

Description

The present invention relates to an electrical connector strip arrangement comprising a continuous length of electrically insulating material and a plurality of spaced electrical contacts extending through said material at intervals along the entire length thereof said insulating material having aligned sets of notches spaced throughout its length on opposite sides with each notch set equally spaced from and located between adjacent contacts, whereby an arbitrary length of insulating material containing a desired number of electrical contacts can be separated from the continuous length by severing at a notch set, said continuous length of insulating material having a uniform cross-section throughout its entire length except where the notches are formed. Such a strip arrangement is known from US-A-4 230 387 and may provide an "endless" connector, so designated because of its continuous length which facilitates, on an end user basis, the manufacture of a connector of any predetermined number of contacts. The invention also relates to a method for manufacturing an electrical connector strip arrangement.

Electrical connectors comprising an insulating body having electrical contacts carried thereby are well known in the art. In the so-called male connectors, the insulating body carries pin-like contacts which extend above and below the insulating body to facilitate electrical connection from one element, such as a printed circuit board, to another element, which may, for example, comprise a so-called female connector. As is well known, a female connector comprises an insulating body which carries an electrical contact which is generally capable of receiving at one end thereof a male pin, and at the other end thereof an electrical conductor which may be another male pin, a single electrical conductor, or a single strand of a multiconductor flat ribbon cable. Typically, the aforescribed male connector and female connector are utilized in a tandem or coupled fashion to provide electrical connection from one element such as the printed circuit paths on a printed circuit board to individual conductors or the multiple conductors of a multiconductor ribbon cable.

The aforescribed male and female type connectors are generally manufactured with a predetermined number of contacts carried thereby. For example, a typical male connector of the type described above might comprise a length of insulating material having ten, twenty, thirty, or any number of pins carried thereby. Similarly, a female connector may comprise a body of insulating material having individual cavities disposed therein, each cavity of which carries an electrical contact. Like the male connectors, the female connectors

are commonly manufactured with ten, twenty, thirty, etc., contacts.

There are several drawbacks associated with the manufacture and use of both male and female connectors of the type described above. First, the end user may use several connectors, each having a different number of electrical contacts or "positions". He must therefore purchase and inventory many different connector sizes, i.e. he must maintain a supply of 8-position, 12-position, 20-position connectors etc.

Second, the present industry standard for the molded male header and its mating molded female connector is a fixed 36 positions in a single-row configuration, and two rows of 36 positions each in a double-row configuration, i.e. 72 positions. As an example, an end user using a single row 10-position pin header can cut three lengths (each having 10 positions) with a remainder of six positions, or a 17% scrap rate.

A continuous or endless connector would eliminate both the scrap and multiple inventory items.

A continuous connector for solving this problem was disclosed in U.S. Patent No. 4,230,387, which disclosed an endless connector comprising a continuous length of insulating material with the length of insulating material having electrical contacts spaced therealong and being provided with severance means intermediate the contacts for selectively severing the length of insulating material at locations intermediate the contacts. In this manner, the end user need only store the endless connector and, in a given application, can sever the continuous length of insulating material in such a fashion that the resultant connector comprises exactly the number of contacts which is required for his particular electrical application.

In one embodiment of the connector disclosed in the U.S. Patent No. 4,230,387, the endless connector is of the so-called male type in the sense that it includes a body of insulating material which has pins embedded therein. In another embodiment, the connector is of the so-called female type having side-by-side cavities within which are disposed female type contacts. In accordance with another feature, the male and female type connectors are provided with interconnection means by which they may coact with one another to provide an electrical connection from one point, for example, an electrified aperture in a printed circuit board, through the male and female connectors to individual electrical connectors or the strands of a multiconductor flat ribbon cable.

The endless connector disclosed in U.S. Patent No. 4,230,387 comprises a continuous length of insulating material manufactured by, for example, injection molding. In accordance with the method by which the endless connectors disclosed in U.S.

