

(No Model.)

D. W. SMITH.  
ELECTRIC WATER HEATER.

No. 411,737.

Patented Sept. 24, 1889.

Fig. 1,

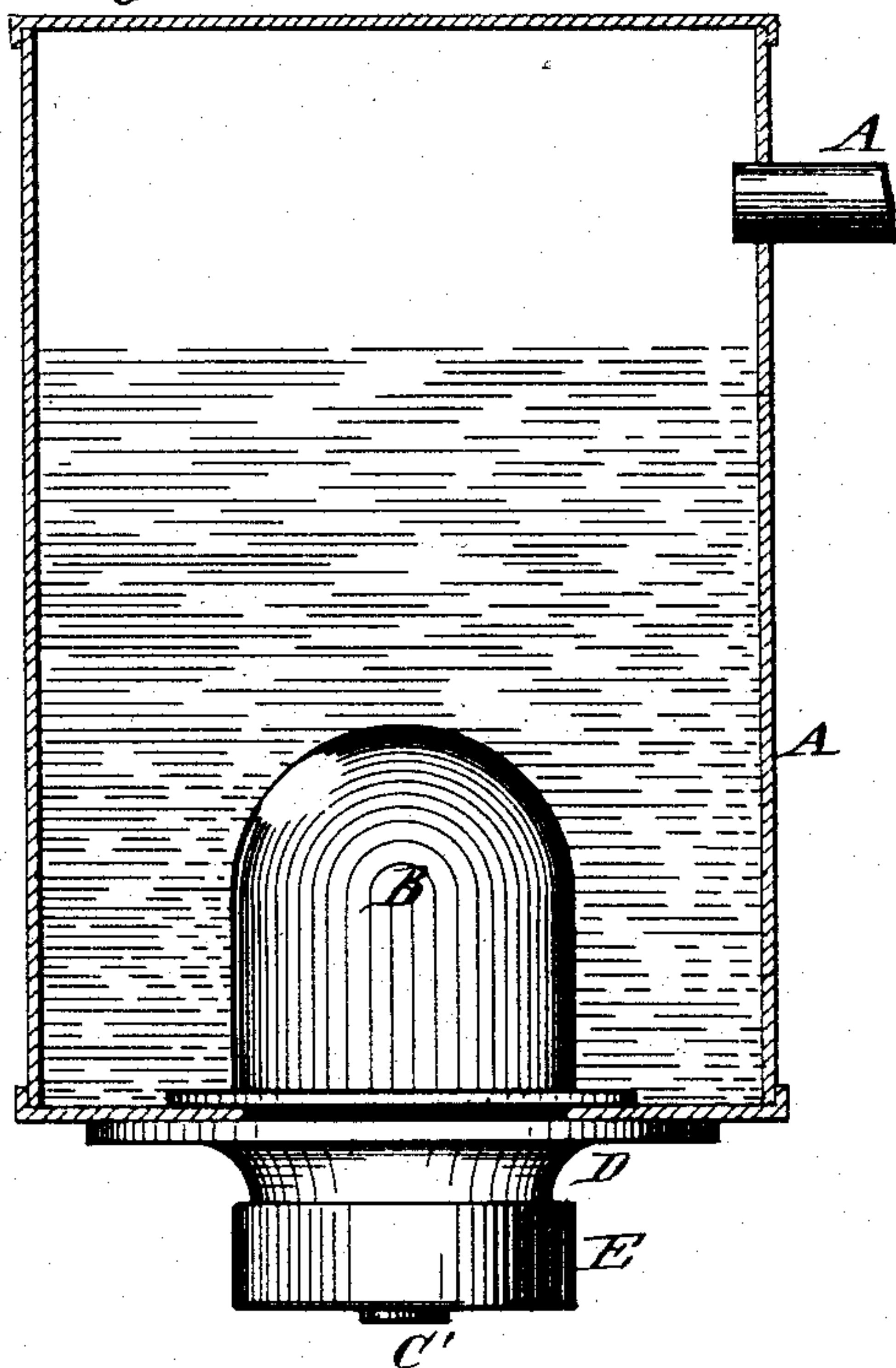


Fig. 2,

