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(54) **BEAD DISPENSER**

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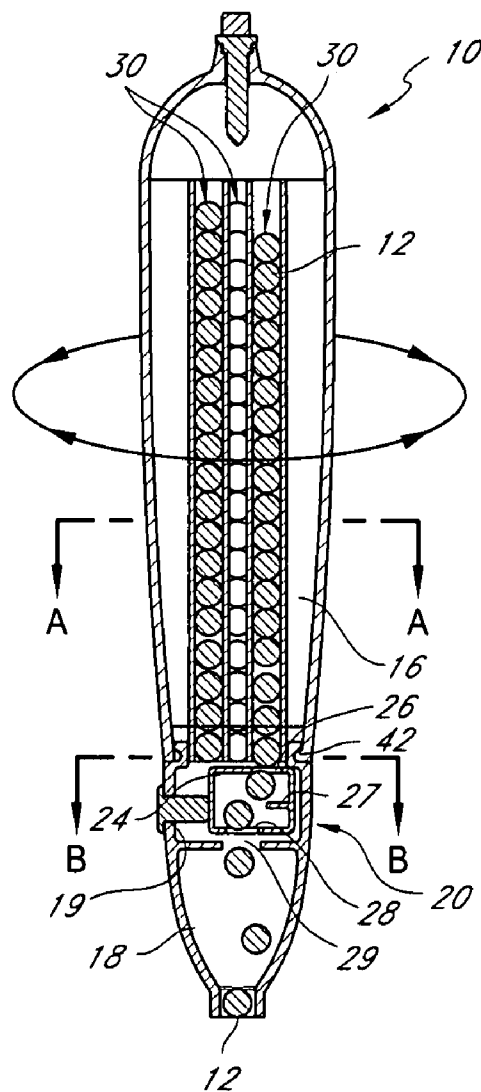
(57) **ABSTRACT**

A bead dispenser comprising an elongated housing in which beads are held in at least two separated bead columns, and a dispensing nozzle at one end of the elongated housing through which the beads are dispensed. A dispensing mechanism dispenses beads from a column, whereby one of the bead columns is selected from which to dispense a bead through the bead dispenser.

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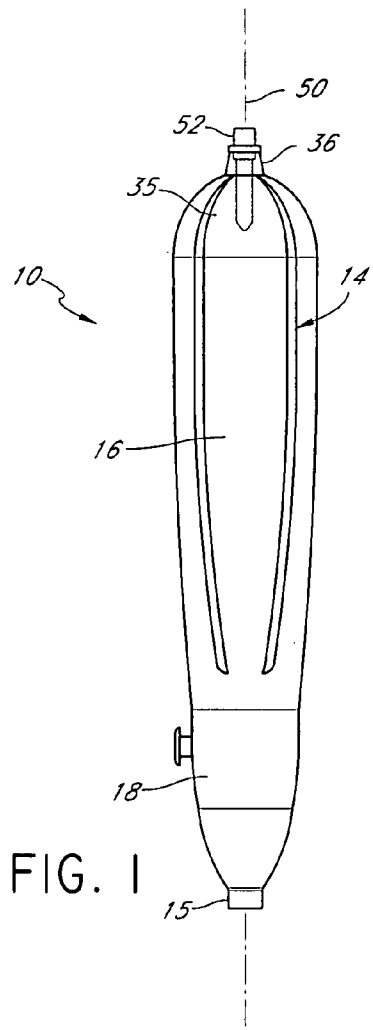