Patent No. 4,230,387 were manufactured, each continuous length of insulating material was made in a mold as a single piece. In other words, the length of the piece of insulating material cannot be longer than the length of the mold. This limitation severely hampers the ability to manufacture so-called "endless" connectors, since the mold would in turn have to be "endless".

It should be understood that the term "endless" will be used throughout this application to mean that the length of the endless item may be made to have any length in accordance with the method of the invention. Obviously, a truly endless connector could only be manufactured by forming the connector continuously or semicontinuously for a time equal to infinity and the impossibility of this indicates that the term "endless" is not being used in this sense.

It is an object of the present invention to provide an endless connector comprising endless insulating material having electrical contacts spaced therealong and being provided with severance means (i.e. notches) intermediate said contacts for selectively severing lengths of the material at locations intermediate said contacts.

According to one aspect of the invention, the electrical connector strip arrangement initially defined is characterized in that said continuous connector strip arrangement is obtainable by extruding said length of insulating material through a die having an opening substantially matching said cross-section, and by subsequently forming the side notches and inserting the electrical contacts at intervals along the length of insulating material.

According to another aspect of the invention, there is provided a method for manufacturing an electrical connector strip arrangement comprising a length of electrically insulating material and a plurality of spaced electrical contacts extending through said material along the length thereof, said insulating material having aligned sets of notches spaced throughout its length on opposite sides with each notch set equally spaced from and located between adjacent contacts, the method characterized by extruding said length of insulating material through a die, and subsequently forming the side notches and inserting the electrical contacts through the material at intervals along the insulating material.

Expediently, the method may include the step of winding the continuous length on a reel.

The preferred embodiments of the invention will be described in detail hereinafter with reference to the accompanying drawings, in which:

Figs. 1A-C show side, end and top views of a single-row male connector manufactured in accordance with the invention.

Figs. 2A-C show side end and top views of a double-row male connector manufactured in accordance with the invention.

Figs. 3A-C show side, end and top views of a single-row male right-angle connector manufactured in accordance with the invention.

Figs. 4A-C show side, end and top views of a double-row male right-angle connector manufactured in accordance with the invention.

FIG. 5 is a diagrammatic side view of the apparatus for manufacturing an endless male connector by extrusion.

FIG. 6 shows the extruded header being stretched and drawn in accordance with the invention.

FIG. 7 is a perspective view of the apparatus for punching and notching the extruded header and inserting pins or other electrical components therein in accordance with the invention.

FIG. 8 is a perspective view of the punch and notch die and the mechanism for advancing the extruded header in accordance with the invention.

FIG. 9 is a diagrammatic view of a downward stroke of the apparatus shown in FIG. 7 whereby a hole is punched, a pair of notches are formed, and a pin is inserted simultaneously.

FIG. 10 shows the three steps comprising pin insertion.

FIG. 12 is an end view showing a means by which two connectors are coupled in parallel.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

FIG. 1A shows a side view of a continuous connector having a single row of straight pin terminals inserted in the endless header 2. The pins 4 have a substantially square cross section, but also may have an expanded "star" section in the area covered by the plastic header for improved strength and for form-fitting with the plastic to prevent longitudinal displacement of the inserted pins. The sides of the header 2 have notches 6 formed therein, which notches are substantially V-shaped. The V-shaped notches 6 are directed substantially perpendicular to the longitudinal axes of the header. By severing the header at the two opposing notches, an electrical connector having a predetermined number of pin terminals can be formed. In the description which follows, the method of the invention will be described in connection with the manufacture of a single-row connector. However, other connectors, such as those shown in FIGS. 2-4, can be manufactured in accordance with the invention.

FIG. 2A is a side view of a double-row connector according to the invention. It will be noted that

the side view of FIG. 2A is identical to that of FIG. 1A. FIG. 2B shows an end view of a double-row endless connector. In this case the header 2 is wider than the header shown in FIG. 1 so that pairs of holes 8 can be formed in header for receiving the two rows of straight pins 4 and 4'.

