

No. 670,333.

Patented Mar. 19, 1901.

A. SIMONINI.
SELF LIGHTING GAS BURNER.

(Application filed Mar. 9, 1900.)

(No Model.)

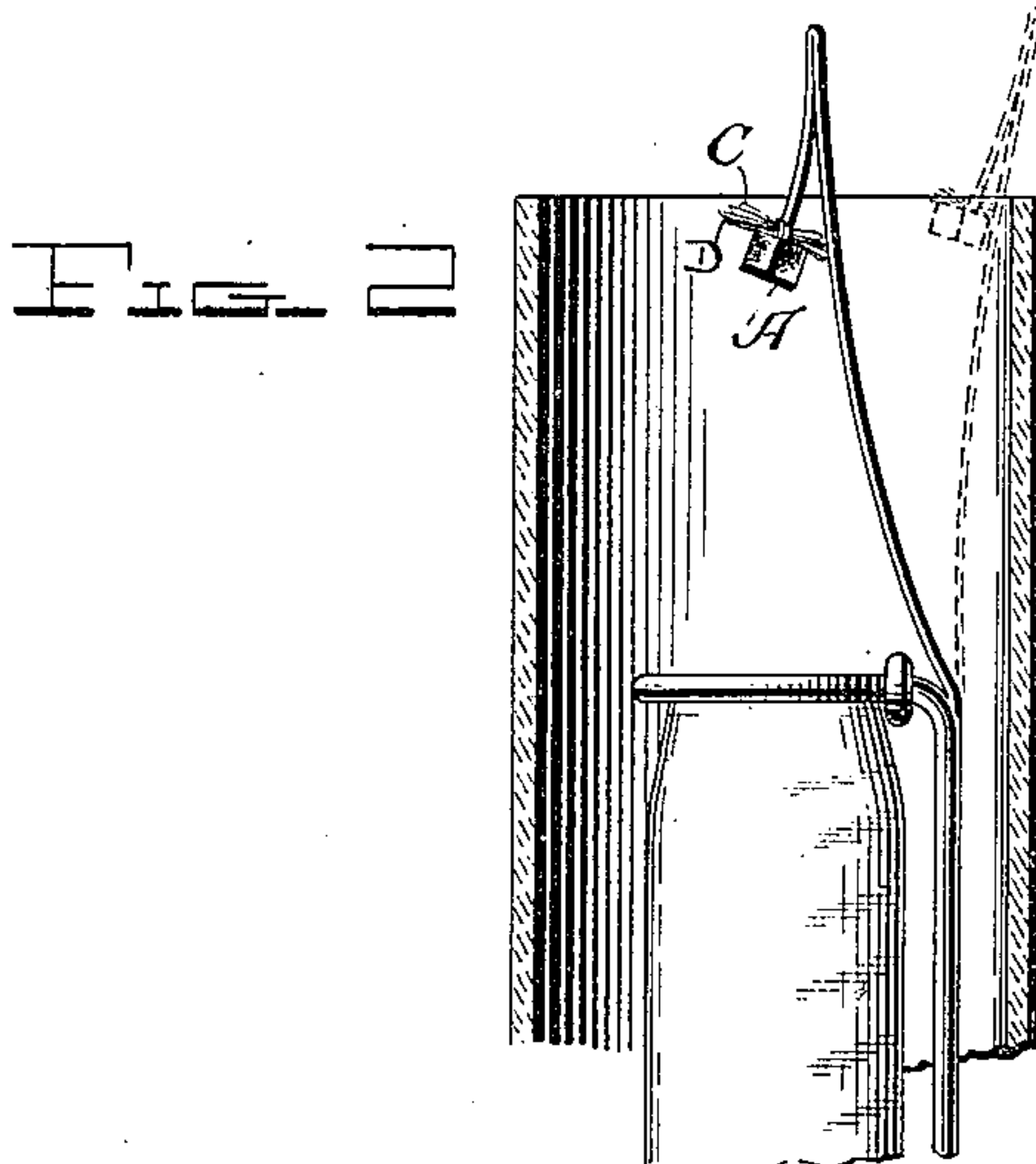
