

I. KITSEE.  
 INCANDESCENT LAMP.  
 (Application filed Mar. 2, 1900.)

(No Model.)

Fig. 1.

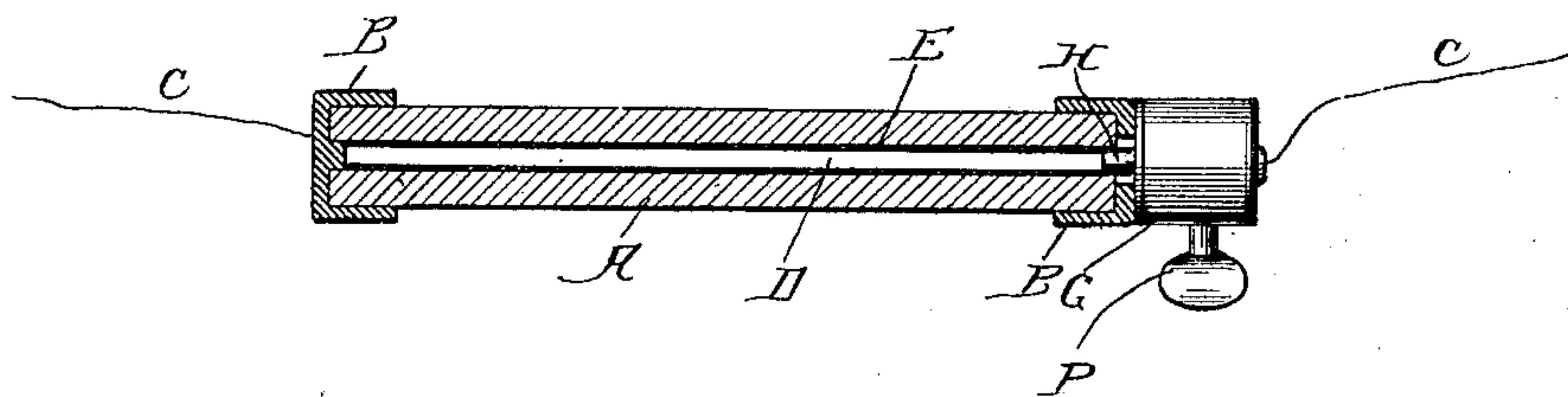


Fig. 2.

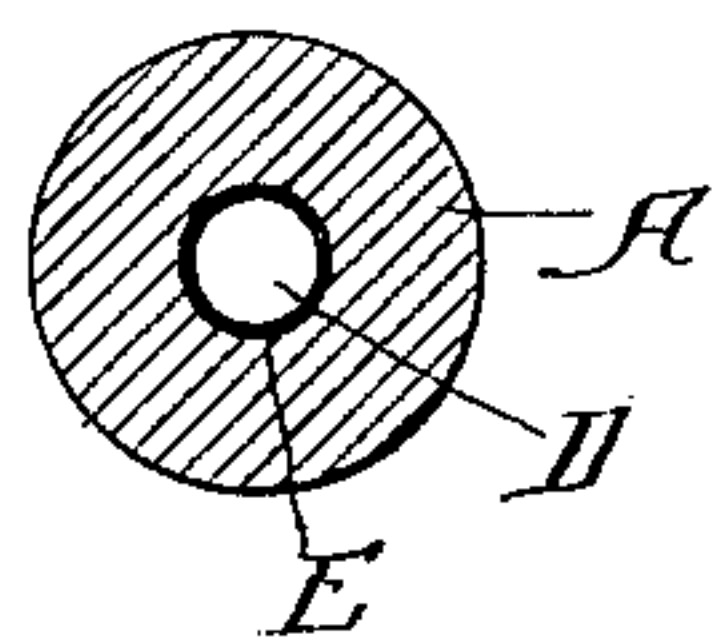


Fig. 3.

