

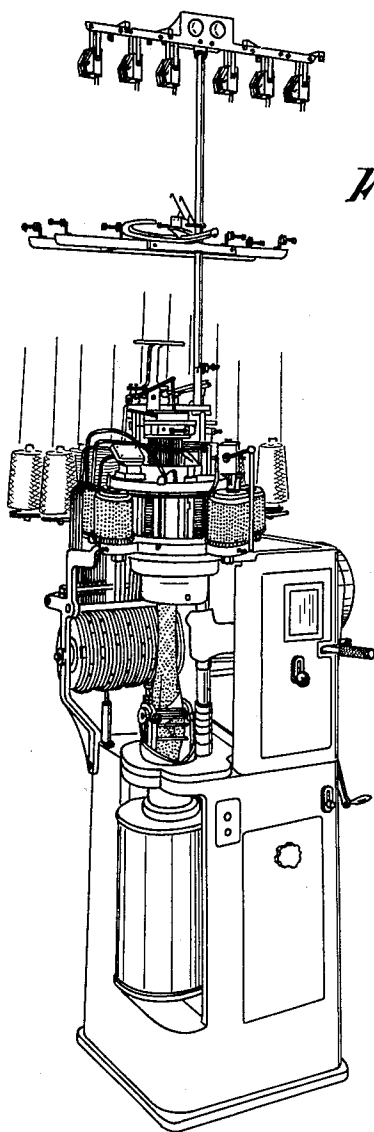
Sept. 17, 1963

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CONTROL DEVICE FOR THE SELECTORS OF CIRCULAR  
KNITTING AND LIKE MACHINES

3,103,801

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4 Sheets-Sheet 1



*Fig. 1*

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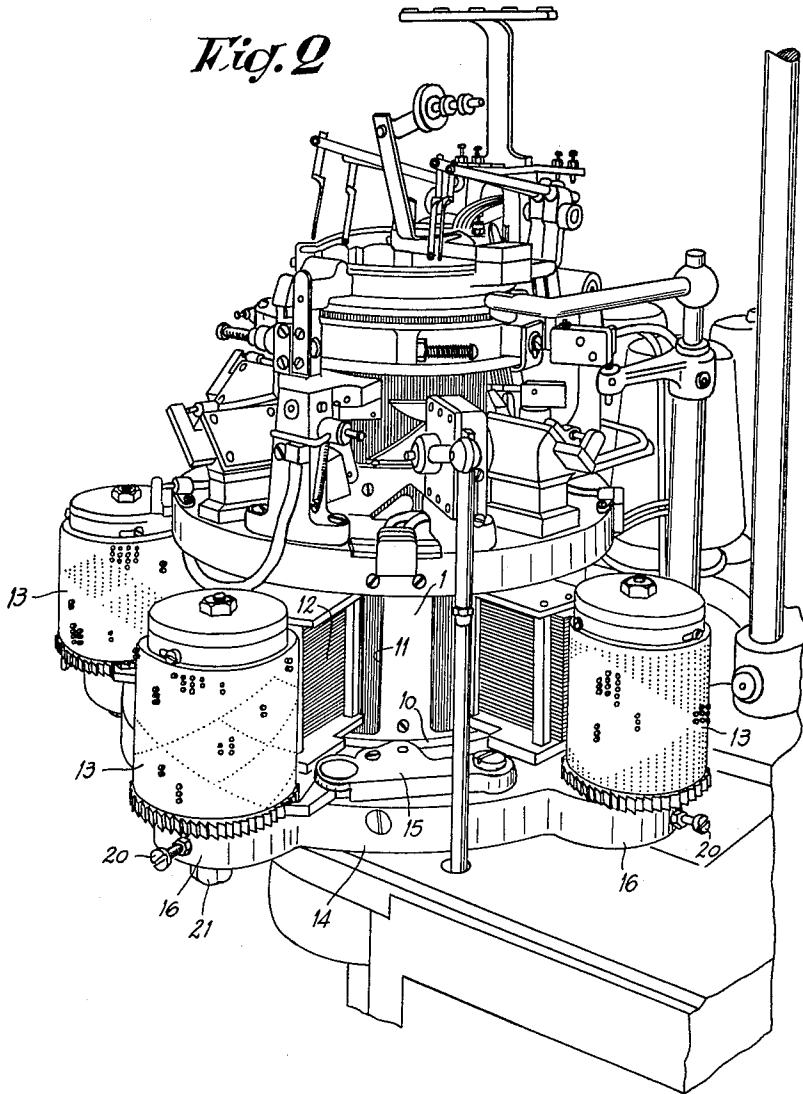
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*Fig. 2*



