

No. 619,380.

Patented Feb. 14, 1899.

T. WILSON.  
HYDROCARBON LIGHTING BURNER.

(Application filed Apr. 18, 1898.)

(No Model.)

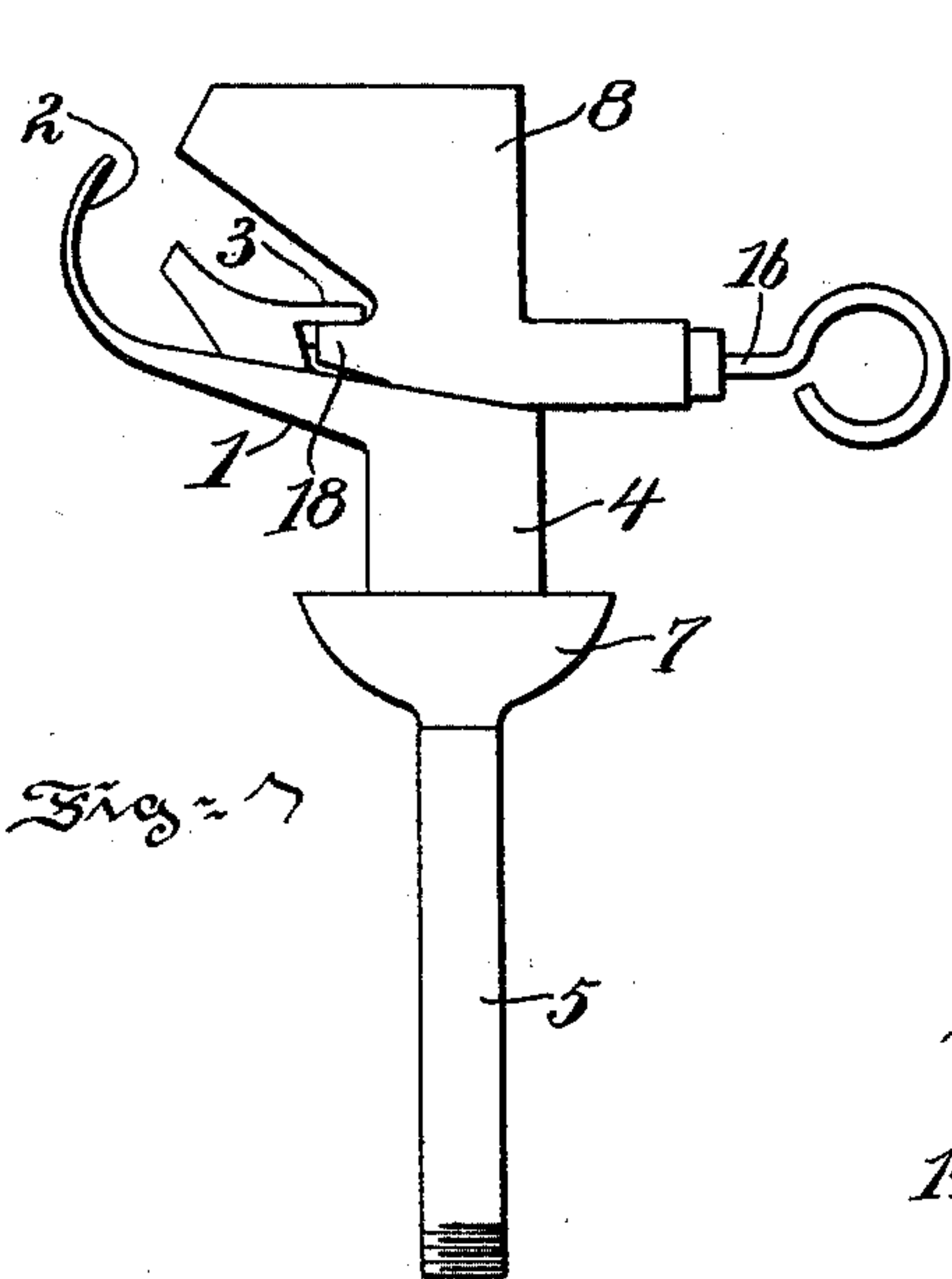


Fig. 1

