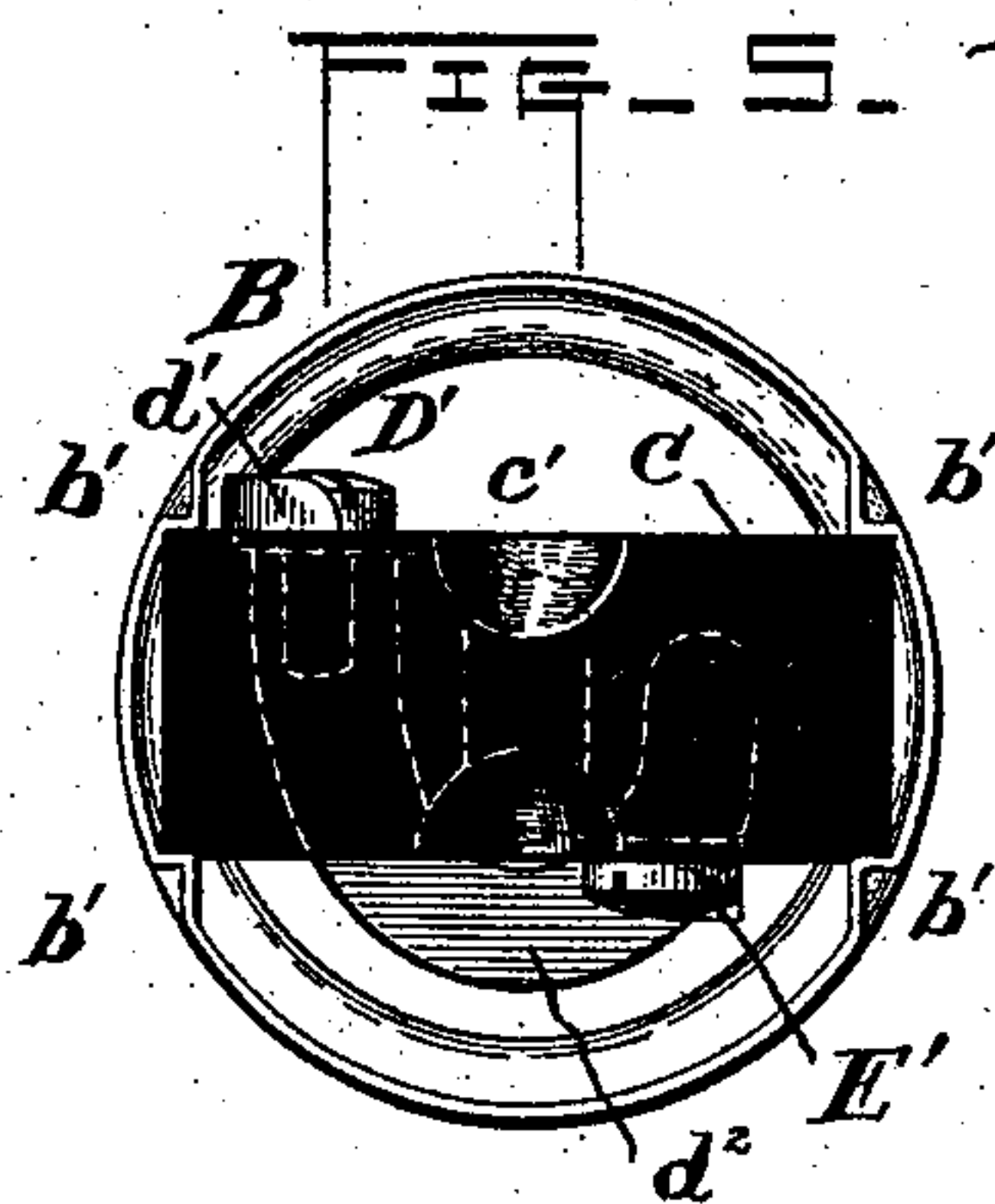
