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Heuser et al.

[11] **3,866,291**

[45] **Feb. 18, 1975**

[54] **APPARATUS FOR SPLICING CONDUCTORS**

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[30] **Foreign Application Priority Data**

Sept. 20, 1972 Germany 2246151

[52] **U.S. Cl.** ..... **29/203 DS,** 29/203 D, 29/203 DT

[51] **Int. Cl.** **H01r 19/00**

[58] **Field of Search** ..... 29/203 DT, 203 D, 630 A, 29/628, 203 DS; 72/332, 338, 404

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Primary Examiner—C. W. Lanham
Assistant Examiner—James R. Duzan
Attorney, Agent, or Firm—Spencer & Kaye

[57] **ABSTRACT**

An apparatus for a solderless splicing of insulated electric conductors includes a jaw assembly and, on each side thereof, a backup support provided with parallel conductor guides aligned with the length dimension of the jaw assembly. The jaw assembly is provided at both sides with cutters, the cutting zones of which intersects the axis of one conductor guide at one side of the jaw assembly and the axis of the other conductor guide at the other side of the jaw assembly. A trough-shaped splicer is positioned in the jaw assembly and the two conductors are placed in the splicer so that they lie in the conductor guides side-by-side, but oppositely oriented. As the jaw assembly executes its motion to compress the splicer, the end portions of the conductors projecting beyond the jaw assembly are severed on both sides by the cutters and then, before the jaw assembly fully compresses the splicer about the conductors, the jaw assembly causes, by virtue of its motion, a longitudinal displacement of the conductors in opposite direction within and with respect to the splicer so that the bare cut end face of each conductor is withdrawn into the splicer.

15 Claims, 21 Drawing Figures

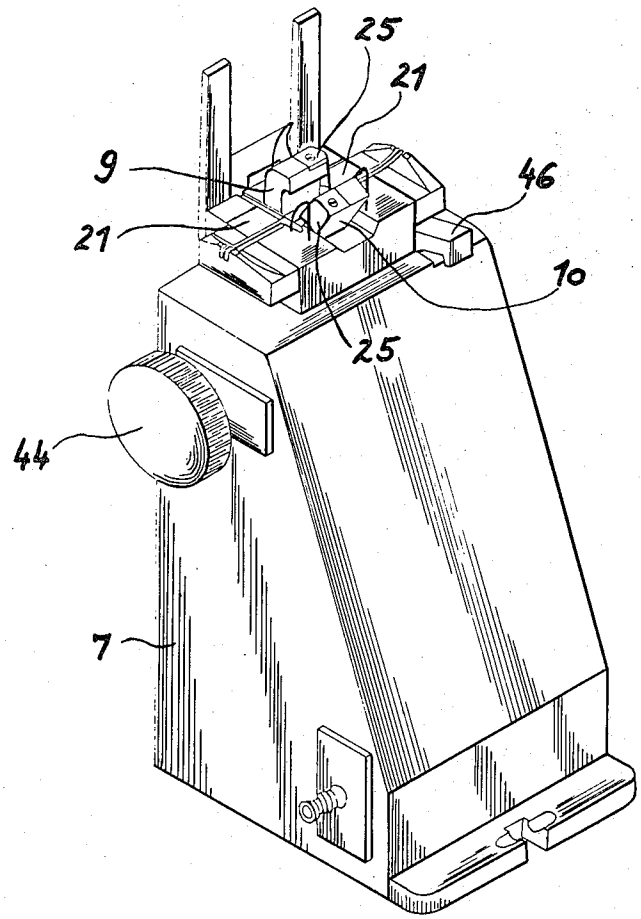
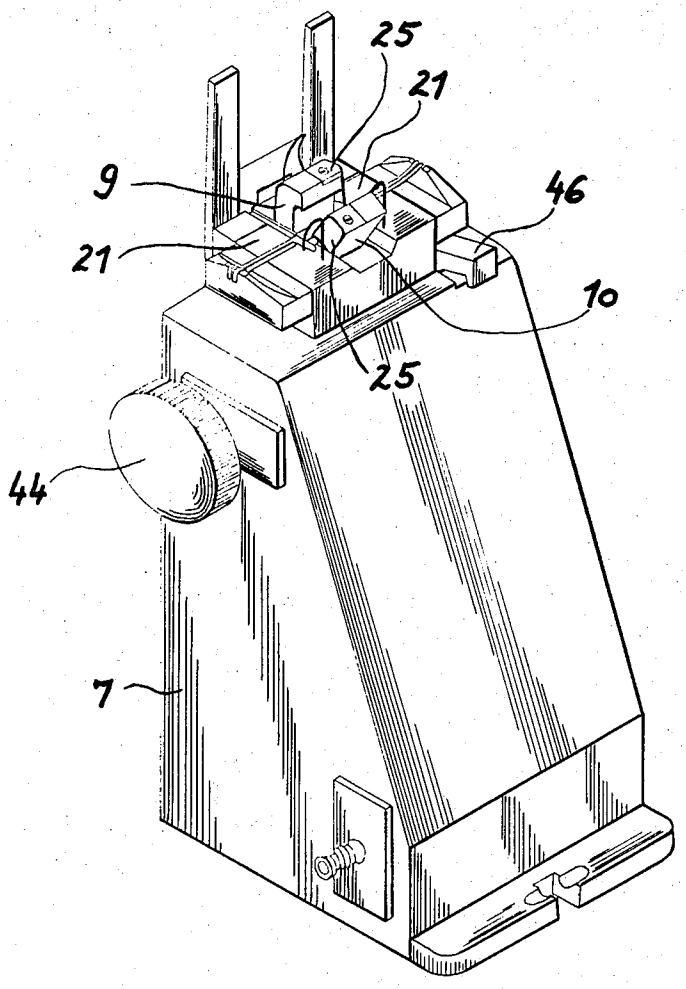


