



Moveable Decoration

This invention relates to a moveable decoration, and more particularly provides a moveable decoration such as an artificial flower, an ornament and a knick-knack or the like which is not only placed in living spaces to serve as an interior decoration but driven or moved by means of a drive unit incorporated therein.

Conventionally, artificial flowers or the like are generally used in a living space as static decorations. Such conventional static ornaments soon lose their novelty with a lapse of time.

This invention provides a decoration which is capable of being moved to exhibit unexpected variation in configuration and/or appearance while maintaining a conventional ornamental effect when stationary.

The present invention provides a moveable decoration comprising a power supply to which a sensor switch is connected, a motor connected through the sensor switch to the power supply, a drive mechanism connected to the motor so as to be actuated thereby, and a core in the form of a non-straight wire operatively connected to the drive mechanism for rotation about an axis generally lengthwise of the wire on actuation of the drive mechanism, and a decorative element including a relatively slender hollow elongate flexible member terminating in a relatively bulky head, the wire extending within the hollow member of the decorative element, which member thereby provides a loosely fitting cover for the wire, the cover being fixed against rotation with the wire, such that relative rotation of the wire within the hollow member causes the decorative element to exhibit movements and changes



of configuration.

Preferably the power supply, motor and drive mechanism constitute a drive unit and the core is arranged to extend from the drive unit.

Applications of the inventions are wide spread but the decorative element is preferably imitative of a plant, a flower or a doll. The sensor switch may be a switch operating on detection of, for example, light, heat, smell or gas, but it is preferably a switch operating on detection of sound.

The head may be hollow and the drive mechanism may be arranged in the head, for example in a flower head or in the head of a doll. In this case the decorative element is preferably mounted on a base member.

Embodiments according to the invention are now described with reference to the following drawings, wherein:

Fig 1. is a front elevational view showing an example of a moveable decoration in the form of an artificial potted plant;

Fig. 2 is a front elevational view showing the artificial potted plant of Fig. 1 during variation of its configuration;

Fig. 3 is a cross sectional view taken along line I-I of Fig. 4 which shows a drive unit;

Fig. 4 is a vertical sectional view taken along line IV-IV of Fig. 3;

Fig. 5 is a cross sectional view taken along line II-II of

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Fig. 4;

Fig. 6 is a vertical sectional view taken along line V-V of Fig 3;

Fig 7 is plan view taken along line III-III of Fig. 4;

Fig. 8 is a sectional view taken along line VI-VI of Fig. 9 which shows central portion of the lid;

Fig. 9 is a view taken along an arrow VII of Fig. 8;

Fig. 10 is a vertical sectional view taken along line VIII-VIII of Fig. 11 which shows a socket;

Fig. 11 is a view taken along an arrow IX of Fig. 10;

Fig. 12 is a front elevational view in section showing a joint;

Fig. 13 is a sectional view taken along line X-X of Fig. 12;

Fig 14 is a circuit diagram showing an electrical circuit incorporated in the moveable decoration;

Fig. 15 is a perspective view of a further embodiment of the invention;

Figs. 16A and 16B are vertical cross sections of the embodiment of Fig. 15, in which Fig.16A shows the moveable decoration with the flower head and leaves removed, and Fig. 16B shows the moveable decoration with the decorative element removed.

Fig 17A is a perspective view showing a further embodiment of

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a moveable decoration according to the present invention, Fig. 17B is a vertical sectional view of the moveable decoration shown in 17A;

Fig. 18 is a front elevation view showing still another embodiment of a moveable decoration according to the present invention;

Fig. 19A is a perspective view showing still a further embodiment of a moveable decoration according to the present invention, Fig 19B is an exploded perspective view of the moveable decoration as shown in Fig. 19A; and

Fig 20 is a vertical sectional view showing an essential part of the moveable decoration of Fig. 19A.

Fig. 1 shows the moveable decoration used for an artificial potted plant. For this purpose a drive unit 20 is received in a vessel 15 formed in the shape resembling a flower pot, and a core 3 is a somewhat meanderingly bent wire. A decorative element 6 in the form of an artificial flower 16 comprises a stalk 16b, a flower head 16a and leaves 16c carried on the stalk 16b. Only the stalk 16b need be hollow. The flower 16 may be integrally formed from a flexible synthetic material. The stalk 16b is fitted onto the core 3 and securely fixed at its lower end. When a mains switch 14 is turned on and the sensor of a sensor switch 1 detects sound of a predetermined level or more a motor 2 (shown in Fig. 4) is actuated. This results in rotation of the core 3. The stalk is fixed against rotation with the core so that as the core rotates, the decorative element moves and changes its configuration, which movements and changes are separate from but dependent on the rotation of the core, as shown in Figs. 1 and 2.

