

No. 677,440.

Patented July 2, 1901.

B. M. DRAKE.  
INCANDESCENT ELECTRIC LAMP.

(Application filed Dec. 11, 1900.)

(No Model.)

Fig. 1.

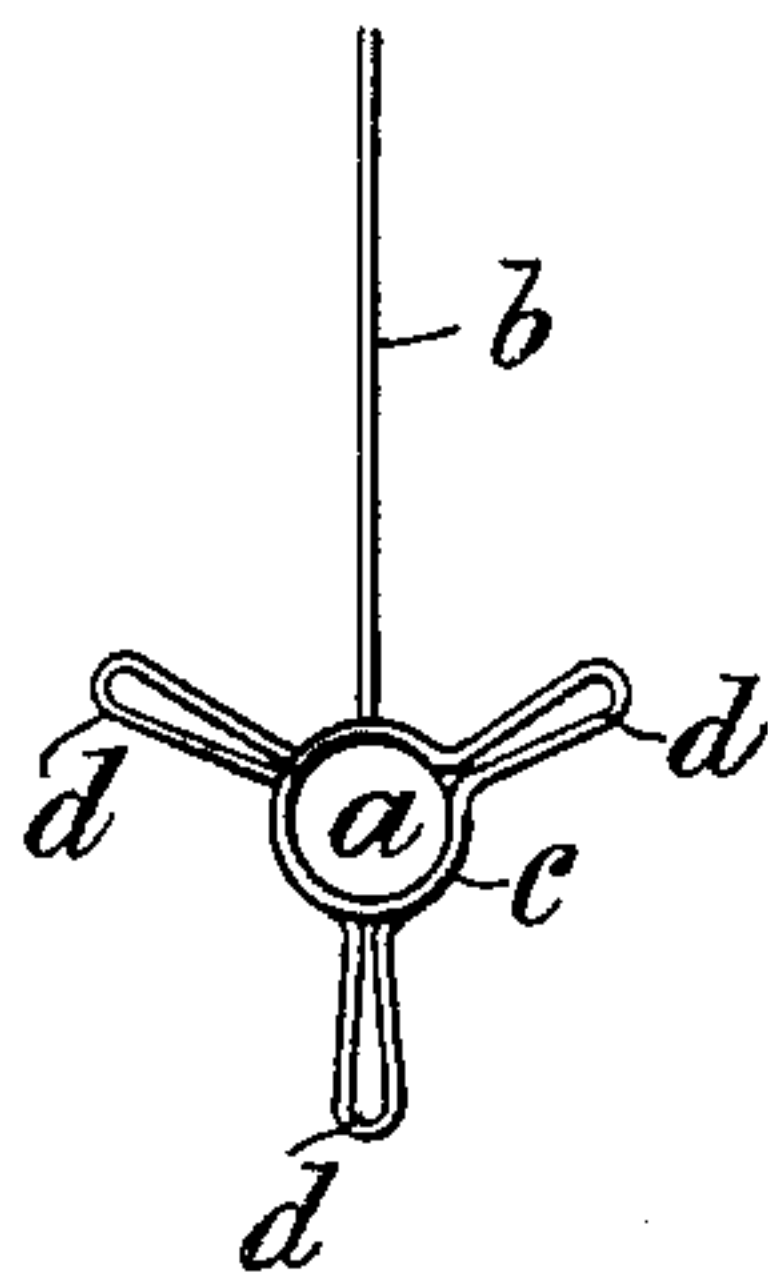


Fig. 2.

