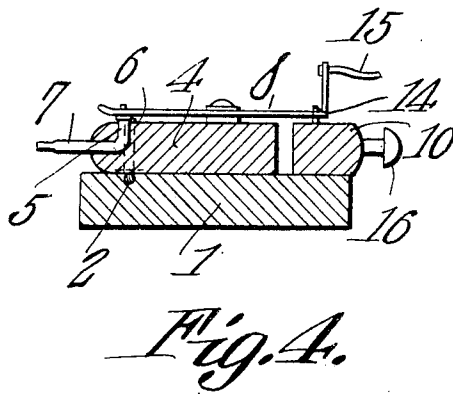
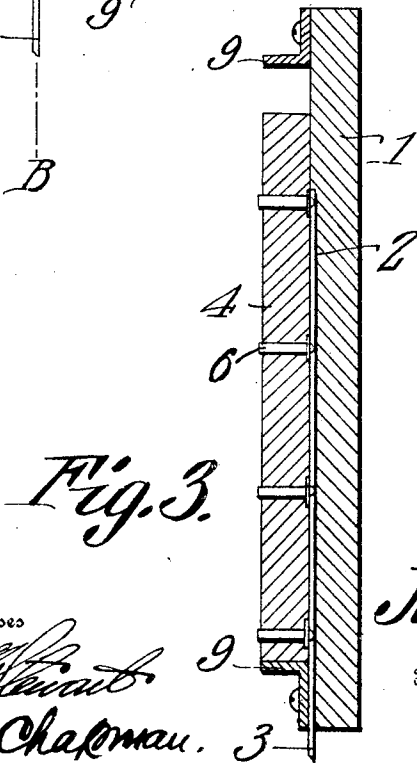
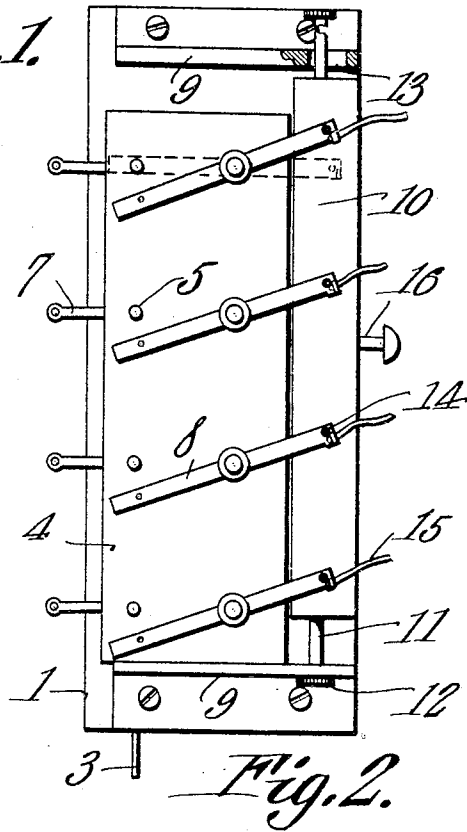
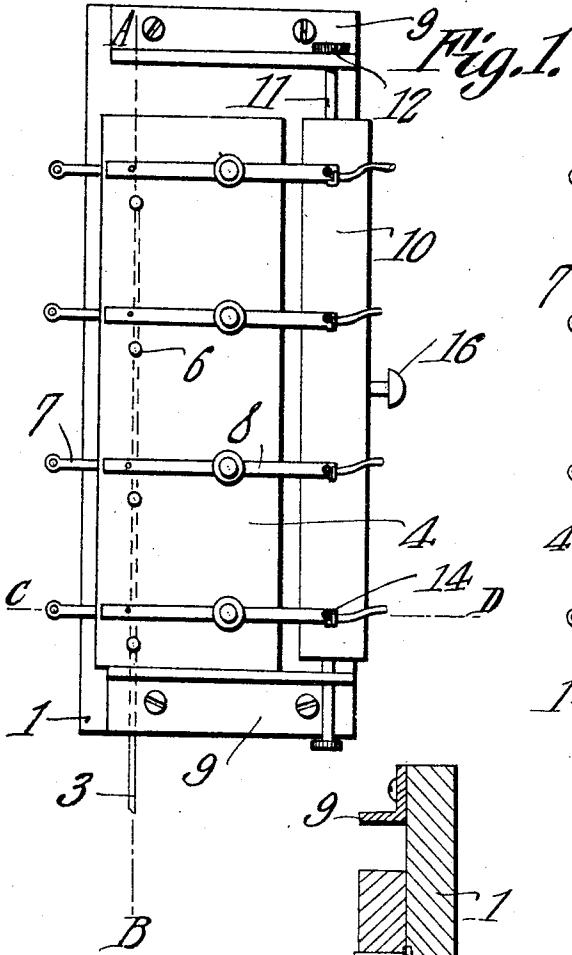


J. E. PETREE.
LIGHTNING ARRESTER.
APPLICATION FILED DEC. 17, 1909.

968,402.

Patented Aug. 23, 1910.



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UNITED STATES PATENT OFFICE.

JAMES E. PETREE, OF RICHMOND, MISSOURI.

LIGHTNING-ARRESTER.

968,402.

Specification of Letters Patent. Patented Aug. 23, 1910.

Application filed December 17, 1909. Serial No. 533,572.

To all whom it may concern:

Be it known that I, JAMES E. PETREE, a citizen of the United States, residing at Richmond, in the county of Ray and State of Missouri, have invented a new and useful Lightning-Arrester, of which the following is a specification.

