(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) Publication number : **0 471 530 A1**

(12) EUROPEAN PATENT APPLICATION

(21) Application number : **91307389.6**

(51) Int. Cl.[5] : **G09F 3/00,** A61B 19/02

(22) Date of filing : **12.08.91**

(30) Priority : **16.08.90 GB 9018011**

(43) Date of publication of application :
19.02.92 Bulletin 92/08

(84) Designated Contracting States :
DE FR

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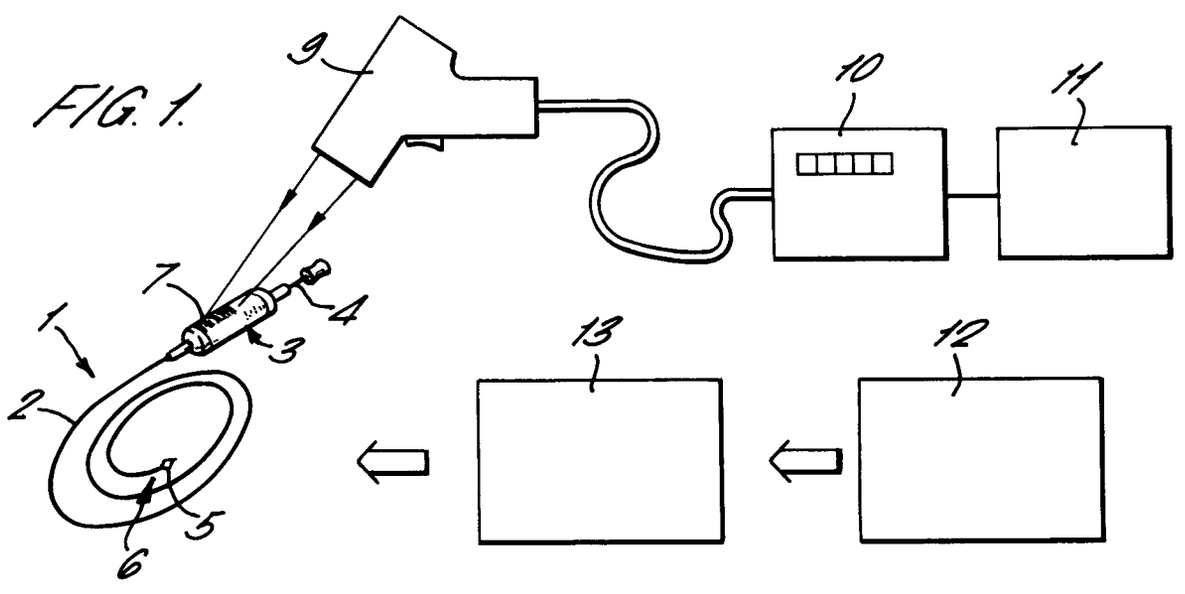
(54) Labelling reusable medical instruments.

(57) Figure 1 shows a method of labelling reusable medical instruments (1) in which machine readable indicia are permanently applied to each instrument, each instrument being sterilised and stored in a disposable package (23) in readiness for use or reuse and the package being provided with operator readable indicia (8) for identifying to an operator the instrument within a respective package. The method including the steps of operating a reading apparatus (9) to read the machine readable indicia (7), processing an output signal of the reading apparatus in an electronic processor (10) and printing operator readable indica (8) on a label (15) in a printer (11) controlled by the processor and applying the label to the package. The method has particular application to instruments which are accessories to endoscopes.

FIG. 1.



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This invention relates to a method of labelling reusable medical instruments and in particular but not exclusively to a method of labelling endoscope accessories.

It is known for reusable medical instruments to be cleaned, packaged and sterilised prior to use or reuse. A particular problem exists in respect of endoscope accessories which in use are inserted through operating channels in an endoscope since a close and careful inspection is necessary when visually identifying a particular type of accessory. An operating theatre having endoscopy facilities may typically have fifty distinct types of accessory in readiness for use. Following use, each accessory requires storing after sterilisation and individual accessory packaging is sometines used. However, the handling, identifying and labelling of the accessories is a time consuming procedure which requires care to avoid mislabelling.

Endoscope accessories are typically identified by alphanumeric identifiers and/or colour coding applied to an enlarged proximal end portion of the accessory, there being a need to define the diameter of the accessory which needs to be matched to the diameter of the operating channel of the endoscope with which it is to be used and also to identify the function of the accessory e.g. grasping forceps, snare or cannula.