The method according to the invention is not limited to the formation of endless connectors having straight pin terminals. FIG. 3B shows an end view of an endless connector having right-angle pin terminals 5 inserted in holes 8 formed in header 2. In the case of an electrical connector having a single row of right-angle pin terminals, the header 2 may be the same as that used in the electrical connector having a single row of straight pin terminals.

FIG. 4B shows an end view of an electrical connector having two rows of right-angle pin terminals. The pin terminals 5 of one row are smaller than the pin terminals 5' of the other row. In the case of the electrical connector shown in FIGS. 4A-C, the endless header may take the same form as the header of the electrical connector having two rows of straight pin terminals, shown in FIGS. 2A-C.

Although the electrical connectors shown in FIGS. 1-4 are provided with pin terminals, it is apparent that an electrical connector can be manufactured according to the invention having any type of electrical components inserted in an endless header.

FIG. 5 is a diagrammatic view of the apparatus for manufacturing an endless header by means of extrusion. The extruder is generally indicated by numeral 10. Plastic granules are inserted in the extruder by way of hopper 12. Inside the extruder, in a well known way the plastic granules are heated to a molten state and then the molten plastic is pressed through hole 15 formed in metal die 14 (see FIG. 6). The shape of hole 15 is substantially congruent to the final header cross section. Such extruders are well known in the art. In one working embodiment the extruder was a 1 1/2 inch (screw diameter), 20:1 (length-to-diameter ratio) extruder manufactured by San Diego Custom Extrusions. However, it is obvious to those of ordinary skill in the art that any extruder having the same screw diameter and the same length to diameter ratio could be used to perform the extrusion of the continuous insulating material.

When the extruded plastic material exists from hole 15 in the die 14, the plastic material is in a malleable state. The extruded material is immediately immersed in a cooling tank 16 which is filled with water. The extruded header is pulled through the cooling tank 16 by means of a pair of opposing rollers 20. In order to keep the extruded header fully immersed, a pair of guide rods 18, 18'

are provided beneath which the extruded header must pass when being pulled by rollers 20. As a result of the tensioning force applied by the rollers 20, the extruded header exiting from hole 15 of die 14 is stretched and drawn such that the dimensions of the final cross section of the header are smaller than the dimensions of corresponding hole 15. After the extruded header passes through rollers 20, it is wound on a reel 22 in a continuous fashion.

The extruded header may be wound on reel 22 manually or by means of a well-known automatic tensioning take-up device.

FIG. 7 is a perspective view of the notching, punching and pin insertion station 26. The notching, punching and pin insertion station 26 comprises a pin insertion machine 30 adapted to perform the additional functions of hole punching and notching. The pin insertion machine may be a standard Autopin-2 machine, manufactured by Autosplice, Inc. of Woodside, New York, and fully described in U.S. Patent No. 4,318,964, the contents of which are incorporated herein by reference. The pin insertion machine 30 comprises pin insertion jaws 32 mounted on slidable ram 34. At the end of the downward stroke of ram 34, the pin insertion jaws 32 insert the pin 4 in the extruded header 2 arranged therebelow.

A punching block 36 is also mounted on ram 34. Punching block 36 has a height and is arranged such that during a downward stroke of ram 34, punching block 36 impacts on the top surface of punch 38. As the downward stroke of ram 34 continues, punch 38 is driven by punching block 36 against die 39, whereby the extruded header 2 is simultaneously notched with V-shaped grooves and punched with a hole. This notching and punching step takes place along the extruded header 2 at a point downstream from the point at which a pin terminal 4 is simultaneously inserted in a hole already formed.

The extruded header 2 is fed to the notching and pin insertion station 26 in incremental steps equal to the distance separating adjacent pin terminals. The extruded header 2 is advanced in a stepwise manner by means of advancement arm 40. The end of advancement arm 40 has recesses 41 formed therein for engaging the inserted pin terminals both above and below the extruded header.

