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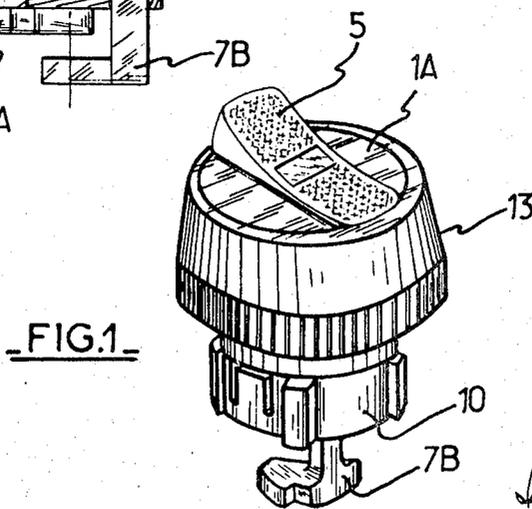
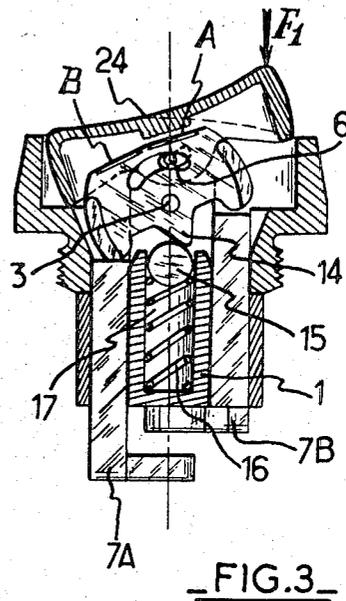
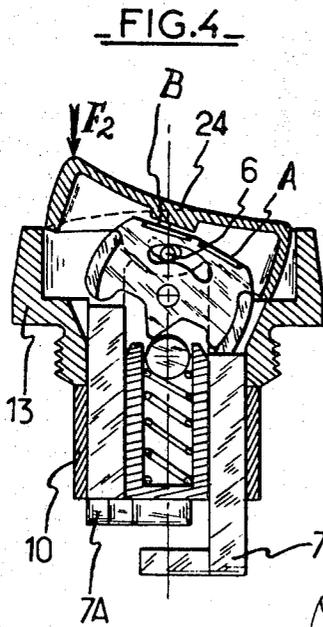
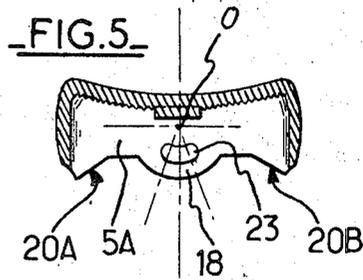
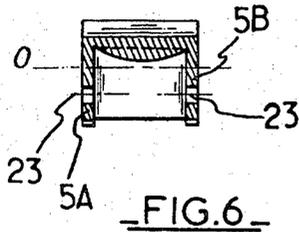
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ROCKER CONTROL FOR CIRCUIT BREAKER WITH INDICATION OF POSITION

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2 Sheets-Sheet 1



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**ROCKER CONTROL FOR CIRCUIT BREAKER
WITH INDICATION OF POSITION**

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5 Claims

ABSTRACT OF THE DISCLOSURE

A rocker control for a circuit breaker with a movable indication of the operative position and having an opaque shell with a central transparent window in a control member above a rotary changeover member. The rotary changeover member with movable lateral rods there-through has at least two stabilized angular positions and at least two portions each bearing an indication of the operating position opposite the transparent window. The window maintains a central location for either indication and movement of parts by having the axis of rotation of the control member above and adjacent to the axis of rotation of the changeover member.

The invention relates to a rocker control for a circuit breaker with a movable indication of position, the said indication appearing intermittently on the body itself of the operating handle and adjacent to its rocking axis.

Another object of the invention is to cause the indication to appear transparently in the handle so that the indications of position cannot be damaged from the outside.

A still further object of the invention is to combine said device with a sudden break contact control known per se.

Indications of the position of a handle have already been proposed by means of a circular incline integral with the handle, said incline sliding inwardly of the cover of the apparatus when the handle is rocked, which necessitates two parts of an incline which disappears intermittently on either side of the handle. Furthermore, the indicating part to be read is never in the centre of the apparatus. If therefore several circuit breakers placed side by side are in a different position, the indications shown are not in line, which is inaeathetic on an electric control panel. Moreover, the inscriptions fixed or engraved on the handle itself may be scratched or broken from the outside.

The invention overcomes said disadvantages by means of a very simple eclipsing mechanism incorporated in the handle.

