March 1, 1960 A. T. FLOWER 2,927,147

SPREADER BARS

Filed March 24, 1959

FIG. 1

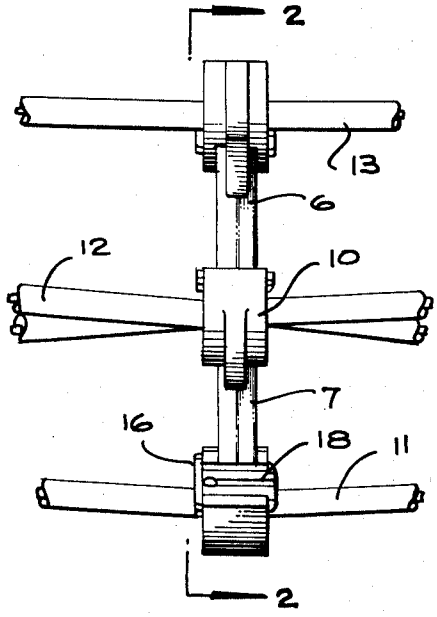


FIG. 2

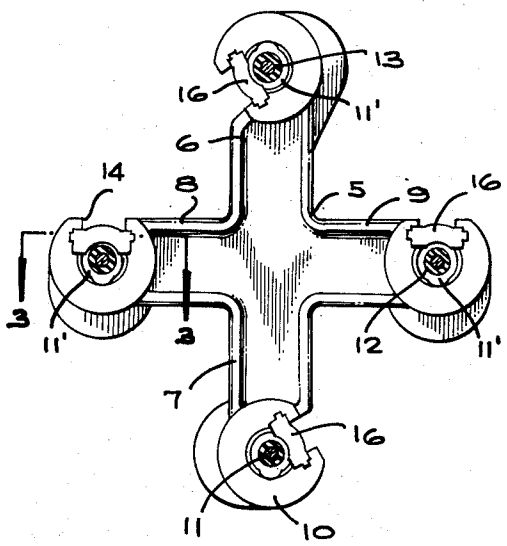


FIG. 3

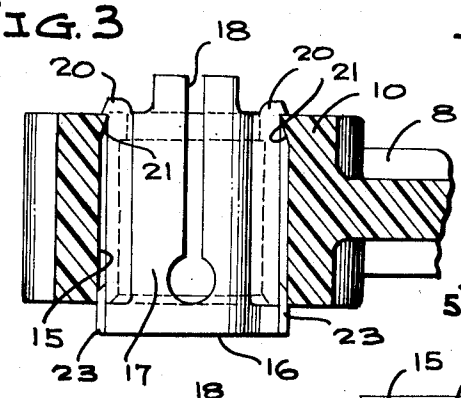
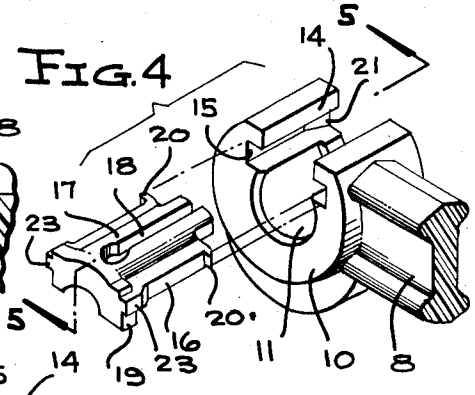


FIG. 4



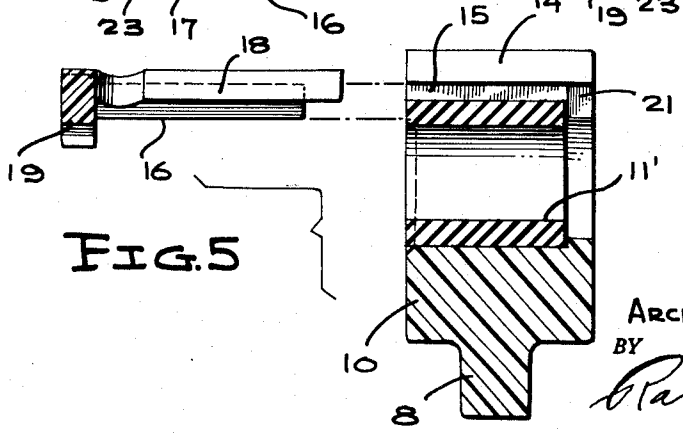


FIG. 5

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SPREADER BARS

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8 Claims. (Cl. 174—41)

This invention relates to spreader bars for electrical conductor wires.

It is an object of the invention to provide a spreader bar having a series of radiating arms disposed in angular relation to each other and having bosses at their free ends provided with open ended slots permitting access to recesses to receive the conductor wires, each of which is retained in its respective recess by encircling bushings of rubber or equally effective insulating material, said bushings and conductors being restrained from lateral or vertical movement by a combination of a removable cap and suitably prepared recess in the boss.

