

UNITED STATES PATENT OFFICE.

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SWITCH.

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My present invention has reference to a switch for grounding the electric circuit for the coil box of a telephone during storms.

My object is the provision of a device for this purpose which may be conveniently attached to a telephone stand or to a place near a telephone, and which may be positively and easily operated to break the circuit between the line and ground wires of the coil box for a telephone and to ground such circuit, so that the liability of accidents from lightning during storms will be positively prevented.

A further object is the provision of a switch for this purpose that is characteristic of simplicity in construction, cheapness in manufacture and which shall be held from accidental movement when in either of its two positions.

To the attainment of the foregoing and other objects which will appear as the nature of the invention is better understood, reference is to be had to the drawings which accompany and form part of this application.

In the drawings:—

Figure 1 is a sectional view approximately on the line 1—1 of Figure 3, the switch being thrown to direct the current to the coil box of the telephone.

Figure 2 is a similar sectional view of the switch thrown to break and ground the telephone circuit.

Figure 3 is a sectional view on the line 3—3 of Figure 1.

Figure 4 is a front elevation of the improvement.

As disclosed by the drawings I employ a circular shell 1 of insulating material. The shell has its bottom portion centrally formed with an elongated opening 2 and is provided with spaced outstanding ears 3 in a line with its inner face. These ears have suitable openings therethrough, for the reception of securing means, and whereby the shell 1 may be conveniently fixed to a telephone stand or to any other place convenient to the user of a telephone.

Passing through the top and one side of the shell 1 there are metal sleeves 4 and 5 respectively. Each of the sleeves is hollow and has its bore threaded. Each of the sleeves has its inner end formed with a conical head 6.

Screwed in each of the sleeves 4 and 5 there is a binding post 7. The binding post 7 clamps to the sleeve 4 a terminal of a line

wire 8, while the second binding post 7 clamps to the sleeve 5 the terminal of a conductor 9 that is connected to a binding post at one end of the instrument or coil box 10. The sleeves 4 and 5 are in the nature of contacts, and will hereinafter be thus referred to.

Centrally supported on a shaft 11 in the shell 1 there is a segmental block 12. The round face of this block is grooved or channeled, as at 13, and the inner wall provided by the channel has spaced depressions 14 and 15. These depressions are arranged opposite the free ends of curved switch members 16 and 17, respectively. The switch members have flat body portions which are secured to the block 12 by screws in the nature of binding posts 18 and 19, respectively. The binding post 18 clamps on the switch 16 the terminal of a conductor 20 that also leads to the instrument 10 while the binding post 19 clamps on the switch 17 a conductor 21 which is grounded. Of course, all of the conductors are incased in suitable flexible insulators.

The shell 1 has its outer face closed by a disc 22 which is also in the nature of an insulator. Removable means 23 hold the cover plate or disc 22 on the shell. The cover disc 22 is centrally provided with a round opening through which passes the rounded outer end of the shaft 11. On this end of the shaft there is secured a plate or flange 24 that is also round in plan, but which has one of its edges cut-away for a determined distance to form oppositely disposed shoulders 25. On the cover plate 22 there is a stop element 26 designed to contact with either of the shoulders 25. The shaft 11 has an operating finger piece 27.

When the block 12 is turned to the position illustrated in Figure 1 of the drawings the current will be directed from the line wire through the conductor 20, instrument 10, conductor 9, binding post 7, contact 6, switch 17 and from thence through the ground wire 21. This is the normal position of the device. In case of a lightning storm the block 12 is turned to the position illustrated in Figure 2. This brings the switch member 17 in engagement with the contact 4 for the line wire 8. The switch being connected directly to the ground wire 21 will ground the current and break the circuit so that liability of damage from lightning will be positively obviated.

The simplicity of my construction and the advantages thereof, will be perfectly apparent to those skilled in the art to which my invention relates. It is to be noted that the rounded periphery of the block 12, at all times is in contacting engagement with the round bore of the shell 1 so that the lateral movement of the block in the shell is thus prevented. Longitudinal movement of the block is prevented by the contacting engagement of the sides of the said block with the inner and outer walls of the shell, the latter being provided by the cover 22. The invention is, of course, susceptible to such changes as fairly fall within the scope of what I claim without departing from the spirit of my invention.

The improvement may, of course, be successfully employed as a lightning protector for radios or other electrically operated instruments.

Having described the invention, I claim:—

A switch for grounding an electric current for an instrument during an electric storm, comprising a tubular shell of insu-

lating material, interiorly threaded sleeves passing into said shell and having their inner ends formed with conical heads to provide two spaced contacts, a binding post in each sleeve, a segmental block of insulated material pivotally supported in the casing, said block having its rounded edge peripherally grooved and formed with notches, two arched spring switches secured in the groove of the block and having their round ends disposed opposite the notches and said switch members normally engaging with the contacts, a shouldered handle member for turning the switches and means for engaging the handle member for limiting the turning thereof in two directions to arrange the switches in engagement with the contacts and to bring one of the switches into engagement with the contact formerly engaged by the second switch, and to render the last mentioned switch free from engagement with either of said contacts.

In testimony whereof I affix my signature.

LEWIS C. ALEXANDER.