

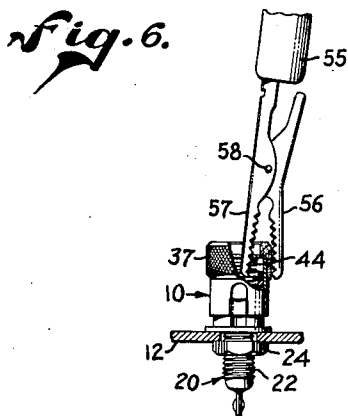
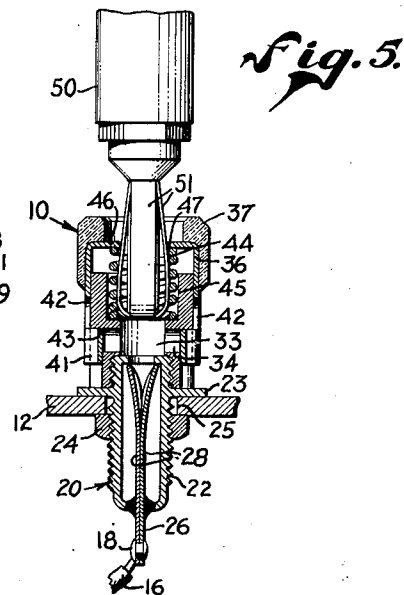
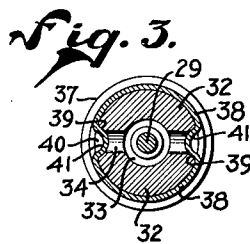
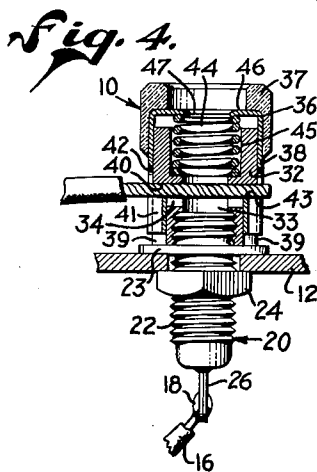
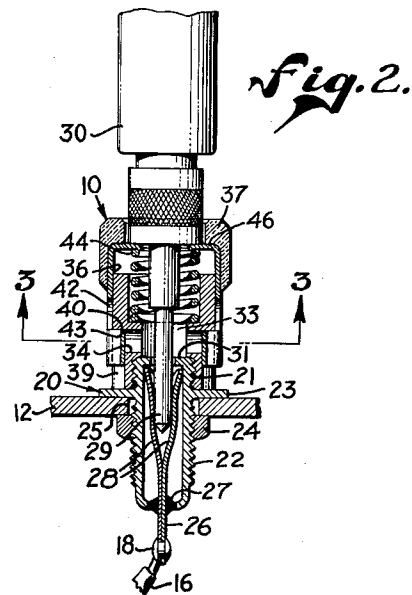
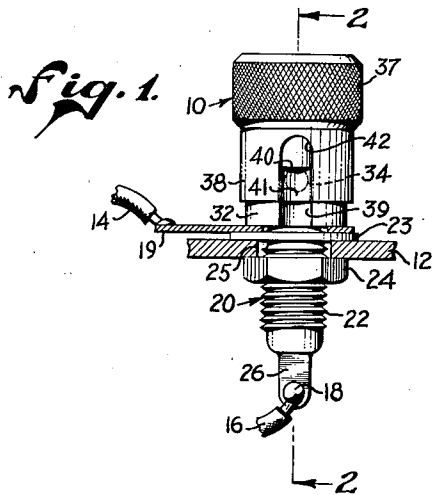
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2,567,510

UNIVERSAL BINDING POST

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UNIVERSAL BINDING POST

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3 Claims. (Cl. 173-259)

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The invention relates to binding posts for electric connections and has particular reference to a binding post which is adapted to be connected to some stationary object and which is so designed that it will permit an efficient electric connection to be made with any one of a number of different types of terminals plugs and clamps.

