

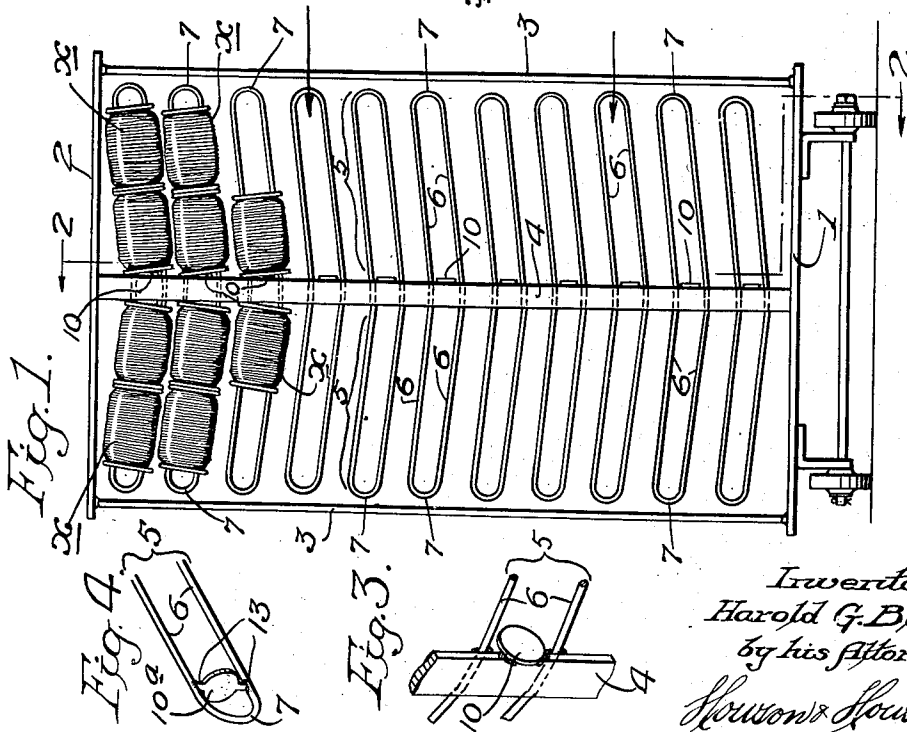
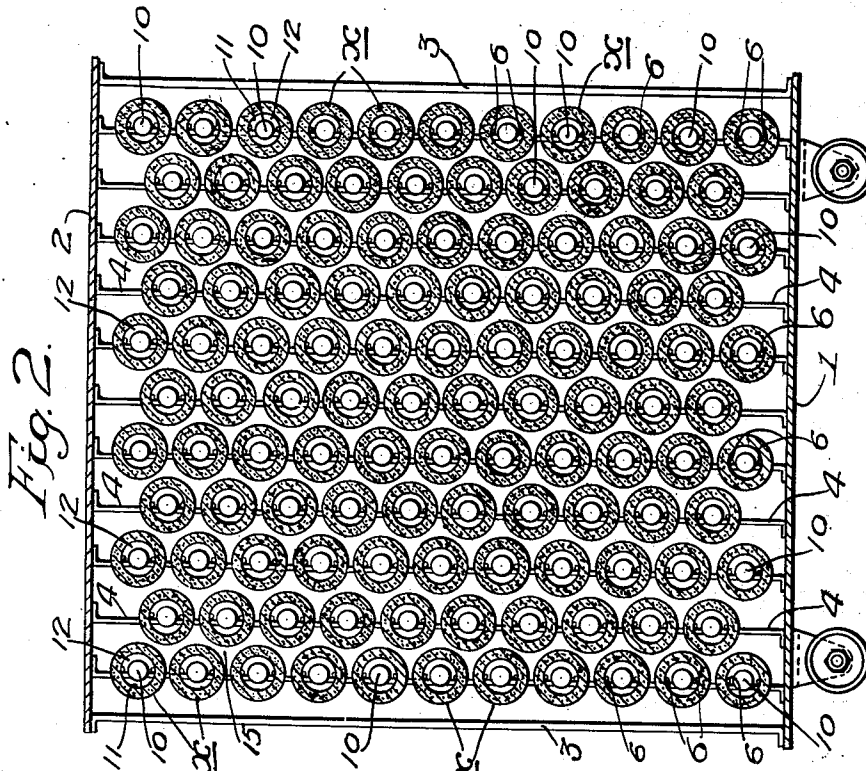
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AIR BAFFLE FOR RAYON CAKE DRIERS

