July 4, 1961 A. R. NORDEN 2,991,343

SELECTIVE SWITCHES

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FIG. 1

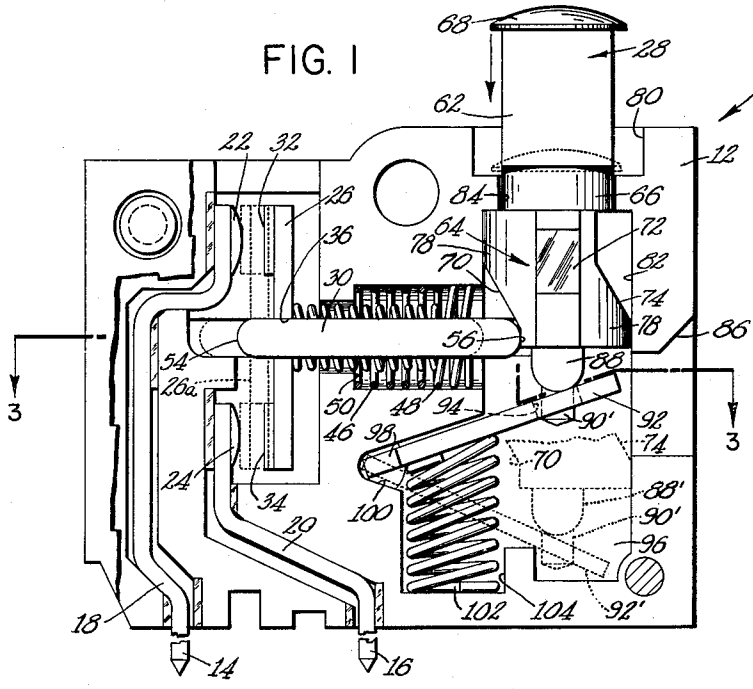
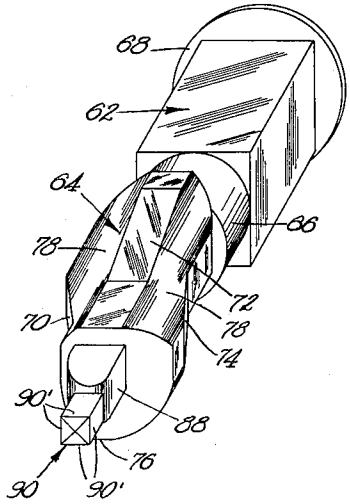



