Aug. 30, 1966 R. E. WALKER 3,269,706

WIRE SPREADER

Filed Dec. 30, 1964

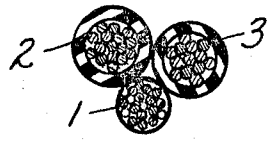


FIG. 1

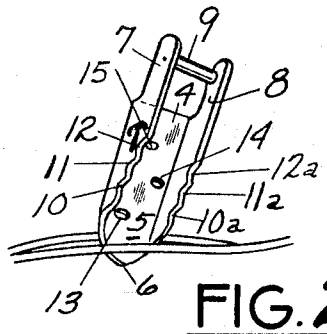


FIG. 2

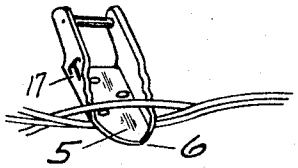


FIG. 3

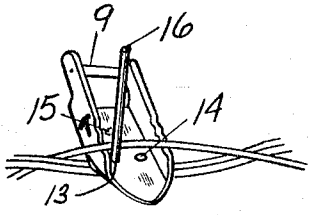


FIG. 4

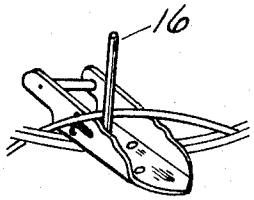


FIG. 5

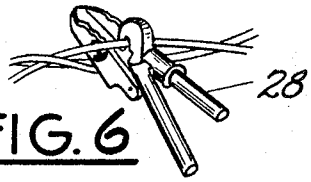


FIG. 6

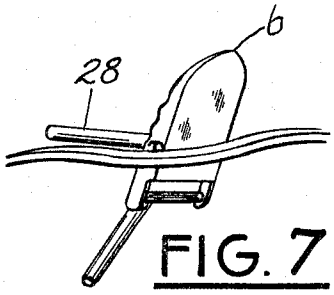


FIG. 7

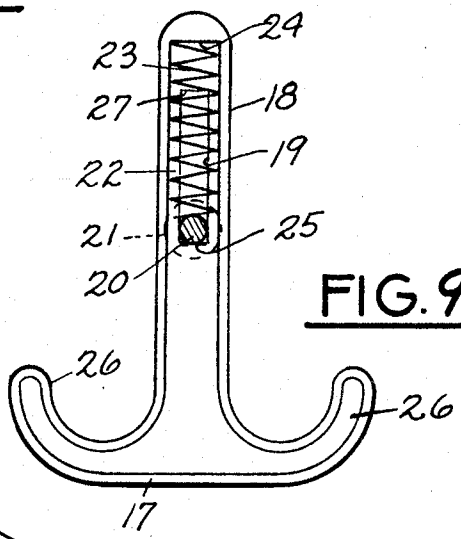


FIG. 9

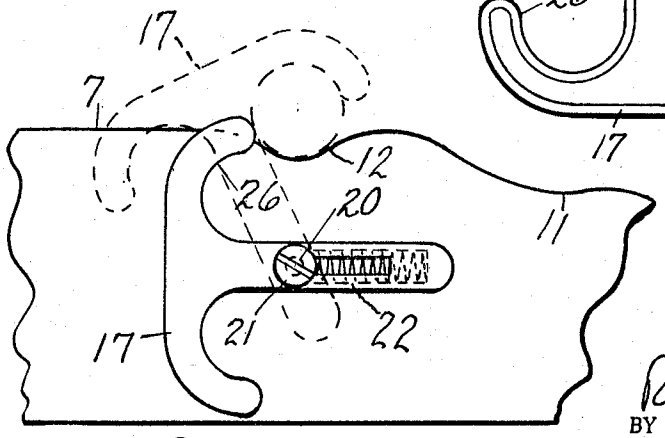


FIG. 8

INVENTOR.
Richard E. Walker
BY
Ralph Hammar
attorney

United States Patent Office 3,269,706
Patented August 30, 1966

3,269,706

WIRE SPREADER

Richard E. Walker, 223 Overlook Drive, Neptune, N.J.

