March 20, 1934. A. W. DIACK 1,951,650

PYROMETER AND CASING THEREFOR

Filed Oct. 19, 1932

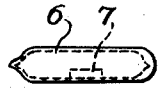


Fig. 1

Fig. 2

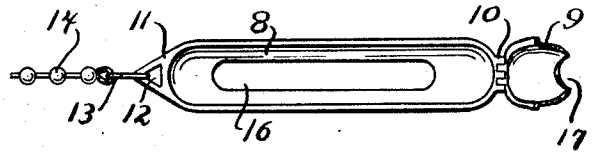


Fig. 3

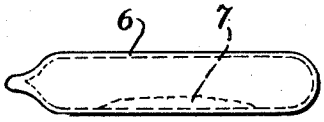


Fig. 4

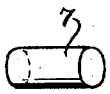


Fig. 5

INVENTOR
Archibald W. Diack
BY
Swan, Frye & Hardesty
ATTORNEY

Patented Mar. 20, 1934 1,951,650

UNITED STATES PATENT OFFICE

1,951,650

PYROMETER AND CASING THEREFOR

Archibald W. Diack, Ann Arbor, Mich.

Application October 19, 1932, Serial No. 638,571

2 Claims. (Cl. 73—32)

This invention relates to pyrometers, and more especially to an improved pyrometer particularly designed for use in gauging the sterilization of articles such as surgical, medical and dental accessories, dressings, bandages, sponges, and the like, and to an improved casing for such pyrometers adapted to both protect the same and enable use of a simpler and less expensive pyrometer unit than has heretofore been practicable. Bandages and dressing materials are usually bundled together and heated to approximately 115° C. for a period of about 10 minutes, which insures the destruction of all organisms, if all portions of all articles under sterilization are raised to such temperature. Difficulty has been encountered, however, in being certain that the interior portions of the articles have been properly heated, and to provide simple and positive indication enabling sure determination that proper sterilization has been accomplished when such is the case. I have heretofore disclosed, in Patent No. 1,000,673, issued to me August 15, 1911, a pyrometer comprising a glass casing in which is enclosed a quantity of a substance adapted to melt, and preferably also to change color, when it has been raised to the proper temperature. As disclosed this glass pyrometer is provided with a knob or enlarged portion serving as an abutment about which a string is tied whereby the pyrometer may be pulled from the center of a pile of articles being sterilized, in which it is placed beforehand. By simple inspection it may of course then be determined whether or not the indicating material has fused. Pyrometers of this type have been and are being used in large quantities in the medical and dental professions, and are ordinarily sold in packages containing a considerable number, as by the gross. It is accordingly desirable that they be manufacturable and salable as cheaply as possible as each pyrometer is ordinarily used but once and then discarded. With this end in view my present invention contemplates the provision of an improved pyrometer, equally as efficient as the aforementioned design disclosed in my previously issued patent, but which is simpler in construction and provided with no knobs or special configurations or strings, thereby enabling their manufacture at considerably reduced cost, together with the provision of a protecting casing for enclosing the same while in use.

A further object of this invention is the provision of an improved casing for such glass pyrometers adapted to protect the same against breakage (which has been found apt on occasion to occur, if, for example, they are struck upon the side of a receptacle or the like) and which cannot catch upon fabric or other soft or fibrous material, or otherwise interfere with the ready extraction of the pyrometer from a pile or bundle of material being sterilized, by pulling upon a flexible lanyard attached thereto.

Other objects and advantages will be apparent from the following description, wherein reference is made to the accompanying drawing illustrating a preferred embodiment of my invention and wherein similar reference numerals designate similar parts throughout the several views.

In the drawing:

Figure 1 is a side elevational view of one of my improved pyrometers.

Figure 2 is a side elevational view of a casing or holder therefor, a pyrometer being shown in the casing.

Figure 3 is a view partly in plan and partly in horizontal section, taken substantially on the line 3—3 of Figure 2 and looking in the direction of the arrows, but with the pyrometer cartridge removed.

Figure 4 is an enlarged side elevational view similar to Figure 1 of a pyrometer after use, showing the indicating material fused.