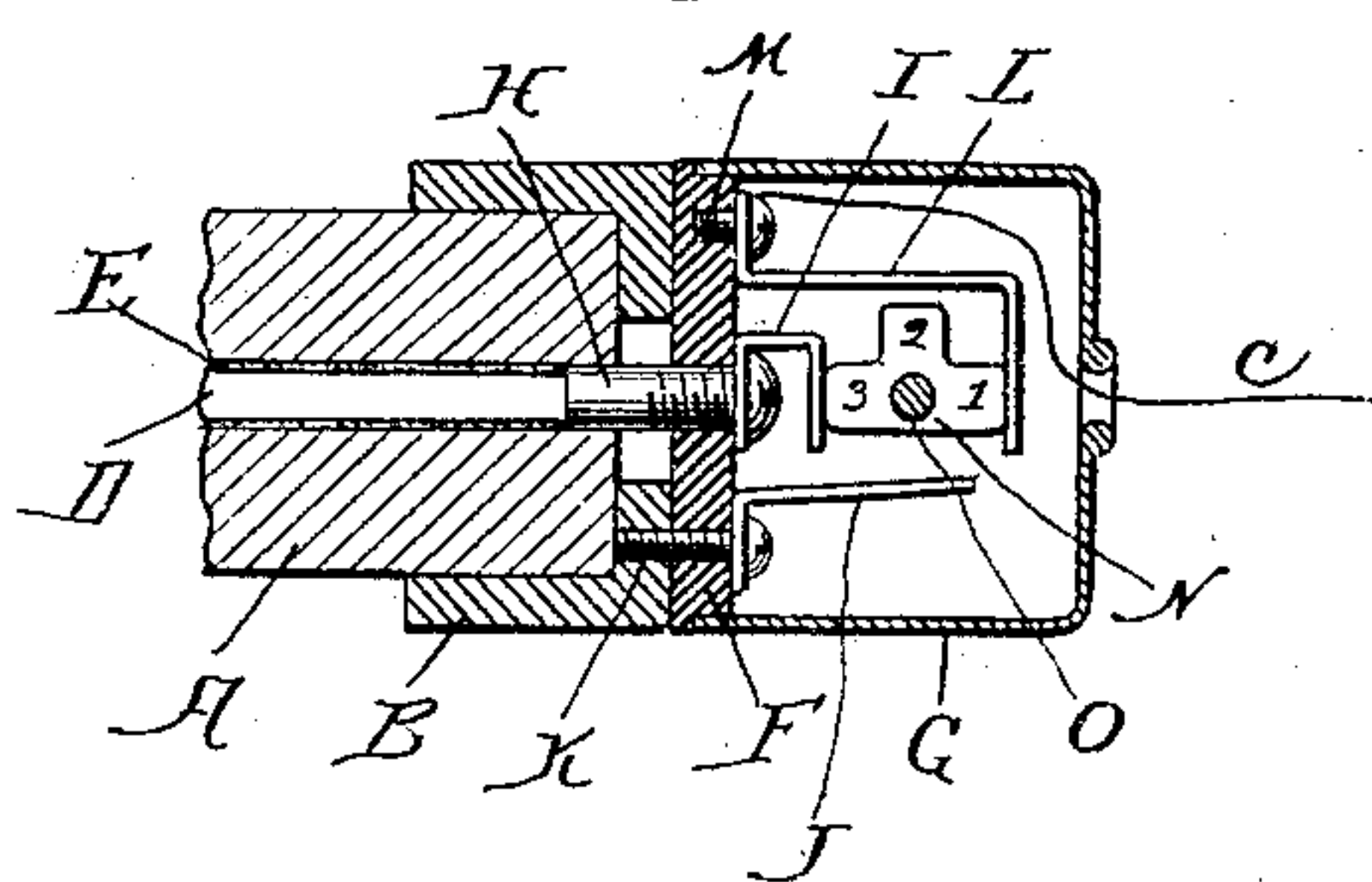
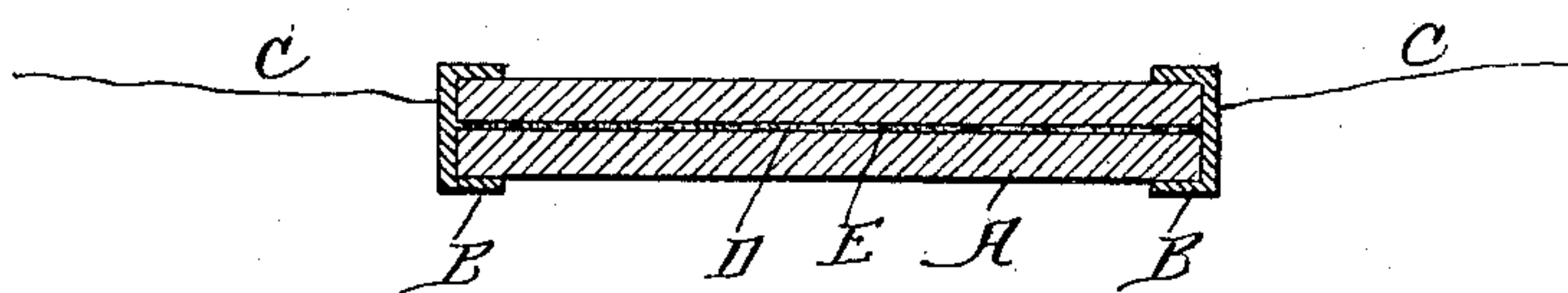


Fig. 4.



Witnesses  
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# UNITED STATES PATENT OFFICE.

ISIDOR KITSEE, OF PHILADELPHIA, PENNSYLVANIA.

## INCANDESCENT LAMP.

SPECIFICATION forming part of Letters Patent No. 651,866, dated June 19, 1900.

