No. 734,201. PATENTED JULY 21, 1903.

H. S. THORNTON.

VAPOR BURNER.

APPLICATION FILED JAN. 20, 1902.

NO MODEL.

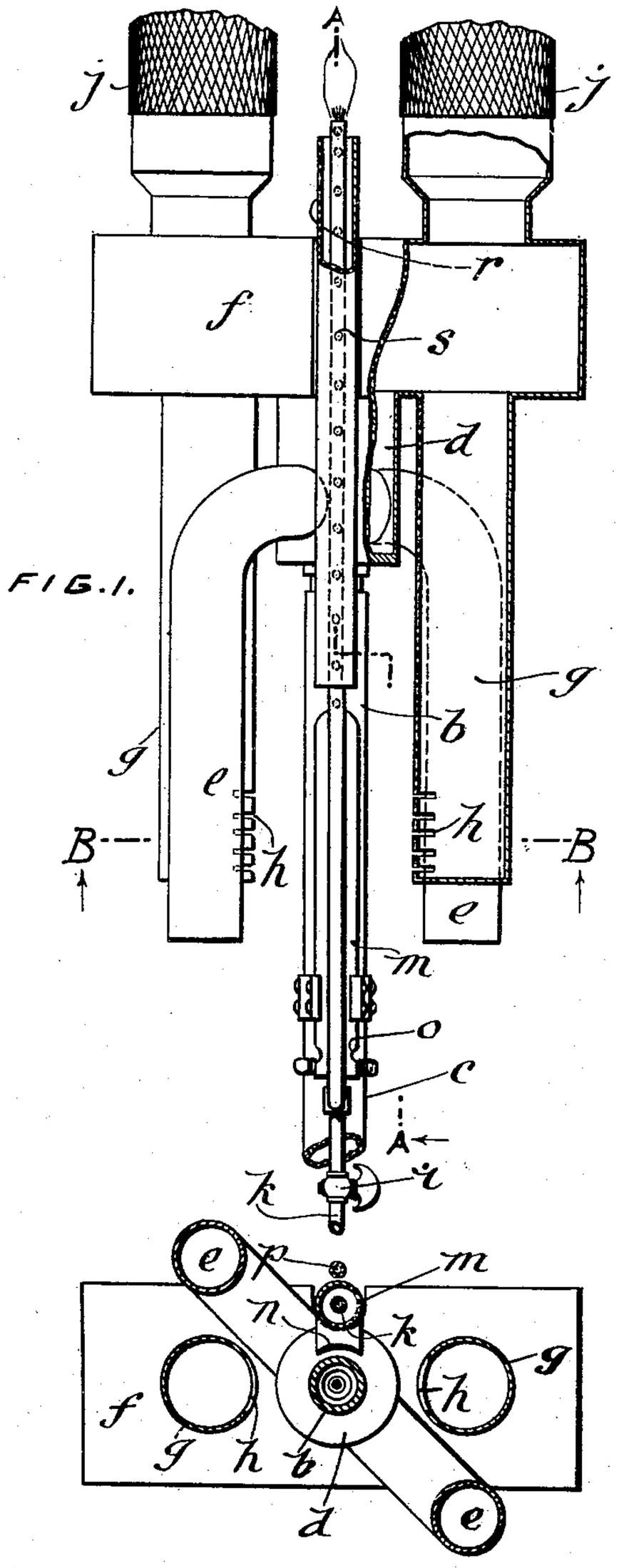

FIG. 1.