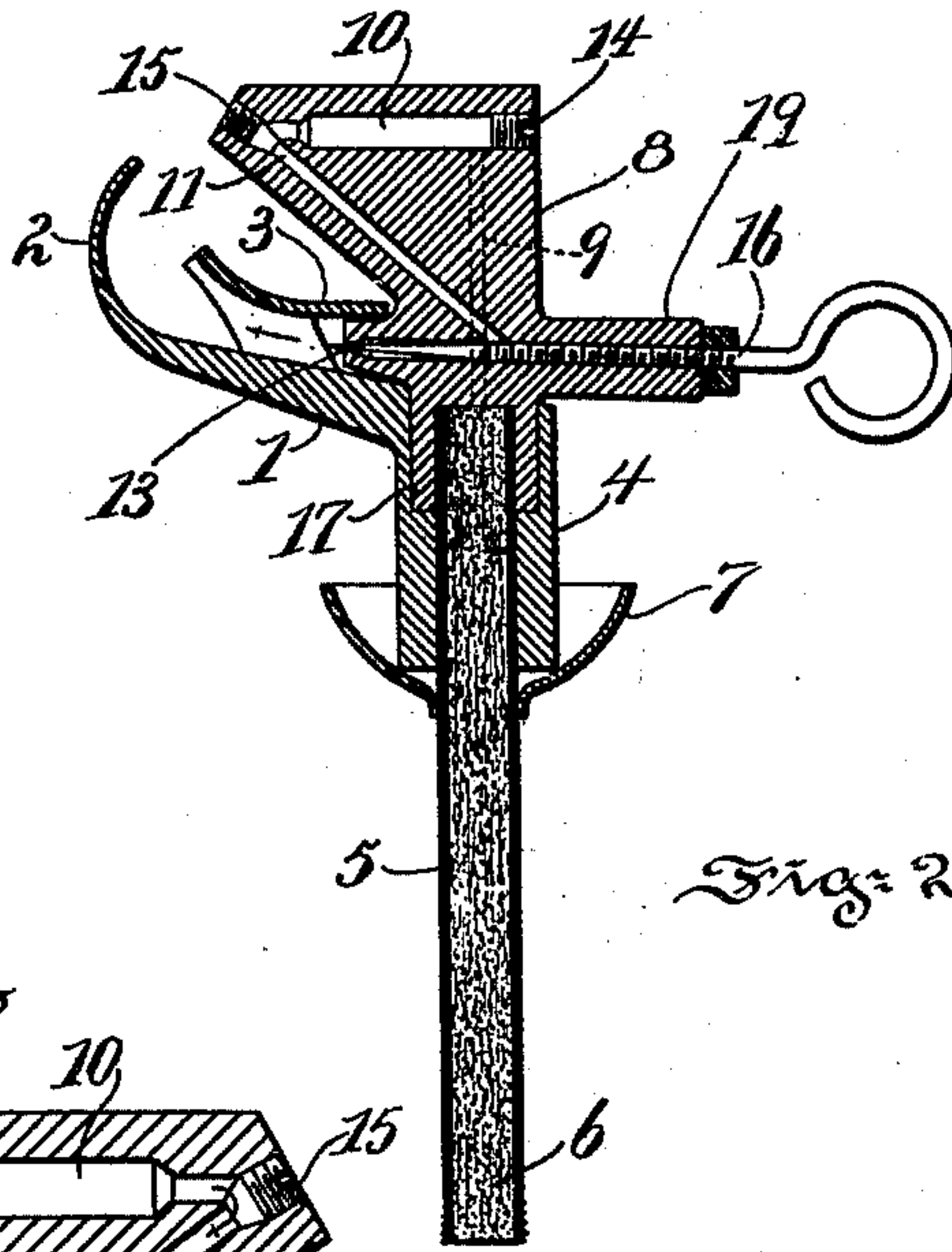


Fig. 2

Fig. 4

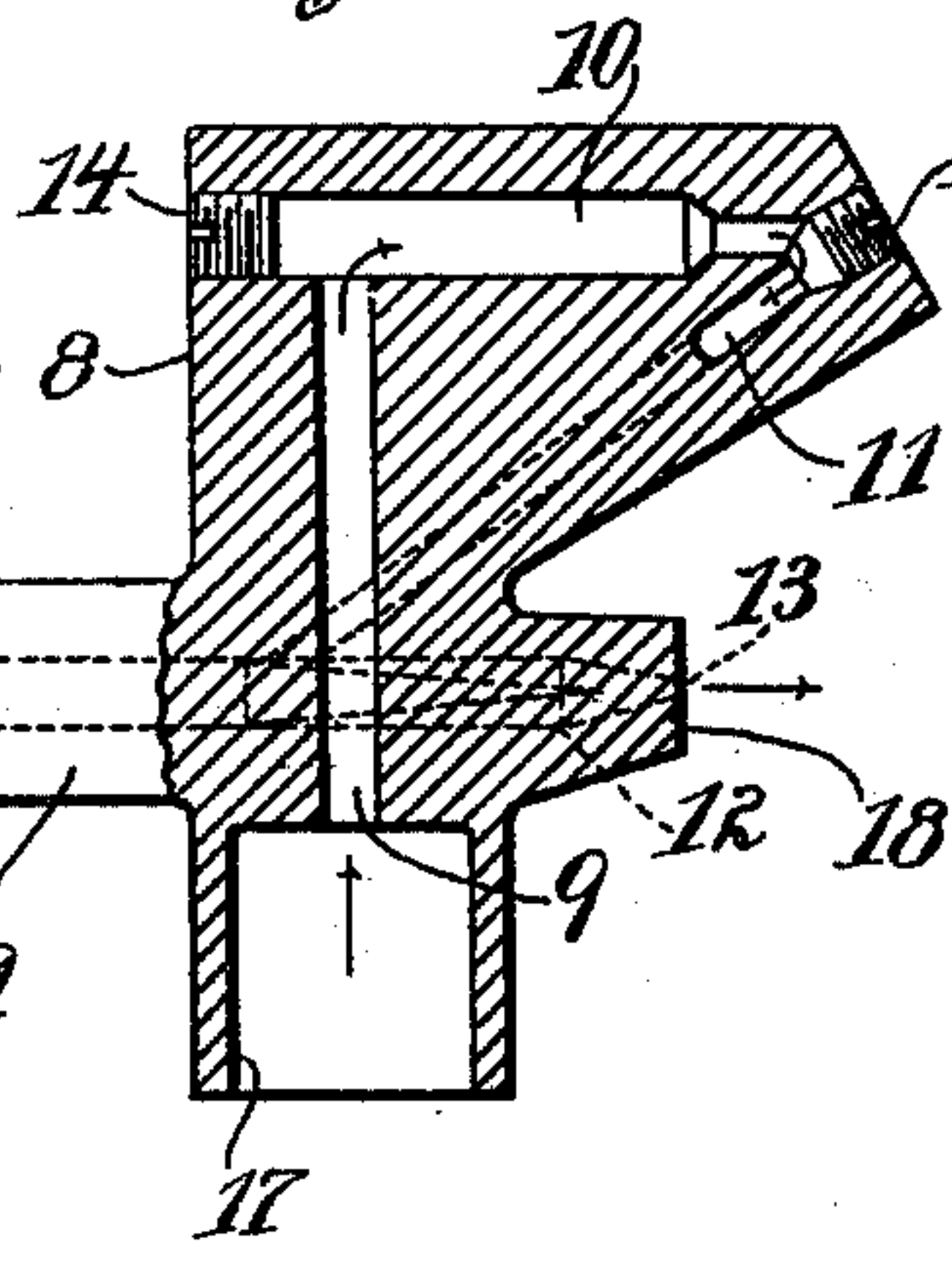


