

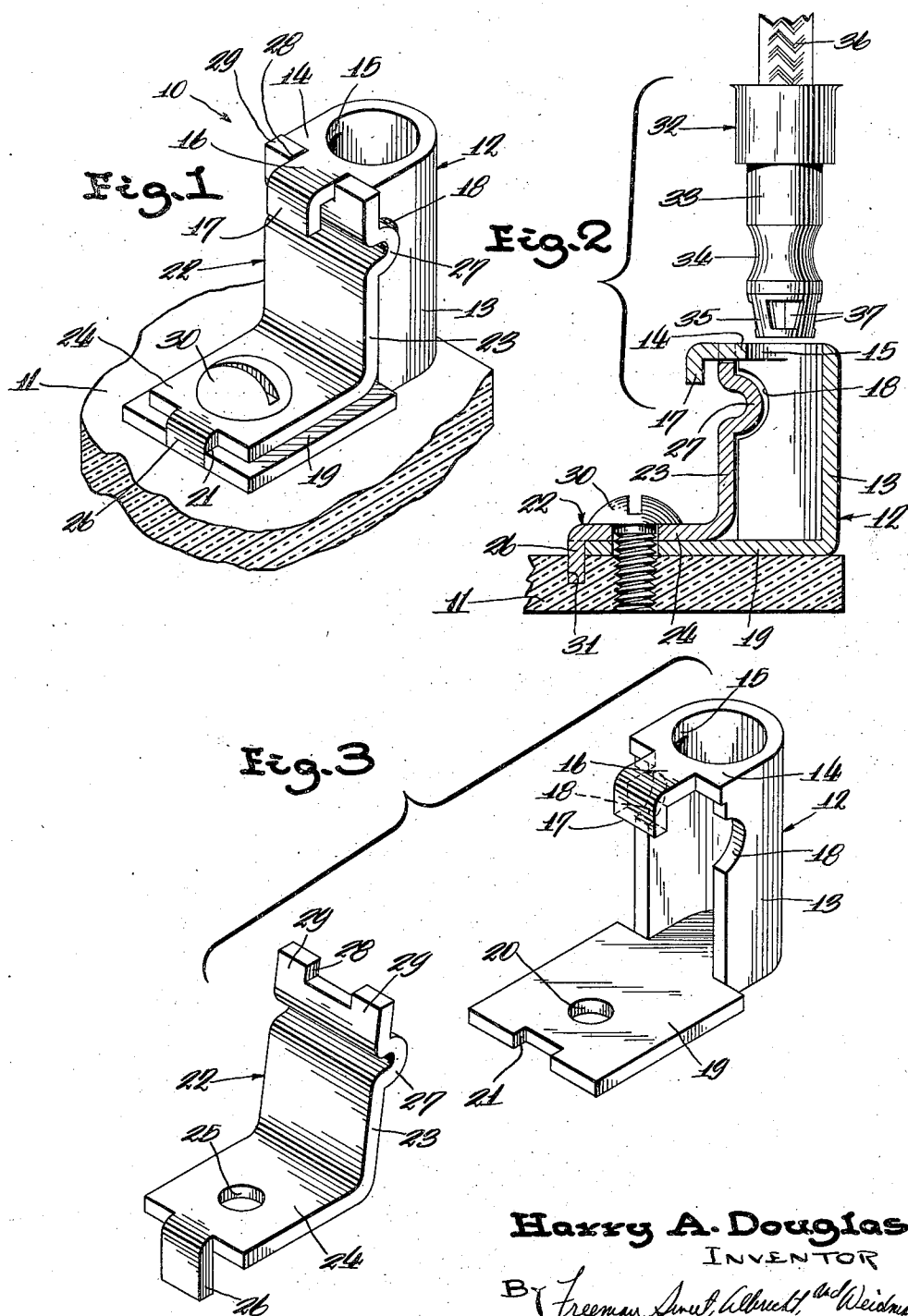
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ELECTRICAL CONNECTION MEANS

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ELECTRICAL CONNECTION MEANS

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My invention relates to electrical connection means, and more particularly to means for receiving conductor terminals of the snap type, and the principal object of my invention is to provide new and improved electrical connection means of these types.

