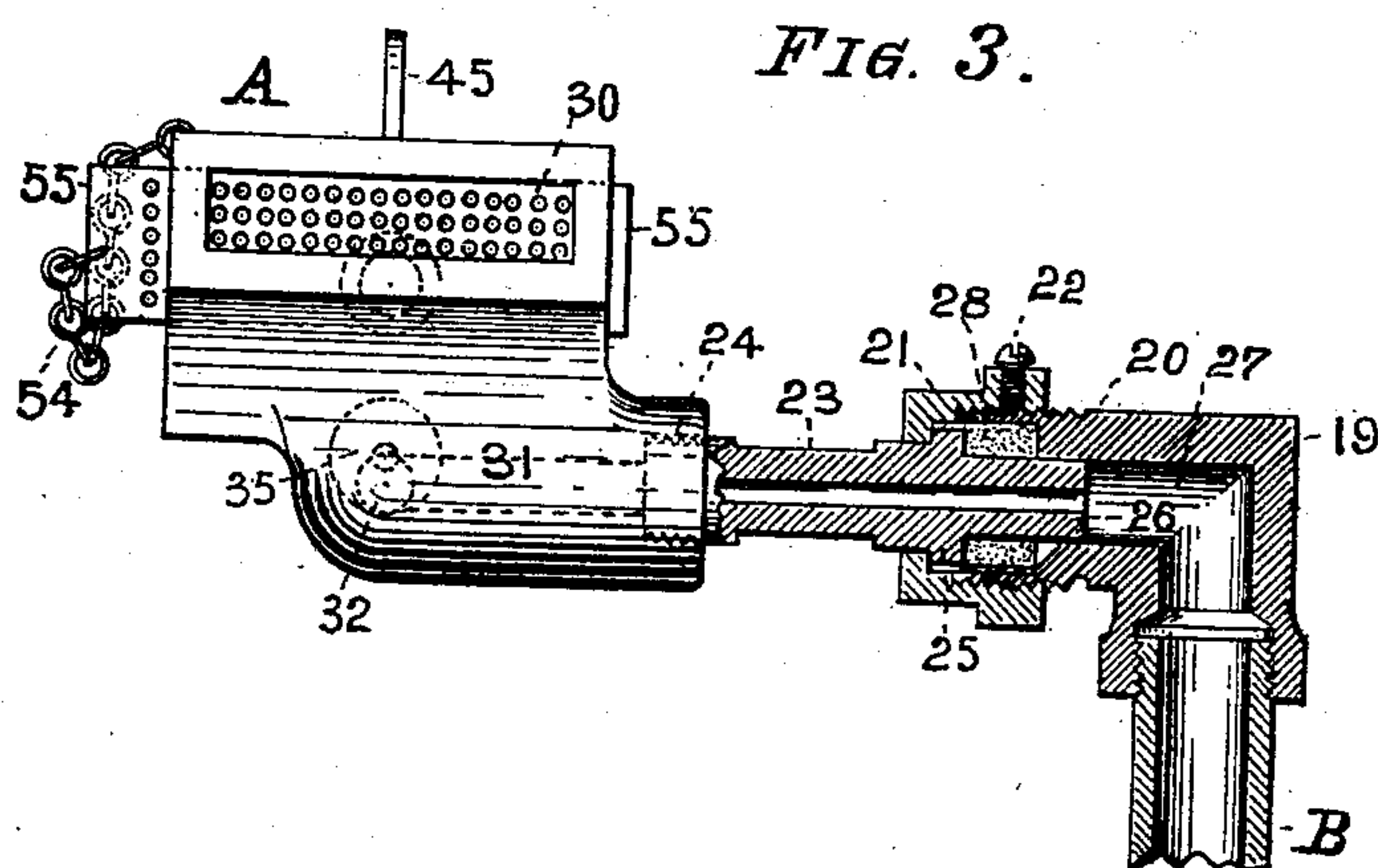
