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W. D. KYLE

FUSE BOX AND METHOD OF MAKING SAME

Filed June 6, 1924

Fig. 1.

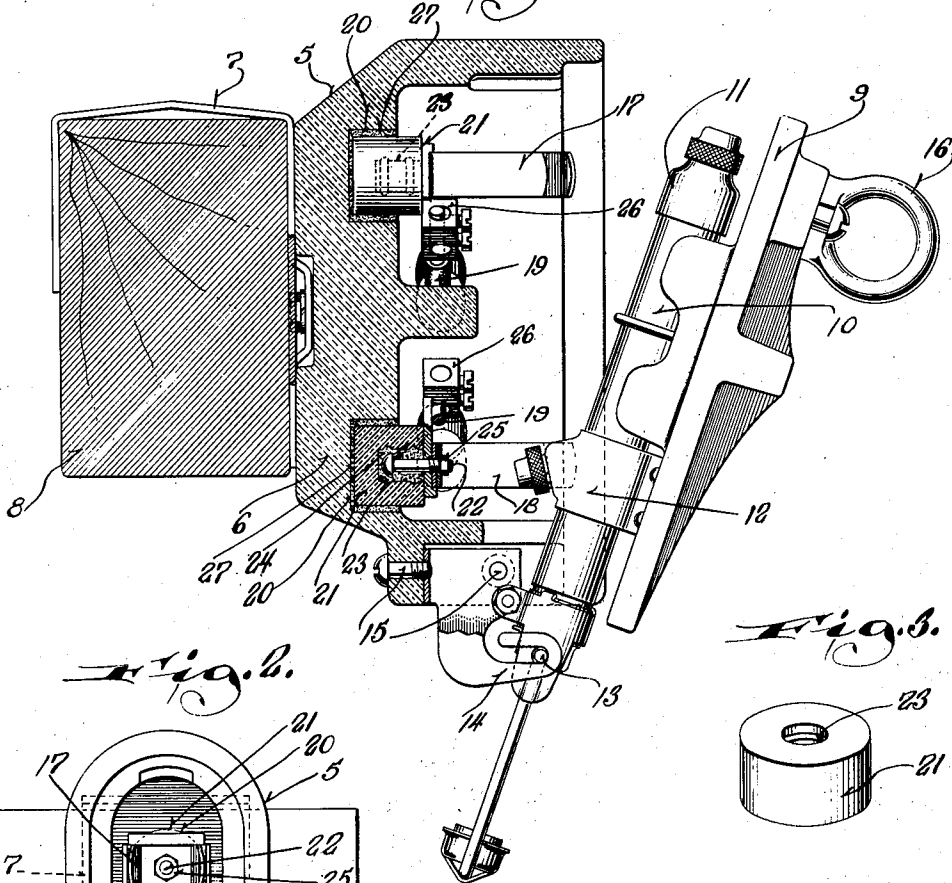


Fig. 2.

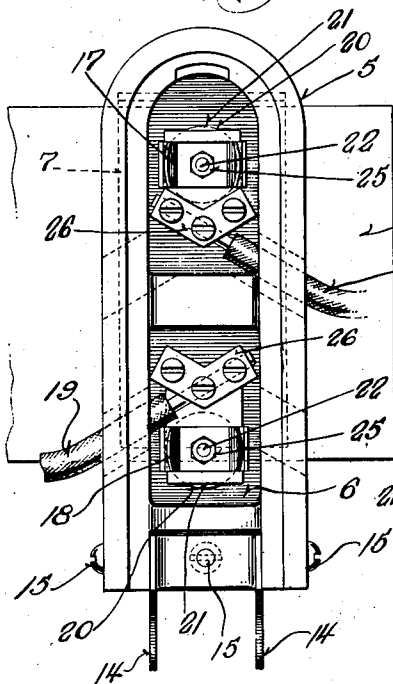


Fig. 3.

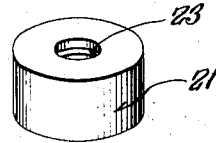
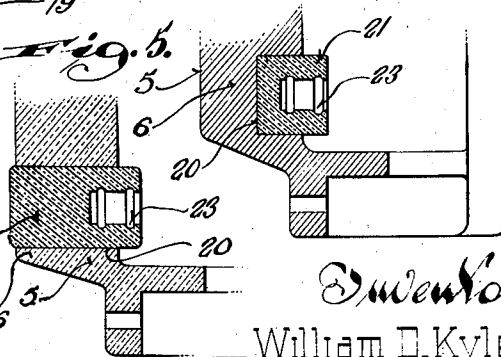


Fig. 4.



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UNITED STATES PATENT OFFICE.