In the drawing accompanying this specification and forming part of this application, I have shown, for purposes of illustration, one form which my invention may assume, and in this drawing:

Figure 1 is a perspective view of the embodiment of my invention, mounted on a base, the base being shown fragmentarily,

Figure 2 is a central vertical longitudinal section of the embodiment, and including, in addition, a plug conductor terminal adapted to cooperate therewith, and

Figure 3 is a perspective view of the parts comprising the embodiment, the parts being shown in disassembled relation.

Referring to the embodiment of my invention herein disclosed, a terminal post 10 is suitably mounted on a base 11. The terminal post 10 includes a body 12, here shown as made of sheet metal stock. The body 12 includes a generally vertical elongated U-shaped wall 13, closed at the top by an integral wall 14. The wall 14 is provided with an aperture 15 and this wall extends from the upright margins of the vertical wall 13, and the extension of the wall 14 is provided with a reduced projection or tongue 16, having its extremity bent downwardly, as shown at 17. Intermediate the extent thereof, the margins of the vertical wall 13 are each provided with a curved recess 18, here shown to be semi-cylindrical in shape.

The lower end of the vertical wall 13 is closed by a portion of a generally plane horizontal wall 19, here shown to be integral therewith and extending at right angles from the lower end thereof. The horizontal wall 19 is shaped to correspond to the U-shaped contour of the vertical wall 13, and extends from the vertical wall 13 and is of increased width, as clearly shown in Figure 3. Intermediate the vertical wall 13 and a margin of the horizontal wall 19 opposite thereto, the horizontal wall 19 is formed with an aperture 20, and the opposite margin just referred to is provided with a recess 21.

Biasing means 22 are provided for cooperation with the body 12, and comprise a generally plane substantially upright leg 23, and a generally plane horizontal foot 24, the latter extending generally at right angles from the lower end of the up-

right leg 23. The horizontal foot 24 of the biasing member 22 is adapted to overlie that portion of the horizontal wall 19 of the body 12 extending from the vertical wall 13, but being of a lesser width than this portion of the horizontal wall 19. The horizontal foot 24 of the biasing means 22 is provided with an aperture 25 and a downwardly struck projection 26, and the aperture 25 and projection 26 have been formed to align respectively with the aperture 20 and recess 21 when the biasing means 22 is assembled with the body 12. The upright leg 23 of the biasing means 22 is greater in width than the distance between the upright margins of the U-shaped vertical wall 13, and cooperates therewith to form a generally tubular structure. Intermediate its length, the upright leg 23 is formed with a curved portion 27, here shown to be substantially semi-cylindrical and extending transversely of the upright leg 23. The free end of the upright leg 23 is provided with a notch 28 of a width to slidably accommodate the tongue 16 of the body 12. The notch 28 is relatively narrow with respect to the width of the upright leg 23 and forms furcations 29 therewith.

To assemble the biasing means 22 with the body 12, the former is moved to a position so that the horizontal foot 24 thereof overlies the horizontal wall 19 of the latter, with the apertures 25 and 20 in alignment, and the projection 26 disposed in the recess 21. In this position, the upright leg 23 will be sprung slightly to the left, as viewed in Figure 3, to dispose this portion in substantially vertical position as shown in Figure 1, and the furcations 29 will abut the extending margins of the upper wall 14. The portions of the leg 23 adjacent the upright margins of the vertical wall 13 will be slightly spaced therefrom, as clearly shown in Figure 2, and the curved portion 27 will be disposed within the tubular structure formed by the vertical wall 13 and the leg 23. Suitable fastening means may be disposed through the aligned apertures 25 and 20, and as here shown, comprise a screw 30, having the head thereof engaging the upper surface of the horizontal foot 24, and its screw-threaded end in engagement with a screw-threaded recess formed in the base 11. To prevent the terminal post 10 from turning about the fastening means 30, that portion of the downwardly struck projection 26 which extends from the lower surface of the horizontal wall 19 is closely accommodated in a recess 31 formed in the base 11.

