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(54) **Device for the controlled delivery of substances contained in yieldable tubes**

Vorrichtung zum kontrollierten Ausgeben von Stoffen aus verformbaren Tuben

Dispositif pour délivrer de manière contrôlée des substances contenues en tubes déformables

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(56) References cited:
BE-A- 418 523 **FR-A- 1 170 939**
GB-A- 2 206 567 **US-A- 1 876 489**
US-A- 3 405 843

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Description

This invention relates to a device for the controlled delivery of substances contained in yieldable tubes, i.e. metal or plastics tubes which can be squeezed to obtain the delivery of the substance via a delivery mouth provided with a cap.

The device according to the invention can be used for dispensing any substance of fluid behaviour, or a pasty substance, but is particularly suitable for use in dispensing adhesive or glue.

It is not a totally simple matter to dispense adhesive substances or glue by the mere manipulation of the yieldable tube which contains it, as it is practically impossible to direct a controlled quantity of substance to the desired point with accuracy.

In addition, the mouth and the surrounding regions of the tube tend to become coated with glue, making it difficult to next open the tube, as the glue dispersed about the mouth tends to seal the cap.

Using the tube without any protection can soil the fingers, this being annoying to the user.

Finally, the substance contained in the tube is never used completely, as manually squeezing the tube does not allow it to be totally expelled unless great care is taken and every point of the yieldable tube is squeezed systematically.

FR-A-1 170 939 relates to a dispensing device according to the preamble of claim 1.

US-A-1 876 489 refers to a tube holder and dispenser having pressure operable dispensing means which provides the arrangement of complementary wall members having the lowermost ends thereof offset to provide attaching flanges.

BE-A-418 523 is a similar device comprising plates connected at their ends by a spring-loaded screw.

GB-A-2 206 567 relates to a collapsible dispensing container.

US-A-3 405 843 refers to a container-dispenser for a collapsible tube having a case in two parts connected by rivets at their ends.

It is the object of the present invention to obviate the drawbacks of the prior art devices by providing a device which enables a substance of fluid and/or pasty behaviour contained in a yieldable tube to be delivered with extreme accuracy to the required point of application, in the required quantity, and with cleanliness. and by The substance contained in the tube can be completely emptied.

A further object of the invention is to provide a device with a cover which provides protection against the handling of the tube by children.

Said objects are attained according to the present invention by a device for the controlled delivery of liquid and/or pasty substances according to claim 1.

Preferably, said delivery nozzle is screwed onto said tube mouth which is provided with a closure cap.

Finally, a closure cover providing protection against undesirable handling by children is snap-fitted to said

casing to cover said delivery nozzle when provided with its cap.

The structural and operational characteristics of the invention and its advantages compared with the known art will be more apparent from the description given hereinafter by way of example with reference to the accompanying drawings, which show a practical embodiment of a device incorporating the innovative principles of the invention. In said drawings:

Figure 1 is an exploded view showing the device of the invention;

Figure 2 is an enlarged longitudinal section through the device of Figure 1 completely assembled;

Figure 3 is a section on the line III-III of Figure 2;

Figure 4 is a section on the line IV-IV of Figure 2;

Figure 5 is a side elevational view of the assembled device;

Figure 6 is an elevational view in the direction of the arrow F of Figure 5;

Figure 7 is a plan view of Figure 5; and

Figure 8 is an elevational view in the direction of the arrow F1 of Figure 7.

With reference to the drawings, the device of the invention is indicated overall by 10 and consists structurally of a box casing 11 comprising two half-casings 12, 13 joined together by pins 14.

Said casing 11 contains a gripper element 15 consisting of a pair of jaws comprising two opposing surfaces 16 hinged together at 17 and provided with respective pressing pads 18.

Said gripper element is contained within the casing 11 with the hinge 17 housed in suitable cradles 19, and with the pressing pads 18 projecting through apertures 20 provided in opposing surfaces of the half-casings 12, 13.

As can be clearly seen in Figure 2 of the drawings, the gripper element 15 is arranged to receive between its jaws a yieldable tube 21 the threaded mouth 22 of which extends through an axial opening 23 in the casing 11. Onto said mouth 22 there is screwed a delivery nozzle 24 provided with a closure cap 25 which is applied to the nozzle 24 via a snap connection 26, 27. The nozzle 24 is also provided with a peg 31 for piercing the closure diaphragm of the mouth 22. The reference numeral 28 indicates a cover which when the cap 25 has been replaced on the delivery nozzle 24 is mounted over this latter as shown in Figure 2, to removably snap-engage the casing 11 via teeth 29, which yield elastically on pressing the lateral surfaces 30 of the cover.

From the foregoing description with reference to the figures, it is apparent that the stated objects are advantageously attained by the device of the invention.

In this respect, by controlled pressure exerted on the tube via the gripper element 15 and because of the presence of the delivery nozzle 24, the correct amount of adhesive or other substance can be delivered exactly to the required point.

The gripper element 15 also enables the tube 21 to be completely emptied, allowing total use of the substance contained in it.

The substance delivered through the nozzle 24 does not soil the surrounding parts and the provision of the cap 25 prevents the substance from drying, so allowing immediate reuse of the tube.

The safety cover 28 prevents undesirable handling of the substance contained in the tube, which may be dangerous if ingested by children.