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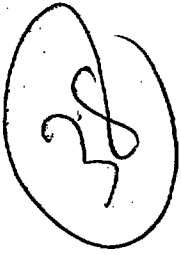
The core 3 may be made of a deformable or bendable material, and is preferably a metal wire. It may be made of a manually undeformable material, or a deformable and shape retaining material.

The drive unit 20 for rotating the driven element 3 includes a drive mechanism, the motor 2 and a power supply 4 and may be constructed as shown in Figs. 3 to 13.

The drive unit 20 is received in a vessel 22. A cushioning member 21 is positioned between the top portion of the drive unit and the vessel so as to give a snug fit, regardless of the size or configuration of the drive unit. The cushioning member generally exhibits a sound absorbing effect, absorbing sound generated by the drive unit 20 to prevent the sound sensor of the sensor switch from reacting to this sound and noise. Thus, malfunction of the device from these causes is effectively prevented.

Referring to Figs. 4 and 8 to 13, the drive unit 20 is housed in a casing 23 which is closed with a lid 24. The drive unit 20 further includes a drive shaft 31 operatively connected to the motor 2 through gears 25, 26, 27, 28, 29 and 30 in turn, whereby the driving force of the motor 2 is transmitted to the drive shaft 31. The upper end of the drive shaft has a hexagonal cross-section, which is fitted into a hexagonal hole 32 of a joint 33 as shown in Figs. 12 and 13, for transmission of its torque. Thus, the drive shaft 31 and the joint 33 constitute a coupling. Into the joint 33 is fixed the core 3. The core is supported in a sleeve 34 of the casing 23. Thus the core 3 is rotated by the motor 2.

A socket 35 is carried on the joint 33 but is fixed against rotation with the joint 33. The core 3 is inserted through



the socket 35. Hollow element 6 is securely mounted on the upper end of the socket. The bottom portion 36 of the socket is formed with cut-outs 37. The lid 24 covering the casing 23, as shown in Figs. 8 and 9, has a central through hole 38, through which the socket 35 is inserted. The lid 24 has a cylindrical wall 39 extending downwards from the undersurface thereof, which wall surrounds the central through hole while being spaced a suitable distance therefrom. The lower end surface of the wall 39 is equipped with projections 40 which are engageably fitted in the cut-outs 37 to prevent rotation of the socket 35. As illustrated the cut-outs 37, and the projections 40, are at 180° from each other.

Thus, the hollow element 6, or, in the flower embodiment, stalk 16b, is fixed against rotation on actuation of the motor 2 while ensuring free rotation of the core 3.

Reference numeral 41 designates cells constituting the power supply 4.

The parts constituting the drive unit 20 are electrically connected to one another as shown in Fig. 14. The power supply 4 is connected between the mains switch 14 and the drive source or motor 2 and the sensor of the sensor switch 1 is connected between the mains switch 14 and the motor 2, so that when the mains switch 14 is closed and the sensor of the sensor switch 1 detects sound of a predetermined level or more, the motor 2 is actuated via the power supply 4 for a period of time until the sound level drops below said predetermined level.

Alternatively, the circuit for the drive unit may be constructed in a manner to permit the motor to alternatively stop and start for predetermined periods of time when the

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sensor of the sensor switch detects intermittent or continuous sound.

Vessel 15 is not limited to the specific form of a flower pot, it may, for example, take the form of a basket, a vase or the like. Nor is the decorative element limited to a flower, it may be a doll or the like.

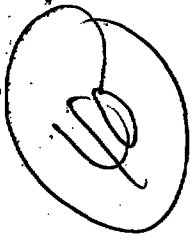
Figs. 15, 16A and 16B show a further embodiment according to the invention, wherein the moveable decoration may be imitative of a tulip in a pot. A decorative element 96 comprises a stalk 96b, a flower head 96a and leaves 96c. A pot 95 is topped by a lid member 92, arranged on which are a mains switch 94 and a sensor of a sensor switch 81. The sensor switch may operate on detection of sound

Referring to Fig. 16A, a driven element or core 83 extends from a drive mechanism 97, housed within a casing 85. The pot 95 further houses a drive source 82, and a power supply 84. The drive source 82 may comprise a motor and the power supply 84 may comprise cell means.

The decorative element includes the hollow element, or stalk, 96b, fitted around the driven element or core 83 over a substantial overall length thereof and securely fixed to the top of a mounting sleeve 93. Thus the hollow element is prevented from rotating with the driven element or core 83.

The components are electrically connected as shown in the circuit diagram of Fig. 14.