FIG.1



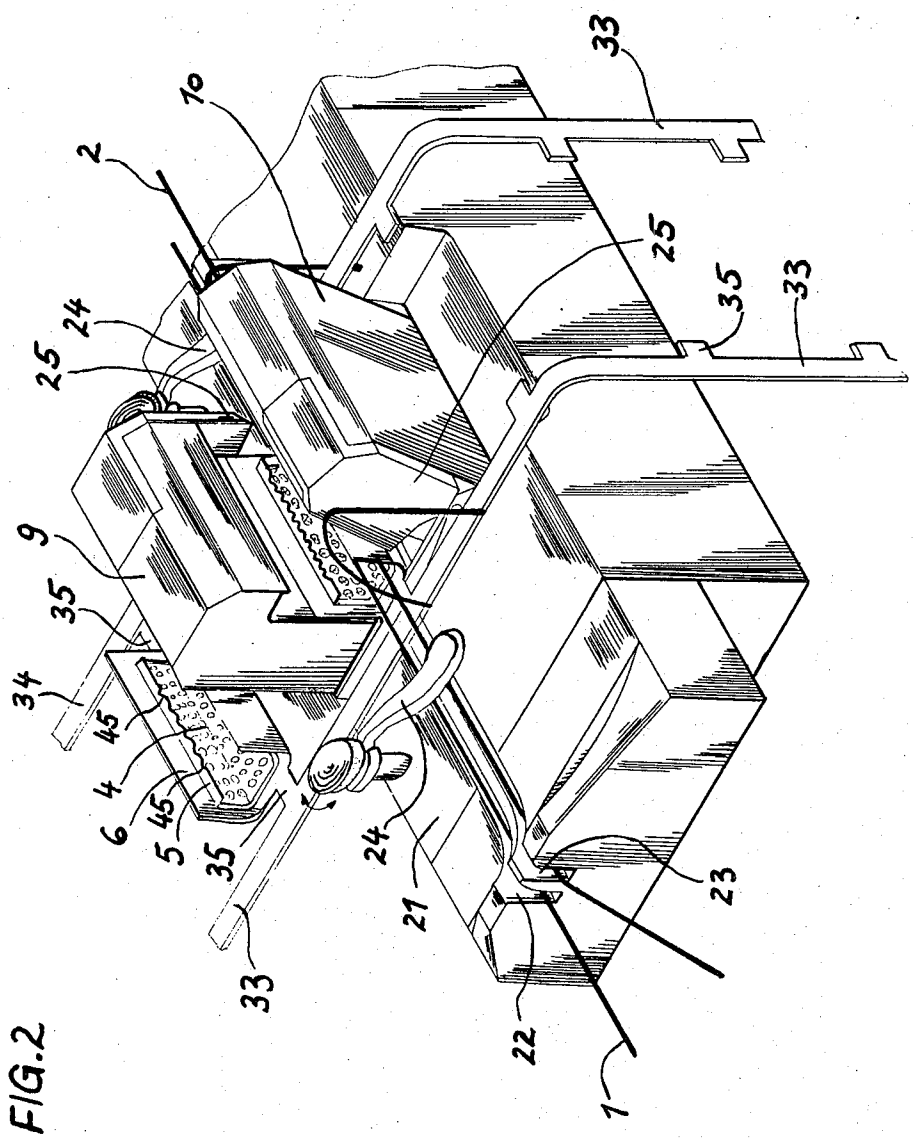


FIG.2

FIG. 3

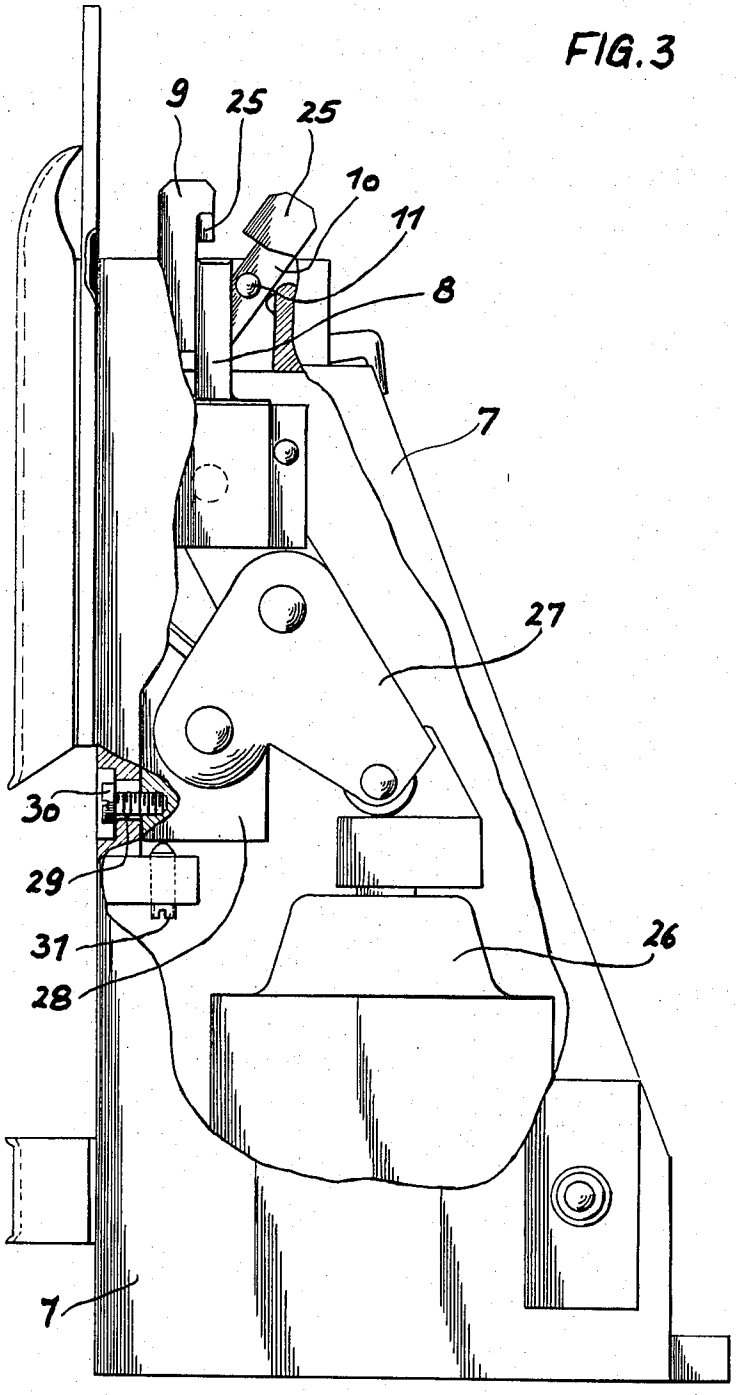


FIG. 5

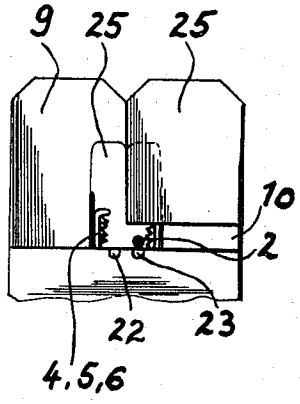


FIG. 4a

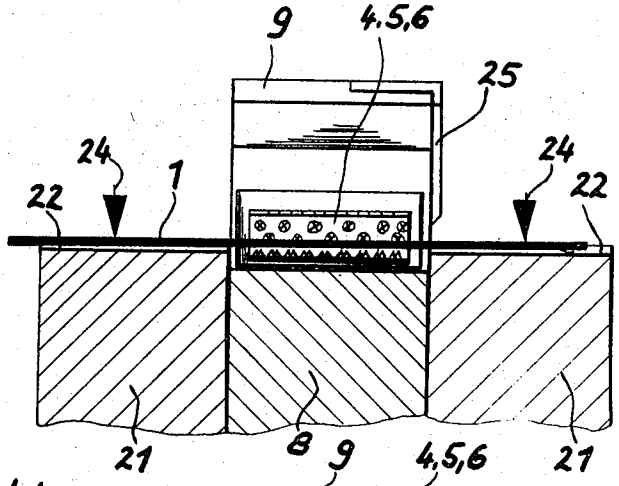


FIG. 4b

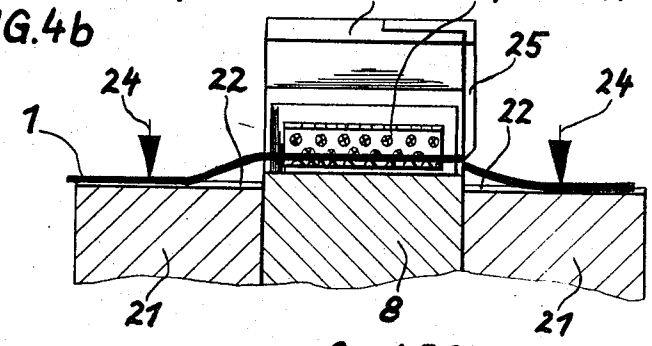


FIG. 4c

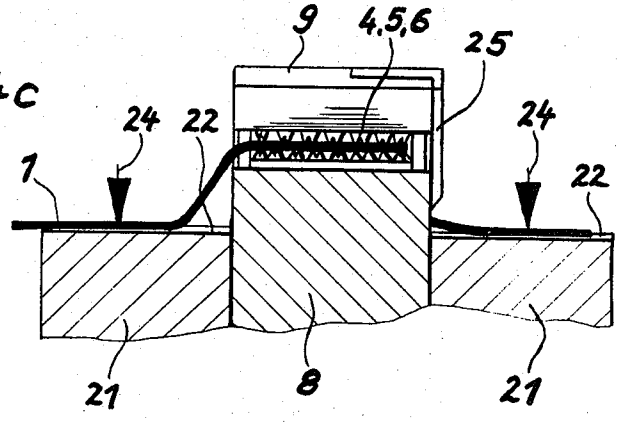


