

UNITED STATES PATENT OFFICE.

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INCUBATOR-ALARM.

982,503.

Specification of Letters Patent.

Patented Jan. 24, 1911.

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To all whom it may concern:

Be it known that I, WILLIAM M. KELLY, a citizen of the United States, residing at Herkimer, in the county of Herkimer and State of New York, have invented certain new and useful Improvements in Incubator-Alarms, of which the following is a specification.

This invention relates to alarms for incubators.

The object of my invention is to provide a simply constructed, readily operated alarm mechanism, arranged to be attached to an incubator, to actuate an audible alarm when the temperature rises above or falls below a certain predetermined point.

A further object is to provide an incubator with a valve-controlling mechanism, operated by a thermostat, and working in conjunction with an electric alarm bell.

With these and other objects in view, the present invention consists in the combination and arrangement of parts as will be hereinafter more fully described and particularly pointed out in the appended claims, it being understood that changes in the specific structure shown and described may be made within the scope of the claims without departing from the spirit of the invention.

In the drawings forming a part of this specification, and in which like numerals of reference indicate similar parts in the several views, Figure 1 shows a central sectional view of an incubator constructed according to my invention. Fig. 2 shows an enlarged fragmentary portion of the yoke as used in my invention. Fig. 3 shows an enlarged detached detail of the alarm operating mechanism.

The primary object of my invention is to provide an automatically operated mechanism arranged to actuate an alarm, should the egg chamber of an incubator become overheated or be insufficiently heated.

In the drawings, the numeral 10 designates an incubator provided with the usual lamp 11, the thermostat 12, supported by means of the bracket 16, and the valve or cap 15 closing the lamp chimney 11. Extending from the thermostat 12 is the connecting rod 13 secured to the bracket 14 carrying the valve cap 15. The instrumentalities as far as described are of any conventional or suitable construction, as is usual in devices of this character.

Secured to a suitable part of the thermostat 12, is the bracket Q having a threaded opening into which is screwed the lower threaded end of the plunger rod R, this plunger rod extending a suitable distance beyond the top of the incubator, as shown. The top of the incubator is provided with a suitable sleeve S within which the plunger reciprocates. To the upper end of the plunger R is adjustably secured the collar Y held to the plunger by means of a suitable screw y. This collar is provided with a threaded opening arranged to receive the pivot pin X.

Secured to the top of the incubator is a suitable bracket bar A having two openings, one of which is arranged to receive the sleeve S, while the remaining opening is somewhat larger and carries the flue pipe P. This flue pipe extends into the egg chamber a suitable distance. In order to properly hold this flue pipe to the bracket bar A, I provide the pipe with the bead 1 near the upper end, and closing the upper end of this flue pipe is the cap O, as shown. The bar A at the end opposite the end of the sleeve S is provided with the upwardly extending portion 9 which is continued in the portion 8 and held at right angles, forming a bracket, this bracket having an enlarged central opening 2 and two adjacent screw openings, as disclosed in Fig. 2, arranged to receive the bolts H secured by means of suitable nuts.

Surrounding the sleeve S and secured to the bracket bar A, is the base plate T having the upstanding ear 7, this ear being pierced and carrying a suitable bolt V and pivotally held to this bolt V is the rock link C having an opening at its upper end to receive the bolt W, as clearly disclosed in Fig. 3.

Pivotally held to the pivot pin or screw X is the rock lever B which at its forward end is provided with a supporting pin M, adjacent to which is secured the bolt L, the extreme forward end of this rock lever being provided with the stop ear 6, as shown. The bolt W carried by the rock link C also passes through an opening in this rock lever B, so that this lever is pivotally connected with the rock link C, as shown.

Slidably held to the bolt L, is a slotted hanger D, the bolt L passing through the slot of said hanger and this hanger above is provided with the stop shoulder 5, this shoulder 5 carrying the set screw K, as shown. At its lower end this hanger D

pivotaly carries the connecting stem N secured to the cap O in the manner disclosed. This hanger is loosely and slidably held to the bolt L, the set screw K being arranged to
5 contact with the upper edge of this rock lever B, in the manner disclosed.

