M. E. MOELLER.

DEVICE FOR ILLUMINATING THERMOMETERS AND SIMILAR INSTRUMENTS.

APPLICATION FILED JAN. 30, 1912.

1,103,605. Patented July 14, 1914.

Fig. 1.

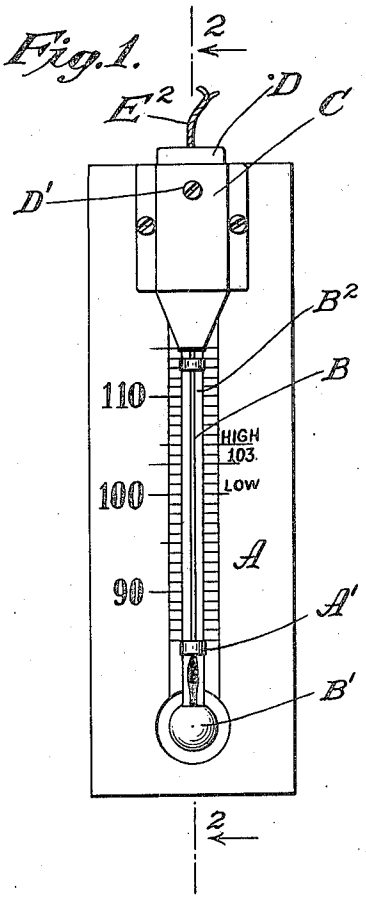


Fig. 2.

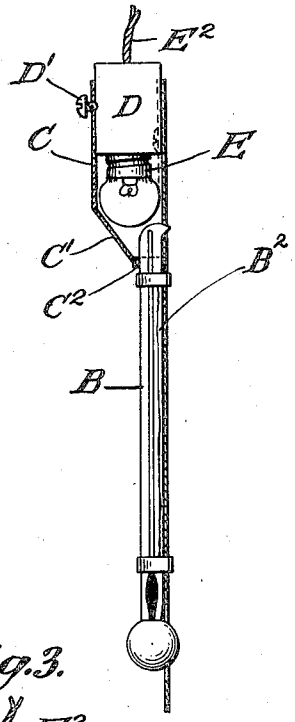
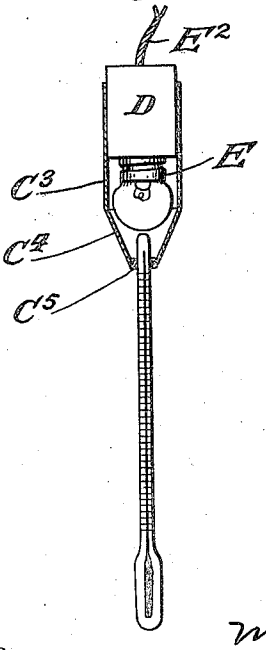


Fig. 3.



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UNITED STATES PATENT OFFICE.

MAX E. MOELLER, OF NEW YORK, N. Y.

DEVICE FOR ILLUMINATING THERMOMETERS AND SIMILAR INSTRUMENTS.

1,103,605. Specification of Letters Patent. Patented July 14, 1914.

Application filed January 30, 1913. Serial No. 745,306.

To all whom it may concern:

Be it known that I, MAX E. MOELLER, a citizen of the United States, and a resident of the borough of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Devices for Illuminating Thermometers and Similar Instruments, of which the following is a specification.

The invention relates to devices for illuminating thermometers and similar instruments, and its objects are, among others, to provide a device of this character of simple, inexpensive and compact construction, which will effectively illuminate the instrument and which may be applied to the said instrument without material change in its construction or form, and which will illuminate it in such a manner that it will be plainly visible to the eye and quickly read or observed.

The improvements consist of the construction, combination and arrangement hereinafter described and claimed, and illustrated in the accompanying drawings.

In the said drawings Figure 1 is a front view of a thermometer, with an illuminating device embodying the improvements applied thereto. Fig. 2 is a vertical section on the line 2—2 of Fig. 1. Fig. 3 is a view similar to Fig. 2 of a modification.

Devices of this character are useful in many ways and may be employed in incubators and other places where the thermometer is placed in an obscure or dark location, as well as in sick rooms where illumination is not desired, in which latter case—as well as in others—the illuminating device which is the subject of this invention may be used in connection with an ordinary thermometer or a clinical thermometer.

