June 17, 1941. A. W. GRAHAM 2,246,356

SHORT TEST TERMINAL

Filed June 30, 1939

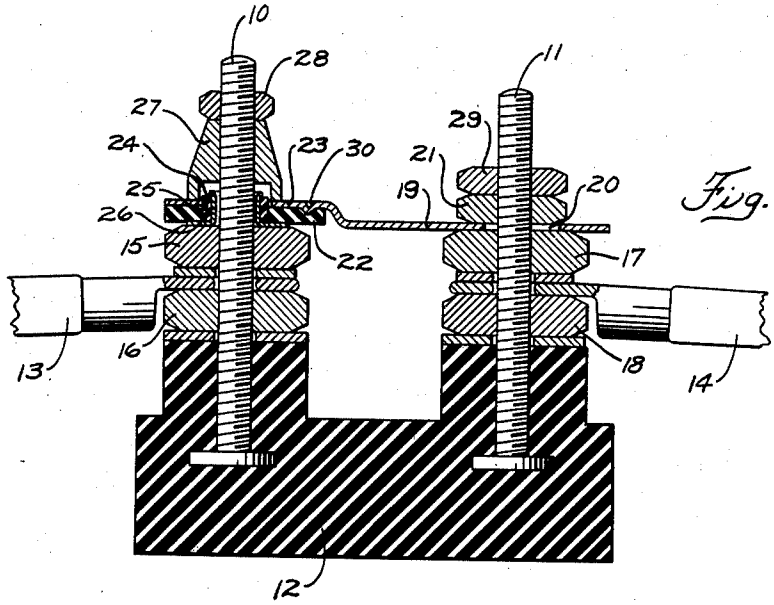


Fig. 2

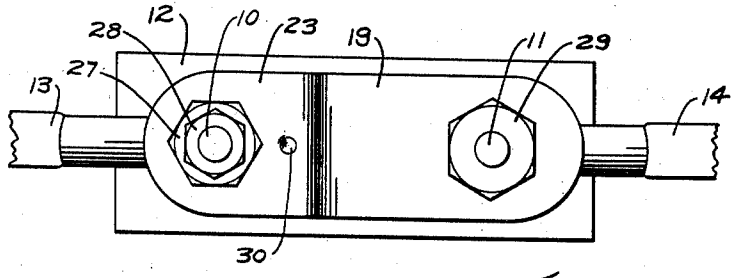


Fig. 1

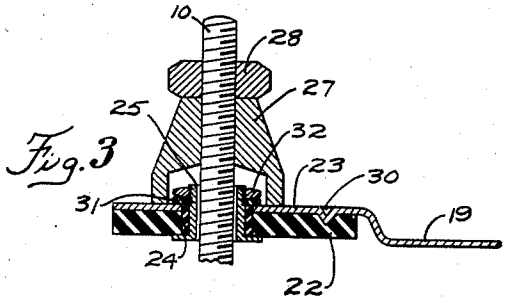


Fig. 3

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SHORT TEST TERMINAL

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4 Claims. (Cl. 200—158)

This invention relates to connecting means between terminals designed to permit quick testing of circuits between those terminals, and finds one particular use in railroad signaling brackets where circuits have to be tested quite frequently. It is a primary object of the invention to provide an exceedingly simple structure that may be employed in close spacing of terminals. The invention consists essentially of means interconnecting two terminals for normal circuit conditions and providing a terminal nut that may be unscrewed slightly to interrupt the circuit and permit an additional connection between the terminals independently of the normal connection. In this regard reference is made to the United States Patent No. 2,145,041 issued to S. C. Childers, January 24, 1939. The present invention is intended to be used in the same manner as suggested by that patent but lends itself to use where the terminals are more closely spaced than it is possible with the use of the terminal connection in that patent.

These and other objects and advantages of the invention will become apparent to those versed in the art in the following description of the invention as illustrated in the accompanying drawing, in which

Fig. 1 is a top plan view of a structure embodying the invention;

Fig. 2, a central longitudinal section through the structure; and

Fig. 3, a detail in central vertical longitudinal section of a modified form.

Like characters of reference indicate like parts in the two views of the drawing.

A pair of terminals 10 and 11 are herein shown as having heads embedded in a block of insulating material 12, each terminal having an appreciable length extending from the block 12. In many of the modern installations, these terminals will be spaced in signal brackets as close as one inch from center to center. Wires 13 and 14 are connected to the respective terminals 10 and 11 in the usual manner between the securing nuts 15, 16 and 17, 18.

To interconnect the two terminals 10 and 11, I form a band or flat bar 19 of suitable conducting material, such as copper or bronze, to have one end perforated preferably in the nature of an elongated slot 20 to permit the strip 19 to be placed down over one of the terminals, terminal 11 in the present case, and have a securing nut 21 drawn down snugly thereagainst by its screw-threaded connection with the terminal 11 to compress the strip 19 between that nut 21 and the underlying nut 17.

The other end of the band 19 is offset upwardly to have an insulating block 22 under that offset portion, the thickness of the block being such that its under surface is then substantially in or slightly above the plane of the underside of the major portion of the strip 19. The offset portion of the strip 19, designated by the numeral 23, is provided with a hole therethrough through which an insulating collar 24 is inserted and carried down through the under block 22. A hollow rivet or ferrule 25 is entered from the underside of the collar and carried therethrough to have a flange 26 extend outwardly and come into contact with a portion of the block 22 surrounding the collar 24. This ferrule 25 extends upwardly through the collar 24 and is preferably rolled over by its top end onto the top side of the collar 24 in order to retain the ferrule in position. The collar 24 fits snugly within the block 22 to prevent its withdrawal therefrom. It is to be noted that the top edge of the collar 24 terminates at or slightly above the plane of the top side of the offset portion 23 of the strip 19. This provides a sufficient spacing between the upper end of the ferrule 25 and the offset portion 23 as will prevent the establishment of any normal circuit thereacross.

