July 12, 1955 F. C. LAVARACK ET AL 2,713,102

TEST TERMINAL

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FIG. 1

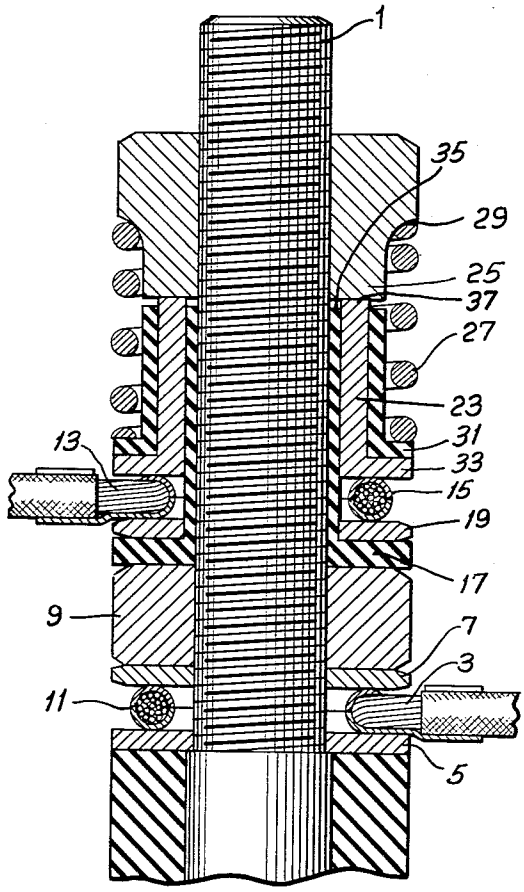
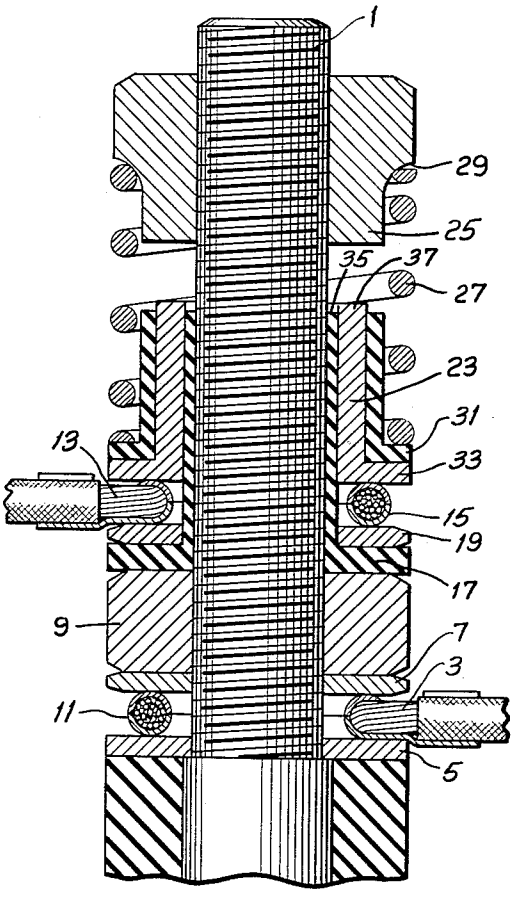