Binding posts for connecting electric terminals are widely used and comprise many varieties, the commonest variety being a threaded extension and a nut for anchoring a wire or fork terminal which may be applied to the threaded extension. Other types of binding posts include clips such as are frequently used on storage batteries which are adapted to be manually depressed to permit manual insertion of a wire and then allowed to spring back to firmly anchor the wire in place.

Still other types of binding posts are those adapted to receive the commonly known telephone type plug with some spring device or other provided for firmly gripping the plug to resist physical removal of the plug and likewise to provide a proper electric connection between the plug and the binding post.

Although these individual types of binding posts serve their separate purposes efficiently and conveniently, they are not sufficiently versatile to permit a proper connection to be made unless the electric terminal has the particular form for which the binding post is designed.

When electric devices are built, it is not always certain which kinds of terminals will be encountered in the field. At times a device having binding posts to fit the terminals may have to be replaced with some other available device without binding posts of the proper kind, necessitating a change also of either the posts or the terminals for proper and convenient operation.

Furthermore, when an electrically operated device is already provided with wiring featuring one type or another of electric terminal in considerable quantity, it is inconvenient and expensive to make changes in the terminals should the electric device to be connected be provided with binding posts unsuited to the particular type of terminal originally installed.

It is, therefore, among the objects of the invention to provide a new and improved binding post which is so constructed that it can make a satisfactory electric connection to any one of a wide variety of different types of electric terminals.

Another object of the invention is to provide a new and improved universal type binding post

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which is simple in design and construction and relatively inexpensive to manufacture.

Still another object of the invention is to provide a new and improved binding post of sturdy and rugged construction in which various working parts are designed and made to perform several different functions, thereby substantially minimizing the number of individual parts while at the same time preserving all of the functions necessary to provide a universal connection.

With these and other objects in view, the invention consists in the construction, arrangement and combination of the various parts of the device whereby the objects contemplated are attained, as hereinafter more fully set forth, pointed out in the claims and illustrated in the accompanying drawings, in which:

Figure 1 is a side elevational view of the device showing a mounting for the post and a specific type of connected terminal partially in section.

Figure 2 is a longitudinal, sectional view of the device taken on the line 2-2 of Figure 1 but with a telephone type plug substituted for the terminal illustrated in Figure 1.

Figure 3 is a cross-sectional view on the line 3-3 of Figure 2.

Figure 4 is a longitudinal, sectional view similar to Figure 2 but in which an electric wire is applied to the plug in place of the telephone type plug.

Figure 5 is a longitudinal, sectional view similar to Figure 2 with a banana type plug substituted for the telephone type plug.

Figure 6 is a side elevational view partially in section showing application of an alligator clamp to the binding post.

In providing an electric binding post for almost any type of electric device it is of great advantage to the man in the field to be able to attach any one of many different types of electric terminals to the binding post. In most cases the electric terminals are permanently fastened to the electric lead or wire by a soldered joint, and to remove and replace the terminal necessitates extra work which consumes time and delays installation in servicing. While it is true that multiple binding posts might be provided in order to permit a device so equipped to be properly connected to any type of terminal which might be encountered, the provision of extra binding posts would be cumbersome and expensive.

Binding posts of a multiple type have also been attempted, but these for the most part have not been compact and inexpensive and have also

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failed to provide a binding post of sufficient versatility to accommodate all of the commercial styles of electric terminals.

In an embodiment chosen to illustrate the invention there is shown a universal post assembly indicated generally by the character 10 and shown applied to a casing 12. The binding post, as illustrated in Figure 1, shows a removable electric lead 14 attached to the upper portion of the post and a permanent lead 16 attached to the lower end of the post preferably by means of a drop of solder 18. The electric lead 14 in Figure 1 is shown provided with a terminal 19 which may be either a forked, lug or spade terminal.

