Sept. 6, 1955 W. W. EGEE ET AL 2,717,302

HEATERS FOR YARN

Filed May 31, 1952

FIG. 1

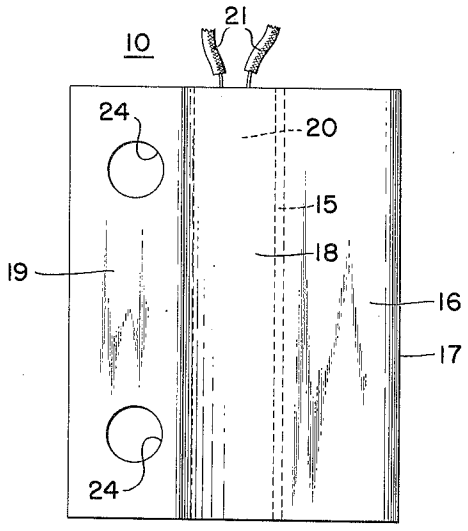


FIG. 2

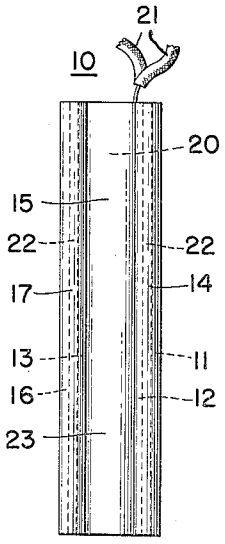
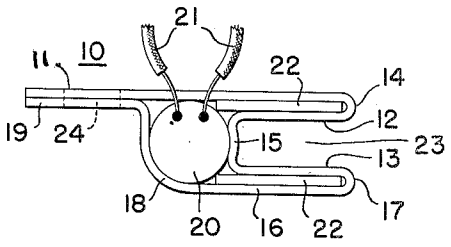


FIG. 3



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HEATERS FOR YARN

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3 Claims. (Cl. 219—19)

This invention relates to heaters and more particularly to heaters for heat treatment of yarns.

In the treatment of yarns of various types for drying, setting, or other purposes, the application of heat may be required, usually at a predetermined temperature, or within a predetermined temperature range. The required temperature is determined by the treatment to be accorded but is limited so that the yarn is not injured by excessive heating.

Various provisions have heretofore been made for applying heat to yarn. In some operations, the yarn has been moved over the exterior surface of a heated pipe or tube in contact therewith. While satisfactory results may be obtained in so far as the heating of the yarn is concerned, the installation of such piping or tubing is troublesome and there is likelihood of soiling of the yarn, as well as the introduction of undesired increase of tension in the yarn.

It has also been proposed to pass the yarn axially through tubes in which steam is supplied. While the desired heat may thus be applied, the threading of yarns through such tubes, upon starting up, or upon the occurrence of a break in the yarn is troublesome.

In our application for Letters Patent for Treatment of Yarns, filed June 19, 1952, Serial No. 294,332, the treatment of yarn with heat is shown for which the heater of the present application is particularly suitable.

It is the principal object of the present invention to provide a heater which is simple and compact in construction, which provides the desired degree of heat, which may be readily mounted at the desired location for use and which is particularly adapted for heating yarns for various purposes.

It is a further object of the present invention to provide a heater for yarn having spaced heating plates between which a yarn may be readily inserted and between which a yarn may be readily drawn or moved as desired.

It is a further object of the present invention to provide a heater having a removable heating cartridge capable of easy removal for replacement if desired.

Other objects and advantageous features of the invention will be apparent from the specification and claims.

The nature and characteristic features of the invention will be more readily understood from the following description, taken in connection with the accompanying drawings forming part hereof, in which:

Figure 1 is a side elevational view of a heater in accordance with the invention;

Fig. 2 is a front elevational view thereof; and

Fig. 3 is a top plan view thereof.