Fig. 3

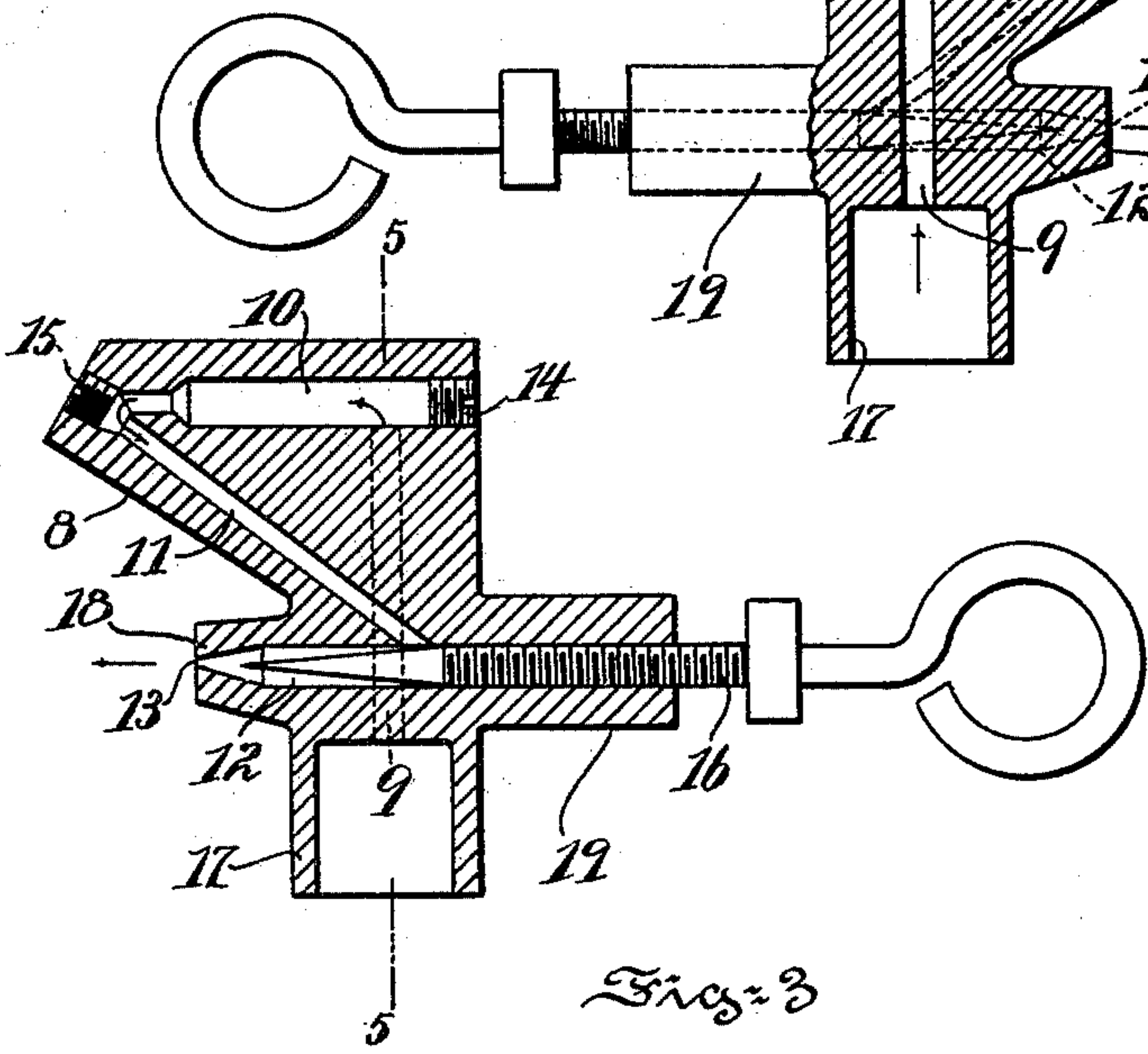
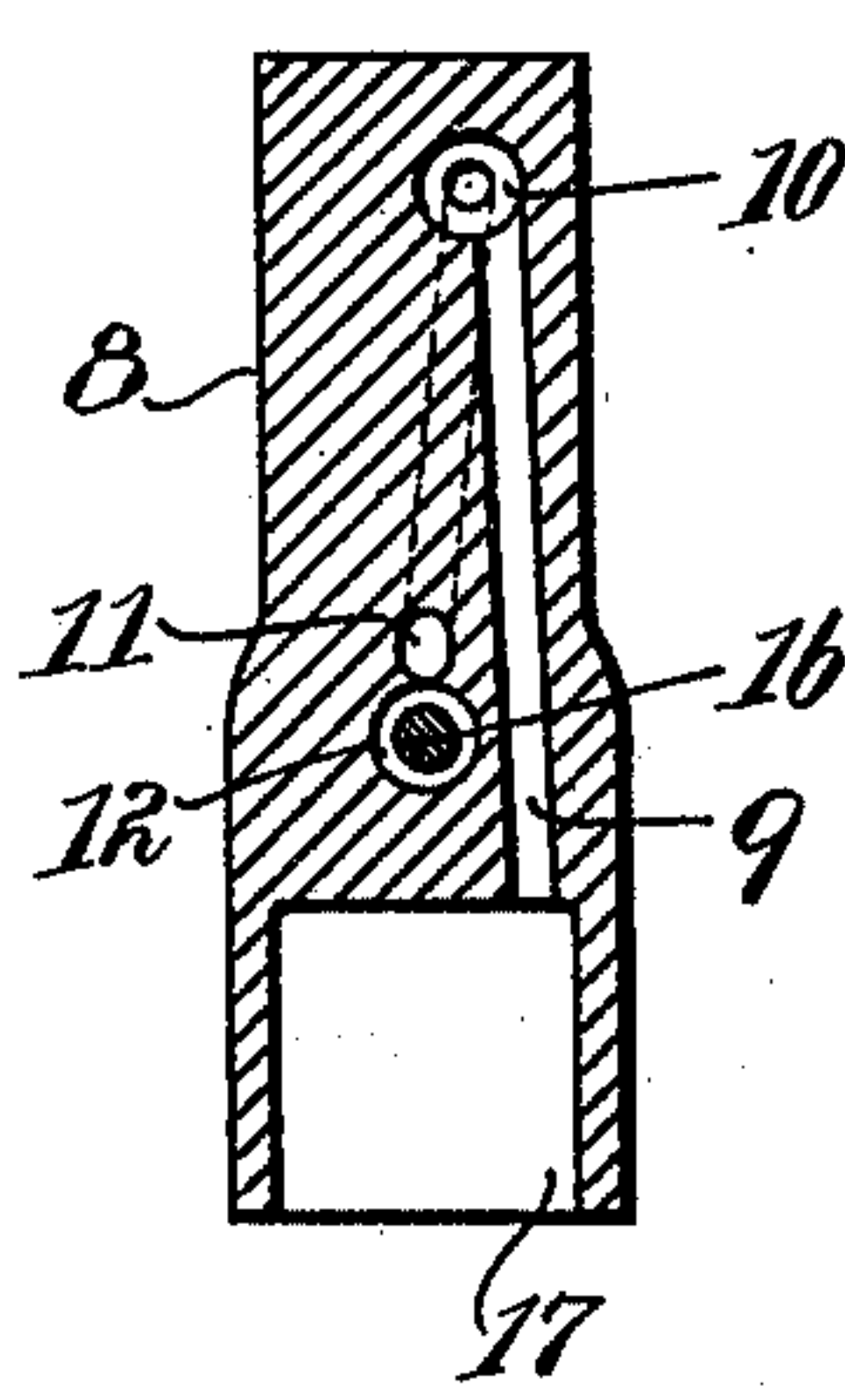


Fig. 5



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# UNITED STATES PATENT OFFICE.