FIG. 4



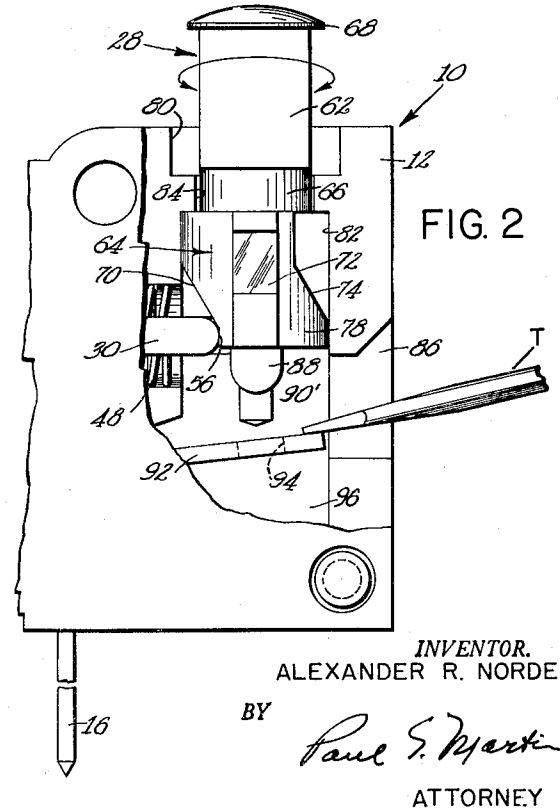




FIG. 2

INVENTOR.
ALEXANDER R. NORDEN

BY Paul S. Martin

ATTORNEY

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FIG. 3

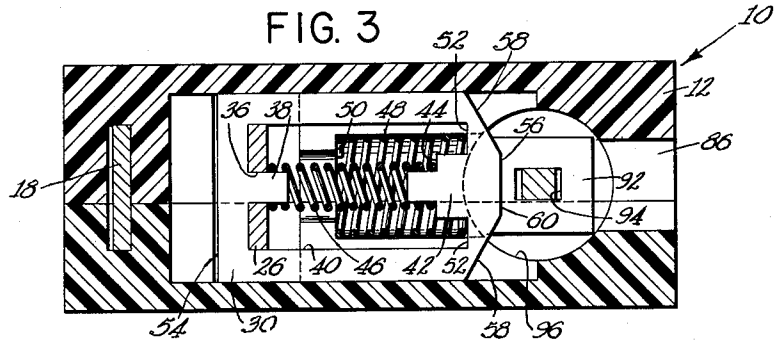
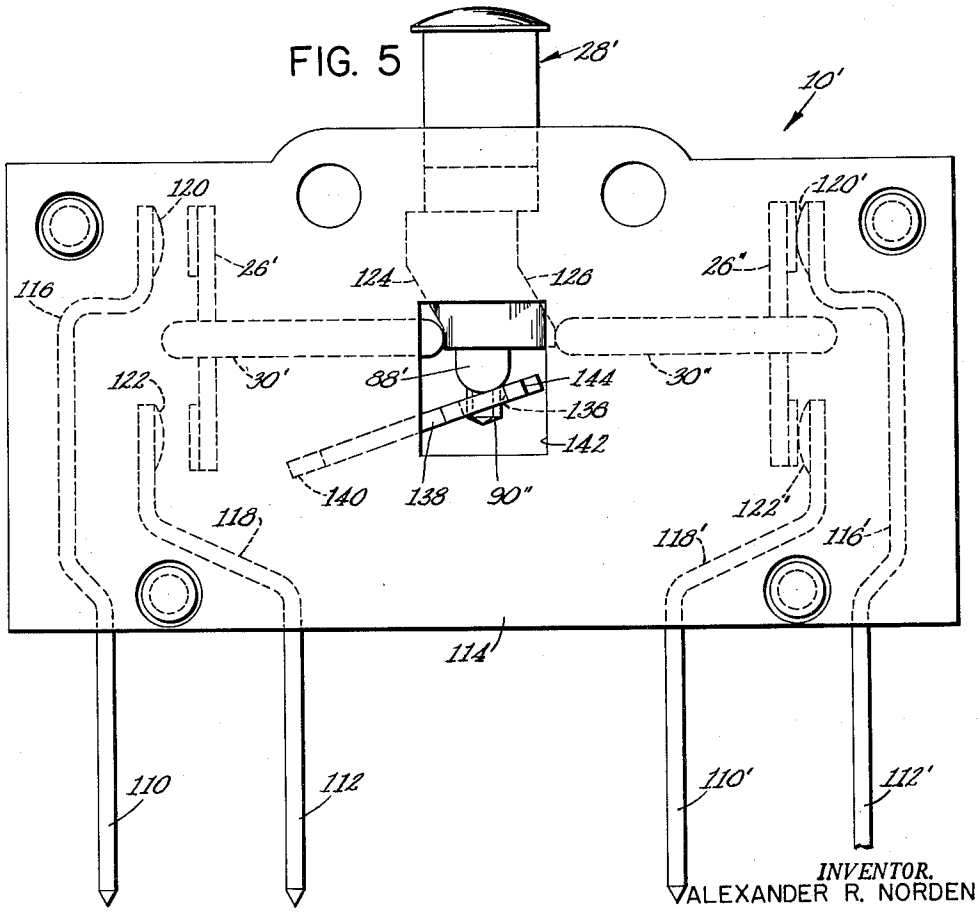



