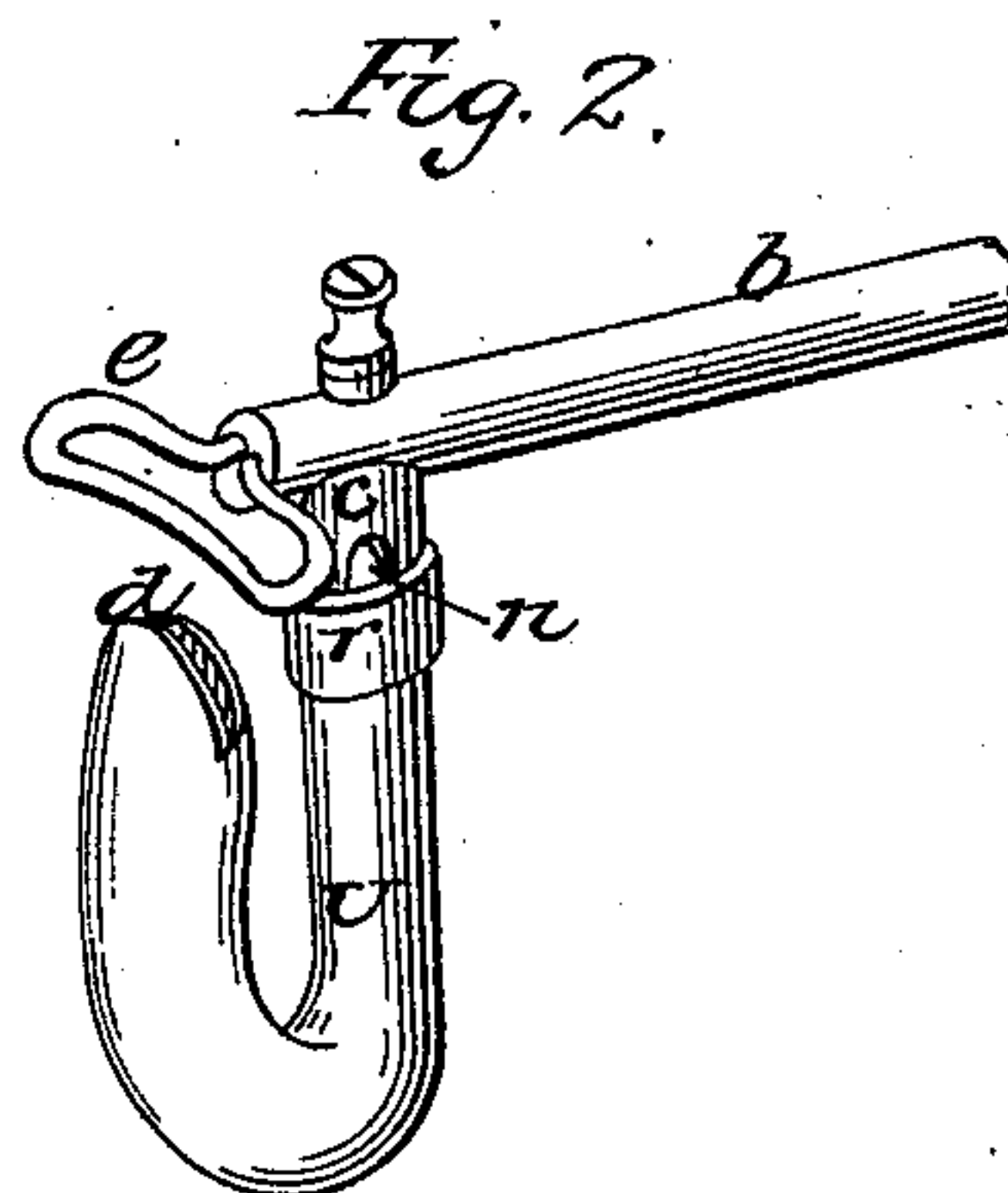
