

(19)



Europäisches Patentamt
European Patent Office
Office européen des brevets

(11)

Publication number:

0 169 079
A1

(12)

EUROPEAN PATENT APPLICATION

(21) Application number: 85305175.3

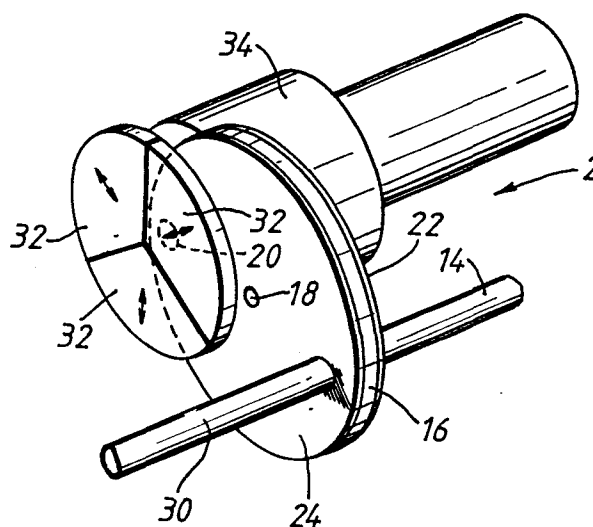
(51) Int. Cl.⁴: H 01 B 7/36, B 65 C 3/02

(22) Date of filing: 19.07.85

(30) Priority: 20.07.84 GB 8418589

(71) Applicant: **PLESSEY OVERSEAS LIMITED**, Vicarage Lane, Ilford Essex IG1 4AQ (GB)(43) Date of publication of application: 22.01.86
Bulletin 86/4(72) Inventor: **Millard, Arthur Ernest**, 3 Felstead Avenue Clayhall, Ilford Essex (GB)
Inventor: **Smith, Bernard William**, 6 The Maples, Harlow Essex (GB)(84) Designated Contracting States: **AT BE CH DE FR GB IT LI LU NL SE**(74) Representative: **Nicholson, Ronald et al**, Intellectual Property Department The Plessey Company plc 2-60 Vicarage Lane, Ilford Essex IG1 4AQ (GB)(54) **Apparatus for inserting marker devices onto wires.**

(57) Apparatus for applying marker devices to wires comprising storage means for containing marker devices to be dispensed, transfer means for taking a marker device from the storage means and transferring it to a position where it is ready to be applied over an end portion of a wire and aperture means through which the wire is inserted to receive the marker device.



APPARATUS FOR INSERTING MARKER DEVICES ONTO WIRES

This invention relates to apparatus for inserting marker device onto wires.

With bundles of wires such as are used in cable forms, it is customary to mark both ends of individual wires in a bundle of such wires so that both ends of each wire can readily be identified and correctly connected as may be desired. The marker devices are usually sleeves which are both colour coded and number coded. The number code is employed in case a person checking the colour code should be colour blind. Usually, one, two or three marker sleeves are employed on each end of a wire.

The marker sleeves are separate from each other and it has hitherto been the practice for an operator manually to select a desired marker sleeve and to place that marker sleeve over the end of a wire. Such an operation is very time consuming and laborious.

It is an aim of the present invention to provide apparatus for inserting marker devices onto wires, whereby the wires can be marked more easily and more speedily than by the hitherto known manual method.

Accordingly, this invention provides apparatus for inserting marker devices onto wires, which apparatus comprises storage means containing marker devices to be dispensed, transfer means for taking a marker device from the storage

means and transferring it to a position where it is ready to be inserted over an end portion of a wire, and aperture means through which the wire is inserted to receive the marker device.

The storage means may comprise conduit means.

The transfer means may comprise a transfer disc, the transfer disc having a hole in it for receiving one of the marker devices, and the transfer disc being such that when it is rotated, the marker device in the hole is transferred from the storage means to the position where it is ready to be inserted over the end portion of the wire.

The disc may be sandwiched between a pair of stationary discs that act to prevent the marker device from falling out of the transfer disc as it is being rotated, the stationary discs being apertured to allow the end portion of the wire to be passed through them.

