



US 20070028942A1

(19) **United States**

(12) **Patent Application Publication**
Leung

(10) **Pub. No.: US 2007/0028942 A1**

(43) **Pub. Date: Feb. 8, 2007**

(54) **HAIR DECORATION TOOL**

Publication Classification

(76) Inventor: **Anthony Kit Lun Leung**, North Point
(HK)

(51) **Int. Cl.**
A45D 44/00 (2006.01)

(52) **U.S. Cl.** **132/333**

Correspondence Address:
STEVEN A. GARNER, ESQ.
CONAIR CORPORATION
ONE CUMMINGS POINT ROAD
STAMFORD, CT 06902 (US)

(57) **ABSTRACT**

There is provided a hair accessory application device essentially having at least two housing or body portions, a first body or ergonomic handle portion suitable for handling by an operator and for accommodating at least a portion of a drive assembly and a second body or head portion suitable for accommodating at least a portion of a hair beading assembly. The hair beading assembly is operatively connected to the drive assembly and suitable to allow an operator to effectively and efficiently apply one or more hair accessories over one or more strands of hair as desired.

(21) Appl. No.: **11/194,976**

(22) Filed: **Aug. 2, 2005**

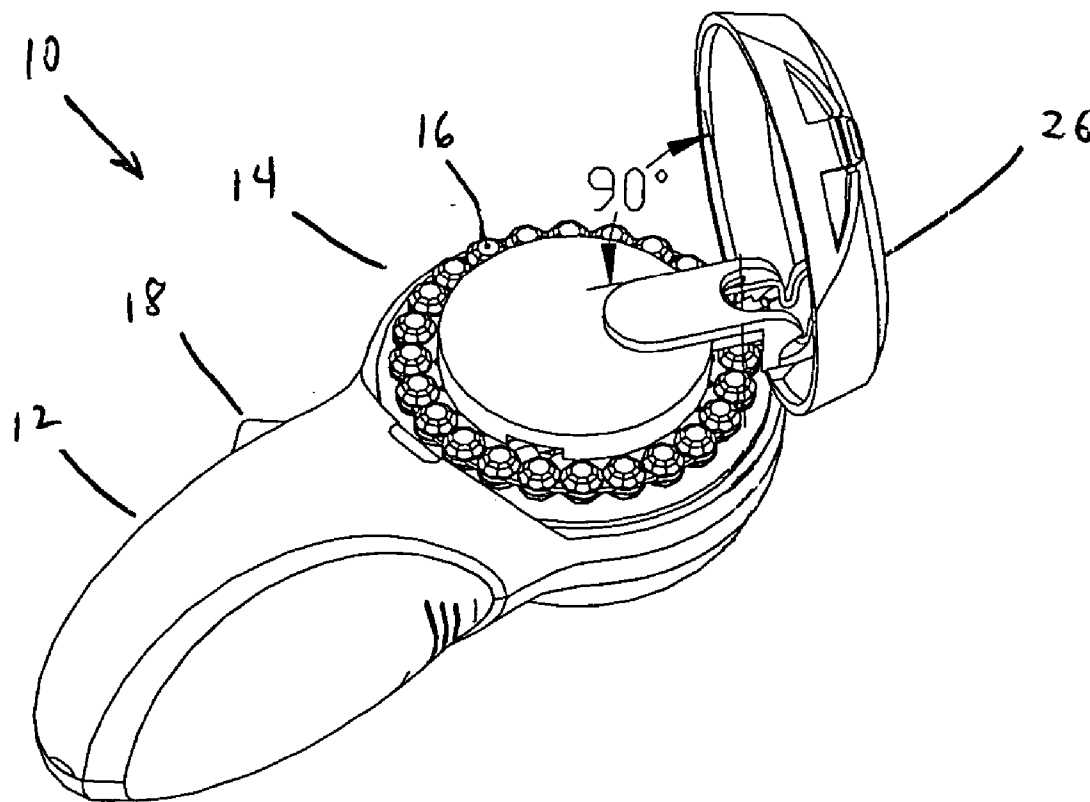


FIG. 1A

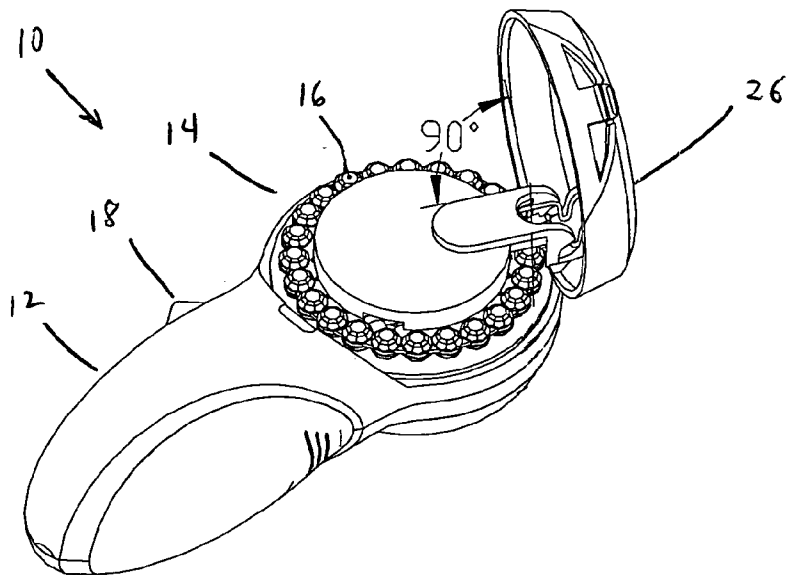


FIG. 1C

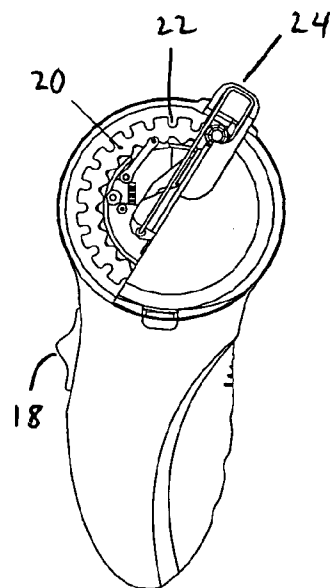


FIG. 1B

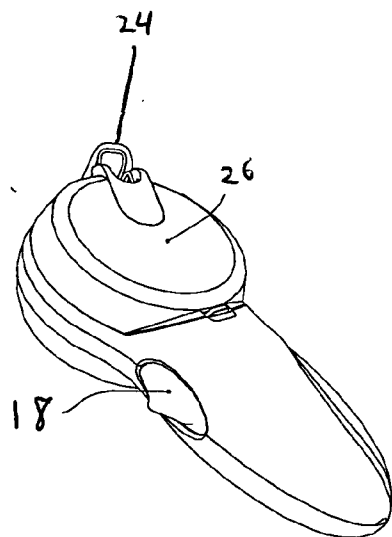


FIG. 2A