As best seen in FIG. 8, when recesses 41 engage a plurality of pin terminals, the advancement arm is moved an incremental step in the direction of the arrow X. At the end of this incremental step, the advancement arm 40 is rotated in the direction of arrow R_z about the pivot 50, whereby the recesses 41 disengage from the pin terminals and the advancement arm is returned to its initial position. For example, in the case where

there are three recesses 41 which respectively engage three pin terminals 4, during a first incremental advancement in the X direction the recesses will engage first, second and third pin terminals arranged in sequence along the extruded header. During the next incremental advancement in the direction X, recesses 41 respectively engage second, third and fourth pin terminals, wherein the fourth pin terminal has been inserted subsequent to the first incremental advancement and prior to the second incremental advancement.

The advancement arm 40 is rigidly connected to pivot arm 44, pivot arm 44 being rotatably mounted on pivot pin 50. It should also be noted that advancement arm 40 comprises two members 52 and 52', member 52 having recesses 41 which engage the pin terminals 4 above the extruded header and member 52' having recesses 41 which engage the pin terminals 4 below the extruded header 2. In the vicinity of pivot pin 50, members 52 and 52' are separated by a gap of sufficient height to allow passage of the extruded header 2 therethrough.

The pivot arm 44 is coupled to advancement link 42 (by means not shown). Advancement link 42 is in turn rotatably coupled to ram 34 (by means not shown). The linkages between advancement link 42 and pivot arm 44 are such that the advancement arm 40 is advanced in the X direction during the upward stroke of ram 34. Other mechanisms (not shown) are provided for rotating advancement arm 40 at the proper time for disengagement from pin terminals 4. These mechanisms are not shown since the feeding mechanism does not constitute part of the present invention. Furthermore, the design of mechanical linkages for performing incremental advancements is well known to those of ordinary skill in the art.

As best seen in FIG. 8, the punch 38 is coupled to die 39 by means of a plurality of posts 56, preferably four in number. In the preferred embodiment, the punch 38 has corresponding bores for receiving posts 56. Thus, punch 38 is slidable on posts 56 in the downward direction indicated by arrow Z. Each post 56 has a spring (not shown) wrapped therearound which resists downward slidable displacement of punch 38. However, as soon as punching block 36 impacts on the top surface of punch 38, punch 38 is driven downward during the continued downward stroke of ram 34, whereby the resistance offered by the springs mounted on post 56 is overcome. The result is that punch 38 is driven against die 39.

As best seen in FIG. 9, punch 38 has a pin hole punch 58 and notch teeth 60 and 62 rigidly mounted thereon. As die 39 holds the extruded header 2 securely in place, the pin hole punch 58 is driven through the extruded header by punching

block 36, thereby forming a hole 8. At the same time the notching teeth 60 and 62 are driven downwardly by punching block 36, whereby notches 6 are formed on either side of extruded header 2. The extruder header is then advanced by an incremental distance equal to the distance separating adjacent pin terminals, and the hole punch and notching operation is repeated.

At the same time, i.e. during the downward stroke of ram 34, the pin insertion jaws 32 insert a pin 4 in a hole 8 already formed during a previous downward stroke of ram 34. During pin insertion, the punched and notched portion of the extruded header is guided and supported by guide blocks 46 and 48 arranged upstream and downstream of the point at which the pin terminal is inserted.

The steps of the pin insertion are depicted in FIG. 10. The pin insertion machine 30 receives a wire 68 from a supply reel 69. This wire has been formed into a series of connected pins. The pin insertion machine is adapted to cut off one pin at a time from the end of the wire and then insert the pin in a hole in the extruded header with a vertical downward stroke. Because such a pin insertion machine is well known, only a portion of the machine will be described herein.