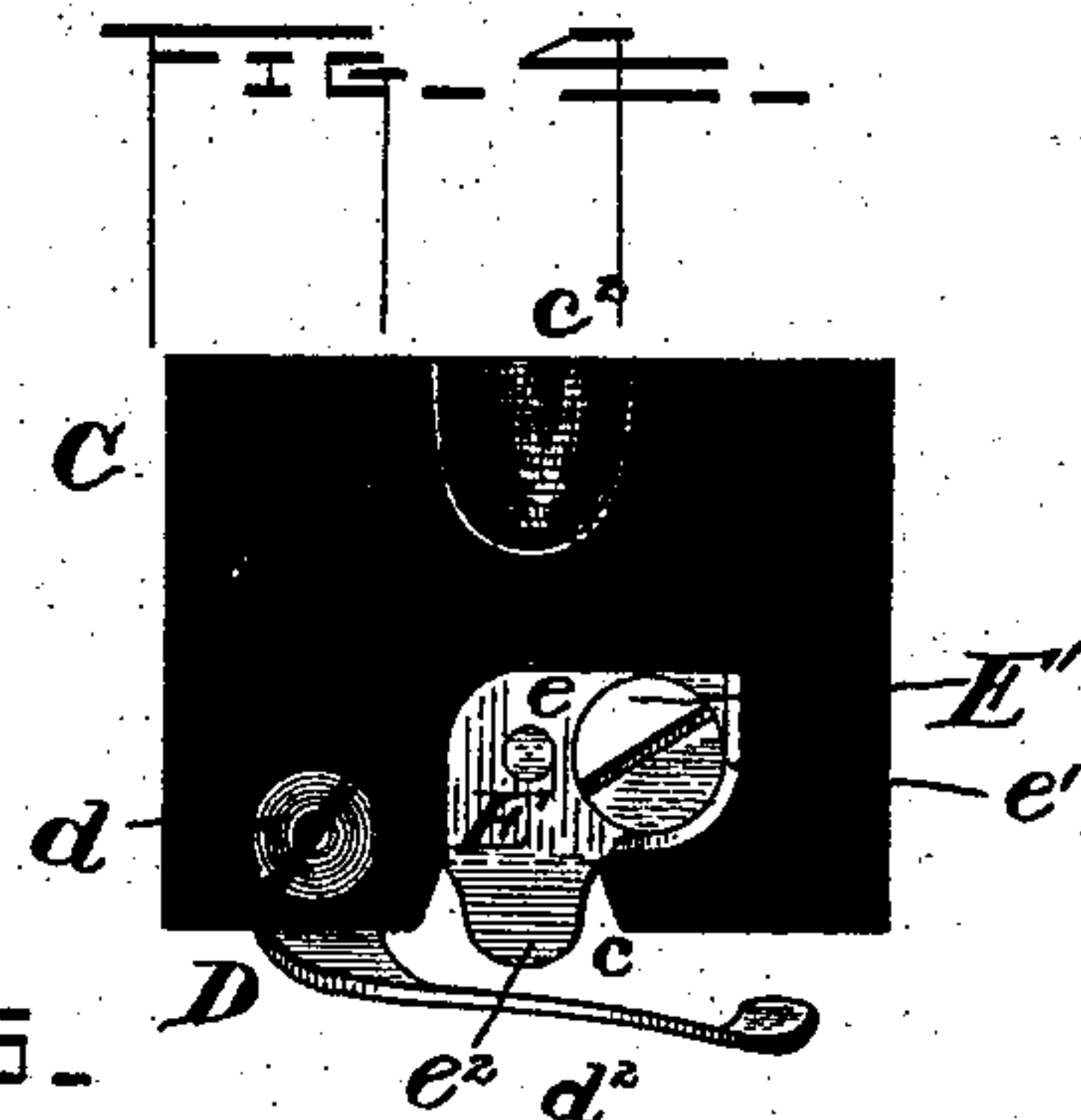
