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HEAT TREATING BASKET

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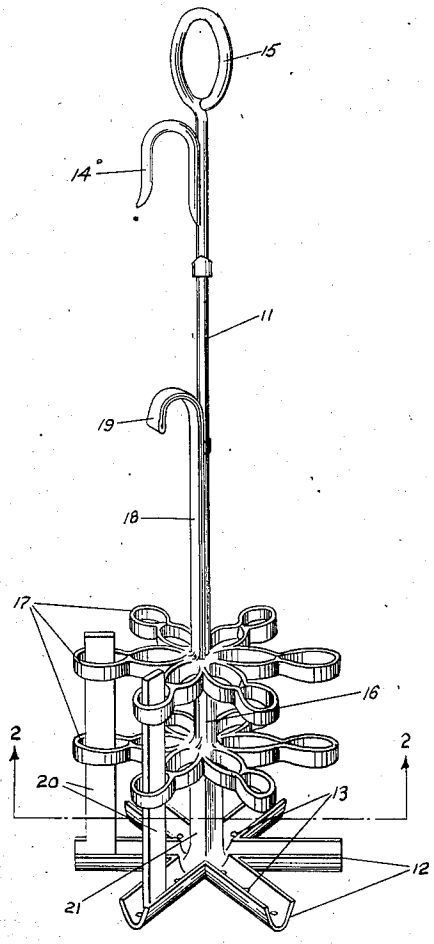



Fig. 1

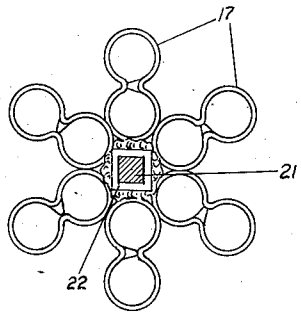



Fig. 2

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## HEAT-TREATING BASKET

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3 Claims. (Cl. 263—47)

(Granted under the act of March 3, 1883, as amended April 30, 1928; 370 O. G. 757)

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This invention relates to a heat treating basket, a device for supporting articles during heat treatments such as in molten salt baths, quenching baths, and the like.

It is an object of this invention to provide a heat treating basket having a minimum of rigidity.

Another object of this invention is to provide a heat treating basket having minimum susceptibility to the deleterious effects of expansion and contraction due to repeated and rapid changes of temperature over a wide range.

Still another object of this invention is to provide a heat treating basket comprising a plurality of replaceable units.

A further object of this invention is to provide a heat treating basket which may be readily emptied while in an upright position.

Further objects and advantages of this invention, as well as its construction, arrangement and operation, will be apparent from the following description and claims in connection with the accompanying drawings, in which

Figure 1 is a perspective view of the assembled basket of this invention; and

Figure 2 is a sectional view through the device, taken along the line 2—2 of Figure 1.

Referring to the drawings in detail, the heat treating basket of this invention comprises a central standard 11, having a plurality of tray members 12 extending radially from the lower end thereof. Tray members 12 are preferably slightly dished to prevent sidewise displacement of articles standing therein, and are provided with a plurality of holes 13 drilled therethrough to facilitate the movement of heat transfer fluid therethrough. At the upper end of central standard 11 may be provided a hook 14 and an eye 15, to facilitate lifting and suspending the device.

Slidably enclosing central standard 11 is a tubular or cylindrical member 16, from which a plurality of retaining loops 17 extend radially. The retaining loops 17 correspond in number and angular spacing with the tray members 12, and may be duplicated at various levels along the length of the cylindrical member 16. Bar 18 extends upwardly from cylindrical member 16 and terminates in handle 19. A number of workpieces 20 are shown in place in the device for heat treatment.

The lower set of retaining loops 17 may be held in spaced relationship from tray members 12 by stop portion 21, an enlarged section of central standard 11. Stop portion 21 may be of square cross section, and rotation of cylindrical member

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16 relative to central standard 11 may be prevented when cylindrical member 16 rests upon stop portion 21 by lip 22 on the lower side of cylindrical member 16, adapted to enclose the upper end of stop portion 21.

