Feb. 23, 1943. J. R. McFARLIN 2,311,852

TERMINAL CONSTRUCTION FOR LIGHTNING ARRESTERS

Original Filed Nov. 22, 1935

Fig. 1

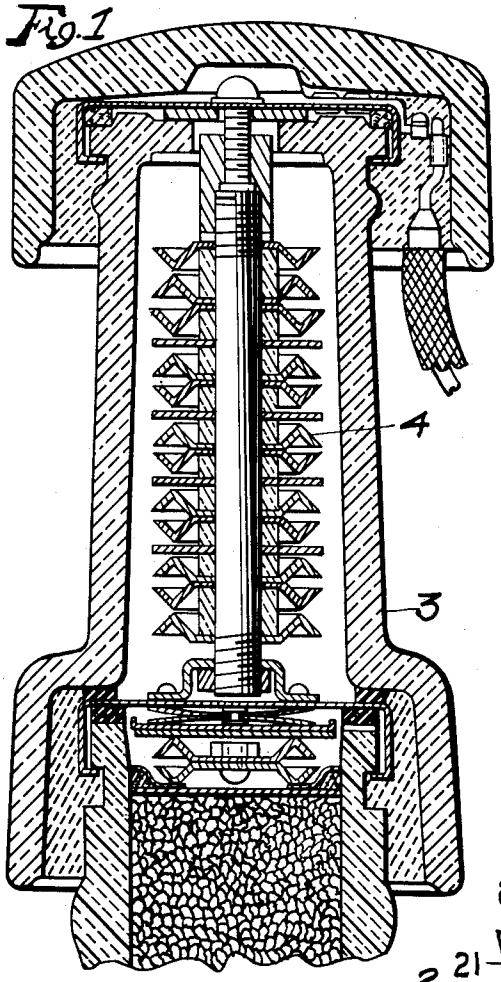


Fig. 2

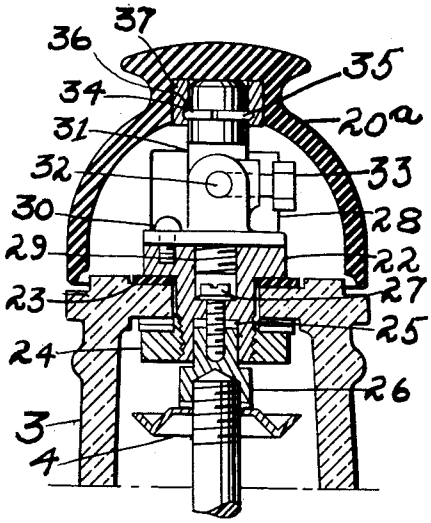
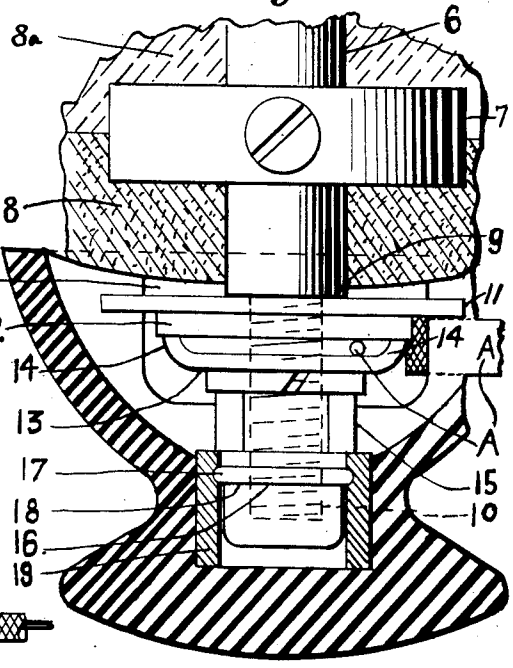


Fig. 3



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TERMINAL CONSTRUCTION FOR LIGHTNING ARRESTERS

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Original application November 22, 1935, Serial No. 51,025. Divided and this application February 24, 1940, Serial No. 320,526

9 Claims. (Cl. 174—75)

My invention is an improved terminal construction for lightning arresters and designed to provide simplified means for attaching ground conductors or line conductors to such arresters and for shielding uninsulated members against inadvertent contact and protecting such members against tampering and inclement weather.

