July 12, 1955 S. ROSEN 2,712,819

GAS FUELED INCINERATOR FOR STERILIZING INNOCULATING LOOPS

Filed May 9, 1951

2 Sheets-Sheet 1

Fig. 1.

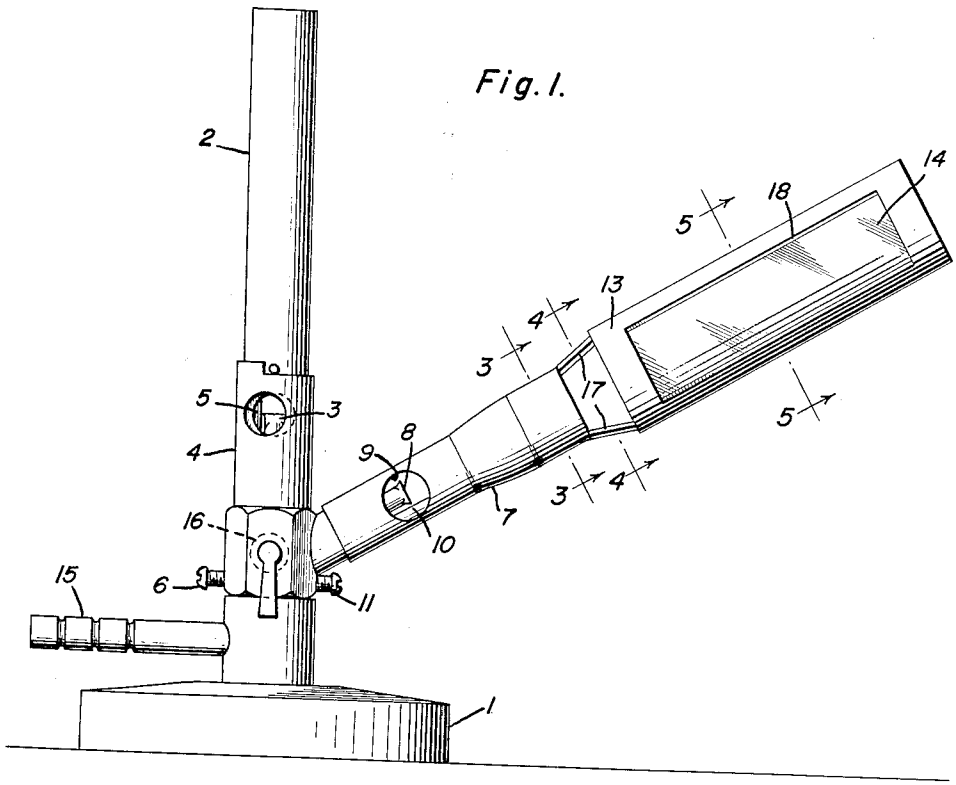


Fig. 3.

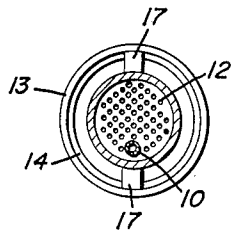


Fig. 5

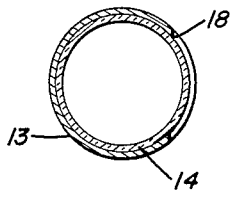
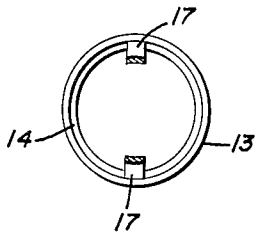


Fig. 4



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GAS FUELED INCINERATOR FOR STERILIZING INNOCULATING LOOPS

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2 Sheets-Sheet 2

Fig. 2.