FIG. 5




INVENTOR.
ALEXANDER R. NORDEN

BY Paul S. Mastin

ATTORNEY

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SELECTIVE SWITCHES

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FIG. 6

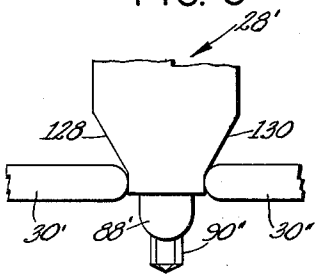



FIG. 7

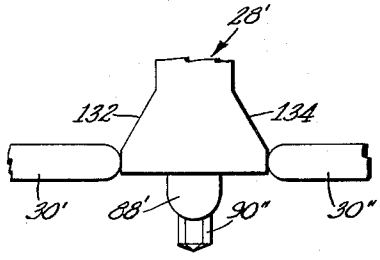



FIG. 8

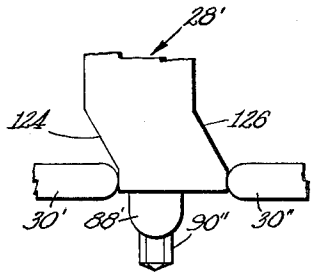



FIG. 10

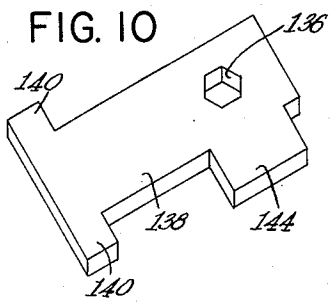
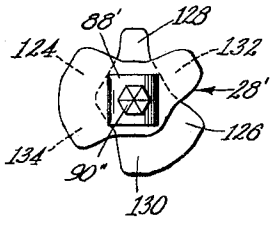



FIG. 9




INVENTOR.
ALEXANDER R. NORDEN

BY Paul S Martin

ATTORNEY

United States Patent Office 2,991,343 Patented July 4, 1961



2,991,343

# SELECTIVE SWITCHES

Alexander R. Norden, New York, N.Y., assignor to Federal Pacific Electric Company, a corporation of Delaware

Filed July 7, 1958, Ser. No. 746,809
13 Claims. (Cl. 200—153)

This invention relates generally to electric switches and, more particularly, to electric switches selectively indexable to obtain different switching effects.

One object of the present invention is the provision of an improved form of switch having fixed and movable contact members movable into and out of mutual engagement which is selectively indexable to obtain different swtching effects in a new and improved manner. Pursuant to this object of the present invention the movable contact member is mounted for movement in an invariable path and is operatively associated with an operating member which may be selectively indexed wherein the circuit-making and circuit-breaking effects resulting from operation of the switch may be simply and easily altered.

Another object of the present invention is the provision of a selective switch of the aforenoted character having an operating member provided with multiple different cam surfaces in which the operating member may be selectively indexed to operatively relate a selected cam surface with the movable contact member to obtain a selected switch effect.

Another object of the present invention is the provision of a selective switch of the aforenoted character in which the operating member may be selectively positively indexed in an improved manner, providing a safe and foolproof indexing arrangement.

Another object of the present invention is the provision of an improved switch of the bridging-contact type which may be selectively adjusted to the normally closed-circuit type or normally open-circuit type and converted from either type to the other without removing switch parts for reassembly to effect the changed character of operation. In one form of the present invention a single movable contact member is provided which is adjustable to two different normally closed-circuit conditions and to two different normally open-circuit conditions. In another form of the present invention a pair of companion movable contact members are provided which are adjustable so that both contact members are in normally open or normally closed-circuit condition or one contact member is in normally open-circuit condition with the other companion contact member being in normally closed-circuit condition.

Yet another object of the present invention is the provision of a generally improved push button actuated selective switch of the bridging-contact type.

Other objects, features and advantages of the present invention will become apparent as the description thereof proceeds when considered in connection with the accompanying illustrative drawings in which:

FIG. 1 is a side elevational view of a switch formed according to the present invention with one side of the casing open to reveal internal structural details;

FIG. 2 is a side elevational view of the switch with the casing shown partly broken away to reveal the manner of indexing the actuating member;

FIG. 3 is a sectional view taken on the line 3—3 of FIG. 1;

FIG. 4 is a perspective view of the actuating member;

FIG. 5 is a diagrammatic side elevational view of a modified form of switch;

FIGS. 6, 7 and 8 are side elevational diagrammatic representations of different indexed positions of the actuating member;

FIG. 9 is a bottom diagrammatic view of the actuating member; and

FIG. 10 is a perspective view of the indexing lever of the modified form of switch.



Referring to the drawings and, more particularly to FIGS. 1–4 thereof, there is shown a push button actuated selective switch **10** having a two-part casing **12** formed of a suitable insulating material. A pair of stab type contacts **14** and **16** project from the bottom of the casing for plugging into a suitable receptacle or panel for supporting the switch and in which the switch is to function. A pair of flat metal bars **18** and **20** extend from the contacts **14** and **16**, respectively and are formed integral therewith, said bars having contacts **22** and **24**, respectively secured thereto. The bars **18** and **20** are suitably secured in the casing with the contacts **22** and **24** in a common plane.