FIG. 1

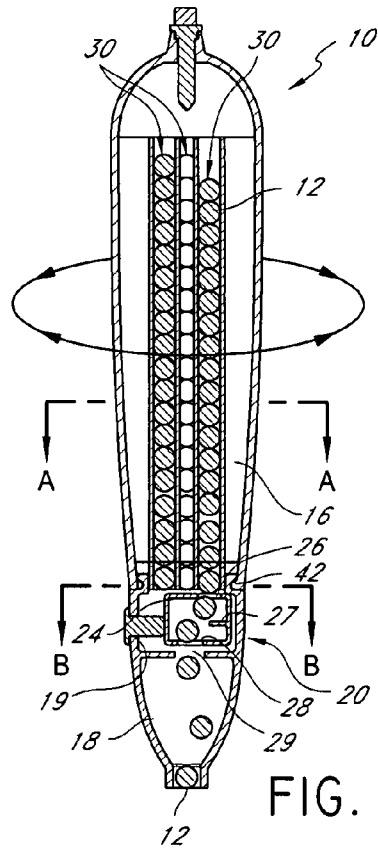


FIG. 2

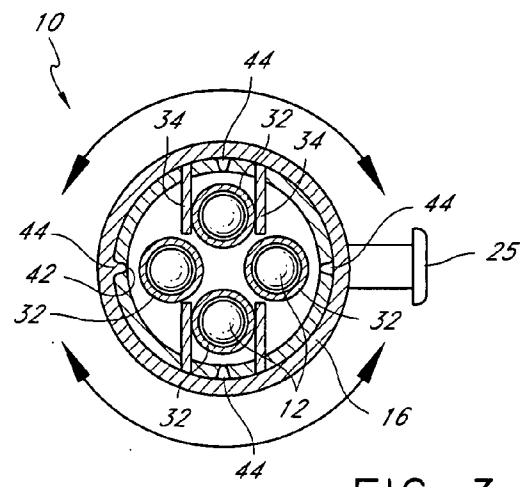


FIG. 3

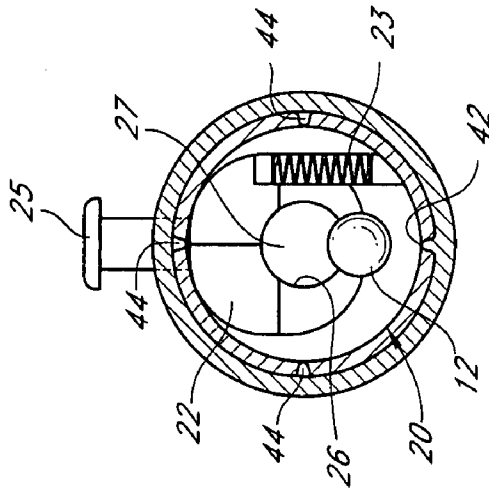


FIG. 4A

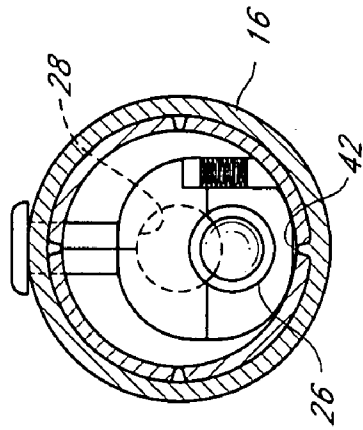


FIG. 4B

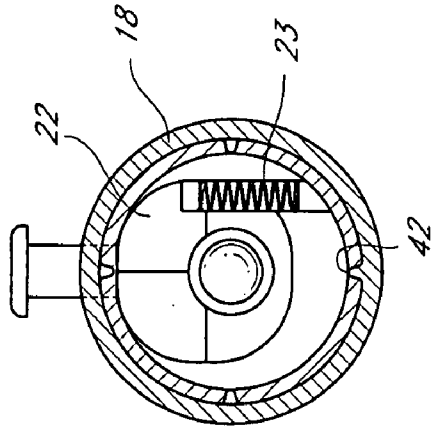


FIG. 4C

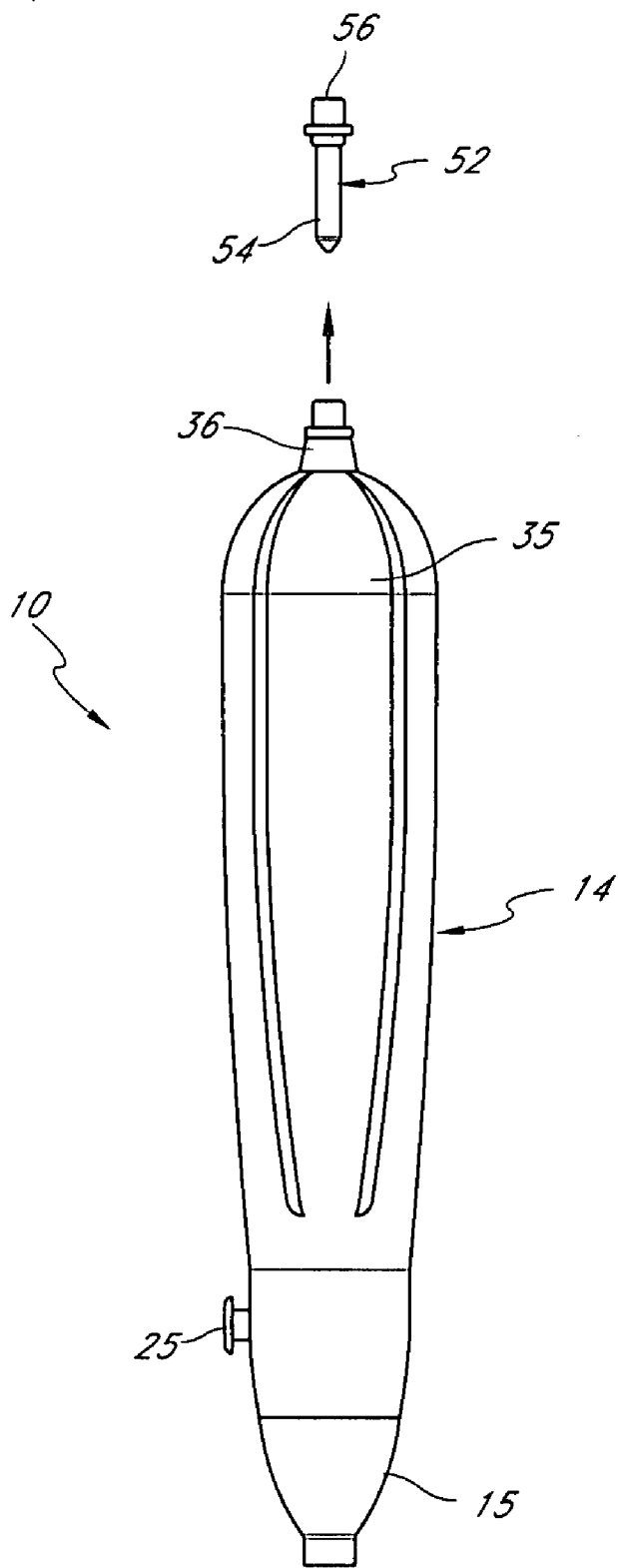


FIG. 5

BEAD DISPENSER

FIELD OF THE INVENTION

[0001] The present invention relates to a bead dispenser for holding and dispensing beads.

DESCRIPTION OF THE RELATED ART

[0002] Beads and other small objects, whether circular or irregular in shape, are commonly used in arts and craft activities for both adults and children. Plastic, wooden, glass or metal beads are used in making jewelry or decorating articles including clothing and other fabrics. In a non-decorative sense beads, such as ball bearings, are used in machinery and other mechanical devices.

[0003] Polyvinyl acetate (PVA) in the form of solid round beads are also known to be used in children's artwork activities whereby beads are arranged by color on a template to produce a pattern, picture or the like. Water is then sprayed onto the template to dissolve the beads and allow them to run into one another and create blocks of color separated by partitions in the template and thereby create a picture.

[0004] The problem with using beads and bead like objects, is that given their small size and often spherical nature they are difficult to handle and awkward to place and hold in position. This has brought about the present invention which addresses the difficulty in handling beads.

SUMMARY OF THE INVENTION

[0005] In accordance with the present invention there is provided a bead dispenser comprising:

[0006] an elongated housing in which beads are held in at least two separated bead columns, and a dispensing nozzle at one end of the elongated housing through which beads are dispensed; and

[0007] a dispensing mechanism to dispense beads from a bead column, whereby one of the bead columns is selected from which to dispense a bead through the dispensing nozzle.