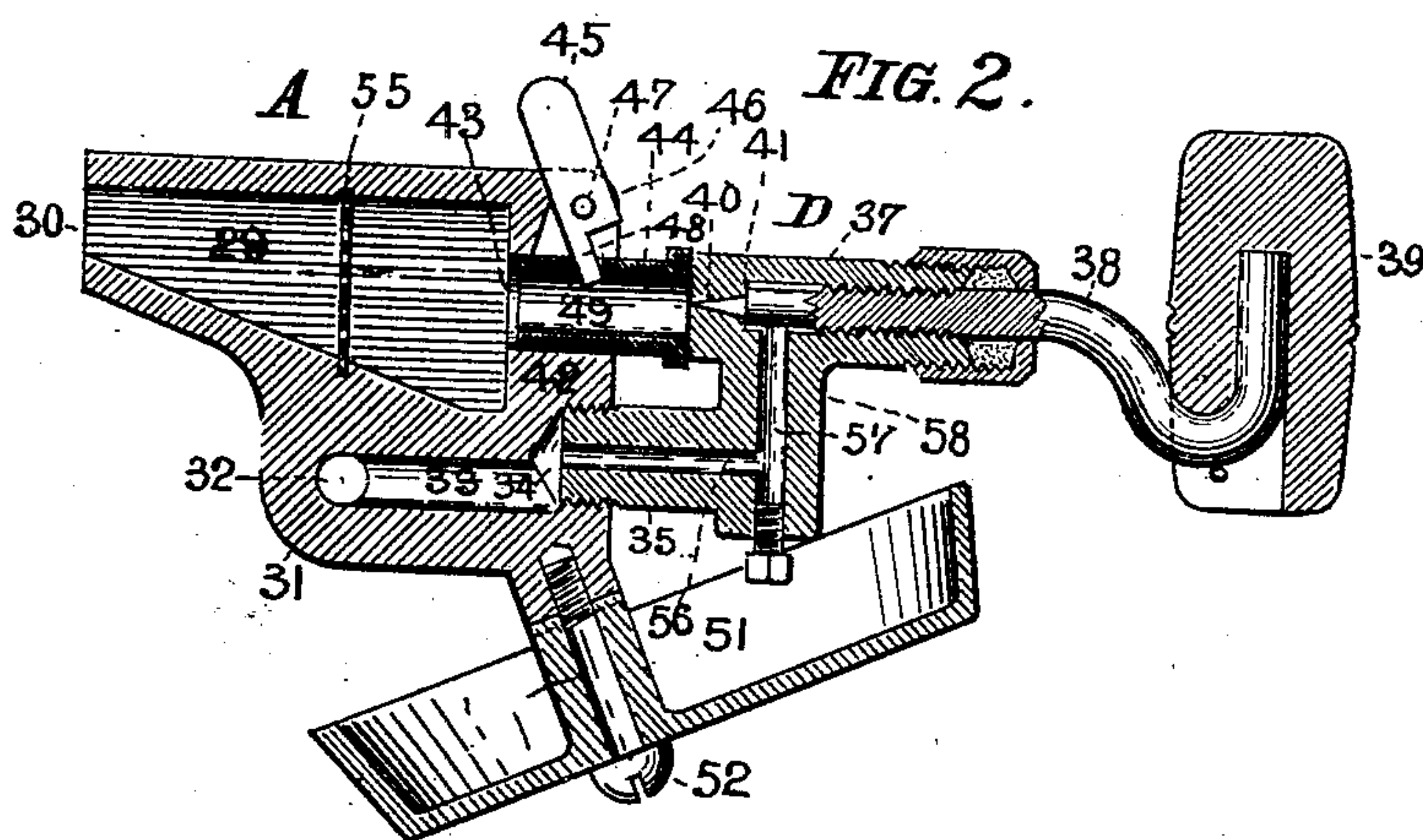
