

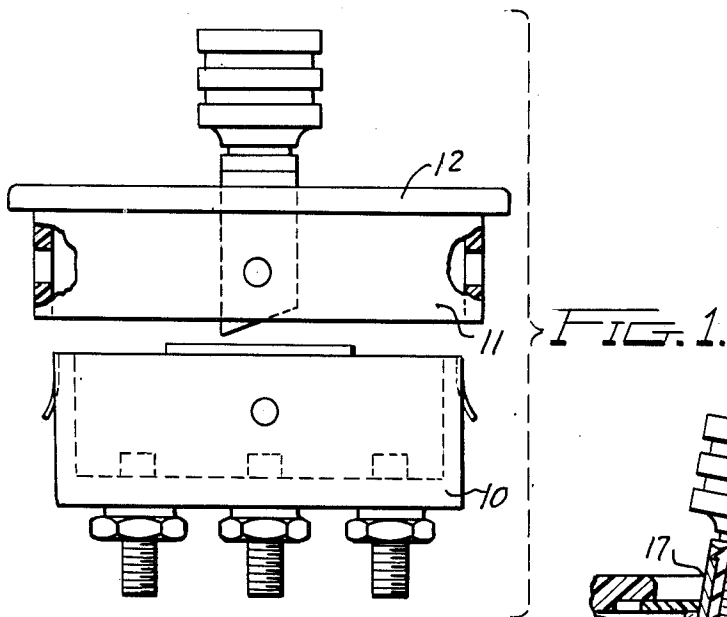
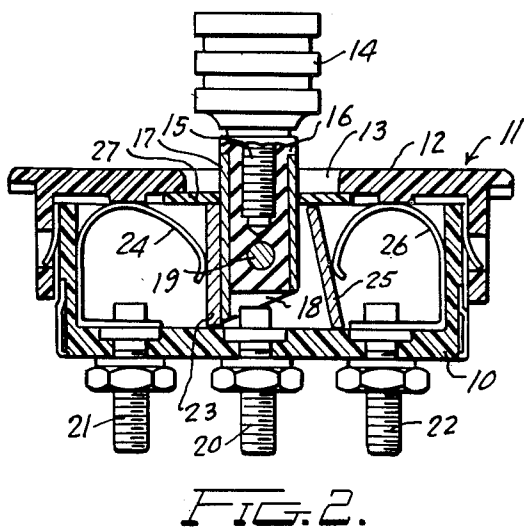
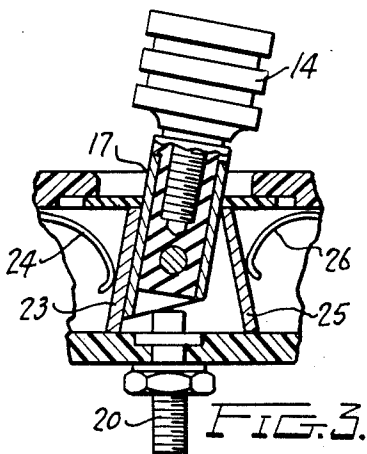
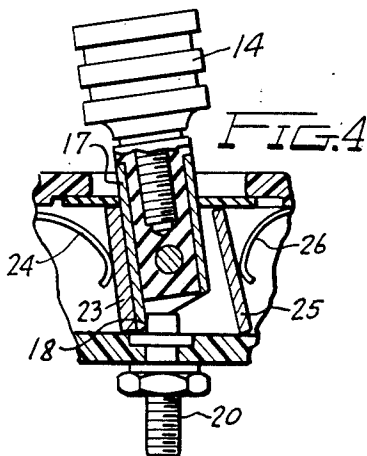
Jan. 13, 1953

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2,625,616

ELECTRICAL SWITCH STRUCTURE

Filed Dec. 20, 1949



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2,625,616

ELECTRICAL SWITCH STRUCTURE

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Application December 20, 1949, Serial No. 134,059

1 Claim. (Cl. 200—6)

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This invention relates to switch mechanisms and particularly to a switch for establishing an electrical connection between a source of electrical energy and one or another binding post, and an object is to produce a new and improved switch mechanism by which a switch operating arm when rocked in one direction, establishes an electrical connection between two binding posts and when rocked in the opposite direction, establishes an electrical connection between one of the first two binding posts and a third one, the arrangement being such that the binding posts are arranged in row and the live post or the one to which electrical current is supplied, is arranged at one end of the row.

Another object is to produce a switch mechanism which is particularly suited for controlling the operation of a reversible electric motor so that by rocking the control arm in one direction, current is delivered to windings for effecting rotation of the motor armature in one direction and by rocking the control arm in the opposite direction, current is supplied to the motor windings for effecting rotation of the motor armature in the opposite direction.

Reference is hereby made to my United States Patents 2,344,452 dated March 14, 1944, and entitled "Switch" and 2,446,141 dated July 27, 1948, and entitled "Switch Structure," on which this application constitutes an improvement.