According to the present invention there is disclosed a method of labelling reusable medical instruments in which machine readable indicia are permanently applied to each instrument, each instrument being sterilised and stored in a disposable package in readiness for use or reuse and the package being provided with operator readable indicia for identifying to an operator the instrument within a respective package, the method including the steps of operating a reading apparatus to read the machine readable indicia, processing an output signal of the reading apparatus in an electronic processor and printing operator readable indicia on a label in a printer controlled by the processor and applying the label to the package.

An advantage of such a method is that instruments can be labelled automatically with minimal possibility of operator error.

Preferably the machine readable indicia are in the form of bar codes. The package may include a transparent window through which the machine readable indicia are readable by means of the reading apparatus.

It is therefore possible to package the instrument prior to sterilising, for instance in an autoclave or ethylene oxide steriliser, the bar code being optically readable through the transparent window by means of the reading apparatus.

In a preferred embodiment the instrument is an endoscope accessory which in use is inserted through an operating channel of an endoscope. The machine readable indicia may be applied by means of direct printing or by a heat shrunk sleeve to a proximal end portion of the endoscope accessory or may be applied to a tag permanently attached to the proximal end portion.

The operator readable indicia may conveniently include a graphic representation of the instrument and/or the anatomical use of the instrument thereby enabling the general type of the accessory to be immediately identified by visual inspection of the label.

Conveniently the electronic processor is a computer programmed to store data recording the number of occasions on which each instrument is sterilised, to aid, for instance, stock control, replacement scheduling and the gathering of statistics on the number of different endoscopic procedures undertaken and which includes such data in the operator readable indicia.

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

Figure 1 is a schematic view of apparatus for use in the method of the present invention;

Figure 2 is an illustration of a label produced in accordance with the method of the present invention;

Figure 3 is an illustration of an endoscope accessory located within a labelled package; and

Figure 4 is an enlarged view of the proximal end portion of an endoscope accessory.

Figure 1 shows an endoscope accessory 1 comprising a long thin flexible member 2 which is insertable through an operating channel of an endoscope (not shown). The endoscope accessory 1 has a proximal end portion 3 which in the drawing is shown considerably enlarged out of scale for clarity.

An operating wire 4 projects from the proximal end portion 3 and the accessory is operated in use by actuation of the wire 4 to operate a tool 5 located at the distal end 6 of the flexible member 2.

The proximal end portion 3 carries machine readable indicia in the form of a bar code 7 which is permanently applied to the end portion. An alphanumeric identifier 8 is also marked on the end portion 3.

In Figure 1 a handheld laser scanning optical bar code reader 9 is shown directed at the bar code 7 and is connected to an electronic processor 10 which in turn is connected to a printer 11.

The endoscope accessory 1 is shown after having been cleaned in an ultrasonic cleaner 12 and sterilised in an autoclave 13 and is ready for storage prior to reuse.

Figure 2 is an example of a typical output from the printer 11. In Figure 2 a length of web 14 carries a succession of blank adhesive labels 15 and a printed label 16, the web 14 typically having sprocket holes 17 whereby the web is automatically fed through the printer.

Each blank label 15 is marked with a row of col-

oured squares 18, each colour representing the colour code of a particular size of endoscope channel. The printed label 16 is printed so as to obliterate all but one remaining square 19 representing the colour code appropriate to the specific endoscope accessory 1. The printed label 16 also carries a graphic representation 20 of the tool 5 of the accessory 1 and a further graphic representation 21 representing the anatomical region for which the endoscope accessory is appropriate. In the present example the graphic representation 20 is of a pair of grasping forceps and the further graphic representation 21 represents a colon.

The printed label 16 also carries an alphanumeric identifier 22 corresponding to the identifier 8 on the proximal end portion 3. The alphanumeric identifier 22 is coded to indicate the length of the flexible member 2 and the type of tool 5. In the example given FG-16U represents grasping forceps type 16 of length code U.

Figure 3 shows the printed label 16 applied to a disposable package 23 having a transparent window 24. The endoscope accessory 1 is contained within the package 23 and the bar code 7 is readable by means of the bar code reader 9 through the transparent window 24.

Figure 4 is an enlarged view of the proximal end portion 3.

The bar code 7 is applied to the proximal end portion 3 by applying the bar code to a sleeve 25 formed of a plastics material and heat shrinking the sleeve on to the end portion. The bar code may alternatively be applied permanently either directly on to the end portion 3 or to a tag (not shown) of a plastics material which is permanently attached to the end portion 3.

