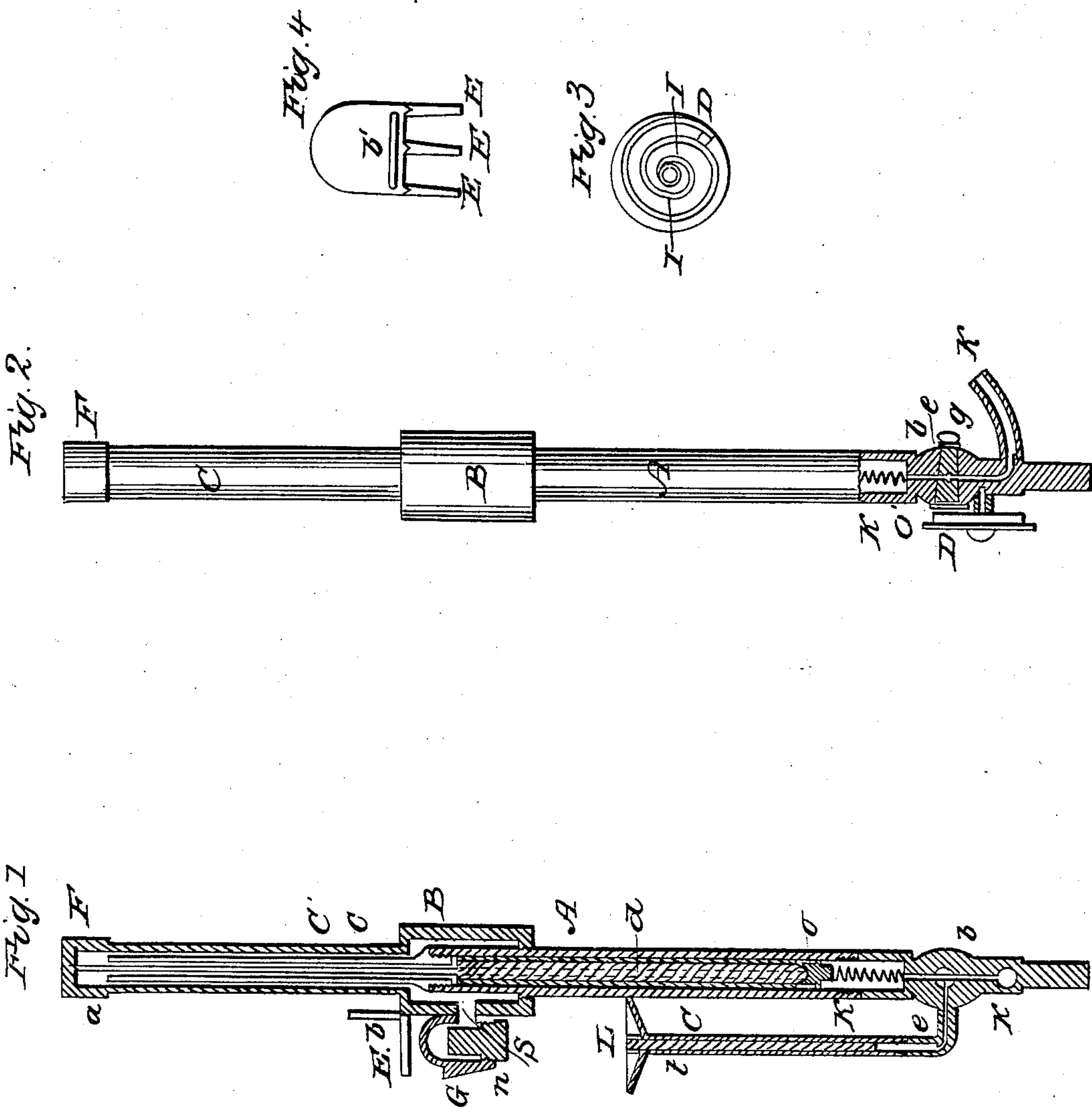


DOPP & MEAD.
Gas Generating Fluid Lamp.

No. 27,211.

Patented Feb. 21, 1860.



Witnesses
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H. W. DOPP AND W. S. MEAD, OF BUFFALO, NEW YORK.

BURNER FOR VAPOR-LAMPS.

Specification of Letters Patent No. 27,211, dated February 21, 1860.

To all whom it may concern:

Be it known that we, H. W. DOPP and W. S. MEAD, of Buffalo, in the county of Erie and State of New York, have invented
5 certain new and useful Improvements in Gas-Generating Fluid-Lamps, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

10 Figure 1 represents a longitudinal section through the center of the retort pipe, wick tube and retort, showing the wire rod and spiral spring employed to adjust it to the
15 length of the pipe as the same is varied by expansion and contraction. Fig. 2 represents a sectional elevation of the same, showing the arrangement of the stop cock with the supply pipe and wick tube.

