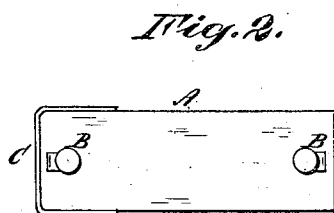
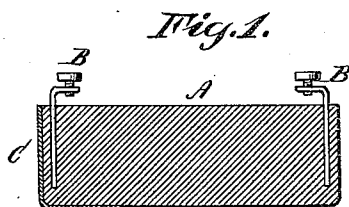


(No Model.)

E. N. DICKERSON.  
THERMO-ELECTRIC ELEMENT.

No. 433,451.

Patented Aug. 5, 1890.



*Witnesses:*  
*Harry Constant*  
*W. Gardner*

*Inventor:*  
*E. N. Dickerson*  
*By his Attorneys*  
*Foster & Freeman*

# UNITED STATES PATENT OFFICE.

EDWARD N. DICKERSON, OF NEW YORK, N. Y.

## THERMO-ELECTRIC ELEMENT.

SPECIFICATION forming part of Letters Patent No. 433,451, dated August 5, 1890.

Application filed February 27, 1890. Serial No. 341,944. (No model.)

*To all whom it may concern:*

Be it known that I, EDWARD N. DICKERSON, of the city, county, and State of New York, have invented a new and useful Improvement in Thermo-Electric Elements, of which the following is a full, true, and exact description, reference being had to the accompanying drawings.

In the operation of thermo-electric elements it is exceedingly important that the element should be highly heated at one point of connection, so that its heat shall approach the melting-point. The metals ordinarily employed are liable to fusion at comparatively low temperatures.

I have devised a construction of thermo-electric element by which the end of the element is protected, while at the same time the ordinary insulation between the protecting-cover and the element is dispensed with.

My invention will be readily understood from the accompanying drawings, in which—

Figure 1 shows a vertical section, and Fig. 2 a plan.

A represents the body of the element, which

is preferably composed of an alloy of sixty per cent. of antimony and forty per cent. of zinc; B B, the electrodes or connections, preferably composed of nickel or nickeline; C, the protecting metallic casing, ordinarily made of iron, which protects the end of the element but extends only a part of the way over the surface of the element. The heat is of course applied to the protecting end.

What I claim as my invention, and desire to secure by Letters Patent, is—

In a thermo-electric element, the combination of a comparatively fusible metal with a practically infusible cover surrounding one end of the same only, thereby avoiding the necessity of insulation between the cover and the element, substantially as described.

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

E. N. DICKERSON.

Witnesses:

ANTHONY GREF,  
HARRY CONSTANT.