The leftmost portion of FIG. 10 shows the cutting step. The wire 68 is feed through a wire guide 78 formed in support block 80 in successive steps. After each step the leading pin of the wire is located in a predetermined position in front of the cutter. A tool 70 comprising two halves (only one of which is shown in FIG. 10) has opposing jaws 72 for receiving the leading pin in the next step. The jaws 72 are urged toward each other by a spring (not shown). When the cutter 74 is driven toward the wire, cutter 74 severs the leading pin from the wire and forces it between the separated jaws 72, where the pin is held by friction (See middle portion of FIG. 10). Spring 76 urges the cutter 74 back to its withdrawn position, as shown in the rightmost portion of FIG. 10. Then the tool 70 performs a downward stroke (by means not shown), with the pin 4 being inserted by the jaws 72 into a hole in the extruded header.

FIG. 12 is an end view showing headers having longitudinal spines and longitudinal grooves manufactured in accordance with the invention, the groove conforming to the shape of the spine. By snapping the spine 108 of one single-row connector 2 into the groove 108 of another single-row connector 2', two single-row connectors can be coupled to form a double-row connector.

The described endless connector thus facilitates the easy production, at the end user level, of electrical connectors having a predetermined desired number of electrical contacts carried thereby.

The endless connector may be of the male or female type, and can be coupled to another endless connector by way of interconnection means formed thereon.

The foregoing description of the preferred embodiments is presented for illustrative purposes only and is not intended to limit the scope of the invention as defined in the appended claims. In particular, the method in accordance with the invention can be used to form an endless connector having an endless insulating header with a multitude of electrical contacts (e.g. pins, tabs or sockets) inserted therein.

Claims

1. An electrical connector strip arrangement comprising a continuous length of electrically insulating material (2) and a plurality of spaced electrical contacts (4,5) extending through said material at intervals along the entire length thereof said insulating material having aligned sets of notches (6) spaced throughout its length on opposite sides with each notch set equally spaced from and located between adjacent contacts (4,5), whereby an arbitrary length of insulating material containing a desired number of electrical contacts can be separated from the continuous length by severing at a notch set, said continuous length of insulating material having a uniform cross-section throughout its entire length except where the notches are formed, characterised in that said electrically insulating material is an extruded section.
2. An arrangement according to claim 1 wherein said length of material is wound on a reel.
3. An arrangement as claimed in claim 1 or 2 wherein the cross-section of the insulating material has corners ; and projections are provided at these corners.
4. An arrangement as claimed in any one of the preceding claims wherein the contacts (4,5) comprise a single row of straight pins (4) extending parallel to the side notches.
5. An arrangement as claimed in any one of claims 1 to 3 wherein the contacts comprise two parallel rows of straight pins.
6. An arrangement as claimed in any one of claims 1 to 3 wherein the contacts comprise right angle pin terminals.
7. A method for manufacturing an electrical connector strip arrangement comprising a length of electrically insulating material (2) and a plurality of spaced electrical contacts (4,5) extending through said material along the length thereof, said insulating material having aligned sets of notches spaced throughout its length on opposite sides with each notch set equally spaced from and located between adjacent contacts, the method characterised by extruding said length of insulating material through a die (14), and subsequently forming the side notches and inserting the electrical contacts (4,5) through the material at intervals along the insulating material.
8. A method according to claim 7 including the step of winding the continuous length on a reel.
9. A method as claimed in claim 7 or 8 wherein the material is extruded in a shape providing projections at corners thereof.
10. A method as claimed in any one of claims 7 to 9 wherein a single row of straight pins is inserted parallel to the side notches.
11. A method as claimed in any one of claims 7 to 9 wherein two parallel rows of straight pins are inserted.
12. A method as claimed in any one of claims 7 to 9 wherein right angle pin terminals are inserted.
13. A method according to any one of claims 7 to 12 wherein holes for receiving said contacts are punched in said insulating material.
14. A method according to claim 13 wherein said notches are formed when said holes are punched.
15. A method according to claim 13 or 14 wherein a hole is punched at one location while a contact is inserted in a hole previously punched at another location along said material.
16. A method according to any one of claims 7 to 15 followed by the step of severing a desired length of material from said continuous length at a notch set to form a connector strip.



