

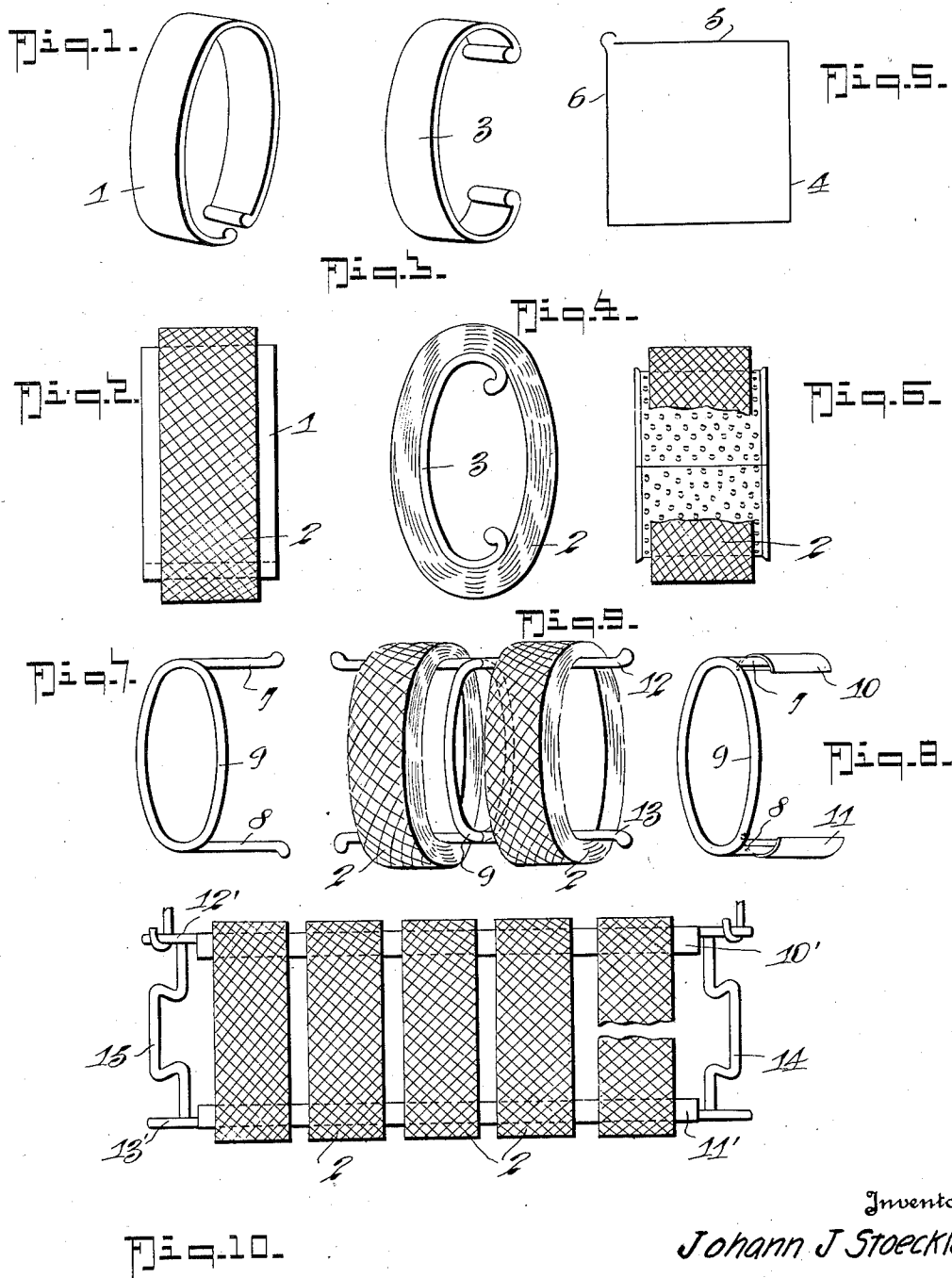
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DEVICE FOR SUPPORTING SPINNING CAKES

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DEVICE FOR SUPPORTING SPINNING
CAKES

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This invention relates to a stiffening body of elastic material for supporting the spinning cake into which rayon filaments are formed after precipitation, in order that they may be treated, for example, by washing, sizing or drying. The specific invention over former stiffening bodies used in this connection resides in the use of a form which is not round and which is not spool-like or tube-like. The stiffener used is of resilient material and owing to its elasticity, formation and structure, it can be introduced into the interior of the spinning cake after its has been compressed by pressing its ends together, and upon being released will stiffen the cake.

The stiffening body used for this purpose may have many different shapes. In the drawing Figures 1 and 2 represent perspective and side elevations of one form of stiffener; Figures 3 and 4 and Figures 5 and 6 respectively represent similar views of modified forms of stiffener; Figures 7, 8, 9 and 10 show perspective views of modified forms of stiffeners.

The former of stiffener shown in Figure 1 comprises a discontinuous longitudinal oval strip 1 of resilient material, the ends of which may be pressed together, whereupon it may be introduced into the spinning cake 2, as illustrated in Figure 2. When the ends of the strip 1 are released, the stiffener will resiliently support the spinning cake from the inside. It is preferred to construct the stiffener so that it is wider than and extends beyond the spinning cake, as illustrated in Figure 2. A spinning cake that has been stiffened in this manner need not be covered with felt or tied and will have sufficient resistance, due to the resilient pressure from the stiffener, to undergo the various treatments to which it is subjected, such as drip washing, dyeing and drying.