FIG.6a

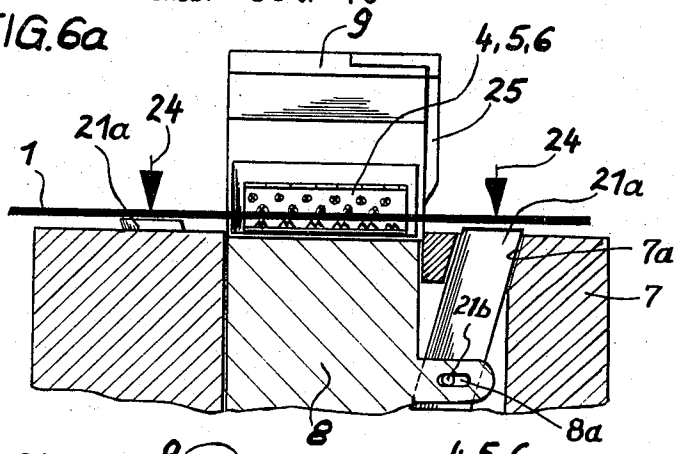


FIG.6b

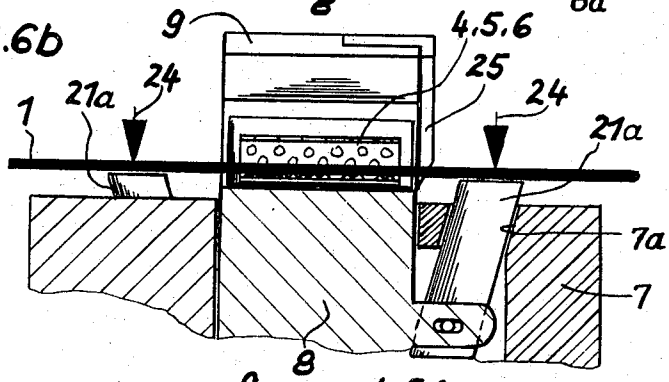


FIG.6c

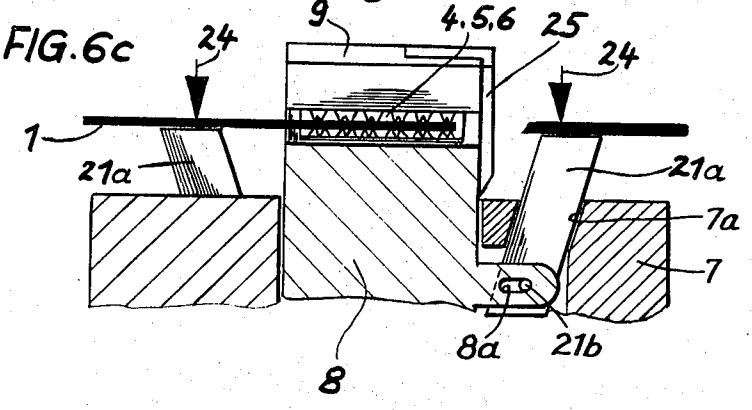


FIG.7

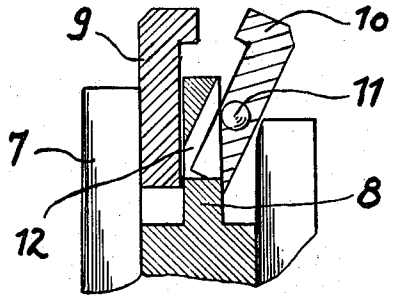


FIG.8

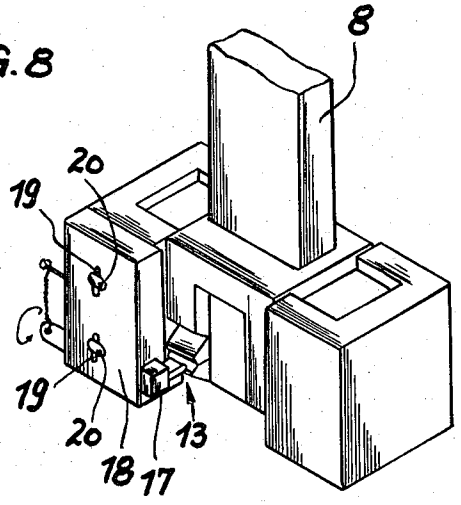
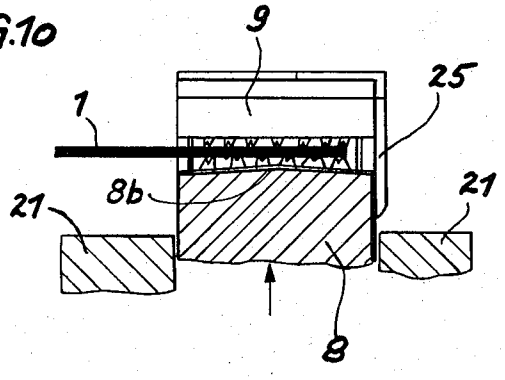