The endless connector may be of the male or female type, and can be coupled to another endless connector by way of interconnection means formed thereon.

The foregoing description of the preferred embodiments is presented for illustrative purposes only and is not intended to limit the scope of the invention as defined in the appended claims. In particular, the method in accordance with the invention can be used to form an endless connector having an endless insulating header with a multitude of electrical contacts (e.g. pins, tabs or sockets) inserted therein.

Claims

1. An electrical connector strip arrangement comprising a continuous length of electrically insulating material (2) and a plurality of spaced electrical contacts (4,5) extending through said material at intervals along the entire length thereof said insulating material having aligned sets of notches (6) spaced throughout its length on opposite sides with each notch set equally spaced from and located between adjacent contacts (4,5), whereby an arbitrary length of insulating material containing a desired number of electrical contacts can be separated from the continuous length by severing at a notch set, said continuous length of insulating material having a uniform cross-section throughout its entire length except where the notches are formed, characterised in that said electrically insulating material is an extruded section.
2. An arrangement according to claim 1 wherein said length of material is wound on a reel.
3. An arrangement as claimed in claim 1 or 2 wherein the cross-section of the insulating material has corners ; and projections are provided at these corners.
4. An arrangement as claimed in any one of the preceding claims wherein the contacts (4,5) comprise a single row of straight pins (4) extending parallel to the side notches.
5. An arrangement as claimed in any one of claims 1 to 3 wherein the contacts comprise two parallel rows of straight pins.
6. An arrangement as claimed in any one of claims 1 to 3 wherein the contacts comprise right angle pin terminals.
7. A method for manufacturing an electrical connector strip arrangement comprising a length of electrically insulating material (2) and a plurality of spaced electrical contacts (4,5) extending through said material along the length thereof, said insulating material having aligned sets of notches spaced throughout its length on opposite sides with each notch set equally spaced from and located between adjacent contacts, the method characterised by extruding said length of insulating material through a die (14), and subsequently forming the side notches and inserting the electrical contacts (4,5) through the material at intervals along the insulating material.
8. A method according to claim 7 including the step of winding the continuous length on a reel.
9. A method as claimed in claim 7 or 8 wherein the material is extruded in a shape providing projections at corners thereof.
10. A method as claimed in any one of claims 7 to 9 wherein a single row of straight pins is inserted parallel to the side notches.
11. A method as claimed in any one of claims 7 to 9 wherein two parallel rows of straight pins are inserted.
12. A method as claimed in any one of claims 7 to 9 wherein right angle pin terminals are inserted.
13. A method according to any one of claims 7 to 12 wherein holes for receiving said contacts are punched in said insulating material.
14. A method according to claim 13 wherein said notches are formed when said holes are punched.
15. A method according to claim 13 or 14 wherein a hole is punched at one location while a contact is inserted in a hole previously punched at another location along said material.
16. A method according to any one of claims 7 to 15 followed by the step of severing a desired length of material from said continuous length at a notch set to form a connector strip.



