

1,037,084.

Fig. 1.

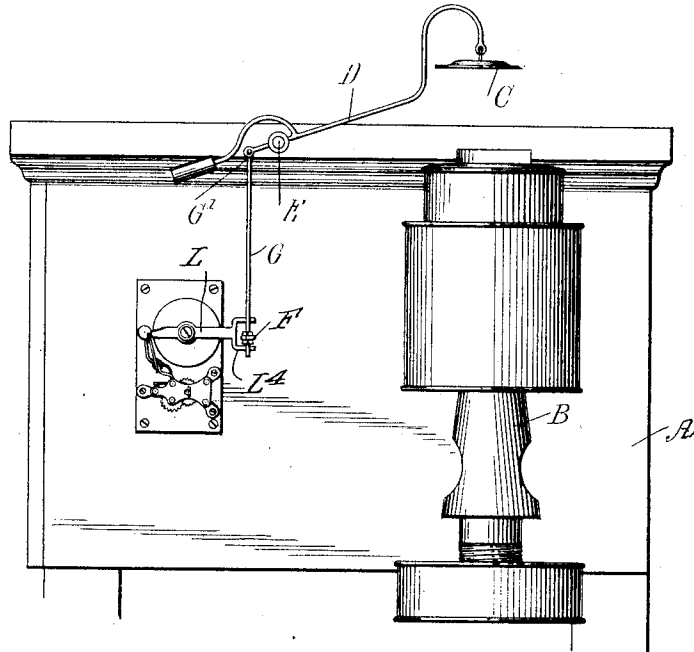


Fig. 2.

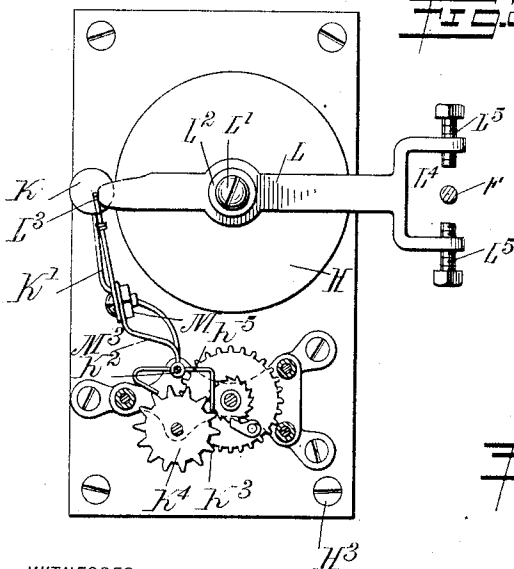
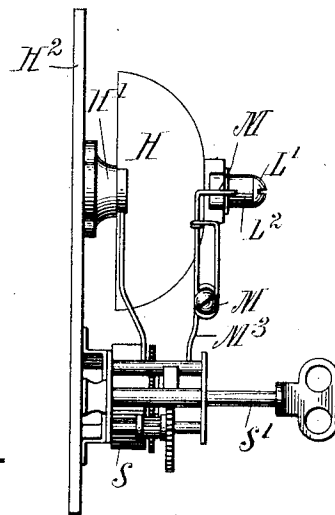


Fig. 3.



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JAMES TRAPP, OF VALLEY FALLS, KANSAS.

ALARM FOR INCUBATORS AND BROODERS.

1,037,084.

Specification of Letters Patent.

Patented Aug. 27, 1912.

Application filed June 27, 1911. Serial No. 635,533.

To all whom it may concern:

Be it known that I, JAMES TRAPP, a citizen of the United States, residing at Valley Falls, in the county of Jefferson and State of Kansas, have invented certain new and useful Improvements in Alarms for Incubators and Brooders, of which the following is a full, clear, and exact description.

As is well known to those familiar with the operation of incubators it is essential that the temperature therein be maintained as near as possible at a uniform degree during the period of incubation, for any substantial variation in the temperature destroys the germs of the eggs contained in the incubator and results in great loss.

The object of my invention therefore is to produce an alarm which in the event of a variation in the temperature within the incubator will be automatically sounded, notifying the attendant, who may at once give the necessary attention thereto as the conditions may require.

The foregoing object is secured by the apparatus illustrated in the accompanying drawing forming a part of this specification in which like characters of reference indicate like parts throughout the views, and in which—

Figure 1 shows an end view of an incubator with the alarm connected thereto; Fig. 2 shows a front view of the alarm and its trip lever; and Fig. 3 shows the alarm in side elevation looking toward the right in Fig. 2.

In the drawing A represents an incubator of any usual or preferred construction, and B the lamp or heating apparatus which is of the usual form and arrangement and generates the heat which is conducted in the usual manner to the interior of the incubator. As is well known to those skilled in this art the heat generator is controlled by a damper C carried by a counter balanced lever D pivoted at some point to the body of the incubator as at E, and the rise and fall of this damper C which is directly over the flue or chimney of the heater B regulates the generation of heat, it being intended that in the event of a rising temperature the damper C will be elevated above the flue or chimney of the heat generator, permitting the surplus heat to escape into the atmosphere, and a corresponding decrease in temperature is intended to result in the dropping of the damper over the chimney or flue,

thus confining the heat in the drum of the heat generator and securing a resultant rise of temperature in the incubator.