For purposes of illustration but not of limitation, an embodiment of the invention is shown on the accompanying drawings, in which:

Figure 1 is an exploded view in side elevation of the switch parts preliminary to assembly thereof;

Figure 2 is an enlarged vertical sectional view of the switch mechanism;

Figure 3 is an enlarged fragmentary sectional view showing the control arm rocked in a clockwise direction for establishing one set of electrical contacts; and

Figure 4 is an enlarged fragmentary sectional view similar to Figure 3, but showing the control arm rocked in a counterclockwise direction to establish the other set of electrical contacts.

The illustrated embodiment of the invention comprises a switch mechanism having telescoping housing parts 10 and 11, the housing part 10 being cup-shaped and the housing part 11 being adapted to fit over or telescope with the part 10. Both housing parts are of electrical insulating material such as a suitable plastic and are of elongate rectangular shape. The housing part 11 has a top wall 12 which is formed with an elongate central

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aperture 13 to afford rocking movement in opposite directions of a non-conductive control knob 14 having a screw 15 in threaded engagement with a pin or arm 16 of plastic or other electrical non-conductive material.

Embracing the pin 16 is a sleeve 17 of electrical conductive material. The sleeve 17 has a depending end portion 18 which projects beyond the lower end of the pin 16 and is diagonally cut off so that the left-hand portion (Figure 2) of the sleeve projects a substantial distance beyond the end of the pin 16, whereas the right-hand side of the sleeve is open in this region. A pin 19 passes through the registering holes in the housing part 10, sleeve 17 and pin 16 thereby to enable the knob 14 to be rocked laterally in one direction or the other.

Substantially in alignment with the pin 16 is a binding post 20 with which the downwardly extending portion 18 of the sleeve 17 engages when the knob 14 is rocked in a counterclockwise direction. On one side of the binding post 20 is a binding post 21 and on the opposite side is a binding post 22, these posts being arranged in a row in alignment with each other. The binding post 21 constitutes the live post to which electrical current is delivered from a battery or other source of electrical energy.

Reference is made to Patent 2,344,452 above mentioned, in which detail description of the structure of the remaining switch parts is set forth and detail description is not considered necessary in this application. Suffice it to say that when the sleeve 17 is rocked by the knob 14 to the right as shown in Figure 4, the sleeve extension 18 engages the binding post 20 and in engagement with the sleeve on the left side (Figure 4) is a contact plate 23 of electrical conductive material with which a spring 24 of electrical conductive material is engageable at all times. The spring 24 is anchored at its opposite end to the live binding post 21 so that current thus passes to the binding post 20 from the post 21 through the spring 24, contact plate 23, sleeve 17 and its extension 18 to the binding post 20.

Upon rocking the knob 14 in a clockwise direction, it will be manifest that the lower end of the sleeve 17 is free from the binding post 20 and in this instance, the current flows from the live binding post 21, through the spring 24, to the contact plate 23, sleeve 17, to a contact plate 25 with which the sleeve 17 is rocked into engagement by such clockwise movement. The contact plate 25 is at all times engaged by the spring 26 which in turn is anchored to the bind-

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ing post 22. As pointed out in my previous patent, the contact plate 25 in its normal position as shown in Figure 2, is out of engagement with the sleeve 17 and only engages the sleeve 17 when the operating knob 14 is rocked in a clockwise direction as clearly shown in Figure 3.

A plate 27 is apertured to receive the sleeve 17 and is disposed in position to cover the opening 13 in the top wall 12 of the cover. The plate 27 slides in one direction or the other in response to the rocking movement of the switch arm as will be readily observed.

The switch mechanism above described is particularly adapted for controlling the operation of a reversible electric motor, one set of windings being secured to the binding post 20 and another set being connected to the binding post 22 so that upon rocking of the control knob 14 in one direction or the other, the direction of rotation of the motor armature is controlled.

It is to be understood that numerous changes in details of construction, arrangement and operation may be effected without departing from the spirit of the invention especially as defined in the appended claim.

What I claim is:

Switch mechanism comprising a housing having three binding posts arranged in a row, one of the outermost posts being adapted to be connected to a source of electrical current, a switch arm pivotally mounted intermediate its ends hav-

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ing an outer electrical conductive surface and a projecting portion at one side of and for engagement with the center binding post in response to rocking movement in one direction, the switch arm comprising a sleeve of electrical conductive material having a diagonally cut-off portion on the outer end thereof enabling the switch arm to be rocked in the other direction free of engagement with the center binding post, and spring-tensioned plates on opposite sides of said switch arm and electrically connected to the outermost posts whereby rocking movement of the switch arm in said one direction establishes, upon engagement with the center post, an electrical connection between the live end post and the center post, and rocking movement in said other direction establishes an electrical connection between the two outer or end posts independently of the center post.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
2,132,188	Rockett	Oct. 4, 1938
2,344,452	Parsons	Mar. 14, 1944
2,446,141	Parsons	July 27, 1948