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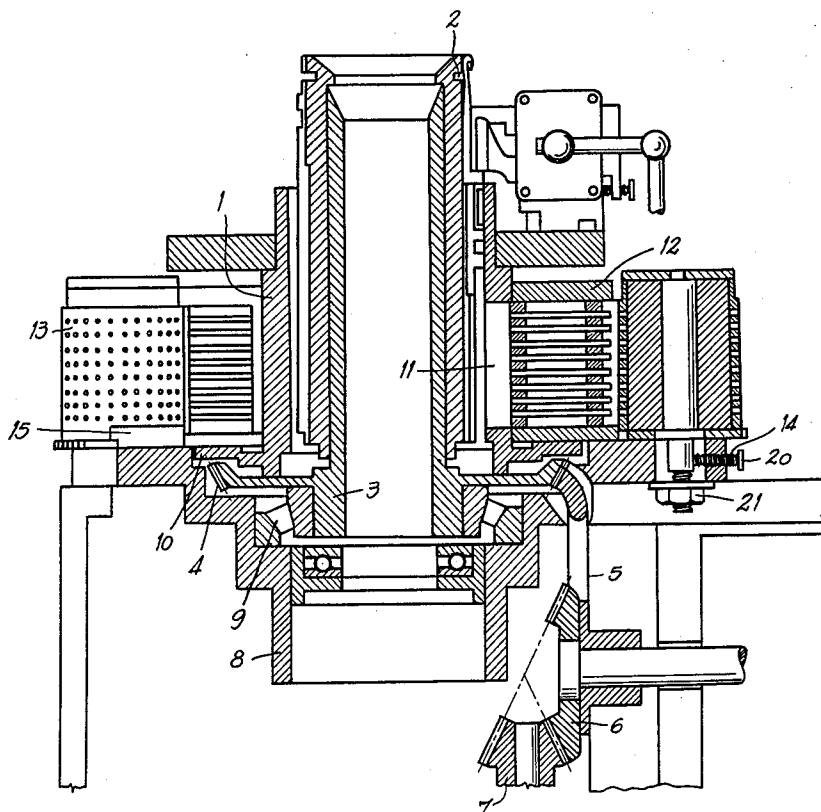


