

No. 654,288.

Patented July 24, 1900.

R. SEEGER.  
VAPOR BURNER.

(Application filed Feb. 8, 1897.)

(No Model.)

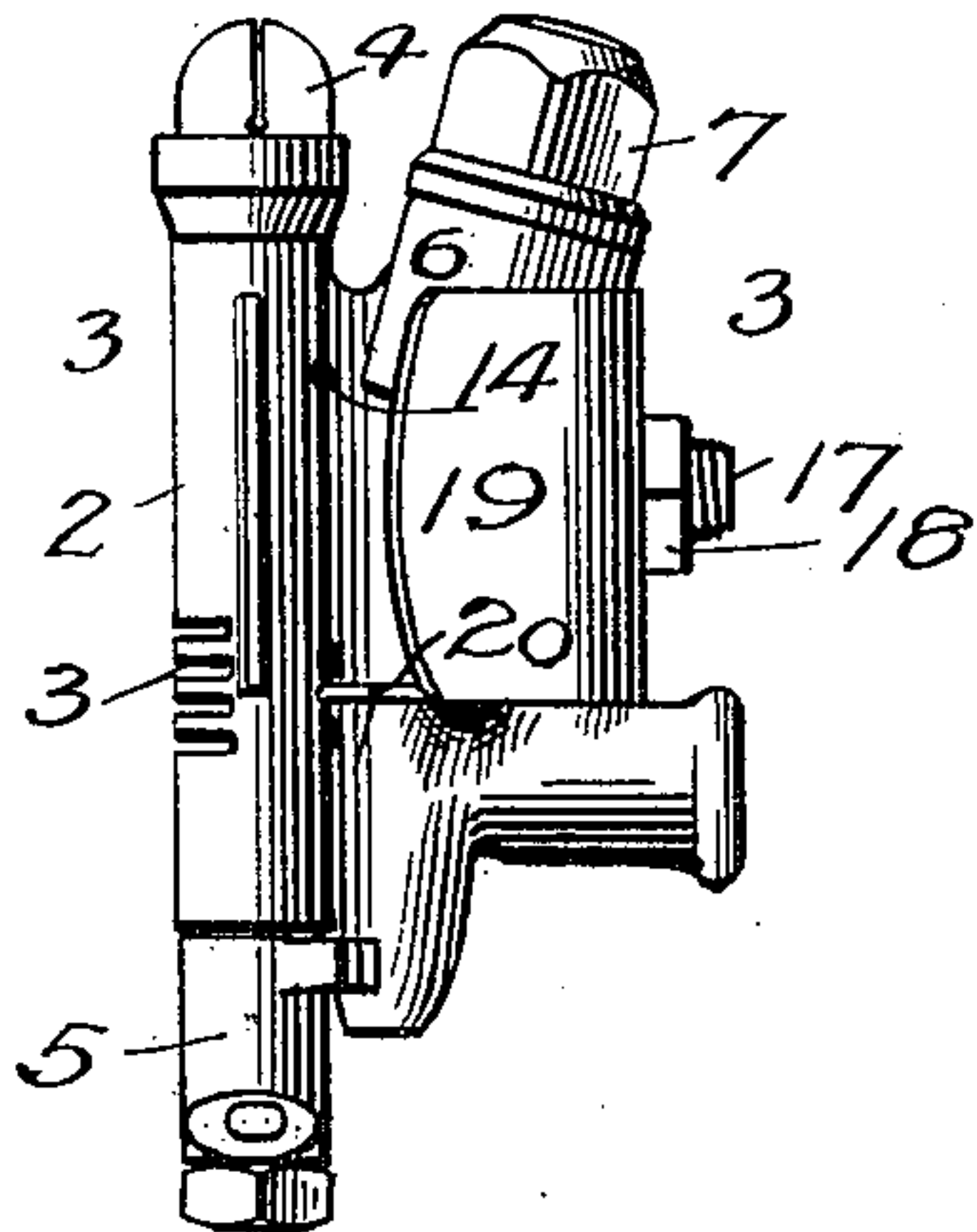


Fig. 1.