In Figure 2 is shown a plug conductor terminal 32 adapted to cooperate with the terminal

post 10, and comprising a generally cylindrical portion 33 provided with an annular furrow 34 and a frustro-conical end 35. A plug conductor 36, disposed within the plug conductor terminal 32, may be secured thereto, as by swedging, indicated by the swedge indentations 37 in the frustro-conical end 35.

To assemble the plug conductor terminal 32 with the terminal post 10, the frustro-conical end 35 may be inserted into the aperture 15, further insertion causing the tapered surfaces of the frustro-conical end 35 to engage the curved portion 27 of the biasing means 22 and the inner surface of the vertical wall 13 of the body 12, this inserting movement camming the leg 23 of the biasing member 22 to the left, as viewed in Figure 2, until the annular furrow 34 is positioned adjacent the curved surface 27, whereupon the vertical wall 23 of the biasing means will move to substantially normal position, and the curved surface 27 will snap into the annular furrow 34 and thereby hold the plug conductor terminal 32 in place.

The plug conductor terminal 32 may also be assembled with the terminal post 10 by applying force to the furcated portions 29 to move the vertical wall 23 to the left, as viewed in Figure 2, and then inserting the plug conductor into the aperture 15 to operative position, and letting the biasing means 22 snap into engagement therewith. In like manner, the plug conductor terminal may be removed from the terminal post 10 by applying force to the furcated portions 29 and withdrawing the plug conductor terminal 32 when the latter is disengaged with respect to the curved part 27. Also, a pull on the plug conductor 32 will cause the curved surfaces of the annular furrow 34 to cam the curved surface 27 out of engagement therewith, and thereby permit removal of the plug conductor terminal.

However, regardless of the method of inserting or withdrawing the plug conductor terminal 32 with respect to the terminal post 10, it will be appreciated that the leg 23 of the biasing means 22 is positively stopped in its movements by abutment with either the extending portion of the wall 14, or with the angularly disposed portion 17, and is guided in its movements by the cooperable relation existing between the notch 28 and the tongue 16. The abutments for the biasing means are disposed adjacent the free end thereof, and the likelihood of bending and distorting the biasing member 22 by applying a substantial force to the furcated portions 29 thereof is minimized. Also, the abutments have been spaced so that the leg 23 of the biasing member 22 can be moved a distance necessary for proper functioning of the terminal post 10, but short of the elastic limit of material from which the biasing means is formed.

From the foregoing it will be apparent to those skilled in the art that the illustrated embodiment of my invention provides a new and improved electrical contact and connection means, economical in construction and assembly, and accordingly, accomplishes at least the principal object of my invention. It further will be obvious to those skilled in the art that the illustrated embodiment of my invention may be variously changed and modified without departing from the spirit of my invention, or sacrificing all of the advantages thereof, and that accordingly, the disclosure herein is illustrative only, and my invention is not limited thereto.

I claim:

1. Receptacle means, comprising: a generally tubular portion, having an opening in its defining wall, one open end of said tubular portion providing for the passage of a conductor terminal to position within said tubular portion, and said portion having also a tongue formed with an angularly disposed extremity; and biasing means, having a movable arm formed with a part working through said opening, said arm being biased so as to urge said part to extend into said tubular portion and yieldably engage a conductor terminal within said tubular portion, said arm having a slot arranged to receive said tongue and to permit movement of said arm relative to said tongue, said movement being limited in one direction by abutment of said arm with said angularly disposed extremity.

2. Receptacle means, comprising: a generally tubular portion, having an opening in its defining wall, one open end of said tubular portion providing for the passage of a conductor terminal to position within said tubular portion, and said portion having also a laterally extending tongue at said one end, said tongue being formed with an angularly disposed extremity; and biasing means, having a movable arm formed with a part working through said opening, said arm being biased so as to urge said part to extend into said tubular portion and yieldably engage a conductor terminal within said tubular portion, and the free end of said arm having a slot arranged to receive said tongue and to permit movement of said arm relative to said tongue, said movement being limited in one direction by abutment of said free end with said angularly disposed extremity.