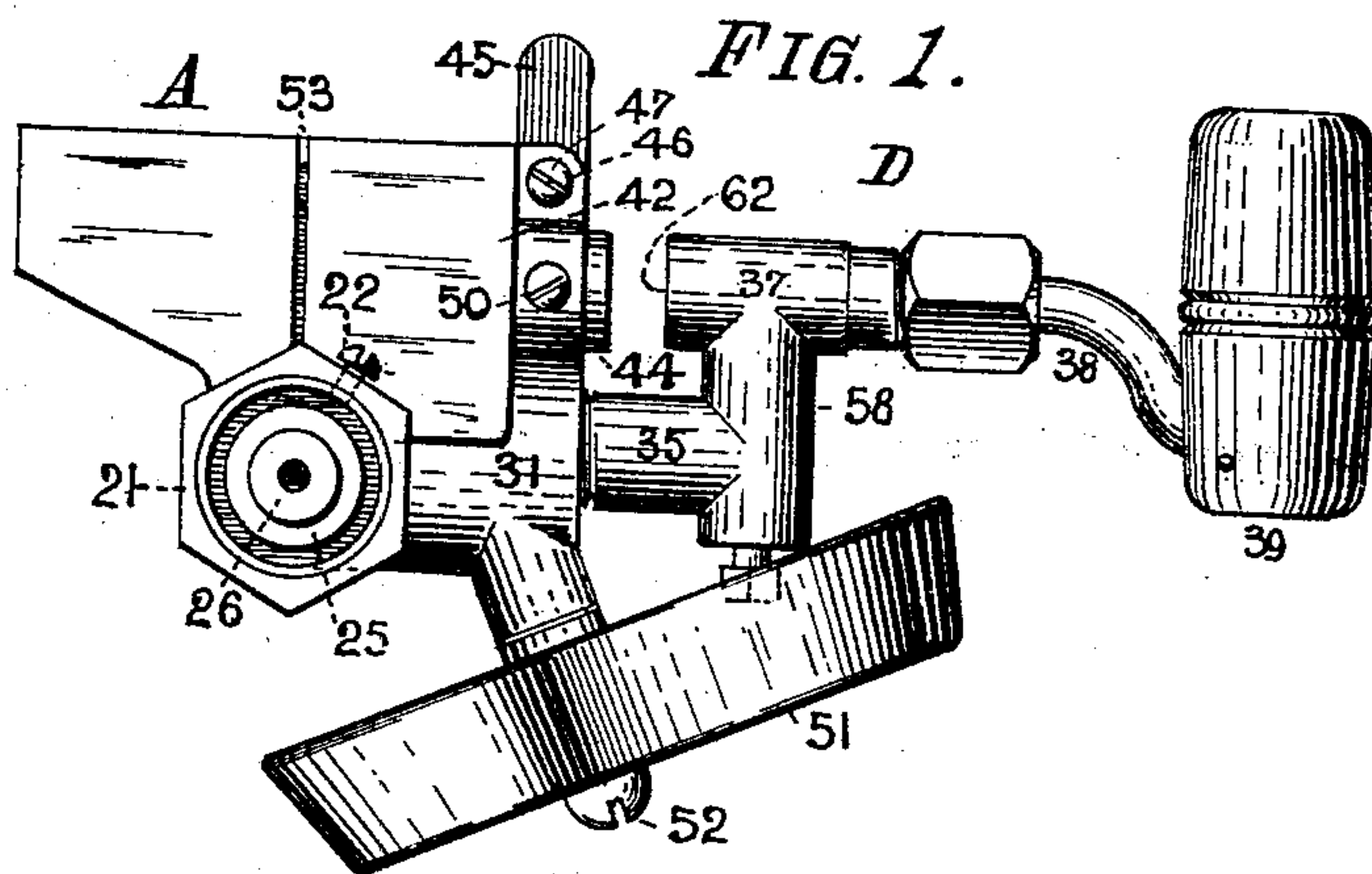