FIG.10



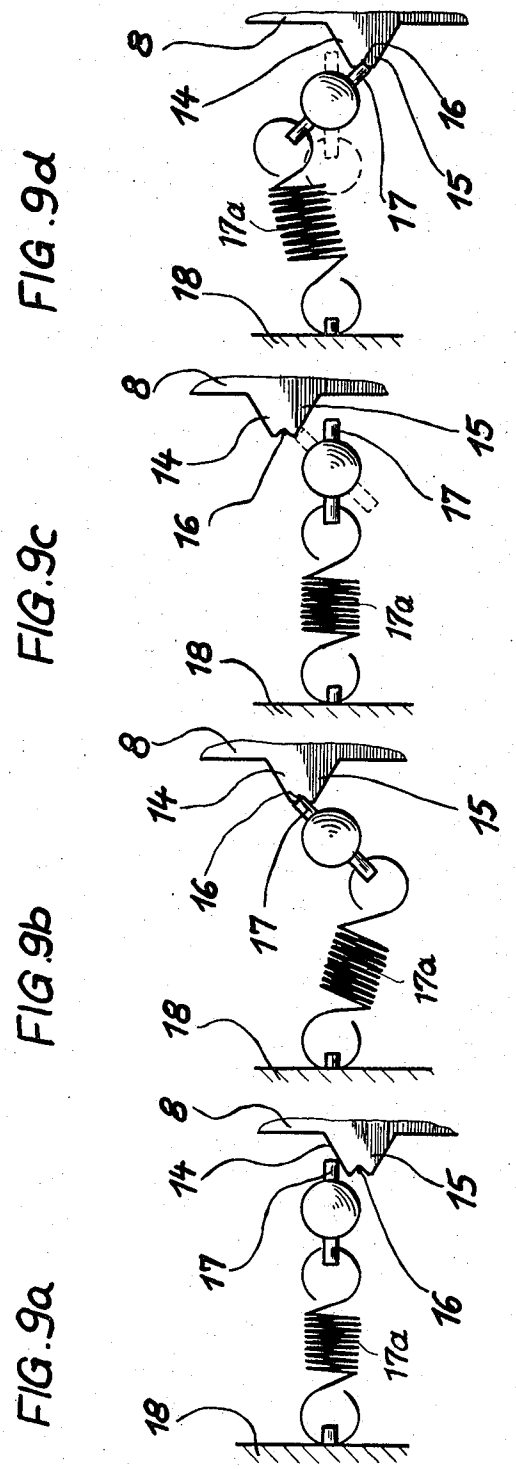


FIG. 9d

FIG. 9c

FIG. 9b

FIG. 9a

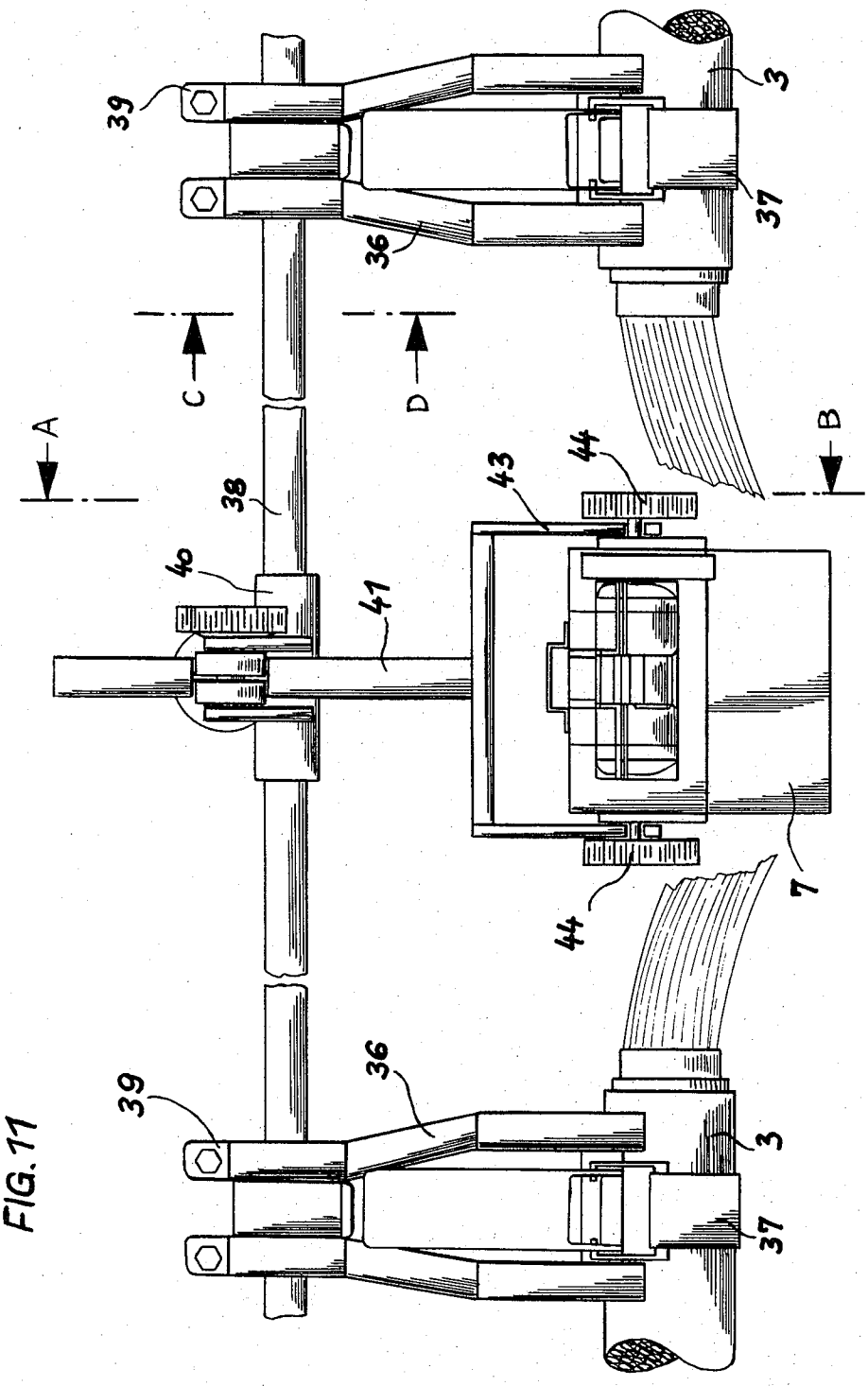


FIG. 11

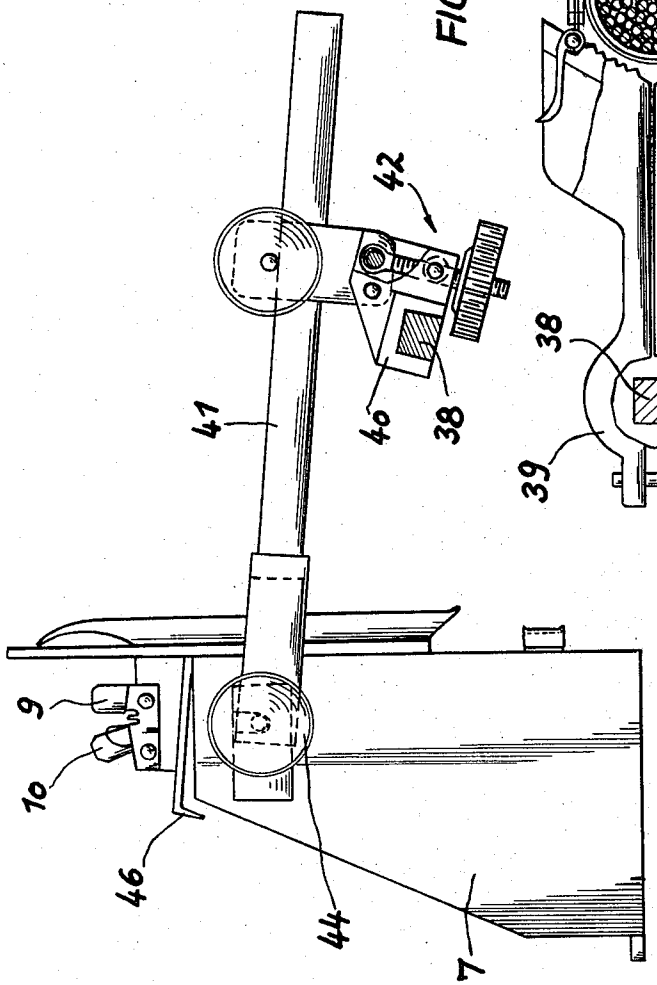


FIG. 12

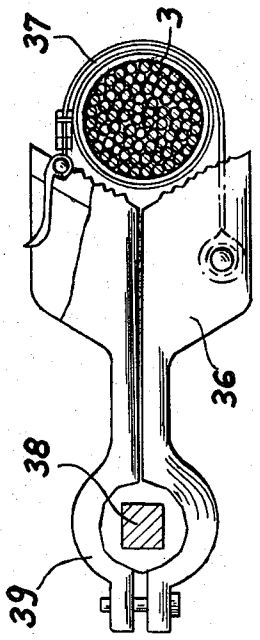


FIG. 13

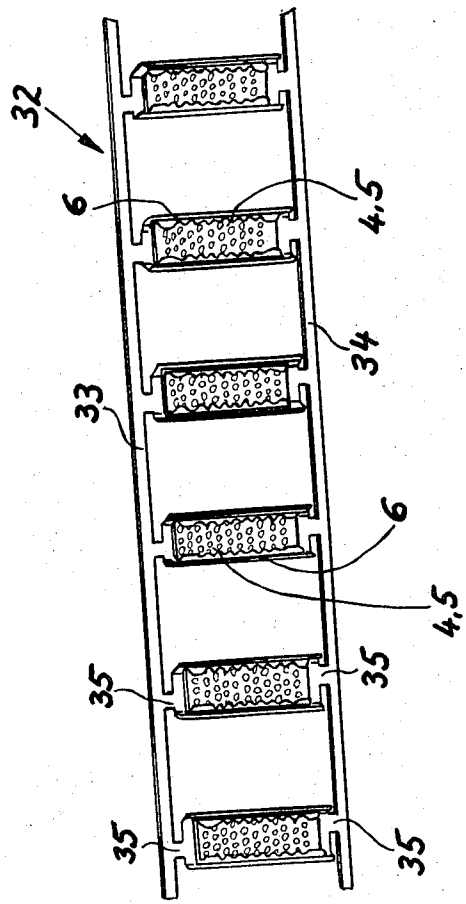


FIG. 14

APPARATUS FOR SPLICING CONDUCTORS

BACKGROUND OF THE INVENTION

This invention relates to a method of and an apparatus for the solderless splicing of insulated electric conductors of cables, particularly of the type used in telecommunication, by means of an externally insulated splicer having generally a C-shaped cross section. According to known methods of this kind, the insulated conductors are positioned in the trough-shaped open splicer in an opposed, aligned manner, pulled taut and then the flanges of the splicer are bent around the conductors toward the splicer base. Subsequently, the conductor ends which project beyond the splicer are severed.

The above-outlined mode of operation is disadvantageous in that the bare, exposed severed radial faces of the conductors may accidentally contact the severed radial faces of adjacent conductors. In order to avoid this disadvantage, a splicer has been known which at both sides of the contacting portion, at its base portion and also at the flanges has integral cutters with the aid of which the conductor ends which project beyond the splicer are severed within the splicer as the latter is pressed together. These splicers, however, are, because of the provision of such cutters, substantially more complicated and expensive than ordinary splicers.

It is an object of the invention to provide a method of and an apparatus for splicing conductors which are splicers that are not provided with cutters, yet securely prevent an accidental contacting of the exposed severed faces of the spliced conductors.

It is a further object of the invention to provide a method of and an apparatus for the splicing of conductors which simplify the handling of the trough-shaped splicers utilized.

SUMMARY OF THE INVENTION

These and other objects to become apparent as the specification progresses are accomplished by the method according to the invention wherein, briefly stated, the end portions of the conductors which project beyond the splicer are severed approximately flush with the adjacent frontal side of the splicer and, prior to the complete closing of the splicer, the conductors are longitudinally displaced with respect to the splicer for withdrawing the conductor ends thereinto.

The apparatus for performing the above-outlined method comprises, according to the invention, a jaw assembly into which the open splicer and the conductors are placed and which closes around the splicer, thus bending it over the conductors. The apparatus further has, on each side of the jaw assembly, backup supports that include two side-by-side disposed conductor guides in which the conductors lie as they pass through the trough-shaped open splicer positioned in the jaw assembly. On each side the jaw assembly has one cutter each, the cutting zones of which pass, respectively, through one and the other conductor guide. The apparatus also comprises means to displace longitudinally the conductors within and with respect to the splicer after the conductors are severed by the cutters and before the splicer is completely closed by the jaw assembly.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a perspective view of a preferred embodiment of the invention.