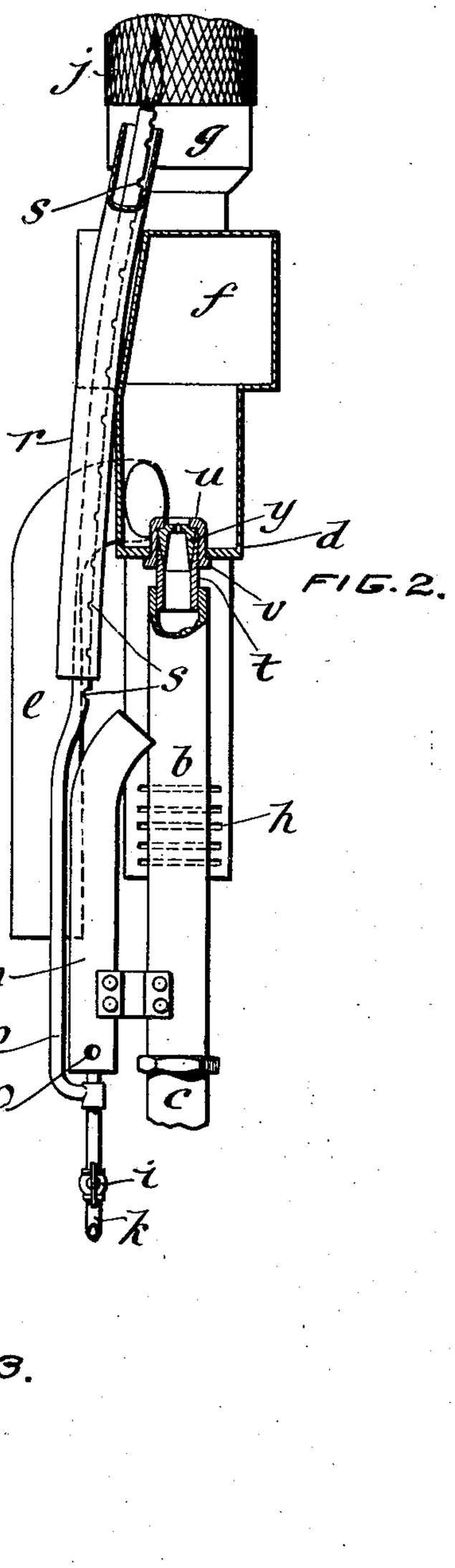

FIG. 2.

FIG. 3.

Witnesses
R. A. C. Kimber
H. E. Williams

Inventor
Harold S. Thornton
By his Attorney
Alvin N. Shaw

No. 734,201. Patented July 21, 1903.

UNITED STATES PATENT OFFICE.

HAROLD SYDNEY THORNTON, OF MONTREAL, CANADA, ASSIGNOR, BY MESNE ASSIGNMENTS, TO KOMO HEAT AND LIGHT COMPANY, OF PIERRE, SOUTH DAKOTA, A CORPORATION OF SOUTH DAKOTA.

VAPOR-BURNER.

SPECIFICATION forming part of Letters Patent No. 734,201, dated July 21, 1903.

Application filed January 20, 1902. Serial No. 90,565. (No model.)

To all whom it may concern:

Be it known that I, HAROLD SYDNEY THORNTON, of the city of Montreal, district of Montreal, Province of Quebec, Canada, have invented certain new and useful Improvements in Vapor-Burners; and I do hereby declare that the following is a full, clear, and exact description of the same.

My invention relates particularly to burners wherein oil is first vaporized and then burned upon one or more mantles or other burners proper.

The invention may be said, briefly, to consist in constructing a burner of the above type to comprise an automatic igniter in connection with a vertical tubular generator communicating at its upper end with a mixing-chamber from which the mantle or other burner proper is fed, while a subburner acting as a heater and adapted to cause a flame to impinge upon said generator is fed by one or more tubular branches leading thereto from said mixing-chamber, the upper end of the generator at the point where it communicates with the mixing-chamber being furnished with a jet-fitting and one or more air-supplying tubes communicating with said mixing-chamber adjacent to the point where the generator joins it, a part of said igniter serving to start vaporization, while the igniter ignites the vapor when it begins to escape from the burner proper.

For full comprehension, however, of my invention reference must be had to the accompanying drawings, forming a part of this specification, in which like symbols indicate the same parts, and wherein—

Figure 1 is a side elevation of a duplex vapor-burner constructed according to my invention. Fig. 2 is a longitudinal vertical sectional view thereof, taken on line A A, Fig. 1; and Fig. 3 is a horizontal sectional view taken on line B B, Fig. 1, looking up.

The generator *b* is of tubular form and is carried by and secured rigidly to the oil-supply pipe *c*, which leads from any approved type of oil-supplying device. The upper end of the tubular generator is provided with a jet-fitting, to be presently described, and a mixing-chamber is supported thereon which consists of a short tube *d*, the lower end of which is partially closed and receives the said upper end of the tubular generator, and the lower portion has a pair of air-supplying tubes *e* communicating therewith. This mixing-chamber communicates with a horizontal distributing-chamber consisting of a box *f*, having a pair of subflame-tubes *g* communicating therewith and extending downwardly therefrom to within a short distance of this lower end and one on each side of the generator. The lower ends of these latter tubes are closed, and the perimeter of each near its lower end is slit, as at *h*, on the side nearest the generator, while a pair of burners proper, *j*, in the form of mantles or heating-burners of any desired type are supported upon the top of and fed from said box, the function whereof is to distribute the mixed air and inflammable vapor to said burners and the subflame-tubes.