In the drawings A is the plate of the thermometer, provided with the usual graduations and signs, and B is the ordinary glass tube of the thermometer secured to the plate by means of collars A′ and having a mercury bulb B′ at its bottom, from which the mercury rises in a column in the tube with the temperature. The thermometer shown in the drawings, for illustration, is one ordinarily used in incubators, and is, therefore, provided with graduations indicating temperatures from 85 to 115 only.

C represents a casing of substantially semi-cylindrical form secured to the upper part of the plate A, and adapted to receive a plug D inclosing the butt and socket of an electric light bulb E, from which the wires E^2 extend to a suitable source of electric current. The plug D is preferably made of wood, fiber or some other slightly compressible material so as to fit snugly within the bore of the casing C and exclude all light, and at the same time support the light firmly and securely. A small set-screw D′ extends through the casing and bears against this plug D, so as to prevent it from moving under any unusual strain.

The forward end C′ of the casing is of approximately funnel shape, and has at its lower end an opening provided with a packing C^2. Through this opening the upper end of the thermometer tube B extends to close proximity to the electric light bulb so that the rays of the light pass down directly through the glass of the said tube and illuminate the same so as to make it present a striking contrast to the background and to the column of mercury within it. The interior of the casing C is of reflective material, and this may be provided by simply polishing the interior of the metal of which the casing is composed.

The result of the construction and arrangement described is that the light of the bulb is confined in every direction, except the direction of the column of mercury and is projected down through the tube surrounding that column in such manner that it does not radiate in any direction, but is confined to the said tube.

In the modification shown in Fig. 3 the casing C^3 corresponding to the casing C is not attached to the thermometer plate A, and is preferably cylindrical in form with a contracted lower portion C^4 and an opening at the bottom thereof, provided with a packing ring C^5, through which the upper end of a clinical thermometer may be passed to proximity to the electric bulb.

When desired, the casing may be provided with a plurality of openings to receive two or more thermometers or similar instruments, as for instance a thermometer and hygrometer.

The thermometer tube B is provided with a reflective back B^2, which may consist of a coat of white enamel or other light-reflecting substance, to form a background for the mercury column therein, and the rays of

light projected through the upper end of the tube will illumine this background as they pass downward through the said tube.

The object of the illuminating device constructed and arranged as herein described, is not to throw a light on the column of mercury or other substance in the glass tube, but to so illumine the tube itself that the said column will stand out in relief against the illuminated glass. It is, therefore, necessary that the glass of the tube shall have considerable thickness, and that the light shall be projected directly against its upper end and in a direction parallel with the tube.

The words "opaque liquid" in the claims embrace mercury and the other expansible fluids used in thermometers and similar instruments, which fluids may be imperfectly opaque but sufficiently non-translucent to intercept the rays of light and present a marked contrast to the illumined surrounding tube.

What I claim as new is:

1. In a device of the character described, the combination of a casing, an illuminating device therein, said casing being provided with an opening, a tube of light-transmitting material fitting the said opening adapted to project therethrough into the said casing and into proximity to the said illuminating device, and being partially filled with an opaque liquid the said casing tapering toward the said tube and having a reflective interior, the construction and arrangement being such that the light of the illuminating device is projected longitudinally of the tube so as to be intercepted by the opaque substance in the bore of the tube and to pass beyond the same to illuminate the material of the tube below the upper surface of the opaque substance.

2. In a device of the character described, the combination of a casing, an illuminating device therein, said casing being provided with an opening, a tube of light-transmitting material fitting the said opening adapted to project therethrough into the said casing and into the field of direct radiation of said illuminating device, and being partially filled with an opaque liquid, the construction and arrangement being such that the light of the illuminating device is projected longitudinally of the tube so as to be intercepted by the opaque substance in the bore of the tube and to pass beyond the same to illuminate the material of the tube below the upper surface of the opaque substance.

Witness my hand this 18th day of January, 1912, at the city of New York, in the county and State of New York.

MAX E. MOELLER.

Witnesses:
MARY H. LEWIS,
ALAN C. MCDONNELL.