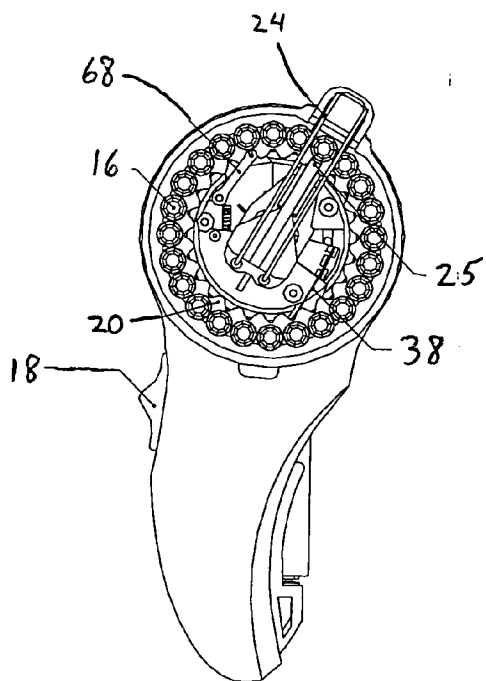


FIG. 2B

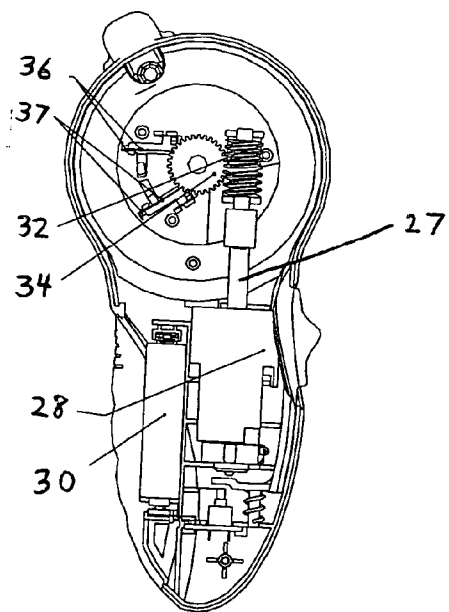


FIG. 3

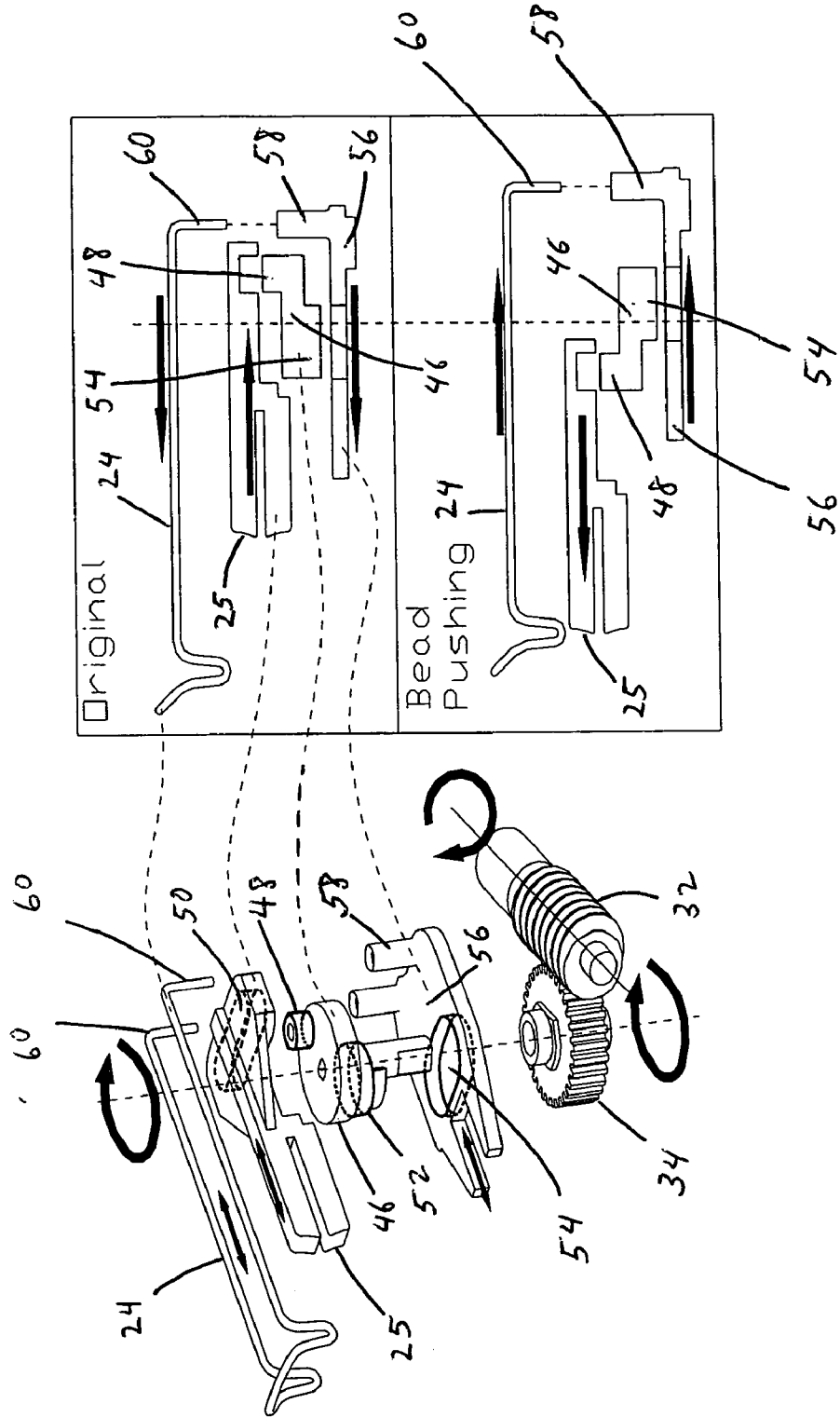


FIG. 4

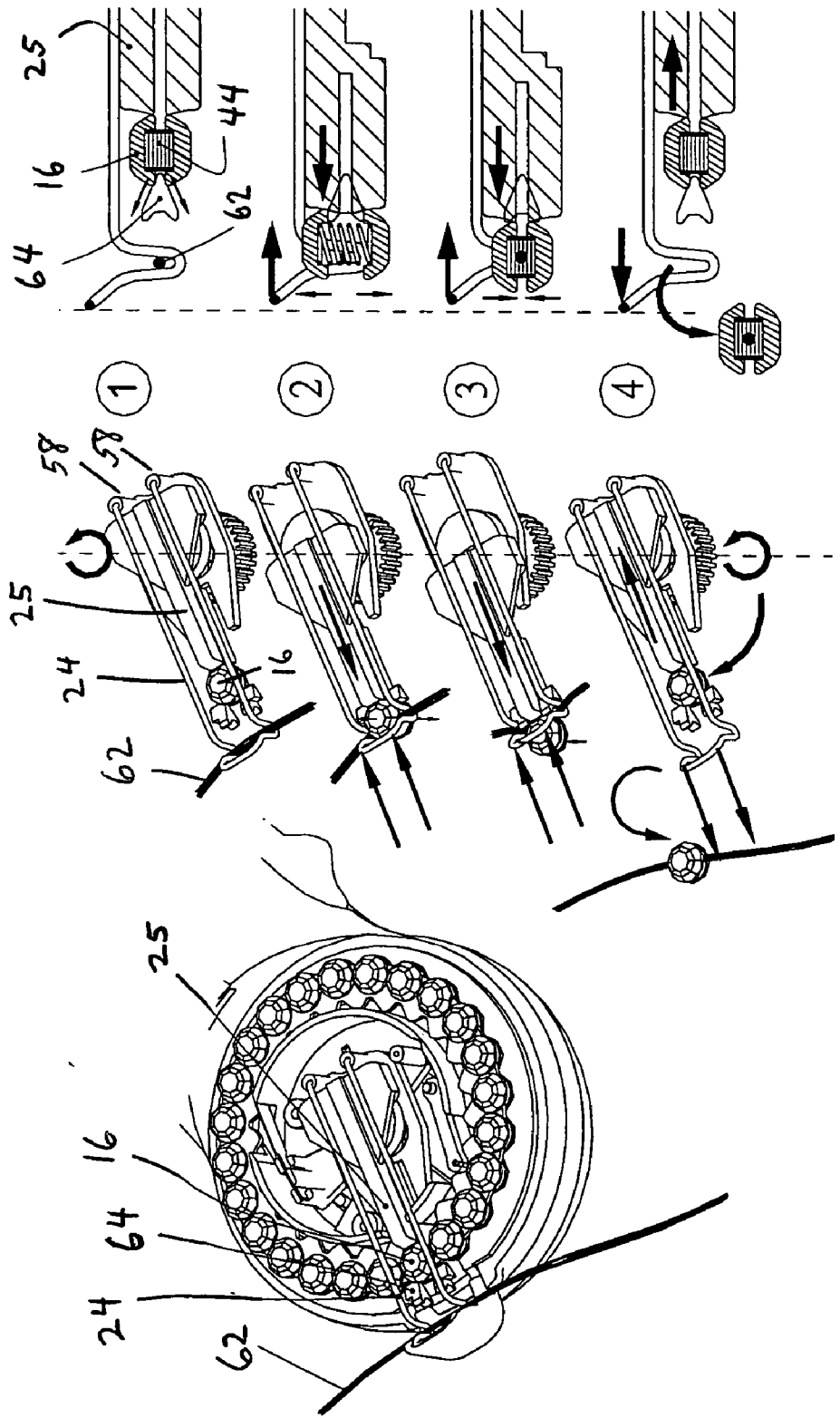


FIG. 5

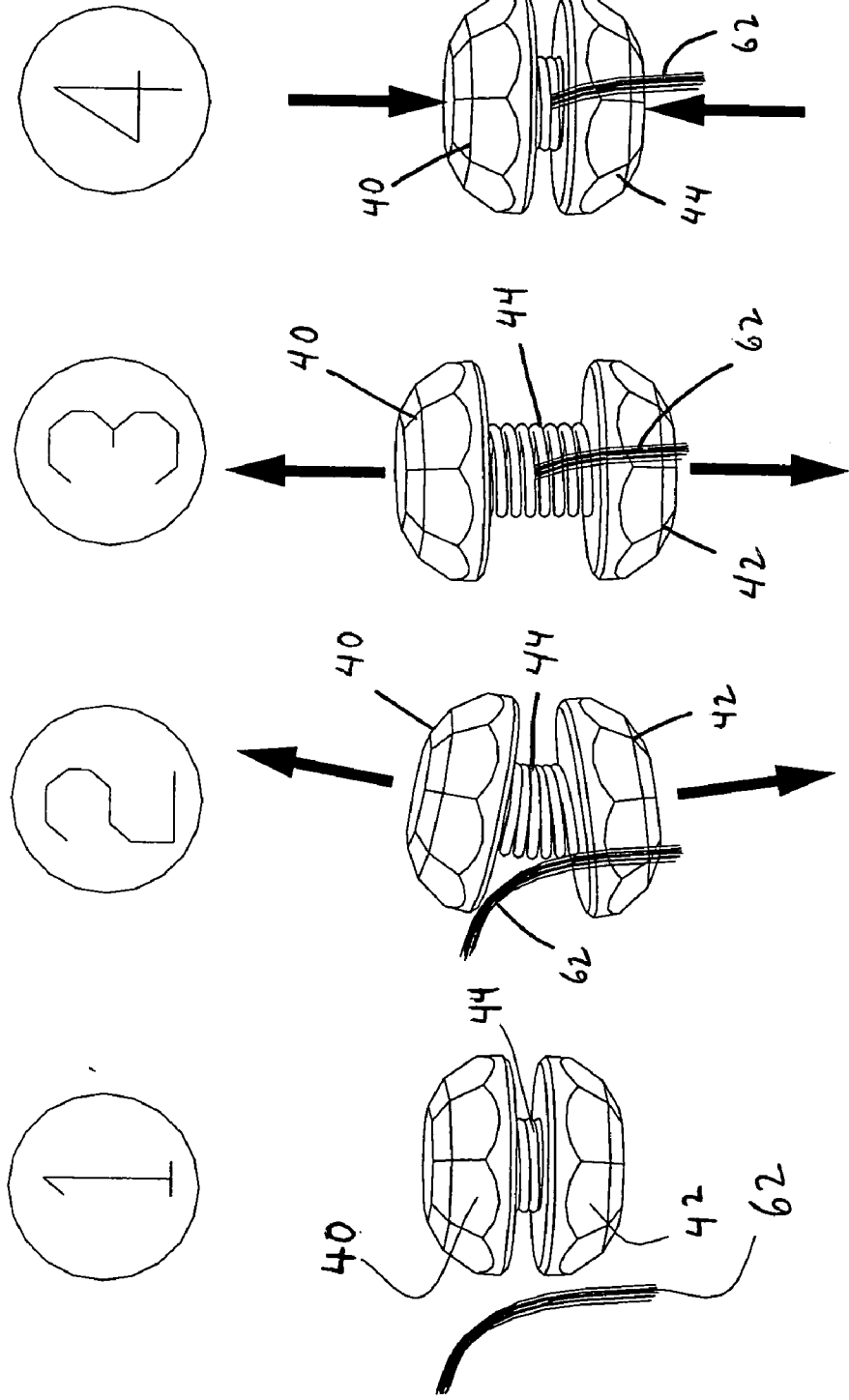


FIG. 6

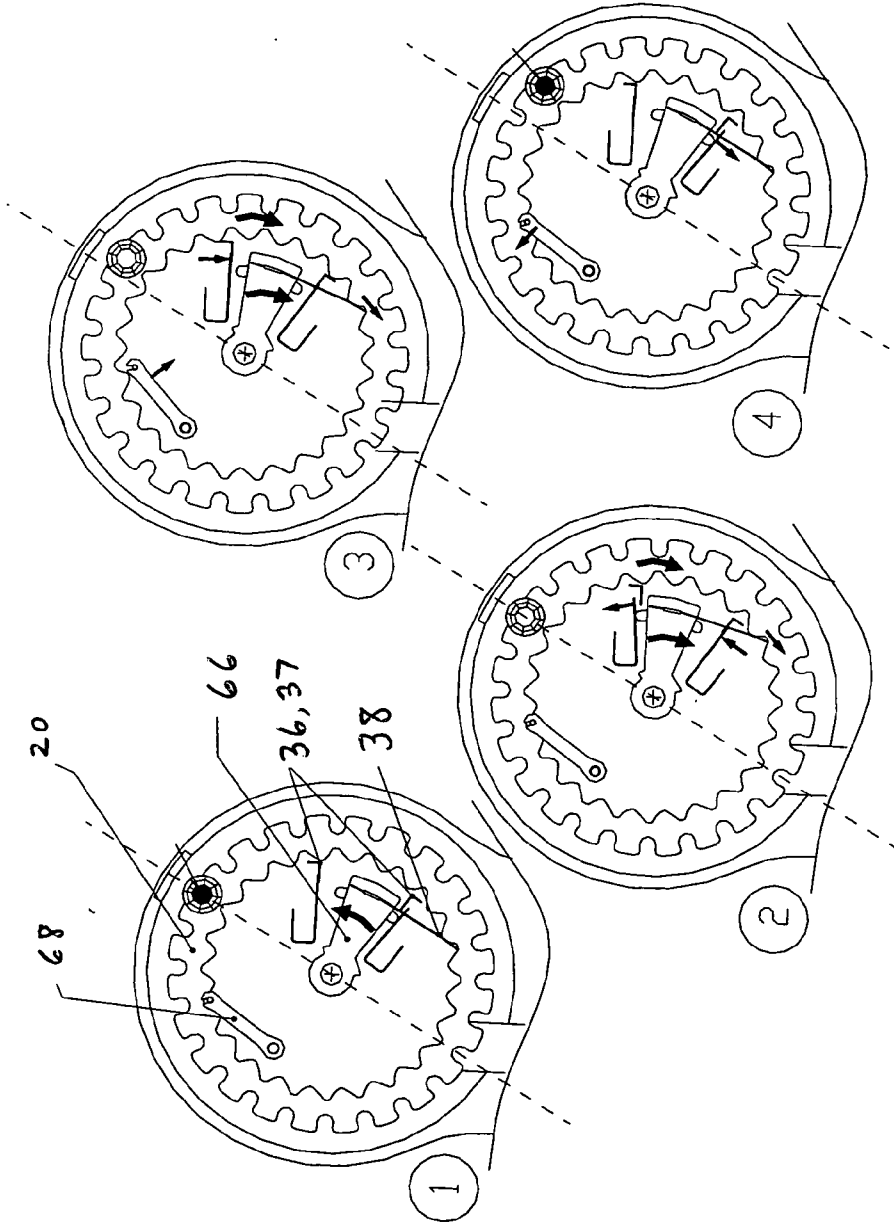
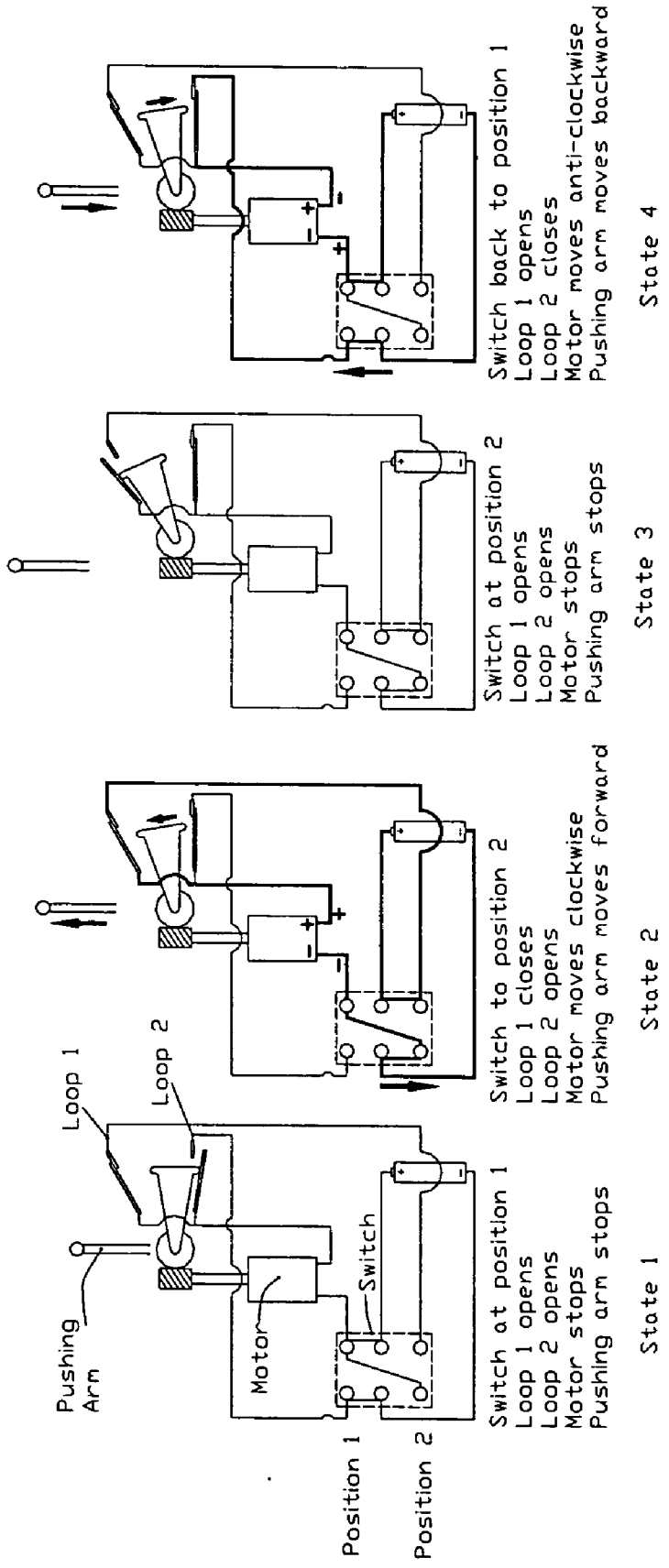