A. W. STRAIGHT.  
HYDROCARBON BURNER.  
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912,506.

Patented Feb. 16, 1909.



Witnesses:

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# UNITED STATES PATENT OFFICE.

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## HYDROCARBON-BURNER.

No. 912,506.

Specification of Letters Patent.

Patented Feb. 16, 1909.

Application filed June 15, 1908. Serial No. 438,571.

*To all whom it may concern:*

Be it known that I, ASA W. STRAIGHT, a citizen of the United States, and a resident of Chicago, in the county of Cook, in the State of Illinois, have invented certain new and useful Improvements in Hydrocarbon-Burners; and I do hereby declare that the following description of my said invention, taken in connection with the accompanying sheets of drawings, forms a full, clear, and exact specification, which will enable others skilled in the art to which it appertains to make and use the same.

This invention has special reference to improvements in hydrocarbon burners; and it consists, essentially, in the novel and peculiar combination of parts and details of construction as hereinafter first fully described, and then pointed out in the claims.

In the drawings already referred to, which serve to illustrate this invention more fully, Figure 1 is a side-elevation of this improved burner. Fig. 2 is a longitudinal sectional elevation of the same. Fig. 3 is an end-elevation, partly in section of the improved burner.

Like parts are designated by corresponding symbols of reference in all the figures.

The object of this invention is the production of an efficient, serviceable, and durable hydrocarbon burner that may be used for heating and lighting purposes.

It frequently happens that a plumber, or other mechanic is called upon to perform work in places that are but insufficiently lighted, or in absolute darkness, thereby necessitating the carrying with him of means for lighting purposes in addition to the usual means for heating soldering irons, solder, lead, etc. To avoid this carrying of several tools for the purpose described, I construct this present burner so that it may be used for both, heating and lighting, purposes, as will hereinafter fully appear.

A, in the drawings designates the burner, and B the standpipe upon which the burner is mounted, said stand-pipe being connected to the usual supply-tank, (not shown), and fuel forced therefrom by an air compressor, in any desired manner. To this stand-pipe B there is screwed an elbow 19, which has its upper member or limb 20 externally screw-threaded to engage a coupling-nut 21; a set-screw 22 in said nut being provided to prevent the coupling-nut 21 from revolving

upon the member 20 when the burner A is revolved to change its position.

23 is a nipple having a screw-thread 24 at one end, and a flange 25, approximately in its middle, and against which the coupling-nut 21 bears; a cylindrical extension 26, in front of said flange, and reaching within the central bore 27 in the member 20, being provided, so that a packing 28, located in the enlarged bore on the end of the member 20, may make a tight joint at the coupling, but allow the nipple to revolve without unscrewing the coupling-nut 21.

The burner proper consists of a wedge-shaped body having an internal chamber 29, terminating in a narrow slit or exit-opening 30. Centrally, this body has a side-wise projecting boss 31, which is internally screw-threaded at its outer end to engage the nipple 23 and thereby establish communication between the supply-tank and the burner, a vein 32 centrally in said boss and terminating in a vein 33, at right angles to the vein 32, forming a connection between the stand-pipe and the needle-valve D, hereinafter to be described. The vein 32 has an enlargement 34, which is internally screw-threaded to receive the shank 35, of said needle-valve D.

The needle-valve is a substantially Z-shaped body of which the member 37 is parallel with the shank 35, said member 37 being internally screw-threaded to receive the needle-rod 38 which has a handle 39 for convenience in operating the same. This needle-rod has a sharply-pointed needle 40, to clear the fine orifice 62 in the end of the member 37, (Fig. 1,) and a shoulder adjacent to this needle, (41,) to serve as a valve-seat in conjunction with a like shoulder in the bore of the member 37 to cut off the gas when the burner is to be extinguished.

In the back wall 42 of the burner body there is a cylindrical passage 43, the axial line of which coincides with that of the member 37 of the needle-valve; and in this passage there is located an induction tube 44, movable axially within said passage by means of a lever 45 pivoted to the burner body within lugs 46 thereon, by a pivot-screw 47; said lever 45 having a reduced portion 48 engaging a hole 49 in said induction tube, as shown in Fig. 2, so that by moving this lever 45 in the proper direction, the distance between the end of the induction tube 44 and the end of the needle-valve member 37 may



be increased or diminished, as the case may be. A set-screw 50, shown in Fig. 1, is provided to lock the induction tube 44 in proper position after correct adjustment has been  
5 made.