The printed label 16 may carry additional information as required. For example the electronic processor 10 may be instructed by suitable programming to maintain a database storing information as to the number of occasions on which a particular accessory has been used. The data base can be updated automatically on the assumption that the accessory has been used prior to each occasion on which the bar code is read using the bar code reader 9.

The instrument may be sterilised in an autoclave either before or after packaging. Where the accessory 1 is sterilised before packaging then the package 23 need not include a transparent window 24 of the type shown in Figure 3.

The electronic processor may be given instructions by an operator using a keyboard or alternatively by the use of a chart carrying preformated bar code instructions which are scanned using the bar code reader 9.

The bar code may if required uniquely identify each instrument by a serial number. The electronic processor 10 may also be provided with additional outputs such as a visual display unit or a further printer and may then provide an output for example of the extent of use logged in respect of each of a number of accessories. Such output may be used for example in auditing and may provide an indication as to when individual accessories are due for replacement according to a lapsed time or frequency of use. The electronic processor 10 may also be connected to a network providing for automatic reordering of instruments, accessories and the like.

The method of the present invention has applications for instruments other than endoscope accessories particularly where instruments are small, difficult to visually distinguish and/or where handling of the instruments is to be minimised.

Claims

1. A method of labelling reusable medical instruments (1), each instrument being sterilised and stored in a disposable package (23) in readiness for use or reuse and the package being provided with operator readable indicia (8) for identifying to an operator the instrument within a respective package, the method being characterised by including the steps of operating a reading apparatus (9) to read machine readable indicia (7) which are permanently applied to each instrument, processing an output signal of the reading apparatus in an electronic processor (10) and printing operator readable indicia (8) on a label (15) in a printer (11) controlled by the processor and applying the label to the package.

2. A method as claimed in claim 1 wherein the machine readable indicia are in the form of bar codes.

3. A method as claimed in any preceding claim wherein the package includes a transparent window (24) through which the machine readable indicia are optically readable by means of the reading apparatus.

4. A method as claimed in any preceding claim wherein the instrument is an endoscope accessory which in use is inserted through an operating channel of an endoscope.

5. A method as claimed in any preceding claim wherein the machine readable indicia are applied to a tag permanently attached to an instrument.

6. A method as claimed in any preceding claim wherein the instrument is labelled following sterilisation.

7. A method as claimed in claim 6 wherein the instrument is placed in the package prior to sterilisation.

8. A method as claimed in any preceding claim wherein the operator readable indicia includes a graphic representation of the instrument and/or the anatomical use of the instrument.

9. A method as claimed in any preceding claim wherein the processor is a computer programmed to store data recording the number of occasions on which each instrument is sterilised and which includes such data in the operator readable indicia.

FIG. 1.

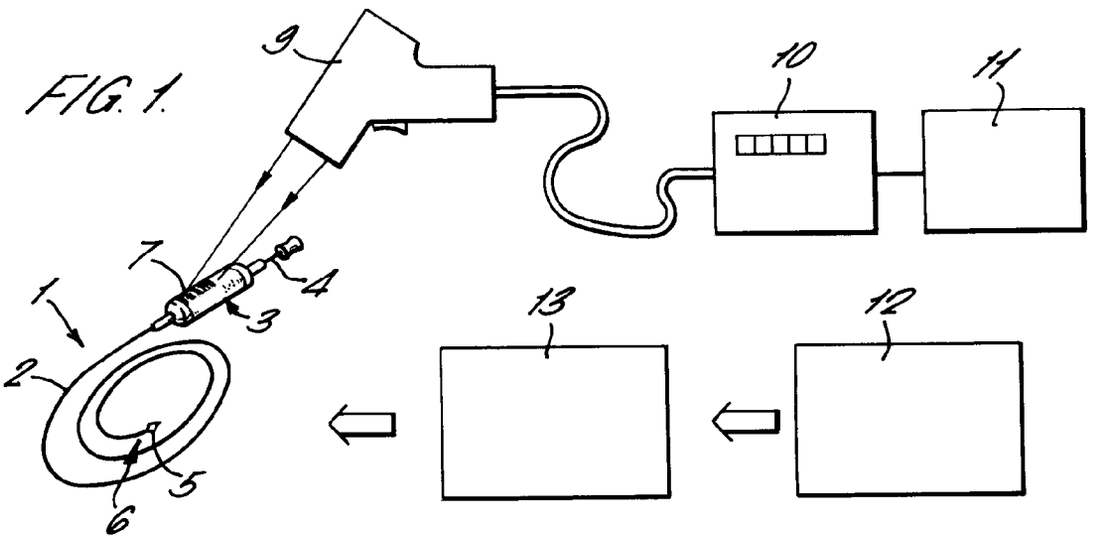


FIG. 2.