FIG. 7



HAIR DECORATION TOOL

BACKGROUND OF THE INVENTION

[0001] 1. Field of the Invention

[0002] The present invention relates to devices for automatically applying a hair accessory, such as a bead, to hair. More particularly, the present invention relates to a device for automatically applying a plurality of hair accessories to one or more strands of hair.

[0003] 2. Description of Related Art It is known to provide devices that can be pre-loaded with one or more accessories such as beads that are suitable to be threaded over one or more strands of hair. Such known devices typically have a rod for accommodating the accessories. The rod has a hook extending from it along a longitudinal axis. The hook is suitable to engage a hair swatch so that the accessories may be slid over the rod and hook, and onto the hair swatch. Some of these devices require an applied force, such as, for example, via a user's band or by gravity, in order to advance the accessories from the rod and hook and onto the hair strands.

[0004] Inherent shortcomings associated with these known devices include the difficulty and/or awkwardness coupled with positioning and placing the accessories onto the hair and the relatively inefficient, error-prone application techniques associated with using such devices. Thus, there is a need for an effective hair accessory application device that can automatically and efficiently move the accessories onto one or more strands of hair.

OBJECT AND SUMMARY OF THE INVENTION

[0005] It is an object of the present invention to overcome the shortcomings of the prior art mentioned above. These and other objects are achieved by the present invention described herein.

[0006] The present invention achieves these and other objectives by providing a hair accessory application device essentially having at least two housing or body portions, a first body or ergonomic handle portion suitable for handling by an operator and for accommodating at least a portion of a drive assembly and a second body or head portion suitable for accommodating at least a portion of a hair beading assembly. The hair beading assembly is operatively connected to the drive assembly and suitable to allow an operator to effectively and efficiently apply one or more hair accessories over one or more strands of hair as desired.

[0007] The preferred embodiment features a hair holder within the head portion that holds one or more strands of hair in place so that a bead may be more easily attached to the hair. A pushing arm is used to push the beads onto the user's hair while the hair holder holds the one or more strands of hair. A rotating bead holder, having a circular profile, is also located within the head portion and can have a plurality of grooves to hold a plurality of beads. A transparent cover can be used to keep the beads from falling out of the device or being knocked out of a groove. The handle portion can have a power button to allow an operator to control the device.

BRIEF DESCRIPTION OF THE DRAWINGS

[0008] The present invention is more fully understood by reference to the following detailed description of an illustrative embodiment with the drawings identified below.

[0009] FIG. 1A is a perspective view of a hair accessory application device in accordance with a preferred embodiment of the present invention.

[0010] FIG. 1B is another perspective view of the hair accessory application device of Fig. 1A, showing different illustrative aspects thereof.

[0011] FIG. 1C is a front, partial cut-out view of the hair accessory application device of FIGS. 1A and 1B in accordance with a preferred embodiment of the present invention.

[0012] FIG. 2A is a front view of the hair accessory application device, with the cover removed, in accordance with a preferred embodiment of the present invention.

[0013] FIG. 2B is a rear, cross-sectional view of the hair accessory application device of FIG. 2A in accordance with a preferred embodiment of the present invention.