The aperture means may include an ejector sleeve for ejecting a wire that has been provided with a marker device.

The ejector sleeve may be operated consequent upon the end portion of the wire contacting a spool in the aperture means.

The apparatus of the invention may include guide means for guiding the wire as it is passed through the marker device.

The guide means may comprise jaws. Preferably, there are three jaws.

The marker devices may be separate devices or they may be connected together to form an elongate member. When the marker devices are connected together to form an elongate member, they are preferably partially cut at intervals so that they are easily separated from the remainder of the elongate member. This separation can be effected as the transfer means operates and takes an individual marker device from the storage means and transfers it to the position where it is ready to be inserted over the end portion of a wire. The marker means may be sleeves or rings. They will usually be colour and number marked as in the case of known marker sleeves.

The apparatus of the invention advantageously includes a plurality of the aperture means so that a plurality of the wires can be provided with the marker devices. Usually, when the apparatus is such that a plurality of wires can be provided with the marker devices, then the apparatus will include for each wire one of the storage means, one of the transfer means and one of the aperture means. By way of example, it is mentioned that the apparatus of the invention may be such that it has ten wire marking stations.

Embodiments of the invention will now be described solely by way of example and with reference to the accompanying drawings in which:

Figure 1 is a perspective view showing part of first apparatus for inserting a marker device onto a wire;

Figure 2 is a cross section through part of the apparatus

Figure 3 is another cross section showing more of the apparatus of Figure 1; and

Figure 4 shows second apparatus for inserting marker devices onto ten wires.

Referring to Figures 1, 2 and 3, there is shown apparatus 2 for inserting a marker device in the form of a marker sleeve 4 onto an end portion 6 of a wire 8. As shown in Figure 3, the wire 8 has its covering 10 stripped at its extreme end 12 and this extreme end 12 constituted by the actual wire is twisted and soldered.

The apparatus 2 comprises storage means in the form of a conduit 14 for storing the marker sleeves 4. The marker sleeves 4 can be separate from each other as shown in Figure 2 or they can be in the form of an elongate member which is partially cut to partially separate each marker sleeve 4.

The apparatus 2 further comprises transfer means in the form of a transfer disc 16. The transfer disc 16 rotates on a central shaft 18. The transfer disc 16 is provided with a hole 20 for receiving a marker sleeve 4 as shown in Figures 2 and 3. As the transfer disc 16 rotates in the position illustrated in Figure 2, it is effective to transfer the foremost marker sleeve 4 from the conduit 14 to the position illustrated by the dotted line 18 in Figure 1 in which the marker sleeve 4 is ready to receive the end portion 6 of a wire 8 as shown in Figure 3.

The transfer disc 16 is sandwiched between a pair of stationary discs 22, 24. The disc 22 is provided with an

aperture 26 which is large enough to allow the marker sleeves 4 to pass through it and into the hole 20 in the transfer disc 16. The stationary disc 24 has a smaller aperture 28 so that the marker sleeve 4 which is inserted in the hole 20 in the transfer disc 16 cannot get pushed right through the hole 20 and out the other side of the transfer disc 16. The marker sleeves 4 can be moved forward into the hole 20 by an air flow passing along the conduit 14, through the aperture 20 and out through a conduit 30 on the other side of the transfer disc 16.

Referring particularly to Figure 3, when a marker sleeve 4 is in the position for receiving the end portion 6 of the wire 8, clamping means in the form of three jaws 32 come together to grip the wire 8 and help to guide it through the hole 20 and into the marker sleeve 4. The clamping means release the wire when the wire has been provided with the marker sleeve 4 so that the wire can be withdrawn from the apparatus 2.

As shown in Figures 1 and 3, the apparatus 2 has a body portion 34. The end 12 of the wire 8 is arranged to engage a central spool 36 which is located in the body portion 34. The spool 36 is provided with a plurality of apertures (not shown) which are effective to direct the air flow as desired to cause various things to happen. For example, the air flow can be arranged to open and close the jaws 32. The air flow can also be arranged to move an ejector sleeve 38 to eject the wire 8 once it has been provided with a marker sleeve 4. If desired,

the wire 8 can be provided with several marker sleeves 4 in order to obtain a required code.

