

985,514.

FIG. 1.

This diagram illustrates a circular mechanical assembly, possibly a watch movement or a similar precision instrument. The main body is a circular case (17) with a central pivot point (23) and a central gear or wheel (24). The internal components are divided into two main sections by a vertical line (18). The left section (25) contains a smaller circular component (26) and a lever or arm (28). The right section (27) contains a larger circular component (29) and a lever or arm (30). The entire assembly is mounted on a base (16) and includes various adjustment screws (19, 20, 21, 22) and a central screw (23). The diagram is labeled with numbers 1 through 30, corresponding to the parts listed in the text.

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UNITED STATES PATENT OFFICE.

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INCUBATOR-HEATER.

985,514.

Specification of Letters Patent.

Patented Feb. 28, 1911.

Application filed August 28, 1908. Serial No. 450,753.

To all whom it may concern:

Be it known that I, CHARLES A. DAMON, a citizen of the United States, and resident of Buffalo, in the county of Erie and State of New York, have invented certain new and useful Improvements in Incubator-Heaters, of which the following is a specification.

This invention relates to heaters for incubators, brooders, and the like.

The object of the invention is to produce a heater having the maximum provisions against the spread of fire from the lamp.

In the drawings:—Figure 1 is a central, vertical section through an apparatus embodying this invention, but in which the lamp and its directly attached parts are shown in elevation; Fig. 2 is a front elevation of the lamp box; and Fig. 3 is a horizontal section on the line 3—3 of Fig. 1.

The heater shown in vertical section in Fig. 1 is of a type heretofore in extensive use, that is, it comprises the usual heat tube 1, into which the products of combustion of the lamp are discharged, and the concentric hot air tube 4, surrounding the heat tube.

The present invention relates particularly to the means for supporting and inclosing the lamp by which the heat is supplied.

To the bottom of the heater, as, for instance, to the spacing bars 12 between the hot air tube and the heat tube, is hung a fire-tight lamp box 17, composed of metal and having attached to its top 13 a neck 14 fitting into the bottom of the heat tube 1. Through the neck 14 projects the chimney 15 of the lamp.

The lamp box 17 has a door 18 provided with spring hinges 19, which keep the door closed except while it is held open for the purpose of access to the lamp. In a suitable portion of the lamp box, as, for instance, in the door 18, are fixed air inlet openings 20 entirely covered by fine wire gauze 21, through which flame cannot pass. An automatic catch 22 of suitable character engages and holds the door when it is swung shut by the spring hinges 19. The oil pot 16 of the lamp is supported above the bottom of the lamp box, and the sides of the lamp box extend, oil tight, to a substantial distance above said bottom. Any leakage of oil from the oil pot 16 accumulates, therefore, in the bottom of the lamp box. The capacity of the bottom of the lamp box is such that it

will contain all the oil which a filled oil pot can hold. A suitable way of supporting the oil pot above the bottom of the box is upon a pair of crossed metal strips 23, having upward projections 24, their outer ends forming guides for the oil pot so as to compel it, when placed in the lamp box 17, to be properly centered, so that the chimney 15 is in the center of the neck 14, and thus delivers the heated air and products of combustion into the heat tube 1.

In order to protect the lamp from explosion, in case the interior of the lamp box 17 should become super-heated by improper action of the lamp, the ordinary screw filling cap 25 carries a small tube 26 provided with a fine bore, which communicates with the interior of the oil pot. If, therefore, the oil pot should become heated, and the oil vapor should stream out through the tube 26 and should become ignited, it would burn at the upper end of the tube without communicating flame through the bore of the tube to the oil in the oil pot.

In order to prevent an operator from turning the lamp in the box to bring the filling cap near the door, for the purpose of filling the oil pot without removing the lamp from the lamp box, a plate 27 is placed in the lamp box parallel to its bottom. This plate has a converging recess of such form that the filling cap 25 rests at the extreme rear end 28 thereof. The converging sides of the recess engage the filling-cap when the lamp is inserted in the box and guide it to its proper position at the back of the lamp box, distant from the door; and inaccessible from the open door.

The lamp box is held up against the bottom of the heat tube 1 by hook-bolts 29, hooking over the spacing bars 12 above mentioned, and having their lower ends extending through the top of the box, and provided with nuts 30, within the lamp box 17.

In order to provide means for extinguishing the lamp, if it should smoke, a fine wire gauze or perforated metal partition 31 is placed in the heat tube 1 a short distance above the end of the chimney 15. If the lamp smokes, the soot will soon clog the interstices of the wire gauze or perforated metal, and stop the passage of the products of combustion up the heat tube 1, where-

upon they will be forced back upon the lamp and will extinguish it automatically in a very short time.

What I claim is:—

- 5 1. A heater for incubators and the like having, in combination, a lamp, a lamp-box adapted to receive the lamp and comprising a body and a door, one of said parts being provided with a constantly-open air-inlet
- 10 provided with a fire-screen, and the body having an oil-tight bottom and a lateral lamp-receiving opening closed by said door and with its lower extremity at a substantial distance above the bottom of the body
- 15 so as to provide an oil-receptacle at the bottom of the body, means for automatically closing and holding closed the door except when it is held open by the operator for the insertion or removal of the lamp, and a
- 20 lamp-support which supports the lamp above the bottom of the lamp-box so as to afford space for the collection of oil escaping from the lamp.
- 25 2. A heater for incubators and the like having, in combination, a lamp comprising a circular oil-font provided with an eccentrically located filling-cap, a lamp-box with

a lateral opening through which the lamp is inserted and removed, and a guide located in the lamp-box in position to be engaged 30 by the filling-cap when the lamp is inserted, the guide having curved portions converging toward the rear of the lamp-box and away from said opening so as to guide the filling-cap toward a point where it is inaccessible through said opening and to prevent rotation of the lamp when in the lamp-box.

3. A heater for incubators and the like, having a heat tube for the products of combustion, a fire-tight lamp box fitting the inlet end of said heat tube having an air inlet opening provided with a fire screen; a door; a lamp within said box having an oil pot provided with a filling cap on its 45 upper surface; a guide plate within said lamp box for guiding the filling cap to the back of the lamp box away from the door; and a centering support for the base of the lamp.

CHARLES A. DAMON.

Witnesses:

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."