Filed Dec. 30, 1964, Ser. No. 422,170
16 Claims. (Cl. 254—104)

This application is a continuation in part of application Serial No. 341,676, now abandoned.

This invention is a spreader by which linemen can separate the conductor being tapped from the other conductors of a twisted cable, thereby eliminating all danger of short circuit. The spreader is in the form of a board with a tapered end for insertion between the conductor to be tapped and the remaining conductors of the cable, the board having generally wedge shaped sides for holding the conductor to be tapped separated from the cable and providing space to make the tap. A clip releasably engages the cable and holds it in the separated position.

In the drawing, FIG. 1 is a section through a three conductor cable, a ground wire and two live wires; FIG. 2 shows the start of the operation to separate the conductor to be tapped from the other conductors of the cable; FIG. 3 shows the separated conductor on the first step of the spreader; FIG. 4 shows the use of a dowel or pry bar to advance the separated conductor up the wedge shaped sides of the spreader; FIG. 5 shows the separated conductor being moved to its final position; FIG. 6 shows the separated conductor acted upon by a wire tapping tool; FIG. 7 shows the other conductors of the cable insulated from the conductor being tapped; FIG. 8 is an elevation of one side of the spreader showing the clip which holds the conductor in the separated position; and FIG. 9 is a back view of the clip.

FIG. 1 shows a twisted three conductor cable with which the wire spreader is used. This cable comprises an uninsulated ground conductor **1** and two insulated live conductors **2** and **3**. Such cable is widely used in residential service and at each service connection the conductor has to be separated to make three connections, one to each conductor. The three conductors are taut and it is difficult to separate the individual conductors to make the required connections.

The tapping of the cable is simplified by a spreader comprising a board **4** of wood or other insulating material having a tapered end **5** with a rounded point **6** to facilitate insertion between the conductor to be tapped and the other conductors of the cable. Since the conductors of the cable are taut, the board must be worked back and forth while exerting a forward pressure to start the point of the spreader between the conductors. Insertion of the point is assisted by its tapered or wedge shaped section **5** and by its rounded end. After the point of the spreader is inserted, the conductor rides up on spaced, tapered or wedge shaped sides **7** and **8**. Advancing the cable up the sides **7** and **8** may be effected by working the spreader back and forth while exerting forward pressure to force the spreader between the conductors, a handle **9** being provided for that purpose. The side **7** has conductor receiving indents or steps **10**, **11**, **12** and the side **8** has corresponding indents or steps **10***a*, **11***a*, **12***a* to which the separated conductor is successively advanced. In a typical operation, the separated conductor might first be advanced to the indent step **10**, then to the steps **10***a* and **11***a*, next to steps **11** and **12**, and finally to step **12***a*. In each of these positions, the separated conductor is held against backward movement. Sockets or openings **13**, **14**, **15** are provided for receiving a dowel bar **16**. The dowel **16** is used as a pivot for the board. There is no prying of the conductor by the dowel. The conductor is advanced by a wedging action as the board is pivoted about the dowel. During pivoting of

the board, the dowel is held by one hand and the other hand grips the handle **9** to exert the pivoting force. The opening **13** is used to wedge the separated conductor onto steps **10***a*, **11***a*. The opening **14** is used to wedge the separated conductor onto steps **11**, **12**. The opening **15** is used to wedge the separated conductor onto step **12***a*.

To hold the separated conductor in steps **12**, **12***a*, hook members **17** are provided, one on each side **7**, **8** of the board. Each hook member has a shank **18** with a slot **19** slidable on a pivot **20** having a head **21** which overlaps the surfaces **22** on opposite sides of the slot. A spring **23** arranged between the under side of the pivot **20** and the end **24** of the shank **18** holds the end **25** of the slot against the pivot **20**. In this position, the hooks **26** are below the separated conductor. When the separated conductor reaches the steps **12**, **12***a*, each hook member is pulled outward until the pivot **20** approaches the end **27** of the slot **19** and one of the hooks **26** swings over the separated conductor. The length of the slot **19** is related to the depth of the notch **12** (or **12***a*) and the diameter of the separated conductor so that accidental removal of the separated conductor from the notch is not possible. While the hooks **26** are easily swung into position over the conductor while the conductor is in the notches **12**, **12***a*, any attempt to pull the conductor out of the notches is resisted by the hooks.