FIG. **2** is a perspective view of one part of the same embodiment.

FIG. **3** is a broken-away side elevational view of the part illustrated in FIG. **2.**

FIGS. **4***a*–**4***c* are sectional front elevational views of some of the cooperating components of the same embodiment shown in different positions during operation.

FIG. **5** is a side elevational view of the components shown in FIG. **4***a*.

FIGS. **6***a*–**6***c* are sectional front elevational views of a variant of the components shown in FIGS. **4***a*–**4***c*.

FIG. **7** is a sectional side elevational view of some of the cooperating components shown in their position as depicted in FIG. **3.**

FIG. **8** is a perspective view of further details of the preferred embodiment.

FIGS. **9***a*–**9***d* are schematic side elevational views of the details shown in FIG. **8,** illustrated in different positions during operation.

FIG. **10** is a sectional front elevational view of a variant of a component shown, for example, in FIG. **6***c*.

FIG. **11** is a top plan view of the preferred embodiment in a position of utilization.

FIG. **12** is a view from the right, taken along line A—B of FIG. **11.**

FIG. **13** is a view from the left, taken along line C—D of FIG. **11.**

FIG. **14** is a top plan view of a series of interconnected splicers used with the preferred embodiment.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Turning now to FIGS. **1, 2** and **3,** the apparatus for a solderless splicing of electrical conductors **1** and **2** forming part, for example, of a telecommunications cable **3** of the type shown in FIGS. **11** and **13,** essentially comprises two cooperating jaws supported in a stand **7.** The apparatus uses a splicer which is trough-shaped when open (that is, prior to its application) and which has a contact portion **4,** a pressure portion **5** and an outer, insulating portion **6.** With the aid of such a splicer, insulated (for example, paper-insulated) electric conductors may be electrically and mechanically coupled to one another without the necessity of a prior stripping of the conductors.

With the aid of the cooperating jaws—the structure and operation of which will be described in detail later—the side walls (or flanges) of the splicer troughs may be crimped towards the base of the splicer with the inclusion of the conductors **1, 2** previously positioned in the splicer trough. As a result, the teeth at the contact portion **4** cut through the insulation of the conductors **1, 2** and engage the same, so that an electrical connection of the conductors as well as a strong, tension-resistant mechanical connection is accomplished.

