Nov. 26, 1957 M. CULKOSKY 2,814,700

RESTRAINING DEVICE FOR ELECTRIC CONTACT FINGER

Filed Aug. 30, 1956

FIG. 1.

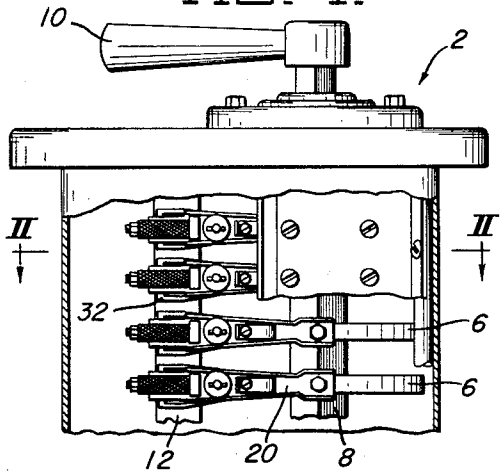


FIG. 4.

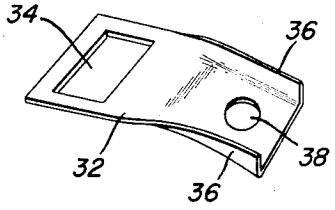


FIG. 2.

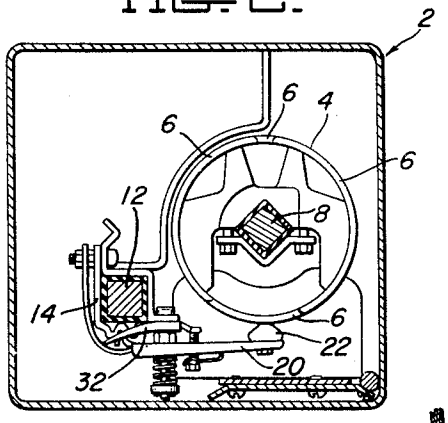


FIG. 5.

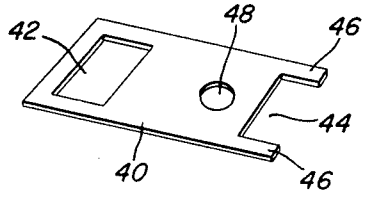


FIG. 6.

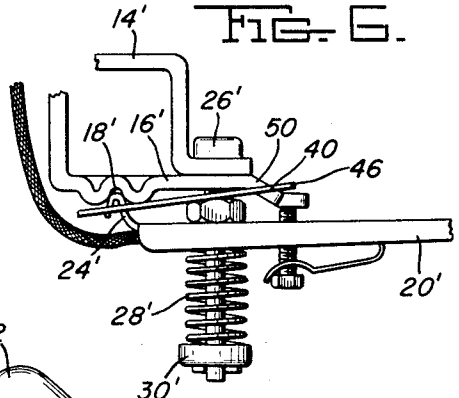
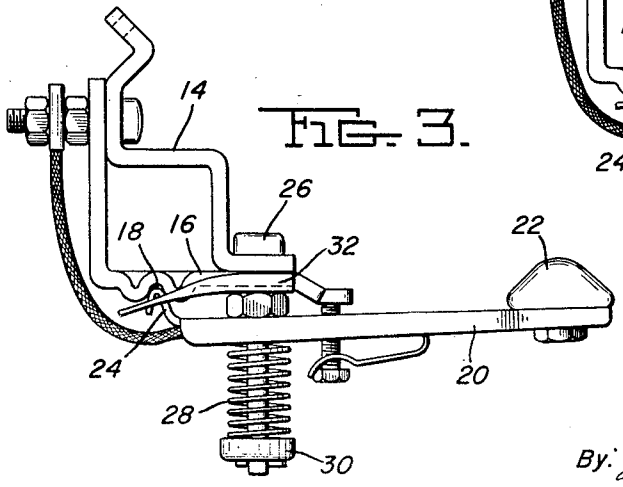


FIG. 3.



INVENTOR.
MARTIN CULKOSKY,

By: Donald G. Dalton
his Attorney.

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RESTRAINING DEVICE FOR ELECTRIC CONTACT FINGER

Martin Culkosky, Gary, Ind.

Application August 30, 1956, Serial No. 607,092

3 Claims. (Cl. 200—166)

The present invention relates generally to electric switch contactors and more particularly to an improved mounting for the contact fingers of an electric drum controller.

Conventional electric drum controllers include a cylinder or drum made up of a plurality of curved copper segments of varying length affixed along a rotatable shaft which is revolved by a controller handle. An insulated bar disposed parallel with the cylinder has mounted thereon a plurality of brackets, each of which supports a pivotal contact finger. The contact fingers extend toward the cylinder and are adapted to tangentially contact one of the copper segments thereof. The copper segments and the contact fingers are arranged so that when the cylinder is rotated different sets of contact fingers are in contact with their respective segments and others are not in contact with their respective segments. The segments and contact fingers are arranged so that various circuits are opened and closed as the cylinder is turned to various positions, all in the manner well known to those versed in the art.

Each of the contact fingers is pivoted to its support bracket by means of a spring loaded bolt or pin so that the contact tip of the finger is constantly urged toward the cylinder. The arm of the bracket which supports the contact finger is provided with a V-shaped depression or saddle which receives a lug projecting from the end of the contact finger and serves as a pivot point for the finger on the bracket arm.