FIG. 2



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FIG. 3

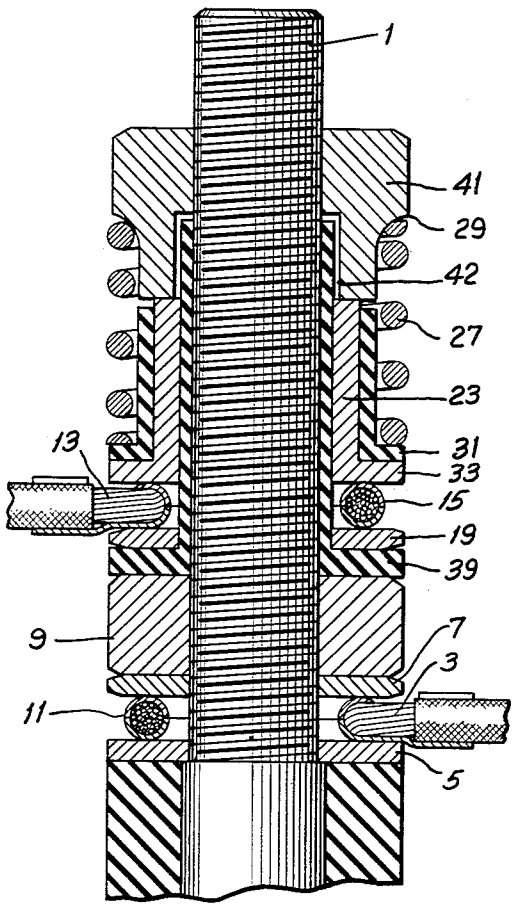
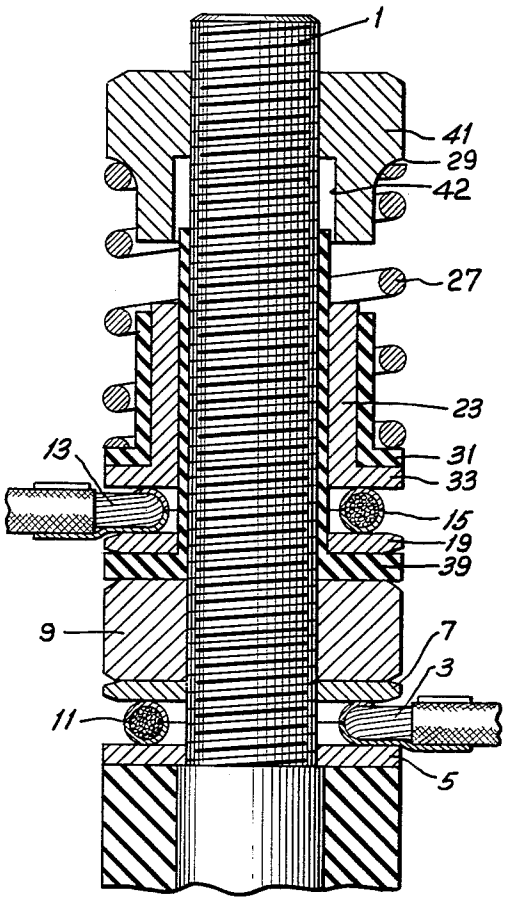


FIG. 4



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2,713,102

TEST TERMINAL

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Application June 25, 1952, Serial No. 295,476

2 Claims. (Cl. 200—158)

This invention relates to electricity, particularly electrical conductors, and more especially to terminal posts.

A principal object of this invention is to provide a terminal post to which an electrical conducting wire end may be easily and conveniently connected and the construction further be such that the electrical contact between the wire end and the terminal post may be severed by a very slight manual manipulation.

Other objects and advantages will appear as the description of the particular physical embodiment selected to illustrate the invention progresses and the novel features will be particularly pointed out in the appended claims.

In describing the invention in detail and the particular physical embodiments selected to illustrate the invention, reference will be had to the accompanying drawings and the several views thereon, in which like characters of reference designate like parts throughout the several views, and in which:

Figure 1 is a longitudinal sectional view showing an end of an ordinary and well known terminal post with our invention in place thereon illustrating wire ends electrically connected to the terminal post;

Fig. 2 is a view similar to Fig. 1, but with the parts in a slightly different position illustrating the electrical disconnection of a wire end from the terminal post;

Fig. 3 is a view similar to Fig. 1 illustrating a modified form of my invention;

Fig. 4 is a view similar to Fig. 3 illustrating a slightly different position of the parts to illustrate the electrical disconnection or severing of a wire end from the terminal post.

As is well known to those familiar with the electrical art, it is quite often necessary to make a test to determine the existence of a flow of current in a circuit or to determine the electrical continuity of a circuit. It is also well known that where such tests are made in connection with electrical conducting wire ends firmly attached to binding posts that considerable time is lost in removing the wire terminal from the binding post so as to sever the electrical connections prior to making the desired tests.