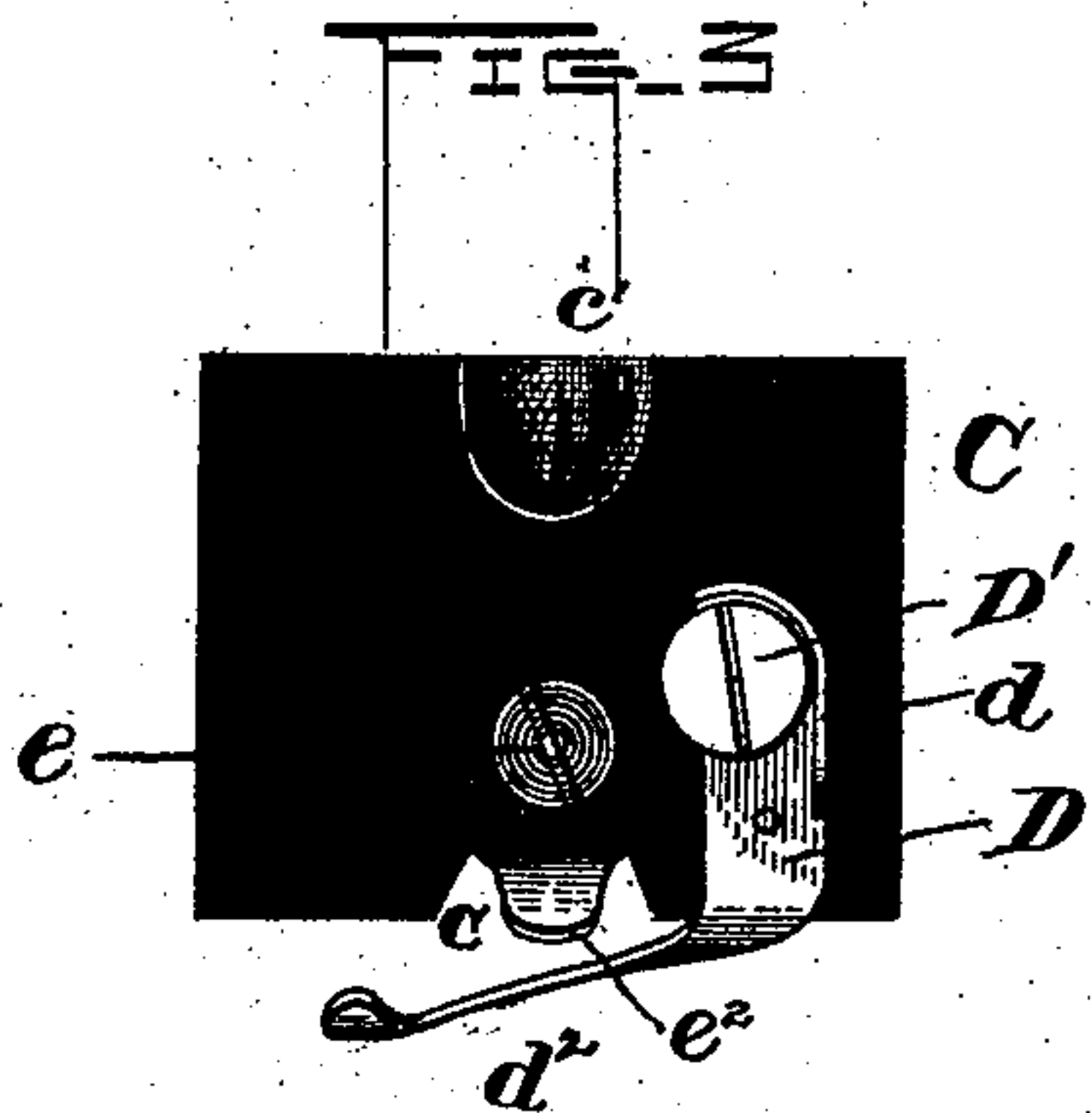
