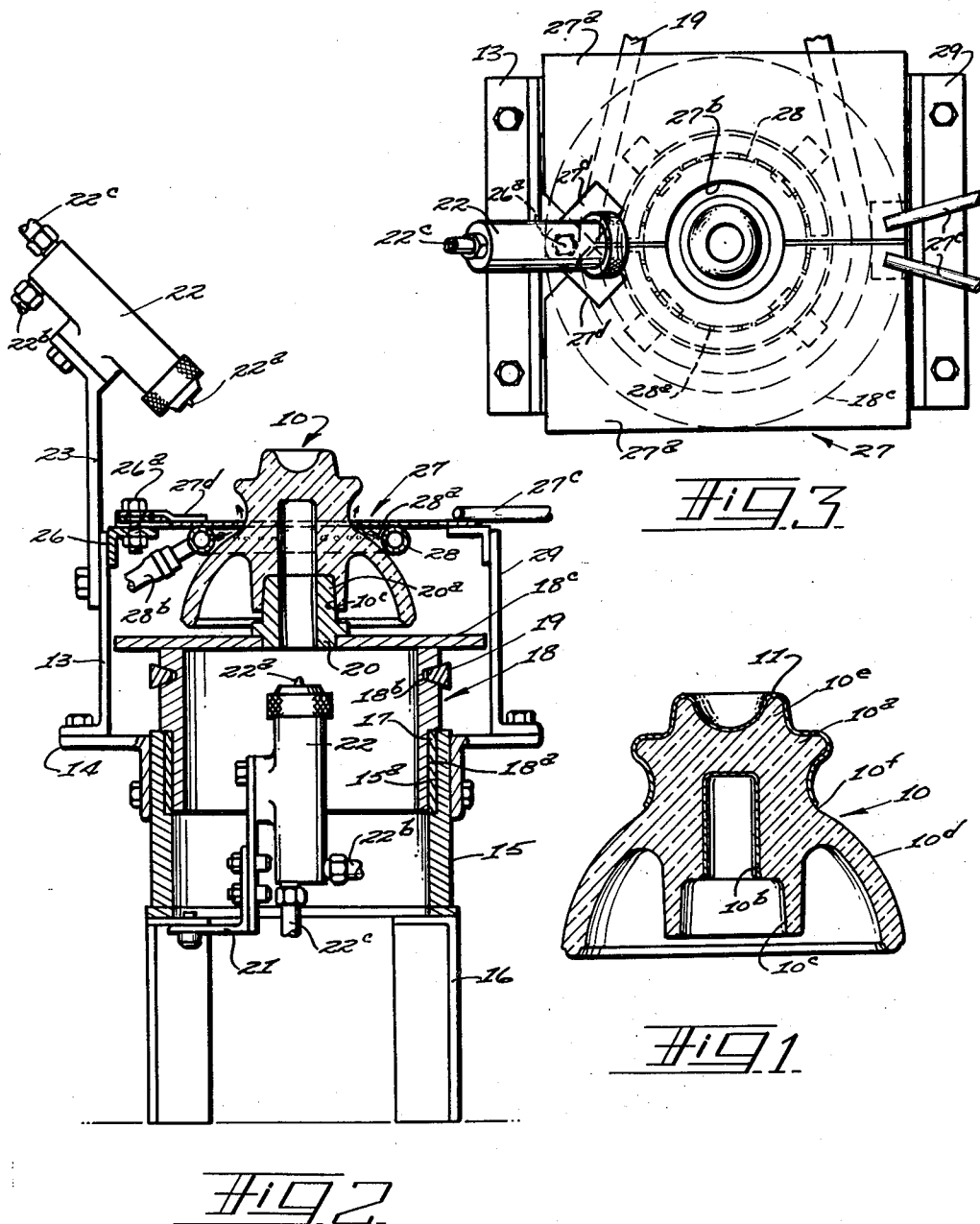


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J. KOZAK  
APPARATUS AND METHOD FOR APPLYING CONDUCTIVE  
COATINGS TO INSULATORS  
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INVENTOR.  
JOHN KOZAK  
BY  
W. A. Schuch &  
J. D. Soubier  
ATTORNEYS

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2,867,551

## APPARATUS AND METHOD FOR APPLYING CONDUCTIVE COATINGS TO INSULATORS

John Kozak, Toledo, Ohio, assignor to Owens-Illinois Glass Company, a corporation of Ohio

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This invention relates to an apparatus and method for applying a conductive coating to limited portions of an insulator.