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PENNSYLVANIA GLOBE GAS LIGHT COMPANY, OF SAME PLACE.

## HYDROCARBON-LIGHTING BURNER.

SPECIFICATION forming part of Letters Patent No. 619,380, dated February 14, 1899.

Application filed April 18, 1898. Serial No. 677,924. (No model.)

*To all whom it may concern:*

Be it known that I, THOMAS WILSON, a citizen of the United States, residing at the city of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Hydrocarbon-Lighting Burners, of which the following is a specification.

The objects of my invention are to use a comparatively low grade of naphtha instead of a high grade, to provide a simple, efficient, and comparatively inexpensive device or attachment of the nature of a vaporizer or generator which is adapted to utilize such low-grade naphtha, and to so construct and arrange the attachment or device as that it is applicable to plate-burners which are at present in practically universal use.

My invention comprises the improvements hereinafter described and claimed.

The nature, characteristic features, and scope of my invention will be more fully understood from the following description, taken in connection with the accompanying drawings, forming part hereof, and in which—

Figure 1 is a side elevational view of a burner embodying features of my invention. Fig. 2 is a sectional view of the same. Fig. 3 is a view drawn to an enlarged scale and illustrating a sectional elevation of the device or attachment, taken in a plane passing through some of its internal passages. Fig. 4 is a similar view taken through a different plane and looking from the other side of the device, so as to show other of the internal passages; and Fig. 5 is a transverse sectional view taken on the line 5 5 of Fig. 3.

In the drawings, 1 is a part of a plate-burner of the type in substantially universal use. Generally speaking, it comprises a plate 2, a hood in which air and gas are mixed and which is provided with a lip or finger 3, a socket or seat 4, and a gasway 5, having the usual accessories, as a filtering medium 6 and a starting-cup 7.

The device or attachment of my invention is applicable to parts other than the type described; but since the described part is in almost universal use the fact that my inven-

tion may be applied to it is of considerable and obvious importance.

I will now proceed to describe the structure, attachment, or device which is shown upon the drawings and which embodies my invention. The casing or housing 8 is arranged above the plate 2, so that it is exposed to heat rising therefrom, and thus the portion of it which so projects into or is exposed to the heat is well adapted to constitute a vaporizer or generator. Within the casing or housing there is a channel 9, Figs. 4 and 5, which communicates with the gasway 5 and which is arranged in respect to other passages to be hereinafter described in such manner that all these passages clear each other. As shown, it is somewhat out of line with or to one side of the center of the casing. The passage or channel 9 communicates with a passage or channel 10, located somewhat near the top of the casing and disposed horizontally. The passage 10 communicates with a passage 11, Fig. 3, which is arranged at a somewhat acute angle in respect to it. The passage 11 at its lower end communicates with a passage 12, having a discharge-nozzle 13 directed through the hood and toward the plate. The passages 10, 11, and 12 are drilled or otherwise formed through the casing and are stopped or closed by means of plugs or screws, as 14, 15, and 16. The screw or plug 16 is provided with a needle-valve adapted to coöperate with the nozzle 13 in the ordinary manner. The casing 8 is provided with a neck or base 17, adapted to the socket or seat 4, and the walls 18 of the nozzle 13 constitute a projection adapted to pass under the finger 3, thus locking the parts together, and also adapted to be freed from the finger 3 by a movement of rotation, whereby the parts may be conveniently disconnected. A projection, as 19, constitutes a bearing for the shank of the needle-valve.

