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(56) Documents Cited
GB 2284374 A GB 2057323 A GB 2044154 A
GB 1258086 A US 3896982 A

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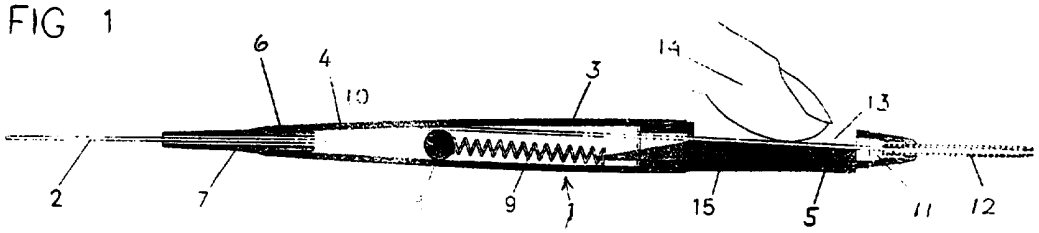
(54) Abstract Title
Solder dispenser

(57) A solder dispenser comprises an elongated body portion 3 adapted to be held by a user and having a longitudinal bore 11 therein, a solder straightening device 7 at one end of the body and an outlet nozzle 12 at the other. Means are provided for urging a strand of solder through the solder dispenser, and means 8, 9 prevent backward movement of the solder through the dispenser.

FIG 1



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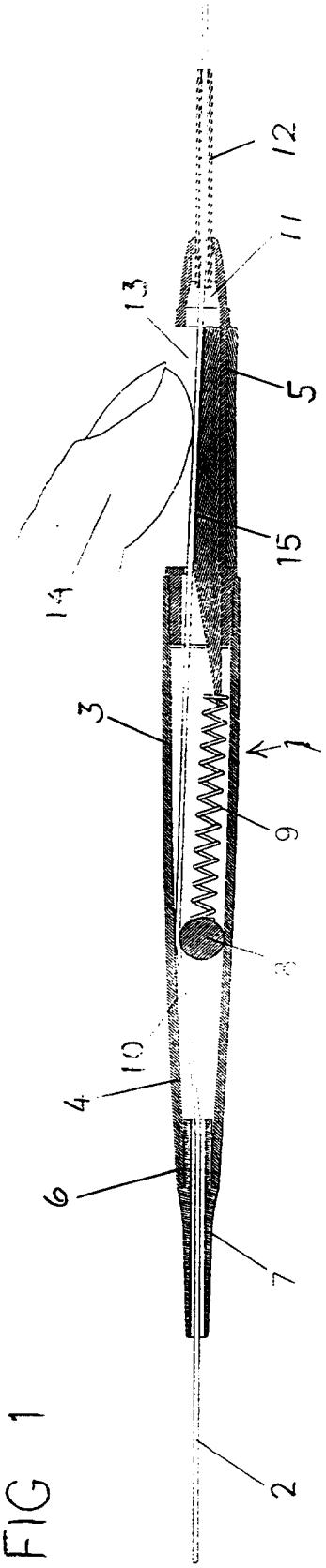