A moving contact in the form of a bridging contact member **26** extends across the switch and is mounted for movement in a single invariable path from the circuit closed position **26a** shown in broken lines in FIG. 1 to different open circuit positions depending on the position of the actuating member **28**. Thus the circuit between the contacts **14** and **16** is controlled by the position of the contact member **26** which is movable in a single invariable path extending longitudinally of the contact carrier **30** and perpendicular to the plane of said contact member. The contact member **26** is provided with contacts **32** and **34** which are disposed to engage their companion contacts **22** and **24**, respectively in the circuit closed position of the contact member. The contact member is carried by the carrier **30** and is restrained against rotation thereon, the contact member having a quadrilateral opening **36** through which extends the complementary quadrilateral projecting portion **38** of the contact carrier (FIG. 3). The carrier **30** is in the form of a flat metallic plate and is provided with a longitudinal cutaway section **40** and a projecting portion **42** opposed to its companion portion **38**. The projecting portion **42** has shoulders **44** against which one end of the compression spring **46** is seated, the opposite end thereof extending over the portion **38** and against the contact member for biasing the latter to the left viewing FIGS. 1 and 3 and in circuit closed direction. Thus the contact member is movable in unison with the carrier **30** and is yieldable against the action of the spring **46** on the engagement of the contact member with the stationary contacts. Surrounding spring **46** is a compression spring **48** which has one end seated against the shoulder **50** defined in the casing with the other end seated against the edges **52** of the carrier whereby to bias the latter to the right viewing FIGS. 1 and 3 and into engagement with the actuating member. The carrier is suitably guided for axial movement by complementary formations defined in the casing. The end edges **54** and **56** of the carrier are rounded as shown in FIG. 1 and the edge **56** in plan is chamfered to define edge portions **58** extending from the leading edge portion **60**. The latter edge portion is operatively associated with the actuating member **28** and is biased into engagement therewith.

The actuating member **28** is mounted in the casing for axial movement to actuate the carrier and the contact member carried thereby in the manner to be described in detail hereinafter and is also mounted for rotation to different indexed positions to obtain different switch effects. The member **28** (FIG. 4) is of one-piece molded construction and is formed of a suitable insulating material, said member comprising a projecting push button

part 62 of square cross-section and a lower cam part 64 which are interconnected by the circular part 66. The part 62 terminates in a rounded terminal end 68 which is adapted to be manually depressed for actuating the member 28 and the carrier operatively associated therewith. The cam part 64 comprises four cam surfaces 70, 72, 74 and 76 angularly displaced 90 degrees from each other, each cam surface being selectively adapted for operative association with the carrier on the indexing of the cam surface into operative engagement with the carrier. The cam surfaces 70 and 72 provide a normally open switch effect when indexed into engagement with the carrier, the cam surface 70 providing an earlier closing switch than the cam surface 72. The cam surfaces 74 and 76 provide a normally closed switch effect when indexed into engagement with the carrier, the cam surface 74 providing an earlier opening switch than the cam surface 76. Thus for convenience in reference according to the switch effect achieved, the cam surface 70 may be designated as a normally open early closing surface, the cam surface 72 as a normally open late closing surface, the cam surface 74 as a normally closed early opening surface, and the cam surface 76 as a normally closed late opening surface. The cam surfaces are in the form of straight inclined planes and the surfaces of part 64 between the cam surfaces are rounded as indicated at 78. As viewed from the bottom of the actuating member, the cam surfaces 70 and 72 are upwardly inclined in vertically spaced relation and the cam surfaces 74 and 76 are downwardly inclined in vertically spaced relation, such vertical spacing providing the time delay carrier stroke control aforenoted. It will be understood that other and different switch effects and combinations thereof may be achieved as desired in accordance with the design and configuration of the cam part 64.

As shown in FIG. 1, the actuating member 28 is depressed at 68 from the home position to axially displace said member downwardly and to concomitantly axially move the carrier and movable contact member into circuit closing relation with the fixed contacts by the operative interengagement between the cam surface 70 and the edge portion 60, the latter being in effect a cam follower. In this view the cam surface 70 is shown indexed into operative position with the cam follower 60 and it will be understood that each of the cam surfaces may be selectively indexed into operative engagement with such cam follower in the manner to be described in detail below.