In recent years, it has become common to apply a conductive coating to the extreme external top portions of a skirted glass or porcelain insulator, as well as to the internal surfaces of the mounting hole commonly provided in such insulators. However, it is extremely necessary that such conductive coating does not extend onto the skirted portion of the insulator so as to reduce the effective electrical resistance of such insulator. In the application of such coating to glass insulators, it is desirable that the glass be heated to an elevated temperature so as to effect the desired bond with the applied coating and, for reasons of manufacturing efficiency, it is obviously desirable to apply the coating by one or more spray guns.

Accordingly, it is an object of this invention to provide an improved apparatus for spray coating selected portions of a skirted insulator.

Still another object of this invention is to provide an improved baffle or masking arrangement for use in the spray coating of a skirted insulator which will positively assure that none of the spray will be permitted to contact the skirt portions of the insulator and which will also insure that any excessive application of the spray to the top portion of the insulator will not run down or leak onto the skirt portion.

Other objects and advantages of this invention will become apparent to those skilled in the art from the following detailed description, taken in conjunction with the annexed sheet of drawings on which, by way of preferred example only, is shown one embodiment of the invention.

Figure 1 is a vertical sectional view of a skirted insulator, to which a conductive coating has been applied.

Figure 2 is a vertical sectional view of an insulator spray coating apparatus embodying this invention.

Figure 3 is a plan view of the apparatus of Figure 2, showing the masking baffle in closed position.

In Figure 1 there is shown a well-known form of glass or porcelain insulator 10 having a central body portion 10a defining a downwardly opening mounting hole 10b which has an enlarged counterbore 10c at its outer end. Such insulator is commonly provided with a radially and downwardly projecting skirt portion 10d. In order to reduce radio interference resulting from such insulators when installed in a power line, it has been common to apply a conductive coating 11 to the top portions 10e of the insulator and the mounting hole portions 10b. The coating 11 illustrated in the drawings is of course greatly magnified in its thickness for illustrative purposes. It is very important that no portion of such conductive coating extend onto the skirt portion 10d of the insulator.

In accordance with this invention, there is provided apparatus for applying a conductive coating 11 to the desired portions of the insulator through the utilization of conventional spray guns for application of the conduc-

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tive coating. At the same time, this invention provides positive protection against any of the sprayed coating being applied to the skirt portion 10d of the insulator.

Apparatus embodying this invention includes a hollow cylindrical base member 15 mounted on suitable supports 16 and counterbored at its upper end, as indicated at 15a, to receive a bearing sleeve 17. An insulator support 18 of generally inverted cup shaped configuration has a reduced diameter end portion 18a journaled in bearing sleeve 17. A belt groove 18b is provided in the wall of support 18 to receive a belt 19 which is driven by any suitable source of power to rotate the support 18. The top portion 18c of support 18 is centrally apertured to receive a hollow hub 20. The top portion 20a of hub 20 is proportioned to snugly fit into the counterbore 10c of an insulator 10 to which a conductive coating is to be applied.

Within the base 15 a bracket 21 is provided, on which a conventional air pressure operated spray gun 22 is mounted with its nozzle portion 22a positioned in substantial alignment with the axis of the hub 20. Suitable supply lines 22b and 22c are provided for spray gun 22 to respectively supply the conductive coating material and the pressurized air in conventional fashion. Thus, when support 18 is rotated, and spray gun 22 is actuated, a coating of conductive material will be quickly applied to the interior wall surfaces of the mounting hole 10b of the insulator, but there is no opportunity for any of such coating to contact the skirt portions of the insulator.