FIG 1

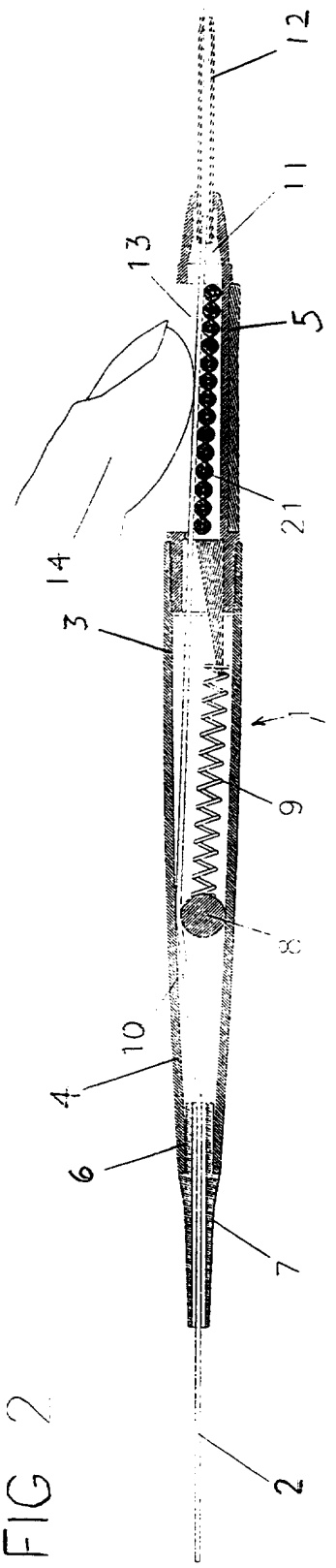

FIG 2

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Solder Dispenser

The present invention relates to a device for facilitating the soldering of small objects, and particularly the soldering of components of electronic equipment.

Although these days most assembly of electronic circuits is done mechanically, a certain amount of manual soldering still is carried out. Usually in this case the solder is in the form of a thick wire or strand which may, or may not have at least one core of soldering flux. In any case, the solder usually is stored on a reel from which it is drawn by an operative as required. Usually the operative periodically has to straighten the solder wire in order that it may be presented accurately to the position at which a solder joint is to be made.

It is an object of the present invention to provide a solder dispensing device which facilitates the feeding of a strand of solder in a manual soldering process.

According to the invention there is provided a solder dispenser comprising an elongated body portion adapted to be held by a user of the solder dispenser and having a longitudinal bore therein, a solder straightening device at one end of the body of the solder dispenser and an outlet nozzle at the other, means for urging a strand of solder through the solder dispenser, and means for preventing backward movement of the solder through the dispenser.

The means for urging the solder through the solder dispenser may comprise an elongated aperture in the body of the dispenser towards the nozzle end thereof and of a depth sufficient to expose the bore in the body of the

solder dispenser so that the strand of solder can be urged forward by an appropriate movement of a finger of a user of the solder dispenser.

Preferably the depth of the orifice is somewhat greater than the depth of the bore from the surface of the body of the dispenser in which the orifice is formed and there is included a friction-reducing element against which the strand of solder can be pressed while being urged forward.

Suitable friction-reducing elements are a plurality of parallel needle rollers with their axes perpendicular to the direction of movement of the stand of solder or a layer of low friction material such as polytetra-fluoroethylene or similar plastics material.

The means for preventing backward movement of the solder wire may comprise a spring-loaded ball adapted to urge the strand of solder against a tapered shoulder in a hollow portion of the solder dispenser.

Alternatively a collet-type clutch can be used.

The invention will now be described, by way of example, with reference to the accompanying drawings, in which

Figure 1 is a longitudinal section of a first embodiment of the invention, and

Figure 2 is a longitudinal section of a second embodiment of the invention.

Referring to Figure 1, a dispenser 1 for solder in the form of a strand 2 consists of a generally torpedo

shaped body 3 which has a first, hollow, portion 4 and a second portion 5 which is solid.

At the inlet end 6 of the first portion 4 of the body 3 of the solder dispenser 1 is a resilient sleeve 7 which acts to remove kinks from the strand 2 of solder as it passes into and through the solder dispenser 1.

Inside the first portion 4 of the body 3 of the solde dispenser 1 is a ball 8 and a spring 9 which acts to urge the ball 8 towards the inlet end 6 of the first portion 4 of the body 3 of the solder dispenser 1, so trapping the strand of solder 2 against a shoulder formed by the inner wall 10 of the first portion 4 of the body 3 of the solder dispenser 1, thereby preventing backward movement of the strand of solder 2 through the solder dispenser 1. Alternatively, the ball 8 and spring 9 can be replaced by a spring-loaded collet type one-way clutch. The spring-loading of the collets can be achieved simply, by making them in the form of leaf springs.