The casing is provided with circular apertures 80 and 82 connected by a square aperture 84, the latter aperture being dimensioned to receive the push button part 62 on the depression thereof in an indexed position. The aperture 80 is dimensioned to provide clearance for the rotation of part 62 during the indexing operation and the aperture 82 is dimensioned to receive the cam part 64. The casing is provided with a lateral opening 86 in communication with the aperture 82. Projecting from the base of the cam part 64 are parts 88 and 90, the part 88 forming a bearing surface for the lever 92 and the part 90 forming an indexing latch for the actuating member. The part 90 is of square cross section having four surfaces 90' displaced 90 degrees from each other companion to the four cam surfaces of the cam part 64. In an indexed position the part 90 projects through a companion quadrilateral aperture 94 at the end of the lever 92 to latch the actuating member in its indexed position. The lever 92 is pivotally mounted in the recess 96 of the casing by means of the ears 98 (only one of which is shown in the drawings) which are received in suitable recess portions 100 provided therefor in the casing. The lever 92 is biased upwardly into engagement with the actuating member by means of the compression spring 102 seated in the recess portion 104 of the casing. In the normal operation of the switch the depression of the actuating member will correspondingly pivotally move the lever downwardly to the position 92' shown in FIG. 1, the part 88 acting as a bearing surface for the free end of the lever 92 and the actuating member being latched in indexed position by the coaction between the part 90 and aperture 94.

In the up or home position of the actuating member the latter may be rotatably indexed to another selected position by releasing the part 90 from the lever, the release being effected by extending a suitable tool T through the opening 86 of the casing to depress the lever downwardly against the action of spring 102. In the depressed position of the actuating member the latter cannot be reindexed as the lever 92 will be inaccessible for release through the opening 86. Thus the actuating member may be rotated to a selected indexed position on the release of the part 90 thereof by the depression of the lever 92 and, on the release of the latter, the part 90 will be latched in the aperture 94 of the lever to thereby latch the actuating member in the indexed position. From the above it will be apparent that the operating or actuating member may be selectively indexed to obtain different switching effects and such member is operatively associated with the movable contact member and the carrier therefor which are movable in an invariable path disposed at right angles to the path of movement of the actuating member.

With reference to FIGS. 5–9, there is shown a modified form of switch 10' which differs from the switch 10 aforedescribed in the manner to be described in detail hereinafter. The switch 10' is of the double acting type and is provided with pairs of stab contacts 110, 112 and 110', 112' at the opposite sides of the casing 114, said contacts being similar to the contacts 14 and 16 previously described. The contacts are integrally formed with the flat metal bars 116, 118, 116' and 118', each of said bars carrying a stationary contact 120, 122 and 120', 122', respectively. A moving contact in the form of a bridging contact member 26' is associated with the stationary contacts 120 and 122 for opening and closing the circuit therebetween. Thus the circuit between the contacts 120 and 122 is controlled by the position of the contact member 26' which is movable in an invariable path extending longitudinally of the carrier 30' which carries the contact member 26' in the manner described in connection with the member 26 and carrier 30 of the previous embodiment. The contact member 26'' is carried by the carrier 30'' and is associated with contacts 120' and 122' for controlling the circuit therebetween. Thus the contact members 26', 26'', their carriers, and the stationary contacts are similar to the corresponding structure of the switch 10, the latter having a single set of fixed and movable contacts with the switch 10' being double acting and having a double set of such fixed and movable contacts.

The actuating member 28' corresponds to the member 28 and is axially movable to simultaneously actuate both carriers 30' and 30'' and their contact members, said member 28' being also rotatable to different indexed positions to obtain different switch effects. In the illustrated embodiment the member 28' may be indexed to three different positions angularly displaced 120 degrees from each other to obtain three different switching combinations as will be described. In a first position of the actuating member as illustrated in FIGS. 5 and 8, the cam surfaces 124 and 126 coact with the carriers 30' and 30'', respectively to achieve a normally open switch effect with respect to the contacts 120 and 122 and a normally closed switch effect with respect to the opposite contacts 120' and 122', it being understood that on the depression of the actuating member the carriers 30' and 30'' will be simultaneously axially displaced to close the circuit between the contacts 120 and 122 and open the circuit between the opposite contacts 120' and 122'.