Also referring to FIG. **7,** one of the two cooperating jaws is formed as a ram **8** vertically displaceably guided by the stand **7.** The other jaw is formed of two angle pieces **9** and **10.** The angle piece **9** is affixed to the stand **7** and has one leg, the length dimesion of which is parallel with the direction of the displacement of the ram **8** and another leg which is disposed above the ram

8 and which extends normal to the direction of its displacement. The angle piece 10 is pivotally supported on a pin 11 extending normal to the longitudinal axis of the ram 8, so that the angle piece 10 may be swung, for example from an open position shown in FIGS. 2 and 7 towards the angle piece 9 into a closed position illustrated in FIG. 5. When the angle piece 10 is in its open position, the conductors 1 and 2 and the splicer 4, 5, 6, may be easily inserted into the jaw assembly 8, 9, 10 from above, as it is apparent, for example, from FIGS. 2 and 7. In its closed position, the angle piece 10 forms a mirror image of the stationary angle piece 9 and the ram 8 is flanked by the inner face of the parallel spaced upright legs of the two angle pieces 9 and 10.

Referring once again to FIG. 7, the pin 11 passes through the upright leg of the angle piece 10 approximately at the middle of its length, so that in the open position of the jaw 9, 10 the lower arm portion of the upright leg of the angle piece 10 extends into a lateral opening 12 of the ram 8 in a detent-like manner and thus prevents the ram 8 from being moved upwardly. This feature ensures that the jaw assembly 8, 9, 10 cannot assume its splicer-crimping position as long as the angle piece 10 is in its outwardly swung, open position.

In order to ensure that the ram 8 executes its preselected stroke as it presses the splicer together, there is provided a pawl-and-ratchet mechanism 13 illustrated in FIGS. 8 and 9*a*–9*d*. This mechanism includes two teeth 14 and 15 arranged on the ram 8 and oriented in series with respect to the direction of ram travel. The height of the teeth 14 and 15 is greater than the depth of the valley 16 situated therebetween. The mechanism further includes a spring-biased pawl 17 cooperating with the teeth 14, 15. The pawl 17 is supported in such a manner that it is swingable about a horizontal axis. The support 18 of the pawl 17 is attached to the stand 7 by means of tightening screws 20 that pass through slots 19 for allowing an adjustment of the support block 18 parallel to the ram travel for a purpose to be discussed later. The biasing spring is constituted by a tension coil spring 17*a* which continuously urges the pawl 17 into the position which is normal to the ram travel and which is shown in FIGS. 9*a* and 9*c*. The operation of the pawl-and-ratchet mechanism 13 will be explained later in the specification when the operation of the splicing apparatus will be discussed.

As it may be observed, for example, in FIG. 1, at both sides of the jaw assembly 8, 9, 10 there is provided a separate backup support 21, each having two parallel arranged grooves 22 and 23 that form guides for the conductors 1 and 2. Both backup supports 21 also carry a hold-down device 24 (FIG. 2) which, in its operative position, exerts a downward clamping force on the conductors 1 and 2 positioned in the guide grooves 22 and 23.

In certain cases it is advantageous to omit the hold-down devices 24 and immobilize the conductors 1 and 2 merely by applying thereto a direct manual force by means of the operator's fingers.

As best shown in FIG. 2, each angle piece 9, 10 has, on one of its lateral faces, a replaceable cutting blade 25. The latter are mounted on oppositely oriented faces of the jaw 9, 10 so that on each side of the jaw 9, 10 there is provided one cutting blade 25. The cutting blades 25 cooperate with cutting edges provided on both sides of the ram 8 which is thus formed as a cutter die. As it may be seen in FIG. 5, the cutting blade 25 attached to the angle piece 9 has a cutting zone that intersects the axis of the guide groove 22, while the cutting blade 25 attached to the angle piece 10 has a cutting zone that intersects the axis of the guide groove 23. From FIGS. 4*a*–4*c* it may be observed that the free upper face of the ram 8 is, in its lower dead center, approximately at the same height as the backup supports 21.

For actuating the ram 8 there is provided a pneumatic power cylinder 26 (FIG. 3) which is secured to the stand 7. The power cylinder 26 has a piston rod which operates the ram 8 through a bell crank lever 27. The support bracket 28 which pivotally holds the bell crank lever 27 is vertically adjustably secured to the stand 7 by virtue of screws 30 passing through longitudinal slots 29 provided in the stand 7. There are further provided setting screws 31 which are supported by the stand 7 and which are in engagement with the support 28. By means of the adjusting mechanism 29–31 the stroke length of the ram 8 may be adjusted in a simple manner.

Turning now to FIG. 14, according to the invention, the trough-shaped contact and pressure portions 4 and 5 of the splicers are attached (for example, by gluing) to a storing means 32 made of a flexible insulating material and formed of two parallel support strips 33, 34. Each splicer is attached to the strips 33, 34 by connecting tabs 35 which extend from opposite ends of the insulating portion 6 of the splicer 4, 5, 6. The two tabs 35 on each splicer are off-center with respect to the splicer and are staggered with respect to one another. In this manner, when the projecting ends of the conductors 1 and 2 are severed by the cutters 25 as the ram 8 executes its upward work motion, the cutters 25 simultaneously also cut off the splicer 4, 5, 6 from the support strips 33, 34 by cutting through the tabs 35 without thereby damaging the interconnected conductors 1, 2.

The apparatus according to the invention operates as follows:

First, the two telecommunications cables 3 to be spliced are each externally and removably engaged by the teeth of separate clamps 36. In this connection reference is made to FIGS. 11, 12 and 13. As it may be observed in FIG. 11, the two cables 3 are held in axial alignment with respect to one another. Each clamp 36 is provided with a tightenable strap 37. Each clamp 36, 37 is supported by a common rod 38 of polygonal section. For releaseably affixing each clamp 36, 37 to the rod 38 there is provided a yoke 39. On the rod 38 there is slidably supported a carriage 40 from which there extends an arm 41 between the cables 3. The arm 41 is longitudinally adjustably tightened to the carriage 40. At the carriage 40 there is further provided a setting mechanism 42 with which the arm 41 may be raised or lowered.

One end of the arm 41 is attached to a fork 32 which is secured to the stand 7 by means of two clamping screws 44. In this manner the cable clamping mechanism is stably supported by the stand 7.

As a further preparatory step, a splicer 4, 5, 6 is positioned between the open angle pieces 9 and 10, so that the underside of its base will be supported by the free upper work face of the ram 8. If the splicer is of the type that is attached to parallel-extending support strips 33, 34, then the latter will extend—as well seen in FIG. 2—normal to the guide grooves 22, 23.