Figure 3 shows another strip in the form of an elongated C, as illustrated at 3. The ends of this stiffener may be bent together so that it may be easily introduced into the spinning cake 2, as illustrated in Figure 4.

The stiffening body may also have a polygonal form rather than a curved form. Figures 5 and 6 illustrate a stiffener in the form of a square of resilient material which is open at one corner. The sides of this square may be compressed so that it can be inserted within the spinning cake 2, as illustrated in Figure 6. In order to give the polygonal strip a certain amount of firmness after it is released within the spinning cake, the open ends 5 and 6 are provided with clasps as shown in Figure 5. Any of the

stiffening strips referred to herein may be perforated as illustrated in Figure 6 in order to permit the treating liquid to contact with the yarn of the spinning cake.

Instead of the strip-like stiffening bodies previously described, two or more stretching rods, as illustrated at 7 and 8 in Figure 7, may be attached to resilient bows 9, which may be either open or closed. The bows, owing to their resilient quality, will facilitate the introduction of the stretching rods into the cake, and after they are released, will hold the cake in a longitudinal and stretched form. In order to give a better surface contact with the spinning cake, the stretching rod 7 and 8 may be provided with saddle-like caps 10 and 11, as illustrated in Figure 8. These caps or saddles may be perforated in order to permit easy access of the treating solutions.

In Figure 9 the stretching rods 12 and 13 project upon opposite sides of the spring bow 9 in order that two or more spinning cakes may be supported at the same time.

Figure 10 illustrates a similar device which is somewhat altered in order to hold a greater number of spinning cakes. In this device the spinning rods 12' and 13' are provided with caps or saddles 10' and 11' and are connected at their ends by spring bows 14 and 15 which are shaped so that they spread apart the ends of the two parallel rods. When the spring bodies are compressed, the stretching rods may be inserted within a plurality of spinning cakes 2 and upon release will stretch the spinning cakes out lengthwise. The device may then be supported upon suitable hangers, as illustrated in Figure 10, during the subsequent treatment.

The cake carriers are made of material that will be sufficiently resistant to the various treating baths and which will have the desired characteristics. For the special purposes, the most suitable materials are aluminum, steel, Monel metal, so-called acid resisting steel, and combinations of such materials. Those parts which are required to be resilient may be made of resilient material, such as steel, and may be covered with rubber, latex, acid proof lacquers, etc. The stretching rods, which need not be resilient, or where the resilient effect is undesirable, as in the case of longer rods as shown in Figure 10 where several cakes are to be supported, such materials as wood, aluminum, bakelite or metal rods covered with rubber may be used.

The holder or stiffening devices described above may be used in supporting the spinning cakes

during the treatment subsequent to their formation and also for the drying of the rayon spinning cakes. It is sometimes desirable to use a form which is not round, so that in washing or treating the spinning cake the regular rotation of the cake will produce uniform alternate washing and dripping operations because of the longitudinal or polygonal shape of the cake so supported.

Other modifications of the invention may be used and it is not intended to restrict it to the particular arrangements described.

What I claim is:

1. A device for holding and stiffening a spinning cake during treatment, comprising opposed portions constructed and arranged to lie within the cake and yielding means adapted to urge said portions apart and deform the cake into generally oval shape.

2. A device for holding and stiffening a plurality of spinning cakes during treatment, comprising relatively stiff rods adapted to lie within the cakes and parallel to one another and resilient means adapted to urge said rods apart for stretching the cake to elongated shape, said rods having projections extending beyond the respective cakes for supporting the same in a washing machine.

3. In the manufacture of artificial filaments, the steps of spinning the filaments to form an annular mass, resiliently urging the mass into elongated form by applying greater force at spaced points at the inner sides of the annulus than at intermediate points, and wet treating the mass while maintaining its elongated form by said resilient action.

4. A device for holding and stiffening a spinning cake during treatment, comprising means including opposed surfaces adapted to engage the cake at opposed points interiorly thereof, and resilient means constructed and arranged to cause said surfaces to elongate the cake and to resiliently maintain such elongated shape.

5. A device for supporting a spinning cake during treatment including washing, comprising a plurality of stretching rods, and a plurality of spaced bows constructed and arranged to cause

said stretching rods to deform the cake into elongated, generally oval shape, said device being adapted to maintain the cake in such shape during washing.

6. A device for supporting a spinning cake formed during the production of artificial silk, comprising a plurality of stretching rods, each fixed to a resilient support in spaced relation, and saddle-shaped caps applied to each stretching rod in position to contact with the cake.

7. In the manufacture of artificial filaments, the steps of spinning filaments to form an annular mass, resiliently urging the mass into elongated form by applying greater force at spaced points at the inner sides of the annulus than at intermediate points, wet treating the mass while maintaining its elongated form, and drying said mass while maintaining its elongated form by said resilient action.

8. A device for holding and stiffening an annular mass of spun filaments during wet treatment, comprising a support having portions adapted to contact with the inner surface of the annular mass at spaced points, and resilient means constructed and arranged to urge the portions outwardly and to give the mass of filaments an angular shape.

9. A device as defined in claim 4 in which the holding and stiffening device is in the form of a partially closed C-shaped strip of resilient material.

10. A device as defined in claim 4 in which the holding and stiffening device is a perforated C-shaped strip of resilient material.

11. A device as defined in claim 4 in which the holding and stiffening device is made up of a plurality of stretching rods each fixed to a resilient support in spaced relation.

12. A device as defined in claim 4 in which the holding and stiffening device is in the form of a plurality of pairs of spaced stretching rods extending from opposite sides of a support of resilient material.

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