Fig. 3

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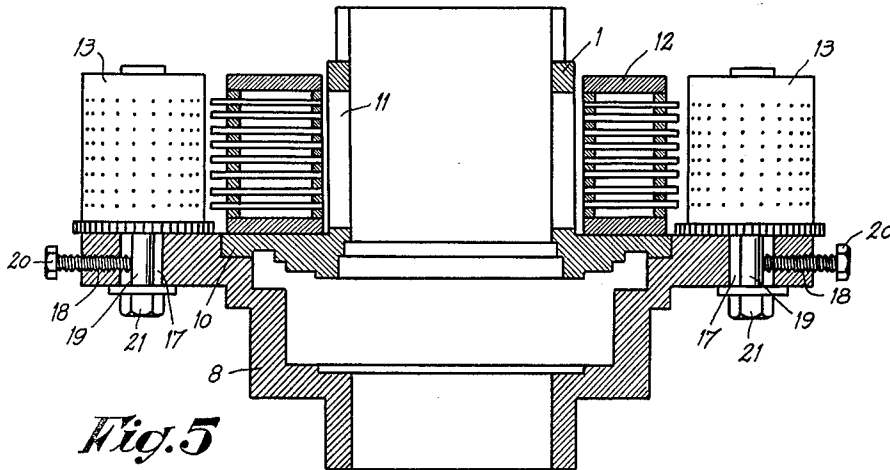
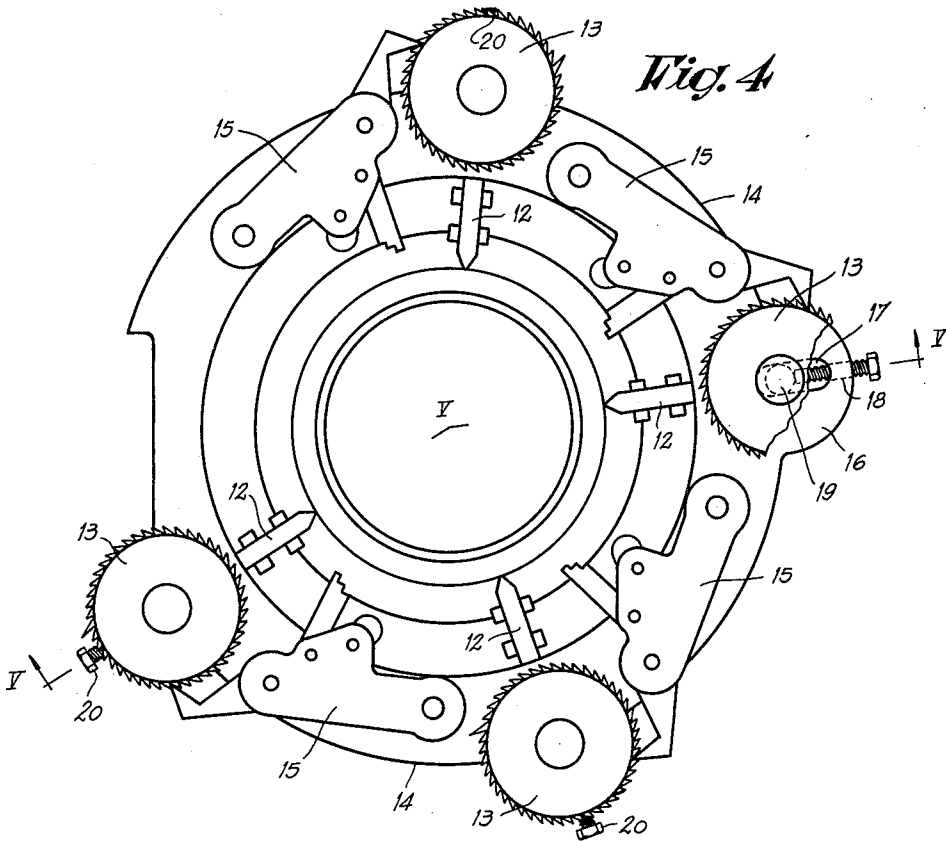
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**CONTROL DEVICE FOR THE SELECTORS OF CIRCULAR KNITTING AND LIKE MACHINES**

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Claims priority, application Italy Apr. 24, 1959

4 Claims. (Cl. 66-50)

In some circular machines for the production of hosiery, stockings and the like, it is important to be able to construct the head of the machine in such a way that its numerous component parts have an overall volume which is strictly a minimum while at the same time the parts remain readily accessible for inspection and maintenance. The said members must also be arranged in such a way as to be capable of being easily mounted and dismantled without prejudice to their normal operation.

It is known in the art that heads of present circular knitting machines are complex, delicate and difficult of access. The object of the present invention is therefore to provide a novel selector control device which will eliminate these disadvantages.

With the foregoing object in view a selector control device made in accordance with the invention is characterized by a relative arrangement of the different parts comprised in the control of the selectors positively guided in the lower part of the channels of the needle cylinder common to all the selectors, needle jacks and needles.

The control mechanism according to the invention is essentially characterized by the arrangement around the special casing disclosed in the specification of the applicant's patent application No. 23,796, now abandoned, of a plurality of radially arranged control units each of which comprises a pin-carrying drum and a rack comprising selector plungers, each rack being disposed opposite a lateral opening in the central casing.

It will be noted that this arrangement in addition to giving to the head of the machine a completely novel appearance, introduces extreme simplicity in mounting and in dismantling the parts and also provides maximum accessibility to each of the parts, while providing a compact construction of minimum dimensions.

With a view to producing this novel mounting the control units, each constituted by a pin carrying drum and a selector plunger rack, are carried respectively by the annular peripheral edge of the hollow base of the head of the machine and by the annular base of the casing. These two annular parts are preferably designed and arranged in such a manner that their upper surfaces are disposed in the same horizontal plane, or in planes very close to one another. It will be noted that the annular peripheral edge of the hollow base of the head of the machine also serves as a support for the driving mechanism of the pin carrying drums, these mechanisms being located between the successive drums, in a completely free space, so that these mechanisms are also particularly easy of access for inspection and maintenance.

The annular peripheral edge of the hollow base of the head of the machine has, with a view to producing the control mechanism of the invention, a special profile characterized by an annular view in plan having in line with the positions for the pin-carrying drums projecting feet, each foot being formed with an oblong aperture and, in its wall a radial tapped aperture, providing for the passage of and the adjustment of the position of the pin-carrying drums.

