

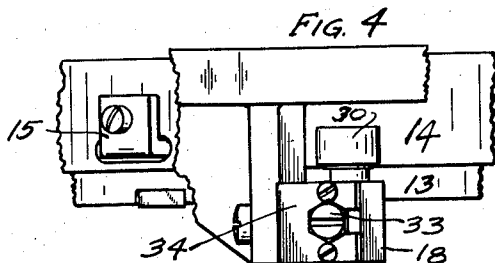
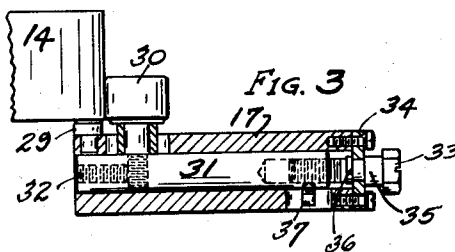
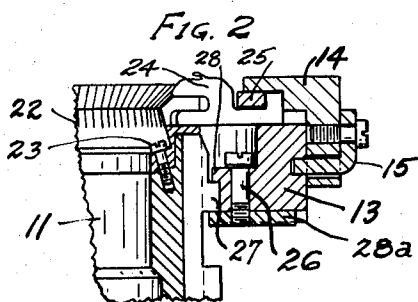
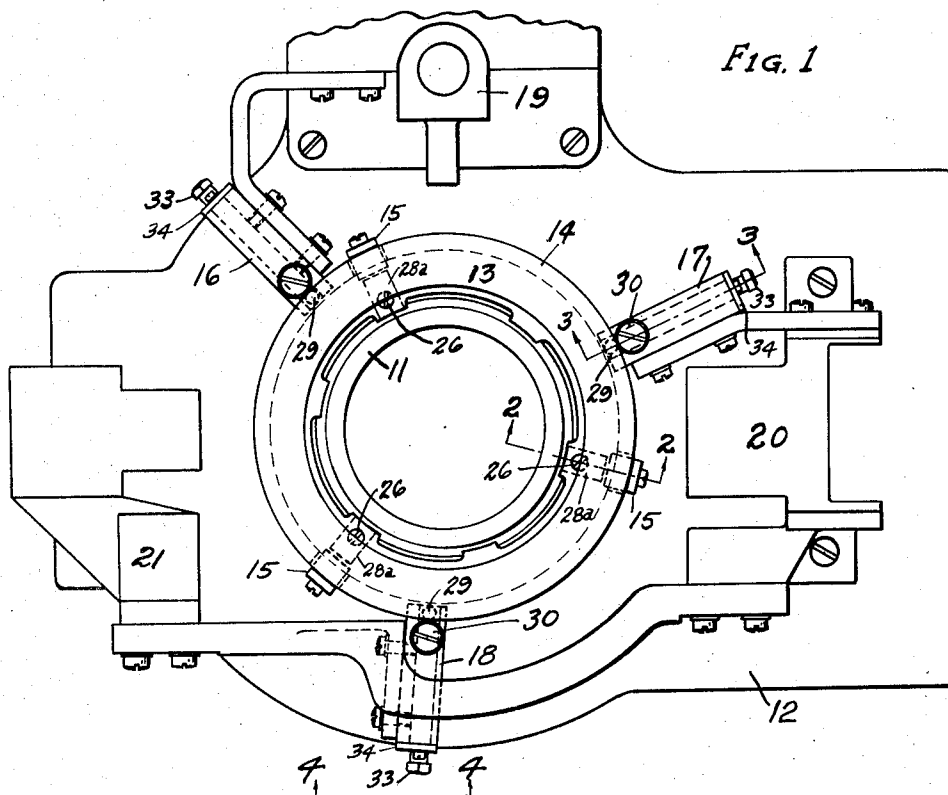
July 7, 1959

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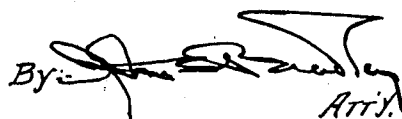
SINKER CAP FOR CIRCULAR KNITTING MACHINES

Filed April 19, 1956



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2,893,227

SINKER CAP FOR CIRCULAR KNITTING MACHINES

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Application April 19, 1956, Serial No. 579,187

9 Claims. (Cl. 66—107)

This invention concerns circular knitting machines and, particularly, an improvement in the sinker cap used in such machines.