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FUSE BOX AND METHOD OF MAKING SAME.

Application filed June 6, 1924. Serial No. 718,355.

To all whom it may concern:

Be it known that I, WILLIAM D. KYLE, a citizen of the United States, and resident of Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented new and useful Improvements in Fuse Boxes and Methods of Making Same, of which the following is a description, reference being had to the accompanying drawing, which is a part of this specification.

This invention relates to certain new and useful improvements in fuse boxes and method of making same.

It is highly desirable that fuse boxes of the type employed for handling high voltage current be made of non-conducting material. Boxes of this character have been formed of porcelain and as they are of necessity of irregular shape it has been necessary to employ what is known in the art as dry process porcelain. Experience has proven that dry process porcelain is unreliable in that, after the device has been put into service, the current oftentimes leaks through the box to the cross-arm or other support, especially when a high voltage current is handled. This objection is not found in the higher grades of non-conducting material such as bakelite, glass, or other materials, and it has been impossible to construct the boxes of wet process porcelain, as wet process porcelain can only be formed into substantially round articles capable of being turned on lathes or other similar machines.

Having the above and other objections in mind, this invention has for one of its objects to provide a fuse box of the character described in which the body or housing thereof is formed of dry process porcelain or other material in which a contact carrying member formed of wet process porcelain, bakelite or any other type of material capable of insulating high voltage, is inserted to afford protection against the leakage of current through the box to the support.

Another object of this invention resides in the provision of a box in which the body portion is formed of dry process porcelain having one or more openings or recesses in which wet process porcelain, contact carrying members are permanently secured either before or after firing to afford positive protection against the leakage of the current

through the box irrespective of the type of current being handled.

It is a still further object of this invention to provide a fuse box of the character described and a method of making the same wherein a practical and efficient box is produced which is capable of handling all types of current and which affords positive protection against leakage of the current there-through to the cross-arm or other support.

With the above and other objects in view which will appear as the description proceeds, my invention resides in the novel construction, combination and arrangement of parts substantially as hereinafter described and more particularly defined by the appended claims, it being understood that such changes in the precise embodiment of the hereindisclosed invention may be made as come within the scope of the claims.

In the accompanying drawing, I have illustrated complete examples of the physical embodiment of my invention constructed according to the best modes I have so far devised for the practical application of the principles thereof, and in which:

Figure 1 is a view, partly in side elevation and partly in section, illustrating a fuse box embodying my invention;

Figure 2 is a front elevational view thereof with the cover removed;

Figure 3 is a perspective view of one of the high voltage, contact carrying members;

Figure 4 is a fragmentary sectional view taken through the lower portion of a fuse box embodying a slightly modified form of this invention, and

Figure 5 is a view similar to Figure 4 of still another modification of my invention.

Referring now more particularly to the accompanying drawing, in which like numerals designate like parts throughout the several views; the numeral 5 designates a device or housing member having a bottom wall or base 6 to which is secured an attaching bracket member 7 adapted to be fastened to a cross-arm or other supporting member 8 in any desired manner.

The box 5 is closed by a cover member 9 to the inner face of which is secured a renewable fuse member 10 providing a movable contact having contact surfaces 11 and 12. The cover 9 is hingedly connected to the box by trunnions or pivots 13 carried by the fuse member and pivotally engaged in

openings in bracket arms 14 secured to one end portion of the box by fastening members 15. The free end of the cover is provided with an opening loop or ring 16.

5 Closing of the cover electrically engages the contact surfaces 11 and 12 of the fuse member 10 with stationary contact members 17 and 18, respectively, mounted in the box, in the manner hereinafter described. The
10 conductor 19 of the service line in which the device is included is broken and the ends thereof connected with terminals 26 in electrical connection with the conductors 17 and 18, as depicted in Figure 2.

15 The box 5, being of necessity of irregular shape and, consequently, incapable of being formed by turning on a lathe or other similar machine, cannot be formed of wet process porcelain, but must be made of dry process porcelain. As a result, the boxes are of
20 little, if any, use when high voltage current is being handled, as the current leaks through the box 5 to the cross-arm or other support. As is well known in the art, wet
25 process porcelain affords positive protection against the leakage of current therethrough, irrespective of the voltage being handled, and, it being possible to only make articles of wet process porcelain having such shapes
30 as to permit their being formed by turning, prevents the construction of the box 5 of this type of material.

In the invention illustration in the drawing, the leakage of current through the box
35 5 is prevented by providing the base 6 with recesses or apertures 20 in which cylindrical plugs or contact carrying members 21 formed of wet process porcelain are inserted. The stationary contacts 17 and 18 are mounted
40 on the members 21 by bolts or screw members 22 secured in the bores 23 thereof by cement or other material 24, a binding nut 25 clamping the stationary contacts and the terminals 26 in position. With this construction the members 21 provide means insulating the contacts from the fuse box, which is also constructed of non-conducting
45 material.