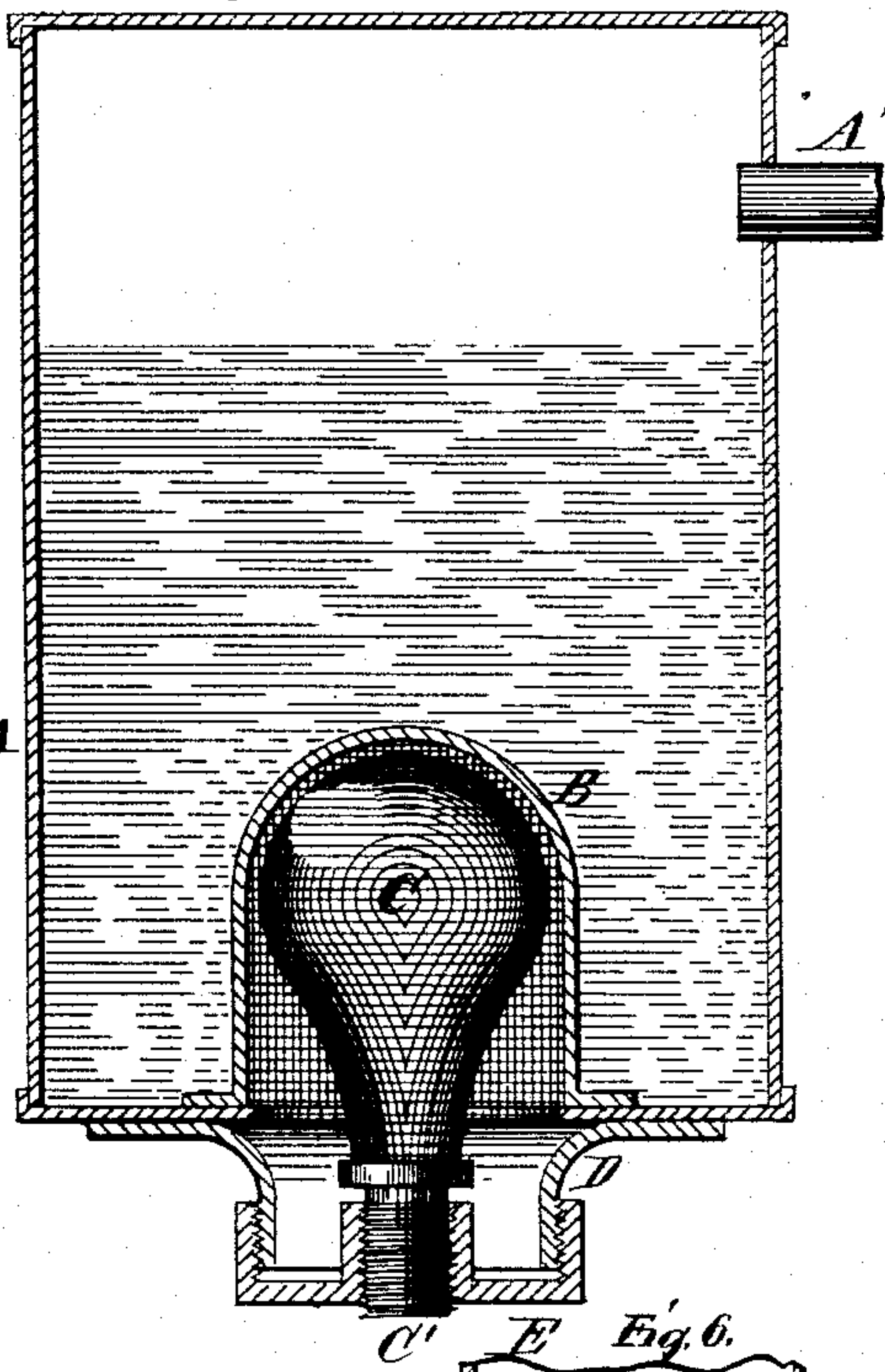


Fig. 3,

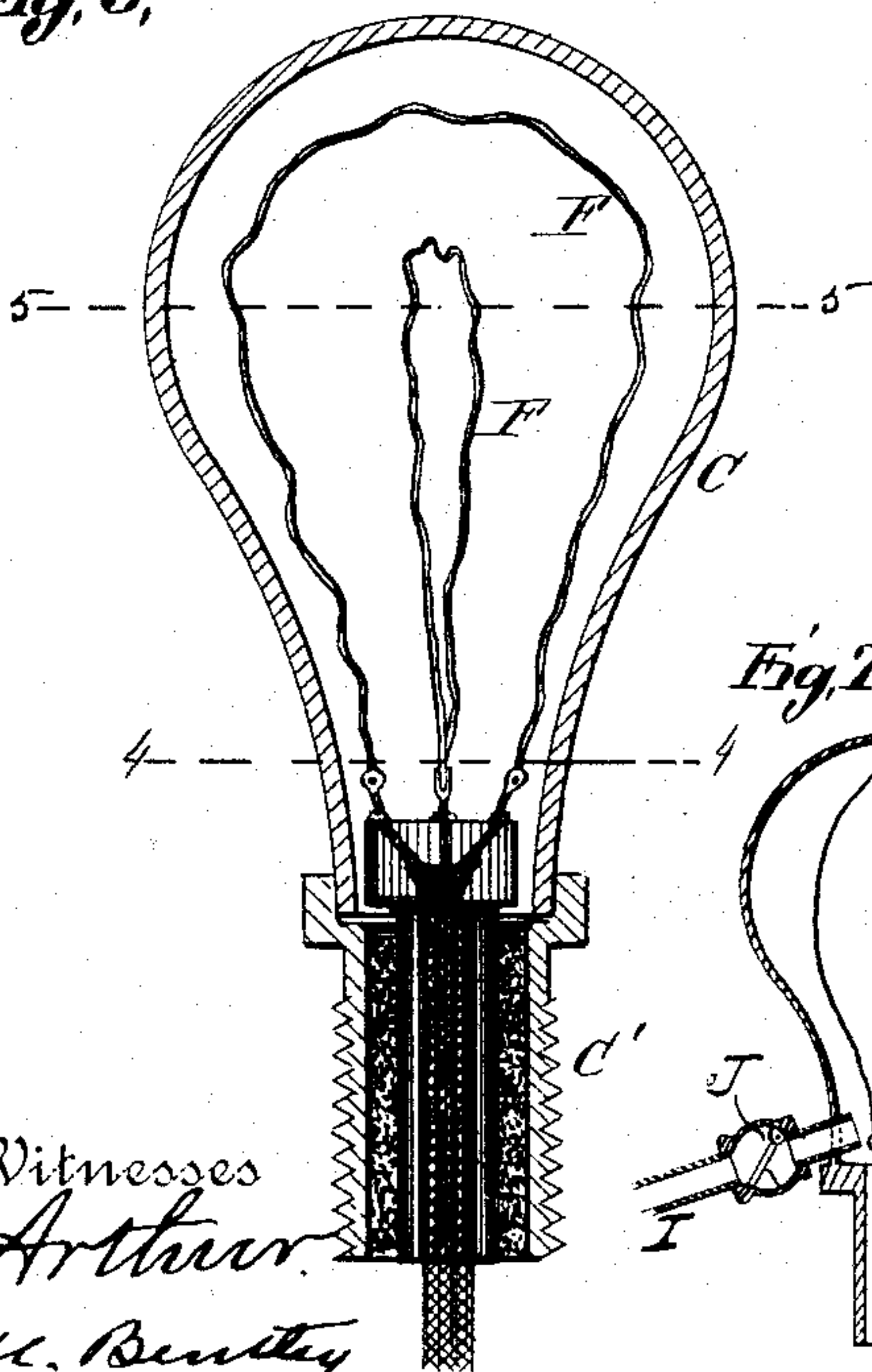