A characteristic feature of a circular knitting machine is a slotted cylinder adapted to carry the needles which knit the fabric produced by the machine. Secured to the top of the needle cylinder is a slotted sinker head supporting the sinkers which cooperate with the needles in the knitting operation. The sinkers are reciprocated in the slots of the head by means of cams which are carried by a sinker cap customarily supported by the sinker head.

This arrangement calls for a running fit between the cap and the head. In the course of continued operation, the head and the cap both wear. Eventually, the fit becomes sloppy, and the cap becomes loose on the head. The loose cap makes exact control of the sinkers by the cams unreliable and increases the difficulty of producing fabric of uniform stitch characteristics.

One of the principal objects of the present invention is to improve the construction of the sinker cap and its supporting means to overcome this difficulty. This is accomplished by providing, for the cap, vertical and lateral support which is independent of the head. An embodiment of the invention is shown in the accompanying drawings, in which:

Figure 1 is a plan view of a sinker cap and its supporting mechanism;

Figure 2 is a section along the lines 2—2 of Figure 1;

Figure 3 is a section along the lines 3—3 of Figure 1; and

Figure 4 is a front view of the area designated 4—4 of Figure 1.

The plan view of Figure 1 shows the invention as applied to the Hemph-Lon model of the Banner knitting machine. The needle cylinder 11 is shown supported by the circular base 12 of the machine. The sinker head 13 is shown in dotted lines underlying the sinker cap 14.

The cap 14 is held to, but not supported by, the head 13 by means of three brackets 15. The actual support of the cap is accomplished through three horizontal members 16, 17 and 18 secured, respectively, to the carrier ring post 19, the yarn lever box 20, and an extension 21 of a pick bracket.

The sectional view, Figure 2, shows a stitch ring 22 and one of the screws 23 which secure this ring to the top of the cylinder. The stitch ring is slotted to accommodate the sinkers 24 which are carried by the head 13 and are reciprocated back and forth in individual slots of the head by means of cams 25 carried by the cap 14.

The head 13 is secured rigidly to the top of the cylinder by means of three screws 26 which pass through counter-bored holes in the head and clamp a ring 27 projecting from the top of the cylinder 11 between a projection 28 of the head and a clamping plate 28a.

One of the brackets 15 which holds the cap 14 in a sliding fit to the head 13 is shown in section in Figure 2 and in a front view in Figure 4. It comprises an angular

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shaped bracket with one arm fitting into a groove in the head 13 and the other screwed to the cap 14.

Brackets 15 merely hold the cap 14 to the head 13. In a running fit, they prevent the cap from flying off the head. The weight of the cap rests on vertical supporting elements 29 carried by the supporting members 16, 17 and 18. Elements 29 are shown as circular nubbins or buttons press fitted into the supporting members. They have an upper polished bearing surface upon which the under-surface of the cap 14 rests.

The supporting members 16, 17 and 18 also carry laterally effective bearing members or elements 30, shown as needle bearings. By a bearing element we mean one wherein there is relative motion between that element and a second member whose movement is to be confined within certain limits. These needle bearings are screwed into sliding shafts 31 which pass through the center of the members 16, 17 and 18. Set screw 32 locks the needle bearing in position after it is screwed the desired length down into the shaft. This provides a means for vertical adjustment.