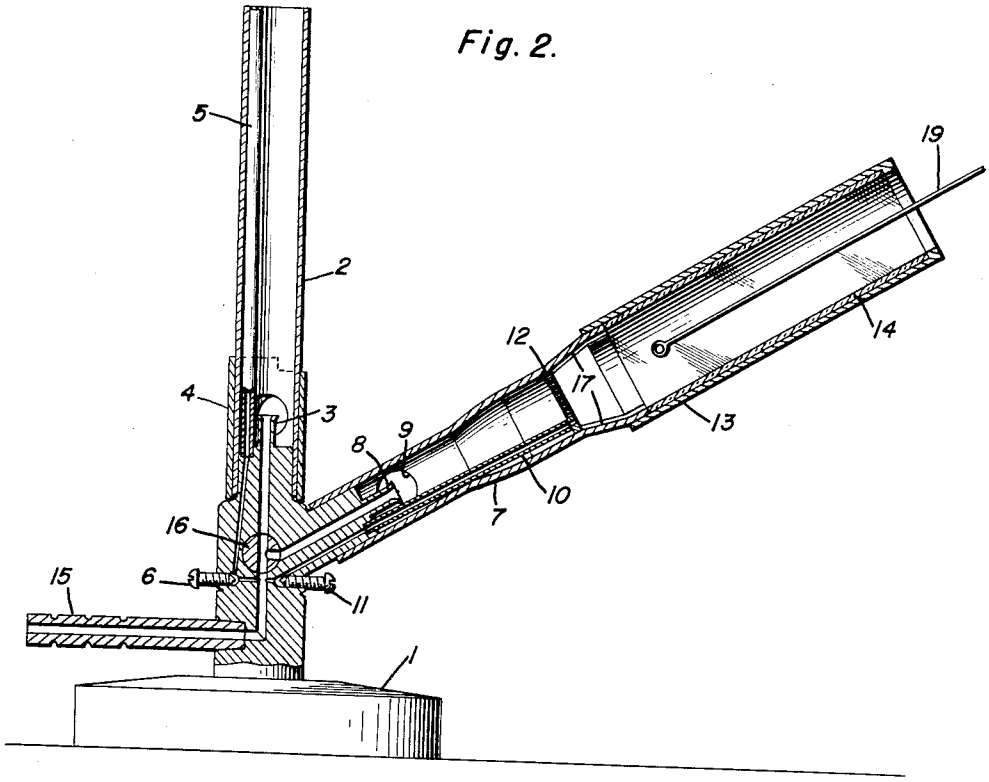
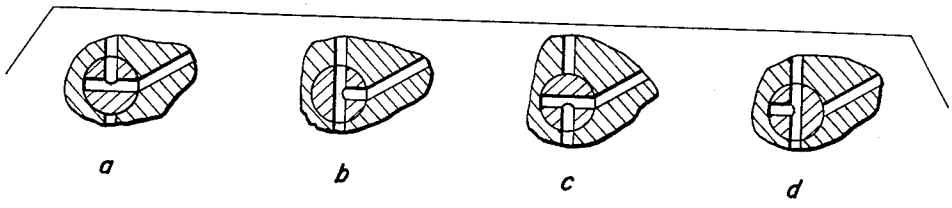


Fig. 6.



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GAS FUELED INCINERATOR FOR STERILIZING INOCULATING LOOPS

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5 Claims. (Cl. 126—229)

This invention relates to a gas burning incinerator for sterilizing wire loops used for inoculating culture media.

It has been customary heretofore to sterilize such inoculating loops by passing them thru the flame of an ordinary Bunsen burner. In so doing, different parts of the wire would be heated to different temperatures due to the limited area of the high temperature portion of the flame. The lower temperature portion of the Bunsen flame, although high enough to drive off the culture media is not necessarily high enough to kill off the bacteria therein. The result is that if great care is not used, this non-sterile culture media will be driven off to contaminate the atmosphere and create a dangerous source of infection. With the present device, the entire length of the inoculating loop is heated simultaneously to a uniformly high temperature with the result that any culture media that may be driven off or vaporized will strike the heated wall of the chamber which instantly destroys the bacteria therein and renders it sterile.

The object of this invention is to provide a simple laboratory device for sterilizing inoculating loops or other small contaminated bacteriological instruments. A further object of the invention is to provide such sterilization without the need for a surrounding hood. A still further object of the invention is to provide means whereby the inoculating loop or other instrument may be under continuous observation while being heated for sterilizing. More specifically, an object is to provide a convenient incinerator burner in combination with a conventional Bunsen burner. Yet another object is to provide a dual burner having a 3-way valve to control the gas flow to the respective flames and to permit the control of both burners from a single valve. A still further object is to provide such a combination burner with adjustable pilot flames.