Referring now to Figure 4, there is shown apparatus 40 which consists of ten sets of the apparatus 2. The apparatus 40 comprises an overall housing 42 and the front face 44 of the housing 42 only has exposed ten sets of the jaws 32. It will be seen that the jaws are numbered nought to nine and they are each given an appropriate colour for indicating the colour of the disc that will be placed on the wire at each work station.

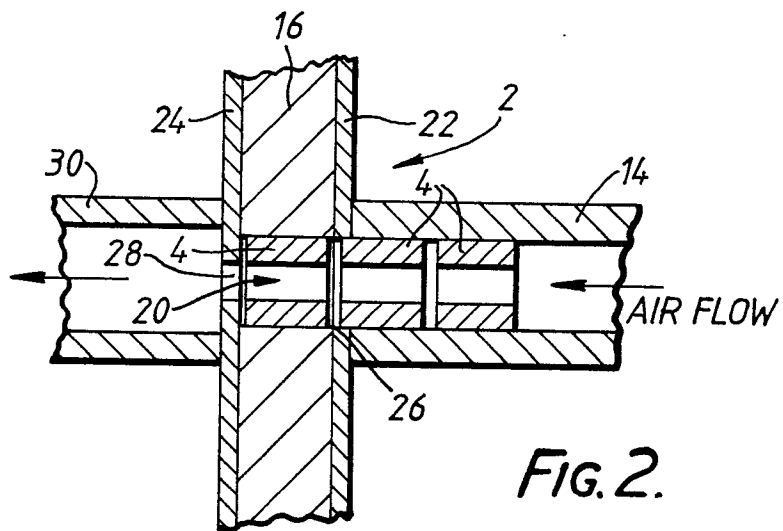
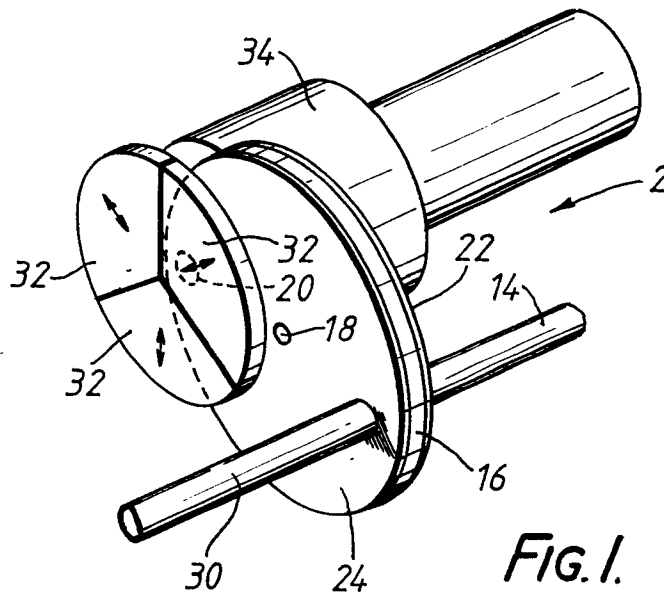
It is to be appreciated that the embodiments of the invention described above with reference to the accompanying drawings have been given by way of example only and that modifications may be effected. Thus, for example, the apparatus 40 illustrated in Figure 4 can be provided with more or less than the ten work stations shown. Also, transfer means other than transfer disc 16 may be employed. Further, the apparatus may be electrically or hydraulically operated instead of being pneumatically operated as illustrated, and the apparatus can be virtually totally automatically operated if desired.