Horizontal adjustment of the bearings 30, and consequently centering of the cap 14, is accomplished by sliding each shaft 31 in and out of its supporting member. This movement is accomplished by turning a threaded stud 33 which screws into and out of the shaft 31. Stud 33 is locked to a plate 34, screwed to the end of the supporting member, by means of an outer shoulder 35 and an inner shoulder 36. Consequently, turning the slotted hex head of the stud, by means of either a wrench or a screw driver, moves the shaft in and out. In order to permit this motion, the screw which secures the needle bearing 30 to the member passes through a bushing and an elongated slot in the supporting member. When proper adjustment of the shaft 31 has been accomplished, the screw 33 is locked in position by means of a set screw 37.

The arrangement described above provides a rigid and adjustable support, featuring three-point horizontal and vertical bearings, for the sinker cap 14 which is independent of the sinker head 13 and prevents one wearing upon the other, thus permitting a more reliable adjustment of the sinker cams and operation of the sinkers than has been possible heretofore.

I claim:

1. In a circular knitting machine having a rotary needle cylinder and needles in said cylinder; a radially grooved external sinker ring which is secured to said cylinder, outside sinkers in said ring, an annular cap which is fitted upon the sinker ring and carries cams for operating the sinkers, a peripheral portion of the sinker ring being rotatable within the annular cap, at least three laterally effective bearing elements which are substantially equally spaced apart and are engaged with the periphery of the annular cap to maintain the latter concentric with respect to the sinker ring and the needle cylinder and stationary support means which has the said laterally effective bearing elements attached thereto.

2. For a circular knitting machine having a rotatable needle bearing cylinder, a sinker bearing head fixed to said cylinder, a sinker cap, and means for supporting said cap free of said head which comprises a plurality of vertical supporting members and a plurality of laterally effective bearing members.

3. In a circular knitting machine having a sinker head and a sinker cap, and a plurality of horizontal means, independent of said head, each having a vertical supporting member and a laterally effective bearing member, said members being adapted to support said cap free of said head.

4. Means for supporting the sinker cap of a circular knitting machine which comprises at least three horizontal

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members disposed at substantially equal distances around the cap, each of said members being provided with a vertical supporting member and a laterally effective bearing member, said members being adapted to support said cap free of said head.

5. In a circular knitting machine having a sinker head and a sinker cap, at least three supports, independent of the head, each having a horizontal bearing surface, for supporting the cap free of the head.

6. In a circular knitting machine having a sinker head and a sinker cap, at least three laterally effective bearing members, independent of the head, said members being adjustable to maintain said cap concentric with said head.

7. In a circular knitting machine, a needle bearing cylinder, a slotted sinker head fixed to said cylinder, sinkers reciprocally movable in the slots of said sinker head, and a sinker cap having cams adapted to move said sinkers, said sinker cap being held against lateral movement with respect to said head by a plurality of laterally effective bearing members bearing against its outside lateral surface, said members being adapted to support said cap free of said head.

8. In a circular knitting machine having a slotted needle bearing cylinder, needles reciprocally mounted in the slots of said cylinder, a slotted sinker head concentric

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with and at the top of said cylinder, sinkers reciprocally mounted in the slots of said sinker head, a sinker cap overlying said sinker head and carrying cams adapted to engage and operate said sinkers, said sinker cap being vertically supported by means independent of said sinker head, and horizontally held by a plurality of laterally effective bearing members independently adjustable to maintain said cap concentric with said head.

9. In a circular knitting machine having a slotted needle bearing cylinder, needles reciprocally mounted in the slots of said cylinder, a slotted sinker head concentric with and at the top of said cylinder, sinkers reciprocally mounted in the slots of said sinker head, a sinker cap overlying said sinker head and carrying cams adapted to engage and operate said sinkers, said sinker cap being vertically supported by means independent of said sinker head, and horizontally held by a plurality of laterally effective bearing members independently adjustable to maintain said cap concentric with said head, said bearing members comprising needle bearings.

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