Thus in this position of the actuating member the opposite inclined cam surfaces extend substantially parallel to each other and are disposed to achieve opposite switch effects with respect to the opposite contacts. In a second position of the actuating member as illustrated in FIG. 6, the inclined cam surfaces **128** and **130** will be indexed into engagement with the carriers, said surfaces being convergingly arranged in a downward direction to achieve a normally open switch effect with respect to the opposite contacts. Thus in this second position the carriers and their contact members will be similarly axially projected into engagement with respect to their companion stationary contacts on the depression of the actuating member, the release of the latter being effective to simultaneously open both sets of contacts. In the third position of the actuating member as illustrated in FIG. 7, the inclined cam surfaces **132** and **134** will be indexed into engagement with the carriers, said surfaces being divergingly arranged in a downward direction to achieve a normally closed switch effect with respect to the opposite contacts. Thus the third position achieves a double acting normally closed effect and the opposite effect of the second position. It will be noted that the inclined cam surfaces terminate in a short straight portion at the lower end thereof to receive the carriers in the home position of the actuating member. Other and different switch effects and combinations thereof may be achieved as desired in accordance with the design and configuration of the active cam surfaces of the actuating member. In the illustrated embodiment the opposite contacts may be both normally opened or closed or one may be opened and one closed in accordance with the selected indexed position of the actuating member.

The actuating member is latched in indexed position and released therefrom for reindexing in the manner previously described. More particularly, the actuating member is provided with bearing surface part **88'** and indexing latch part **90''**, the latter being of hexagonal configuration to interfit in the hexagonal aperture **136** of the lever **138** (FIG. 10). The lever **138** corresponds to the lever **92** previously described, the lever **138** being pivotally mounted in the casing **114** by means of the ears **140** which are mounted in suitable recesses provided therefor in the casing. In the up or home position of the actuating member, the latter may be rotatably reindexed by releasing the part **90''**, the release being effected by extending a suitable tool T through the side opening **142** of the casing to depress the lever downwardly at the flange **144** thereof. Thus the actuating member is normally latched in the selected position by the interengagement of the part **90''** in the aperture **136** of the lever and is readily released for reindexing by the depression of the lever to release part **90''**. Thus the actuating member serves as a common actuator for both movable contacts, the path of movement of the actuating member being perpendicular to the paths of movement of the contact carriers which are longitudinally aligned.

While there is shown and described herein certain specific structure embodying the invention it will be manifest to those skilled in the art that various modifications and rearrangements of the parts may be made without departing from the spirit and scope of the underlying inventive concept and that the same is not limited to the particular form herein shown and described except insofar as indicated by the scope of the appended claims.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is:

1. A selective switch, comprising an enclosing insulating casing containing fixed and movable contacts movable into and out of mutual engagement along an invariable path, means for moving said movable contact along said path, said means including a member selectively indexable to a plurality of positions and having a plurality of different means cooperable with each such moving means when selectively indexed in said positions, respectively,



and operable to adjust the stroke of said movable contact along said path with respect to said fixed contact whereby to obtain different switching effects, and detent means in said casing cooperable with said member for restraining said member in any one of said selectively indexable positions, said detent means and said indexable member being movable out of said cooperable restraining relationship for enabling a different selective position of said member to be established.

2. A selective switch, comprising an enclosing insulating casing containing a fixed contact, companion contact means movable along an invariable path into and out of engagement with said fixed contact, and a member operatively associated with said movable contact means for moving the latter along said path, said member being rotatable to a plurality of selectively indexed positions and having in each said position a distinctively different formation cooperable with said moving contact means, said member also being reciprocable along a path maintaining each selected formation in cooperation with said moving contact means to adjust the movement of said movable contact means along said path with respect to said fixed contact whereby to obtain a plurality of different switching effects, and detent means in said casing cooperable with said member for restraining said member in any one of said selectively indexable positions, said detent means and said indexable member being movable out of said cooperable restraining relationship for enabling a different selective position of said member to be established.

3. A selective switch, comprising fixed and movable contacts movable into and out of mutual engagement along an invariable path, said movable contact being mounted on a carrier for movement along said path, externally accessible actuating means for said contacts, and an internal cam member interposed between said actuating means and said carrier and reciprocable perpendicularly relative to said path for moving the latter along said invariable path in response to the movement of said actuating means, said cam member having a plurality of different cam faces disposed in angularly displaced relation, said cam member being rotatable to a plurality of selectively indexed positions corresponding to said cam faces to index the latter into operative engagement with said movable contact means and control the stroke thereof along said path, said switch having a greater number of cam faces than the number of contact carriers therein.