When the separated conductor reaches the notches **12**, **12***a*, the board may be turned to unlay the twist of the conductors. If this is done for the first conductor separated, it loosens the lay and makes easier the next insertion of the board to separate another conductor. Loosening of the lay also makes it easier to slide the board along the cable to the proper position for the tap.

When the separated conductor reaches the steps **12**, **12***a*, it is in position for making the tap by means of tool **28**. While the tap is being made, the remaining conductors of the cable are insulated from the separated conductor as shown in FIG. 7. When resting in the steps **12**, **12***a*, the separated conductor is not only spaced from the other conductors of the cable but it is also spaced above the board **4** a sufficient distance to receive the tools necessary to make the tap. In other words, the separated conductor is moved away from the other conductors of the cable and is held in a position in which it can be worked upon. When the tap is completed, the hook members **17** are swung clear of the separated conductor and the spreader is retracted by working it back and forth and pulling it away from the cable.

The operation is repeated for each of the other conductors of the cable as required for a service connection.

The spreader is easy to handle and is safe. The conductor being worked upon is insulated and separated from the other conductors. There is no tendency of the conductors to slip and cause short circuits and injury to the lineman.

One size of spreader is made of one inch dressed lumber, the over all length being approximately 18 inches, the over all width approximately 7½ inches, the distance from the point **6** to the steps **12**, **12***a* approximately 10 inches, and the height of the steps **12**, **12***a* above the bottom of the board approximately 3 inches. These dimensions are by way of example and not of limitation.

What is claimed as new is:

1. A wire spreader for separating a conductor to be tapped from the other conductors of a twisted cable comprising an elongated board of insulating material with a point at one end for insertion crosswise between the conductor to be tapped and the other conductors of the cable to separate the conductor to be tapped, said board having an upper surface, laterally spaced wedge shaped sides of insulating material outstanding from the

upper surface of the board, said sides having steps of progressive height above the upper surface of the board for preventing slippage of the separated conductor, said board having longitudinally spaced sockets presented to its upper surface, a pry bar having one end selectively received in any one of the sockets and projecting above the upper surface of the board and engaging the separated conductor for forcing the separated conductor up the steps, the space between the steps and the upper surface of the board providing access for tools for making a tap to the separated conductor.

2. A wire spreader for separating a conductor to be tapped from the other conductors of a twisted cable comprising an elongated board of insulating material with a point at one end for insertion crosswise between the conductor to be tapped and the other conductors of the cable to separate the conductor to be tapped, said board having an upper surface, laterally spaced wedge shaped sides of insulating material outstanding from the upper surface of the board, said board having longitudinally spaced sockets presented to its upper surface, a pry bar having one end selectively received in any one of the sockets and projecting above the upper surface of the board and engaging the separated conductor for forcing the separated conductor up the sides, and the space between the sides and the upper surface of the board providing access for tools for making a tap to the separated conductor.

3. A wire spreader for separating a conductor to be tapped from the other conductors of a twisted cable comprising an elongated board of insulating material with a point at one end for insertion crosswise between the conductor to be tapped and the other conductors of the cable to separate the conductor to be tapped, said board having an upper surface, laterally spaced wedge shaped sides of insulating material outstanding from the upper surface of the board, said board having longitudinally spaced sockets presented to its upper surface, a pry bar having one end selectively received in any one of the sockets and projecting above the upper surface of the board and engaging the separated conductor for forcing the separated conductor up the sides, means for preventing slippage of the separated conductor down the sides, the space between the sides and the upper surface of the board providing access for tools for making a tap to the separated conductor.

4. A wire spreader for separating a conductor to be tapped from the other conductors of a twisted cable comprising an elongated board of insulating material with a point at one end for insertion crosswise between the conductor to be tapped and the other conductors of the cable to separate the conductor to be tapped, said board having an upper surface, laterally spaced wedge shaped longitudinally extending sides of insulating material outstanding from the upper surface of the board, said sides having steps of progressive height above the upper surface of the base for preventing slippage of the separated conductor, the space between the steps and the upper surface of the board providing access for tools for making a tap to the separated conductor, and a handle remote from the point and extending crosswise between and fixed to said sides.