Within the incubator is some form of thermostat which need not be shown or described as it is well known by those familiar with this art and leading from this thermostat and actuated thereby is a controller rod F shown in cross section in Fig. 2, and this controller rod F at its outer end outside of the casing of the incubator is connected to a rod G which is pivotally connected at G' to the counter balanced damper lever D.

All of the foregoing parts may be of any usual or ordinary construction and of themselves constitute no part of the present invention.

The movements of the regulator rod F as imparted by the thermostat in operating the counter balanced lever D to control the heat generator, is made use of in the present invention to sound the alarm in the event that the temperature within the incubator should at any time be increased or diminished to an undesirable extent. The alarm consists of a gong H suitably mounted upon a post H' carried by a plate H² which by means of screws H³ is attached to the case of the incubator adjacent to the point where the regulator rod F extends through the side of the case. The gong H is sounded by a hammer K carried by a hammer arm K' pivotally mounted upon a post K² and the hammer arm is vibrated to cause the hammer to strike the gong by means of a suitable spring or clock motor K³ which comprises an escapement wheel K⁴, the teeth of which are engaged by the legs of an escapement K⁵ which forms a part of or is connected to the bearing to which the hammer arm K' is connected; thus the escapement controls the operations of the spring motor and the vibrations of the hammer arm. If the escapement is held from movement then the motor is inactive, and consequently the hammer arm is held from movement. If the escapement is permitted to move then the motor unwinds and imparts a vibrating movement to the hammer arm, sounding the alarm.

It appears to be unnecessary to describe in detail the spring motor, suffice it to say that it is of any usual form and different types thereof are commonly used in the operation of door bells and similar alarms, and like all such motors it is provided with a suitable

power spring S which is wound up by a key S'.

As hereinbefore stated the escapement controls the gong sounding mechanism and as long as the escapement is held from movement the gong sounding mechanism is inactive, and therefore I have provided a trip lever L which is pivotally mounted upon the post H' which supports the gong H, it being held to the outer end of said post by means of a screw L' and a washer L². One end of this trip lever L is arranged to engage an arm M extending upward from the escapement K⁵, and whenever the arm M is engaged by the end L³ of the lever L the escapement will be held from movement as long as the lever L remains in its normal position. It is intended that it shall remain in its normal position as long as the temperature within the incubator remains at normal or that degree of heat which is desired. The displacement of the lever L from its normal position to release the arm M and permit the alarm to be sounded is effected by the movement of the regulator rod F under the influence of the thermostat and owing to a change in temperature within the incubator. To secure this result the arm L³ of the lever L is provided with a yoke L⁴ positioned to embrace the rod F at the point where it emerges from the case of the incubator, and the arms of the yoke are preferably provided with adjustable contacts L⁵ so that the extent of movement of the rod F which may take place before one of the yoke arms or its adjustable contact will be engaged by said rod to shift the trip lever L may be accurately regulated and thus regulation according to the minimum and maximum variation in temperature which may be permitted before the alarm is sounded can be effectively secured. The arm M is adjustably mounted as by a screw M' and nut M² to a bent arm M³ connected to the escapement, and thus the position of the arm M with relation to the nut L³ of the lever L may be correctly adjusted.

In operation the spring motor is wound up in the usual manner by the key S' so that the arm M will have contact with the extreme and slightly rounded point L³ of the lever L. In this position the lever L restrains the movement of the escapement A⁵ and consequently prevents the unwinding of the motor and the vibration of the hammer arm, and the parts will remain in this position so long as the temperature within the incubator remains normal. In the event

that the temperature either increases or decreases abnormally, or to an undesired extent, the rod F which is moved by the thermostat within the incubator to control the movements of the damper lever C will, if it moves to the required extent, come in contact with one of the arms of the yoke L⁴ or slightly moving the lever up or down, as the case may be, will release the arm M from its engagement with the rounded end L³ of the lever. Thus the escapement is released, permitting the spring motor to unwind and through the various instrumentalities imparting a rapid vibratory motion to the hammer arm A', which through the hammer K strikes the gong, sounding the alarm. The attendant may at once proceed to investigate to determine whether the temperature is abnormally high or low and take steps to remedy the condition.

Having thus described my invention, I claim as new, and desire to secure by Letters Patent:—

1. In an incubator alarm, the combination with a damper lever, a regulator rod, and a rod connecting the regulator rod with the damper lever, of a spring motor, a gong, a hammer lever operated by the motor, a detent for holding the motor inactive, an upwardly extending arm carried by the detent, and a trip lever pivoted intermediate of its ends upon the post securing the gong in position, said lever having one end forked, the members of the forked end of the lever extending on opposite sides of the regulator rod, the other end of the lever being in engagement with the arm of the detent when said lever is in normal position.

2. An alarm for incubators, comprising a plate, a gong mounted on the plate, a spring motor mounted on the plate adjacent to the gong, a hammer lever operated by the motor, a detent for holding the motor inactive, an arm carried by the detent, and a trip lever pivoted intermediate of its ends on the post securing the gong to the plate, one end of the lever when in normal position engaging the arm carried by the detent and its other end being forked and provided in each member thereof with adjustable contacts.

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

JAMES TRAPP.

Witnesses:

LOUIS PUDERBAUGH,
JNO. W. ROOT.