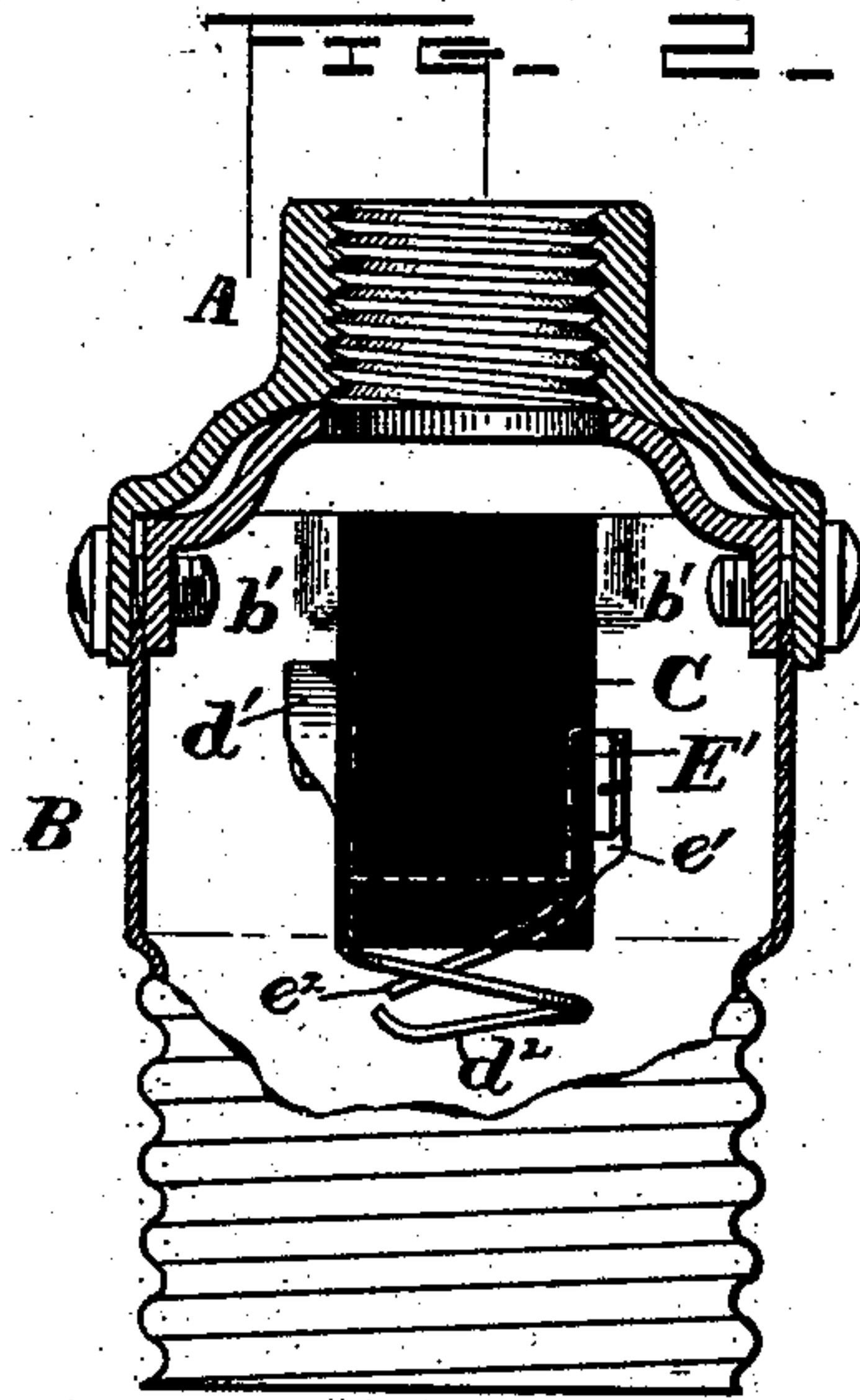