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AIR BAFFLE FOR RAYON CAKE DRIERS

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This invention relates to the drying of rayon in cake form, wherein rayon yarn is wound on perforated cylinders or spools or in rings without central supports and wherein the cakes are placed on racks or trucks and the trucks passed into or through a drying chamber such, for example, as disclosed in U. S. Letters Patent No. 1,161,732, dated November 23, 1915, and while in the drying chamber currents of air or other gaseous medium are circulated transversely of and across the trucks or racks, substantially axially of the cakes which are hung on pegs or other supports projecting horizontally and laterally from a central support or supports arranged and extending longitudinally of the truck or rack.

In the form of drier and under the process described above the areas of the inside or core openings of the perforated cylinders, spools or cakes are so large that a considerable volume of the drying medium passes directly through the core openings without coming into contact with the yarn wound on the outside of the cylinders, etc., consequently an excessive amount of drying medium is necessarily required to dry the yarn.

The object of the present invention is to deflect a large percentage of the drying medium which normally passes through the core openings of the cakes, so that this deflected medium will pass around the outside of the cakes instead of through the centers thereof, whereby the deflected medium will contact with the yarn wound on the outside of the cakes.

A clear understanding of the means for deflecting the drying medium may be had from the following description, together with the illustration of the accompanying drawing, wherein:

Fig. 1 is an end view of a truck or rack with a few cakes of rayon yarn supported thereon;

Fig. 2 is a vertical longitudinal sectional view taken on the line 2—2, Fig. 1;

Fig. 3 is a perspective view illustrating the preferred form of deflector; and

Fig. 4 shows a modified form of deflector.

As shown in Figs. 1 and 2, the truck or rack comprises a horizontal base or bottom floor 1, a vertically spaced and parallel top or roof 2, corner posts 3, 3 and center posts 4, 4 which latter are arranged in a common vertical plane centrally disposed with respect to the sides of the truck and together with the corner posts 3, 3 are connected at their top and bottom ends to the roof 2 and floor 1 respectively.

Secured to and extending laterally from the opposite sides of each of the center posts 4 is a series of pegs 5 which in the present instance are

each composed of a heavy gage wire or rod bent into a U-shape or hairpin form with the legs 6, 6 of each peg welded or otherwise secured to a center post 4.

As shown in the drawing, the center posts 4 are rectangular in cross-section and arranged on the truck with the larger dimension of their respective cross-sections extending transversely of the truck and whereby the narrow edge of each post is presented to the flow of drying medium, which, as noted above, travels across the trucks and lengthwise of the pegs 5.

Each peg 5 is adapted to support a plurality of spools or cakes *x*, and as shown in Fig. 2 the inner diameter of the cake or the cylinder on which the rayon is wound is such that the cakes may be readily slipped over the outer bent ends 7 of the pegs and onto spaced legs 6, 6 thereof whereby the legs frictionally engage the inner diameters of the cakes *x* and support the cakes against free or loose movement on the pegs 5.

As shown in the drawing, the deflectors forming the subject of the present invention are in the form of round discs 10 each of a diameter less than the inner diameter 11 of the cake *x*, whereby an annular space 12 is provided between the outer peripheral edge of each deflector 10 and the inner diameter of a cake *x*.

The deflector discs *x* may be placed at any desired point along either or both of each pair of the pegs 5, which are substantially aligned and project laterally in opposite directions from the same portion of a center post 4.

In the preferred form of the invention, the deflector discs 10 are secured to one or the same side of each and all of the central posts 4 as by welding and each in a position between and spaced equally from the legs 6, 6 of the pegs 5, as clearly shown in Figs. 1, 2 and 3, whereby the deflector will be substantially concentrically disposed with respect to the inner diameter of any cake or cakes which may be placed on the peg and wherein it may be said that the deflectors are concentric to the axes of the pegs 5, 5 respectively.