It is also well known that where the tests are made in a situation where a large number of wires are assembled at one location, as in a junction box, the removal of wires from binding posts is an operation which must be performed with extreme caution because in replacing wires, it is extremely easy to make a mistake.

Applicants' invention was devised for the purpose of enabling the necessary electrical testing to be accomplished without actually removing a wire from a binding post or terminal post.

In the illustrative embodiment, Figs. 1 and 2, numeral 1 designates an ordinary screw-threaded metallic electrical conducting post or terminal.

One wire terminal or more may be connected to the terminal post 1. Some of the wire terminals may be connected, if desired, in what may be called a permanent connection, that is, in the ordinary and well known manner whilst others may be connected in the new manner as provided for by our invention.

In the drawing, wire terminal 3 may be considered as a wire terminal which is permanently connected to post 1. It rests upon a metallic washer 5 which is in electrical contact with post 1 and has bearing upon its upper surface another metallic washer 7 also in electrical contact with post 1. Above washer 7 is a nut 9 screw-threaded on post 1. By screwing nut 9 down, the wire 3 is held in suitable electrical contact with post 1.

The connection of wire end 13 illustrates our improvement. This wire end is formed with an eyelet 15 which completely surrounds post 1, but it is separated electrically from post 1 by the insulating flanged sleeve interposed between the metallic eyelet 15 and the metallic post 1 and nut 9.

The eyelet 15 rests upon the metallic electrical conducting washer 19, but this too is electrically disconnected from the post 1 by reason of the flanged insulating sleeve 17.

Electrical connection is, however, made between wire end 13 and the post 1 because the wire terminal 15 is in electrical contact with the metallic flanged bushing 23, which in turn is in electrical contact with nut 25 screw-threaded upon post 1.

The construction hereinbefore described affords a good electrical conducting path between wire end 3 and wire end 13 by means of a washer as 7, nut 9, post 1, nut 25, bushing 23 and eyelet 15.

In ordinary practice, wire 13 surrounded by eyelet 15 would be held in electrical contact with post 1 by being bound between a metallic washer, such as 19, resting on nut 9 and a metallic washer such as 19 thereabove, and the whole would be squeezed together by a nut such as 25 bearing on the upper washer. With such a construction, in order to remove wire end 13 from electrical contact with post 1, it would be necessary to entirely remove nut 25 from the entire upper length of the terminal post. When this is done, the wire, such as 13, would be hanging free in the air and, unless identifying means are secured thereto, it might well be replaced on the wrong post if it were one of several wires which were removed at the same time from closely adjacent posts.

If it is desired to ascertain whether or not there is a flow of current between 3 and 13 by inserting a test meter therebetween, it is necessary to first sever the electrical connection between 3 and 13. This is accomplished by merely backing off nut 25 as shown in Fig. 2. When this is done, the path for the electrical current hereinbefore described between 3 and 13 is broken between bushing 23 and nut 25 because bushing 23 cannot follow the nut 25 up the terminal post 1. This is so because a spring 27 is interposed between the shoulder 29 on nut 25 and a flanged insulated bushing 31. The spring 27 forces the flange of the insulating bushing 31 against the flange 33 of the metallic bushing 23 and keeps it pressed down so that the metallic bushing cannot rise with nut 25 and maintain electrical contact therewith.

When the parts are in the position as shown in Fig. 2, the electrical testing device may be interposed between 3 and 13 and if there is a flow of current therebetween, the testing device will so indicate.

If the electrical continuity of the circuit including wire terminal 3 needs to be tested, one terminal of the testing device may be touched to wire 3 and the other terminal of the testing device to the other end of the circuit, the continuity of which is to be tested. When this test is made, no interference will be received from wire 13 as it is entirely electrically disconnected from wire 3.

In the same way, the electrical continuity of a circuit involving wire 13 may be tested without any interference from wire 3.