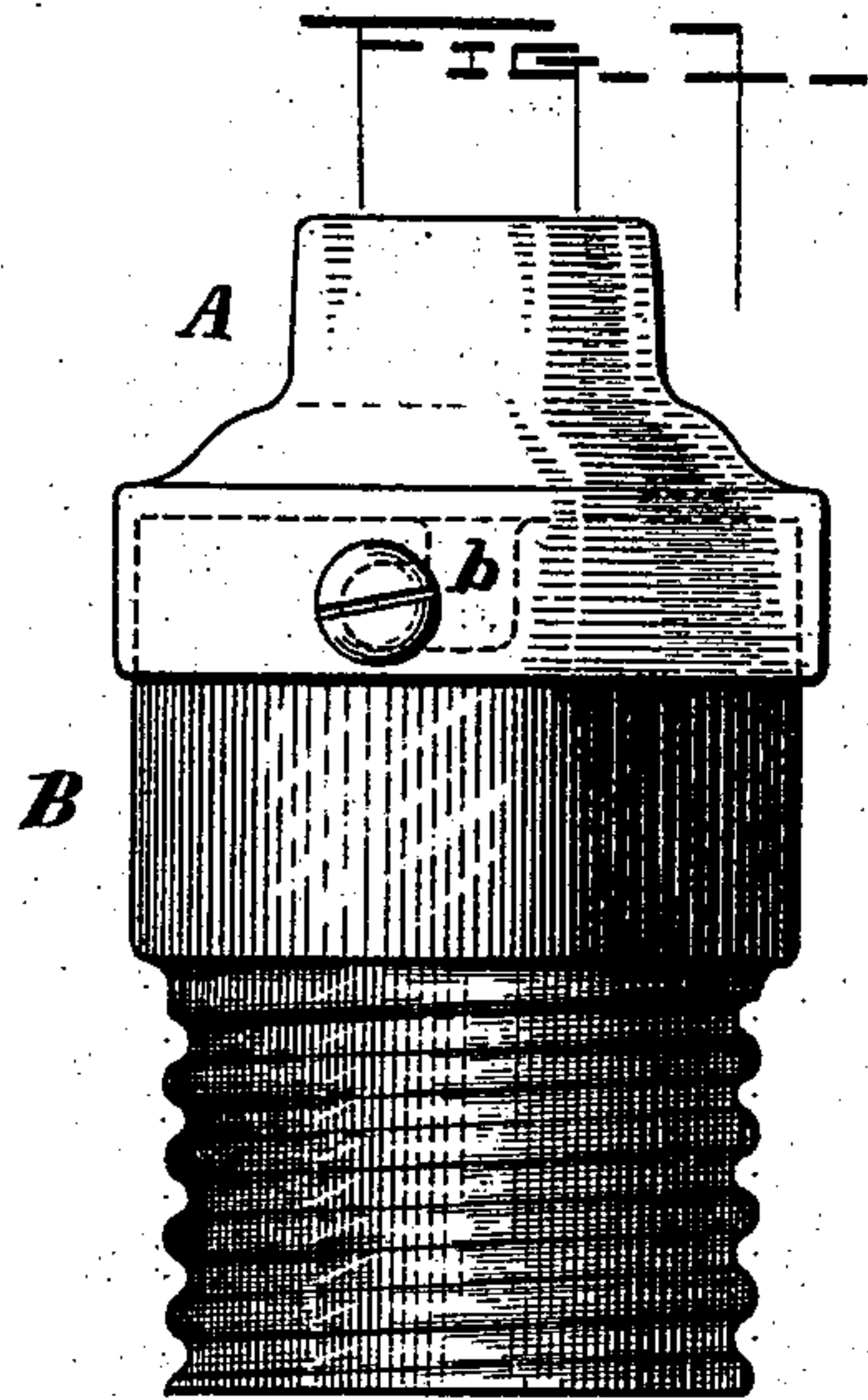


