

[54] **MULTIPLE CIRCUIT SWITCH WITH
PIVOTED CONTACT ONLY ONE
SWITCH OPERABLE AT A TIME**

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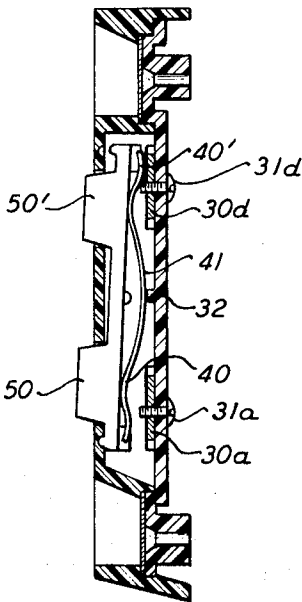
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[57] **ABSTRACT**

A multiple action contact switch, adapted to provide selective completion of a particular one of a multiplicity of switching circuits, by means of actuation of a portion of a unitary resilient element with a multiplicity of movable centers and corresponding fixed centers.

3 Claims, 4 Drawing Figures



MULTIPLE CIRCUIT SWITCH WITH PIVOTED CONTACT ONLY ONE SWITCH OPERABLE AT A TIME

BACKGROUND OF INVENTION

This invention relates generally to switching devices, and more specifically relates to a multiple action contact switch which provides a unitary construction for a multiplicity of switching operations which can be selectively controlled thereby.

Pursuant to the invention, the multiple action contact switch may be operated conveniently and efficiently, to enable selective completion of a particular one of a multiplicity of circuits such as in a pushbutton switch for a series of apartment doorbells.

In accordance with the foregoing, it may be regarded as among the objects of the present invention to provide a novel unitary device for precise selective circuit-completion switching operations.

As will become apparent in the course of the ensuing specification the foregoing and other objects, are achieved through use of a unitary resilient element with a multiplicity of movable centers and corresponding stationary centers, interengaged with a control plate element as will be described below, so that upon pressing a particular pushbutton a single selective and particular circuit is completed upon relative movement of particular spring centers of a multiplicity of spring centers.

BRIEF DESCRIPTION OF DRAWINGS

The invention is diagrammatically illustrated, by way of example, in the appended drawings wherein similar reference characters indicate like parts, in which:

FIG. 1 is an exploded view of one embodiment of a multiple action contact switch pursuant to the invention;

FIG. 2 is an isometric side view of an assembled multiple action contact switch;

FIG. 3 is a side elevational cross-sectional view of the invention, in a non-actuated condition thereof; and

FIG. 4 is a side elevational view of the invention, in a selectively actuated condition thereof.

DESCRIPTION OF PREFERRED EMBODIMENTS

In accordance with the preferred mode of practicing the invention, the multiple action contact switch 11 (FIGS. 1 and 2) for example, comprises cover member 12, circuit plate member 13, unitary resilient element 14, and movable control element 15.

The cover member 12 (FIGS. 1 and 2) for example, comprises a top plate 20, side panels 21a, 21b shown (corresponding opposite side panels are provided not shown), control element apertures 22, 22', side panel apertures 23, 23', and identification apertures 24, 24'.

The circuit plate member 13 comprises (FIG. 1), for example, circuit plate connector portions 30a, 30b, 30c, and 30d, and corresponding circuit connector means 31a, 31b, 31c, and 31d, pivot portion 32, cover connector apertures 33, 33' and corresponding cover connector means 34, 34', side panels 35, 35' and mounting apertures 36, 36', with corresponding mounting means 37, 37' (FIG. 3).

The unitary resilient flexible loading contact element 14 comprises, for example, a plurality of movable

center curved portions 40, 40' with corresponding fixed center curved portions 41, and end grooves 42, 42' therein. The movable control element 15 comprises, for example, a plurality of projecting buttons 50, 50' and depending lip portions 51, 51' (FIG. 3). Identification indicia 60, 60' may be inserted through side panel slots 61, 61' which are formed between side panels 35, 35' and side panel apertures 23, 23'.

