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SPEED CONTROL FOR HOSIERY MENDING MACHINES

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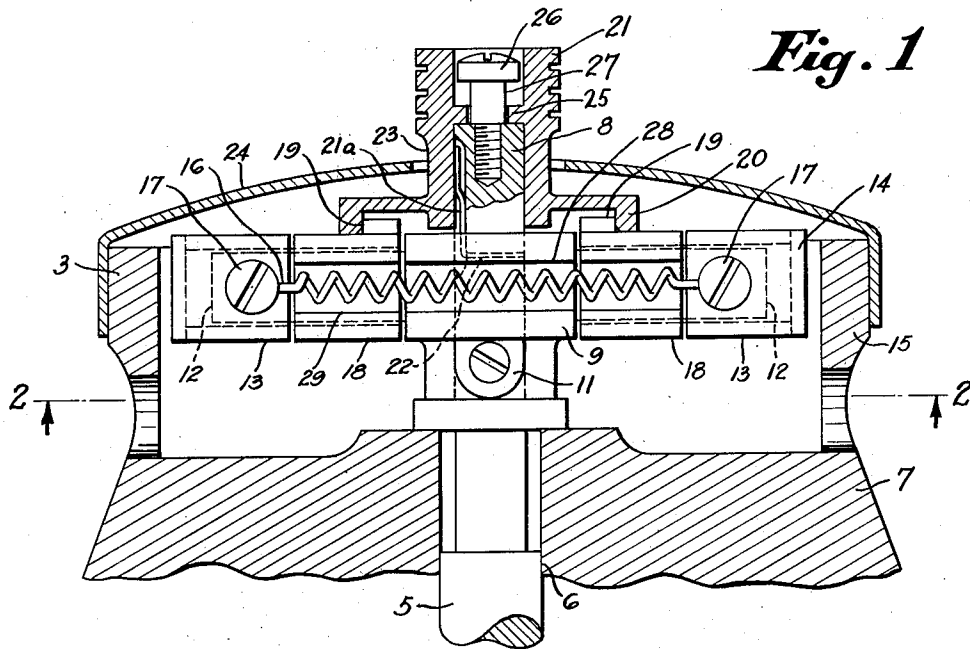


Fig. 1

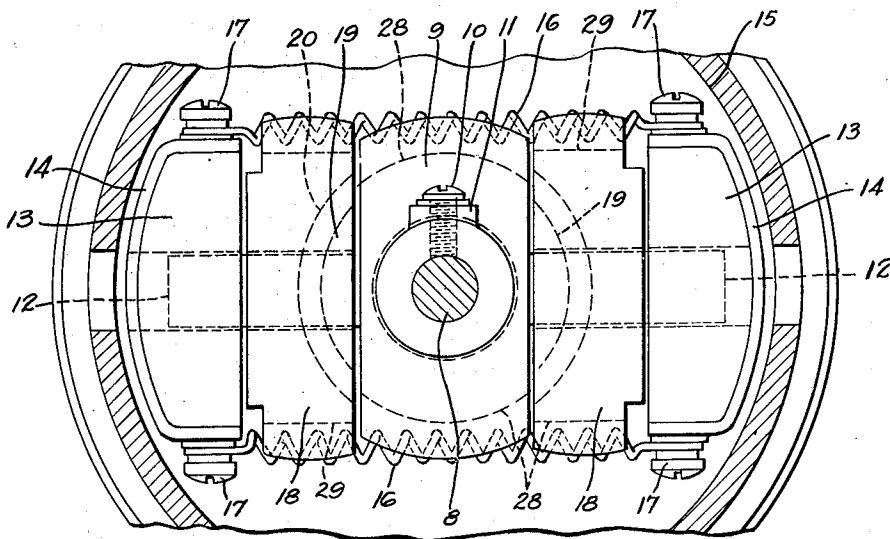


Fig. 2

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SPEED CONTROL FOR HOSIERY MENDING
MACHINES

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1 Claim. (Cl. 188—180)

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This invention relates to speed controls or governors and, more particularly, although not exclusively, to governors especially adapted for use in connection with electric motors used in operating devices for mending stockings or other knitted goods. Such mending devices may be of the type which include a reciprocating needle which is mechanically operated by means of a flexible cable or by some other means of transmission, or maybe of the pneumatic type in which the electric motor drives a pump to produce successive impulses of compressed air or suction against a needle carrying piston within a cylinder.

It has been found that in machines of this type it is important to have means available by which the machines may be operated at either one of two constant speeds; one, relatively high, for the normal mending operation; and the other, slower, for carrying out certain delicate operations or for instructing beginners.

It is therefore an important object of the present invention to provide a governor by the use of which such mending devices may be operated at more than one speed.

Another object of the invention is to provide such a governor which may be adjusted at will by the operator for operating the mending device at desired speed.

Another object is to produce a device of the character described in which the maximum simplicity of construction and operation is secured.

Other objects and advantages will appear as the nature of the improvements is better understood, the invention consisting substantially in the novel arrangement and co-relation of parts herein fully described, and illustrated in the accompanying drawings, wherein similar reference characters are used to denote corresponding parts throughout the several views, and then finally pointed out and specifically defined and indicated in the appended claims.