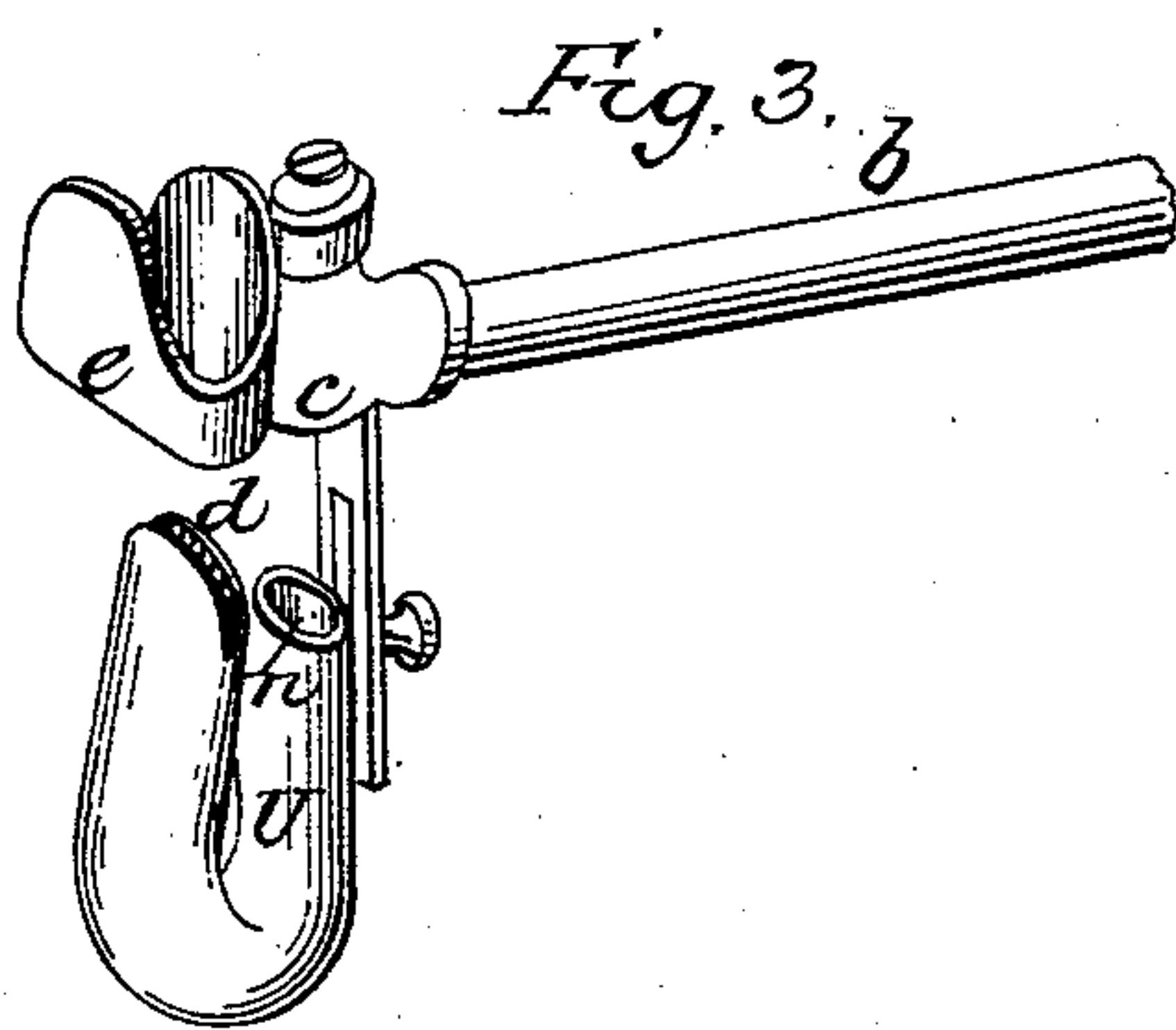