Patentansprüche

1. Streifenanordnung eines elektrischen Verbinders mit einer durchgehenden Länge eines elektrischen Isoliermaterials (2) und mehreren beabstandeten elektrischen Kontakten (4, 5), die sich durch das Material in Intervallen entlang dessen Gesamtlänge erstrecken, wobei das Isoliermaterial ausgerichtete Sätze von Kerben (6) aufweist, die auf gegenüberliegenden Seiten über seine Gesamtlänge im Abstand angeordnet sind, wobei jeder Kerbensatz gleich weit von benachbarten Kontakten (4, 5) beabstandet ist und sich zwischen diesen befindet, wobei eine willkürliche Länge von Isoliermaterial, welches eine gewünschte Anzahl elektrischer Kontakte aufweist, von der durchgehenden Länge durch Abtrennung an einem Kerbensatz abgetrennt werden kann, und die durchgehende Länge des Isoliermaterials einen gleichmäßigen Querschnitt über seine Gesamtlänge aufweist, abgesehen dort, wo die Kerben gebildet sind, dadurch **gekennzeichnet**, daß das elektrische Isoliermaterial ein extrudierter Abschnitt ist.
2. Anordnung nach Anspruch 1, bei welcher die Länge des Materials auf eine Rolle aufgewickelt ist.
3. Anordnung nach Anspruch 1 oder 2, bei welcher der Querschnitt des Isoliermaterials Ecken aufweist; und Vorsprünge an diesen Ecken vorgesehen sind.
4. Anordnung nach einem der voranstehenden Ansprüche, bei welcher die Kontakte (4, 5) eine einzige Reihe gerader Stifte (4) aufweisen, die sich parallel zu den Seitenkerben erstrecken.
5. Anordnung nach einem der Ansprüche 1 bis 3, bei welcher die Kontakte zwei Parallele Reihen gerader Stifte umfassen.
6. Anordnung nach einem der Ansprüche 1 bis 3 bei welcher die Kontakte rechtwinklige Stiftklemmen aufweisen.
7. Verfahren zur Herstellung einer Streifenanordnung eines elektrischen Verbinders mit einer Länge eines elektrisch isolierenden Materials (2) und mehreren beabstandeten Kontakten (4, 5), die sich durch das Material erstrecken und entlang dessen Länge angeordnet sind, wobei das Isoliermaterial ausgerichtete Kerbensätze aufweist, die über seine Gesamtlänge beabstandet und auf gegenüberliegenden Seiten

angeordnet sind, wobei jeder Kerbensatz gleich weit von benachbarten Kontakten entfernt ist und dazwischen angeordnet ist, und das Verfahren dadurch **gekennzeichnet** ist, daß die Länge des Isoliermaterials durch eine Düse (14) extrudiert wird, und daraufhin die Seitenkerben gebildet und die elektrischen Kontakte (4, 5) durch das Material in Abständen entlang dem Isoliermaterial eingeführt werden.

8. Verfahren nach Anspruch 7 mit dem Schritt des Aufwickelns der durchgehenden Länge auf eine Rolle.
9. Verfahren nach Anspruch 7 oder 8, bei welchem das Material in einer Form extrudiert wird, welche Vorsprünge an dessen Ecken erzeugt.
10. Verfahren nach einem der Ansprüche 7 bis 9, bei welchem eine einzelne Reihe gerader Stifte parallel zu den Seitenkerben eingeführt wird.
11. Verfahren nach einem der Ansprüche 7 bis 9, bei welchem zwei parallele Reihen gerader Stifte eingeführt werden.
12. Verfahren nach einem der Ansprüche 7 bis 9, bei welchem rechtwinklige Stiftklemmen eingeführt werden.
13. Verfahren nach einem der Ansprüche 7 bis 12, bei welchem Löcher zur Aufnahme der Kontakte in das Isoliermaterial gestanzt werden.
14. Verfahren nach Anspruch 13, bei welchem die Kerben dann gebildet werden, wenn die Löcher gestanzt werden.
15. Verfahren nach Anspruch 13 oder 14, bei welchem ein Loch an einem Ort gestanzt wird, während ein Kontakt in ein Loch eingeführt wird, welches vorher an einem anderen Ort entlang dem Material gestanzt wurde.
16. Verfahren nach einem der Ansprüche 7 bis 15, gefolgt von dem Schritt des Abtrennens einer gewünschten Länge an Material von der durchgehenden Länge an einem Kerbensatz, um einen Verbinderstreifen zu bilden.