A further object of the invention resides in providing a cap for closing the slots and retaining the bushing encircled conductor which cap is slidably mounted across the open end of the slot and having means for releasably holding the cap in the slot to prevent dis-engagement of the conductor wires from the slots while in use.

Another object of the invention resides in providing a spreader bar which is simple in construction, efficient in use and inexpensive to manufacture.

Other objects and advantages of the invention will be apparent during the course of the following description.

In the accompanying drawing, forming a part of this specification, and in which like numerals are employed to designate like parts throughout the same,

Fig. 1 is an edge view of the spreader bar applied to a series of conductor wires,

Fig. 2 is a section taken on line 2—2 of Fig. 1,

Fig. 3 is a detail sectional view taken on line 3—3 of Fig. 2,

Fig. 4 is a perspective view of one of the bosses showing the cap in separate relation, and,

Fig. 5 is a section taken on line 5—5 of Fig. 4.

Referring to the drawing, the numeral 5 denotes a cross shaped bar preferably constructed of methyl methacrylate or other similar insulating material. The upper and lower arms 6 and 7 and side arms 8 and 9 are each provided at their free ends with circular bosses 10, of greater thickness then the arms having central recesses 11 which recesses are partly closed at one end to limit lateral movement of bushing 11'. The conductor wires 12 and messenger cable 13 are encircled by insulating protective bushings 11' and are inserted in the recesses through radial slots 14 which extend from the recesses through the edge of the bosses. The slots are of less width than the diameter of the recesses and the slots of the bosses of said arms 8 and 9 extend at right angles to the longitudinal axis of the arms in an upwardly direction while the slots of the bosses of the upper and lower arms 6 and 7 are arranged on opposite sides of the arms and extend at an acute angle to the longitudinal axis of the arms, with the slot of the upper arm extending downwardly and the slot of the lower arm extending upwardly.

The walls of the slots 14 adjacent their open ends are provided with opposed transverse grooves 15 to slidably receive a cap 16 for closing the slots to retain the conductor wires and bushings in the recesses. The cap 16 is formed from a flat plate of substantially rectangular shape having its central portion 17 of concavo-convex shape and one end bifurcated to provide a central longitudinal slot 18 opening through one end of the plate. The plate at one end is thickened radially at its corners, as at 19, to limit the movement of the cap when inserted in the grooves 15 and is also thickened radially across this end along the inner circumference to lock the bushing in place. At the opposite end of the plate each corner is provided with a laterally projecting lug or detent 20 which upon insertion of the plate in the grooves 15 contacts the inclined walls 21 at the end of the grooves in which the lugs slide thereby compressing the furcations of the bifurcated end of the plate until the lug passes the end of the inclined walls whereupon the furcations will expand to engage the lugs with the face of the boss to securely lock the cap in position. The free ends of the furcations adjacent the lugs 20 are reduced in width and extend beyond the face of the boss so they may be easily grasped by the hand or tool to compress the furcations when it is desired to release the lugs to remove the cap. The concave inner surface of the cap is of the same radius as the recess 11 which is preferably cylindrical and the grooves 15 are so disposed with respect to recess 11 that when the cap is engaged in the associated grooves 15, the inner surface of the cap is coaxial with the recess. Projections 23 on the cap bear on the sides of the groove 15 when the cap is in closed position thereby limiting lateral movement and thus greatly reducing possible stresses on projecting lugs 20. An advantage of this cap is the ease with which it can be installed or removed. Upon inserting the cap in the grooves 15 it slides freely inward until the lugs 20 engage the inclined walls 21, after which exertion of moderate pressure will snap the cap into final locked position. Withdrawal is readily effected because the manual compression on the furcations of the bifurcated end of the cap adjacent lugs 20 need only be maintained for the short period required to push the cap back far enough so that the lugs 20 clear the inclined walls 21, after which the cap can be extracted freely. Further advantages of the cap are its interchangeability for use in any boss and its convenient size permitting workmen to carry a large supply.

In use bushing 11' is placed around the messenger cable, and the spreader bar 5 is suspended from the messenger by inserting the bushing encircled messenger into the recess of the upper arm 6 after which cap 16 is inserted to close the slot, thus locking cable and bushing into the recess. The conductor wires are then encircled by bushings 11' and inserted in the recesses of the side and lower arms and the caps applied to lock conductors and bushings in place. The perpendicular relationship between the cross arms of the bar provides a substantially longer leakage distance between conductors than would be the case if the material of the bar extended directly across between conductors as is the case in most of the devices in the prior art and thus provides less likelihood of flashover than such devices and is more economical of material. The one piece construction of the bar further minimizes the possibility of flashover as compared with the two-piece construction of contemporary devices in which dust may collect in the seam between the two members and provide a tracking path.

It is to be understood the form of my invention herein shown and described is a preferred example of the same and changes in the shape, size and arrangement of the parts may be made within the spirit of the invention.