From the foregoing description it is apparent that the attachment or generator may be described as being of generally the shape of a right-angle triangle, with its hypotenuse arranged opposite the plate of the well-known burner and with its portion adjacent to one of its acute angles provided with a neck or



base and with a projection, as 18, and further described as having within it passages for conveying the material to be burned upward and horizontally along its two sides and  
 5 then downward along its hypotenuse and then forward, so as to reach the plate by way of a nozzle or minute opening 13. The intersection of the passages 10 and 11 is exposed to a considerable degree of heat by reason of  
 10 the fact that the superstructure above the base or neck overhangs, so that the combustible material in passing this intersection is highly heated and expanded. The passages 11 and 12 for conveying this highly-heated material are also exposed to heat and thus keep  
 15 the material hot, and these passages may be constructed of smaller diameter than the passages 9 and 10, which lead the material to this point of considerable heat. The object  
 20 of this construction is to avoid condensation, which might occur in the passage 11 if it were large enough to convey a considerable volume of material. By removing any or all of the screws or plugs 14, 15, and 16 it is  
 25 possible to insert a needle or other suitable implement into the various passages for the purpose of removing any matter that may collect therein—for example, by deposition or otherwise. Moreover, the attachment shown  
 30 in Figs. 3, 4, and 5 may be readily detached from the rest of the burner and renewed without material expense or trouble.

In use the gasway 5 is connected with suitable means for feeding naphtha or gasolene  
 35 which may be of comparatively low grade—as, for example, gasolene of approximately 62° gravity—to it. Such means may comprise an elevated tank. Upon reaching the gasway 5, which is warmed or heated by reason  
 40 of its proximity to the flame or burner, this gasolene assumes the condition of a vapor or mist and is purified to a certain extent by the filtering material 6. The vapor then traverses the passage 9, enters the passage 10,  
 45 and is driven to and through the intersection of the passage 10 with the passage 11. At this intersection the vapor is highly heated and in a certain sense somewhat fixed and rendered suitable for combustion and, as it  
 50 were, brought to a state which I shall call a “gas.” The gas upon leaving the intersection traverses the heated passage 11 in a

downward direction and under considerable pressure, so that it escapes by way of the passage 12 through the aperture or nozzle 13 in  
 55 a highly-heated condition and in the form of a jet, which is mixed with air under the hood and carried against the curved plate 2, from which it rises in the form of an illuminating flame. This flame supplies heat to the plate  
 60 2, which conducts heat to the gasways, thus, as it were, preheating the supply, and this flame also highly heats the casing 8, more especially the passages 11 and 12 and the overhanging part thereof at the intersection of  
 65 the passages 10 and 11, and thereby serves to superheat the supply, and the supply by reason of the location of the passage 11, nozzle 13, and Bunsen or mixing hood in close proximity to the source of heat is kept in a highly-  
 70 heated condition until burned.

It will be obvious to those skilled in the art to which my invention appertains that modifications may be made in details without departing from the spirit thereof. Hence I do  
 75 not limit myself to the precise construction and arrangement of parts hereinabove set forth, and illustrated in the accompanying drawings; but,

Having thus described the nature and objects of my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A generating attachment for hydrocarbon-lighting burners comprising a casing provided with a depending neck or base and with  
 85 a laterally-projecting nozzle and having a superstructure in which are arranged intersecting gasways and which overhangs the nozzle, and a needle-valve mounted laterally in the casing and cooperating with the nozzle, 90 substantially as described.

2. The combination with the socket and lipped hood of a plate-like part of a hydrocarbon-lighting burner of the type described, of, a detachable generator arranged above  
 95 the plate and provided with a neck and a laterally-projecting nozzle for connecting it with the burner, substantially as described.

In testimony whereof I have hereunto signed my name.

THOMAS WILSON.

In presence of—

K. M. GILLIGAN,  
 W. J. JACKSON.