Revendications

1. Agencement de barrette de connexion électrique comprenant un tronçon continu de matériau électriquement isolant (2) et une multitude de contacts électriques espacés (4, 5) s'étendant



- dant à travers ledit matériau à certains intervalles sur la totalité de sa longueur, ledit matériau isolant comportant des jeux alignés d'encoches (6) espacées sur sa longueur sur les côtés opposés, avec chaque jeu d'encoches espacé de la même distance de contacts adjacents (4, 5) et situé entre ceux-ci, d'où il résulte qu'un tronçon arbitraire de matériau isolant contenant un nombre désiré de contacts électriques peut être séparé du tronçon continu par sectionnement au droit d'un jeu d'encoches, ledit tronçon continu de matériau isolant ayant une section transversale uniforme sur toute sa longueur à l'exception des endroits où les encoches sont formées, caractérisé en ce que ledit matériau électriquement isolant est une section extrudée.
2. Agencement selon la revendication 1, dans lequel ledit tronçon de matériau est enroulé sur une bobine.
 3. Agencement selon la revendication 1 ou 2, dans lequel la section transversale du matériau isolant présente des angles; et en ce que des saillies sont fournies à ces angles.
 4. Agencement selon l'une quelconque des revendications précédentes, dans lequel les contacts (4, 5) comprennent une seule rangée d'ergots rectilignes (4) s'étendant parallèlement aux encoches latérales.
 5. Agencement selon l'une quelconque des revendications 1 à 3, dans lequel les contacts comprennent deux rangées parallèles d'ergots rectilignes.
 - Agencement selon l'une quelconque des revendications 1 - 3, dans lequel les contacts comprennent des bornes à ergots perpendiculaires.
 7. Procédé de fabrication d'un agencement de barrette de connexion électrique comportant un tronçon de matériau électriquement isolant (2) et une multitude de contacts électriques espacés (4, 5) s'étendant à travers ledit matériau sur sa longueur, ledit matériau isolant comportant des jeux alignés d'encoches espacées sur toute sa longueur sur les côtés opposés, avec chaque jeu d'encoches espacé de la même distance de contacts adjacents et situé entre ceux-ci, le procédé étant caractérisé par l'extrusion dudit tronçon de matériau isolant dans une matrice (14), et par la formation ultérieure des encoches latérales et l'insertion des contacts électriques (4, 5) dans le matériau à des intervalles le long du matériau isolant.
 8. Procédé selon la revendication 7, comprenant l'étape consistant à enrouler le tronçon continu sur une bobine.
 9. Procédé selon la revendication 7 ou 8, dans lequel le matériau est extrudé dans une forme qui fournit des saillies à ses angles.
 10. Procédé selon l'une quelconque des revendications 7 à 9, dans lequel une seule rangée d'ergots rectilignes est insérée parallèlement aux encoches latérales.
 11. Procédé selon l'une quelconque des revendications 7 à 9, dans lequel deux rangées parallèles d'ergots rectilignes sont insérées.
 12. Procédé selon l'une quelconque des revendications 7 à 9, dans lequel des bornes à ergots perpendiculaires sont insérées.
 13. Procédé selon l'une quelconque des revendications 7 à 12, dans lequel des trous pour recevoir lesdits contacts sont percés dans ledit matériau isolant.
 14. Procédé selon la revendication 13, dans lequel lesdites encoches sont formés lorsque lesdits trous sont percés.
 15. Procédé selon la revendication 13 ou 14, dans lequel un trou est percé à un emplacement alors qu'un contact est inséré dans un trou précédemment percé à un autre emplacement le long du matériau.
 16. Procédé selon l'une quelconque des revendications 7 à 15, suivi par l'étape consistant à sectionner un tronçon désiré de matériau dans ledit tronçon continu au droit d'un jeu d'encoches afin de former une barrette de connexion.