As the next step, the conductors **1** and **2**, as it may be observed from FIG. **2**, are positioned in the guide grooves **22, 23** and the trough of the splicer **4, 5, 6.** Then the hold-down device **24** is placed over the guide grooves **22, 23.** Thereafter, the angle piece **10** is swung into its position shown in FIG. **5** and then a switch **46** (FIG. **1**) is actuated which is arranged preferably in the vicinity of the jaw assembly **8, 9, 10** and which is associated with the power cylinder **26.** The actuation of the switch **46** triggers an excursion of the piston rod of the power cylinder **26** (FIG. **3**). The piston rod shifts the ram **8** through the bell crank lever **27** from its initial position shown in FIG. **4***a* into its final position shown in FIG. **4***c*. During this motion first the end portions of the conductors **1** and **2** that protrude beyond the splicer **4,** 5, 6 are severed approximately flush with the lateral outline of the splicer as the ram **8** reaches and passes through the position shown in FIG. **4***b*. It is thus seen that by virtue of integrating the wire cutter mechanism with the jaw assembly **8, 9, 10,** the wires are severed directly by the motion of ram **8** with respect to the jaw **9, 10.** In this manner an independent cutting mechanism is dispensed with.

As the ram **8** continues to move upwardly after severing the ends of the conductors **1, 2,** it exerts a pulling force on the conductors **1, 2.** Since the latter are immobilized at **24,** they will, under this pulling force, be gradually withdrawn from the still at least partially open splicer **4, 5, 6** so that the severed bare radial conductor faces will be recessed with respect to the lateral outline of the insulating portion **6** of the splicer **4, 5, 6.**

Turning now to FIGS. **6***a*–**6***c*, there is illustrated a modified embodiment of the invention which effects the longitudinal displacement of the severed conductors **1** and **2** with respect to the splicer by means different from that shown in FIGS. **4***a*–**4***c*. According to the modified embodiment of FIGS. **6***a*–**6***c*, adjacent both sides of the jaw assembly **8, 9, 10,** there are provided backup supports **21***a* each passing through a guide channel **7***a* of the stand **7.** Further, each backup support **21***a* is horizontally shiftably secured to the ram **8** by means of a pin **21***b* which is slidable in a slot **8***a*.

As the ram **8** is moved upwardly, the backup supports **21***a* travel therewith as a unit, whereby the conductor **1** and the conductor **2** (not shown) are, at their clamped locations **24** and thus remain at the same level as those conductor portions that extend within the splicer. While according to the embodiment illustrated in FIGS. **4***a*–**4***c* the conductors are displaced in the splicer because the clamped location **24** of the conductor remained stationary and the splicer moved away therefrom, the same result is achieved in the embodiment according to FIGS. **6***a*–**6***c* by virtue of the cooperation between components **7***a*, **21***a*, **8***a* and **21***b*. As the ram **8** moves upwardly, each stationary guide channel **7***a* forces the associated backup support **21***a* to shift away from the ram **8** in a horizontal direction. This shift is permitted by the slot **8***a* in which thus the pin **21***b* integral with the backup support **21***a* is displaced away from the ram **8.** Thus, as the ram **8** and the backup supports **21***a* move upwardly, the work face of the latter, where the conductors **1** and **2** are clamped by the hold-down means **24,** move horizontally away from the jaw assembly **8, 9, 10,** exerting a pull on the conductors **1,** 2 the end portions of which have been precedingly severed. As a result, the conductors **1** and **2** are pulled partially out of the splicer and thus the cut conductor faces are withdrawn thereinto.

It is particularly advantageous to so design the ram **8** that, as seen in FIG. **10,** its upper work face has a raised mid portion at **8***b*, so that the splicer **4, 5, 6** is compressed at its middle to a greater extent that at its ends.

Turning once again to FIGS. **8** and **9***a*–**9***d*, as the ram **8** continues to move upwardly, the teeth **14, 15** of the pawl-and-ratchet device **13** pass through the zone of the pawl **17,** whereby the latter rides on the adjacent side of said teeth and, at the same time, rotates in a counterclockwise sense (FIG. **9***a*). If during this motion the preselected upper dead center (terminal working position) of the ram **8** is not yet reached, the spring-biased pawl **17** drops into the valley **16** (FIG. **9***b*) and prevents a downward movement of the ram **8.** After the ram **8** is moved further upwardly into its preselected upper terminal position, whereby the pawl **17,** by virtue of the spring **17***a* is drawn into its position shown in FIG. **9***c*. Thereafter the teeth **14, 15** arranged at the ram **8** may clear without hindrance the pawl **17** as the ram **8** is lowered upon completion of the splicing operation.

The pawl-and-ratchet mechanism **13** ensures that the pressure exerted by the jaw assembly **8, 9, 10** on the splicer **4, 5, 6** can be removed only after the desired degree of compression is reached. It will be apparent that by means of the adjusting mechanism **19, 20** illustrated in FIG. **8** and referred to earlier, the degree of compression of the splicer may be varied as the support block **18** is adjusted in its vertical position.

In the final phase of the upward motion of the ram **8** as it presses, with its upper work face, the splicer **4, 5,** 6 upwardly against an inner face of the jaw **9, 10,** the sides of the splicer are securely crimped over the end portions of the conductors **1, 2.** The peripheral teeth **45** provided according to the invention at the edges of the pressure portion **5** of the splicer then, similarly to the serrations provided on the contact portion **4,** bite through the insulation of the conductors **1, 2** and engage the conductors themselves. The teeth **45** are particularly advantageous when a T-splice is to be made, that is, a further conductor is to be attached to the two conductors to be spliced. The teeth **45** substantially improve the electric connection with such a third conductor.

It will be understood that the above description of the present invention is susceptible to various modifications, changes and adaptations, and the same are intended to be comprehended within the meaning and range of equivalents of the appended claims.

We claim:

1. An apparatus for the solderless splicing of insulated electric conductors by means of a splicer which has a base and lateral walls to define a trough and in which the conductors are longitudinally coextensively positioned in opposite orientation, comprising in combination:

a. a jaw assembly having a length dimension and two ends;

b. means defining backup supports, one situated adjacent and externally of each end of said jaw assembly;

c. a first conductor guide provided on both said backup supports, said first conductor guide having an axis passing through said jaw assembly and being coextensive with the length dimesion thereof;

d. a second conductor guide provided on both said backup supports in a side-by-side relationship with said first conductor guide, said second conductor guide having an axis passing through said jaw assembly and being coextensive with the length dimension thereof;

e. a first cutting means operatively coupled to said jaw assembly and disposed at one of its two ends, said first cutting means having a cutting zone extending approximately flush with said one end of said jaw assembly and intersecting the axis of said first conductor guide;

f. a second cutting means operatively coupled to said jaw assembly and disposed at the other of its two ends, said second cutting means having a cutting zone extending approximately flush with said other end of said jaw assembly and intersecting the axis of said second conductor guide;

g. actuating means for operating said jaw assembly to bend the lateral walls of said splicer onto said base and simultaneously operating said first and second cutting means; and

h. pulling means coupled to said actuating means for drawing said conductors, extending through said jaw assembly, partially out of said splicer, said pulling means including means for moving said backup supports away from said jaw assembly parallel to the length dimension of said jaw assembly during the actuation thereof.

2. An apparatus as defined in claim **1**, further comprising hold-down devices disposed adjacent and externally of each end of said jaw assembly, said hold-down devices cooperating with said first and second conductor guides to clamp the conductors at locations on either side of said jaw assembly.