Fig. 4,

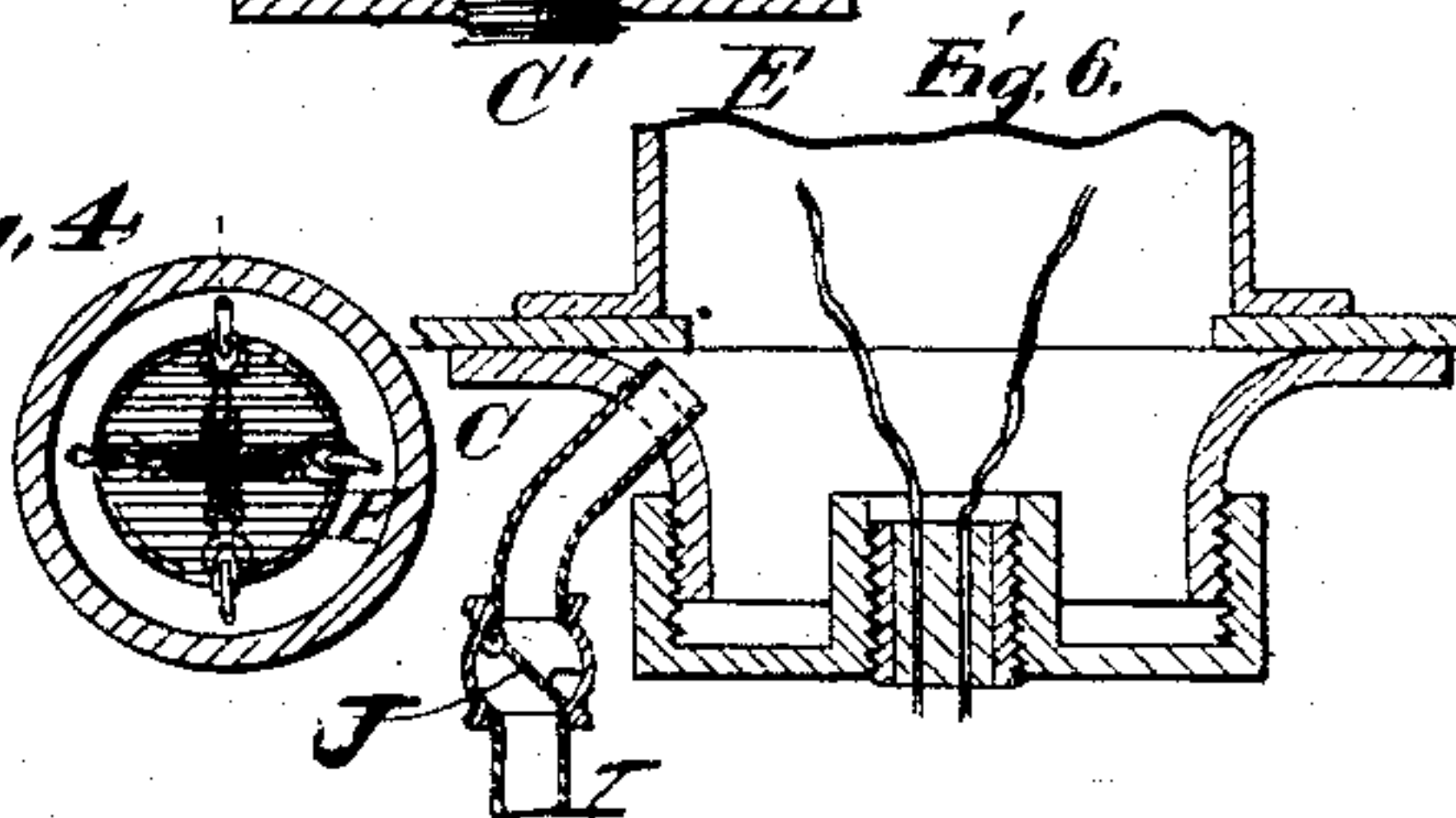


Fig. 5,

