May 18, 1948. R. P. LANSING 2,441,888

SWITCH

Filed March 6, 1945

Fig. 1.

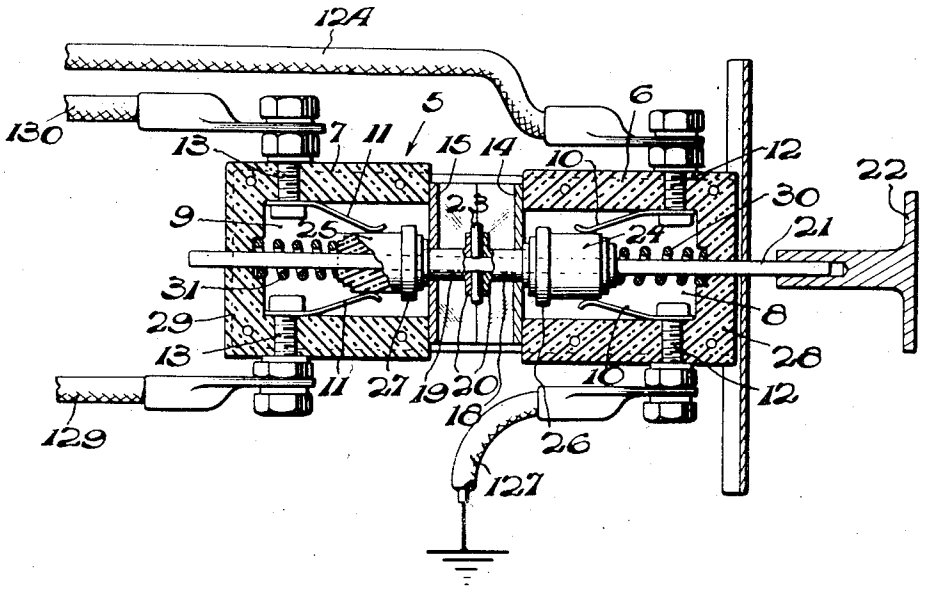
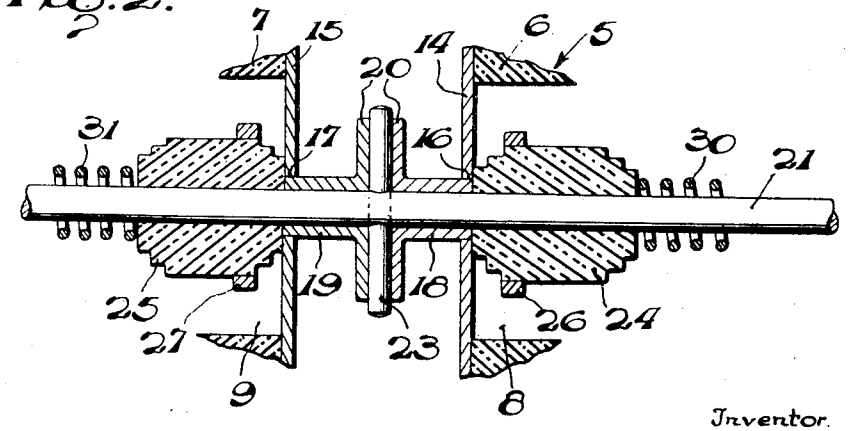


Fig. 2.



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Patented May 18, 1948

2,441,888

UNITED STATES PATENT OFFICE

2,441,888

SWITCH

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Continuation of application Serial No. 443,007, May 14, 1942, which is a division of application Serial No. 321,142, February 27, 1940, which latter is a division of application Serial No. 493,397, November 4, 1930. This application March 6, 1945, Serial No. 581,259

7 Claims. (Cl. 200—16)

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My invention relates to electrical controls and more particularly to switches for operating a plurality of circuits; this application for Letters Patent being a continuation of my co-pending application No. 443,007 filed May 14, 1942, which is a division of application No. 321,142 filed February 27, 1940 and now Patent No. 2,311,764; the last identified application being a division of my parent application No. 493,397, filed November 4, 1930, and now Patent No. 2,195,151.