In the drawing, Fig. 1 shows a side view of the combination burner structure. Fig. 2 is a section of the entire burner. Figs. 3, 4, and 5 are transverse sections at 3—3, 4—4, and 5—5 respectively. Fig. 6 shows four positions of the three way valve.

In Figs. 1 and 2, the burner base is shown at 1; 2 and 7 are the burner tubes; 3 and 8 show the respective gas jets in the burners; 4 is the air adjustment sleeve on the first burner and 9 is the air opening to the second burner; 5 and 10 respectively are the pilot light tubes; 6 and 11 are screw controlled needle valves for adjusting the pilot flames; 12 shows the grid in the incinerator burner which is of the Meker type. 13 is the stove or shield surrounding the flame and 14 is the glass liner which forms the window in the metal shield. 15 shows the gas inlet tube to the two burners; 16 is the three way rotary valve. 17 are supports for hoiding the metal tube 13. 18 is the opening in the metal shield and 19 shows the inoculating loop in position to be sterilized.

In operation, the gas enters the burner through the inlet 15 and passes up to the valve 16. The gas also passes the needle valves 6 and 11 and up the pilot light tubes 5 and 10. The gas passing through these tubes is ignited at the tip of the tubes and valves 6 and 11 are adjusted

to give the desired size of pilot flame. The main valve 16 may be adjusted to four basic positions with variations in degree of opening in each position. When the valve occupies the position shown in Fig. 4, *a* the gas is shut off from both burners; in *b* gas flows to both burners; in *c* it flows to the incinerator burner only and in *d* it flows to the Bunsen burner only. By adjusting the valve to the proper setting, the desired flame can be maintained in either or both burners. The metal shield 13 is supported above the incinerator burner by means of supports 17, at a distance which permits the inside of the tube to be uniformly heated to a high temperature. The heat resistant glass tube 14 is in partial contact with the metal tube in such a manner that it will dissipate heat to the walls of the metal tube. This will prevent the glass from being melted or misshapen by the heat. The window 14 permits continuous observation of the object to be sterilized.

In the drawing, the incinerator burner is shown at an angle of 60° with the vertical burner. This angle is not critical but it is desirable that it be sufficiently inclined from the vertical to permit easy insertion of the wire loop to be sterilized without exposing one's hand to the heat of the flame. The drawing also shows a fixed opening 9 for supplying air to the incinerator burner. This opening can be made variable by means of an adjusting sleeve as shown at 4 on the vertical Bunsen burner. Since the incinerator burner is used for a single purpose only, it is quite satisfactory to use a fixed opening of such size as to give the optimum size flame at 12.

In operating the burner, the two pilot lights are ignited and adjusted to the proper size by means of needle valves 6 and 11. Valve 16 may then be opened to supply gas to either or both burners. When the incinerator burner is thus ignited, the object to be sterilized is inserted into the end of tube 13 by means of a suitable holder or tongs. The object can be observed through the window 14 and when it glows uniformly it is completely sterile.

I claim:

1. An incinerating burner comprising a burner tube, a gas jet within the tube, an air supply opening for said jet in the tube, a perforated top for the burner tube, a metal tube supported coaxially of and spaced from said burner tube in a longitudinal direction and in heat receiving relation thereto, said metal tube having an opening in the side thereof extending substantially the length of the tube, a tight fitting, heat resistant, glass cylinder within the said tube.

2. A burner structure in accordance with claim 1 wherein a pilot flame tube extends up to the perforated top within the burner tube, said pilot flame tube being connected to the gas supply by means of an adjustable needle valve.

3. A burner structure in accordance with claim 1 wherein the metal tube is of a diameter greater than the perforated top of the burner tube.

4. A burner structure in accordance with claim 1, including a base supporting the burner tube at a substantial angle from the vertical.

5. A burner structure in accordance with claim 1, including a base supporting the burner tube at an angle of approximately 45° from the vertical.

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