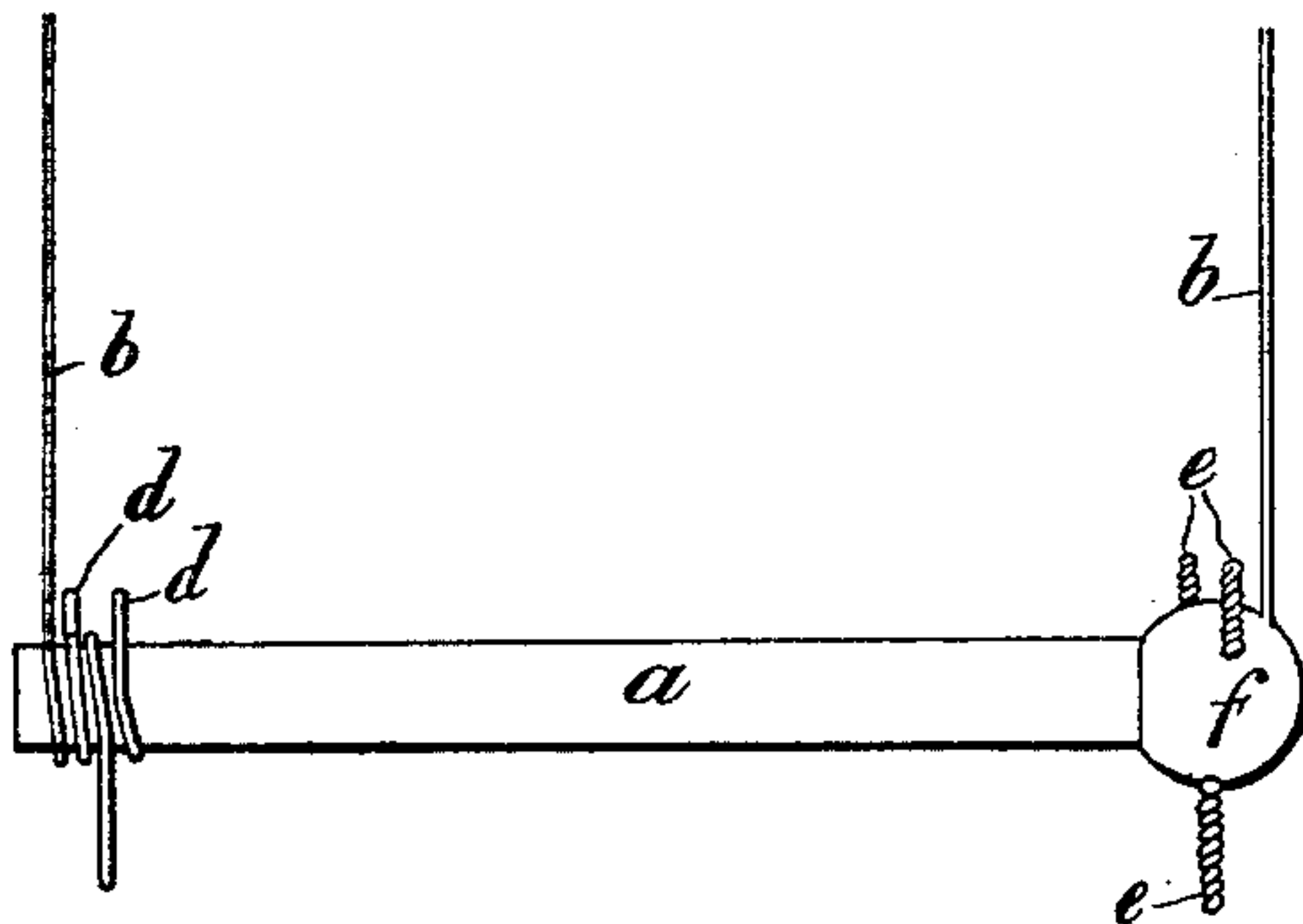
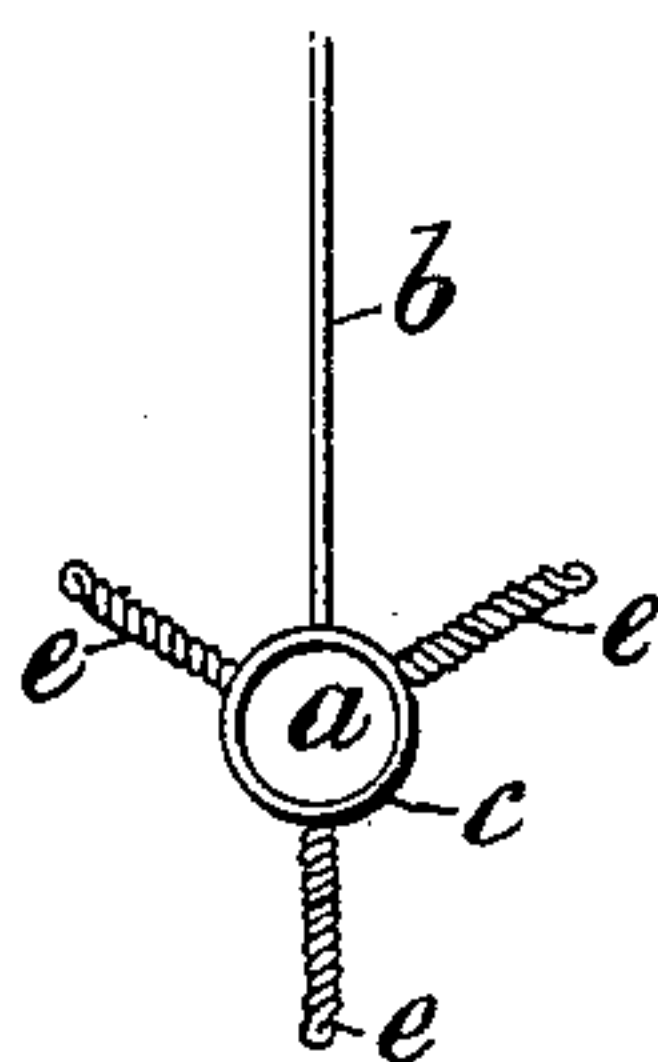