20 The principal objects of our improvements in gas generating fluid lamps, is to control the supply pipe by the action of heat and cold, so that the heat applied to generate gas in the retort will open the supply pipe,
25 and the same will close itself when the heat is withdrawn—thereby overcoming the liability of the fluids overflowing through the aperture in the burner when the stop cock is improperly adjusted:—and to heat the retort
30 sufficient to generate gas without obstructing the light from the flame—and our invention for effecting these objects consists first, in arranging a wire rod around which the wick is wrapped, longitudinally through
35 the wick tube and retort which surround and protect it from the heat to which the retort is subjected, in combination with a spring in the bottom of the wick tube which lifts the rod,—as the retort pipe is extended by
40 the expansion of the retort—above the aperture through which the fluid rises into the wick tube; the same being closed by a trigonal shaped plug provided with a cap or head on which the end of the rod bears,
45 against the action of said spring. And second, in providing the retort with two or more prongs arranged immediately above the burner and in contact with the flame, so that it will eject between and around, and
50 heat the prongs intensely hot, from which the heat is transferred to the retort, thereby heating it to a degree of temperature sufficient to generate the gas. And it also consists in arranging a tube, provided with a
55 wick, to communicate with the supply pipe, and thus furnish it with a lamp for the pur-

pose of heating the retort, in connection with a stop cock employed to regulate and cut off the flow of oil into said tube. And also in construction and general arrangement of
60 its parts to compose the apparatus.

By reference to the accompanying drawings it will be seen from the construction of this apparatus that every individual part
65 can be readily detached and put together without the least liability of derangement, so that it is convenient at all times to clean and keep it in the best order for satisfactory operation.

The wick tube A communicates with the
70 supply pipe K through a narrow opening *b*, which is closed and opened by the stop cock employed also to close and open the communication *e*, between it and the tube *c*,
75 through which oil is introduced to supply the wick flame for heating the retort. The stop cock *o'* is formed of a conical shaped plug, confined in place by means of a screw and washer *g*, and provided with a hole
80 punctured through it from one side to the other, which corresponds with the opening *b* through which the fluid rises into the wick tube, as seen at Fig. 2.—From this hole an
85 opening leads through one side of the plug into the communication *e*, as seen at Fig. 1, through which the fluid is introduced into
90 the tube *c* to supply the flame for heating the retort. The cock is operated by a thumb turn D provided with a spiral groove *i* in which the crank of the cock turns. A spiral
95 spring *k* is arranged within the wick tube at its lower end, between which and the end of the wire rod *a*, a trigonal shaped plug *o*, provided with a cap or head—is confined. The wick tube is contracted im-
100 mediately around this plug, and forms a rest for the cap or head which stops the aperture through which the fluid rises to the wick tube. The wick tube is screwed
105 into the bottom of the retort, from or about the center of which it is contracted almost as small as the size of the wire rod *a*, and extends to the top of the retort pipe *c*, by
110 which it is surrounded—through the space between which the fluid finds its way to the retort, after rising through the wick *d* and around the wire rod *a*, through the upper end of the wick tube. The retort pipe *c* is
screwed or soldered in the head of the retort, and is provided with a screw cap F
which bears against and regulates the action of the spring K through the rod *a*. The

wick tube A is filled with wick of any suitable description, which is wrapped around and confined at either end to the rod *a*. The retort in the present instance is made of copper, and cylindrical in shape, being provided with three knife shaped prongs E projecting immediately over and across the slot in the burner, with their edges in contact with the flame which rises between and around them, but unites above and forms an unbroken and unobstructed flame, spreading into the same shape as that produced without the prongs. The burner G is screwed into the side of the retort about its center, into which a screw plug *n*—of smaller dimensions than the interior of the burner—extends above and across the opening *s* through which the gas escapes from the retort into the burner. The tube *c* is filled with ordinary lamp wick *t*, through which the fluid rises to supply the flame for heating the retort until sufficient gas is generated to produce a flame from the burner G. The retort is supplied with fluid from a reservoir elevated above it, through the supply pipe K, but when the pipes are cold and contracted the fluid cannot rise higher than the plug *o*—but if the stop cock is so adjusted as to connect the two openings *e* and *b*—as seen at Fig. 1—the fluid will find its way through these openings into the tube *c* and supply the wick *t* with fluid, so that when required to use this apparatus, it is necessary only to light the lamp L, thus formed of a simple straight tube and wick, whose flame will give sufficient light for convenience, and at the same time heat the burner and retort without affecting the wire rod *a* which is protected from the heat by the wick *d* and the wick tube A. When the retort is heated sufficient to generate gas from the fluid, it will expand and release the head of the wire rod which holds the plug *o* into and stops the aperture through which the fluid rises into the wick tube, and the spring *k* will lift the head of the plug above the rest, so that the fluid will pass up

around the plug between its three faces and the sides of the aperture, which is round and forms a guide for the three cornered plug. The fluid passing through the aperture thus opened, rises up through the wick *d* and around the wire rod, to the top of the wick tube, from which it descends through the space around the upper part of the wick tube, between it and the pipe *c*, into the retort B, where it is generated into gas—the flame of which, coming in direct contact with the prongs E, keeps the retort continually heated, and thus generates the gas which it consumes.

When the supply of the fluid is shut off by the stop cock, the flame will continue burning until the gas left in the retort is consumed—and if the flame is extinguished without cutting off the supply of fluid the retort will contract as it loses its temperature and force the wire rod down on plug *o*, which stops the aperture and excludes the fluid from the wick tube.

Having thus fully described our invention what we claim as new and desire to secure by Letters Patent is—

1. The arrangement of the pipe A, wick tube *c*, and stop cock *o'*, by means of which the fluid is supplied to either or both of the pipes or tubes A, and *c*, said cock being operated by means of a cam wheel D, substantially as and for the purpose specified.

2. Arranging the burner G, with the heater B, in the manner specified, the burner being secured to the heater, and the heater being provided with pins (E) which pass through the dark portion of the flame above the burner, substantially as specified.

3. The arrangement of the burner G, heater B, pipe A, and tube *c*, together substantially in the manner and for the purpose specified.

H. WM. DOPP.
WM. S. MEAD.

Witnesses.

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WM. W. PEACOCK.