[0008] Preferably, the bead dispenser dispenses at least two types of beads. In a preferred embodiment the bead dispenser includes four bead columns, and in another embodiment the dispenser may comprise six or more bead columns. The bead columns in the preferred embodiment are in the form of extruded or molded plastic tubes that may be held in position in the housing by gluing and/or retaining the tubes by molded partitions inside the housing.

[0009] The housing preferably comprises two co-axial components: a dispensing casing which houses the dispensing mechanism; and a storage casing which holds the beads. The storage casing and dispensing casing are rotatable relative to one another such that one casing may be twisted relative to the other casing about a common axis. This is to align one bead column with the dispensing mechanism thereby allowing beads to be individually dispensed from that selected column.

[0010] The storage casing and dispensing casing are preferably held in locked engagement in the axial direction but are permitted to relatively rotate around the common axis. Preferably, the casings are rotatable over location points which urge the casings to stop rotating at the location points whereby each location point corresponds with a bead col-

umn. The location points are preferably defined by a node and recess engagement between the storage casing and dispensing casing.

[0011] The beads are preferably arranged in a single file within each bead column. The beads are typically of different colors and similar sizes.

[0012] The dispensing mechanism is preferably a biased mechanism including a moveable body having a cavity through which a bead is adapted to pass from an inlet to an outlet. A trigger associated with the dispensing mechanism is activated to align the inlet with a bead column to allow a bead in that column to enter the body. Releasing the trigger moves the dispensing mechanism body out of alignment with a bead column and into a position whereby the outlet is aligned with the dispensing nozzle to allow a bead in the dispensing mechanism to dispense through the nozzle.

[0013] A spring is preferably located between the body of the dispensing mechanism and the interior of the dispensing casing.

[0014] The storage casing preferably includes a moveable lid to allow for access for filling the storage casing with beads. The lid is preferably funnel shaped and contains a central hole through which a bead can pass. The lid is shaped to hold an amount of beads that is substantially equal to the number of beads required to fill a bead column.

[0015] The bead dispenser also preferably includes a removal tool for picking up a bead. The tool includes a stem and a portion of adhesive material on the end of the stem whereby the stem can be inserted into the hole of the lid. The adhesive material is preferably thermoplastic rubber (TPR).

BRIEF DESCRIPTION OF THE DRAWINGS

[0016] An embodiment, incorporating all aspects of the invention, will now be described by way of example only with reference to the accompanying drawings in which:

[0017] FIG. 1 is a side elevation of bead dispenser in accordance with an embodiment of the present invention;

[0018] FIG. 2 is a side sectional elevation of the bead dispenser;

[0019] FIG. 3 is a plan sectional view taken at section A-A of FIG. 2;

[0020] FIGS. 4(a), 4(b) and 4(c) illustrate a series of operational steps of the bead dispenser from a plan sectional view taken at section B-B of FIG. 2; and

[0021] FIG. 5 is a side elevation of the bead dispenser illustrating a bead removal tool separated from the bead dispenser.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0022] Illustrated in the drawings is a bead dispenser 10 for dispensing beads 12 from an interior of the bead dispenser 10. The bead dispenser provides a useful and manageable means for handling beads in a controlled manner. In the preferred embodiment shown the bead dispenser is used for dispensing beads used in arts and crafts, and more particularly dissolvable PVA beads.

[0023] The bead dispenser 10 comprises an elongated housing 14 wherein the housing 14 consists of an upper storage casing 16 co-axially connected to a lower dispensing casing 18. The beads 12 are stored in the storage casing 16 and are adapted to enter the dispensing casing through a dispensing mechanism 20 and to exit the bead dispenser 10

through a dispensing nozzle **15** located at a lower end of the dispenser **10**. The storage casing **16** is elongated and adapted to hold at least two separated bead columns **30**.

[0024] The storage casing **16** and dispensing casing **18** extend co-axially along a common axis **50**. They are held in locked engagement in the axial direction and are rotatably engaged such that the casings are rotatable relative to each other about axis **50**. The rotational relationship between the storage casing **16** and dispensing casing **18** allows one casing to be twisted relative to the other about the common axis so as to align a selected bead column **30** with dispensing mechanism **20** and allow a bead from that column to be dispensed.