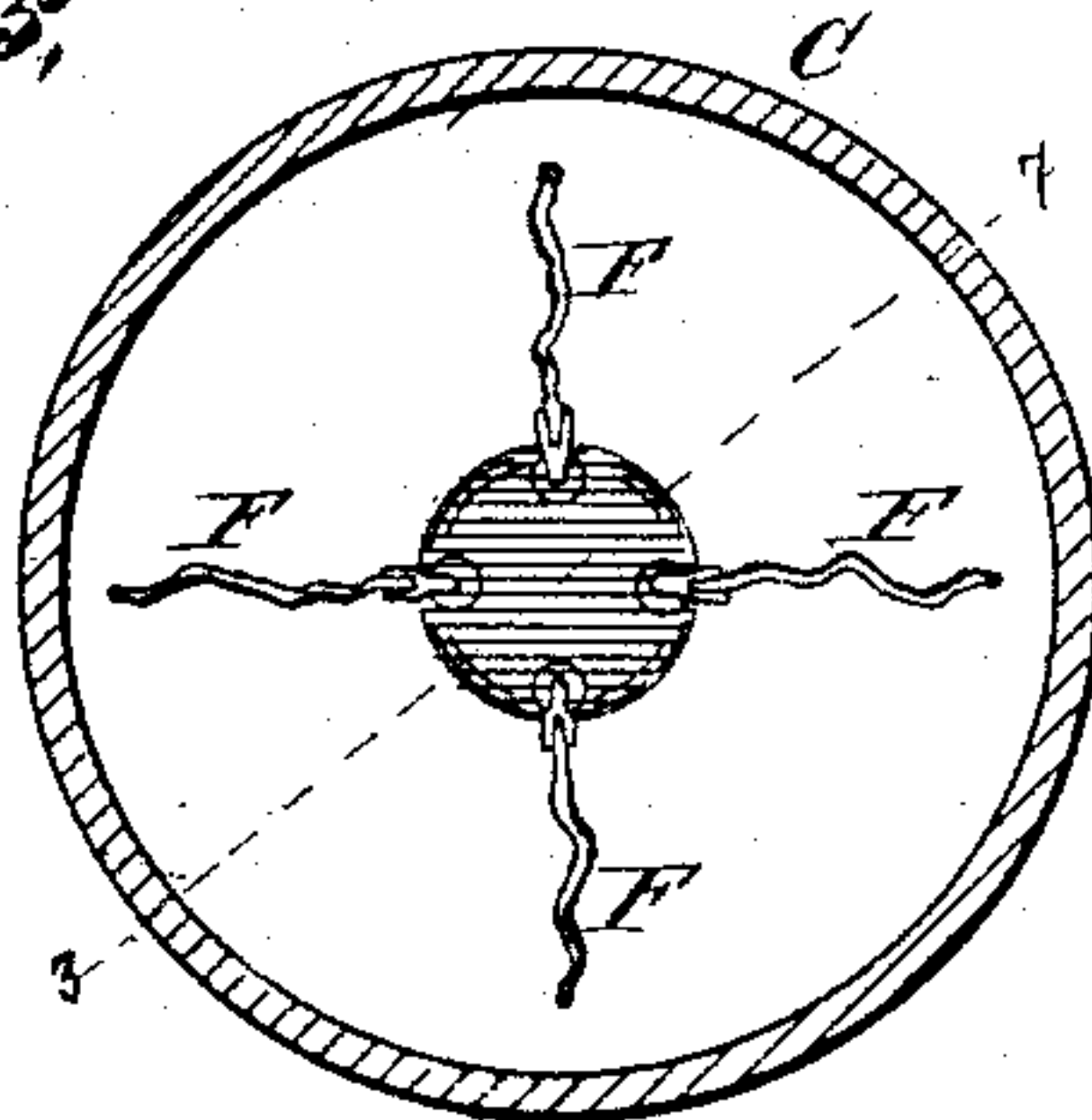
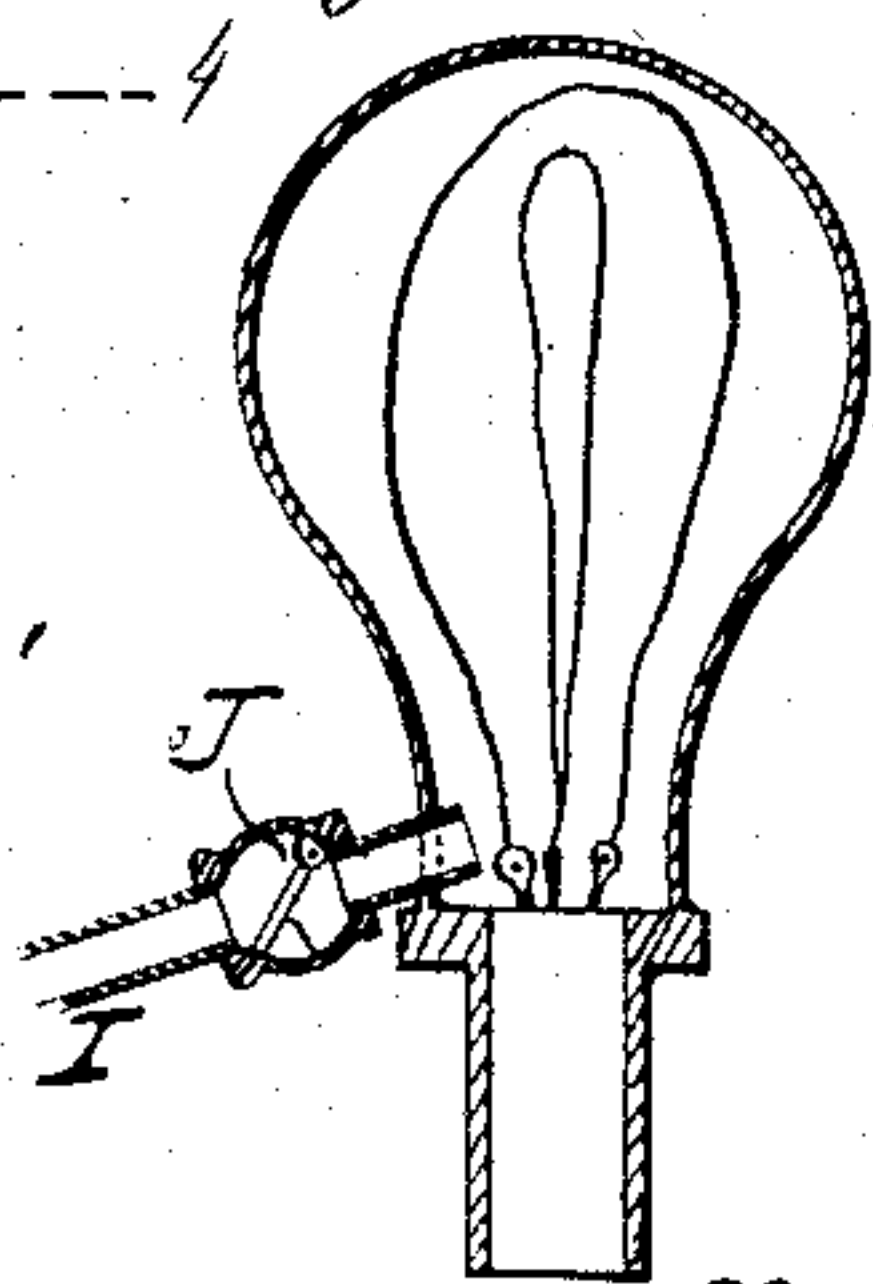


