Dec. 25, 1951 W. HARGREAVES 2,579,738

STERILIZER TEST DEVICE

Filed April 2, 1948

Fig. 1.

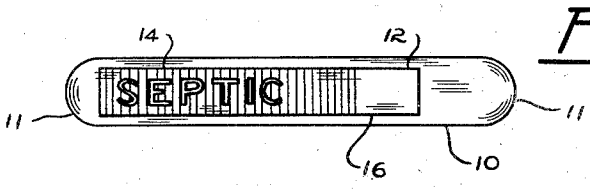


Fig. 2.

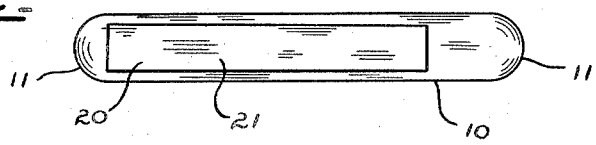


Fig. 3.

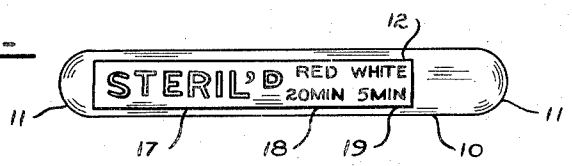
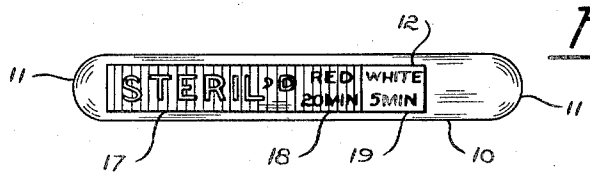


Fig. 4.



INVENTOR
WILFRID HARGREAVES

Ernest E Carver
ATTORNEY

Patented Dec. 25, 1951 2,579,738

UNITED STATES PATENT OFFICE

2,579,738

STERILIZER TEST DEVICE

Wilfrid Hargreaves, Vancouver, British Columbia, Canada

Application April 2, 1948, Serial No. 18,682

2 Claims. (Cl. 73—358)

1

My invention relates to improvements in sterilizer test devices, which are particularly adapted for insertion into bundles or drums of dressings, towels or garments, which are to be rendered aseptic or sterile in a steam actuated sterilizer.

The object of the device is to provide means which can be used to indicate if the goods into which it is inserted have been brought to the thermal death point of all presently known pathogenic organisms and maintained at such temperature until the articles have become completely sterilized. A further object is to produce a device which will show such change in appearance when once used as to preclude its being used again for the testing of other goods to be sterilized.

Referring to the drawings:

Figure 1 is an enlarged view of the obverse side of the invention before use.

Figure 2 is a similar view of the reverse side.

Figure 3 is a view of the reverse side of the invention after use at appropriate temperature but at less than appropriate time exposure.

Figure 4 is a view of the reverse side after use at sterilizing temperature for an appropriate time.

In the drawings like characters of reference indicate corresponding parts in each figure.

The numeral 10 indicates generally a transparent glass tube sealed at both ends as at 11, in which is enclosed a strip of paper 12, such as blotting paper or any other paper of a highly absorbent nature. The paper strip is preferably white, since it is to be subjected to colour when being used. The word "Septic" is printed on one part of the paper strip, as at 14, this is printed with negative type, viz. the background is printed and the letters themselves are left blank or free from ink. The ink used for the word "Septic" is preferably red and must be soluble in liquid. The word "Septic" covers only a portion of the area of the obverse side of the strip, leaving a blank strip area 16.

On the reverse side of the paper strip 12, the word "Steril'd" indicating sterilized, is printed in insoluble ink as at 17 and to the right of said word, "Red 20 min." would be printed, as indicated by the numeral 18. The printed indicia 17 and 18 being printed preferably in black ink and would occupy an area equal and opposite to the area 14, or the coloured area of the obverse side of the strip 12. Beyond the areas 17 and 18 and opposite to the obverse side area 16, the indicia "White 5 min." as at 19, meaning white, five minutes, is printed in insoluble ink

2

and preferably in black. The areas 17 and 18 of the reverse side of the strip 12 are coated with an adhesive 20 onto which a coating 21 of acid benzoic is applied. This acid coating is opaque and obscures the indices 17, 18 and 19, so that when the device is unused, the word "Septic" alone is visible. The properties of acid benzoic include the capacity of remaining in opaque crystalline form until it is heated to a temperature of 248 degrees Fahrenheit, when it will slowly dissolve to a liquid state. After five minutes of subjection to 248 degrees Fahrenheit this acid will become wholly liquid and transparent, fully exposing the indicia 17, 18 and 19. The adhesive 20 used in binding the acid powder to the strip 12, is formed of linseed jelly and glucose, sodium butyl-ortho phenylphenolsulfonate. This adhesive is dissolved by the heated acid solution after five minutes subjection to the heat referred to and the ink used in printing the word "Septic" dissolves in the solution of both the acid and the adhesive and a further fifteen minutes of heat subjection the red pigment of the ink becomes dispersed through the thickness of the paper strip 12 and provides a red background, as shown in Figure 4 for the indices 17 and 18 on the reverse side of the strip, so that when the device has been held at sterilizing heat for twenty minutes, the paper strip 12 will not display any lettering at all on the obverse side and will show on the reverse side the information "Steril'd 20 min. Red" in black on a red background and "5 min. White" on a white background. The dispersal of the ink through the paper strip is enhanced materially by the detergent used in the linseed glucose adhesive.

Obviously the strip of paper and the various inks may be of any desired colour without departing from the spirit of the invention.

What I claim as my invention is:

1. A device for testing sterility in surgical dressings comprising a transparent sealed tube enclosing a strip of absorbent material having a heat soluble coloured substance covering a portion of one of its sides, the corresponding portion of the opposite side having indicia displayed thereon, an opaque reagent secured to the strip to obscure the indicia, said reagent being secured in place by an adhesive consisting of linseed jelly and a detergent, said reagent being soluble in heat at not less than 240 degrees Fahrenheit and said coloured substance being soluble in the presence of the dissolved reagent and the solution of the adhesive subsequent to subjection

of the device to more than five minutes at the above mentioned temperature and said coloured solution being adapted to disperse through the strip of material to provide a coloured background for the normally covered indicia.

2. A device for testing sterility in surgical dressings comprising a transparent sealed tube enclosing a strip of absorbent material having a heat soluble coloured substance covering a portion of one of its sides, the corresponding portion of the opposite side having indicia displayed thereon, an opaque reagent secured to the strip to obscure the indicia, said reagent being secured in place by an adhesive consisting of linseed jelly and a detergent, said reagent being soluble in heat at not less than 240 degrees Fahrenheit and said coloured substance being soluble in the dissolved reagent and the solution of the adhesive subsequent to subjection of the device to more than five minutes at the above mentioned temperature.

WILFRID HARGREAVES.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,788,104	Hargreaves	Jan. 6, 1931