Fig. 3.

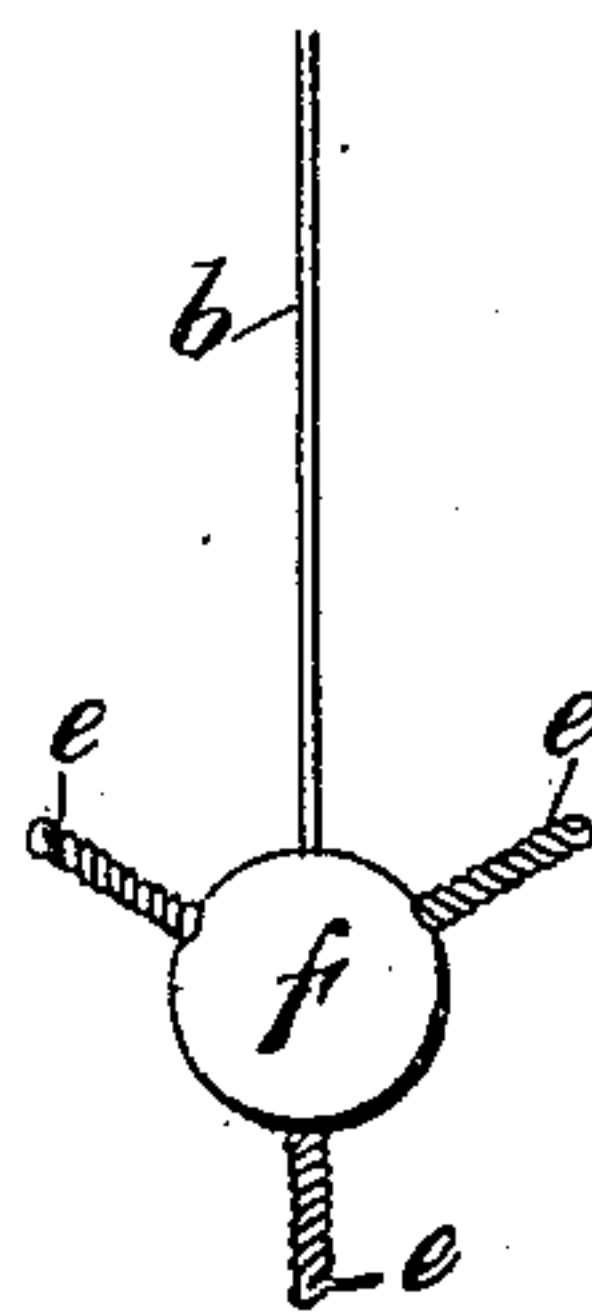


Fig. 4.

