UNITED STATES PATENT OFFICE.

CHARLES TOMSCHIK, OF NEW YORK, N. Y.

ELECTROLIER-SWITCH.

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To all whom it may concern:

Be it known that I, CHARLES TOMSCHIK, a subject of the Emperor of Austria, and a resident of the city of New York, borough of Manhattan, in the county and State of New York, have invented a new and Improved Electrolier-Switch, of which the following is a full, clear, and exact description.

This invention relates to electric switches such as used on chandeliers or electroliers for turning on the lights.

The object of the invention is to produce a switch of simple construction which can be readily operated by a chain or similar means so as to have a step-by-step advancing movement, each position of the switch corresponding to a certain number of lighted lamps.

The invention consists in the construction and combination of parts to be more fully described hereinafter and particularly set forth in the claims.

Reference is to be had to the accompanying drawings forming a part of this specification in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a vertical section through a switch constructed according to my invention, certain parts being shown in elevation; Fig. 2 is a side elevation of the switch removed from the casing which incloses it, and diagrammatically illustrates the manner in which the switch is wired; Fig. 3 is an elevation showing the inside face of the wheel by means of which the different contacts are brought into circuit; and Fig. 4 is a section on the line 4—4 of Fig. 2 and illustrating details of the construction; this figure and Fig. 3 illustrating especially the means for closing the circuit through the different lamps and the means for holding the wheel in its different switch positions.

Referring more particularly to the parts, 1 represents a casing, which may be in the form of a sphere formed at the lower part of a chandelier or electrolier. This casing is formed in sections 2 and 3, which are separable on the diameter of the sphere, as indicated. The upper section 2 is attached to a tubular neck 4, down which the electrolier cord 5 passes. The switch 6 is supported upon a suitable fitting 7, which is screwed into the lower end of the tubular neck, as indicated. The lower side of this fitting 7 is provided with a threaded nipple 8, to which the hanger 9 of the switch is attached. This hanger is in the form of a strap which is bent, as shown, so as to present the form indicated in Fig. 1, that is, it has a vertical main leg 10 which is offset from the center of the casing 1, and a horizontal bar 11, which connects this main leg with the outer leg 12, which leg 12 is also vertical, and extends upwardly a short distance above the center of the sphere. On the inner side of the outer leg 12, an insulating block or segment 13 is attached. The upper portion of this block has the form of a segment, as shown, and it is rigidly attached to the leg 12 by means of a fastening device 14 and by means of a screw bolt 15. The inner end of this bolt 15 is attached rigidly in the main leg 10, and between the face of the segment 13 and the main leg 10, a wheel 16 is rotatably mounted. This wheel has a channel 17 in the rim thereof, which receives a chain 18. The ends of this chain pass downwardly and outwardly through the two openings in the bottom of the lower section 3 of the case.

On the upper and circular portion of the segment 13, I provide a plurality of radially disposed contact plates 19, which plates are provided with binding posts 20, to which branch wires 21 are attached, as indicated diagrammatically in Fig. 2. These branch wires connect with the different lamps 22 and lead back by the main wire 23, to the battery 24. On the other side of the battery 24, a wire 25 leads to one of the contact plates on the end, such as the contact plate which is indicated specifically by the numeral 19ª.

In connection with each contact plate 19, a contact pin 26 is provided. These contact pins are slidably mounted in the segment, and their inner ends have heads 27 which are pressed against the inner face of the wheel 16 by coil springs 28 which seat against the contact plate 19 passing through pockets 29 of the segment, as indicated in Fig. 1. The wheel 16 is of insulating material so that normally the contact between the pin and the wheel does not form a circuit through a lamp. On the face of the wheel 16 adjacent to the segment, I provide a main contact plate 30 which is of arcuate form. The outer face of this plate is provided with a plurality of shal-

low cup-shaped recesses 31 which are disposed in an arc about the center of the wheel an equal distance apart like the contact plates. The angular distance between these recesses 31 is the same as the angular distance between the contact plates, as will be readily understood. At its ends the main contact plate 30 is provided with bevel edges 32, the purpose of which will appear more fully hereinafter. At its ends the contact plate is bent upwardly so as to present stop wings 33, and these wings are adapted to limit the movement of the wheel, as will be readily understood. It should be noted that these wings lie substantially in the same arc as the recesses 31.