As indicated in Fig. 2, the flange 26 extending from the ferrule 25 bears against the top side of the securing nut 15. A nut 27 screw-threadedly engages the terminal 10 and is provided with a lower end having a diameter exceeding that of the collar 24, and this lower end is counterbored so that the nut 27 may be carried down on the terminal 10 to have a peripheral portion come into contact with the offset portion 23. By seating the nut 27 snugly against the strip, a circuit is then established between the terminals 10 and 11 through the terminal 10, nut 27, offset portion 23, remainder of the strip 19, nut 21, and terminal 11. Jam nuts 28 and 29 are employed on the respective terminals 10 and 11 to secure the seating of the nuts 27 and 21. To prevent turning in the insulating block 22 in respect to the strip 19, the offset portion 23 is preferably provided with a detent 30 projecting downwardly from the underside thereof and entering into the block 22.

When the circuit is to be tested, the nuts 28 and 27 are loosened and carried upwardly along the terminal 10 a sufficient distance as will permit the nut 27 to have its lower peripheral end portion removed from contact with the offset end

23 of the strip 19. Connection may then be made by entering a wire between the nuts 27 and 28 and tightening them again relatively one toward the other. In this manner, connection is broken directly between the terminals 10 and 11 simply by raising the nut 27. The circuit is re-established by lowering the nut 27 and securing it against the end 23.

As illustrated in Fig. 3, the block 22 may be secured to the offset end 23 of the strip 19 by forming the upper end of the ferrule 25 with external threads about an upper projecting end in place of rolling this end outwardly over the collar 24. An insulating washer 31 is placed over the end 23 to surround the ferrule 25 and extend outwardly a slight distance onto the end 23 therearound. A jam nut 32 is then screw-threadedly engaged about the upper end of the ferrule 25 and drawn down to compress the washer 31 against the upper end of the collar 24 and also against the end 23. The nut 27 is made sufficiently large in respect to its counterbore to clear the nut 32 so that there is no electrical circuit established between that member and the nut 27. The first form above described, however, is the one that may be made more cheaply and will generally suffice under ordinary conditions.

While I have herein shown and described my invention in the form as now best known to me, it is obvious that structural changes may be employed without departing from the spirit of the invention and I, therefore, do not desire to be limited to that precise form beyond the limitations as may be imposed by the following claims.

I claim:

1. For a test terminal for use with a pair of spaced apart terminal posts, a conductor bar having an opening through one end and the other end offset also with an opening therethrough, an insulating member filling in under the offset end, a spacing collar extending into the opening through the hole in said offset end and through the insulating member, a ferrule extending through the collar having collar impinging means at the ends of the ferrule, said bar having the openings therein spaced one from the other to receive said posts therethrough, a nut on the post which passes through the hole in the opposite end of the conductor bar from the offset end of the bar, and a nut on the post passing through the hole in said offset end, said last nut having its underside counterbored to clear said collar and to form an annular peripheral portion of the nut normally compressively engaging said offset portion of the bar.

2. For a test terminal for use with a pair of spaced apart terminal posts, a conductor bar having an opening through one end and the other end offset also with an opening therethrough, an insulating member filling in under the offset end and having a spacing collar extending into the opening through the hole in said offset end, said bar having the openings therein spaced one from the other to receive said posts therethrough, a nut on the post which passes through the hole in the opposite end of the conductor bar from the offset end of the bar, and a nut on the post passing through the hole in said offset end, said last nut having its underside counterbored to clear said collar and to form an annular peripheral portion of the nut normally compressively engaging said offset portion of the bar, a metallic ferrule extending through said collar, a laterally extending flange on the ferrule extending over onto said insulating member, and means at the other end of the ferrule engaging over the end of said collar.

3. For a test terminal for use with a pair of spaced apart terminal posts, a conductor bar having an opening through one end and the other end offset also with an opening therethrough, an insulating member filling in under the offset end and having a spacing collar extending into the opening through the hole in said offset end, said bar having the openings therein spaced one from the other to receive said posts therethrough, a nut on the post which passes through the hole in the opposite end of the conductor bar from the offset end of the bar, and a nut on the post passing through the hole in said offset end, said last nut having its underside counterbored to clear said collar and to form an annular peripheral portion of the nut normally compressively engaging said offset portion of the bar, a metallic ferrule extending through said collar, a laterally extending flange on the ferrule extending over onto said insulating member, and means at the other end of the ferrule engaging over the end of said collar, said means comprising a turned over flange having its peripheral margin spaced from said bar.

4. For a test terminal for use with a pair of spaced apart terminal posts, a conductor bar having an opening through one end and the other end offset also with an opening therethrough, an insulating member filling in under the offset end and having a spacing collar extending into the opening through the hole in said offset end, said bar having the openings therein spaced one from the other to receive said posts therethrough, a nut on the post which passes through the hole in the opposite end of the conductor bar from the offset end of the bar, and a nut on the post passing through the hole in said offset end, said last nut having its underside counterbored to clear said collar and to form an annular peripheral portion of the nut normally compressively engaging said offset portion of the bar, a metallic ferrule extending through said collar, a laterally extending flange on the ferrule extending over onto said insulating member, and means at the other end of the ferrule engaging over the end of said collar, said means comprising a nut screw-threadedly engaging the end of said ferrule, and said last post nut having its counterbore sufficiently large to clear said ferrule nut.

AUDREY W. GRAHAM.