Application filed March 2, 1900. Serial No. 7,107. (No model.)

*To all whom it may concern:*

Be it known that I, ISIDOR KITSEE, of the city and county of Philadelphia, State of Pennsylvania, have invented certain new and useful Improvements in Incandescent Lamps, of which the following is a specification.

My invention relates to an improvement in incandescent lamps, and has more special reference to incandescent lamps wherein a material is used capable of conducting the electric current when heated. In these lamps the pencil designed to become incandescent consists generally of an oxid of one of the rare metals, such as zirconium, thorium, yttrium, cerium, &c. Even though there is a great advantage in the economy of electric current consumed, these lamps are not generally used, for the reason that the primary process of heating the filament has involved, so far, great difficulties; and the object of my invention is to provide such lamps with means whereby the heating of the pencil or rod is automatically accomplished.

Referring to the drawings, Figure 1 is a longitudinal section of the pencil embodying my invention. Fig. 2 is an enlarged cross-section of the pencil. Fig. 3 is an enlarged section of the switch for said pencil. Fig. 4 is a modification of said pencil.

A is the pencil; B B, the conductors to which said pencil is secured; C C, the circuit-wires. D is a cavity formed through said pencil; E, the conductive material lining the walls of said cavity; F, a disk of insulating material forming the base of the switch; G, a casing for said switch; H, a stud-screw which screws the contact-spring I to the base F and also forms an electrical connection between the conducting-film E and the spring I.

J is a contact-spring secured to the base F by the screw K, which screw also extends into the terminal B, thereby forming an electrical connection between the pencil A and spring J.

L is a contact-spring secured to the base F by the screw M, one of the leading-in wires being connected to the spring L.

N is the switch-block, upon which are formed the three faces 1 2 3.

O is the shank; P, the button for turning the switch-block.

The pencil is provided with the center groove. This groove is provided with a con-

ducting-layer of any suitable material; but I have found that if either carbon or any of the baser metals in finely-divided state is used the high temperature will destroy their usefulness after a very short time. In my endeavor to find a material capable of withstanding this high temperature and observing its usefulness for a great length of time I found that nearly the only material capable of being used economically for the purpose in question is platinum in its finely-divided state. If platinum-black is used, the best way to apply the same is to slightly coat the inner walls of the cavity with a thin layer of this material. The coating should be such as to offer a comparatively-large resistance to the passage of the current and yet should allow a slight amount of current of a predetermined voltage to pass after the switch has been closed. If the platinum is in solution, then the inner cavity should be filled with this solution and the pencil be raised to a high enough temperature to evaporate this solution, and thereby coat the cavity with a slight film of the metal; but I prefer the first method, because the porosity of the pencil allows part of the solution to penetrate the body of the same.

Instead of the center cavity the pencil may consist of two semicylinders the straight surfaces of which are designed to come together and are coated with the platinum.

The *modus operandi* is as follows: Normally the switch is entirely open. If it is desired to light the lamp, the switch is closed in a manner so that the terminal of the current-carrying circuit C is in electrical connection with the screw H, thereby establishing a path for the current consisting of the thin layer of platinum-black. A slight amount of current will flow and thereby raise the metallic film, as well as the near-by layer of the pencil proper, to a high temperature, which in a short time will communicate itself to the entire pencil. As soon as the pencil has attained a sufficient degree of temperature the switch is turned till the terminal of the circuit C is out of contact with the screw H, but brought in electrical contact with the screw K, thereby breaking the circuit with the film and making the circuit through the pencil proper.

I am well aware that attempts have been



made to provide temporarily a passage for the flow of the current through pencils non-conducting at low temperatures; but the means for doing so had to be repeated as often as the lamp was lighted. One of these means consisted in rubbing a graphite block attached to the carrier along the outer surface, requiring movable devices which in themselves made the improvement too inconvenient. In contradistinction to this temporary rubbing of a material necessitating renewals my invention consists in the permanent application of a non-destructible path for the current designed to heat the pencil proper, and I have found that it is best to provide the inner part of the pencil with such a conducting-path, as otherwise the same is liable to injury and to be destroyed by the heated atmosphere.

20 Having now described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In an incandescent lamp, a pencil non-conducting at low, but conducting at high temperatures, said pencil being provided with a slight layer of platinum-black. 25

2. In an incandescent lamp, a pencil non-conducting at low, but conducting at high temperatures, in combination with a conducting-film consisting of finely-divided platinum. 30

3. As an accessory, for an incandescent lamp, the pencil of which is non-conducting at low, but conducting at high temperatures, a conducting-film consisting of finely-divided platinum, substantially as and for the purpose specified. 35

In testimony whereof I hereby sign my name, in the presence of two subscribing witnesses, this 26th day of February, 1900.

ISIDOR KITSEE.

Witnesses:

E. R. STILLEY,  
H. B. ELDRIDGE.