[0014] FIG. 3 is an exploded view of several aspects of the hair accessory application device in accordance with a preferred embodiment of the present invention.

[0015] FIG. 4 is a partial view of the head portion, including the pushing mechanism and hair holding mechanism in accordance with a preferred embodiment of the present invention.

[0016] FIG. 5 is a perspective view of a bead in accordance with a preferred embodiment of the present invention.

[0017] FIG. 6 is a front, partial cut-out view of the hair accessory application device showing the bead refilling mechanism in accordance with a preferred embodiment of the present invention.

[0018] FIG. 7 is a schematic view of a control circuit of the hair accessory application device in accordance with a preferred embodiment of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

[0019] Referring to FIGS. 1A-1C, a hair accessory application device in accordance with an illustrative embodiment of the present invention is shown and generally represented by reference numeral 10. The hair accessory device 10 includes a body or handle portion 12 and a head portion 14. Hair accessories, such as beads 16, for example, may be threaded or received over one or more strands of hair using device 10.

[0020] The handle portion 12 may be ergonomically shaped to comfortably and conveniently be held by an operator. Preferably, the handle portion has a power button 18 for allowing an operator to control the operation of the device 10. The power button 18 can be shaped in a variety of ways and can be placed on the side of the handle portion 12 as shown, or in any other location convenient to an operator. In an alternative embodiment, the handle portion can be in the form of a control interface having any of a variety of input selectors (e.g., buttons, knobs, dials, touchpads or touch-screens, etc.) for starting, stopping or otherwise adjusting the operation of the hair accessory device 10. The control interface can also have a variety of output indicators, such as, for example, visual indicators (e.g., LED/LCD displays, etc.), audible indicators (e.g., beeps, automated voice, etc.), or tactile indicators (e.g., vibration, heat, etc.).

[0021] Located on the head portion 14 is a rotating bead holder 20 that can hold a plurality of beads 16. Preferably, the bead holder 20 has a circular or disk-shaped profile and a plurality of grooves 22 to hold a multitude of beads 16, each bead placed within a groove 22. Also located on the head portion 14 is a hair holder 24. The hair holder 24 can have thin metal bars or rods that hold one or more strands of hair in place so that a bead 16 may be more easily attached to the hair. FIG. 2A shows a pushing arm 25, which can be used to push the beads 16 onto the user's hair while the hair holder 24 holds the one or more strands of hair.

[0022] In order to keep the beads 16 from falling out of the device 10 or being knocked out of a groove 22, a transparent cover 26 can be placed over the head portion 14. The cover 26 can be made to selectively pivot about a hinge so that it may be easily opened and closed. This allows for the beads 16 to be easily replaced back into the rotating bead holder 20. In a preferred embodiment, the hinge is located near the hair holder 24. The cover 26 can be made to open up to a certain angle, such as 90 degrees, for example, or can be completely removed from the device 10. The transparent cover 26 can be made from plastic or any other material that would allow an operator to see the beads 16 within the device 10 while the beads 16 are being protected. In an alternative embodiment, the cover 26 can also be opaque or non-transparent.

[0023] Referring to FIG. 2B, within the hair accessory device 10 is a drive assembly 27 comprising a motor 28 with a gear box, a drive shaft 32, a drive gear 34 and an eccentric wheel 46. Preferably, the motor 28 is powered by batteries 30. However, the motor can be powered by any other applicable power source. For example, in an alternative embodiment, the hair accessory device 10 may run from an electric cord (not shown) connected to an electric power source. In the preferred embodiment, the motor 28 is connected to a drive shaft 32. The drive shaft is connected to a drive gear 34. The motor 28 causes the drive shaft 32 to rotate, which in turn, causes the drive gear 34 to rotate about an axis that is perpendicular to the rotation of the drive shaft 32. Upper contact reed 36 and lower contact reed 37 are used to control the circuit that enables the device 10 to operate. A ratchet 38 rotates the rotating bead holder 20 with beads 16 so that once a bead 16 is placed in an operator's hair, the next bead 16 will be in position to be placed in the hair, as will be described in further detail below.

[0024] As illustrated in FIG. 3, the rotation of the motor 28, drive shaft 32 and drive gear 34 causes an eccentric wheel 46 to also rotate. This controls the horizontal movement of the hair holder 24 and the pushing arm 25. A top circular knob 48 is located on the top surface of the eccentric wheel 46. As the eccentric wheel 46 rotates, the top circular knob 48 moves back and forth within a slot 50 in the pushing arm 25, causing the pushing arm 25 to move forward and backward. On the bottom surface of the eccentric wheel 46 is a bottom circular knob 52. This bottom circular knob 52 fits within a groove 54 of a flat member 56. The flat member 56 is located between the drive gear 34 and the pushing arm and has two posts 58 located on the top surface. The hair holder 24 has two poles 60, which are placed into the two posts 58 so that the flat member 56 and the hair holder 24 move in conjunction with one another. As the eccentric wheel 46 rotates, the bottom circular knob 52 moves within the groove 54 of the flat member 56 and causes the flat

member to move forward and backward, in the opposite direction as the pushing arm 25. As the flat member 56 moves back and forth, the hair holder 24 moves in conjunction with it, in the opposite direction as the pushing arm 25.