WITNESSES:

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# UNITED STATES PATENT OFFICE.

BERNARD MERVYN DRAKE, OF LONDON, ENGLAND, ASSIGNOR OF ONE-HALF TO NERNST ELECTRIC LIGHT, LIMITED, OF SAME PLACE.

## INCANDESCENT ELECTRIC LAMP.

SPECIFICATION forming part of Letters Patent No. 677,440, dated July 2, 1901.

Application filed December 11, 1900. Serial No. 39,481. (No model.)

*To all whom it may concern:*

Be it known that I, BERNARD MERVYN DRAKE, engineer, a subject of the Queen of Great Britain and Ireland, residing at 66 Victoria street, Westminster, London, S. W., England, have invented certain new and useful Improvements in Incandescent Electric Lamps, (for which I have made application for a patent in Great Britain, No. 9,944, dated May 30, 1900, and in Germany, dated November 26, 1900,) of which the following is a specification.

My invention relates to lamps using filaments or incandescence bodies in which electrolytic conduction takes place.

I have found that in electrolytic lamps of the "Nernst" type the anode contact acquires a higher temperature than the cathode contact and the heat at this point tends to produce rupture near the anode contact. The rupture takes place either in the platinum wire or in the filament or incandescence body near the contact, the cause in either case being the excessive temperature developed at this spot.

The object of my invention is to overcome this difficulty.

My invention consists in dissipating the heat generated at the anode contact in such a way that rupture either of the conductor or the filament or incandescence body is prevented. This dissipation of the heat may be effected by radiating surfaces in the form of arms, wires, plates, or rods incorporated in the anode contact and preferably projecting beyond the outer surface of such contact.

Referring now to the accompanying sheet of drawings, which illustrate one method of carrying out the invention, Figures 1 and 2 are end elevations of a filament or incandescence body showing a preferred form of anode contact at different stages of manufacture. Fig. 3 is a front elevation of the same filament or incandescence body with one of my improved contacts at each end, that at the left-hand end being unfinished and corresponding with Fig. 1 and that at the right-hand end being in its complete form; and Fig. 4 is an elevation of the right-hand end of Fig. 3. All these drawings are on an enlarged scale to show the details clearly.

As it is possible according to the direction

in which the current is caused to flow through the filament or incandescence body for either of the contacts to become the anode, I prefer, as shown in the drawings, to make both contacts alike and capable of dissipating the heat, as previously explained.

In carrying out my invention in the manner indicated in the drawings I take a Nernst filament *a*, composed of rare earths, as usual, and around each end of the filament *a* I closely wind one or more contact-making wires *b*, forming some of the convolutions *c* with radially-extending loops *d*, as shown in Fig. 1. Each loop is then twisted, as indicated in Figs. 2, 3, and 4, to form a more or less rigid arm *e*, and afterward the contact-coils *c* are covered with a coating *f* of suitable paste, which may have the same composition as that of the filament, the radiating arms *e* either being wholly covered by the coating *f* or preferably, as shown in the drawings, projecting beyond the outer surface of such coating.

It will be obvious that the radiating surfaces may be formed in any suitable manner and of any suitable material without departing from the invention.

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

1. In an incandescent lamp having an electrolytic incandescent filament and electric conductors in contact with the filament, the combination with the anode contact of heat-radiating devices projecting beyond the outer surface of the contact, for the purpose of dissipating the excessive heat there generated, substantially as set forth.

2. The combination with an electrolytic incandescent filament and electric conductors in contact with opposite ends thereof, of coatings for both contacts composed of the same materials as the filament, and heat-radiators projecting through, and beyond the outer surface of the coatings, substantially as set forth.

In witness whereof I have hereunto set my hand in presence of two witnesses.

BERNARD MERVYN DRAKE.

Witnesses:

WALTER E. ROCHE,  
ROBERT SIMPSON.