The drive mechanism is shown in Fig. 16B. The driven element 83 comprises a core in the form of a bent wire. The core is operatively connected to the drive mechanism 97 so as to be



rotated on actuation of the motor 82.

The drive mechanism 97 includes a gear 88 mounted on a shaft 87 and meshed with a gear 86 mounted on an output shaft of the motor 82 and a gear 90 mounted on the lower end of the core 83 and engaged with the gear 89 mounted on a shaft 87 in parallel with the gear 88. The core is arranged so as to extend upwards through the upper wall of the casing 85. Thus the core 83 is rotated on actuation of the motor 82.

The motor 82 is arranged outside the casing 85, positioned on or adjacent to the lower wall of the casing. The power supply 84 is arranged on or adjacent to a side wall of the casing 85 spaced from the motor 82.

The drive mechanism 97, the motor 82 and the power supply 84 are surrounded by a cushioning member 91 formed of a flexible foam material, and received in the vessel 95, which is formed in a frusto-conical shape. The cushioning member may substantially fill the vessel 95 although it is merely required to cover a portion of the outer periphery of the drive mechanism.

The vessel 95 is topped by a lid 92 which is put on the cushioning member so that the drive mechanism fits snugly in the vessel 95. The lid 92 has a central through hole 92a to accommodate the mounting sleeve 93 of the drive mechanism 97, the mounting sleeve 93 is arranged so as to extend upwards from the drive mechanism 97 through the hole 92a.

The remaining features of this embodiment may be constructed as described for the first embodiment.

When the main switch 94 is turned on and the sensor of the

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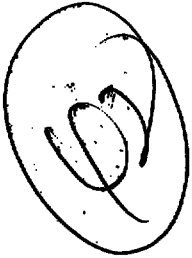
sensor switch 81 detects sound at a predetermined level or more the motor 82 is actuated. This causes the drive mechanism 97 to be actuated since it is operatively connected to the motor 82 through gears 86,88,89 and 90 resulting in rotation of the core 83 inside the stalk 96b, causing the decorative element to move and vary its configuration, which movements and variations are dependent on but separate from the rotation of the core.

Figs. 17A and 17B show a further embodiment according to the invention.

Moveable decoration A is in the form of an artificial plant which include a base 51 and a flower 52. The base 51 is made of a synthetic material and shaped into a plate of substantially elliptical shape. A central portion of the upper surface of the base has an upwardly projecting sleeve 53.

The flower 52 is made to imitate a sunflower. It includes a hollow tubular stalk 54 mounted on the sleeve 53 and a hollow flower head 52a mounted on the upper end of the stalk 54. The stalk and flower head may be integrally formed from a flexible synthetic resin material. On the stalk 54 is wound a fabric tape (not shown) to reinforce it. The flower also includes leaves 55 carried on the stalk 54.

Within the stalk 54 is loosely fitted a driven element or core 56 which takes the form of a bent wire. The core 56, as shown in Fig. 17B, is connected to a drive mechanism and motor 57 both of which are arranged in the flower head 52a. The flower head also houses a sensor switch 58, power supply 59 and a mains switch 60. The drive mechanism includes a gear 64 mounted on a shaft 63 and meshed with a gear 62 mounted on an



output shaft of the motor 57, and a gear 67 mounted on a shaft 66 and engaged with a gear 65 mounted on the shaft 63 and parallel with the gear 64, and a gear 68 mounted on the shaft 66 in parallel with the gear 67. The gear 66 is engaged with a gear 69 mounted on the upper end on the core 56. Thus the core is rotated on actuation of the motor 57.

The remaining aspects of the illustrated embodiment may be constructed in substantially the same manner as the above described embodiments.

Fig. 18 shows still another embodiment of the moveable decoration, A in imitation of a doll. The doll 70 includes a head 71, a base 51 and a hollow tubular member 72 formed of flexible synthetic resin material. The doll further includes a dress 73 surrounding the tubular member 72 and from which a pair of arms extend. Within the tubular member 72 is loosely fitted a driven element or core 56 which takes the form of bent wire. The upper end of the core 56 is operatively connected to a drive mechanism (not shown) received in the head 71, the core being rotated by the drive mechanism on actuation thereof.

All remaining aspects of the embodiment of Figure 18 including the drive mechanism may be constructed in substantially the same manner as that shown in figure 17A and 17B.

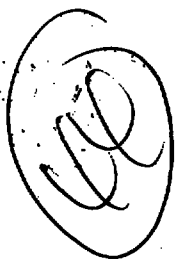
The embodiment shown in Fig. 18 may be constructed so that the lower end of the core 56 extends from the lower end of the tubular member 72 and is detachably insertable into a perforated support (not shown) in the form of a plate, a cylinder or the like. Such construction permits a plurality of the moveable decorations to be detachably set together on the support in an arrangement that may be varied.

