perforations 5. The hub C may be centrally supported upon



the walls of the vaporizing-channel  $a$ , as by means of arms 6.

H denotes a feed-pipe to supply hydrocarbon fuel to the burner, the feed-pipe entering into the outer channel  $a'$  of the base, the outer channel communicating with the inner channel, as through a connecting-passage, (indicated at  $i$ , Fig. 2.)

J indicates an inner foraminous walls supported upon the flange 1 of the base, said wall surrounding a central air-chamber K, opening through the base of the burner A at the lower end thereof. The foraminous wall J may be formed with an integral top, (indicated at  $j$ ,) said top preferably formed with an opening  $j'$  therethrough. This wall J is preferably made of cast metal kerfed, as indicated at the numeral 7, said wall being formed with ribs 8 on its interior surface, connecting the parts of the wall severed by the kerfs 7.

L denotes a foraminous wall supported upon the flange 2 of the channel  $a$ , and M denotes a foraminous wall supported upon the flange 5 of the channel  $a'$ , the foraminous walls L and M forming therebetween an air-chamber, (indicated at N.)

P is a top or cover over the air-chamber N, the same being constructed separate from the walls L and M and supported thereupon so as to be readily removable therefrom. The top or cover P may be supported upon the upper edges of the walls L and M and held in supported position in any suitable manner—as, for example, by rabbeting the upper edges of said walls, as indicated at Q, so that the inner and outer edges of the cover P may rest upon and be held in place upon the upper edges of the foraminous walls L M. The wall L is provided with outwardly-extending ribs  $l$ , and the wall M is constructed with inwardly-projecting ribs  $m$ .

R denotes a foraminous wall supported upon the flange 4 of the channel  $a'$ , the walls M and R forming therebetween a combustion-chamber S. The foraminous wall J and the wall L form therebetween an interior combustion-chamber T. The foraminous wall R is formed at the top thereof with an outwardly-projecting flange U and with outwardly-projecting ribs V.

W indicates an outer drum surrounding the foraminous wall R and spaced therefrom by the ribs V, forming an air-chamber between the drum and the adjacent foraminous wall, said air-chamber being closed at the top by the flange U, while the air-chamber N is closed at the top by the cover P, and the interior air-chamber K is partially closed at the top by the cover  $j$ .

The standard D is preferably provided with a stop X at its upper end to limit the downward movement thereof. It will be evident that it will only be necessary to depress the band or sleeve B below the lower perforations in the adjacent flange, so that said band or sleeve, even in depressed position, will always have its upper edge engaged

within the inner periphery of the adjacent flange, said flange serving also to guide the sleeve as it is raised and lowered. The depressed or opened position of the band or sleeve B is indicated in dotted lines in Fig. 1. The band or sleeve B is preferably provided with a strengthening-flange B' at its lower edge. The flange B' of the sleeve or band B preferably projects outward to form a stop  $b$  to limit the upward movement thereof.

It will be seen that the walls L and M form the opposite sides of the air-chamber N and are separately removable from the base, the top also being separately removable. By removing the top either one of the walls may be removed from the base without disturbing the other wall.

While I have shown in the accompanying drawings an inner perforated flange of the vaporizing base and a vertically movable sleeve or band to open and close said perforations, I would have it understood that I contemplate the use of a vertically-movable sleeve or band to govern the admission of air into a vaporizing-channel of a burner as coming broadly within the scope of my invention. The object of constructing the outer flange of the channel lower than the inner one is to permit the outer foraminous wall to be seated thereon with its openings as close to the base of the channel as possible, affording an unobstructed admission of air to the channel in the closest proximity to the hydrocarbon fluid as it enters the channeled base. Were the inner flange of the channel constructed of the same height as the outer one, the desired heating of the base would be correspondingly prolonged, as ignition does not take place below the outer flange, due to an absence of air. The foraminous walls would therefore first be heated, whereas the primary object is to heat the base or vaporizer. This important result is quickly secured when the inner flange is constructed higher than the other flange, as ignition commencing at the height of the lower outer flange, the fire burning upwardly, comes in direct contact with the higher flange of the inner channel, and with the abundant supply of oxygen admitted through perforations in the foraminous wall, as shown, the desired heating of the base is almost immediately obtained.

What I claim as my invention is—

1. In a hydrocarbon-burner, the combination of a base provided with a vaporizing-channel perforated on its inner periphery, of means to open and close said perforations.

2. In a hydrocarbon-burner, the combination of a base provided with a vaporizing-channel having a perforated flange, of a vertically-movable sleeve or band to open and close said perforations.

3. In a hydrocarbon-burner, the combination with a base provided with a vaporizing-channel perforated on its inner periphery, of a vertically-movable sleeve or band to open and close said perforations.



4. In a hydrocarbon-burner, the combination of a base provided with a vaporizing-channel having a perforated flange, of a vertically-movable band or sleeve to open and  
5 close said perforations, and a lever to actuate said sleeve or band.

5. In a hydrocarbon-burner, the combination of a base provided with a vaporizing-channel perforated on its inner periphery, of  
10 a vertically-movable sleeve or band to open and close said perforations, said base provided with a central hub, and said sleeve or band with a standard movable in said hub.

6. In a hydrocarbon-burner, the combina-

tion of a base provided with a vaporizing- 15  
channel perforated on its inner periphery, of a vertically-movable sleeve or band to open and close said perforations, said base provided with a central hub and said sleeve or  
band with a standard movable in said hub, 20  
and a stop to limit the movement of said sleeve or band.

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

EDWIN G. MUMMERY.

Witnesses:

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M. HICKEY.