4. A selective switch, comprising a casing containing fixed and movable contacts movable into and out of mutual engagement along an invariable path, said movable contact being mounted on a carrier for movement along said path, externally accessible actuating means for said contacts, and a cam member interposed between said actuating means and said carrier for moving the latter along said invariable path in response to the movement of said actuating means, said cam member being axially reciprocable and having a plurality of different cam faces disposed in angularly displaced relation, said cam member being rotatable to a plurality of selectively indexed positions corresponding to said cam faces to index the latter into operative engagement with said carrier and control the stroke thereof along said path, and means in said casing operable into and out of restraining cooperation with said cam member for releasably retaining said cam member in any selected one of said indexed positions thereof.

5. A selective switch, comprising fixed and movable contacts movable into and out of mutual engagement along an inveriable path, said movable contact being mounted on a carrier for movement along said path, externally accessible actuating means for said contacts, and a cam member interposed between said actuating means and said carrier for moving the latter along said invariable path in response to the movement of said actuating means, said cam member having a plurality of differ-

ent cam faces disposed in angularly displaced relation, said cam member being rotatable to a plurality of selectively indexed positions corresponding to said cam faces to index the latter into operative engagement with said movable contact means and control the stroke thereof along said path, and means for releasably latching said cam member in said indexed positions thereof, said latch means comprising a part disposed in fixed relation with said cam member, and a complementary part releasably interengageable therewith, said last mentioned part being accessible for release from said cam member part to provide for the indexing of said cam member.

6. A selective switch, comprising fixed and movable contacts movable into and out of mutual engagement along an invariable path, said movable contact being mounted on a carrier for movement along said path, externally accessible actuating means for said contacts, and a cam member interposed between said actuating means and said carrier for moving the latter along said invariable path in response to the movement of said actuating means, said cam member having a plurality of different cam faces disposed in angularly displaced relation, said cam member being rotatable to a plurality of selectively indexed positions corresponding to said cam faces to index the latter into operative engagement with said movable contact means and control the stroke thereof along said path, and means for releasably latching said cam member in said indexed positions thereof, said latch means comprising a part disposed in fixed relation with said cam member, and a complementary lever pivotally movable from a position of latching engagement with said part to a position of release from said part, said lever being biased into engagement with said part and being accessible for pivotal movement to said released position against said biasing.

7. A selective switch, comprising fixed and movable contacts movable into and out of mutual engagement along an invariable path, said movable contact being mounted on a carrier for movement along said path, externally accessible actuating means for said contacts, and a cam member interposed between said actuating means and said carrier for moving the latter along said invariable path in response to the movement of said actuating means, said cam member having a plurality of different cam faces disposed in angularly displaced relation, said cam member being rotatable to a plurality of selectively indexed positions corresponding to said cam faces to index the latter into operative engagement with said movable contact means and control the stroke thereof along said path, and means for releasably latching said cam member in said indexed positions thereof, said latch means comprising a part disposed in fixed relation with said cam member, and a complementary lever pivotally movable from a position of latching engagement with said part to a position of release from said part, said lever being biased into engagement with said part and being accessible for pivotal movement to said released position against said biasing, the aforesaid mechanism being housed in a casing having an opening providing access to said lever to move the latter to said released position during indexing of said cam member.

8. A selective switch, comprising a casing, fixed and movable contacts disposed therein and movable into and out of mutual engagement along an invariable path, said movable contact being mounted on a carrier for movement along said path, an externally accessible push button for actuating said contacts, and a cam member operatively connected with said push button and carrier and interposed therebetween for imparting movement to said carrier and movable contact along said path in response to push button movement, said cam member having a plurality of different cam faces disposed in angularly displaced relation, said cam member being rotatable to a plurality of selectively indexed positions corresponding to said cam faces to index a selected cam face into operative engagement with said carrier to control the stroke thereof along said path, said casing containing detent means cooperable with said cam member for restraining same in any selected one of plural relationships relative to said contact carrier and said detent means being arranged for operation out of restraining relation relative to said cam member for enabling change of said cam member from one selected relation to another.

9. A selective switch, comprising a casing, fixed and movable contacts disposed therein and movable into and out of mutual engagement along an invariable path, said movable contact being mounted on a carrier for movement along said path, an externally accessible push button for actuating said contacts, and a cam member operatively connected with said push button and carrier interposed therebetween for imparting movement to said carrier and movable contact along said path in response to push button movement, said cam member having a plurality of different cam faces disposed in angularly displaced relation, said cam member being rotatable on the rotation of said push button to a plurality of selectively indexed positions corresponding to said cam faces to index a selected cam face into operative engagement with said carrier to control the stroke thereof along said path, said push button and cam member being integrally united and movable along a path disposed perpendicular to said invariable path, said cam faces being constituted by inclined surfaces, at least one of said faces providing a normally opened switch effect in the indexed position thereof, and another one of said faces providing a normally closed switch effect in the indexed position thereof, and detent means cooperable with said cam member in each of said plurality of different angularly disposed relations for restraining said cam member to reciprocate in any one of the selectively indexed positions.