Along the side of base 15, an angle bracket 14 is mounted, which in turn mounts an upstanding bracket 13. Bracket 13 in turn supports a small angle bracket 26 and a second spray gun bracket 23. A second spray gun 22 is mounted on the top of bracket 23 with the nozzle portion 22a positioned to direct a spray downwardly and at an inclined angle against the top surfaces of any insulator 10 supported on hub 20.

In accordance with a further feature of this invention, an improved mask or baffle 27 is provided which constitutes a pair of complementary plate portions 27a, each defining a semi-circular aperture 27b which is adapted to closely abut the neck portion 10f of a supported insulator. The baffle plates 27a each have a lug 27d which is mounted for a hinged pivotal movement on a vertical pivot bolt 26a, which is in turn mounted in bracket 26. A pair of handles 27c may be respectively provided on each of the baffle plates 27a to permit the convenient opening or closing pivotal movements of such baffle plates necessarily required when an insulator 10 is inserted or removed from the spraying apparatus. The free ends of baffle plates 27a rest on a bracket 29 mounted on base 15.

Additionally, each baffle plate 27a is provided with a substantially semi-circular air conduit or tube 28 on its underside and positioned in concentricity with the top of the skirt portion of the supported insulator when the baffle plates are closed. Each air tube 28 is provided with a plurality of radially inwardly directed nozzles 28a, through which pressurized air is discharged by virtue of the connection of each tube 28 with a source of pressurized air by hose connections 28b. The nozzles 28a are preferably inclined upwardly so that an upwardly flowing stream of air is produced which passes upwardly through the annular opening defined between the neck portion 10f of the insulator and the apertures 27b of the masking plates 27a.

In operation, the insulator 10 is preferably heated to a temperature which will effect a rapid bond of the spray applied coating 11. The baffle plates 27a are separated by manipulation of handles 27c, and the heated insulator is positioned on hub 20. The rotary support 18 is then rotated, and the spray guns 22 are energized. Concur-

rently, pressurized air is applied to the baffle air tubes 28. A sprayed application of conductive coating to the head portions and the interior surfaces of the mounting hole of the insulator will be immediately produced; however, no portion of the sprayed coating can possibly contact the skirt portions 10d of the insulator. Also, in the event that the operator applies excess coating so that it tends to run down the outer surfaces of the insulator, such flow of excess coating will be arrested at the neck portion 10f of the insulator by the upwardly directed annular stream of air produced by the baffle air tubes 28.

After the application of the desired coating, the spray guns 22 are deenergized, but the application of pressured air in the air baffle tubes 28 is continued until the applied spray solidifies. This normally does not require any extensive time period due to the elevated temperature of the insulator 10. The baffle plates 27a are then pivoted to their open position, and the coated insulator is removed and an uncoated insulator mounted on the hub 20.

From the foregoing description, it is clearly apparent that the apparatus embodying this invention permits the spray application of a conductive coating to only certain limited portions of a skirted insulator in a rapid and efficient operation. Furthermore, apparatus embodying this invention eliminates the possibility of the sprayed coating being inadvertently applied to the skirted portion of the insulator.

It will, of course, be understood that various details of construction may be modified through a wide range without departing from the principles of this invention, and, it is therefore not the purpose to limit the patent granted hereon otherwise than necessitated by the scope of the appended claims.

I claim:

1. Apparatus for applying a conductive coating to only the top and the internal surfaces of a skirted insulator comprising, in combination, a hollow rotatable support having an upstanding hollow post portion constructed to engage the outer portion of the internal bore of a skirted insulator and thereby rotatably support said insulator, means for rotating said support, a bottom spray nozzle mounted to project a spray upwardly through said hollow post portion, a top spray nozzle mounted to project a spray downwardly upon the top surfaces of said skirted insulator, an apertured baffle plate constructed to closely surround the skirted insulator above the skirted portion thereof, thereby protecting said skirted portion from spray from said top spray nozzle, and an annular array of nozzles constructed and arranged to direct air upwardly through the annular opening defined between said baffle plate and the skirted insulator, thereby preventing leakage of spray downwardly through said opening.