[0025] FIG. 4 shows the hair accessory device 10 as it proceeds through four main stages. Stage 1 shows the beginning, where a tuft of hair 62 is placed within the hair holder 24. A bead 16 is in position to be pushed onto the tuft of hair by the pushing arm 25. The bead 16 will be pushed over a slide plate 64, so that the bead will be expanded. FIG. 5 shows a bead 16. Each bead 16 is comprised of an upper part 40, a lower part 42 and a spring 44 in the middle. Preferably, the slide plate 64 is generally in the shape of two wedges, in which the narrow ends are facing the bead 16 and the broad ends are facing the tuft of hair 62. As the bead 16 is pushed over the slide plate 64 by the pushing arm 25, the upper part 40 and the lower part 42 are separated from one another against the force of the spring 44. This can be seen in FIG. 4 at stage 2. When the upper part 40 and lower part 42 are fully separated, the tuft of hair 62 can fit between the coils of the spring 44. After the bead 16 continues to move over the broad edge of the slide plate 64 and beyond the slide plate, the upper part 40 and lower part 42 return to their initial state of being in close contact, with the tuft of hair 62 firmly in place between the coils of the spring 44. This is shown at stage 3 of FIG. 4. Stage 4 shows the bead 16 on the tuft of hair 62, with the hair holder 24 and pushing arm 25 returning to their initial states. The next bead 16 is then in position to be placed upon another tuft of hair 62.

[0026] FIG. 6 shows the bead refilling mechanism. At stage 1, the ratchet wheel 66 rotates counterclockwise until the circuit of the upper contact reed 36 opens. At stage 2, the ratchet wheel 66 rotates clockwise and the ratchet 38 pushes the rotating bead holder 20 to rotate. At stage 3, the ratchet wheel 66 continues to rotate until making the circuit of the lower contact reed 37 to open. The rotating bead holder 20 is then rotated one step as seen at stage 4. A detent 68 can fix the rotating bead holder 20 into an incremental position. FIG. 7 shows the circuit to control the movement of the pushing arm 25, the rotating direction of the motor 28 and the bead refilling mechanism.

[0027] While a preferred embodiment of the invention has been herein disclosed and described, it is understood that various modifications can be made without departing from the scope of the invention.

What is claimed is:

1. A hair accessory application device comprising:

- a housing having a handle portion and a head portion;
- a first member on said head portion to hold one or more hairs;
- a second member on said head portion to hold a hair accessory;
- an arm on said head portion adapted to move said hair accessory toward said first member and attach said hair accessory onto said one or more hairs; and
- a button on said handle portion to control said device.

2. A hair accessory application device according to claim 1, further comprising

- a drive assembly to drive said arm toward said first member to enable said hair accessory to be attached to said one or more hairs.
- 3.** A hair accessory application device according to claim 2, wherein
- said drive assembly has a motor.
- 4.** A hair accessory application device according to claim 3, wherein
- said drive assembly further comprises a drive shaft operatively connected to a drive gear and an eccentric wheel.
- 5.** A hair accessory application device according to claim 3, wherein
- said motor has a power source.
- 6.** A hair accessory application device according to claim 1, wherein
- said first member is adapted to move in a direction opposite said arm.
- 7.** A hair accessory application device according to claim 1, wherein
- said second member has a groove to retain said hair accessory.
- 8.** A hair accessory application device according to claim 1, further comprising
- one or more contact reeds to control a circuit to operate said device.
- 9.** A hair accessory application device according to claim 1, wherein
- said hair accessory is a bead.
- 10.** A hair accessory application device according to claim 9, wherein
- said bead comprises a first portion, a second portion and a spring between said first portion and said second portion.
- 11.** A hair accessory application device according to claim 10, further comprising
- a plate to separate said first portion and said second portion against the bias of said spring when said arm moves said hair accessory toward said first member and over said plate.
- 12.** A hair accessory application device according to claim 11, wherein
- said plate has a narrow side facing said arm and a wider side facing said first member.
- 13.** A hair accessory application device according to claim 1, further comprising
- a selectively removable cover over said head portion.
- 14.** A hair accessory application device according to claim 1, further comprising
- a ratchet mechanism to rotate said second member about a central axis after said hair accessory is attached to said one or more hairs.
- 15.** A hair accessory application device comprising:
- a housing;
- a hair accessory having two halves to selectively open to grasp a tuft of hair;
- a member causing said two halves to open to receive said tuft of hair.
- 16.** A hair accessory application device according to claim 15, wherein
- said housing comprises a handle portion and a head portion.
- 17.** A hair accessory application device according to claim 15, further comprising
- a drive assembly to move said hair accessory over said member toward said tuft of hair.
- 18.** A hair accessory application device according to claim 15, further comprising
- a hair holder to hold a tuft of hair.
- 19.** A hair accessory application device according to claim 15, further comprising
- an arm to push said hair accessory over said member.
- 20.** A hair accessory application device according to claim 15, further comprising
- a hair accessory holder to retain said hair accessory.

* * * * *