10. A selective switch, comprising a casing, fixed and movable contacts disposed therein and movable into and out of mutual engagement along an invariable path, said movable contact being mounted on a carrier for movement along said path, an externally accessible push button for actuating said contacts, and a cam member operatively connected with said push button and carrier and interposed therebetween for imparting movement to said carrier and movable contact along said path in response to push button movement, said cam member having a plurality of different cam faces disposed in angularly displaced relation, said cam member being rotatable on the rotation of said push button to a plurality of selectively indexed positions corresponding to said cam faces to index a selected cam face into operative engagement with said carrier to control the stroke thereof along said path, said cam faces including a pair of faces providing different normally opened switch effects in the indexed position thereof, and a second pair of faces providing different normally closed switch effects in the indexed position thereof, said cam member having more cam faces than there are contact carriers in the switch.

11. A selective switch, comprising a casing, fixed and movable contacts disposed therein and movable into and out of mutual engagement along an invariable path, said movable contact being mounted on a carrier for movement along said path, an externally accessible push button for actuating said contacts, and a cam member operatively connected with said push button and carrier and interposed therebetween for imparting movement to said carrier and movable contact along said path in response to push button movement, said cam member having a plurality of different cam faces disposed in angularly displaced relation, said cam member being rotatable on the rotation of said push button to a plurality of selectively indexed positions corresponding to said cam faces to index a selected cam face into operative engagement with said carrier to control the stroke thereof along said path, said switch being of the double acting type having a second set of fixed and movable contacts and a

second carrier similar to the aforesaid first set of fixed and movable contacts and carrier, said second set of fixed and movable contacts and second carrier being operatively connected with said cam member for operation thereby conjointly with the aforesaid first set of fixed and movable contacts and carrier, both of said carriers being axially aligned and operatively connected with opposite cam faces of said cam member, said cam member having at least three indexed positions, one of which provides normally opened switch effects at both sets of contacts, a second of which provides normally closed switch effects at both sets of contacts, and a third of which provides a normally open switch effect at one of the sets of contacts and a normally closed switch effect at the other of the sets of contacts and detent means for said cam member, said detent means and said cam member being movable into and out of cooperative relation for enabling change in the indexed position of said cam member and, when said detent means is in cooperative relation with said cam member, for restraining the cam member in one of said three-indexed positions.

12. A selective switch comprising fixed and movable contacts movable into and out of mutual engagement along an invariable path, means for moving said movable contact along said path, said means including a member selectively indexable to a plurality of positions and having a plurality of different means cooperable with each such moving means when selectively indexed in said positions respectively, and operable to adjust the stroke of said movable contact along said path with respect to the fixed contact whereby to obtain different switching effects in each selectively indexed position of said member, and restraining means relatively movable into and out of cooperation with said indexable member, said indexable member when out of cooperation with said restraining means being indexable to any selected position and said restraining means being effective when in cooperation with said selectively indexable member to constrain the latter to a selected indexed position throughout the operation of the indexable member in effecting movement of said movable contact.



13. A selective switch, comprising an enclosing insulating casing containing fixed and movable contacts movable into and out of mutual engagement along an invariable path, means for moving said movable contact along said path, said means including a member selectively indexable to a plurality of positions and having a plurality of different means cooperable with each such moving means when selectively indexed in said positions, respectively, and operable to adjust the stroke of said movable contact along said path with respect to said fixed contact whereby to obtain different switching effects, and detent means in said casing cooperable with said member for restraining said member in any one of said selectively indexable positions, said detent means including a movable detent and a spring biasing said movable detent into engagement with said indexable member, said detent means and said indexable member being movable out of said cooperable restraining relationship for enabling a different selective position of said member to be established, and said casing being formed in relation to said movable detent for affording access to the detent to allow removal of said detent from restraining cooperation with said indexable member.

**References Cited** in the file of this patent

UNITED STATES PATENTS

2,675,435 Framhein ---------- Apr. 13, 1954