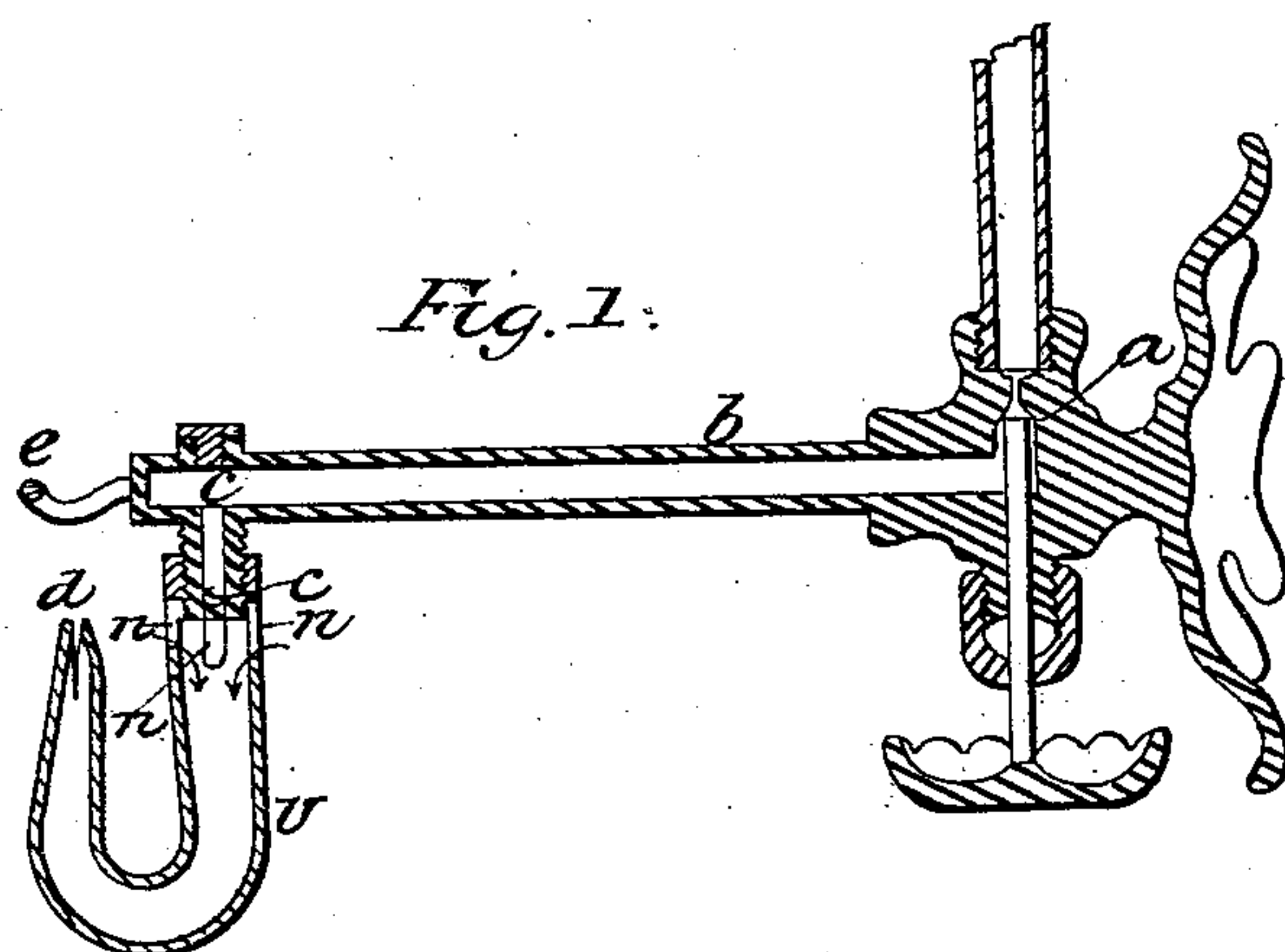