From the hereinbefore given description, it will be seen, that we have provided a testing post to which at least two wire terminals may be connected mechanically and these two wire terminals may be electrically connected one with the other or disconnected one from the other, by the simple turning of a nut and that testing may be accomplished without removing the wire terminals from their positions on the binding terminal post.

It should be observed that if insulating bushing **31** and spring **27** is omitted, it is possible, by backing off nut **25** to separate it from metallic bushing **23** so that wire **13** would then be electrically separated from post **1** and the objects of the invention could be attained, but the preferred form is the one shown in the drawing because in that form the use of the spring **27** and the insulating bushing **31** quite effectually prevents any possible upward movement of metallic bushing **23** to follow up the backing off of nut **25**. Furthermore, with the preferred construction a single twist or turn of nut **25** is sufficient to separate nut **25** from metallic bushing **23** and one may be assured, without careful inspection, that the desired separation has been caused.

It is also to be observed that the spring **27** keeps flanged bushing **23** quite evenly pressed on both flanges so that it remains quite parallel to sleeve **17** and post **1** so that if there is an exceptionally thick wire between **19** and **33** and the top end of **23** rises above the top end of **17**, either before or after nut **25** is backed away, the end of **23** will not get into electrical contact with post **1**.

It is also to be observed that the top end **35** of sleeve **17** must always be below the top end **37** of **23** when nut **25** is screwed down to contact the top end of **23**.

In Figs. 3 and 4, we have shown a modified form of the invention. In this form a nut **41** corresponding to nut **25** of the form shown by Figs. 1 and 2 is counterbored at **42** to allow an elongated insulating sleeve **39**, corresponding to the insulating sleeve **17** of Figs. 1 and 2, to project therein.

With the form of construction shown by Figs. 3 and 4, even if a very large wire **13** is used so as to elevate flanged bushing **23** very considerably, the upper end of **23** will be more safely prevented from coming into contact with the post **1**, due to any possible tipping.

Although we have particularly described one particular physical embodiment of our invention and explained the construction and principle thereof, nevertheless, we desire to have it understood that the forms selected are merely illustrative, but do not exhaust the possible physical embodiments of the idea of means underlying our invention.

What we claim as new and desire to secure by Letters Patent is:

1. A test post, including, in combination, a screw-threaded electrical conducting metallic post, an abutment, an insulating sleeve surrounding the post and resting on the abutment, said sleeve being provided with a flange whereby an electrically conducting wire may surround the sleeve and be supported by the flange, an electrical conducting metallic bushing surrounding the insulating sleeve, said metallic bushing formed with a flange whereby the bushing rests upon an electrical conducting wire surrounding the insulating sleeve, an internally screw-threaded nut formed with a shoulder screwed onto the post and bearing against the metallic bushing, an insulating bushing surrounding the metallic sleeve, a flange formed on the insulating bushing resting on the flange of the metallic bushing, and a metallic expansion spring interposed between the shoulder on the nut and the flange on the insulating bushing whereby the nut may be backed up slightly electrically disconnecting the metallic bushing from the nut and so the electrical conducting wire from the post.

2. A test post, including, in combination, a screw-threaded electrical conducting metallic post, an abutment, an insulating sleeve surrounding the post and resting on the abutment, said sleeve being provided with a flange whereby an electrically conducting wire may surround the sleeve and be supported by the flange, an electrical conducting metallic bushing surrounding the insulating sleeve, said metallic bushing formed with a flange whereby the bushing rests upon an electrical conducting wire surrounding the insulating sleeve, an internally screw-threaded nut formed with a shoulder screwed onto the post and bearing against the metallic bushing, an insulating bushing surrounding the metallic sleeve, a flange formed on the insulating bushing resting on the flange of the metallic bushing, and a metallic expansion spring interposed between the shoulder on the nut and the flange on the insulating bushing whereby the nut may be backed up slightly electrically disconnecting the metallic bushing from the nut and so the electrical conducting wire from the post, said nut being formed with a counterbore and said insulating sleeve being of a length sufficient to extend into the counterbore when a wire end is positioned under the flange of the metallic bushing.

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