(No Model.)

E. R. KNOWLES.  
INCANDESCENT ELECTRIC LAMP.

No. 516,819.

Patented Mar. 20, 1894.



Witnesses  
L. A. Comer Jr.

Paul H. Clark

Inventor  
Edward R. Knowles  
By Geo. W. Whittesey  
Attorney

# UNITED STATES PATENT OFFICE.

EDWARD R. KNOWLES, OF MIDDLETOWN, CONNECTICUT, ASSIGNOR TO THE SCHUYLER ELECTRIC COMPANY, OF CONNECTICUT.

## INCANDESCENT ELECTRIC LAMP.

SPECIFICATION forming part of Letters Patent No. 516,819, dated March 20, 1894.

Application filed December 9, 1892. Serial No. 454,662. (No model.)

*To all whom it may concern:*

Be it known that I, EDWARD R. KNOWLES, a citizen of the United States, residing at Middletown, in the county of Middlesex and State of Connecticut, have invented certain new and useful Improvements in Keyless Sockets for Incandescent Electric Lamps; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to electric lighting, and it consists in certain improvements hereinafter described, in what are known as "keyless sockets" for incandescent electric lamps. In the drawings, Figure 1 is an elevation, on an enlarged scale, of an incandescent lamp socket. Fig. 2 is a similar view partly in section. Figs. 3 and 4 are front and rear views of the insulating block carrying the spring contact arms and binding screws; and Fig. 5 is a plan view of the socket with the base removed.

The socket may be of any suitable construction. I have shown an ordinary base A, and a screw-threaded shell B united thereto by bayonet joints  $b$ . At diametrically opposite points in the upper edge of the shell are formed pairs of indentations  $b'$ , to constitute internal guides, between which is fitted a removable block C, of insulating material, preferably rectangular, as shown. Secured to one side of this block by a screw  $d$ , is a metallic plate D, having preferably a flange  $d'$  across its upper end and along part of one side. A binding screw  $D'$  is tapped into this end of the plate, its head being adjacent to, or in contact with, the flange  $d'$ . The other end of the plate has an arm  $d^2$  bent under the block C and preferably curved into a semi-

circle. To the opposite side of the block is secured by a screw  $e$  a plate E, having at one end a flange  $e'$ , and a binding screw  $E'$ . The other end of the plate has an arm  $e^2$  bent across under the middle of the block C, which may be notched at  $c$  to give it free play. The upper edges of the block are notched at  $c'$ ,  $c^2$  to receive the line wires, the ends of which are clamped by the binding screws  $D'$ ,  $E'$ .

When a lamp having a threaded neck is screwed into the socket, the center contact on the lamp comes against the arm  $e^2$ , and the annular contact against the arm  $d^2$ . Since the arms are resilient, they bear with a yielding pressure upon the lamp contacts, and take up all play between the screw-threads in the shell and those on the neck of the lamp-bulb. In such a socket as this, the circuit is closed through the lamp by screwing it into the socket, since the arms  $d^2$ ,  $e^2$  remain constantly in connection with their respective line wires.

If desired, the plates D E may be let in flush with the surface of the block. This makes a stronger and neater job.

Having thus described my invention, what I claim is—

The combination with a screw threaded socket B provided on opposite sides with the parallel indentations  $b'$ , of an insulating block C adapted to slide in between said indentations, and two contact plates D, E, secured to opposite sides of said block, each having a spring arm extending across the inner edge of the block, the arm  $d^2$  being semi-circular, and the arm  $e^2$  lying diametrically across the same, substantially as described.

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

EDWARD R. KNOWLES.

Witnesses:

MAX LOEWENTHAL,  
LEWIS T. ROBINSON.