5. A wire spreader for separating a conductor to be tapped from the other conductors of a twisted cable comprising an elongated board of insulating material with a point at one end for insertion crosswise between the conductor to be tapped and the other conductors of the cable to separate the conductor to be tapped, said board having an upper surface, laterally spaced wedge shaped longitudinally extending sides of insulating material outstanding from the upper surface of the board, said sides having steps of progressive height above the upper surface of the board for preventing slippage of the separated conductor, the space between the sides being open at both ends and the space between the steps and

the upper surface of the board providing access for tools for making a tap to the separated conductor.

6. In combination, a multiconductor twisted cable, a wire spreader between a conductor to be tapped and the other conductors of the cable for separating and insulating the conductor to be tapped from the other conductors of the cable and for preventing injury to the lineman making the tap, said spreader comprising an elongated board of insulating material with a point at one end for insertion crosswise between the conductor to be tapped and the other conductors of the cable to separate the conductor to be tapped, said board having an upper surface, laterally spaced wedge shaped longitudinally extending sides of insulating material outstanding from the upper surface of the board, said sides having steps of progressive height above the upper surface of the board for preventing slippage of the separated conductor, the space between the steps and the upper surface of the board providing access for tools for making a tap to the separated conductor.

7. In combination, a multiconductor twisted cable, a wire spreader between a conductor to be tapped and the other conductors of the cable for separating and insulating the conductor to be tapped from the other conductors of the cable and for preventing injury to the lineman making the tap, said spreader comprising an elongated board of insulating material with a point at one end for insertion crosswise between the conductor to be tapped and the other conductors of the cable to separate the conductor to be tapped, said board having an upper surface, laterally spaced wedge shaped sides of insulating material outstanding from the upper surface of the board, said sides having steps of progressive height above the upper surface of the board for preventing slippage of the separated conductor, said board having longitudinally spaced sockets presented to its upper surface, a pry bar having one end selectively received in any one of the sockets and projecting above the upper surface of the board and engaging the separated conductor for forcing the separated conductor up the steps, the space between the steps and the upper surface of the board providing access for tools for making a tap to the separated conductor.

8. In combination, a multiconductor twisted cable, a wire spreader between a conductor to be tapped and the other conductors of the cable for separating and insulating the conductor to be tapped from the other conductors of the cable and for preventing injury to the lineman making the tap, said spreader comprising an elongated board of insulating material with a point at one end for insertion crosswise between the conductor to be tapped and the other conductors of the cable to separate the conductor to be tapped, said board having an upper surface, laterally spaced wedge shaped sides of insulating material outstanding from the upper surface of the board, said board having longitudinally spaced sockets presented to its upper surface, a pry bar having one end selectively received in any one of the sockets and projecting above the upper surface of the board and engaging the separated conductor for forcing the separated conductor up the sides, and the space between the sides and the upper surface of the board providing access for tools for making a tap to the separated conductor.

9. In combination, a multiconductor twisted cable, a wire spreader between a conductor to be tapped and the other conductors of the cable for separating and insulating the conductor to be tapped from the other conductors of the cable and for preventing injury to the lineman making the tap, said spreader comprising an elongated board of insulating material with a point at one end for insertion crosswise between the conductor to be tapped and the other conductors of the cable to separate the conductor to be tapped, said board having an upper surface, laterally spaced wedge shaped sides of insulating material outstanding from the upper surface of the board and said

separated conductor moving up said sides as the spreader is inserted, means for preventing slippage of the separated conductor down said sides, the space between the sides and the upper surface of the board providing access for tools for making a tap to the separated conductor.