The contact carrying members 21 may be
50 secured in the base either before or after the firing of the box, and in the event box 5 is first fired, the plugs 21 are separately fired and secured in the recesses 20 by cement 27, or other means such as lead or the
55 like. The contact members 21, however, may be inserted in the recesses 20 before the box and the contact carrying members have been fired, after which the box and contact carrying members are fired, resulting in a fusion therebetween to thus permanently secure the plugs 21 in position, see Figure 4. The box 5 with the plugs inserted may then be glazed to give the appearance of the
60 plugs 21 being integral with the box.

65 The plugs 21 preferably have their outer

ends extended beyond the face of the base 6 to space the contact members and the terminals from the dry process porcelain body. The plugs 21 may also extend entirely through the base 6 of the box 5 as illustrated
70 in Figure 5.

In the foregoing description the plugs 21 have been referred to as formed of wet process porcelain and it is understood that the
75 plugs may be formed of bakelite, glass, or any other material capable of affording the desired insulation against high voltage. With this structure, it will be readily obvious that all the benefits of a wet process
80 porcelain, bakelite, glass, or other high type of insulating material fuse box are obtained and the leakage of current through the box protected against.

What I claim as my invention is:

1. A device of the character described,
85 comprising a body portion of insulating material, and a contact carrying member capable of insulating high voltage secured in the body portion.

2. A fuse cut-out box, comprising a body
90 portion, and a wet process porcelain contact carrying member secured in the body portion.

3. A device of the character described, comprising a body portion having a recess
95 therein, and a high voltage insulating contact carrying member secured in the body portion recess.

4. A fuse cut-out box, comprising a body
100 portion having a recess therein, and a wet process porcelain contact carrying member secured in the body portion recess.

5. A fuse cut-out box, comprising a dry
105 process porcelain box member having a recess formed therein, and a wet process porcelain contact carrying member rigidly secured in the body portion recess.

6. A device of the character described, comprising a box member having spaced
110 openings in one wall thereof, a cylindrical contact carrying member capable of resisting high voltage rigidly set in each box member opening, a stationary contact member carried by each contact carrying member, and a movable contact adapted to bridge
115 the stationary contact members.

7. A device of the character described, comprising a dry process porcelain box
120 member having spaced openings in one wall thereof, a cylindrical wet process porcelain contact carrying member rigidly set in each box member opening, a stationary contact member carried by each contact carrying member, and a movable contact adapted to bridge the stationary contact members.
125

8. The hereindescribed method of forming boxes for housing electrical appliances, which consists in forming a housing member of dry process porcelain, in forming a
130 contact carrying member of wet process por-

celain, and in setting the wet process porcelain member in the dry process porcelain member.

9. The hereindescribed method of forming boxes for housing electrical appliances, which consists in forming a housing member of dry process porcelain, in setting the wet process porcelain member in an aperture in the dry process porcelain member, and in permanently fixing the wet process porcelain member in the aperture of the dry process porcelain member.

10. The hereindescribed method of forming boxes for housing electrical appliances, which consists in forming a housing member of dry process porcelain, in forming a contact carrying member of wet process porcelain, in setting the wet process porcelain member in an aperture in the dry process porcelain member, and in firing the porcelain members to permanently set the wet process porcelain member in the dry process porcelain member and substantially fuse said members together.

11. The hereindescribed method of forming boxes for housing electrical appliances, which consists in forming a housing member of dry process porcelain, in forming a contact carrying member of wet process porcelain, in separately firing the porcelain members, and in substantially permanently ce-

menting the wet process porcelain member in an aperture in the dry process porcelain member.

12. The hereindescribed method of forming a mounting for electrical appliances, which consists in forming a base member of insulating material, in forming a mounting member of insulating material independently of the base member, and in setting the mounting member in the base member.

13. The hereindescribed method of forming a mounting for electrical appliances, which consists in forming a base member of insulating material capable of resisting the passage of low voltage current therethrough but incapable of efficiently resisting the passage of high voltage current therethrough, in forming a mounting member of insulating material capable of resisting the passage therethrough of high voltage current, and in fixing the mounting member to the base member.

14. A device of the character described, comprising a base member capable of insulating low voltage currents but incapable of efficiently insulating high voltage currents, a mounting member capable of insulating high voltage currents, and means securing the mounting member to the base member.

In testimony whereof I affix my signature.

WILLIAM D. KYLE.