CLAIMS

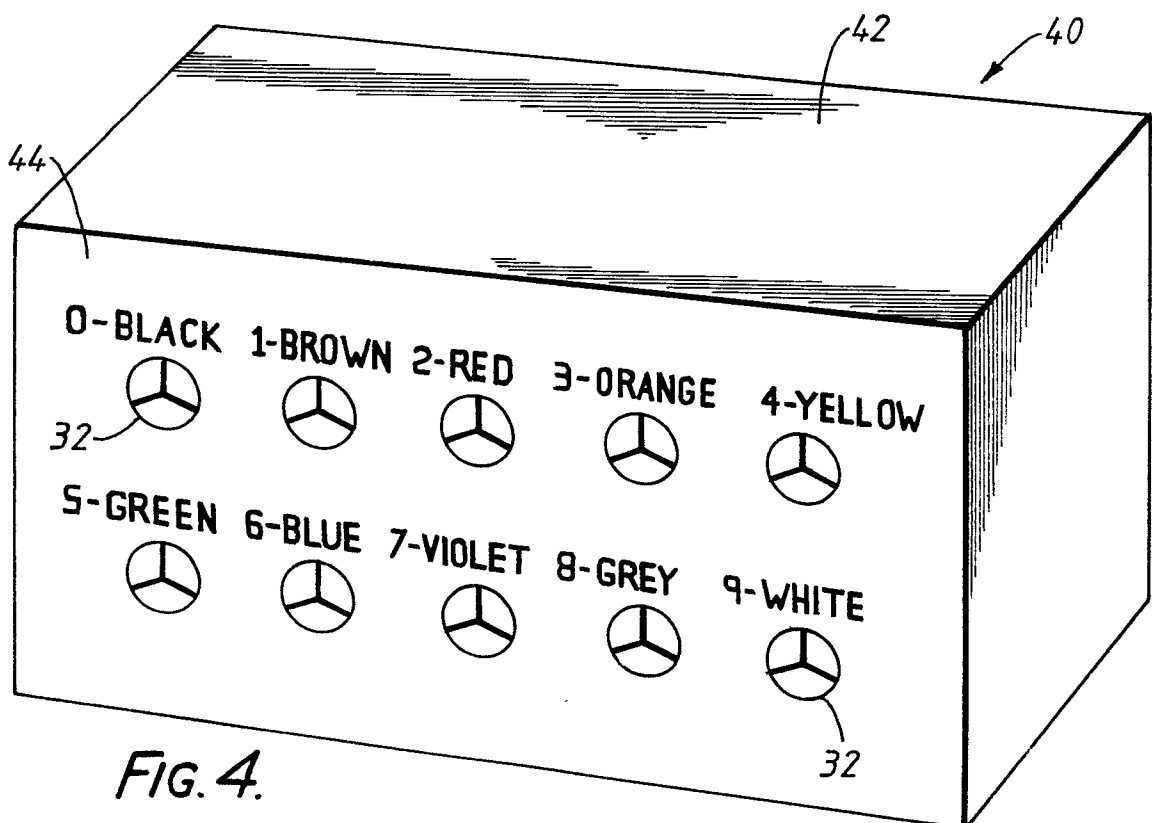
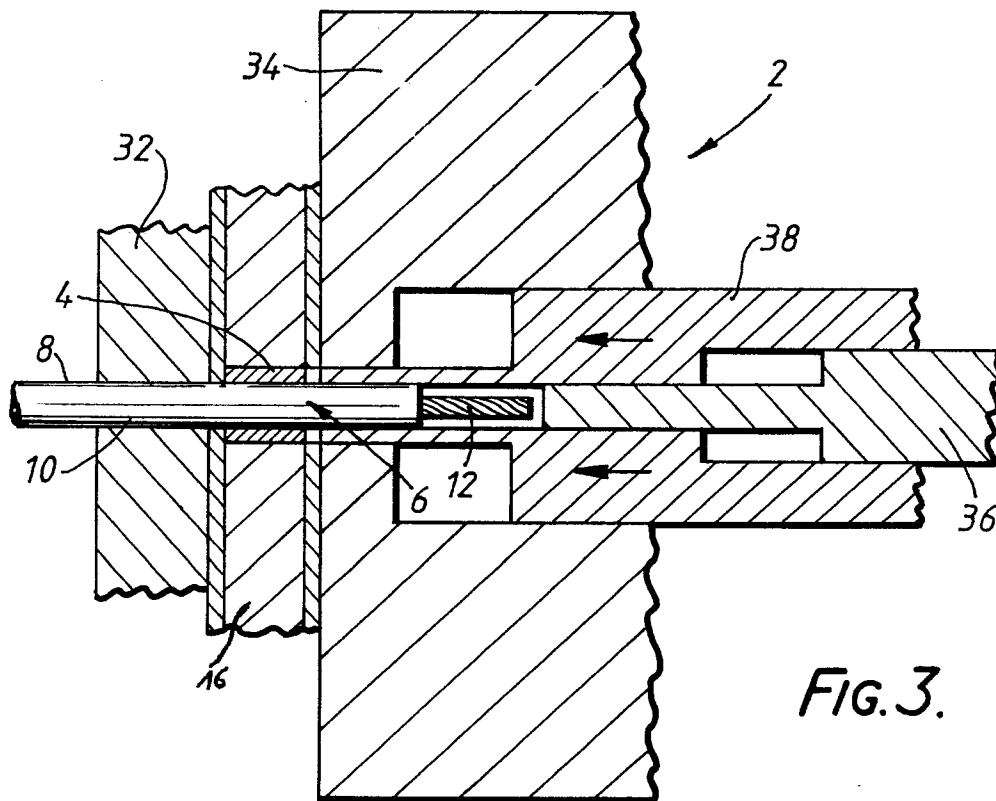
1. Apparatus for applying marker devices to wires characterised by storage means (14) for containing marker devices (4) to be dispensed, transfer means (16) for taking a marker device (4) from the storage means (14) and transferring it to a position where it is ready to be applied over an end portion (6) of a wire (8) and aperture means (20) through which the wire is inserted to receive the marker device.
2. Apparatus as claimed in claim 1, characterised in that the storage means comprises conduit means (14).
3. Apparatus as claimed in claim 1 or claim 2, characterised in that the transfer means comprises a transfer disc (16) having a hole (20) in it for receiving one of the marker devices and the transfer disc (16) being such that when it is rotated the marker device (4) in the hole (20) is transferred from the storage means (14) to the position where it is ready to be applied over the end portion (6) of the wire (8).
4. Apparatus as claimed in claim 3, characterised in that the transfer disc (16) is sandwiched between a pair of stationary discs (22,24) that act to prevent the marker device (4) from falling out of the transfer disc (16) as it is being rotated, the stationary discs (22,24) being apertured to allow the end portion (6) of the wire (8) to be passed through them.