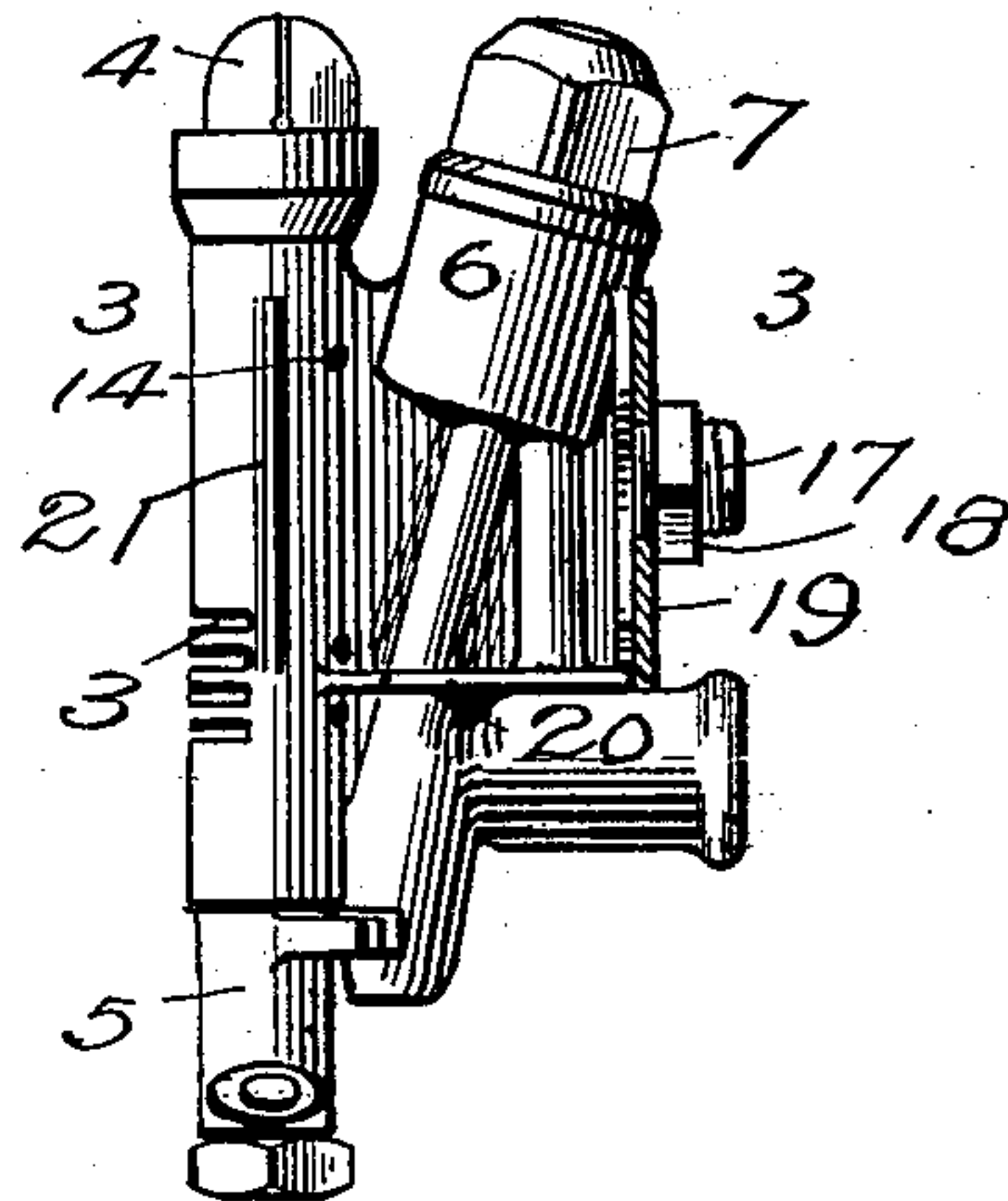


Fig. 2.