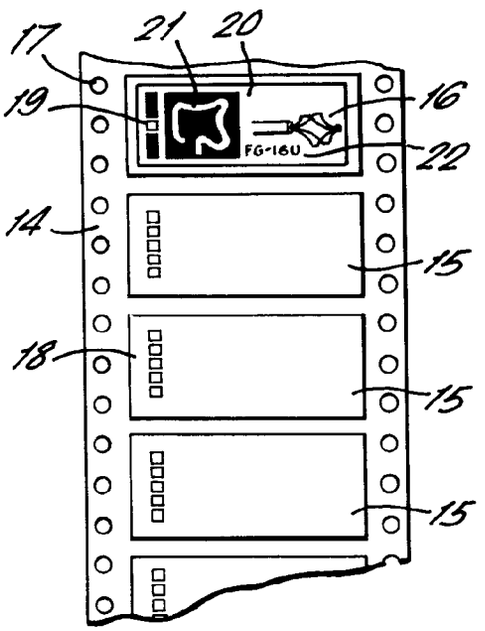


FIG. 3.

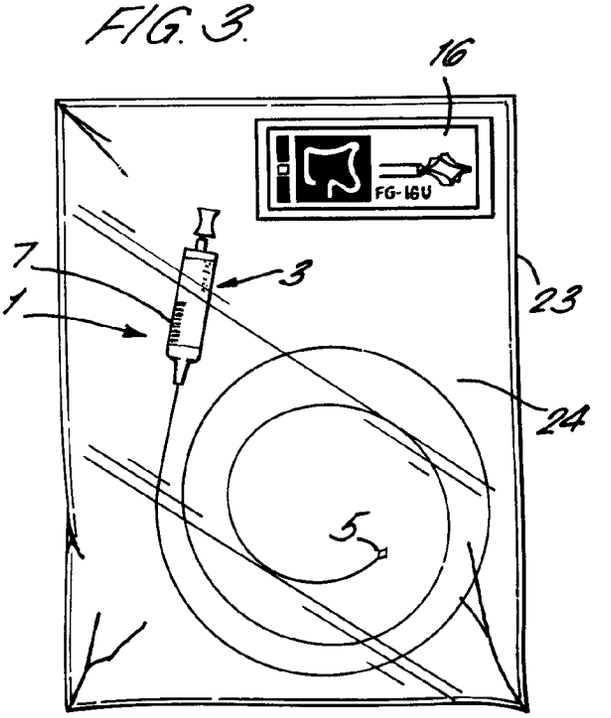
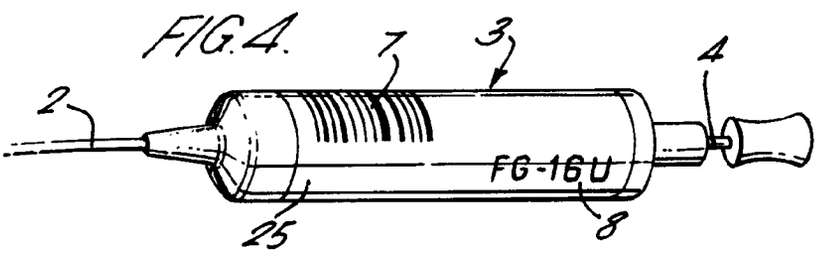


FIG. 4.



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EUROPEAN SEARCH REPORT

Application Number

EP 91 30 7389

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
X	EP-A-0 199 252 (K.K.SATO) * page 3, line 23 - page 5, line 11 * * page 10, line 28 - page 11, line 2 * * Abstract * * figures 1-3B * ---	1,2,5,10	G09F3/00 A61B19/02
A	US-A-4 921 277 (S.MCDONOUGH) -----		

TECHNICAL FIELDS SEARCHED (Int. Cl.5)

G09F
A61B
B65C

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	05 NOVEMBER 1991	GALLO G.G.

CATEGORY OF CITED DOCUMENTS

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