The binding post comprises in part a stationary post 20 having an outer threaded portion 21, an inner threaded portion 22 and a flange 23 separating the outer and inner portions. In the particular set-up illustrated a nut 24 is threaded upon the inner portion 22 so that the stationary post is firmly maintained in a suitable aperture 25 on the casing 12. In order to make a permanent electric connection to the post from the permanent lead 16, the post is provided with a metallic element 26, the lower end of which receives the lead 16. The element is brazed or soldered intermediate its ends to the lower end of the inner portion of the stationary post by means of a brazed joint 27. At its upper end the element is split into two halves or leaves 28, the upper ends of which are curved outwardly so as to permit the ready insertion of an end 29 of a telephone type plug 30. The leaves 28 are spring pressed into frictional engagement with the end of the plug. An inwardly turned flange 31 guards the ends of the leaves in order to guide the entry of the end 29 into its position between the leaves. A similar inwardly turned flange is present likewise on the opposite end of the post.

For the accommodation of other types of terminals the post assembly is provided with a body 32 having a central bore 33, the lower end of which is enlarged and threaded so as to engage the outer threaded portion of the stationary post. The body may be removed from the stationary post and replaced in a tightened position against a lug or spade type terminal in the manner shown in Figure 1.

A transverse aperture 34 extends through the body from side to side for the accommodation of a bare electric wire 35 as shown in Figure 4. In order to hold an electric wire, or plug terminal of sufficiently small diameter, the post assembly is provided with a cap 36 surmounted by a sleeve 37 of insulating material. The cap has a skirt portion 38 extending downwardly and surrounding the body 32. In order to hold the cap in place, the body is provided with oppositely disposed longitudinal recesses 39 which extend inwardly part way from the lower end, terminating in shoulders 40 at the ends of the transverse aperture.

To secure the skirt of the cap to the body, portions 41 of the skirt are indented into the longitudinal recesses of the body. At the inner ends of the longitudinal recesses the cap is provided with plug receiving apertures 42 best seen in Figure 1. By providing apertures of this kind the inside end of the indented portions of the skirt are cut off and edges 43 remain which, when the cap is extended as shown in Figure 1, are adapted to engage the shoulders 40 and prevent removal of the cap. In Figure 4 the edges are shown in engagement with the bare wire 35.

To provide a tight grip upon the bare electric

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wire 35, means comprising a coiled spring 44 is employed which normally urges the cap outwardly so as to force the edges 43 against the lower side of the bare wire. The spring is received within an enlargement 45 at the upper end of the bore 33, the enlargement providing a shelf at the bottom against which the bottom of the spring is designed to press. The upper end of the spring is designed to engage an inwardly turned flange 46 of the cap in which is a central aperture 47. The spring normally urges the cap into the position shown in Figure 1 wherein the edges 43 on the skirt engage the shoulder 40 of the body. The spring may be depressed, however, a distance sufficient to permit the apertures 42 to be in substantial alignment with the transverse aperture 34 in order that the bare wire 35 may be inserted laterally through the post assembly where upon release of the cap the coiled spring urges the cap outwardly to firmly fasten the wire in place.

The binding post assembly is shown in Figure 5 in a position wherein it receives a banana type plug 50. The banana type plug is of conventional design incorporating two pairs of spring-like elements 51 which extend outwardly near the end to give the plug a bulb-like shape wider at the outer end than at the point of connection with the banana type plug. When the plug is applied to the post assembly, the spring-like portions 51 are depressed a slight amount by the wall of the aperture 47 as the plug is passed into the assembly and then expanded outwardly into contact with the coiled spring 44 and wall of the aperture. Outward expansion of the spring-like elements serves the double purpose of holding the banana type plug in place and likewise providing an efficient connection between the plug and the binding post assembly.

Figure 6 still further illustrates the versatility of the binding post assembly herein described. In this figure an alligator clamp 55 having serrated jaws 56 and 57 pivoted at the point 58 is shown with the jaw 57 inserted within the post assembly wherein the teeth are urged into engagement with the coils of the spring 44 by spring pressure inherent in the clamp. By this device the clamp is physically attached to the binding post through the spring by a connection which likewise provides an efficient electric contact.