[0025] Location points between the storage and dispensing casings urge the casings to stop rotating at the location points. The location points are aligned with each bead column and define correct alignment of each bead column with the dispensing mechanism **20** such that bead dispensing can occur.

[0026] The interaction between the location points and bead column is defined by a node and recess type engagement. Specifically, the storage casing **16** is provided with either a node or recess and the dispensing casing **18** is provided with corresponding recesses or nodes. Typically, and as shown in the drawings and in particular FIG. **3**, a node **42** on the storage casing engages with a recess **44** provided on the dispensing casing. A recess **44** is provided with each bead column such that as the casings are rotated the node **42** will engage with a recess **44** corresponding to a bead column **30** and the user is made aware when a bead column is correctly aligned. The location points also hold the bead column correctly aligned during use. A further twisting force overcomes the node and recess engagement to allow the casings to rotate past a location point to the next location point.

[0027] Because the housing **14** includes at least two separated bead columns **30** the bead dispenser is capable of dispensing at least two types of beads, and usually similar shaped beads of different colors. In the preferred embodiment illustrated in the drawings the dispenser includes four bead columns **30** whereby four different beads may be dispensed. It is understood that larger versions of the bead dispenser may hold more than four bead columns, such as six bead columns.

[0028] The bead columns are in the form of extruded or molded plastic tubes **32** which are filled with beads **12**. Tubes **32** are typically glued in position inside the storage casing **16** and may be further held in position in a separated manner from the other tubes by molded partitions **34** inside the storage casing **16**. Partitions **34** have the effect of retaining tubes **32** in position before the glue used to position the tubes has set or if glue is not used.

[0029] It is understood that the bead columns may not be in the form of tubes but may simply be defined by the partitions **34** themselves or another arrangement for separating the beads, for example a hollow passage defined by the casing interior.

[0030] The beads **12** are preferably arranged in a single file within each column **30** although the columns may be wider to hold beads stacked randomly. In a preferred embodiment, the bead dispenser holds beads of different colors and of similar sizes.

[0031] The dispensing mechanism **20** is preferably a biased mechanism that includes a moveable dispensing body

22 having a cavity **24** where the body is moveable laterally across the width of the dispensing casing **18**. An inlet aperture **26** is provided in the body **22** above the cavity **24** and an outlet aperture **28** is provided in the body **22** below the cavity **24**. The apertures are offset such that the beads are made to follow a diverted path through the body from the inlet to the outlet and on through the dispensing nozzle. A sloping ramp **27** inside cavity **24** urges a bead entering through inlet aperture **26** towards outlet aperture **28** to place the bead in position at the outlet aperture **28** ready for dispensing when the mechanism is released.

[0032] The biased dispensing mechanism is activated by a trigger in the form of a push button **25** located on the exterior of the housing and forming an extension of the dispensing mechanism body. FIG. **4(a)** illustrates the dispensing mechanism **20** in a rest/released position. The button **25** extends through an opening **19** in the dispensing casing and is pressed in order to move the dispensing mechanism body radially across the dispensing casing to a pressed position as illustrated in FIG. **4(b)** to align the inlet aperture directly underneath a bead column. This allows access of a bead **12** in the column into the cavity **24**.

[0033] Releasing the button **25** allows the dispensing mechanism body **22** to return back across the dispensing casing to the released position illustrated in FIG. **4(c)** and thereby close the access of the bearing columns to the cavity. This in turn aligns the outlet aperture **28** with a corresponding aperture **29** in the dispensing casing **18**. This allows access for beads in the body to pass under gravity through to and out of the dispensing nozzle.

[0034] When the mechanism is in a pushed position and the dispensing mechanism is ready to receive a bead, outlet aperture **28** is misaligned with its corresponding outlet **29** in the dispensing casing body so to prevent beads from escaping through the dispensing mechanism while the button **25** is pushed. In practice, the size and shape of cavity **24** may be such to hold two or more beads so that more than one bead is dispensed upon release of the button. Alternatively, the dispensing mechanism **20** may be structured to dispense only one bead with every press and release of the button.