Fig. 6,



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# UNITED STATES PATENT OFFICE.

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## ELECTRIC WATER-HEATER.

**SPECIFICATION** forming part of Letters Patent No. 411,737, dated September 24, 1889.

Application filed November 26, 1887. Serial No. 256,242. (No model.)

### *To all whom it may concern:*

Be it known that I, DANIEL W. SMITH, a citizen of the United States, residing at the city of St. Louis, in the State of Missouri, have invented a certain new and useful Improvement in Water-Heaters, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, and in which—

Figure 1 is a section through the boiler, showing the heating-chamber in side view. Fig. 2 is a vertical section through the boiler and heating-chamber, showing the heater in side view. Fig. 3 is a vertical section through the heater. Fig. 4 is a horizontal transverse section through the heater, taken on line 4 4, Fig. 3. Fig. 5 is a like view taken on line 5 5, Fig. 3. Figs. 6 and 7 illustrate a means of exhausting the air from the casing-burner.

This invention relates to an improved device for heating water, and it is intended more particularly for use in generating steam, and it may be used, for instance, in connection with a generator such as shown and described in my application filed herewith.

This invention consists in features of novelty, hereinafter fully described, and pointed out in the claim.

Referring to the drawings, A represents a boiler, which may be of any suitable form or construction and which may be provided with a steam-pipe A'. The bottom of the boiler is provided with an interior dome or casing B, forming a chamber to receive the heater C, which is preferably secured to the boiler by means of a flange D, formed upon the boiler, and a collar E, screwing upon this flange, and into which is screwed the heater C.

Electricity is used as a heating medium.

F represents platitudes located within the housing or casing C, and with which are connected wires for carrying the electric current,

the wires being connected to the platitudes and arranged in the neck C' of the heater similar to the manner in which they are arranged in an ordinary incandescent lamp. The casing of the heater C is made of copper or other suitable metal, which is not liable to be broken either by intense heat or by rough handling. The heater fits snugly in the chamber formed by the dome B, and, the dome extending up some distance into the boiler, it will be seen that a large amount of water-surface will be exposed to the heat of the burner.

An apparatus thus constructed is cheap and durable, and where electricity is accessible this form of heater is a very convenient one.

The heater having an independent inclosure, the bulb can be removed and replaced will without injury.

The platitudes may be placed in the dome or casing B without the use of the inner cover C. (See Fig. 6.)

I (see Figs. 6 and 7) represents a pipe or tube communicating with the interior of the dome or casing B, (see Fig. 6,) or of the heater C, (see Fig. 7,) for the purpose of exhausting air therefrom. This pipe is provided with an automatic valve J, which permits the outlet of the air, but prevents the inlet.

I claim as my invention—

In a water-heater, in combination with the boiler A and a metallic dome or housing B, located therein, a steam-pipe A', connected with said boiler, and an independently-inclosed electric heater F, having a metallic casing C, secured in dome B by means of a downwardly-projecting flange D and a collar E, screwed thereon, all substantially as and for the purpose herein set forth.

DANIEL W. SMITH.

In presence of—

JOS. WAHLE,  
EDWD. S. KNIGHT.