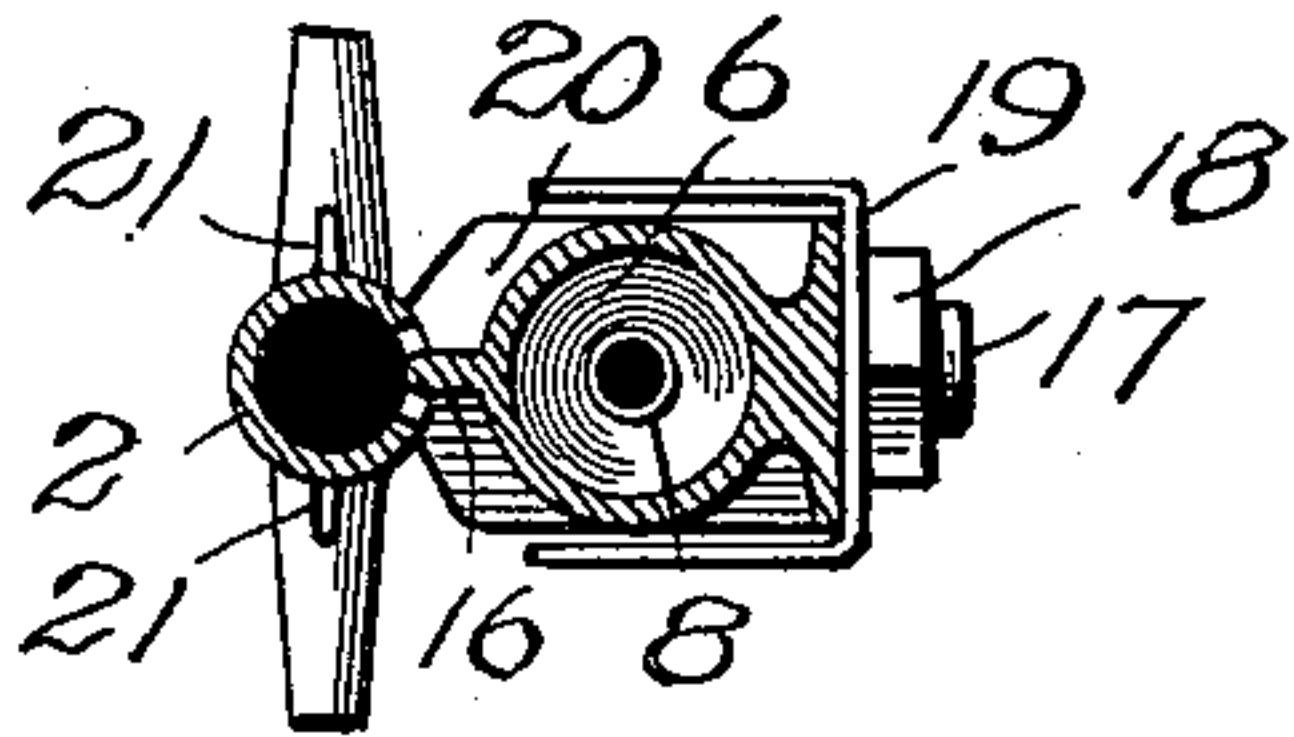


Fig. 3.