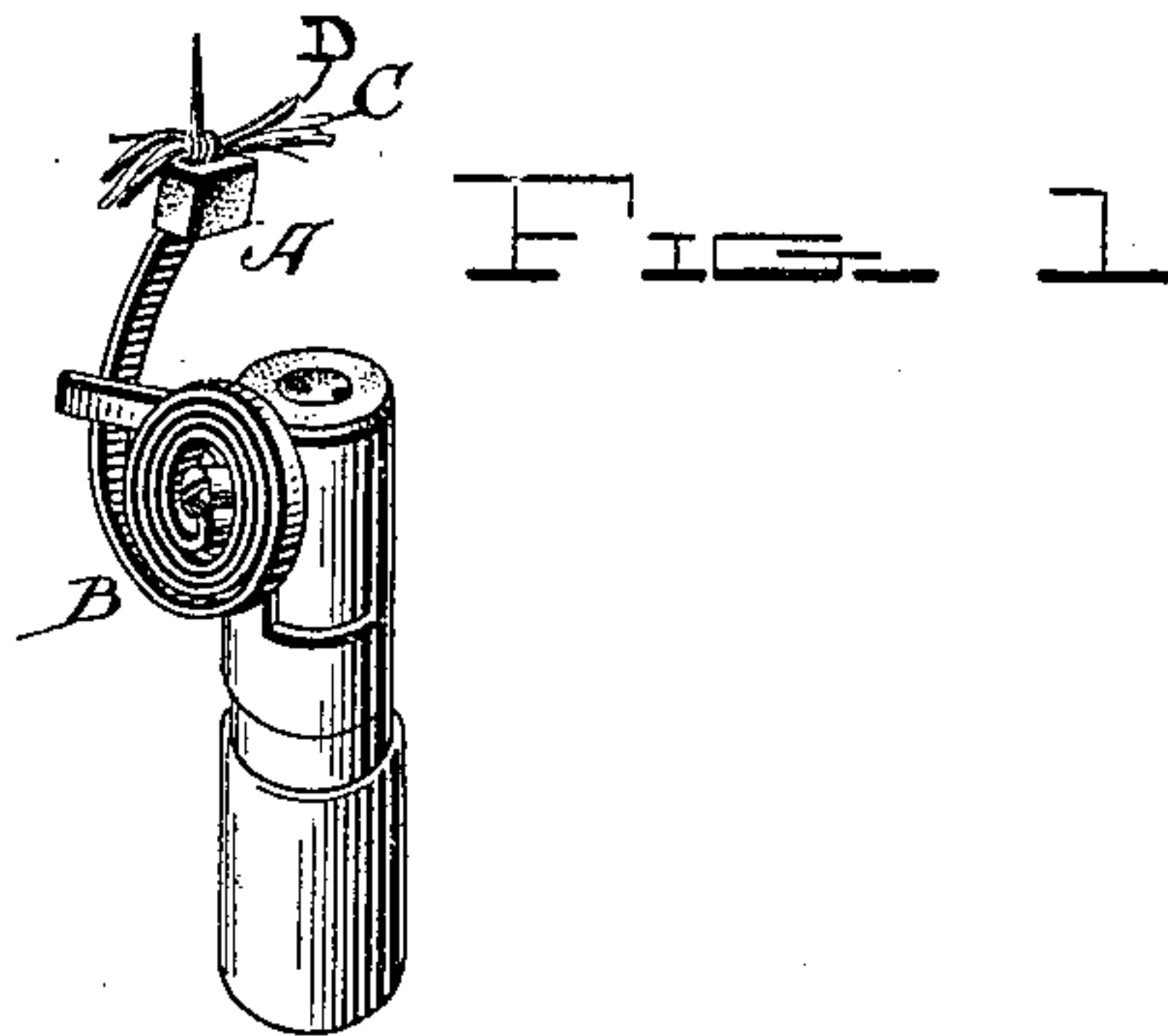
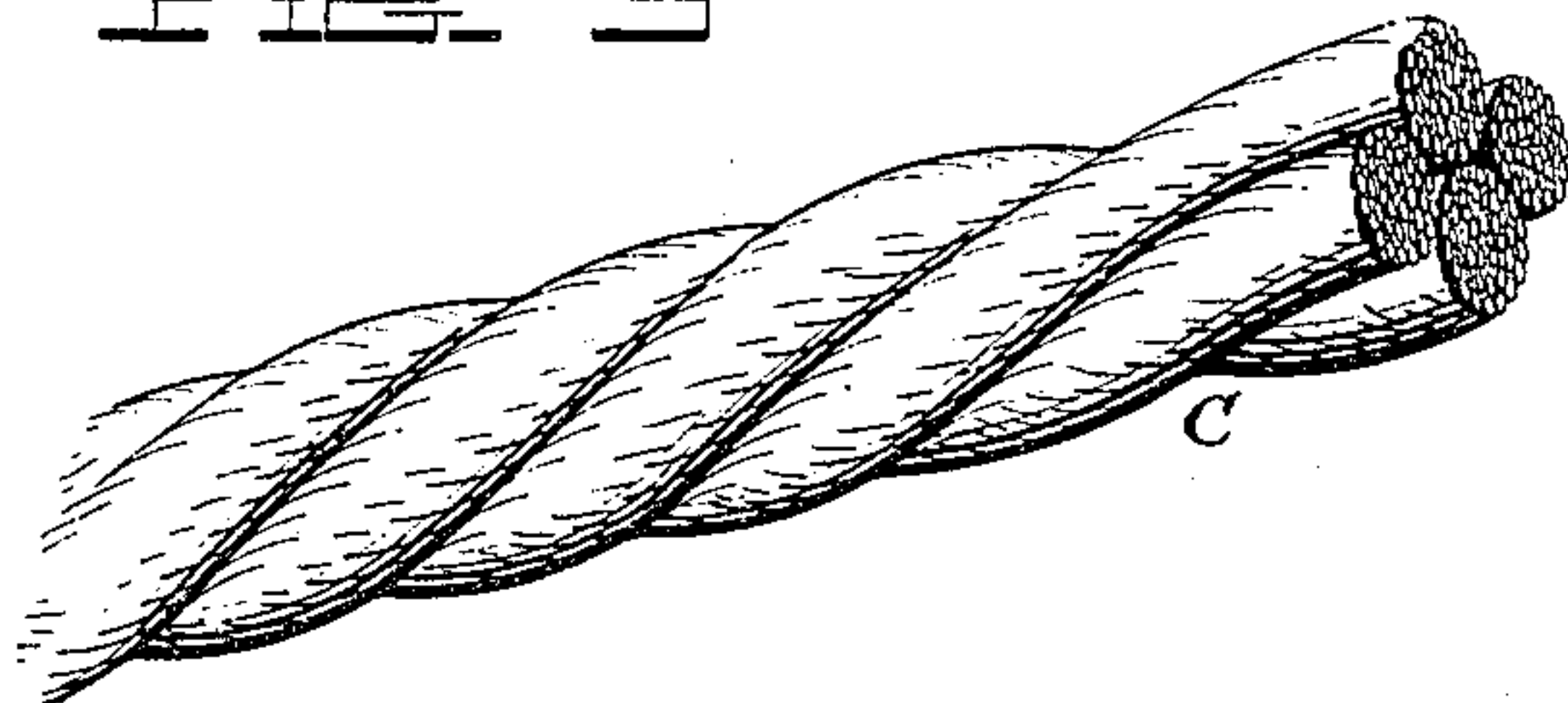