3. Receptacle means, adapted to be secured to a support, and comprising: a body, formed of sheet-metal, having a generally tubular portion provided with an interruption in its defining wall, one end of said tubular portion providing for passage of a conductor terminal to position within said tubular portion, and said body having also a base extending transversely from the opposite end of said tubular portion; biasing means, formed of sheet-metal bent to provide a base and a portion extending angularly from this base; said body base and said biasing means base being held in position so that one overlies the other, and said angular portion being disposed substantially parallel to said tubular portion, and having a part urged to extend through the interruption in the defining wall of said tubular portion, in position to engage the conductor terminal; said biasing means having parts formed on its base and on its angularly extending portion constructed and arranged to match with parts formed respectively on the base and tubular portion of said body, so as to pre-locate said biasing means with respect to said body, before said receptacle means is secured to a support.

4. Receptacle means, adapted to be secured to a support, and comprising: a body, formed of sheet-metal, having a generally tubular portion provided with an interruption in its defining wall, one end of said tubular portion providing for passage of a conductor terminal to position within said tubular portion, and said body having also a base extending transversely from the opposite end of said tubular portion; biasing means, formed of sheet-metal bent to provide a base and a portion extending angularly from this base; said body base and said biasing means base being held in position so that one overlies

the other, and said angular portion being disposed substantially parallel to said tubular portion, and having a part urged to extend through the interruption in the defining wall of said tubular portion, in position to engage the conductor terminal; said biasing means and said body having spaced-apart sets of interfitting abutments and recesses, constructed and arranged to pre-locate said biasing means with respect to said body, before said receptacle means is secured to a support.

5. Receptacle means, comprising: a generally tubular portion substantially open along one side having a recess in its defining wall, one open end of said tubular portion providing for the passage of a conductor terminal to position within said tubular portion, and said portion having also a tongue formed with an angularly disposed extremity; and biasing means closing the open side of said tubular portion having a movable arm formed with a part working through said recess, said arm being biased so as to urge said part to extend into said tubular portion and yieldably engage a conductor terminal within said tubular portion, said arm having a slot arranged to receive said tongue and permit movement of said arm relative to said tongue, said movement being limited in one direction by abutment of said arm with said angularly disposed extremity.

6. Receptacle means, comprising: a generally tubular portion substantially open along one side having a recess in its defining wall, one open end of said tubular portion providing for the passage of a conductor terminal to position within said tubular portion, and said portion having also a laterally extending tongue at said one end, said tongue being formed with an angularly disposed extremity; and biasing means closing the open side of said tubular portion having a movable arm formed with a part working through said recess, said arm being biased so as to urge said part to extend into said tubular portion and yieldably engage a conductor terminal within said tubular portion, and the free end of said arm having a slot arranged to receive said tongue and

permit movement of said arm relative to said tongue, said movement being limited in one direction by abutment of said free end with said angularly disposed extremity.

7. Receptacle means, for receiving and holding a conductor terminal, consisting of two members, one of said members being constructed of sheet metal and having a base portion to which is integrally connected an upstanding substantially channel portion having an open end whereby to receive a conductor terminal, a recess provided in the marginal edge of each side wall of the channel and an angular projection formed on said channel portion in spaced relation to said recesses whereby to provide a seat; and biasing means cooperable with the open side of said channel portion to close same, and having an operative portion cooperating with and closing said recesses and permitting said operative portion to project into the interior of the channel a sufficient distance to engage and hold the terminal to said channel, said biasing means also having a base portion which, when properly connected to the base of said channel portion, will maintain the upper extremity of said operative portion locked for limited movement within said seat.

8. Receptacle means, comprising: a generally tubular portion, having an opening in its defining wall, one open end of said tubular portion providing for the passage of a conductor terminal to position within said tubular portion, and said portion having also a tongue formed with an angularly disposed extremity; and biasing means, having a movable arm formed with a part working through said opening, said arm being biased so as to urge said part to extend into said tubular portion and yieldably engage a conductor terminal within said tubular portion, said arm also having a part arranged in spaced apart relation to said angularly disposed extremity whereby to permit movement of said arm relative to said tongue, said movement being limited in one direction by abutment of said arm part with said angularly disposed extremity.

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