(No Model.)

# H. B. COX.

## INDICATING SYSTEM FOR THERMO-ELECTRIC GENERATORS.

No. 535,491. Patented Mar. 12, 1895.

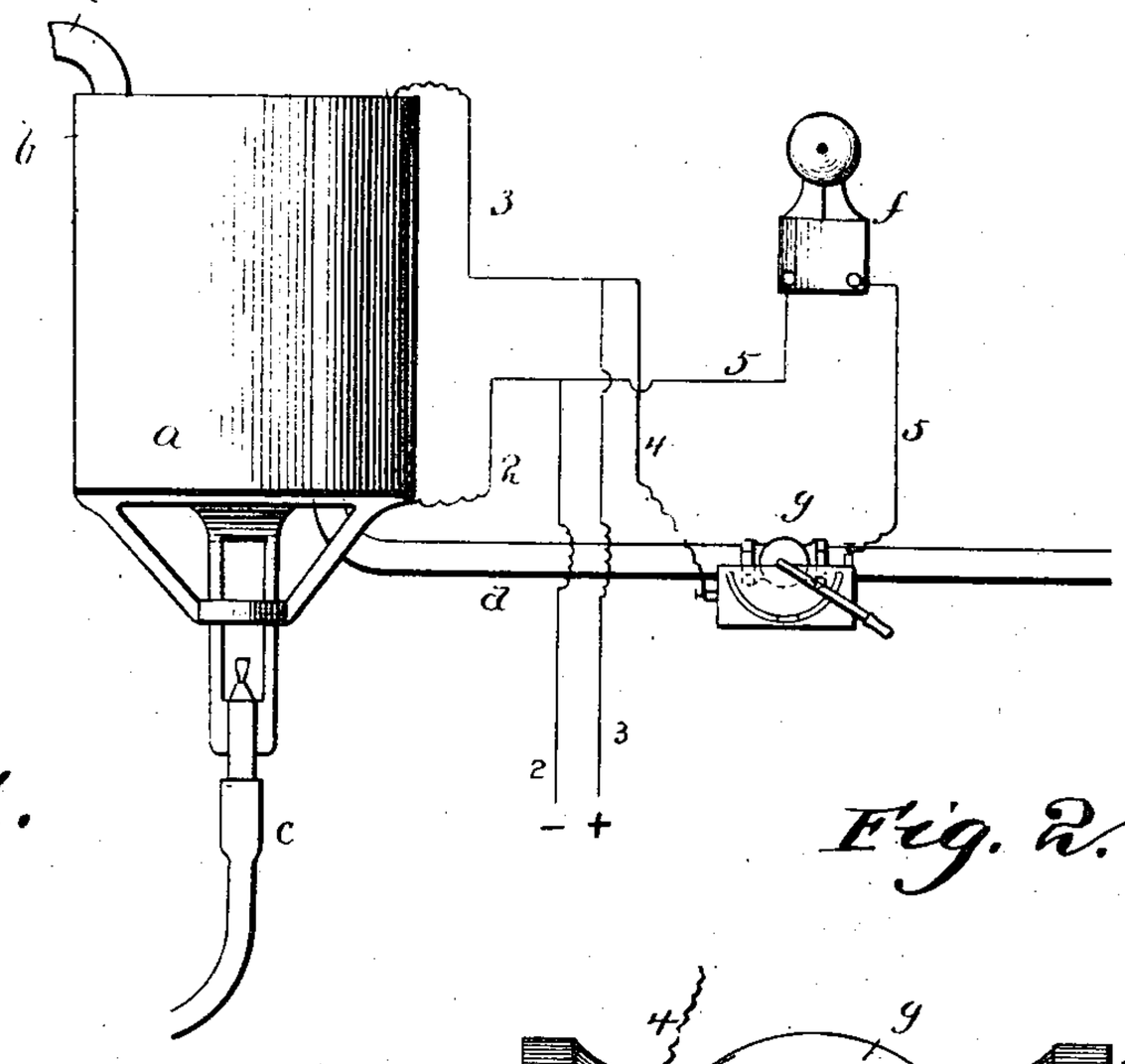
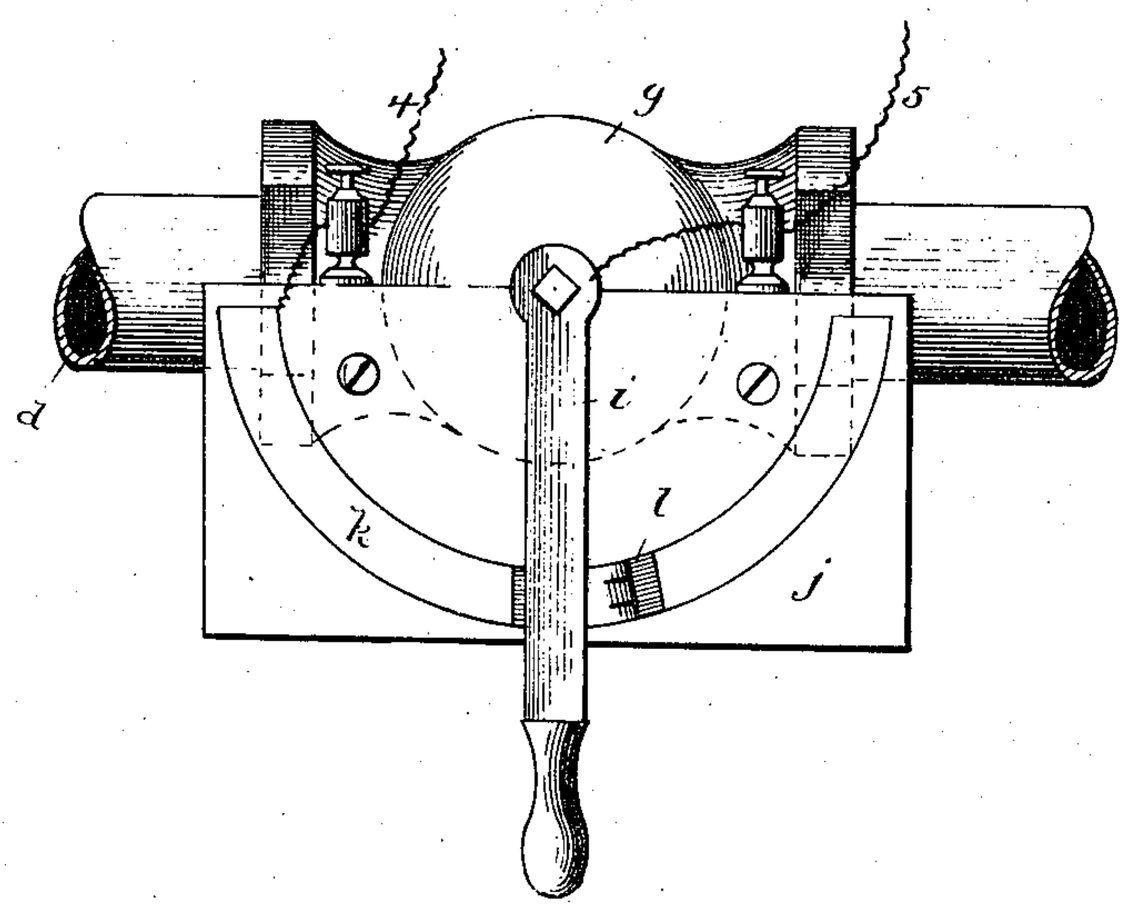