In operation (FIGS. 3 and 4), for example, the multiple action contact switch 11 is assembled by placing the unitary resilient element 14 and the movable control element 15 in a medial position atop circuit plate pivot portion 32, with the keying portions thereof (control element depending lips portion 51 and resilient element end grooves 42, 42') interengaged for keyed interaction and placing the cover member 12 thereover, and then affixing the cover member 12 to the circuit plate element 13 by mounting cover connector means 34, 34' through cover connector apertures 33, 33', with the projecting buttons 50, 50' extending through the cover member control apertures 22, 22'. The mounting means 37, 37' may then be mounted by being placed through identification apertures 24 into mounting apertures 36, 36' of the circuit contact-mounting plate element 13, and identification strips 60 may then be placed through side panel slots 61, 61' to be visible through identification apertures 24, 24' to thereby cover the mounting means and to provide identification of the particular circuits in connection with which a particular projecting button is operable. Upon actuation by the operator of a particular projecting button, selective completion of a particular one of a multiplicity of switching circuits is accomplished by corresponding movement of the particular unitary resilient member movable center curved portion and adjacent segment of fixed center curved portion through keying interengagement of the control element depending lip portion with the resilient element end groove, until the movable center curved portion connects across two circuit connector plate portions for completion of a particular circuit to thereby operate the particular circuit desired, such as a pushbutton doorbell for one of a plurality of apartments. The movement of the unitary resilient element on the circuit plate member pivot portion prevents the accidental displacement of other portions thereof aside from the particular one which is actuated thereby, to provide accurate selectivity and precise operation of the device by segregating movement and circuit switching thereby.

The multiple action contact switch of this invention, as set forth above, affords convenient and efficient operation and precise selection for completion of a particular one of a multiplicity of switching circuits by means of selective and precise actuation of a portion of a resilient element which comprises a multiplicity of movable center portions and corresponding fixed center portions.

While the present invention has been particularly set forth in terms of specific embodiments thereof, it will be evident in view of the instant disclosure, that numerous variations upon the invention are now enabled to those skilled in the art, which variations in propriety are yet within the true scope of this teaching. Accordingly, the invention is to be broadly construed, and limited only by the scope and spirit of the claims appended hereto.

I claim:

1. A multiple circuit control switch, for selection of one of a plurality of circuits, comprising:
 - a. a base plate of an electrically insulating material, having a top surface and side surfaces; 5
 - b. a pivot portion formed on and extending above the top surface of the base plate;
 - c. conductor plates of electrically conducting material mounted on the top surface of the base member and arranged in open-circuit pairs thereon for connection of circuits to be selectively controlled by said conductor plate pairs; 10
 - d. a control member of an electrically insulating material, having a top surface and a bottom surface, including portions projecting generally upwardly from the top surface; 15
 - e. a flexible contact member of an electrically conducting material, having a curve-shaped center portion for positioning on and movement on the base member pivot portion and having ends reversely curved relative to said center portion; 20
 - f. a cover member of an electrically insulating material having a top surface, side surfaces, and an inner surface, and having apertures through the top surface for registration with said control portions for movement of said control portions therein to activate the switch, the parts being proportioned for further registering the upwardly projecting control portions with said ends of said flexible loading control member, 30

whereby the switch may selectively closed by moving a said control portion of said control member in a cover member aperture, thereby moving the end of the flexible loading contact member registered therewith downwardly onto the corresponding pair of conductor plates at that end of the base plate, bridging the conductor plates to close the circuit thereby controlled, the opposite end portion of the flexible loading contact member being thus disposed against the control portion, holding that end of the control member in inoperative position.

2. A multiple-circuit control contact switch, for selective closing of one of a plurality of circuits, as set forth in claim 9, further comprising:

- a. complementary registration means on the flexible loading contact member and the control member comprising axial recesses formed inwardly of the ends of said contact member and keying portions projecting downwardly from the bottom surface of said control member.

3. A multiple circuit control contact switch, for selective closing of one of a plurality of circuits, as set forth in claim 10, further comprising:

- a. reversely curved ends provided on said flexible contact member relative to the center portion of the flexible contact member for complementary registration with the control member control portions.

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