The provision of a universal type binding post of the type described which incorporates both longitudinal and transverse apertures for the reception of various types of terminals and also provides for tightening of the body on a stationary post in the manner of a nut is productive of an electric connection of an extremely versatile sort. The device is simple in its construction, has relatively few moving parts, all of which are compactly arranged and housed within the outer portions of the assembly, and working parts cannot readily get out of order. The binding post assembly is therefore suitable for use under all sorts of circumstances wherein it can be counted upon to provide an efficient electric connection which will not readily become separated.

Although the invention has been herein shown and described in what is conceived to be the most practical and preferred embodiment, it is recognized that departures may be made therefrom within the scope of the invention, which is not to be limited to the details disclosed herein but is to be accorded the full scope of the claims so as to embrace any and all equivalent structures.

The invention having been herein described,

what is claimed and sought to be secured by Letters Patent is:

1. A universal binding post assembly adapted to the retention of electric terminals of different types comprising a stationary post providing a permanent wire connection, means within the post adapted to the reception of a telephone type plug, a removable body having a threaded connection to an end portion of the post for the clamping of electric terminals of an apertured type, said body including a transverse aperture adapted to the reception of elongated electric terminals, a spring pressed cap having limited axial movement relative to the body comprising a skirt surrounding the body and transverse plug receiving apertures therein, cooperable detention means between the skirt and the body, said apertures having positions of substantial alignment with the transverse aperture when said cap is moved against spring pressure, said cap having an open axial bore adapted to engagement with terminal connections of the banana plug and alligator clamp types, and a spring acting between the body and the cap normally urging said cap endwise relative to the body.

2. A universal binding post assembly adapted to the retention of electric terminals of different types comprising a stationary post having opposite threaded end portions separated by a flange and a nut on one end portion adapted to cooperate with the flange for anchoring the post to a support, said post having a hollow interior and inwardly turned flanges at opposite ends, an electric connection element comprising an exterior end providing a solder connection, a split interior end providing resilient leaves adapted to the reception of a telephone type plug and an integral joint between the lower end of the post and a portion of the element intermediate the ends, a body having an axial bore and a threaded connection between the body and the other end portion of the post removable and replaceable for the clamping of electric terminals of an apertured type to the post, said body including a transverse aperture adapted to the reception of elongated electric terminals opposite longitudinal recesses on the exterior of the body terminating in shoulders adjacent ends of the transverse aperture, and an enlargement at the end of the bore remote from the threaded connection providing an annular shelf at the bottom thereof, a spring pressed cap comprising a skirt surrounding the body having longitudinal body recesses and transverse plug receiving apertures at the inner ends of the in-

dentations providing exposed edges engageable with the shoulders of the body recesses, said apertures having positions of substantial alignment with the transverse aperture in depressed position of the cap, an insulating sleeve on the outside end of the cap and a coiled spring in the enlargement of the bore acting between the shelf and the cap normally urging said cap outwardly from the body and adapted to reception of and engagement with terminal connections of the banana plug and alligator clamp types.

3. A terminal binding post assembly adapted to the retention of electric terminals of different types comprising a stationary post having opposite threaded end portions separated by a flange and a nut on one end portion adapted to cooperate with the flange for anchoring the post to a support, said post having a hollow interior and inwardly turned flanges at opposite ends, an electric connection element comprising an exterior end providing a permanent wire connection, a split interior end adapted to the reception of a telephone type plug and a connection between the element intermediate the ends and the lower end of the post, a removable body having a threaded connection to the other end portion of the post for retention of electric terminals of an apertured type, said body having an axial bore therethrough, a spring pressed apertured cap on the body having a limited slideable connection therewith, a coiled spring in the bore acting between the body and the cap normally to extend said cap outwardly from the body and adapted to engagement with the terminal connections of the banana plug and alligator clamp types.

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