Fig. 1.

Fig. 2.

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# UNITED STATES PATENT OFFICE.

HARRY BARRINGER COX, OF HARTFORD, CONNECTICUT.

## INDICATING SYSTEM FOR THERMO-ELECTRIC GENERATORS.

SPECIFICATION forming part of Letters Patent No. 535,491, dated March 12, 1895.

Application filed January 31, 1894. Renewed February 13, 1895. Serial No. 538,288. (No model.)

*To all whom it may concern:*

Be it known that I, HARRY BARRINGER COX, of Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Indicating Systems for Thermo-Electric Generators; and I do hereby declare that the following is a full, clear, and exact description of the invention, which 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 part of this specification.

This invention relates to certain improvements in alarm or indicating systems for thermo-electric generators.

The object of the invention is to provide certain simple and reliable means controlled by the movement of the valve regulating the water supply to the cooling water jacket surrounding the generator so that if said valve is not in the proper position when the generator is in action the fact will be indicated as by means of an audible alarm.

The invention consists in certain novel features of construction and in combination of parts more fully and particularly pointed out hereinafter and described in the claims.

Referring to the accompanying drawings:—Figure 1, shows a thermo-electric generator in elevation with the water supply pipe and its valve and the indicating system. Fig. 2, is a detail plan view of said valve.

In the drawings the reference letter *a*, indicates a suitable thermo-electric generator provided with the surrounding water jacket *b*, for cooling the outer surface of the generator.

Suitable means are provided to heat the inner surface of the generator, as a gas burner, *c*.

*d*, is the water supply pipe opening into the water jacket *b*, of the generator. *e*, is the water discharge pipe from said jacket.

*g*, is the valve in the water supply pipe which controls the supply of water to the water jacket. The valve stem is provided with the lateral operating handle *i*, by means of which the valve can be opened and closed.

It often happens that a person when operating a thermo-electric generator will turn on the gas and apply the heat to the interior of the generator without turning on the water for the jacket or sometimes too little or too much water is thrown into the jacket, or in some cases the water is turned off immediately after shutting off the supply of heat and before the generator has had time to cool. The generators are often injured by these oversights.

It is the object of this invention to notify the operator if the water is not turned on or is not properly turned on while the generator is in action. To this end a platform *j*, is rigidly secured to the valve casing *g*, so that the valve operating handle *i*, travels over the same. This platform is provided with a segmental shaped piece of conducting material *k*, arranged beneath the operating handle and with which the operating handle is adapted to electrically engage during a portion of its stroke, the said handle *j*, being preferably composed of conducting material.

*f*, indicates any suitable kind or construction of electrically operated audible alarm or signal. An electrical circuit 4, 5, is provided from the generator through the alarm *f*, handle *i*, and segment *k*, so that when the handle *i*, is located in electrical engagement with the segment *k*, a circuit will be closed through the generator, circuit 4, 5, the alarm *f*, handle *i*, and segment *k*, and the alarm will be sounded. The handle *i*, and segment *k*, are so arranged that the electrical contact between the two will be broken while the valve is opened to supply the proper quantity of water to the water jacket, but will close the circuit if the valve is closed or opened too far or not enough. This is accomplished by arranging a block or section of insulating material *l*, on the segment *k*, over the portions thereof occupied by the handle *i*, when the valve is opened the proper distance. Thus it will be seen if on starting up the generator the operator turns on the heat and does not turn on the water the generator will begin to generate electricity and hence the alarm will at once begin to sound and will gradually increase in sound as the current increases in intensity. This same thing happens if too little or too much water be thrown into the jacket; also if the water be turned off too soon after turning off the heat and before the generator has had time to cool in which case the

generator still produces a flow of electricity and thereby sounds the alarm.

It should be noted that the local circuit 4, 5, is preferably a shunt between the sides of the main line 2 3 and that when the local or alarm circuit is broken the main circuit is in condition to be worked.

When the alarm circuit is closed the main circuit is in shunt.

It is evident that various changes might be made in the forms, arrangements and constructions of parts described without departing from the spirit and scope of my invention. Hence I do not wish to limit myself to the exact constructions herein set forth, but consider myself entitled to all such changes as fall within the spirit and scope of my invention.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. A thermo-electric generator having a cooling liquid jacket provided with the liquid supply and a controlling valve, and an electric circuit including said generator and an alarm and controlled by the movements of said valve.

2. A thermo-electric generator having a water jacket provided with a water supply having a cut off valve forming a circuit maker and breaker, and an electrically operated alarm, and a circuit including the generator and said alarm and controlled by said valve.

3. A thermo-electric generator having a cooling water chamber, a water supply thereof provided with a cut off valve, a circuit closer moving with said valve, an alarm, a circuit including the generator said alarm and the circuit closer, said circuit closer being so formed as to break the circuit when the valve is properly opened and to close the circuit when the valve is closed or not properly opened.

4. A thermo-electric generator having the water chamber, the water supply pipe having the valve, the lateral handle for moving the valve, the platform having the conducting strip over which the handle moves in electrical engagement, insulating material arranged to break the contact between the strip and the handle at a certain portion of the stroke of the handle and a circuit including the generator and an alarm and controlled by said strip and handle, substantially as described.

5. The combination of a thermo-electric generator, the main working line therefrom a local alarm circuit for said generator forming a shunt between the sides of the main line, and means for controlling the local circuit, substantially as described.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

HARRY BARRINGER COX.

Witnesses:

O. E. DUFFY,

C. M. WERLE.