The control in accordance with the invention is essentially characterized by the fact that it comprises a rocker with at least two stable positions which receives its motion from a control knob, itself rockingly mounted, which is placed above it and engages the same by means of two lateral inclines with alternating thrusts, the pivoting of the control knob thus preceding that of the rocker, whereas the latter has a surface directed towards the lower central part of the control knob, the said surface

thus bringing in front of a central window of the control knob one of its parts bearing at least one inscription or the like.

The pivoting axes of the rocker and of the control knob are offset in height relative to each other so that, when the rocker occupies one or the other of its stable positions, two different parts of its surface turned towards the control knob are opposite the central window of the latter, each of said parts being provided with a different inscription.

The control knob has the shape of an opaque shell, a central window of which is transparent.

The rocker is advantageously stabilized in position by means of a spur, included in its lower part, which pushes a ball subjected to the action of a return-spring.

The alternately high and low positions of each side of the rocker transmit, by force, their motion through the action of two bosses on sliding rods controlling the circuit breaker.

Other characteristics and advantages of the present invention will become apparent in the course of the following description when read in conjunction with the accompanying drawings illustrating diagrammatically and merely by way of example, an embodiment of the invention.

In the said drawings:

FIG. 1 is a view in perspective of a rocker control for a circuit breaker with indication of position, for carrying out the invention;

FIG. 2 is a broken view in perspective of the different constituent parts of the rocker control shown in FIG. 1;

FIGS. 3 and 4 are longitudinal axial sections of the said control shown respectively in its two operative stable positions;

FIGS. 5 and 6 are detail views showing, respectively in longitudinal and cross sections, the control knob itself.

The rocker control shown by way of example in the drawings essentially includes:

A main body 1 of general cylindrical shape the head 1A of which has a transverse slot bored therein, inside which may pivot, about a spindle 3, a first rocker 4 forming a cam, under the action of a second rocker 5 forming a control knob, itself pivoting on a spindle 6;

Two lateral control fingers 7A and 7B capable of sliding longitudinally and alternately in diametrically opposed grooves 8 made in the main body 1, under the action of the rocking cam 4. These two fingers are provided with feet 9A and 9B permitting the actuation of a sudden break contact of any type known per se and therefore not shown in the drawing;

A holding body 10 in the shape of a cylindrical ring fits on the main body 1 to maintain the control fingers 7A and 7B in place in their grooves 8 while allowing them to slide in the latter. The ring 10 is advantageously provided with two small flexible tongues 11A, 11B provided with lugs which hook on corresponding shoulders 12 of the main body 1;

Finally, a collar 13 surrounding the head 1A of the main body 1 is held in place by the holding ring 10. The collar is advantageously provided at its base with a thread 14 in order to permit easy attachment of the unit on a circuit breaker case.

According to an essential characteristic of the present

invention, the rocking cam 4 pivoting on the spindle 3 is of the two stable position type. To this end, it comprises in its lower portion a central spur 14 which is in contact with a stabilizing ball or roller 15 subjected to the action of a return-spring 16 housed in a middle passage 17 made in the main body 1.

Moreover, the rocker is provided with two bosses 4A and 4B which bear, respectively, on the heads of the sliding control fingers 7A and 7B. The rocker 4 thus occasions the movement of said fingers 7A and 7B, in opposite directions relatively to each other, when it passes from the position shown in FIG. 3 to the one of FIG. 4 and vice versa, the fingers 7A and 7B being subjected to flexible recalls of the controlled contacts (not shown).

Finally, the rocker 4 comprises on its upper face, which has the shape of a very flat dihedron, two notches 18A, 18B in which one may fix any suitable inscription: open, closed, running, stop, etc., designated by the references A and B in FIGS. 3 and 4.

The rocking cam 4 with two stable positions receives its movement from the second rocker 5 forming a control knob and which is placed above the latter.

As is best seen in FIGS. 5 and 6, the control knob 5 is constituted by a shell of general parallelepipedic shape open in its lower portion so as to cap the upper position of the rocking cam 4.

The lateral faces 5A and 5B each comprise a lower section provided: on the one hand with a circular central part 18 the centre of which is situated at 0, which may rotate on a support 19 of corresponding shape provided on each face of the slot 2 of the main body 1; on the other hand, with two lateral inclines 20A, 20B capable of entering into contact with the top of lateral abutment surfaces 21A and 21B provided on the rocking cam 4, as is clearly seen in FIG. 2.