The device may be utilized in the following manner. A plurality of workpieces 20, illustrated as elongated objects such as chisel blanks, may be placed in the heat treating basket by standing them on tray members 12, the upper ends of the workpieces being supported by retaining loops 17 (Figure 1). The retaining loops 17 are desirably made of convenient size and shape to enclose the type or types of objects customarily worked with. The entire device with workpieces in place may then be lowered into and suspended in a heating or cooling fluid, and may be withdrawn when desired, by means of hook 14 or eye 15. When the heat treatment of workpieces 20 has been completed cylindrical member 16 and retaining loops 17 may be raised by means of handle 19 along central standard 11 until the loops 17 clear workpieces 20, allowing the workpieces 20 to fall free of the device. The cylindrical member 16 and retaining loops 17 may then be lowered into place by means of handle 19 and the device is ready for the placement therein of a new set of workpieces 20.

The device is preferably made of metal, and desirably of metal having a relatively low coefficient of expansion. The component parts thereof may conveniently be assembled by welding. The upper end of central standard 11, comprising hook 14 and eye 15, may conveniently be made an integral unit threadably engageable to the central section of standard 11. In such case, the hook and eye unit is readily removable, permitting removal and replacement of the sliding assembly comprising cylindrical member 16, retaining loops 17, bar 18 and handle 19. Angular alignment of retaining loops 17 with tray members 12 may be assured otherwise than by the lip 22 adapted to enclose the upper end of stop portion 21. For example, the central section of standard 11 may be made of square cross section and the internal opening through cylindrical member 16 may be shaped accordingly to slide thereon without relative rotation.

The radial arrangement of tray members 12 and retaining loops 17 result in a construction having a minimum of rigidity, and with such construction a minimum of stresses are caused by relatively great expansions and contractions of the component parts of the device, thus contributing to greatly increased life of the heat treat-

ing basket. The sliding unit comprising cylindrical member 16 and retaining loops 17 facilitates rapid removal of workpieces from the device, and eliminates the necessity to turn the device over to remove articles therefrom. The elimination of the necessity to upset the devices in strained condition also materially contributes to long life. Longer useful life of the device is also contributed to by the manufacture of the device in two main units, one comprising central standard 11 and tray members 12 and the other comprising cylindrical member 16 and retaining loops 17. Since the failure of either of these units does not require discard of the entire device, the remaining serviceable unit may be combined with a new unit of the type which has failed and continue to be used.

It is to be understood that various modifications and changes may be made in this invention without departing from the spirit and scope thereof as set forth in the appended claims.

The invention described herein may be manufactured and used by or for the Government of the United States of America for governmental purposes without the payment of any royalties thereon or therefor.

What is claimed is:

1. A heat treating basket comprising a central standard, a plurality of tray members extending radially from the lower end of said standard, a cylindrical member slidably enclosing said standard, and a plurality of retaining loops extending radially from said cylindrical member, said retaining loops corresponding in angular spacing to said tray members.



2. A heat treating basket comprising a central standard, a plurality of tray members extending radially from the lower end of said standard, a cylindrical member slidably enclosing said standard, a plurality of retaining loops extending radially from said cylindrical member, said retaining loops corresponding in angular spacing to said tray members, and structural means assuring alignment of said retaining loops with said tray members.

3. A heat treating basket comprising a central standard, a plurality of tray members extending radially from the lower end of said standard, lifting means at the upper end of said standard, a cylindrical member slidably enclosing said standard, a plurality of retaining loops extending radially from said cylindrical member, said retaining loops corresponding in angular spacing to said tray members, lifting means associated with said cylindrical member whereby said cylindrical member may be moved relative to said standard, and structural means assuring alignment of said retaining loops with said tray members when said retaining loops are adjacent said tray members.

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