FIG. 3



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UNITED STATES PATENT OFFICE.

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SELF-LIGHTING GAS-BURNER.

SPECIFICATION forming part of Letters Patent No. 670,333, dated March 19, 1901.

Application filed March 9, 1900. Serial No. 8,026. (No model.)

To all whom it may concern:

Be it known that I, ANGELO SIMONINI, a subject of the Emperor of Austria-Hungary, residing at Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Self-Lighting Gas-Burners, of which the following is a specification.

My present invention pertains to lighting devices for causing the ignition of illuminating gases and vapors, the construction, composition, and advantages of which will be hereinafter set forth in detail, reference being had to the accompanying drawings, wherein—

Figure 1 is a perspective view of an open gas-burner; Fig. 2, a similar view showing the device applied to an incandescent-mantle support, and Fig. 3 an enlarged detail view of a portion of one of the threads or strands of the igniter.

In the present instance I employ a preliminary heater A, composed of or comprising in the main a body of platinum-black made up in the form of a pill or pellet and carried by a suitable support, which support in turn is preferably mounted on a thermostatic coil B. In connection with said preliminary heater there is also employed what I term an "igniter" and also a third body or substance termed for the purpose of description an "intermediate heater."

It is of course understood that the pill or pellet A serves to absorb or condense a certain amount of oxygen or gas and is thereby caused to glow. The heat thus generated is transferred from said pill or preliminary heater to the intermediate heater and from this intermediate heater to the igniter proper.

Under certain conditions and with some grades or qualities of gas the intermediate heater may act as an igniter; but for general use, where the conditions and quality of the gas cannot be definitely known, it is best to employ the three parts in conjunction. The igniter and intermediate heater are not generally in and of themselves capable of absorbing in the first instance the gases or oxygen and causing ignition, but after having been preliminarily heated by the heat derived or absorbed from the glowing pill or pellet these parts become active.

I have heretofore employed an igniter made

out of suitable webbing impregnated with a solution of nitrate of cerium, or nitrate of didymium, or nitrate of praseodymium, or nitrate of neodymium, or with a mixture of thorium nitrate with one or more of the nitrates named—cerium, didymium, or praseodymium, or neodymium—with or without a very small percentage of ruthenium. A very effective preparation consists of ninety-two per cent. of thorium nitrate, four per cent. of neodymium, and four per cent. of cerium nitrate in a suitable quantity of water—say a liter of water to one kilogram of the salt compound. Ruthenium, if used, should not exceed .2 of one per cent., and it is preferred that it shall be as low as .1 of one per cent. Ruthenium is found when used in this small quantity to hasten the lighting action. The webbing or threads thus impregnated are ashed before being used, and consequently are transformed into the oxids of the various earths. In the present instance this is used as the intermediate heater and is designated by the letter C in the drawings. The combination of rare earths thus brought about is different from that combination of rare earths which goes to make up the ordinary incandescent mantle. In fact the better the self-lighter obtained by the combination of rare earths the less suitable is this same combination for making up an incandescent mantle. This has been found to be a fact from actual use and is here stated for the purpose of distinguishing the present invention from that class of self-lighting mantles wherein the mantle itself forms a part of the igniter.

The last part or igniter of the present lighter is composed of a platinum wire or wire of the platinum group or oxids of metals which produce by their catalytic action a high degree of temperature sufficient to ignite the gas or vapor coming in contact therewith, or the igniter may be composed of a wire of the platinum group in conjunction or combination with one or more of the rare earths, as indicated by the threads D, Figs. 1 and 2. In some instances the gas or vapor will be ignited by the conjoint action of the pill or pellet and the rare earths above described without the third member or igniter. In other words, the combination of rare earths acts as an igniter. As above noted, however,

it is best to employ all three parts for general use, inasmuch as the conditions cannot always be determined.

Having thus described my invention, what I claim is—

1. A lighter for gases and vapors comprising, in combination, a preliminary heater composed of platinum-black, and a secondary heater composed of a combination of rare earths capable when heated of absorbing and condensing large volumes of gases and being thereby rendered highly incandescent, substantially as and for the purpose described.

2. A lighter for gases and vapors, comprising, in combination, a preliminary heater of platinum-black, and a secondary heater composed of a webbing or body impregnated with a solution of a nitrate of a rare earth, substantially as described.

3. A lighter for gases and vapors, comprising, in combination, a preliminary heater of platinum-black; a secondary heater comprising a webbing or body impregnated with a solution of a nitrate of a rare earth, substantially as specified; and an igniter comprising a wire of the platinum group, which produces by catalytic action a degree of temperature

sufficiently high to ignite the gas when said igniter receives a sufficient degree of heat from the secondary heater to render it active.

4. A lighter for gases and vapors comprising, in combination, a preliminary heater of platinum-black; a secondary heater comprising a webbing or body impregnated with a solution of a nitrate of a rare earth, substantially as specified; and an igniter which produces by catalytic action a degree of temperature sufficiently high to ignite the gas or vapor when said igniter receives a sufficient degree of heat from the secondary heater to render it active.

5. A lighter for gases and vapors, comprising in combination, a preliminary heater of platinum-black; and a secondary heater composed of a webbing or body impregnated with a solution containing a plurality of nitrates of the rare earths, substantially as specified.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ANGELO SIMONINI.

Witnesses:

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