Figure 5 is a perspective view of an unused block of the indicating material before its insertion in a pyrometer.

Referring now to the drawing, reference character 6 designates a glass shell, which may be formed of a length of glass tubing sealed at both ends, within which is a block of indicating material 7 adapted to melt at the desired temperature. The indicating material may, as stated in the aforesaid previously issued patent, comprise a block of dyed sulphur, with which may be mixed sugar or any other material designed to retard the fusing. As also therein stated, acetanilid, phenacetin or a fusible salt or gum might be used rather than sulphur, the important consideration being that the indicating material change its physical characteristics in an easily discernible way when, and only when, the proper degree of heat has been applied thereto, and preferably without vaporizing to any appreciable extent at the temperatures to which the device is subjected in service. The indicating material may be made up in stick form and cut into small blocks, as shown in Figure 5.

The construction of my preferred holder is clearly shown in Figures 2 and 3, and as there shown comprises a pair of channeled sheet members 8—9, the latter of which forms a lid for the former, and the construction of both of which is

such that when closed the shell presents a smooth exterior surface not apt to catch upon the material under treatment. A hinge 10 pivotally secures the cover section 9 to the lower section 8, and in the longitudinally projecting ear 11 at the free end of the latter is punched an aperture 12 by means of which a ring 13 to which a chain 14 is attached is secured to the holder. At the free end of the cover section 9 is a downwardly projecting clip portion 15 which when the sections are closed also engages in the aperture 12 to hold them together. It will be seen that the spring clip 15 may easily be released by a finger to enable opening the holder, and is so shaped as to snap into place when the sections are forced together. One or more inspection openings or windows 16—17 may be provided in the walls of the device, one such, shown as an elongated slot, being in this embodiment provided in each section. These enable examination of an enclosed pyrometer without opening the casing.

In using the device, one of the pyrometer cartridges 6 is enclosed in the casing and the latter fastened shut by means of the clip 15. The casing is then placed wherever desired, as in a bundle of or among the articles being sterilized, the end of the chain 14, to which may be attached a hook or ring, as 18, being left outside the materials. When it is believed that proper sterilization has been accomplished, the pyrometer may be extracted by means of the chain, and if it should happen that the operator was mistaken and the interior or inner ones of the articles being sterilized should not have been completely and properly treated, sufficient additional time may be allowed for proper sterilization, or if one or more additional pyrometers are in like fashion arranged in the material under sterilization, they may be used to determine the completion of the process. It will be seen that one such casing or holder as is herein described may be used indefinitely, and a new pyrometer cartridge placed therein at each use, thus not only effecting a material economy in the cost of the pyrometers, but protecting them against breakage while in use without interfering with their many other desirable features.

While it will be apparent that the illustrated embodiments of my invention herein disclosed are well calculated to adequately fulfill the objects and advantages primarily stated, it is to be understood that the invention is susceptible to variation, modification and change within the spirit and scope of the subjoined claims.

What I claim is:

1. In a device of the character described, a transparent relatively frangible pyrometer cartridge, a casing therefor of stronger material comprising an elongated dished receptacle open upon one side to enable easy insertion and removal of the cartridge, a complementarily shaped lid portion hinged at one end to the casing body, latching means at the other end for holding said body and lid portions closed, said body and lid portion being so formed that they present a smooth exterior when closed, and a flexible element secured to the same end of the casing as that which carries the latch and including a portion arranged over and adapted to serve as a guard for the latch.

2. In a device of the character described, a transparent and frangible pyrometer cartridge, a casing therefor of stronger material comprising a dished receptacle body open upon one side to enable easy insertion and removal of the cartridge, a complementarily shaped lid portion hinged at one side to the body portion, latching means arranged at the opposite side for releasably holding said body and lid portions closed, said body and lid portions being provided with smooth exterior surfaces, means for securing a flexible connector to the casing comprising a projecting securing portion diverging toward the casing and arranged partly over the latching means to provide a guard therefor adapted to deflect away from the latching means objects through which the casing may be pulled by a connector attached thereto.

ARCHIBALD W. DIACK.