D. H. CARPENTER.

Gas Burner.

No. 17,916.

Patented Aug. 4, 1857.



UNITED STATES PATENT OFFICE.

D. H. CARPENTER, OF WALLINGFORD, CONNECTICUT.

VAPOR-BURNER.

Specification of Letters Patent No. 17,916, dated August 4, 1857.

To all whom it may concern:

Be it known that I, D. H. CARPENTER, of Wallington, New Haven county, Connecticut, have invented certain new and useful
5 Improvements in Vaporizing and Burning Volatile Oils—such as Camphene, Naphtha, &c.—Containing Carbon; and I do hereby declare the following to clearly describe and ascertain said improvements, their construction, arrangement, and application, reference being had to the accompanying drawing, in the several figures of which the device is shown.

Many attempts have been made to produce
15 an apparatus to burn the highly carbonaceous oils with a self generating vapor device; but in all or nearly all a wick or other capillary affix and the discharge orifice being so located in relation to the heater and
20 flame as to admit of condensation, smoke and other annoyance, all of which I have obviated by my arrangements and improvements as will appear in the description.

My burner is constructed as follows: I
25 connect a reservoir of the material to be burned with the burner by a descending pipe of sufficient length, the reservoir being raised some distance above the burner; but as this is not a new device I will not further illustrate it. At the lower end of the
30 connecting pipe from the reservoir there is a regulating check valve at *a*. This is for the purpose of regulating or stopping the flow of the burning fluid from the reservoir. From this point there is a projecting
35 tube *b* standing out horizontally, or nearly so, terminated by a solid end, to which a ring (hereafter described) is affixed. A small pin hole is made in the under side of
40 the pipe *b* at the point *c* or in a short elbow projecting down therefrom as clearly illustrated in the figure. From this point there is a tube of U form extending downward and then curving upward so as to bring its outer
45 end up near the level of the pin hole jet at *c* as above named. This U form tube is for the purpose of receiving the vaporized carbonaceous burning material and mingling with it a sufficient quantity of atmospheric
50 air when it passes out at the orifice at *d* and is there ignited. The orifice at *d* is flattened so as to form an oblong slit which causes the flame to spread into a fan shape, so as to burn like a bat wing burner for gas.
55 A little distance above the orifice *d* there is a flattened metallic ring of wire *e* which serves as a heater. It is connected with the

end of the tube *b* and communicates a high degree of heat to it, the heater receiving its caloric from the blaze or flame issuing at *d*.
60 Thus it will be seen the gas burned is self generated without wick or capillary tube. It has its jet on a level with and opposite the flame at *c*, by which arrangement all condensation that has heretofore been so objectionable and that so continually clogs
65 and stops the action of previous apparatus is avoided. To regulate the quantity of air that commingles with the vaporized carbon in the U shaped pipe I form holes *n* in it at
70 near the point *c*. These holes can be covered to any necessary degree to admit the requisite amount of air to the flame.

Any mode of regulating may be employed that is found convenient, one of which is
75 seen at Fig. 2, and consists of a sliding ring *r* which slides up or down over a series of holes through the pipe. Another mode seen at Fig. 1 is to slide the U shaped pipe up
80 or down to cover more or less of the air holes. These air holes may be large or small, as suits the convenience of the regulator.

By making the combination of parts above described in juxtaposition as stated I am
85 enabled to burn a continuous light without danger of condensation or stoppage from gumming which can be perfectly and accurately adjusted, is without danger and entirely at the command of the consumer. The
90 U form of the tube causes a smooth and steady flame not attainable in a straight tube.

Having thus fully described my improved gas burner for self generated gas what I
95 claim therein as new and for which I desire to secure Letters Patent is—

The bent pipe or equivalent mingling reservoir for mixing the atmospheric air and vapor as above specified and bringing the
100 jet *c* on a level with the igniting orifice *d* by which means the proper draft commingling and heat is attained and the combination therewith of the check valve *a* which
105 supplies and regulates the quantity of vapor necessary to produce the maximum effect for the purposes designed.

In testimony whereof I have to set my hand.

D. H. CARPENTER.

In the presence of—
J. C. BURDICK,
ALB. N. FLOOX.