One object of my invention is to provide a switch so constructed and arranged whereby the same may be selectively actuated to open or close one of a plurality of circuits.

Another object of my invention is to provide a switch of the foregoing described character which is simple in construction, durable in use, efficient in operation and economical in manufacture.

With the above and other objects in view, as will hereinafter appear, the invention comprises the combination, and arrangement of parts hereinafter set forth and illustrated in the accompanying drawings, from which the several features of the invention and the advantages attained thereby will be readily understood by those skilled in the art.

Referring to the drawings wherein like reference characters designate like parts throughout the several views.

Figure 1 is a longitudinal sectional view of a switch constructed in accordance with my invention.

Figure 2 is a longitudinal sectional view of a portion of the switch depicted on a somewhat larger scale with respect to Figure 1.

My novel switch, as illustrated in the drawing, is of a type adaptable for use in controlling the energization of electro-magnetic devices utilized in conjunction with engine starters or the like and comprises a housing assembly 5 provided with a pair of spaced end sections 6 and 7 constructed of electrical insulated material and formed with cup-like chambers 8 and 9 opening towards each other and in which are disposed pairs of spaced contact fingers or members 10 and 11 fixed to the housing assembly by pairs of binding posts 12 and 13 respectively. The binding posts 12 are connected to leads 124 and 127 of one side of a circuit while the posts 13 are connected to leads 129 and 130 of one side of another circuit, an example of the circuits and their arrangement being disclosed in the aforementioned Patents Nos. 2,195,151 and 2,311,764.

The confronting open ends of the chambers

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8 and 9 are closed by means of closure members, walls or stops 14 and 15 secured to the oppositely disposed end faces of the sections 6 and 7 and are formed with apertures 16 and 17 for slidably accommodating therethrough cylindriform actuators 18 and 19 respectively. The actuators are formed with adjacent flanges 20 and are slidably mounted on an actuating rod 21 extending longitudinally through the housing assembly and the apertures 16 and 17 of the walls 14 and 15. One end of the actuating rod 21 is provided with a finger-piece 22 for effecting its operation and has fixed thereto, between the flanges 20, a pin 23 for operating the actuators 18 and 19 upon movement of the rod as hereinafter made apparent. Within the chambers 8 and 9, the rod has loosely mounted thereon cylinders 24 and 25 constructed of insulating material for normally engaging the contact fingers 10 and 11 respectively and maintaining the fingers of each pair spaced from each other.

The cylinders 24 and 25 are provided with collars or bridges 26 and 27, respectively, constructed of electrical conducting material for engaging and bridging the respective pairs of contact fingers. Disposed about the actuating rod 21, between the outermost walls 28 and 29 of the chambers and the cylinders 24 and 25, are springs 30 and 31 respectively which serve to urge the cylinders towards the walls 14 and 15 to maintain the bridges out of contact with their adjacent fingers as hereinafter described.

In operation, assuming the parts are in a neutral position shown in the drawing and the circuits open between the binding posts 12 and 13, longitudinal movement of the actuating rod 21 to the left as viewed in the drawing, causes a corresponding longitudinal movement of the actuator 19 by reason of its engagement with the pin 23. This movement of the actuator 19 effects shifting of the cylinder 25 to the left and causes engagement of the bridge 27 with the contact fingers 11 thereby closing the circuit between the binding posts 13. When the rod 21 is thus actuated to the left, idling of the actuator 18 and cylinder 24 will be effected, the spring 30 serving to maintain the cylinder 24 in engagement with the wall 14 and against movement during such actuation, thus, maintaining the bridge 26 out of engagement with the contact fingers 10 and the circuit open between the binding posts 12. Operation of the actuating rod 21 in the opposite direction will move the actuator 18 and cylinder 24 to the right with the result that the fingers 10 will be engaged by the bridge 26 and effect closing of the circuit

between the binding posts 12 the spring 31 being effective to dispose the bridge 27 out of engagement with the fingers 11 by the tension exerted on the cylinder 25 thereby maintaining the circuit open between the binding posts 13.

