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2,986,021

MEMOIR MEMBER FOR A REPEATER DEVICE

Filed Oct. 28, 1957

Fig. 1

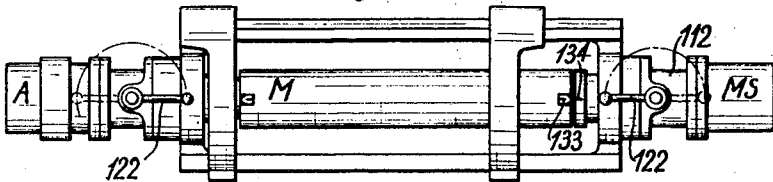


Fig. 2

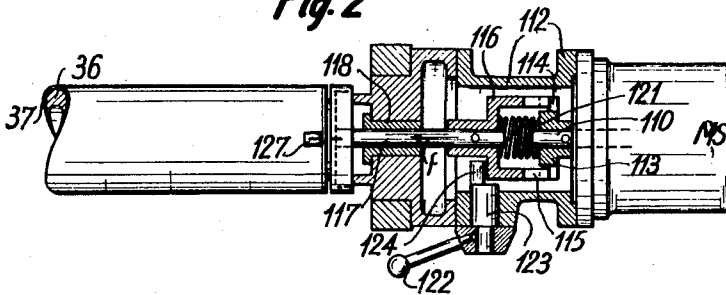


Fig. 4

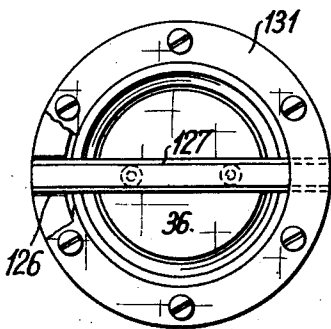
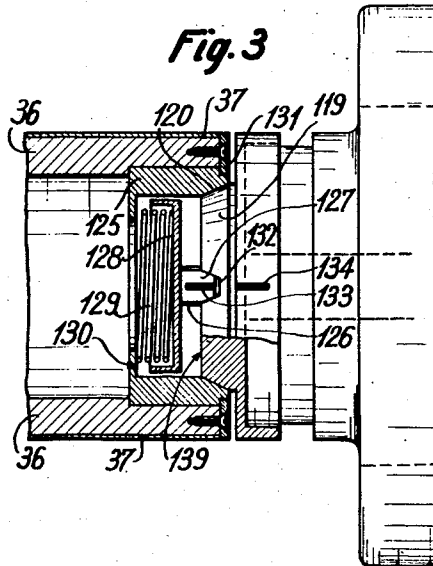


Fig. 3



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MEMOIR MEMBER FOR A REPEATER DEVICE

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6 Claims. (Cl. 64—10)

The present invention relates to the mounting for a memory member, and more particularly to a coupling for a rotary member having means permitting the removal of the memory member and its reinstallation in proper registry.

The attached drawing illustrates schematically and by way of example an embodiment of the removable memory member.

Fig. 1 is a plan view of said removable member and its mounting.

Fig. 2 is an axial cross-sectional partial view and at a greater scale.

Fig. 3 is a detail view at a greater scale, certain parts being seen in cross-section.

Fig. 4 is an end view of a memory member.

The embodiment represented in the attached drawing is adapted especially to be used with a repeater device of positions such as the repeater device described in U.S. application Serial No. 692,811, filed Oct. 28, 1957, and which comprises a memory member M driven in rotation at a constant speed by a synchronous motor MS and which drives a three-phase alternator A. This memory member M comprises, for example, a hollowed cylinder 36 of a nonferromagnetic material, covered with a film 37 of a ferromagnetic material locally magnetizable. This cylinder is connected on the one hand to the shaft 110 of a synchronous motor MS and, on the other hand, to the shaft of the alternator A through the intermediary of two similar coupling and locking devices. Only one of these two devices is illustrated in the attached drawing.

The motor MS is fixed by one of its extremities on a holder 112 and the motor shaft 110 carries a driving piece 113 having longitudinal grooves 114. Fingers 115 fixed to a driven piece 116, are engaged in these grooves 114. This piece 116 is rigidly fixed on a shaft 117 revolving in a boring 118 fixed to the holder 112, shaft 117 having at its free extremity a centering cone 119. This centering cone 119 is maintained in engagement with a conical seat 120 by a spring 121 bearing on the front face of the driving piece 113 and exerting a push f on the driven piece 116.

The conical seat 120 is located in an extremity piece 125 engaged in the extremity of the cylinder 36. This extremity piece, as well as the cylinder 36, present two longitudinal grooves 126 located in a same diametral plane. A cross part 127, fixed to a plate 128, subject to the action of a spring 129 bearing on the bottom 130 of the extremity piece 125, is engaged in these grooves 126 and slides along these grooves. A ring 131, fixed on the front face of the cylinder 36, constitutes a stop member which prevents disengagement of the cross part 127. The front face 139 of the centering cone 119 has a diametral groove 132 presenting the general shape of a V corresponding to the shape of said cross part 127 and shaped to receive the front part of said cross part 127.

An actuating member 122 fixed to an axle 123 pivoted in the side of the holder 112 and which carries a driving

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finger 124 serves to displace shaft 117 axially against the action of a spring 121.