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Figs. 19A and 19B show a still further embodiment of a moveable decoration A in imitation of a potted plant, comprising a flower pot 101 and a flower 102. The flower pot 101 is formed of synthetic resin material, and contains a sensor of a sensor switch 103, a power supply 104, a mains switch 105 and a drive mechanism, a (Fig. 20). The sensor of the sensor switch 103 is arranged on a side wall of the flower pot 101 and the mains switch 105 may be arranged on the underside of the flower pot so that it may be operated from outside the pot.

The flower 102 is formed in imitation of a sunflower and includes a stalk 106, a flower head 102a mounted on an upper end of the stalk and leaves 109 carried on the stalk. The stalk is formed of a flexible and/or deformable material and is mounted on a mounting sleeve 108 located at the centre of the upper surface of the lid member 107. The lid member 107 is securely fitted on the upper portion of the flower pot 101 by means of screws 107a. Only the stalk 106 need be hollow. The flower head 102a and the stalk 106 may be formed of a flexible synthetic resin material and the stalk may have a fabric tape (not shown) wound around an outer periphery thereof for reinforcement.

The main part of the drive mechanism a is arranged on the lower surface of the lid member 107. The drive mechanism includes a gear assembly comprising a gear 114 mounted on a shaft 113 engaged with a gear 112 mounted on an output shaft of the motor 111, a gear 117 mounted on a shaft 116 and engaged with a gear 115 mounted on the shaft 113 and in parallel with the gear 114, and a gear 119 mounted on the lower end of the core 110 and engaged with a gear 118 mounted on the shaft 116 and in parallel with the gear 117. Thus the



core 110 is rotated through the so-constructed gear assembly on actuation of the motor 111.

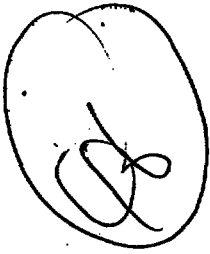
All other aspects of this embodiment may be constructed as is described for the above embodiments.

It is envisaged that the invention is capable of application to functions such as information of a visitor, warning of gas leak and the like other than as a mere knick-knack.



CLAIMS

1. A moveable decoration comprising a power supply to which a sensor switch is connected, a motor connected through the sensor switch to the power supply, a drive mechanism connected to the motor so as to be actuated thereby, and a core in the form of a non-straight wire operatively connected to the drive mechanism for rotation about an axis generally lengthwise of the wire on actuation of the drive mechanism, and a decorative element including a relatively slender hollow elongate flexible member terminating in a relatively bulky head, the wire extending within the hollow member of the decorative element, which member thereby provides a loosely fitting cover for the wire, the cover being fixed against rotation with the wire, such that relative rotation of the wire within the hollow member causes the decorative element to exhibit movements and changes in configuration.
2. A moveable decoration according to claim 1, wherein the power supply, motor and drive mechanism constitute a drive unit, and the core is arranged to extend from the drive unit.
3. A decoration according to any of claims 1-2, wherein said decorative element is imitative of a plant.
4. A decoration according to any of claims 1-2, wherein said decorative element is imitative of a flower.
5. A decoration according to any of claims 1-2, wherein said decorative element is imitative of a doll.
6. A decoration according to any of claims 1-5, wherein the sensor of the sensor switch comprises a sound sensor.



7. A decoration according to any of claims 1-6, wherein the core is connected through a joint to the drive mechanism.
8. A decoration according to any of claims 2-7, wherein the drive unit includes a casing.
9. A decoration according to any of claims 2-8, wherein the drive unit is contained within an outer vessel and isolated from the walls of the vessel by a cushioning member.
10. A decoration according to claim 9, wherein the outer vessel is imitative of a plant pot.
11. A decoration according to claim 9, wherein the cushioning member is formed from a flexible foam material.
12. A decoration according to any of claims 1-7 including a base member supporting the decorative element, and wherein the drive mechanism is housed within a hollow portion of the decorative element.
13. A decoration substantially as hereinbefore described, with reference to Figs. 1 to 14 of the drawings.
14. A decoration substantially as hereinbefore described, with reference to Figs. 14 to 16B of the drawings.
15. A decoration substantially as hereinbefore described, with reference to Figs. 14, 17A and 17B of the drawings.
16. A decoration substantially as hereinbefore described, with reference to Figs. 14 and 18 of the drawings.



17. A decoration substantially as hereinbefore described,
with reference to Figs. 14 and 19A to 20 of the drawings.