10. In combination, a multiconductor twisted cable, a wire spreader between a conductor to be tapped and the other conductors of the cable for separating and insulating the conductor to be tapped from the other conductors of the cable and for preventing injury to the lineman making the tap, said spreader comprising an elongated board of insulating material with a point at one end for insertion crosswise between the conductor to be tapped and the other conductors of the cable to separate the conductor to be tapped, said board having an upper surface, laterally spaced wedge shaped sides of insulating material outstanding from the upper surface of the board, said board having longitudinally spaced sockets presented to its upper surface, a pry bar having one end selectively received in any one of the sockets and projecting above the upper surface of the board and engaging the separated conductor for forcing the separated conductor up the sides, means for preventing slippage of the separated conductor down the sides, the space between the sides and the upper surface of the board providing access for tools for making a tap to the separated conductor.

11. In combination, a multiconductor twisted cable, a wire spreader between a conductor to be tapped and the other conductors of the cable for separating and insulating the conductor to be tapped from the other conductors of the cable and for preventing injury to the lineman making the tap, said spreader comprising an elongated board of insulating material with a point at one end for insertion crosswise between the conductor to be tapped and the other conductors of the cable to separate the conductor to be tapped, said board having an upper surface, laterally spaced wedge shaped longitudinally extending sides of insulating material outstanding from the upper surface of the board, said sides having steps of progressive height above the upper surface of the base for preventing slippage of the separated conductor, the space between the steps and the upper surface of the board providing access for tools for making a tap to the separated conductor, and a handle remote from the point and extending crosswise between and fixed to said sides.

12. In combination, a multiconductor twisted cable, a wire spreader between a conductor to be tapped and the other conductors of the cable for separating and insulating the conductor to be tapped from the other conductors of the cable and for preventing injury to the lineman making the tap, said spreader comprising an elongated board of insulating material with a point at one end for insertion crosswise between the conductor to be tapped and the other conductors of the cable to separate the conductor to be tapped, said board having an upper surface, laterally spaced wedge shaped longitudinally extending sides of insulating material outstanding from the upper surface of the board, said sides having steps of progressive height above the upper surface of the board for preventing slippage of the separated conductor, the space between the sides being open at both ends and the space between the steps and the upper surface of the board providing access for tools for making a tap to the separated conductor.

13. A spreader for separating a conductor to be tapped from the other conductors of a twisted cable comprising a board with a point at one end for insertion crosswise between the conductor to be tapped and the other conductors of the cable to separate the conductor to be tapped, spaced wedge shaped sides outstanding from the board and said separated conductor moving up said sides as the spreader is inserted, and hook members pivoted on the sides movable over the separated conductor to prevent slippage of the separated conductor down said sides, the space between the sides and the board providing access for tools for making a tap to the separated conductor.

14. A spreader for separating a conductor to be tapped from the other conductors of a twisted cable comprising a board with a point at one end for insertion crosswise between the conductor to be tapped and the other conductors of the cable to separate the conductor to be tapped, spaced wedge shaped sides outstanding from the board and said separated conductor moving up said sides as the spreader is inserted, and a hook member having a shank pivoted on one of the sides and an extensible hook portion adapted to be swung over the separated conductor to restrain slippage of the conductor down one side.

15. A spreader for separating a conductor to be tapped from the other conductors of a twister cable comprising a board with a point at one end for insertion crosswise between the conductor to be tapped and the other conductors of the cable to separate the conductor to be tapped, spaced wedge shaped sides outstanding from the board and said separated conductor moving up said sides as the spreader is inserted, and a hook member having a shank with a slot, a pin fixed to one of the sides and slidably fitting said slot, a hook on said shank for engaging said separated conductor, and a spring between said pin and said shank biasing the hook member in the direction to hold the hook against said separated conductor.

16. A spreader for separating a conductor to be tapped from the other conductors of a twisted cable comprising a board with a point at one end for insertion crosswise between the conductor to be tapped and the other conductors of the cable to separate the conductor to be tapped, spaced wedge shaped sides outstanding from the board and said separated conductor moving up said sides as the spreader is inserted, a hook member having a shank pivoted on one of the sides, hook portions extending in opposite directions from one end of the shank, either one of the hook portions being movable on the separated conductor to prevent slippage down said one side.

No references cited.

LARAMIE E. ASKIN, *Primary Examiner.*