The second portion 5 of the body 3 of the solder dispenser 1 has a longitudinal bore 11 formed in it of a diameter such as to permit free movement of the strand of solder 2 through it. The second portion 5 of the body 3 of the solder dispenser 1 terminates in a nozzle 12. The nozzle 12 is separate from the remainder of the second portion 5 of the body 3 of the solder dispenser 1 and screws into it, so that nozzles of differing bores can be used to accommodate strands 2 of solder of different diameters. A region 13 of the second portion 5 of the body 3 of the solder dispenser 1 is cut away to a depth sufficient to expose the bore 11 in the second portion 5 of the body 3 of the solder dispenser 1, and when present, the strand 2 of the solder, so that it can be

pushed forward by an appropriate movement of an index finger 14 of a user of the solder dispenser 1.

Most strands of solder used for the assembly of electronic components have one or more cores of resin flux in them. Some of this flux appears to escape from the inside of the strands of solder and makes the outer surfaces slightly sticky. In order to facilitate the movement of the solder through the solder dispenser it is advantageous to include some friction-reducing means against which the strand of solder is pressed as it is pushed forward by the index finger 14 of the user of the solder dispenser 1. In the first embodiment of the invention this is achieved by means of a coating 15 or separate layer, of a low coefficient of friction plastics material such as polytetra-fluorethylene placed at the bottom of the region 13 of the second portion 5 where, in use, the strand of cable 2 of the body 3 of the solder dispenser is pressed against it.

An alternative is to use a number of needle rollers, and this arrangement is shown in Figure 2 in which those components which are the same as in the first embodiment have the same reference numerals. The needle rollers are designated 21.

Claims

1. A solder dispenser comprising an elongated body portion adapted to be held by a user of the solder dispenser and having a longitudinal bore therein, a solder straightening device at one end of the body of the solder dispenser and an outlet nozzle at the other, means for urging a strand of solder through the solder dispenser, and means for preventing backward movement of the solder through the dispenser.

2. A solder dispenser according to Claim 1 wherein the means for urging the solder through the dispenser comprises an elongated aperture in the body of the solder dispenser of a depth such as to expose the base in the body of the dispenser so that the strand of solder can be pushed towards the nozzle of the solder dispenser by means of an appropriate movement of a digit of a user of the solder dispenser.

3. A solder dispenser according to Claim 2 wherein there is included a friction reducing element to facilitate the movement of the strand of solder through the solder dispenser.

4. A solder dispenser according to Claim 3 wherein the friction-reducing element comprises a surface of a low coefficient plastics material so positioned in the said aperture in the body of the soldier dispenser that the strand of solder bears against it as it is being pushed forward by the digit of the user of the solder dispenser.

5. A solder dispenser according to Claim 4 wherein the plastics material is made of polytetra-fluorethylene.

6. A solder dispenser according to Claim 3 wherein the friction-reducing element comprises a plurality of needle rollers so positioned in the aperture in the body of the solder dispenser that the strand of solder is pressed against them as it is being pushed forward by the digit of a user of the device.

7. A solder dispenser according to any preceding claim wherein the means for preventing backward movement of the strand of solder through the solder dispenser comprises a spring-loaded ball adapted to press the strand of solder against a tapering section of an inner wall of a hollow portion of the body of the solder dispenser.

8. A solder dispenser according to any of Claims 1 to 7 wherein the means for preventing backward movement of the stand of solder through the solder dispenser comprises a collet clutch.

9. A solder dispenser according to any preceding claim wherein the nozzle portion of the body of the solder dispenser is removable so that the solder dispenser may be used in conjunction with a plurality of nozzles of differing internal diameters.

10. A solder dispenser substantially as hereinbefore described and with reference to Figure 1 or Figure 2 of the accompanying drawings.

The Patent Office

7

Application No: GB 9706875.3 **Examiner:** Dave Butters
Claims searched: 1-10 **Date of search:** 2 September 1997

Patents Act 1977
Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.O): B3R

Int Cl (Ed.6): B23K

Other:

Documents considered to be relevant:

Category	Identity of document and relevant passage		Relevant to claims
X	GB 2284374 A	(ENTWISTLE)	1,9
X	GB 2057323 A	(MAK)	1
X	GB 2044154 A	(ROSEN)	1
X	GB 1258086 A	(SCHLITT)	1,9
X	US 3896982 A	(REDMAN)	1,8

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.