[0035] The dispensing mechanism is spring biased towards the released/rest position illustrated in FIGS. **4(a)** and **4(c)**. A spring **23** is located between the movable body **22** and the dispensing casing **18**.

[0036] At the opposite end of the elongated housing to the dispensing nozzle there is provided a removable lid **35** which is removed to provide access to the storage casing **16** for refilling the bead columns. The lid is preferably shaped as a funnel and has a central hollow sleeve **36** through which a bead can pass. The amount of beads that can be held in the funnel of the lid is substantially equal to the number of beads required to fill a bead column. To assist a user with filling the bead columns the sleeve **36** is placed inside a bead column tube and the funnel lid filled with beads. The beads will then flow under gravity through the shaft **26** and into the tube.

[0037] As illustrated in FIG. **5** the bead dispenser **10** may also comprise a bead removal tool **52** which is used to pick up a stray or misplaced bead to replace the bead in the dispenser or elsewhere. Removal tool **52** comprises a stem **54** and an adhesive portion, or pad **56**, which inserts into one end of stem **54**. Adhesive pad **56** is made of a thermoplastic rubber or a similar material having adhesive and sticky qualities and to which a bead will attach for picking up.

[0038] Removal tool 52 may be stored in hollow sleeve 36 in the lid 35 with adhesive pad 56 exposed. Removal tool 52 may be used either on its own separated from the housing 14 of bead dispenser 10 as illustrated in FIG. 5 or may be used while stored in situ in lid 35. A cap (not shown) may cover adhesive pad 56 and protect it from dirt and the like.

[0039] The bead dispenser is similar in shape to a pen. It allows a user to easily manipulate a variety of bead types in a simple and effective manner. In terms of beads used for decorating the bead dispenser 10 reduces any difficulties and frustrations associated with handling and placing beads in position where required.

[0040] It will be understood to persons skilled in the art of the invention that many modifications may be made without departing from the spirit and scope of the invention.

What is claimed is:

- 1. A bead dispenser comprising:
 - an elongated housing in which beads are held in at least two separated bead columns, and a dispensing nozzle at one end of the elongated housing through which the beads are dispensed; and
 - a dispensing mechanism to dispense beads from a column, whereby one of the bead columns is selected from which to dispense a bead through the dispensing nozzle.
- 2. The bead dispenser claimed in claim 1 whereby the elongated housing comprises a dispensing casing coaxially aligned with a storage casing, whereby the dispensing casing supports the dispensing mechanism and the storage casing holds beads, wherein the storage casing and dispensing casing are axially rotatable relative to one another so as to align a selected bead column or storage casing with the dispensing mechanism in the dispensing casing.

3. The bead dispenser claimed in claim 2 wherein the dispensing casing and storage casing are relatively rotatable over location points that urge the casings to stop rotating at the location points, the location points defining correct alignment of a bead column in a storage casing with the dispensing mechanism in the dispensing casing.

4. The bead dispenser claimed in claim 3 wherein the location points are defined by a node and recess engagement between the storage casing and the dispensing casing.

5. The bead dispenser claimed in claim 4 wherein a node is provided on the storage casing and recesses are provided on the dispensing casing, wherein each of the recesses are lined with a bead column.

6. The bead dispenser claimed in claim 1 wherein the beads are arranged in a single file within each bead column.

7. The bead dispenser claimed in claim 1 wherein the bead dispenser contains two, four or six bead columns.

8. The bead dispenser claimed in claim 1 wherein the dispensing mechanism is a biased movable body having a cavity through which at least one bead is adapted to pass through the dispensing nozzle.

9. The bead dispenser claimed in claim 7 wherein a trigger associated with the dispensing mechanism is activated to align the cavity with a bead column to allow a bead in that column to enter the dispensing mechanism.

10. The bead dispenser claimed in claim 8 wherein releasing the trigger moves the dispensing mechanism out of alignment with the bead column and into alignment with the dispensing nozzle to allow the bead to pass therethrough.

11. The bead dispenser claimed in claim 9 wherein the cavity of the dispensing mechanism may hold more than one bead for dispensing the more than one bead.

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