In the burner body there are in its opposite sides slotted apertures 53, and attached to this body by a chain 54 there is a perforated slide 55, which slide may be passed into  
10 the said slotted apertures, and when so placed, it acts as a baffle-plate as hereinafter more particularly mentioned.

In the shank 35 of the needle-valve there is a vein 56 communicating with a vein 57 in  
15 the vertical member 58 of said needle-valve thereby completing a continuous passage from the stand pipe B to the needle-valve D.

I will here mention that the burner proper is an integral body having no joints or loose  
20 parts liable to get out of order and that it is sufficiently heavy to last a long time notwithstanding the fact that, being continually heated when in use, it is thereby subjected to rapid oxidation.

In order to start the burner, liquid fuel is placed into an igniting-cup 51 secured to the burner-body by a screw 52 and, this fuel being ignited, heats the burner-body sufficiently to convert the liquid in the veins of  
25 the burner into gas which, by opening the needle-valve escapes from the minute orifice in the needle-valve into the induction tube wherein the oxygen of the air combines with the carbon and produces the hot flame which  
30 issues from the narrow exit-opening 30 in said burner, but also causes the roaring noise incident to nearly all hydrocarbon burners. When sufficient oxygen is permitted to enter the induction tube by providing sufficient space between the ends of  
35 the induction tube and the member 37, the flame will be blue, but when it is desired to use the burner for lighting purposes, the burner A, which is usually placed into a  
40 horizontal or an inclined position, is then, preferably, turned into a vertical position. Then the induction tube 44 is moved toward, and close to, the member 37 by actuating the lever 45, thereby cutting off the supply  
45 of oxygen and thus producing the yellow, or light-giving flame. At the same time the perforated slide 55 is inserted into the slotted apertures 53 to form a partial obstruction to the passage of the gas and thereby to as-  
50 sist in the production of the lighting flame.

This perforated slide also serves as a means to prevent the objectionable roaring noise heretofore mentioned. And it will be observed that, by pivoting the burner A to the stand pipe as described, I am enabled to  
60 turn the burner into the vertical, and as a matter of fact into any other position, which in many instances is an absolute necessity.

Having thus fully described this invention I claim as new and desire to secure to me by  
65 Letters Patent of the United States—

1. The combination of a standpipe, a burner pivoted thereto, said burner having a movable induction pipe, a lever pivoted to the burner and in operative engagement  
70 with said induction pipe, and a removable, perforated, baffle-plate in said burner.

2. The combination in a hydrocarbon burner, of a wedge-shaped body, there being an interior chamber in said body having a  
75 narrow exit-opening; a movable induction-tube in the rear-wall of said body; a lever pivoted to said body and in operative engagement with said induction-tube; a needle-valve secured to said body, the axial line  
80 of which coincides with that of the said induction-tube, and an igniting-cup secured to said body.

3. The combination, in a hydrocarbon burner, of a substantially wedge-shaped  
85 body, there being an interior chamber in said body terminating in a narrow exit-opening, and slotted apertures in the opposite walls of said body; a movable induction-tube in the rear-wall of said body, a lever  
90 pivoted within lugs on said body and in operative engagement with said tube; a needle-valve attached to said body, the axial line of which coincides with that of said induction-tube; a nipple screwed into said  
95 body, there being a collar and an extension on said nipple; a coupling-nut upon said nipple; an elbow in operative engagement with said nut and nipple, packing in said elbow whereby said nipple is hermetically  
100 sealed to said elbow and adapted to revolve in said elbow, and a perforated slide adapted to engage the slotted apertures in said body.

In testimony that I claim the foregoing as my invention I have hereunto set my hand  
105 in the presence of two subscribing witnesses.

A. W. STRAIGHT.

Attest:

MICHAEL J. STARK,  
A. G. PETERSON.