Having thus described my invention, I claim:

1. A spreader for conductor wires comprising a bar having a series of radiating arms, said arms having re-

cesses in their ends with slots leading from the recesses through the edge of the arms for inserting the conductor wires, opposed grooves formed in the walls of said slots transverse to the faces of said arms and a laterally compressible cap plate slidably mounted in the grooves of said slots said cap plate being in said grooves upon expansion.

2. A spreader for conductor wires of the character described in claim 1 wherein said cap plate has a laterally projecting lugs for engaging one face of said arms when inserted in the grooves of said slots.

3. A spreader for conductor wires of the character described in claim 1 wherein said cap plate is provided with a longitudinal slot opening through one end to permit compressing of said cap plate, said cap plate having a laterally projecting lug for engaging one face of said arms when said cap plate is in normal expanded position.

4. A spreader for conductor wires of the character described in claim 1 wherein said cap plate is provided with a longitudinal slot opening through one end to permit compressing of said cap plate, a lug projecting laterally from said cap plate for engaging one face of said arms when the cap plate is fully inserted in said grooves, and means in said grooves engageable with said lug for compressing said caps plate while being inserted in said grooves.

5. A combined hanger and spacer for suspending a plurality of conductors from a messenger wire comprising a cross shaped bar having upper, lower and side arms, said arms having circular bosses at their ends provided respectively with recesses and slots leading from the recesses through the edges of the bosses for inserting the messenger and conductors with the walls of each of said slots having a pair of opposed grooves therein, the slots in the side arms extending upwardly at right angles to the longitudinal axis of the side arms, and the slots in the upper and lower arms in a direction toward each other, bushings encircling said messenger and said conductors, the bushing-encircled messenger being engaged in the recess in said upper arm and bushing-encircled conductors being engaged in the respective recesses in said lower and side arms, a cap plate slidably engaged in each pair of said grooves for closing the slots to retain the bushing-encircled messenger and conductors in the respective recesses, cooperative resilient latching means on each cap plate and associated engaging grooves for locking said cap plate to its associated arm when said cap plate is in position to fully close its associated groove, means on each of said bosses for restraining movement of the associated bushings in one longitudinal direction, means on the associated cap plate for restraining movement of said bushings in the opposite longitudinal direction when said cap plate is locked to its respective arm, and manually operable means at one end of said plate for unlatching the said latching means of the respective cap plates and readily extracting them from said slots.

6. A spreader for conductor wires comprising a cross shaped unitary bar of insulating material having upper, lower and side arms, said arms having circular bosses at their ends provided with recesses and slots leading from the recesses through the edges of the bosses for inserting the conductor wires, the slots in the side arms extending upwardly at right angles to the longitudinal axis of the side arms, and the slots in the upper and lower arms in a direction toward each other, the walls of said slots having opposing grooves transverse to the faces of said boss, a removable cap plate of insulating material slidably mounted in respective opposing grooves of one of said slots for closing the slot to retain a wire in the recess, said cap plate being laterally compressible and having means to limit its movement into said slot and a locking lug projecting laterally from said cap plate adjacent the leading end thereof for engaging a face of the respective boss when the cap plate is fully inserted in said grooves, and means at the leading end of said cap plate operable to compress said cap plate for releasing said locking lug from engagement with the face of said boss to permit said cap plate to be slidably retracted and removed from said recess.

7. In combination with an aerial wire spreader of electrical insulating material having transverse recesses for receiving wires with each of said recesses having a groove in one wall thereof, a removable cap plate of resilient electrical insulating material having a lateral portion slidably engaging the groove in one of said recesses for forward and reverse movement therein, said cap plate having a bifurcation extending longitudinally inward from one end thereof, detent means carried by said cap plate operable by lateral expansion of the furcations of said cap plate for releasably locking said element against forward and reverse movement upon moving said element forwardly in said recess to a predetermined position relative to said spreader, said cap plate when in locked position having the bifurcated end protruding from said recess, and said detent means being releasable upon lateral compression of said furcations to permit reverse movement of said cap plate for removing it from said recess.

8. In combination with an aerial wire spreader of electrical insulating material having transverse recesses for receiving wires, removable cap plates of resilient material insertable in said recesses to retain the wires therein, each cap plate having a bifurcation extending longitudinally inward from one end thereof to permit compressing of the furcations when inserting and removing said cap plates, and detent means carried by said cap plates for releasably locking said cap plates in the recesses upon expansion of said furcations.

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UNITED STATES PATENT OFFICE

CERTIFICATE OF CORRECTION

Patent No. 2,927,147 March 1, 1960

Archibald T. Flower

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction and that the said Letters Patent should read as corrected below.

Column 3, line 6, after "being" insert -- retained --; line 10, for "lugs" read -- lug --.

Signed and sealed this 9th day of August 1960.

(SEAL)
Attest:
KARL H. AXLINE
Attesting Officer

ROBERT C. WATSON
Commissioner of Patents

UNITED STATES PATENT OFFICE

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