This invention has reference to improvements in lightning arresters and is designed more particularly for use with telephone switchboards, the object being to provide a lightning arrester whereby all the lines to the switchboard may be grounded either individually or together.

The invention will be best understood from a consideration of the following detailed description taken in connection with the accompanying drawings forming a part of this specification, in which drawings:

Figure 1 is a plan view of the lightning arrester showing the normal position of the parts with the ground cut out. Fig. 2 is a similar view to that of Fig. 1 but showing the position of the parts when the lines are all grounded. Fig. 3 is a view on the line A—B of Fig. 1 with the switches omitted. Fig. 4 is a cross section on the line C—D of Fig. 1.

Referring to the drawings there is shown a base 1 which may be made of porcelain, slate, or other suitable insulating and preferably refractory material. The base 1 near one edge is provided with a longitudinal groove 2 on its outer face and this groove is designed to receive a ground conductor 3 to which reference will hereinafter be made. On the base 1 there is mounted a block 4 which may also be made of porcelain or slate or other suitable insulating and preferably refractory material. The block 4 has lodged therein near one edge two series of circuit terminals 5 and 6, each terminal 6 being close to but suitably spaced from a matching terminal 5. Each terminal 5 has formed thereon or secured thereto, a conducting member 7 extending beyond one edge of the block 4 and these conductors 7 are designed to receive conductors leading from the switchboard of a telephone exchange where the lightning arrester is installed in connection with the switchboard or other conductors may lead to these members 7 when the lightning arrester is used in other locations than for the protection of a telephone switchboard.

Mounted on the block 4 are switch levers

8, one for each terminal 5 and these switch levers are so mounted as to be turned into engagement with a terminal 5 or with a terminal 6 as may be desired, the two terminals being suitably located to each be in the path of a respective switch arm 8. Near each end of the base 1 there is secured a bracket 9.

Mounted on the base 1 is a bar 10 of slate or porcelain or other suitable and preferably refractory insulating material and this bar has at each end a pin 11 having at the free end a head 12. Each bracket 9 is traversed by a pin 11, the bracket being provided with an elongated slot 13 for the passage of the pin, the structure being such that the bar 10 may have an extent of longitudinal movement which may be limited by the engagement of the head 12 with the bracket 9. The slots 13 permit a further movement of the bar 10 in a direction to and from the block 4. One end of each lever 8 overrides the bar 10 and is there provided with a perforation for the passage of a pin 14 on the bar 10, there being a series of pins 14 one for each lever. Secured to the end of each lever 8 where it overrides the bar 10, is a conductor 15 which may be connected to or form the terminal of a line conductor when the lightning arrester is established in a telephone system. Each terminal 6 is continued through the block 4 and is connected to the ground conductor 3.

Assuming that the line conductors 15 are suitably connected to the switches 8 and that the switchboard conductors are suitably connected to the members 7, then by moving the bar 10 by means of a suitable knob 16 or other manipulating device, all the switch levers 8 will be moved about their pivots by the movement of the bar 10 since the latter is connected to all the switch levers by the pins 14. If the movement of the bar 10 be in the proper direction, then those ends of the switch levers remote from the ends connected to the conductors 15 will be moved onto the terminals 5 all at the same time and thereby circuits will be established from the switchboard through the members 7, thence by the terminals 5 to the switch levers and from the latter to the conductors 15 and the telephone lines will thereby be properly connected with the switchboard ready for the operation of the telephone system in the usual manner. Should, however, occasion demand, the bar 10 may be moved in the

other direction and the switch levers 8 will be caused to move from the contacts 5 onto the contact terminals 6 thereby establishing circuits from each line wire 15 through a
 5 respective switch 8 to a corresponding terminal 6 and thence by way of the ground conductors to ground. If, however, for any reason it be desirable to maintain one or more of the line conductors in circuit to the
 10 switchboard, then the end of the proper switch or switches 8 may be lifted, the switch being sufficiently elastic for the purpose, until removed from the pin 14 holding the switch lever to the bar 10 and then
 15 the switch lever may be moved in a direction which will cause it to engage the proper terminal 5 thus establishing the circuit between the line wire and the switchboard, while the other circuits are coupled to
 20 ground. The reverse of course is also true, that is any one or more of the line wires may be grounded at the will of the operator without the other switches participating in the operation.
 25 A structure built in accordance with the showing of the drawing will operate successfully for the purposes of the invention, but it is evident that the invention is by no means limited to the structure shown in the
 30 drawings and therefore the invention includes such changes in the arrangement and proportion of parts and the materials employed as will not cause a departure from the scope of the invention as expressed in
 35 the claims.

What is claimed is:

1. A lightning arrester comprising a series of contact terminals each connected to a line to be protected, another series of con-

tact terminals adjacent to the first series and provided with a ground connection, a series of switch levers movable individually into engagement with either series of contacts and each connected to the line to be protected, and means for causing the simultaneous movement of all the switch levers into engagement with either series of contacts.

2. A lightning arrester comprising two series of contacts, one series being connected to the lines to be protected, and the other series being grounded, a series of switch levers movable into engagement with either series of contacts, and each connected to a respective line to be protected, and a common operating means for all the levers to which the levers are individually and removably connected.

3. A lightning arrester comprising a suitable support, a series of circuit terminals carried thereby, another series of circuit terminals adjacent to the first named series and adapted to be grounded, a series of switch levers pivotally mounted on the support and movable into engagement with either series of circuit terminals individually or collectively, and an operating means for the levers comprising a slidable bar mounted on the support and removably connected to each of the switch levers.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

JAMES E. PETREE.

Witnesses:

H. M. TOLAND,
 PEARL SNODGRASS.