In Fig. 4, the deflector disc 10a is shown as being located adjacent the outer or bent end 7 of the peg 5, and provided with ears 13, 13 which are secured to the legs 6, 6 of the peg as by welding.

From the above, and upon referring to Figs. 1 and 2 in particular, it will be clear that air blowing across the truck in the direction of the arrows in Fig. 1, will pass axially of the pegs 5 and the cakes *x*, *x* which are axially aligned

therewith and thereon, and will enter the inner diameters or cores 11 of the cakes. In so doing, a larger part of the volume of air passing into the core openings 11 of the cakes x will strike
 5 against the deflectors 10 located therein and which will cause a banking or retardation of the flow of air through the core openings 11, leaving a smaller percentage pass through the annular openings 12 and deflecting the larger percentage
 10 around the outside of the cakes x, to and through the spaces 15 formed between adjacent cakes, which, as shown in Fig. 2, are in staggered relation to each other on the truck or rack.

By this invention, it has been found that a
 15 smaller volume of drying medium is needed than has been required heretofore. A smaller volume of air results in a saving in power to maintain circulation in the drier and a smaller amount of heat is required to heat the air in condition.
 20 Thus it will be seen that while the invention is of a very simple nature and inexpensive to produce and install it results in material savings to the user in the way of power and heat.

I claim:

25 1. In a drier for rayon cakes each having a core opening, means for supporting said cakes, means for passing a current of conditioning medium in a direction axially of said cakes and through said core openings, deflectors disposed
 30 substantially within the core openings of predetermined cakes respectively in planes transverse to the axes of said core openings and of lesser area than the cross-sectional areas of said core openings leaving relatively narrow passages for
 35 said medium between the marginal edges of the deflectors and the walls of said core openings and deflecting to the outsides of said cake portions of the flow of said medium which normally pass through said core openings, and means for
 40 supporting said deflectors in said positions relative to said core openings.

2. The combination in a rack for drying rayon cakes each having a core opening, a vertical support, a series of pegs extending substantially
 45 horizontally from said support for entrance into said core openings to support said cakes, a series of deflectors disposed in planes transverse to the axes of said pegs respectively, the areas of said
 50 openings of said cakes respectively, and means for supporting said deflectors in positions relative to said pegs to form relatively narrow passages for conditioning medium moving in a di-

rection axially to said pegs between the marginal edges of said deflectors and the walls of said core openings respectively when said cakes are mounted on said pegs.

3. The combination in a rack for drying rayon cakes each having a core opening, a support including a peg comprising a pair of substantially parallel relatively spaced legs adapted to pass into said opening for holding the cake, and a deflector between said legs and extending trans-
 10 versely of said opening and deflecting around the outside of the cake-drying medium which normally would pass through said opening.

4. The combination in a rack for drying rayon cakes each having a core opening, a support comprising a vertically disposed bar of rectangular cross-section arranged with the greater dimension extending in the direction of flow of drying medium, a peg comprising a pair of substantially parallel relatively spaced legs secured to said
 20 rectangular bar and projecting laterally therefrom and adapted to pass into said opening for holding the cake, and a deflector between said legs and extending transversely of said opening and deflecting around the outside of the cake-
 25 drying medium which normally would pass through said opening.

5. The combination in a rack for drying rayon cakes each having a core opening, a support comprising a vertically disposed bar of rectangular
 30 cross-section arranged with the greater dimension extending in the direction of flow of drying medium, a peg comprising a pair of substantially parallel relatively spaced legs secured to said rectangular bar and projecting laterally there-
 35 from and adapted to pass into said opening for holding the cake, and a deflector between said legs and secured to said bar and extending transversely of said opening and deflecting around the outside of the cake-drying medium which nor-
 40 mally would pass through said opening.

6. The combination in a rack for drying rayon cakes each having a core opening, a support including a peg comprising a pair of substantially parallel relatively spaced legs adapted to pass into
 45 said opening for holding the cake, and a deflector comprising a circular disc disposed between said legs concentric to said opening and extending transversely of said opening and deflecting
 50 around the outside of the cake-drying medium which normally would pass through said opening.

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