In accordance with my invention, the terminal projecting from an end of a lightning arrester casing is provided with wire clamping means housed within a cupped cap which is detachably swivelled on the terminal. Preferably the attachment of the cupped cap to the terminal is effected by means of a spring wire projecting slightly from an annular groove in the cap into a complementary peripheral groove on a nut forming part of the terminal and movable along a stud thereof to clamp and unclamp wire gripping members. The torsional strain caused by the turning of the nut is preferably resisted by a member extending transversely to the stud within the casing.

The characteristic features and advantages of my improvements will further appear from the following description and the accompanying drawing in illustration thereof.

In the drawing, Fig. 1 is a vertical sectional view showing a terminal construction embodying my improvements applied to the ground end of a lightning arrester, Fig. 2 is a fragmentary vertical sectional view showing an embodiment of my terminal construction applied to the line end of a lightning arrester, and Fig. 3 is an enlarged view of the lower terminal of Fig. 1.

My invention as illustrated in the drawing is applied to a lightning arrester of the type shown and described in my application for Letters Patent of the United States No. 51,025, filed November 22, 1935, which became Patent No. 2,192,773, issued March 5, 1940, whereof the present application is a division and to which reference is made for a detailed description of the construction and operation of a lightning arrester. It is sufficient here to point out that such arrester comprises a casing 1 containing a characteristic element 2 which is to be connected to the ground and a casing 3 containing a series of gap electrodes 4, the upper one of which is to be connected with a line or the like.

As shown in Fig. 1, the bottom of the characteristic element chamber 2 is closed by a conducting disk 5 to which is riveted a terminal post or stud 6 having a cross bar 7 secured thereto and embedded in the sealing compounds 8 and 8a to prevent rotation of the terminal post or stud 6.

A portion of the terminal post or stud 6 projects below the sealing compound and is cut away to form the shoulder 9 and threaded stem 10. A disk 11 is sleeved on the stem 10 and pressed against the shoulder 9 by a nut 12. The nut 12 has a lower face extending substantially normal to the axis of the stem 10 and complementary to the upper surface of the apertured member 13 which is sleeved on the stem and has lips 14 projecting toward the surface of the nut 12 within the limits thereof so as to form a cup-like member which may be pressed into binding engagement with a ground conductor A by the nut 15 threaded on the lower part of the stem 10.

The nut 15 is provided with a peripheral groove 16 for the engagement of a spring wire 17 seated in a groove 18 in the inner surface of a ferrule 19 in the insulating cupped cap 20. The upper edge of the cup or stud cover 20 extends within a drip skirt on the bottom of the casing, and the upper wall of the cup contains an aperture 21 through which the ground conductor A extends to ground.

It will be seen that the coaction of the spring wire 17 with the grooves 16 and 18 provides a snap lock for the stud cover 20 permitting the ready removal thereof for the attachment or removal of the conductor A and also permits the turning of the stud cover 20 on the nut 15 without imparting appreciable torque to the terminal post 6 and cross bar 7, and that the bar 7 will resist any torque resulting from tightening up the nut 15 against the clamp 13.