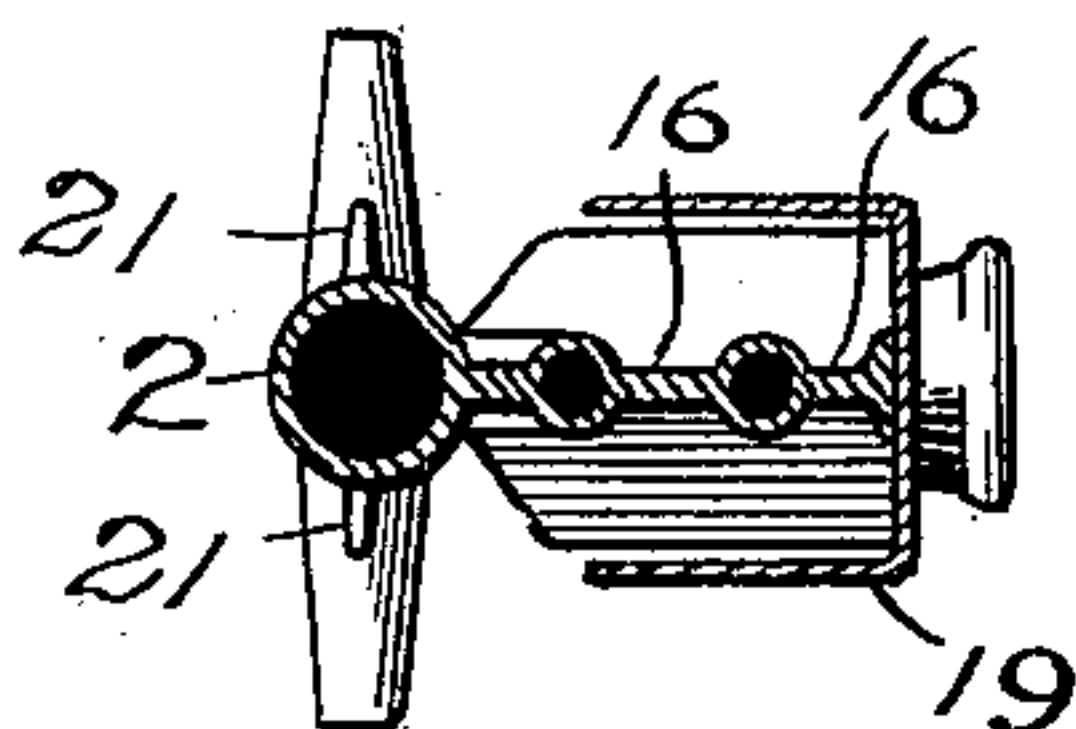


Fig. 4.