5. Apparatus as claimed in any preceding claim, characterised in that the aperture means (20) includes an ejector sleeve (38) for ejecting a wire (8) that has been provided with a marker device (4).
6. Apparatus as claimed in claim 5, characterised in that the ejector sleeve (38) is operated consequent upon the end portion (6) of the wire (8) contacting a spool (36) in the aperture means (20).
7. Apparatus as claimed in any preceding claim characterised by guide means (32) for guiding the wire as it passes through the marker device.
8. Apparatus as claimed in claim 7, characterised in that the guide means comprises jaws (32).
9. Apparatus as claimed in any preceding claim, characterised in that the marker devices (4) are connected together but readily separable as the transfer means (16) operates and takes a marker device (4) from the storage means (14) and transfers it to the position where it is ready to be applied over the end portion (6) of a wire (8).
10. Apparatus for applying contemporaneously marker devices (4) to a plurality of wires (8) characterised by, in respect of each wire (8), an apparatus according to any preceding

1/2



2/2



0169079



European Patent
Office

EUROPEAN SEARCH REPORT

Application number

DOCUMENTS CONSIDERED TO BE RELEVANT			EP 85305175.3
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl. 4)
X	GB - A - 945 363 (PERMARK) * Page 2, line 37 - page 3, line 103; fig. 1-7 * ---	1,2,7,9,10	H 01 B 7/36 B 65 C 3/02
X	PATENTS ABSTRACTS OF JAPAN, unexamined applications, section E, vol. 1, no. 129, October 25, 1977 THE PATENT OFFICE JAPANESE GOVERNMENT page 5824 E 77 * Kokai-no. 52-64 685 (HITACHI) * ----	1,3,9	TECHNICAL FIELDS SEARCHED (Int. Cl. 4) H 01 B B 65 C
The present search report has been drawn up for all claims			
Place of search VIENNA		Date of completion of the search 02-10-1985	Examiner KUTZELNIGG
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			