The combined starter and igniter consists of a pipe *k* of diminutive bore controlled by a tap *i* and extending from any available supply (not shown) of inflammable vapor into the lower end of an auxiliary burner-tube *m*, the upper end whereof is bent into close proximity to the generator and of concave form, as at *n*, to partially inclose same, while the lower end thereof is provided with a series of air-inlet holes *o*. A branch pipe *p*, also of diminutive bore, extends from this pipe *k* at a point below the auxiliary burner-tube *m* to within close proximity to and between the burners proper, *j*, this branch pipe having its upper portion inclosed in a tube *r*, and the portion thereof within said tube is formed with a series of holes *s*, located at intervals.

The jet-fitting before mentioned at the upper end of the tubular generator has an exteriorly-screw-threaded and interiorly-flared short tubular length *t* set rigidly therein, in which a jet jewel-fitting *y* (well known in this type of burner) is rigidly held in place by an interiorly-screw-threaded cap *u*, screwed upon said short tubular length *t* and having a circumferential flange *v* upon the lower end thereof, the function of this flange being to afford a seat for the mixing-chamber and through it almost the complete burner,

which rests removably upon it, thus enabling the parts to be readily taken apart for cleansing or renewal.

The action of my improved vapor-burner is as follows: The tap *i* is opened and the auxiliary burner *m* lighted, and from this the vapor escaping from the lowermost hole in the branch *p* will ignite, following which the vapor escaping from each successive hole will be ignited until a flame is caused to burn at the top of the tube *r* ready to ignite the vapor immediately it begins to escape from the burners proper. Meanwhile the auxiliary burner will be heating the generator, which will cause the oil supplied thereto in the usual manner to be vaporized and projected through the jewel *y* into the mixing-chamber, where it mixes with air drawn through the air-supply tubes and flows into the distributing-chamber and from there to the burners proper and the subburners.

What I claim is as follows:

1. In a vapor-burner the combination with a tubular generator, of an exteriorly-screw-threaded and interiorly-flared short tubular length set rigidly in the upper end of said tubular generator, a jet jewel-fitting set in the flared interior of said short tubular length, an interiorly-screw-threaded cap screwed upon said short tubular length and having an interiorly-projecting annular flange for holding said jet jewel-fitting in place and a circumferential flange upon the exterior thereof for supporting the vapor-burner, mixing-chamber and burner proper, substantially as described.

2. A vapor-burner comprising a vertical tubular generator, a mixing-chamber into which said generator discharges, an air-supply tube penetrating said mixing-chamber, said air-supply tube being curved downwardly approximately parallel with the generator and adjacent thereto and being open at its lower end, a tube depending from a distributing-chamber above said mixing-chamber said tube being adjacent to and approximately parallel with the generator and air-supply tube, said tube being closed at its lower end and provided on the side adjacent to the generator, and slightly above its lower end with one or more horizontal slits or openings, the open end of the air-supply tube being below the horizontal slits in the depending tube and the tubes being arranged so that the flame of the burning vapor issuing from the horizontal slit or slits will heat said generator and air-supply tube.

3. A vapor-burner comprising a vertical tubular generator, a mixing-tube into which said generator discharges, a distributing-chamber above said mixing-tube communicating therewith, an air-supply tube arranged parallel with and adjacent to said generator and opening at its upper end into said mixing-tube, a vapor-tube depending from the distributing-chamber parallel to and adjacent to said generator and air-supply tube, said depending tube being closed at its lower end and provided in the side adjacent to the generator and above the open end of the air-supply tube with a horizontal slit or opening, the tubes being arranged so that the flame of the vapor issuing from such slit will heat the generator and air-supply tube, and a main burner-tube arranged to receive mixed air and vapor from the distributing-chamber, and convey it to the burner.

In testimony whereof I have affixed my signature in presence of two witnesses.

HAROLD SYDNEY THORNTON.

Witnesses:
WILLIAM P. MCFEAT,
FRED J. SEARS.