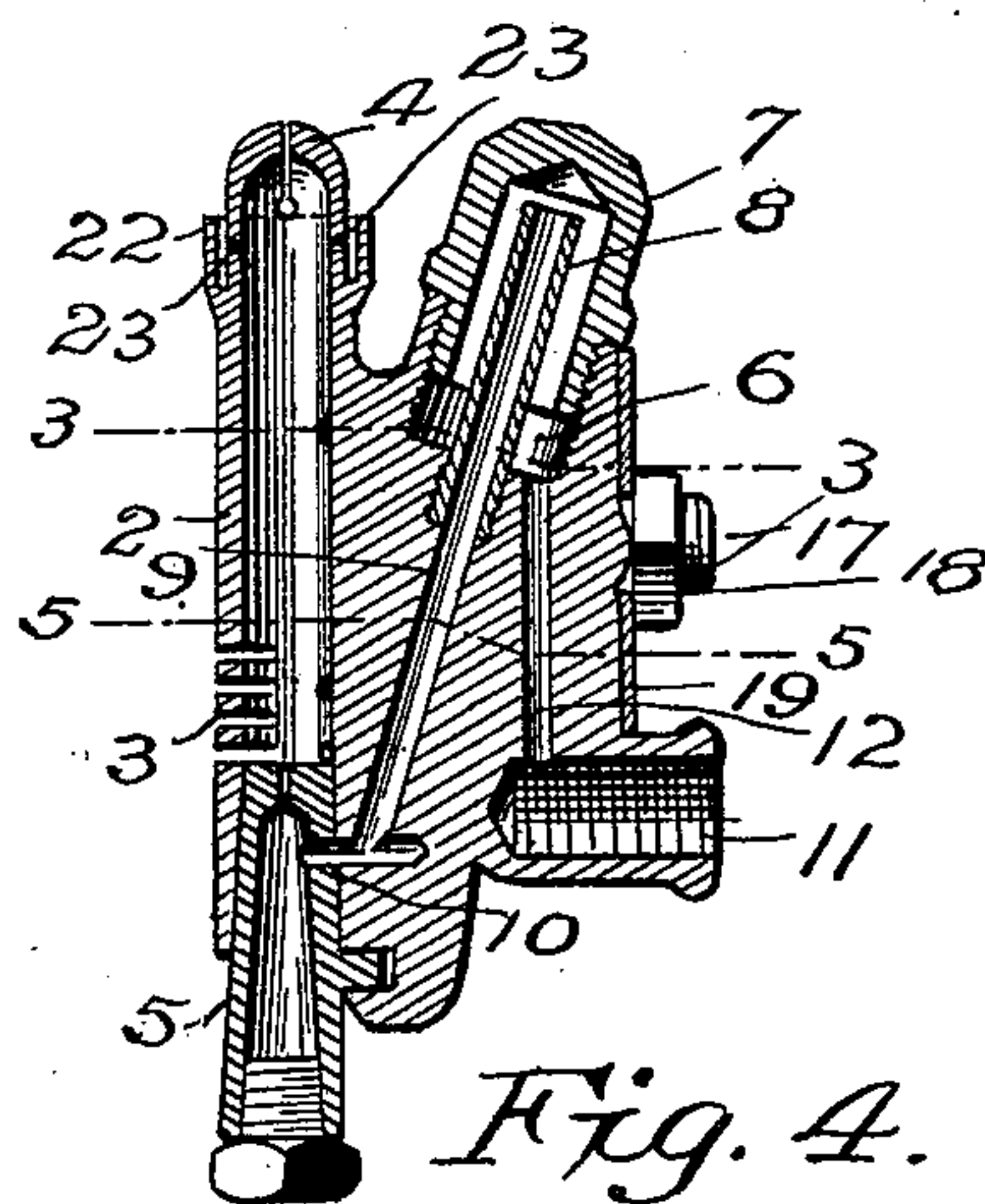


Fig. 5.

Witnesses;  
Chas. E. Van Doren  
Mc. Cooley.  
Inventor;  
Robert Seeger.  
By Paul & Hewley,  
his attorneys



# UNITED STATES PATENT OFFICE.

ROBERT SEEGER, OF ST. PAUL, MINNESOTA, ASSIGNOR TO R. C. JAMES, OF PHILADELPHIA, PENNSYLVANIA.

## VAPOR-BURNER.

SPECIFICATION forming part of Letters Patent No. 654,288, dated July 24, 1900.

Application filed February 8, 1897. Serial No. 622,539. (No model.)

*To all whom it may concern:*

Be it known that I, ROBERT SEEGER, of St. Paul, county of Ramsey, State of Minnesota, have invented certain new and useful Improvements in Vapor-Burners, of which the following is a specification.

This invention relates to improvements in vapor-burners, and is designed especially as an improvement upon the vapor-burners shown and described in my applications for Letters Patent filed November 10, 1894, Serial No. 528,414, and filed June 9, 1896, Serial No. 594,854; and one object I have in view is to provide means whereby the gasolene may be heated before it enters the retort of the burner.

A further object is to provide means whereby the jets used for heating the retort are protected, so as not to be liable to be blown out.

A further object is to arrange the gasolene connecting-pipe so that the packing between the pipe and the burner is not affected by the heat from the jet that heats the retort; and a further object is to provide means for preventing the flame from being blown away from the burner-tip when too much air enters the burner through the openings in the side thereof.

Other objects of the invention will appear from the following detailed description, taken in connection with the accompanying drawings, in which—

Figure 1 is a side elevation of my improved burner. Fig. 2 is a similar view with the shield broken away, so as to show the location of the heating-jet and the surface of the burner below the retort. Fig. 3 is a transverse section of the burner on line 3 3 of Fig. 4. Fig. 4 is a longitudinal vertical section of the burner. Fig. 5 is a transverse section on line 5 5 of Fig. 4.

In this burner the general arrangement of the burner-tube 2, provided with air-openings 3 and with a slotted tip 4 and bottom hollow plug 5, is the same as in the said application Serial No. 594,854. I also provide the retort 6 and a removable carbon-dome 7, and from the upper part of the retort extends a pipe 8, that communicates with the opening 9, leading down to the plug 5, which is provided with an opening 10 in its wall opposite the