As the controller is used the sides of the saddle in which the lug is seated become worn due to the numerous pivoting movements of the contact finger as the controller cylinder is rotated. The wearing of the sides causes the saddle to widen and lose its retaining effectiveness. This causes the contact finger to be loosely supported so that it moves laterally out of position which causes the contact tip of the finger to make only a partial contact with its respective segment on the cylinder. This results in poor electric contact, sparking and excessive non-uniform wearing of the segment and the contact tip of the finger which in turn results in frequent replacements of the contact fingers and copper segments of the drum controller cylinder.

It is accordingly the primary object of the present invention to provide an improved mounting arrangement for the contact fingers of a drum controller whereby a locking means is provided to restrain lateral movement of the contact fingers from their proper tangential position relative to the cylinder segments.

It is another object of the invention to provide such a locking means which is economical to manufacture, easy to install and when installed does not interfere with the normal movements of the elements of the drum controller.

These and other objects will become more apparent after referring to the following specification and attached drawings, in which:

Figure 1 is a partial elevation of an electric drum controller having the device of the invention installed thereon;

Figure 2 is a sectional view taken on the line II—II of Figure 1;

Figure 3 is an enlarged detail elevational view of a contact finger and contact finger bracket having the restraining device of the invention incorporated therein;

Figure 4 is a view in perspective of the restraining device of the invention;

Figure 5 is a view similar to Figure 4 showing a modified embodiment of the invention; and

Figure 6 is a view similar to Figure 3 showing the modified embodiment of the invention incorporated into a contact finger and bracket.

Referring more particularly to the drawings reference numeral 2 indicates generally an electric drum controller. The drum controller is conventional and only the parts thereof necessary to a clear understanding of the present invention will be described herein. The drum controller is provided with a cylinder 4 made up of a plurality of aligned copper segments 6 of varying length mounted along an insulated shaft 8 which is rotatable by a handle 10. An insulated rectangular bar 12 is disposed adjacent to and parallel with the cylinder 4 and has a plurality of contact finger brackets 14 mounted in spaced relation therealong. Each of the brackets 14 includes an arm 16 having a V-shape depression or saddle 18 extending transversely thereacross. A contact finger 20 having a contact tip 22 at one end and a lug 24 at its other end is disposed on the arm 16 with the lug 24 pivotally received in the saddle 18 and the contact tip 22 positioned tangentially of one of the segments 6. The contact finger 20 is positively retained on the arm 16 by means of a bolt 26 which passes through the bracket 14 and the contact finger. The contact finger 20 is constantly urged toward the cylinder 4 by means of a spring 28 circumferentially disposed on the bolt 26 and bearing at one end against the contact finger and its other end against a disc 30 affixed to the end portion of the bolt projecting outwardly of the contact finger. The apparatus just described is conventional and is not claimed as part of the present invention which will now be described in detail.

Interposed between the arm 16 and the contact finger 20 is a metal plate 32 having a recess 34 therethrough adjacent one end and turned edges forming flanges 36 adjacent its other end. A hole 38 is provided in the plate between the flanges 36. The plate 32 is positioned with the recess 34 receiving and retaining the lug 24 above the saddle 18 and the flanges 36 embracing the side edges of the arm 16, as best shown in Figure 3. The nut 26 passes through the hole 38 of the plate and holds the plate in position. The recess 34 is only slightly wider than the lug 24 so that the plate embraces the lug snugly. However, the recess 34 is so dimensioned that the lug 24 is permitted to pivot freely in the saddle 18. In position, with the lug 24 being retained in the recess 34 and the flanges 36 embracing the arm 16 of the bracket, the plate 32 efficiently restrains lateral movement of the contact finger 20 relative to the bracket 14.

Figures 5 and 6 illustrate a modified embodiment of the invention. In the following description of the modified embodiment of the invention, primed reference numerals are used to indicate parts similar to parts included in the above description of the invention. In Figure 6 a metal plate 40 is shown interposed between the arm 16' of a bracket 14' and a contact finger 20'. Metal plate 40 is provided with a recess 42 adjacent one end and an open end cut-out portion 44 at its other end which form a pair of spaced prongs 46 projecting from the end of the plate. A hole 48 for receiving bolt 26' is provided intermediate the ends of the plate 40. The

plate 40 is positioned with its recess 42 receiving the lug 24' in a manner similar to the arrangement of recess 34 and lug 24 described above. Arm 16' of bracket 14' is provided with a curved outer end 50 which is received into the cut-out portion 44 between the prongs 46. Thus, by engaging the lug of the contact finger and the adjacent arm of the bracket, plate 40 effectively restrains lateral movement of the contact finger.

While two embodiments of my invention have been shown and described, it will be apparent that other adaptations and modifications may be made without departing from the scope of the following claims.

I claim:

1. In a contact finger for cooperation with the cylinder of an electric drum controller including a fixed bar spaced from and parallel with the longitudinal axis of said cylinder, a bracket mounted on said bar, said bracket including an arm adapted to support one end of said contact finger, said contact finger being disposed with its said one end adjacent said arm and its other end extending toward said cylinder relatively tangential thereto, said arm having a generally V-shape depression extending transversely across the surface thereof adjacent

said one end of said contact finger, said one end of said contact finger having an integral lug thereon adapted to be received in said depression whereby said finger is pivotable on said bracket, spring loaded means mounted on and connecting said contact finger and said arm, the combination therewith of means for restraining lateral movement of said finger which comprises a plate interposed between and engaging said finger and said arm, and means on said plate adjacent one end thereof engaging said arm, said plate having an opening adjacent its opposite end for receiving the lug on the end of said contact finger.

2. In a contact finger the combination therewith as defined by claim 1 in which the means on said plate include flanged sides integral with said one end of said plate embracing said arm.

3. In a contact finger the combination therewith as defined by claim 1 characterized by said plate having an open end cut-out portion in its said one end engaging said arm.

No references cited.