In order to reduce to a maximum the dimensions of the rocking control as a whole, the spindle 6 about which pivots the control knob 5 is not placed at the centre 0 of the circular portion 18, but a little lower as is clearly seen in FIGS. 3 and 4.

As a result of this staggering of the spindle 6, there occurs a relative movement between the control knob 5 and the rocker 4 when the latter pivot. In order to permit this relative movement, the spindle 6 which is fixed in the head 1A of the main body 1 passes through two slots curved in opposite directions and made respectively, the one 22 in the cam 4, the other 23 in the control knob 5.

The upper face of the control knob 5 comprises a central transparent window 24 whereas all the rest of said face is made opaque in any manner, for example by means of diamond cuts.

The operation of the rocker control for a circuit-breaker with movable indication of position in accordance with the intervention just described is the following.

The different movable elements of the unit being in the relative positions shown in FIG. 3, it will be seen that it is the inscription A of the rocker 4 which is below the transparent window 24 of the control knob 5 and is thus the only one which is then visible to the operator. For this position of the control knob 5, the control finger 7A is in the low position and the finger 7B in the high position.

If one pushes the control knob in the direction of the arrow F₁, the latter will pivot due to the sliding of the circular portion 18 on the corresponding support 19. The incline 20B will in its turn cause the rocker 4 to rotate in the same direction while bearing on the abutment 21B of the latter. During rotation, the spur 14 of the rocker 4 pushes the ball 15 against the action of the return-spring 16 and passes into the position shown in FIG. 4.

In view of the staggering between the two spindles 3 and 6, the portion of the rocker 4 bearing the inscriptions A and B will move a distance greater than that of the window 24 of the control knob 5 which, at the end of its travel, strikes the other face of the collar 13. During

this phase, the slots 22 and 23 slide along the fixed spindle 6.

Due to this arrangement, it will be seen that when the unit reaches the position shown in FIG. 4, it is the inscription B which is henceforth opposite the transparent window 24 and which then becomes the only one visible to the operator.

While pivoting, the rocker 4 has caused the control finger 7B to descend to the low position and permitted the rising of the finger 7A to the high position, which has had for result to actuate a sudden break contact (not shown).

It is obvious that if one pushes the control knob in the direction of the arrow F₂, the device will operate in the opposite direction and will resume the initial position of FIG. 3.

It should moreover be noted that, with the object of having the window 24 of the control knob 5 maintain its position whatever be the indication A or B of the rocker 4, the pivoting axis 0 of the knob 5 is placed directly adjacent to said window 24. This is rendered possible by the fact that the pivoting of the knob 5 is effected by the sliding of the circular part 18 of the latter on the corresponding cradles 19 provided in the faces of the slot 2 of the main body 1.

It is obvious that the invention has been described and illustrated only in an explanatory but by no means limitative manner and that changes in detail may be made therein, in conformity with its spirit, without coming out of its scope.

Thus, in particular, one may consider a rocker 4 with more than two stable positions, the spur 14 in this case being replaced by an element comprising the number of recesses corresponding to the number of the desired stable positions. To each of said positions evidently corresponds a suitable inscription on the upper face of the rocker 4 which is then polygonal.

Moreover, the indications may be made luminous by providing the control head with a signalling lamp.

I claim:

1. A rocker control for a circuit breaker with a movable indication of the operative position comprising
 - a main support,
 - a holding body in the shape of a cylindrical ring connected to said main support,
 - a collar surrounding said main support and held in position by said holding body,
 - a rotary changeover member having at least two stabilized angular positions supported in said main support and having at least two surface portions each bearing an indication of the operating position,
 - a rocker control member in the shape of an opaque shell having a transparent window at its center situated substantially adjacent to the axis of rotation of said control member and in a position for separately viewing each of said indications of operating position,
 - and longitudinally movable lateral rods movably supported in said main support to connect said changeover member to a circuit breaker device.
2. A rocker control for a circuit breaker in accordance with claim 1, wherein
 - said main support has a cradle therein and said control member has a circular sector bearing on said cradle, said control member having its axis of rotation placed above the axis of rotation of said changeover member.
3. A rocker control for circuit breaker in accordance with claim 1, wherein
 - said changeover member has lateral projections and said control member has lateral inclines cooperating with said lateral projections.

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4. A rocker control for a circuit breaker in accordance with claim 1, further characterized by said changeover member having stabilization means including a spur and a ball and return spring cooperating with said spur located with the axis of said spring passing perpendicularly through the axes of rotation of said control and changeover members.
5. A rocker control for a circuit breaker in accordance with claim 1, further characterized by said changeover member provided with bores cooperating with said longitudinally movable lateral rods for control of the circuit breaker device.

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