The disclosure made the basis of exemplifying the present inventive concept suggests a practical embodiment thereof, but the invention is not to be restricted to the exact details of this disclosure, and the latter, therefore, is to be understood from an illustrative, rather than a restrictive standpoint.

In carrying out the objects of the present invention, it was found advantageous to provide an axial type of governor which comprises a block secured to the shaft the speed of which is to be controlled, the said block being provided with a pair of oppositely extending arms upon each of which there are slidably mounted two weights in juxtaposed position, the outermost weights being

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connected to each other by means of a pair of springs. The said outer weights are what might be called the normal or usual governor weights which are adapted to frictionally engage the inner diameter of the motor casing due to centrifugal force when the motor is running. The inner weights may be cut in and out of influence of centrifugal force by means of a clutch frictionally mounted on the motor shaft and which is adapted to be brought into and out of operative engagement with the said inner weights.

The invention will be more clearly understood from the following detailed description when taken in conjunction with the accompanying drawings, in which—

Figure 1 is a fragmental sectional view through one end of a motor showing the improved governor as applied thereto; and

Figure 2 is a sectional view taken on line 2—2 of Figure 1.

Referring now to the drawings in detail 5 indicates the rotating shaft whose speed is to be governed or controlled. The said shaft may be that of a motor for operating a mending machine and may be rotatably mounted at one end in a bearing 6 of a motor housing 7. The shaft 5 may be provided with a reduced portion 8 which extends outwardly of the motor housing 7 and has a supporting block 9 affixed thereto by means of a set screw 10 extending through a hub 11 of said supporting block.

The block 9 due to its connection to the shaft 5 is rotatable therewith and is provided with a pair of oppositely extending radial cylindrical arms or stub shafts 12 at the outer ends of each of which there is slidably mounted a weight 13 about two sides and the end of which there is secured a brake lining 14. The outer ends of the said weights 13 and the brake linings 14 are arcuate so as to conform to the inner curvature of a hollow cylindrical portion 15 extending from the motor housing 7. The brake lined weights 13 are connected to each other by means of a pair of parallel springs 16 anchored on screws 17 carried by the weights 13.

Slidably supported on the stub shafts or arms 12 intermediate the sides of block 9 and peripheral weights 13 are a pair of supplementary weights 18, one for each arm 12. The said weights 18 are provided with segmental projections or extensions 19 which are adapted to be engaged by the inner surface of an annular flange or apron 20 of a clutch 21 frictionally held yet slidable on the shaft projection 8. The means for frictionally yet slidably mounting the clutch upon the shaft extension 8 comprises a flat spring 21a

having a bent over portion 22 at one end thereof projecting into the shaft extension 8, the opposite end of the spring bearing against the inner reduced shaft engaging bore 23 of the clutch 21. A cover 24 is affixed to the cylindrical extension 15 and covers the motor housing end in which the governor mechanism above described is housed.

When it is desired to operate the device at the normal high speed, the clutch is slid into the position shown in Figure 1 wherein the apron or flange 20 embraces the segmental extensions 19 on the intermediate or supplementary weights 18 thus maintaining said weights out of the influence of the centrifugal force generated by the rotating shaft. If, however, it is desired to run the device at a slower speed, the clutch is drawn or slid up the shaft extension 8 until a web 25 in the reduced bore 23 approaches or contacts the underside of the head 26 on a stud 27 screw threadedly maintained in the end of said shaft extension 8. When thus freed the weights 18 will slide outwardly against the peripheral weights 13 and increase the friction on the inner wall or bore of the cylindrical housing extension 15.

To prevent rotary movement of the weights 13 and 18 upon the arms 12 and to permit free passage of the springs 16 from the screw 17 on one weight 13 to the screw 17 of the other weight 13, the supporting block 9 is provided a pair of grooves 28 on the sides adjacent said springs and the weights 18 are provided with similar grooves 29.

While there is shown and described a two speed control it will readily be seen that by the provision of a second set of auxiliary or supplementary weights and by providing suitable embracing means on the clutch 21, a three speed control can be readily provided.

It is apparent that the specific embodiment shown has been given by way of illustration and not by way of limitation, and that the structure above described is subject to wide variation and

modification without departing from the intent or scope of the invention, all of which variations and modifications are to be included within the scope of the present invention.

What is claimed is:

In a motor having a hollow cylindrical casing extension and a shaft extending therethrough, a governor for said shaft, said governor comprising a support on the shaft, a pair of oppositely disposed radial arms carried by said support, a weight slidably mounted near the end of each of said arms, a pair of extensible springs connecting said weights on opposite sides, the said weights being operable by centrifugal force and having outer cylindrical surfaces to contact the cylindrical inner surface of said hollow cylindrical casing extension and to maintain the rotation of the shaft at one speed, supplementary weights slidably carried on said arms intermediate the support and the respective first-mentioned weights, projections on said supplementary weights having concentric, cylindrical surfaces, and a clutch frictionally yet slidably mounted on said shaft and having inner cylindrical surfaces adapted to engage the cylindrical surfaces of said projections for gripping and releasing said projections at will for controlling the speed of rotation of said shaft, said support and said supplementary weights being provided with grooves through which the springs pass to prevent rotary movement of the weights relative to the arms.

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REFERENCES CITED

The following references are of record in the file of this patent:

FOREIGN PATENTS

Number	Country	Date
259,508	Italy	July 4, 1928
269,523	Germany	Jan. 23, 1912