It should, of course, be understood that the description and drawings herein are illustrative merely and that various modifications and changes may be made in the structure disclosed without departing from the spirit of the invention.

Like numerals refer to like parts throughout the several views.

Referring now more particularly to the drawings, the

heater in accordance with the present invention preferably includes a body portion **10**, formed from a piece of sheet metal, such as stainless steel, to provide an outer flat wall **11**, and a pair of spaced parallel heating walls **12** and **13** parallel to the wall **11**. The heating wall **12** is connected to the wall **11** by an end section **14** and the walls **12** and **13** are connected at their inner ends by an inner curved heating wall **15**. The wall **13** is preferably connected to a flat outer wall **16** by an end section **17**. The wall **16** has a curved or cylindrical portion **18** which is connected to an end section **19** disposed parallel to the wall **11**.

It will be noted that a space is enclosed within the wall **11**, the heating wall **15** and the wall portion **18** for insertion and retention of a resistance heating cartridge **20**. The cartridge **20** may be provided with power leads **21** for connection to any suitable controlled source of electric power (not shown) for electric energy input.

Between the walls **11** and **12** and between the walls **13** and **17** spacer plates **22** are preferably provided, to increase the heat holding or capacity effect of the walls **12** and **13**.

It will be noted that a channel **23** is provided between the wall **12** and the wall **13** and in front of the wall **15** within which the yarn is adapted to be moved, along the channel **23** but out of contact with the walls **12**, **13** and **15**, for the application of heat thereto for any desired purpose, such as drying, setting or the like. While any desired width of channel **23** may be employed, in one specific embodiment of the invention the channel **23** is of a width of the order of three-sixteenths of an inch, a depth of the order of seven-sixteenths of an inch and a length of the order of one and five-eighths inches.

The walls **11** and **19** preferably have holes **24** extending therethrough for mounting the heater by means of bolts (not shown) in any desired location, with the channel **23** disposed vertically, horizontally or inclined, as desired.

We claim:

1. A heater for yarn having a body portion formed of sheet metal to provide an outer wall portion, a first inner wall connected to said outer wall portion, a second inner wall spaced from said first inner wall, a connecting wall between said inner walls, a second outer wall portion having a part extending towards said first outer wall portion, said inner walls and said connecting wall bounding an open sided and open ended heating channel for passage of the yarn therethrough, said first outer wall portion, said connecting wall and said part of said second outer wall portion having a space therebetween, an electric heating unit in said space for heating said inner walls, and heat conducting spacers between said first outer wall portion and said first inner wall and between said second outer wall portion and said second inner wall for engagement with said heating unit.

2. A heater for yarn having a body portion formed of a single piece of sheet metal to provide an outer wall portion, a first inner wall connected to said outer wall portion, a second inner wall parallel to and spaced from said first inner wall, a connecting wall between the inner ends of said inner walls, a second outer wall portion connected to said second inner wall and having a part extending towards said first outer wall portion, said inner walls and said connecting wall being in fixed relation and bounding an open sided and open ended heating channel for passage of the yarn therethrough, said first outer wall portion, said connecting wall and said part of said second outer wall portion having a space therebetween, and an electric heating unit in said space for heating said connecting wall and said inner walls.

3. A heater for yarn having a body portion formed

of sheet metal to provide an outer wall, a first inner wall connected to said outer wall, a second inner wall parallel to and spaced from said first inner wall, a connecting wall between the inner ends of said inner walls, a second wall connected to said second inner wall and having a portion extending towards said first outer wall, said inner walls and said connecting wall being in fixed relation and bounding an open sided and open ended heating channel for passage of the yarn therethrough, said first outer wall, said connecting wall and said portion of said second outer wall having a space therebetween, and an electric heating unit in said space for heating said connecting wall and said inner walls, and

heat conducting spacers between said first outer wall portion and said first inner wall and between said second outer wall portion and said second inner wall for engagement with said heating unit.

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