Feb. 11, 1930. W. S. GOULD ET AL 1,747,069

ELECTRICAL SWITCH

Filed July 17, 1923

Fig. 1.

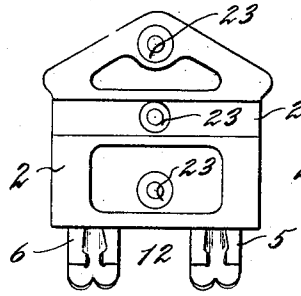


Fig. 4.

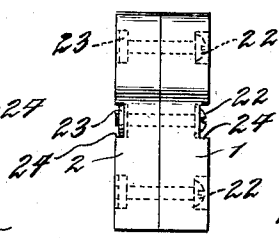


Fig. 5.

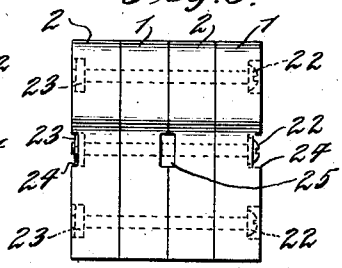
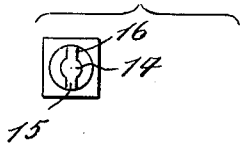


Fig. 6.



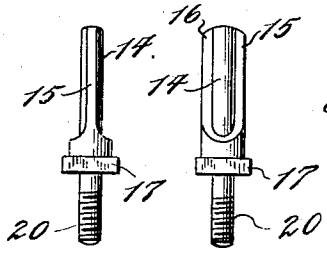


Fig. 2.

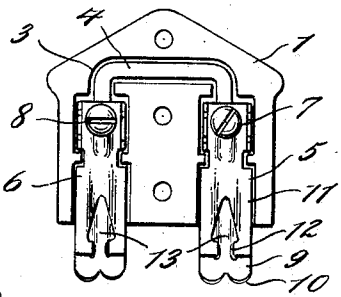


Fig. 3.

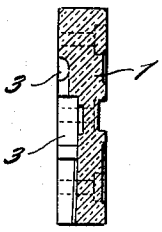


Fig. 7.

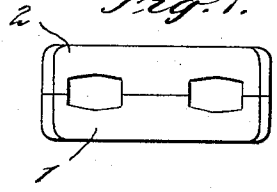
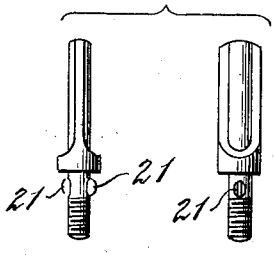


Fig. 8.



INVENTORS
William S. Gould
Raymond A. Block
BY Gifford, Bull & Bull
their ATTORNEYS.

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UNITED STATES PATENT OFFICE

WILLIAM S. GOULD, OF NEW YORK, N. Y., AND RAYMOND A. KLOCK, OF CLOSTER, NEW JERSEY, ASSIGNORS, BY MESNE ASSIGNMENTS, TO GOULD STORAGE BATTERY COMPANY, INC., OF NEW YORK, N. Y., A CORPORATION OF NEW YORK

ELECTRICAL SWITCH

Application filed July 17, 1923. Serial No. 652,049.

Our invention relates to electrical switches, particularly useful in radio.

In the arrangement of radio apparatus as heretofore constructed great annoyance has resulted from the corrosion of switches and other connecting means used in connection with storage batteries. Many accidents have also resulted to apparatus and operators by making wrong connections and great annoyance has also been experienced by the making of wrong connections.

We have devised a switch which overcomes the above objections and difficulties.

Our invention will be better understood by reading the following description taken in connection with the accompanying drawing in which Fig. 1 is a front elevation of our switch; Fig. 2 is a front elevation of the device with one section of the casing removed; Fig. 3, is a section through one section of the casing alone; Fig. 4 is a side elevation of the casing; Fig. 5 is a side elevation of a modification wherein two switches are constructed in a single unit; Fig. 6 shows details of the switch contacts or prods; Fig. 7 shows an end view of the casing shown in Fig. 4, the clips having been removed; Fig. 8 shows two views of a modified contact or prod.