As indicated most clearly in Fig. 4, on the inner face of the segment 13, a socket 34 is provided, which receives a coil spring 35, and this spring 35 thrusts outwardly against the inner end of a pin 36, so as to hold this pin projecting outwardly through a guide plate 37, in which the pin is slidably mounted. The end of this pin 36 is rounded, as shown, and is adapted to be received in the recesses 31 so as to hold the wheel in a fixed position.

The bevel edges 32 referred to above, are substantially in alinement with the contact pins 26 so that if the proper side of the chain 18 is pulled, the wheel will rotate so that the bevel edge 32 will pass under the heads 27 of the pins in succession. The pin 36 will be forced into the recesses 31 in succession as this rotation continues, and will hold the wheel fixed in position so that a circuit can be formed through one light, two lights, three lights, and so on. In the first position the circuit will be formed through the left-hand light, as shown in Fig. 2, in the second position through this light, and the one next to it, and so on. In this connection it should be understood that the contact plate 30 receives its current from the contact plate 19^a through the medium of the pin 26^a at the contact plate 19^a. As soon as the contact plate 30 comes in contact with the next pin, it throws the circuit through the first lamp. In this manner, if the contact plate 30 touches three of the contact pins in addition to the contact pin 26^a, it will close a circuit through three lights, and so on. It will be noted that the circuit arrangement is such that the lights are also arranged in parallel circuit.

In order to steady the hanger in position in the shell or case 1, the horizontal bar 11 of the hanger is connected with the lower section 3 through a tubular stem 38, to which the ornamental lower tip 39 of the electrolier is attached.

With a switch constructed as described, it will be evident that the wheel can be advanced by a step-by-step movement, and in each successive position another light will be thrown into the circuit. The stop wings 33 will strike the pin 36 so as to limit the movement of the wheel when the lights are all in circuit or all out of circuit.

Attention is called to the fact that the heads 27 of the pins are rounded where they touch the side of the wheel, and this form facilitates their riding up on the inclined or bevel edges 32. Attention is also called to the rounded form of the end of the pin 36 which fits into the recesses 31. This form enables the pin 36 to be dislodged from the recesses by a sudden or forceful movement of the wheel.

Having thus described my invention, I claim as new and desire to secure by Letters Patent,—

1. In an electrolier switch, in combination, a substantially spherical case, a bracket supported within said case, an insulating segment attached to said bracket having an arcuate upper edge, a plurality of radially disposed contact plates attached near the upper edge of said segment and having openings therein, a rotatable wheel having a main contact plate on the face adjacent to said segment, a plurality of pins sliding longitudinally through the openings in said first contact plates and resiliently pressed toward said main contact plate, means for detaining said wheel in a plurality of positions corresponding to said contact pins, and means for rotating said wheel.

2. In an electrolier switch, in combination, a case, a hanger having a leg disposed in a substantially vertical plane and attached at its upper extremity to the upper side of said case on the interior thereof, said leg having a cross bar, an insulating segment supported by said cross bar, a plurality of contact plates attached to said segment near the upper edge thereof, a wheel rotatably mounted between said segment and said leg, a main contact plate on the face of said wheel adjacent to said segment, a plurality of contact pins resiliently pressed toward said wheel and connecting respectively, with said first contact plates, detent mechanism for holding said wheel in a plurality of positions corresponding to said contact pins, and means for turning said wheel from the exterior of said case.

3. In an electrolier switch, in combination, a case, a hanger mounted in said case having a substantially vertical leg with a horizontal cross bar at the lower end thereof, said horizontal cross bar having an upwardly extending outer leg, an insulating segment attached to said outer leg and disposed opposite to said first leg, a pivot bolt connecting said segment with said first leg, a wheel rotatably mounted on said pivot bolt, a main contact plate on the face of said wheel adjacent to said segment, a plurality of contact plates disposed radially at the upper edge of said segment, a plurality of con-

tact pins connected respectively with said last contact plates and resiliently pressed toward said wheel, means for detaining said wheel in a plurality of positions corresponding respectively to said pins, and a chain passing around said wheel and depending at each side of said horizontal cross bar.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHARLES TOMSCHIK.

Witnesses:
F. D. AMMEN,
JOHN P. DAVIS.