The working of the described device is the following:

When the memory member constituted by the cylinder 36 is in a service position (position represented in the drawing), this member is tight between the two centering cones 119, co-operating under the action of springs 121 with the conical seat 120 located in each extremity. Thus, these centering cones ensure a perfect centering of this cylinder with respect to the driving shaft 117 connected to the motor MS, and with respect to the shaft 54 driving the alternator A. Each cross part 127 is engaged in the diametral groove 132 of the corresponding centering cone 119, so that this cylinder 36 is located in an angular position which is well determined with respect to the motor shaft MS and with respect to the shaft of the alternator A. Since only the angular position of the memory member with respect to the rotor of the alternator is of real importance for the proper functioning of the device described in the patent mentioned before, only one coupling device is needed, located on the side of the memory member connected to the alternator.

In order to withdraw the memory member, the operator actuates the two actuating members 122 from their position represented in full lines (Fig. 1) till their position represented in dotted lines, in order to cause, through the intermediary of fingers 124 acting on the piece 116, an axial displacement of each shaft 117 against the action of springs 121. This axial displacement is of a sufficient amplitude to cause the disengagement of each cone from the corresponding conical seat, as well as the disengagement of each cross part 127 from the corresponding diametral groove 132. Thus, the cylinder 36 being entirely released may be taken out and replaced by another one.

At the time of the setting in place of a cylinder 36, marks 133, 134 determine positively the angular position which this cylinder must occupy with respect to the driving shaft and to the shaft 54.

This removability of the memory member M permits the keeping of members on which are recorded the stopping positions of a mobile member of a precision machine-tool and to machine from time to time few pieces. Also, at the time of the machining of a first piece of a second series of identical pieces, there is eliminated the idle time necessary for a new recording of already determined stop positions of the mobile members of a precision machine-tool.

It is obvious that the memory member could be also constituted by a mechanical memory member comprising cams or stops, which could be individually located in predetermined positions with respect to a driving shaft, as described in detail in U.S. application Serial No. 692,848 filed Oct. 28, 1957.

The stop positions of a mobile member of a precision machine-tool, necessary for the machining of a given piece, a series of which has to be machined, could be recorded on the machine-tool itself when this machine-tool is equipped with a recording and repeater device of positions, or on another machine-tool having such a recording and repeater device, or also on a machine equipped only with a recording device of the stop positions.

We claim:

1. A coupling and indexing device comprising a motor having a shaft, a flange connection on the free end of said motor shaft, a driven shaft in axial alignment with said motor shaft, a pin connection on one end of said driven shaft engaged with the flange connection on said motor shaft, spring means between said connections urging said driven shaft away from said motor shaft, a conical head on the end of said driven shaft opposite said pin connection, said head having a groove there-

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across, a driven memory member in axial alignment with said shafts and having a recess in the end thereof adjacent said conical head, a conical seat in said end of said member receiving said conical head, an inwardly disposed flange in said recess, a movable plate within said recess between said flange and said seat, spring means abutting said flange and said plate urging said plate towards said conical head, slot-defining means interiorly of said driven member adjacent said recess, a cross part carried by said plate and engaged in said last-mentioned means and said groove of said conical head, and means for axially moving said driven shaft towards said motor to withdraw said head from said seat.

2. A coupling and indexing device comprising a drive shaft and a driven shaft in axial alignment, pin and flange means connecting said shafts, means yieldingly urging said driven shaft away from said drive shaft, a conical head on the end of said driven shaft opposite said connecting means and having a groove thereacross, a driven memory member in axial alignment with said shafts and having a recess in the end thereof adjacent said conical head, a conical seat in said end of said member receiving said conical head, an inwardly disposed flange in said recess, a movable plate within said recess between said flange and said seat, spring means abutting said flange and said plate urging said plate towards said conical head, slot-defining means interiorly of said driven member adjacent said recess, a cross part carried by said plate and engaged in said last-mentioned means and said groove of said conical head, and means for axially moving said driven shaft to withdraw said head from said seat.

3. A coupling and indexing device comprising a drive shaft and a driven shaft in axial alignment, pin and flange means connecting said shafts, means yieldingly urging said driven shaft away from said drive shaft, a conical head on the end of said driven shaft opposite said connecting means and having a groove thereacross, a driven memory member in axial alignment with said shafts and having a recess in the end thereof adjacent said conical head, a conical seat in said end of said member receiving said conical head, slot-defining means interiorly of said driven member adjacent said recess, means in said slot-defining means and said groove coupling said memory member

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and said head, and means for axially moving said driven shaft and said head away from said memory member.

4. A coupling and indexing device comprising a drive shaft and a driven shaft in axial alignment, pin and flange means connecting said shafts, means urging said shafts away from each other, a conical head on one end of one of said shafts opposite said connecting means and having a groove thereacross, a driven memory member in axial alignment with said shafts and having a recess in the end thereof adjacent said conical head, a conical seat in one end of said member receiving said conical head, slot-defining means interiorly of said driven member adjacent said recess, means in said slot-defining means and said groove coupling said memory member and said head, and means for axially moving one of said shafts and said head away from said memory member.

5. A coupling and indexing device comprising a memory member, a first rotatable shaft adjacent one end of said member, means for supporting said member and drivingly connecting said member to said first shaft, means for withdrawing said last-mentioned means from operative engagement with said member to thereby permit removal of said member, a second rotatable shaft adjacent the other end of said member, second means for supporting said member and drivingly connecting said member to said second shaft, means for withdrawing said last-mentioned means from operative engagement with said member to thereby permit removal of said member, and means for insuring proper registration of said member and said second supporting and connecting means upon replacement of said memory member.

6. The combination recited in claim 5 wherein said first shaft comprises a driving motor shaft and said second shaft comprises an alternator shaft.

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