

The invention relates to a self-supporting terminal element for effecting a positive connection to an insulated electrical conductor without the need to employ solder or retaining screws, the element being especially for use in telecommunication engineering, and it is the purpose of the invention to provide such a device, which, in accordance with the high demand for it, can be manufactured as a mass-produced article at reasonable costs.

From the German Patent Specification 26 10 461 and the Laid-Open German Patent Application 28 04 478 terminal elements are known for effecting connection to insulated cable conductors or jumper wires, the leaf-shaped resilient contact members of which terminal elements are supported by insulated plastics bodies. The plastics bodies act to prevent any movement of the conductors at the points of contact by means of integrally formed clamping ribs.

The aforesaid elements occupy a considerable space and therefore cannot be used in applications where the space is restricted for example, on printed circuit boards.

Therefore it is a further object of the invention to provide a terminal element of the above-mentioned kind which can be used in restricted spaces for example on printed circuit boards.

According to the invention a self-supporting terminal element for effecting a positive connection to an insulated electrical conductor comprises a strip of metal having a Z section, the outer limbs of the strip being provided with elongated slots to receive the insulated conductor, said outer limbs defining clamping

members engageable in use with the insulation of the conductor to grip the conductor, the centre limb defining a contact member having a slot to receive the conductor, portions defining the edges of the slot
5 being adapted to cut through the insulation of the conductor to make electrical contact with the conductor, the outer limbs extending to the full height of the centre limb to provide support for said portions of the centre limb, said contact member being disposed
10 at substantially 45° to the axis of the conductor, the terminal element further including a mounting member, whereby the terminal element in use, can be secured on a support.

Examples of contact elements in accordance with
15 the invention will be described with reference to the accompanying drawings in which:-

Figure 1 is a plan view showing two z-shaped terminal elements one with and the other without reinforcing flanges.

20 Figure 1a is a front view of the aforesaid other terminal element shown in Figure 1,

Figure 2 is a plan view showing two terminal elements in the form of a twin contact, one with and the other without reinforcing flanges,

25 Figure 2a is a front view of the aforesaid other terminal element shown in Figure 2,

Figure 3 is a plan view to an enlarged scale of the aforesaid other terminal element of Figure 1 with a cable conductor inserted therein,

30 Figure 3a is a front view of the terminal element as shown in Figure 3, without the cable conductor, and

Figure 3b is a side view of the terminal element as shown in Figure 3.

As shown in Figure 1, the terminal element is formed from metal strip which is z-shaped in plan. The terminal element 1 has two outer limbs or clamping members 3 and a centre limb or contact member 2 connecting the two clamping members 3. As will be seen from Figures 1a, 2a and 3a, the heights of the outer limbs and the centre limb are equal. As more clearly seen in Figure 3a the clamping members have slots formed therein to receive and clamp the conductor and its insulation whilst the contact member also has a slot of smaller width so that the portions of the contact member forming the slot can cut through the insulation to engage with the conductor. The fact that the element is of z-shape means that it has considerable stiffness and it may thus be used as a self-supporting element without any support. Moreover, the fact that the outer limbs extend to the full height of the centre limb means that the portions of the centre limb which define the slot are fully supported.

As further shown in Figure 1, additional reinforcing flanges 5 may be provided at the edges of the clamping members 3 remote from the contact member.

If the clamping members 3, 3' of two terminal elements 1, 1' are joined to one another - as shown in Figure 2 - a twin contact will be formed.

In this manner it is possible to connect two adjacent conductors.

For mounting the terminal elements 1 e.g. on a printed circuit board 6 as shown in Figures 1a and 2a mounting tangs 4 are provided at the lower portion of the terminal element 1 and the tangs may be secured in

any desired manner to the board. The tang or tangs are formed as extensions of the limbs.

5 Figures 3, and 3b show the connection of a conductor 7, the contact-making being carried out according to the known principle. It will be noted that the contact member is inclined to the axis of the conductor by an angle which is substantially 45° and that the connection points of the contact member with the conductor are to an extent relieved of forces
10 applied to the conductor by the fact that the conductor is also supported and gripped by the clamping members.

15 A connecting tool suited for this purpose has in a handle a spring-supported pressure member axially movable in a sleeve; this pressure urges the cable conductor into the contact slot, the sleeve supporting the terminal element. Further, the sleeve has a cutter formed integral therewith for cutting off the cable conductors after contact-making.

CLAIMS

1. A self supporting terminal element for effecting a positive connection to an insulated electrical conductor comprising a strip of metal having a Z section, the outer limbs of the strip being provided with elongated slots to receive the insulated conductor to grip the conductor, said outer limbs defining clamping members engageable in use with the insulation of the conductor, the centre limb defining a contact member having a slot to receive the conductor, portions defining the edges of the slot being adapted to cut through the insulation of the conductor to make electrical contact with the conductor, the outer limbs extending to the full height of the centre limb to provide support for said portions of the centre limb, said contact member being disposed at substantially 45° to the axis of the conductor, the terminal element further including a mounting member, whereby the terminal element in use, can be secured on a support.
2. A terminal element according to Claim 1 in which said clamping members are formed with reinforcing flanges each extending at right angles to the clamping members.
3. A twin self supporting terminal element comprising a pair of terminal elements as claimed in Claim 1 one clamping member of one terminal element being integral with one clamping member of the other terminal element.
4. A terminal element according to Claim 1 in which said mounting member comprises a tang extending from one of said limbs.



5. A self supporting terminal element comprising the combination and arrangement of parts substantially as hereinbefore described.