Claims

1. A device for the controlled delivery of liquid and/or pasty substances contained in a yieldable tube (21), the device comprising a gripper element (15) consisting of a pair of jaws (16, 18) which are connected together at a hinge (17) to receive the tube body (21), a casing (11) containing said gripper element (15) the jaws (16, 18) of which are accessible through apertures (20) provided in opposite wall portions of the casing (11), and a delivery nozzle (24) applied to the mouth (22) of said tube (21), said delivery nozzle extending through an axial opening (23) of said casing (11), characterised in that said casing (11) consists of a pair of shell halves (12, 13) joined together at their lateral bottom ends by pins (14) said pair of shell-halves (12, 13) being provided with cradles (19) for housing portions of said hinge (17), and in that each of said jaws is provided with a pressing pad (18) forming an integral part of said jaw and projecting through said apertures (20) of the casing (11), which is case-shaped.
2. A device as claimed in claim 1, characterised in that said delivery nozzle (24) is screwed onto said tube mouth (22) and is provided with a closure cap (25).
3. A device as claimed the previous claims, characterised in that a safety cover (28) is snap-fitted to said casing to cover said delivery nozzle and said cap.

Patentansprüche

1. Vorrichtung zur gesteuerten Abgabe von in einer nachgiebigen Tube (21) enthaltenen flüssigen und/oder pastigen Substanzen, welche Vorrichtung ein Greiforgan (15), bestehend aus einem Paar in einem Drehgelenk (17) miteinander verbundener Spannbacken (16, 18) zur Aufnahme des Tubenkörpers (21), ein Gehäuse (11), enthaltend das Greifelement (15), dessen Spannbacken (16, 18) über in gegenüberliegenden Wandteilen des Gehäuses (11) vorgesehene Öffnungen (20) zugänglich sind, und eine an der Mündung (22) der Tube (21) angebrachte Abgabedüse (24) aufweist, wobei sich die Abgabedüse durch eine axiale Öffnung (23) des Gehäuses (11) erstreckt, dadurch gekennzeichnet, daß das Gehäuse (11) aus einem Paar Schalenhälften (12, 13) besteht, welche an ihren seitlichen Bodenenden durch Stifte (14) miteinander verbunden sind, wobei das Paar Schalenhälften (12, 13) mit Sitzen (19) zur Aufnahme von Teilen des Drehgelenks (17) versehen ist, und daß jede der Spannbacken mit einem Druckkissen (18) versehen ist, welches einen integralen Bestandteil der Spannbacke bildet und durch die Öffnungen (20) des Gehäuses (11), welches kassettenförmig ausgebildet ist, ragt.
2. Vorrichtung nach Anspruch 1, dadurch gekennzeichnet, daß die Abgabedüse (24) auf der Tubenmündung (22) aufgeschraubt und mit einer Verschlusskappe (25) versehen ist.
3. Vorrichtung nach den vorhergehenden Ansprüchen, dadurch gekennzeichnet, daß eine Sicherheitsabdeckung (28) zur Abdeckung der Abgabedüse und der Kappe durch Schnapp-Passung am Gehäuse angebracht ist.

ten (12, 13) besteht, welche an ihren seitlichen Bodenenden durch Stifte (14) miteinander verbunden sind, wobei das Paar Schalenhälften (12, 13) mit Sitzen (19) zur Aufnahme von Teilen des Drehgelenks (17) versehen ist, und daß jede der Spannbacken mit einem Druckkissen (18) versehen ist, welches einen integralen Bestandteil der Spannbacke bildet und durch die Öffnungen (20) des Gehäuses (11), welches kassettenförmig ausgebildet ist, ragt.

2. Vorrichtung nach Anspruch 1, dadurch gekennzeichnet, daß die Abgabedüse (24) auf der Tubenmündung (22) aufgeschraubt und mit einer Verschlusskappe (25) versehen ist.
3. Vorrichtung nach den vorhergehenden Ansprüchen, dadurch gekennzeichnet, daß eine Sicherheitsabdeckung (28) zur Abdeckung der Abgabedüse und der Kappe durch Schnapp-Passung am Gehäuse angebracht ist.

Revendications

1. Dispositif d'émission contrôlée de substances liquides et/ou pâteuses contenues dans un tube déformable (21), le dispositif comprenant un élément de saisie (15) constitué d'une paire de mâchoires (16, 18) qui sont reliées l'une à l'autre par une charnière (17) pour recevoir le corps du tube (21), un boîtier (11) contenant l'élément de saisie (15) dont les mâchoires (16, 18) sont accessibles à travers des ouvertures (20) ménagées des parties de paroi opposées du boîtier (11), et une buse d'émission (24) appliquée sur l'embouchure (22) du tube (21), cette buse d'émission s'étendant à travers une ouverture axiale (23) du boîtier (11), caractérisé en ce que le boîtier (11) est constitué d'une paire de demi-coques (12, 13) assemblées au niveau de leurs extrémités inférieures latérales par des chevilles (14), cette paire de demi-coques (12, 13) étant pourvue de berceaux (19) destinés à loger des parties de la charnière (17), et en ce que chacune des mâchoires est pourvue d'un coussinet d'appui (18) faisant partie intégrante de la mâchoire et dépassant à travers les ouvertures (20) du boîtier (11), qui présente une forme de boîte.
2. Dispositif selon la revendication 1, caractérisé en ce que la buse d'émission (24) est vissée sur l'embouchure (22) du tube et est pourvue d'un capuchon de fermeture (25).
3. Dispositif selon les revendications précédentes, caractérisé en ce qu'un couvercle de sécurité (28) est enclenché sur le boîtier afin de couvrir la buse d'émission et le capuchon.