lower end of the opening 9. At what I may term the "rear" side of the burner and substantially on a level with the upper side of the plug 5 is a threaded opening 11, formed in a nipple and adapted to receive the end of the gasolene-supply pipe. An opening 12 extends from the inner edge of the opening 11 to the bottom of the retort 6, so that the gasolene passing into the opening 11 must pass up through the opening 12 and enter the retort. In the back side of the burner-tube 2 I provide at each side of the web 16, connecting the rear of the burner-tube with the retort, a jet-opening 14. The flame from this jet-opening extends around and under the retort and over the outer surface of that part of the web 16 in which the opening 12 is formed. This causes the gasolene as it passes up through the opening 12 to receive a preliminary heating, so that it is quickly vaporized as it enters the retort 6. As shown in Figs. 3 and 4, there is a thin web 16 between and formed integrally with the retort and the burner-tube 3. This web extends back under the retort to the back edge thereof, where it is formed with a threaded stud 17, that receives and holds in place by the aid of a nut 18 the U-shaped shield 19. This shield extends on both sides of the retort toward the burner-tube 2, and a horizontal flange 20 is preferably arranged substantially opposite the lower edge of the shield 19. The burner-tube is also provided, preferably at each side, with a projecting flange 21, so that the flame at the jet-opening 14 is substantially inclosed and protected by means of the shield 19, the horizontal flange 20, and the perpendicular flange 21. As the web 16 extends from the rear of the burner-tube back to the inside of the shield without an opening through it, there is no chance for a draft of air through the space within the shield, and hence the flames at the jet-openings 14 are protected and prevented from being blown out by gusts of wind.

I also prefer to provide a ring 22 around the tip of the burner and a little below the slot in said tip. An opening 23, one or more, is formed through the burner-tube just below the top of the ring 22, so that in case too much air is admitted into the burner-tube at



any time the excess of pressure, instead of blowing the flame away from the tip of the burner, will cause part of the mingled air and gas to pass through the opening or openings 5 23 and inside of the ring 22, by which it will be directed upward to enter the flame at the upper end of the tip.

As the threaded opening 11, to which the gasoline-supply pipe is connected, is arranged 10 at some distance from the retort, there is no danger of the heat from the retort affecting the packing in the joint between said pipe and opening, and as the gasoline is subjected to a preliminary heating before it enters the 15 retort it is very quickly vaporized when it enters such retort, and the operation of the burner is thereby rendered very effective.

Having thus described my invention, I claim as new and desire to secure by Letters 20 Patent—

1. The combination, with the burner-tube, of the retort-chamber having its lower portion formed integrally therewith and connected thereto by the web 16, said chamber 25 being opposite and near the burner-tip to be heated by the illuminating-flame, said tube being provided with the vertical flange 21 and said web being provided with a horizontal flange 20, the shield 19 extending around and 30 partially inclosing said web and retort-chamber, and the jet-openings 14 provided in said burner-tube upon opposite sides of said web, for the purpose specified.

2. The combination, in a gasoline or hydro- 35 carbon burner, of a burner-tube, with a supply-pipe connection, a duct forming a means of communication between said connection and said tube, a shield inclosing the said duct, a web or bracket upon the side of said

40 tube and embracing said duct, said web dividing said shield into distinct compartments, and means for maintaining a heating-flame in each of said compartments, substantially as described, and for the purpose specified.

3. In a gasoline or hydrocarbon burner, the 45 combination with the burner-tube having a tip and an air-inlet, of a pipe connection, and a duct extending between the same and the lower part of the burner-tube, and wherein the hydrocarbon is subjected to a preliminary 50 heating by an auxiliary flame from the burner-tube, a shield to protect said flame, and a bracket provided upon said tube and integral therewith, and having an integral stud 17 55 whereon said shield is secured, substantially as described.

4. A hydrocarbon-burner, comprising a burner-tube, an integral web provided on the side of said tube, a chamber in the upper part 60 of said web and opposite and near the tip of said tube, whereby the flame will aid in heating said chamber, a duct leading from said chamber to the lower part of said tube, means 65 for maintaining an independent flame to heat said web and form a retort of said chamber, an oil-supply connection provided in the lower part of said web and a duct leading from said connection to said chamber whereby the oil 70 will be subjected to a preliminary heating before entering said chamber, substantially as described.

In testimony whereof I have hereunto set my hand this 29th day of January, A. D. 1897.

ROBERT SEEGER.

In presence of—

A. C. PAUL,

M. E. GOOLEY.