Although only one embodiment of the invention has been illustrated and described, various changes in the form and relative arrangements of the parts may be made to suit requirements.

What I claim is:

1. A manually controlled multiple switch system including a plurality of sets of contacts, an actuating rod, a pair of bridging members loosely mounted on said rod for engaging said sets of contacts respectively, actuating means on said rod between said members and effective upon movement of said rod in either direction to operate one of said members into engagement with one set of contacts while the other member remains idle and out of engagement with the other set of said contacts spring means individual to each of said members for disengaging the same from its contacts, and stop means providing for definite distances of movement of said members.

2. A manually controlled multiple switch system including a plurality of sets of contacts, an actuating rod, a pair of bridging members loosely mounted on said rod for wiping contact with said sets of contacts respectively, actuating means on said rod between said members and effective upon movement of said rod in either direction to operate one of said members into engagement with one set of contacts while the other member remains idle and out of engagement with the other set of said contacts, springs mounted on said rod for urging said members out of engagement with said sets of contacts spring means individual to each of said members for disengaging the same from its contacts, and stop means providing for definite distances of movement of said members.

3. A manually controlled multiple switch comprising a housing assembly, a plurality of sets of contacts in said assembly, an actuating rod extending through said assembly, a pair of bridging members loosely mounted on said rod for wiping contact with said sets of contacts respectively, spring means individual to each of said members for disengaging the same from its contacts, and actuating means on said rod between said members and effective upon movement of said rod in either direction to operate one of said members into engagement with one set of contacts while the other member remains idle and out of engagement with the other set of said contacts.

4. A manually controlled multiple switch comprising a housing assembly, a plurality of sets of contacts in said assembly, an actuating rod extending through said assembly, a pair of bridging members loosely mounted on said rod for wiping contact with said sets of contacts respectively, actuating means on said rod between said members and effective upon movement of said rod in either direction to operate one of said members into engagement with one set of contacts while the other member remains idle and out of engagement with the other set of said contacts, and springs individual to said members mounted on said rod within said assembly for urging said members out of engagement with said sets of contacts.

5. In a switch construction, a housing assembly of insulating material formed with a pair of spaced chambers having confronting apertured end walls, a rod slidably extending through said chambers and the apertures of said walls, a pair of contact fingers disposed in each of said chambers and carried by said assembly, a cylinder of insulating material disposed in each of said chambers and normally engaging said wall thereof, each of said cylinders being provided with a bridge for bridging a pair of said fingers and being loosely mounted on said rod, actuating means on said rod between said cylinders and normally abutting each of said cylinders through said walls, and springs individual to said cylinders sleeved about said rod within said chambers and engaging said cylinders for urging said cylinders towards said walls respectively, said rod being longitudinally operabale in either direction to move one of said cylinders, through the medium of said actuating means, towards a pair of said fingers to effect engagement of its bridge with said last mentioned pair of fingers while the other cylinder remains idle with its bridge out of engagement with the other pair of said fingers.

6. A multiple switch system including a plurality of contact elements, an actuating rod, conducting members loosely mounted on said rod and adapted to engage said contact elements, respectively, actuating means on said rod between said members and effective upon movement of said rod in either direction to operate one of said members into engagement with one of said contact elements while the other member remains idle and out of engagement with said other contact element, spring means individual to each of said members adapted to disengage the same from its contact element, and stop means providing for definite distances of movement of said members.

7. A multiple switch system including a plurality of contact elements, an actuating rod, conducting members loosely mounted on said rod and adapted to engage said contact elements, respectively, actuating means on said rod between said members and effective upon movement of said rod in either direction to operate one of said members into engagement with one of said contact elements while the other member remains idle and out of engagement with said other contact element, spring means adapted to individually disengage each of said members from its contact element, and stop means providing for definite distances of movement of said members.

RAYMOND P. LANSING.

REFERENCES CITED

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

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1,132,602	Myers	Mar. 23, 1915
1,833,948	Lansing	Dec. 1, 1931
1,844,731	Whittingham	Feb. 9, 1932