3. An apparatus as defined in claim **1**, wherein said jaw assembly comprises:

a. a first jaw formed of a ram connected to said actuating means and movable normal to said axes of said conductor guides, said ram having a work face for engaging the underside of said splicer base, said ram adapted to assume a position of rest and a terminal working position; and

b. a second jaw formed of a first and a second angle piece, at least one of said angle pieces includes means for pivoting it in a plane normal to the length dimension of said jaw assembly, whereby said second jaw is adapted to assume an open position and an operational position, each angle piece having a first leg provided with an inner face extending, in the operational position of said second jaw, on one and the other side of said ram parallel to the direction of its displacement, each angle piece further having a second leg provided with an inner face extending, in the operational position of said second jaw, normal to the direction of displacement of said ram, said inner faces of said first and second legs cooperating with said work face of said ram, whereby the lateral walls of said splicer are bent onto said base during displacement of said ram towards the inner faces of said second legs.

4. An apparatus for the solderless splicing of insulated electric conductors by means of a splicer which has a base and lateral walls to define a trough and in which the conductors are longitudinally coextensively positioned in opposite orientation, comprising in combination:

a. a jaw assembly having a length dimension and two ends, said jaw assembly including

1. a first jaw formed of a movable ram having a work face for engaging the underside of said splicer base, and first and second cutting edges bounding said work face; said ram adapted to assume a position of rest in a terminal working position;

2. a second jaw formed of a first and a second angle piece, at least one of said angle pieces includes means for pivoting it in a plane normal to the length dimension of said jaw assembly, whereby said second jaw is adapted to assume an open position and an operational position, each angle piece having a first leg provided with an inner face extending, in the operational position of said second jaw, on one and the other side of said ram parallel to the direction of its displacement, each angle piece further having a second leg provided with an inner face extending, in the operational position of said second jaw, normal to the direction of displacement of said ram, said inner faces of said first and second legs cooperating with said work face of said ram, whereby the lateral walls of said splicer are bent onto said base during displacement of said ram towards the inner faces of said second legs;

b. means defining backup supports, one situated adjacent and externally of each end of said jaw assembly;

c. a first conductor guide provided on both said backup supports, said first conductor guide having an axis passing through said jaw assembly and being coextensive with the length dimension thereof;

d. a second conductor guide provided on both said backup supports in a side-by-side relationship with said first conductor guide, said second conductor guide having an axis passing through said jaw assembly and being coextensive with the length dimension thereof; said movable ram being displaceable normal to said axes of said conductor guides;

e. a first cutting blade attached to said first angle piece and disposed at the one end of said jaw assembly, said first cutting blade cooperating with said first cutting edge of said ram and forming a first cutting means having a cutting zone extending approximately flush with said one end of said jaw assembly and intersecting the axis of said first conductor guide;

f. a second cutting blade attached to said second angle piece and disposed at the other end of said jaw assembly, said second cutting blade cooperating with said second cutting edge of said ram and forming a second cutting means having a cutting zone extending approximately flush with said other end of said jaw assembly and intersecting the axis of said second conductor guide;

g. actuating means for operating said jaw assembly to bend the lateral walls of said splicer onto said base and simultaneously operating said first and second cutting means; said movable ram being connected to said actuating means; and

h. pulling means coupled to said actuating means for drawing said conductors, extending through said jaw assembly, partially out of said splicer.

5. An apparatus as defined in claim 4, wherein said pulling means includes means for moving said backup supports away from said jaw assembly parallel to its length dimension during actuation of said jaw assembly.

6. An apparatus as defined in claim 4, wherein said first cutting means includes a first cutting blade affixed to said first angle piece at one end of said jaw assembly and a first cutting edge provided on said ram for cooperating with said first cutting blade; said second cutting means includes a second cutting blade affixed to said second angle piece at the other end of said jaw assembly and a second cutting edge provided on said ram for cooperating with said second cutting blade.

7. An apparatus as defined in claim 4, further comprising means for positioning said work face of said ram substantially coplanar with said backup supports in the position of rest of said ram prior to its operation, and for moving said work face out of the plane of said backup supports during operation.

8. An apparatus as defined in claim 4, wherein said actuating means includes a power cylinder and a bell crank connecting said power cylinder with said ram.

9. An apparatus as defined in claim 8, further including a support means for pivotally holding said bell crank and means for adjusting said support means in the direction of ram travel for varying the stroke of said ram.

10. An apparatus as defined in claim 4, further comprising means defining a shoulder on said ram and a detent portion forming part of the pivotable angle piece, said detent portion engages said shoulder in the open position of said second jaw and is withdrawn therefrom in the operational portion of said second jaw, whereby said ram is prevented from moving from its position of rest as long as said second jaw is in its open position.

11. An apparatus as defined in claim 4, further including a pawl-and-ratchet means connected to said ram for preventing a displacement thereof towards said position of rest prior to its reaching said terminal working position.

12. An apparatus as defined in claim 4, wherein said work face of said ram is provided with an elevated mid portion.

13. An apparatus for the solderless splicing of insulated electric conductors by means of a splicer which has a base and lateral walls to define a trough and in which the conductors are longitudinally coextensively positioned in opposite orientation, comprising in combination:

a. a jaw assembly having a length dimension and two ends, said jaw assembly including a first jaw formed of a movable ram having a work face for engaging the underside of said splicer base, said ram adapted to assume a position of rest and a terminal working position; and a second jaw cooperating with said ram;

b. means defining backup supports, one situated adjacent and externally of each end of said jaw assembly;

c. a first conductor guide provided on both said backup supports, said first conductor guide having an axis passing through said jaw assembly and being coextensive with the length dimension thereof;

d. a second conductor guide provided on both said backup supports in a side-by-side relationship with said first conductor guide, said second conductor guide having an axis passing through said jaw assembly and being coextensive with the length dimension thereof;

e. a first cutting means operatively coupled to said jaw assembly and disposed at one of its two ends, said first cutting means having a cutting zone extending approximately flush with said one end of said jaw assembly and intersecting the axis of said first conductor guide;

f. a second cutting means operatively coupled to said jaw assembly and disposed at the other of its two ends, said second cutting means having a cutting zone extending approximately flush with said other end of said jaw assembly and intersecting the axis of said second conductor guide;

g. actuating means for operating said ram to bend the lateral walls of said splicer onto said base and simultaneously operating said first and second cutting means;

h. pulling means coupled to said actuating means for drawing said conductors, extending through said jaw assembly, partially out of said splicer; and

i. pawl-and-ratchet means connected to said ram for preventing a displacement thereof towards said position of rest prior to its reaching said terminal working position.

14. An apparatus as defined in claim 13, wherein said pawl-and-ratchet means includes:

a. two adjacent teeth affixed to said ram in series with respect to the direction of ram travel;

b. means defining a valley between said teeth, said valley has a depth that is smaller than the height of said teeth;

c. a ratchet pivotable in a plane parallel to the direction of ram travel, said ratchet having a terminal portion extending into the path of travel of said teeth, said terminal portion is engaged by an outer flank of one and the other tooth when said ram moves in one and the other direction, whereby said ratchet is tilted and its terminal portion moves across said valley; and

d. spring means connected to said ratchet for urging it into a position normal to the direction or ram travel, whereby said ram, while said terminal portion is situated in said valley, is prevented from reversing its direction of travel.

15. An apparatus as defined in claim 14, including support means for carrying said pawl and means for adjusting said support means in a direction parallel to the direction of ram travel.

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