In this way not only is a well designed control mecha-

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nism produced but also a mechanism providing for very accurate adjustment of the position of the pin-carrying drums, which is particularly important for the good operation of circular knitting machines.

It will be understood that by reason of the fact that it is essentially characterized by well defined relative positions of the different parts or mechanisms, the mechanism forming the subject of the invention is to some extent independent of the design and construction of the parts or mechanisms. Nevertheless, for the purpose of explaining more clearly the essential features of the control device forming the subject of the invention a preferred construction will now be described with reference to the accompanying drawings, in which:

FIGURE 1 is a perspective view of a circular knitting machine provided with the control device of the present invention;

FIGURE 2 is a perspective view of a portion of the circular knitting machine shown in FIG. 1 on an enlarged scale;

FIGURE 3 illustrates diagrammatically, and partly in section, the control mechanism forming the subject of the invention;

FIGURE 4 shows diagrammatically and in plan view the control mechanism according to the invention, a pin drum having been removed;

FIGURE 5 is a section taken on the lines V—V of FIGURE 4.

The circular knitting machine in its entirety will not be described in detail herein, since the construction of its needle cylinder with its needles and selector jacks, or its cooperation with the selector plungers and pin-carrying drums, do not constitute the subject of the present invention. Such constructions are disclosed, for instance, in United States Patents Nos. 2,217,022 and 2,756,575.

The drawings illustrate diagrammatically a casing 1 which is preferably made as described in the specification accompanying the applicant's U.S.A. patent application No. 23,794. Disposed concentrically inside the casing 1 are the needle cylinder 2 which is preferably made as described in the specification of the applicant's U.S.A. patent application No. 23,796, now abandoned; the hollow axle 3, forming a cylinder carrier and adapted to be driven in rotation by a bevel gear 4; the driving ring gear 5; the coaxial bevel gear 6; the bevel gear 7 and the driving means (not illustrated); the hollow base 8 of the head of the machine on which the cylinder carrier 3 bears through the intermediary of a bearing 9, and the annular base 10 of the casing 1. Around the casing and opposite to its lateral windows 11 are disposed in conformity with the invention, control units each comprising a selector plunger rack 12 and a pin-carrying drum 13. Mechanisms 15 adapted to control the step by step movements of the pin-carrying drums 13 are also supported on the annular peripheral edge 14 of the hollow base 8 of the head of the machine. The mechanisms 15 are preferably made in accordance with the specification accompanying the applicant's pending U.S.A. application No. 23,795.

Beneath each of the pin-carrying drums 13 the annular peripheral edge 14 of the hollow base of the head of the machine comprises a projection 16 having an elongated aperture 17 and, in its wall, a tapped radial aperture 18, this arrangement providing for adjusting the position of the pin-carrying drum by the contact of its spindle 19 with the screw 20 which thus forms an adjustable stop. The fixing of the spindle 19 on the corresponding projection 16 is effected by the nut 21 and a washer, by means of keying the nut or other common accessories (not illustrated).

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The invention consists essentially in the novel arrangement and features illustrated particularly in FIGURES 2, 4 and 5 and comprising, a plurality of control units, each formed by a selector plunger-carrying rack and by a pin-carrying drum disposed around the apertured casing providing for access to the selector jacks.

This extremely convenient arrangement eliminates in the heads of circular knitting machines all the conventional disadvantages arising from overcrowded arrangement of the parts and, in practice the inaccessibility of numerous parts of the machine. The foregoing will be appreciated by those skilled in the art.

The invention is, of course, not limited to the number of control units and the construction of the mechanisms comprising the control units.

What I claim is:

1. In a circular knitting machine having a head carrying a central casing housing selector jacks and containing a plurality of lateral openings, a control device for actuating the selector jacks comprising control units mounted on the knitting machine in front of each opening in the casing, each of said control units consisting of

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at least one selector plunger rack and a pin-carrying drum arranged in radial alignment.

2. A control device in accordance with claim 1 wherein the selector plunger racks and the pin-carrying drums are fixed on annular parts of the knitting machine which are disposed at least substantially in the same horizontal plane, the pin-carrying drums being driven by mechanisms also mounted on the same annular parts.

3. A control device in accordance with claim 1 wherein the pin carrying drums are fixed in a peripheral ring in the head of the machine, the selector plunger racks being fixed in an annular part supported on the base of the knitting machine.

4. A control device in accordance with claim 1 wherein the pin carrying drums are radially adjustable on the head of the knitting machine.

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