To all whom it may concern:

Be it known that I, Frank Nelson Blagen, a citizen of the United States, residing at Hoquiam, in the county of Grays Harbor and the State of Washington, have invented a new and useful Electric Incubator, of which the following is the specification.

The object of my invention is to provide an electric incubator having an improved combination and arrangement of parts whereby inconvenient and frequent removal of the mercury or cleaning is not required. It is a further object of my invention to provide an improved arrangement of the resistance wires.

I obtain the object of my invention by the mechanism illustrated in the accompanying drawings, in which:

Figure 1 is a longitudinal vertical section through an incubator to which the invention is applied; Fig. 2 is an end view of the invention, partly in diagram; and Fig. 3 is a top plan.

Like characters of reference designate like parts throughout the several views.

Referring to the accompanying drawings, I provide an incubator casing having in its upper portion insulating strips L extending longitudinally of the incubator at opposite sides and mounted on cross strips M. I provide a novel heating element consisting of resistance wire N connected back and forth in U-shaped arrangement continuously from one end of the incubator to the other, wires being spaced not more than four inches apart, as illustrated. By this improved arrangement of the heating element all parts of the egg tray beneath can be heated within one-tenth of the same degree of heat. I provide a fuse cut-out O to which wires Q and R are connected from the service mains. Hence wire R is connected directly to the heating element N. Wire Q is connected through the secondary circuit of the electrical relay T to the heating element N.

The lines from the battery or low voltage circuit U connect as follows: One wire connects directly to the primary terminal G of the relay T and the other wire connects with the balance lever C, as illustrated in Fig. 2. Balance lever C has its opposite end arranged to touch the mercury in mercury cup F, which is fastened to primary relay terminal H, thus closing the battery circuit through the relay. Lever C is operatively connected by means of a rod B and lever A with a suitable thermostat K which is disposed within the incubator chamber.

The action of the mechanism is as follows: When the incubator chamber reaches the proper temperature for which the thermostat is adjusted, the thermostat K will expand, thus causing lever A to move downward. Lever A in turn pulls with it rod B which is connected with lever C through a knife-edge contact at thumb nut E. As rod B moves downward the end of lever C moves upward until it no longer touches the mercury in mercury cup F. The primary circuit thus being open, the electrical magnets are released and the circuit to the heating element N is opened which allows it to cool off. As the inside of the incubator cools down again about one-tenth of a degree, the lever C again makes contact in the mercury cup F and the electro magnets connect the circuit to the heating element.

By using this mechanism which has the high voltage spark on the platinum contacts of the relay, and the low voltage spark in the mercury cup, the sparking does not damage the mercury which does not have to be removed or cleaned off at all, whereas in the machines on the market to-day the mercury thickens after using it several days and fails to make connections unless renewed and cleaned at frequent intervals.

What I claim is:

1. In an electric incubator, the combination of an incubating chamber, insulating members at opposite sides thereof, a resistance wire connected back and forth on the insulating members, a thermostat, a balanced lever operatively connected with the thermostat, a cup of mercury with which one end of the balance lever is arranged to electrically connect, a battery, a wire connecting the opposite end of the balanced lever with the battery, a relay, a wire from the battery to the primary terminal of the relay, and means for electrically connecting the relay with the service mains and the resistance wire.

2. In an electric incubator, the combination of an incubating chamber, insulating members at opposite sides thereof, a resistance wire connected back and forth in substantially U-shaped and evenly spaced arrangement continuously from one end of the incubator to the other, a thermostat, a balanced lever operatively connected with the thermostat, a cup of mercury with which one end
of the balanced lever is arranged to electrically connect, a source of electric current, a wire electrically connecting the aforesaid source of current with the free end of the balanced lever, a relay connected with the resistance wire and adapted to close the heating circuit when the relay is energized, and an electric connection from the source of current to a terminal of the relay and a connection from the other terminal of the relay to the mercury cup.

3. In an electric incubator, the combination of an incubating chamber, a heating element in the chamber, a balanced lever, a thermostat to which the balanced lever is operatively connected, a cup of mercury with which one end of the balanced lever is arranged to electrically connect, a battery, a wire connecting one end of the balanced lever with the battery, a relay, a wire from the battery to a terminal of the relay, a wire from the cup to the relay and means for electrically connecting the relay with the service mains and the heating element.

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