2. The combination defined in claim 1 wherein said baffle plate comprises two horizontally pivoted pieces respectively defining halves of said aperture, and a stationary support to which said pieces are pivoted, whereby said pieces are pivotable to open said aperture to permit insertion or removal of the insulator.

3. The combination defined in claim 1 wherein said annular array of air nozzles comprises a circular tube surrounding said baffle aperture and having a plurality of radial orifices spaced around its inner periphery.

4. The combination defined in claim 2 wherein said annular array of air nozzles comprises two circular segment tubes respectively secured to the bottom faces of said pieces in concentric relationship to said aperture half, said tubes each having a plurality of radial orifices spaced around its inner periphery.

5. Apparatus for applying a conductive coating to only the top surface of a skirted insulator comprising, in combination, a rotatable support for the skirted insulator, means for rotating said support, a spray nozzle positioned in overlying relationship to said rotatable support to

direct a spray downwardly on a supported insulator, an apertured baffle plate constructed to closely surround the skirted insulator above the skirted portion thereof, thereby protecting said skirted portion from spray from said top spray nozzle, and an annular array of nozzles constructed and arranged to direct air upwardly through the annular opening defined between said baffle plate and the skirted insulator, thereby preventing leakage of spray downwardly through said opening.

6. The combination defined in claim 5 wherein said annular array of air nozzles comprises a circular tube surrounding said baffle aperture and having a plurality of radial orifices spaced around its inner periphery.

7. The method of applying a conductive coating to an upper exterior surface portion of an insulator with the said coating extending downward to and terminating at an intermediate plane, said method comprising surrounding the insulator in narrowly spaced relationship at said plane with a fluid impervious barrier, enveloping the said surface portion above said plane with an atomized fluid comprising conductive coating material and concurrently maintaining pneumatic pressure beneath the said barrier with said pressure applied upwardly at said narrow space of sufficient magnitude to counteract the downward force of the coating material and thereby prevent leakage of said material downwardly past the barrier.

8. The method of applying a conductive coating to an upper exterior surface portion of an insulator with said coating extending downward to an intermediate plane and terminating at said plane, said method comprising surrounding the insulator at said plane with an impervious barrier and with the barrier narrowly spaced from the said surface, projecting the coating material in the form of a spray against said surface above the barrier and concurrently rotating said insulator and maintaining upwardly directed pneumatic pressure at the narrow space between said surface and the barrier of sufficient magnitude to counteract the downward force of the spray and thereby prevent leakage of the spray downwardly past the barrier.

9. Apparatus for applying a conductive coating to a portion of a surface defining a mounting opening in an insulator, said apparatus comprising, in combination, a support mounted for rotation about a vertical axis and including a horizontal plate forming the top of the support and formed with a central opening, a hub mounted in said opening, said hub being in the form of a vertical tubular cylinder projecting upwardly from said plate and providing a support for the insulator and projecting upwardly to an intermediate point within said mounting opening and masking the lower portion of said surface, means for rotating said support with the insulator thereon about said axis, a spray nozzle, means for mounting said nozzle beneath the said plate with the nozzle directed upwardly at the said axis of rotation and thereby operative to spray the upper portion of said surface while the lower portion thereof is masked by said hub.

10. Apparatus for applying conductive coating to an upper surface portion of an insulator, said apparatus comprising, in combination, a support mounted for rotation about a vertical axis, means on said support for holding an insulator on the support and concentric with said axis, a spray nozzle, means for mounting the nozzle above the said support and with the nozzle directed downwardly toward the insulator on the support for spraying said surface portion, a horizontal baffle plate comprising partible sections formed with an opening, means providing a stationary mounting for the baffle plate and holding it in a horizontal plane below the top of the insulator on said support, said baffle plate being narrowly spaced from the insulator, means for rotating said support and insulator while a spray is directed downwardly by the spray nozzle on to the rotating insulator, and means for applying pneumatic pressure beneath the baffle plate at said narrow

space and thereby preventing the coating material from leaking through said narrow space.

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