Referring to the drawings, the switch unit comprises a casing having two sections 1 and 2 of insulating material, preferably hard rubber or other suitable insulating material. Each section is provided with a recess 3, as shown in Fig. 2, which has the general shape of the letter U. This recess is of sufficient size to accommodate an electrical conductor 4 to which two spring clips 5 and 6 are connected as shown in Fig. 2. These clips are fastened to the conductor 4 by screws 7 and 8, respectively. The clips may be of any desired construction but preferably consist of two contacting elements 9 and 10, resiliently held together by spring members 11 which are pivotally connected to the members 9 and 10 at 12 as shown in Fig. 2. The central longitudinal portions of the clips are pressed outwardly at 13 whereas the edge portions thereof are substantially flat. This construction particularly adapts a clip of this character to use with prods or contacts of the type presently to be described.

In radio work, it is desirable that the switch element be normally held against transverse movement on the contact and also that the switch be normally biased in a predetermined angular position on the prod. To this end we have devised prods of special design and shape, the same being shown in Fig. 6. The prods have a contacting portion wherein the central longitudinal portion 14 is cylindrical in shape and on each side of the portion 14 and preferably at 180° apart are placed wings 15 and 16. The cylindrical portions 14 enter the rounded portions of the clips and thus prevent the clips from moving transversely of the prods. The wings 15 and 16 act to prevent angular rotation of the clips on the prod when the switch is placed so that only one of the clips engages with one of the prods. By this arrangement, the switch unit shown in Figs. 1 and 5, may be readily placed upon the prods because the cylindrical portions 14 act to properly center the clips transversely of the prods and whereas the wings 15 and 16 act to give the proper angular position to the switch unit.

The prods are also provided with flange portions 17 which may be square, as shown in Fig. 6, or any other shape preferably not round. These flange portions are usually set partially in the sealing compound ordinarily employed in small storage batteries and act to steady the prod in place, both against rotation and against up and down movement. When the prods are used on a base or switch plate, suitable openings may be provided in the plate into which the flange portions 17 fit.

In the modification shown in Fig. 8, lugs 21 are provided on the prods. These lugs have substantially the same function as the flange portions 17.

It is sometimes desirable to construct a switch unit provided with more than one pair of clips. In such case two sets of sections 1 and 2 are assembled as shown in Fig. 5 and screws 22 pass therethrough with nuts 23 counter-sunk at the outside section for holding the sections together. The outer faces

of sections 1 and 2 are provided with a groove 24. When four sections are assembled as shown in Fig. 5 two of these grooves 24 form a rectangular opening in which may be placed a key member 25 which acts to assist in holding the sections in alignment.

In order to avoid corrosion by contact of the battery gases with the metal of the switch, the clips and other exposed metal parts are lead coated, consequently the switch may be used freely around storage batteries without the objection and annoyance of corrosion.

The prods of the form shown are valuable also in many uses. For example, if a single grip is attached, maximum area of contact is provided for heavy current and yet the grip is positively held in position. If a flat terminal of ordinary construction were used the grip falls sidewise if pulled in that direction whereas with our prod the grip is held in the vertical direction.

From the foregoing, it will be evident that our invention has many advantages resulting from the combinations and arrangement of parts shown and described.

Many of the advantages of our invention are of value in branches of the arts other than radio.

Changes may be made in the details without departing from the spirit of our invention.

We claim:

A device of the character described comprising a pair of similar casing sections of insulating material adapted for disposition in face to face relation and having their faces formed with elongated mating recesses connected by a U-shaped channel, a pair of metallic members located within each elongated recess and constituting spring clips, a rigid metal bar of U shape seated within the U-shaped channel with its ends received between the inner ends of said metallic members, securing screws passing through the metallic members at the inner ends thereof, said metallic members having their side edges notched and the corresponding sides of the elongated recesses having inward projections fitting within said notches, and securing members for holding the casing sections together.

WILLIAM S. GOULD.
RAYMOND A. KLOCK.