Generally the gap electrode assembly is connected with the line through a lead such as illustrated at the top of Fig. 1, but should it be desired to substitute a line terminal and cover for a lead line, this may be readily done, as shown in Fig. 2. In such case a conductor plug or stud 22 has its head seated on a gasket 23 on the top of the casing 3 and its shank extends through an aperture therein. A nut 24 is screwed up tight on the projecting threaded section of the shank of the stud 22 to draw the head of such stud tightly against the gasket 23. The stud shank contains a recess 25 for the reception of a coupling nut 26. A screw 27 is inserted through an aperture in the stud 22 into the coupling 26. A terminal stud or post 28 has a shank 29 threaded into the aperture into the top of the stud 22 and is held against unscrewing by a screw 30. The post 31 of the terminal 28 contains an aperture 32 for the insertion of a line conductor which may be clamped in place by a bolt 33. A cap 20a, similar to the cap 20, may be snapped over the

top of the post 31 which contains a groove 34 similar to the corresponding groove 16 in the nut 15. A spring wire 35 is seated in an annular groove 36 in the ferrule 37 of the cap 20a and serves to swivel the cap on the post, as described in connection with Fig. 1.

Having described my invention, I claim:

1. The combination of a casing, a cup-like cap for an end of said casing, a terminal comprising a conducting post fixed to said casing and wire-clamps housed between said casing and cap and including a nut threaded on said post between said casing and cap, and means forming a snap lock connecting together said cap and clamp nut.

2. The combination of a casing, a cup-like cap for an end of said casing, a terminal comprising a conducting post fixed to said casing and wire-clamps housed between said casing and cap and including a nut threaded on said post, said nut having a circular periphery containing a peripheral groove, and means for rotatably connecting together said clamp-nut and cap and including a split ring in said groove and a ferrule seated in said cap and containing a groove complementary to said first named groove.

3. The combination of a casing having an insulating end closure, a cup-like cap for the end of said casing having said insulating closure, a terminal comprising a conducting head in said casing adjacent to the inner face of said closure and a post projecting through said closure beyond the outer face thereof and wire-clamps housed between said end closure and cap, said terminal and cap each including a member containing a groove complementary to the groove in the other member, and a ring seated in said grooves and connecting together said cap and terminal.

4. The combination of a casing having a lip at an end thereof forming a recess, a cup-like cap having the edge of its mouth seated in said recess, a terminal comprising a conducting post fixed to said casing and wire-clamps housed between said casing and cap, said terminal and cap each including a member containing a groove complementary to the groove in the other member, and a ring seated in said grooves and connecting together said cap and terminal.

5. A casing having a stud at an end thereof, a nut on said stud, said nut having a peripheral groove therein, a cap forming a cup having a peripheral edge in close juxtaposition to said casing and having a member containing a groove complementary to said first groove, and a wire engaged in said grooves and securing said cap to said nut, said cap being rotatable relatively to said casing without varying axially the relationship of its edge to said casing.

6. A casing having a terminal at an end thereof, said terminal including a member containing a peripheral groove, a flanged cap forming a cup having a peripheral edge adjacent to said casing and having a member containing a groove complementary to said first groove, a wire engaged in said grooves and securing said cap to said terminal, and means for securing to said terminal between said cap and casing a conductor having an end housed within said cup and a portion radially projecting beyond said cap.

7. A casing having a stud at an end thereof, a nut on said stud, said nut having a peripheral groove therein, a cap forming a cup having a peripheral edge in juxtaposition to said casing and having a member containing a groove complementary to said first groove, a wire engaged in said grooves and securing said cap to said nut, and means housed by said cup and operable by said nut for clamping a wire between said cap and casing.

8. The combination of a stud, a pair of members having complementary surfaces extending substantially normal to the axis of said stud for clamping a wire between them, one of said members having a substantially flat face and the other of said members having spaced lips projecting toward the flat face of the other of said members, a nut screwed on said stud for moving one of said members toward the other, said nut containing a peripheral groove, a cupped cap housing said members within the cup thereof and having a groove complementary to said groove first named, and a wire engaged in said grooves and detachably securing said cap to said nut.

9. A casing having a terminal including a stud projecting from an end thereof, said stud having means within said casing resisting turning of said stud, wire clamping means on said stud, a nut on said stud for operating said clamping means and a cap swivelled on said nut and surrounding and housing said clamping means, said cap having a peripheral edge in juxtaposition to said casing and rotatable independently of any axial movement of said cap.

JOHN ROBERT McFARLIN.