Pivotaly carried by the pin M and resting upon the stop ear 6, is the contact maker E, which is permitted a free upward movement in an arc, traveling upon the pin M.
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Held to the bracket 8, by means of the bolts H, is the yoke F, having the upper ear 4 and the lower ear 3, this yoke being insulated from the bracket by means of the mica plate J. Threading into the upper ear 4, is the contact forming screw G, while threading into the lower ear 3 which forms the base of this yoke, is the contact forming screw G', this screw passing through the
20 opening 2, so that no contact is made with the bracket bar. As shown in Fig. 2, the bolts H are insulated by means of the mica or rubber washers I, so that no contact is possible between the members F and 8
25 through the bolts H.

Held to one of the bolts H, which is in electric contact with the bracket bar A, is the electric conductor 24, while secured to the opposite bolt H, which is insulated from
30 this bracket bar, is the conductor 23, these conductors forming a circuit containing the battery 20 and the electric bell 21.

The hanger D is so adjusted, that when the temperature within the egg chamber is
35 at the desired point, the cap O closes the flue pipe in which condition the screw K contacts with the rock lever B. Should the temperature rise within the egg chamber beyond the desired degree, the thermostat would carry
40 the plunger bar R downward, and in its downward movement this plunger bar would rock the lever B to carry the contact maker E upward as well as the hanger, resulting in the flue pipe being uncovered. A
45 suitable amount of heat would then be allowed or permitted to escape out of the egg chamber through the flue pipe P. If, however, the heat should be generated at a rate greater than the escape would compensate
50 for, the contact maker E would finally come in contact with the terminal G to complete the circuit and so ring the electric alarm bell 21. The flue pipe during this operation would, of course, be entirely uncovered. The
55 bell would ring until the heat was reduced. On the other hand, if through some cause the heat chamber should become cooled, below a predetermined degree, the rock lever B would drop the bolt L passing within the
60 slot of the hanger D until the contact maker came in touch with the terminal G', when the alarm would again be actuated. The rock link C permits the proper operation of the rock lever B. In its downward move-

ment the rock lever B, it will be noted, does 65 not actuate the cap O covering the flue pipe.

From the foregoing it will be seen that I provide an electric circuit, one terminal of which is in the form of a traveling member represented by the lever B, while the 70 remaining terminal has two contact points represented by the screws G and G'.

The device is light, neat, simple of construction and positive in its operation, and the adjusting mechanisms may be operated 75 with ease, despatch and accuracy.

And having thus described my said invention, what I claim as new and desire to secure by United States Letters Patent is:

1. An alarm device comprising a vertically slidable plunger, a support through which said plunger is slidable, a rock link pivotally mounted upon said support and extending upwardly therefrom, a lever pivoted to said rock link intermediate its ends, 85 said lever being also pivotally and adjustably connected to the plunger, a contact maker pivotally carried at the free end of said lever, means for limiting the movement of said contact maker in one direction, a 90 contact terminal in the path of said contact maker, a circuit including an alarm device, the contact maker and terminal, and means for moving said plunger vertically, whereby said rock link will compensate for the 95 change in position thereof.

2. An alarm device comprising a bar provided with a supporting bracket, a rock link pivotally carried by said bar, a vertically movable plunger disposed through said bar, 100 a lever pivoted intermediate its ends to said rock link at its upper end, said lever being also pivotally secured to and adjustably mounted on said plunger, a contact member carried by the free end of said lever, a stop 105 limiting the movement of said contact maker in one direction, a metallic yoke supported on said bracket and insulated therefrom, adjustable contact members carried by the arms of the yoke, an electric circuit, a signaling device included in said circuit, said 110 circuit also including the yoke member as one terminal and the contact maker as the other terminal thereof, said circuit through the contact maker also including the supporting bracket and connected parts of the 115 lever and means for moving said plunger, whereby said contact maker will close the circuit through the adjustable contact members of the yoke, when moved in either direction. 120

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

WILLIAM M. KELLY.

Witnesses:

MARTIN MANTON,
MICHAEL DIMNER.