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(54) Title of the Invention: **Bird decoy unit**
 Abstract Title: **Rotating Bird decoy**

(57) A decoy bird unit 10 that comprises a base 12 and at least one decoy bird 16. The decoy bird is operatively connected to the base and moves in a circular path with respect to the base. The decoy bird also moves in an upwards and downwards direction with respect to the base during its rotation. The base may include a mounting plate (24 figure 4) to which at least one arm 14 is attached and the one decoy bird may be mounted upon the arm. The at least one arm may be pivotally attached to the mounting plate to allow the up and down movement. The base may include wedge shaped lifts (18 figure 6) spaced about the base that cause the arms to move upward and then downward as the arms are moved in rotation about the base. The decoy birds may have flexible and lightweight wings (30 figure 9).

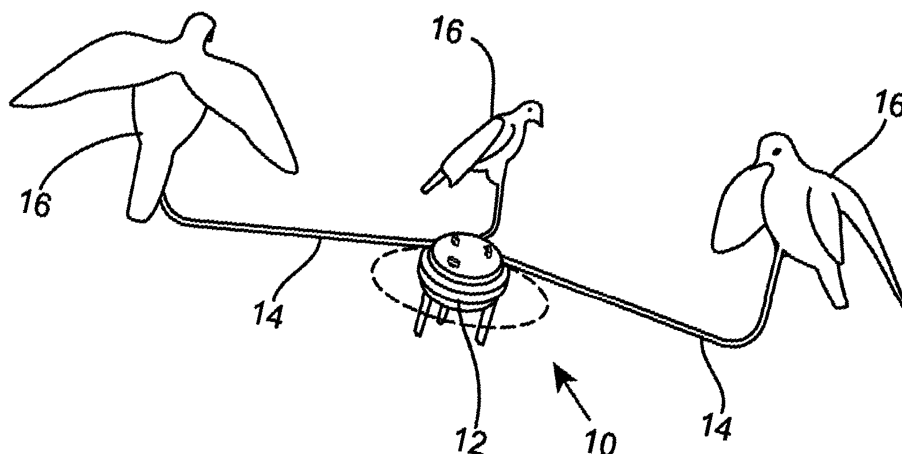


FIG. 1

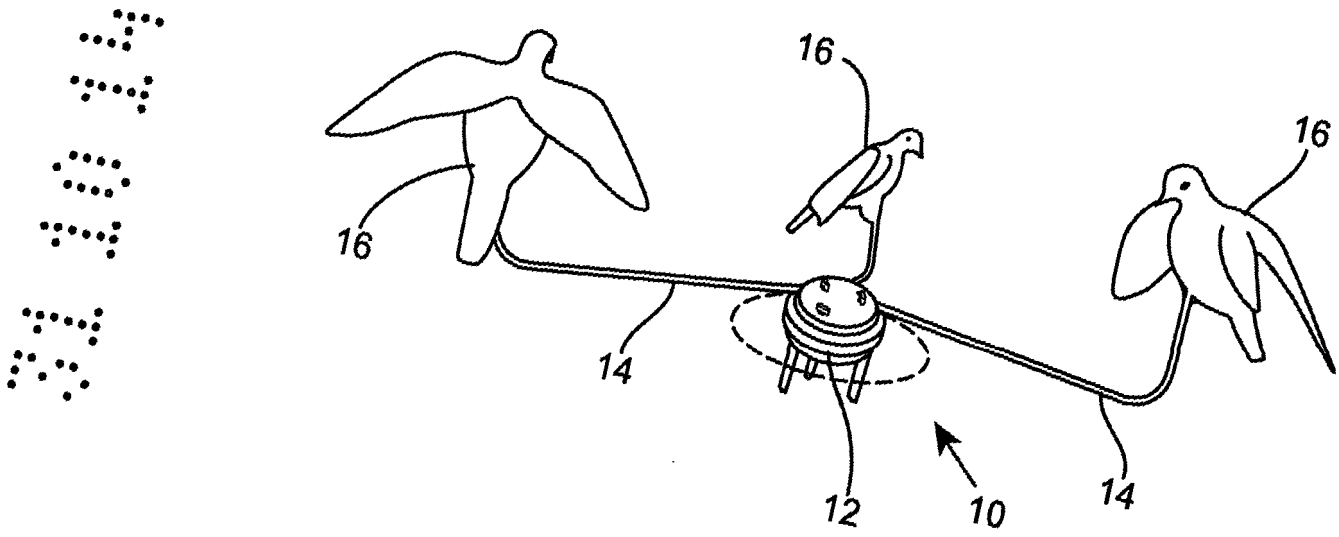


FIG. 1

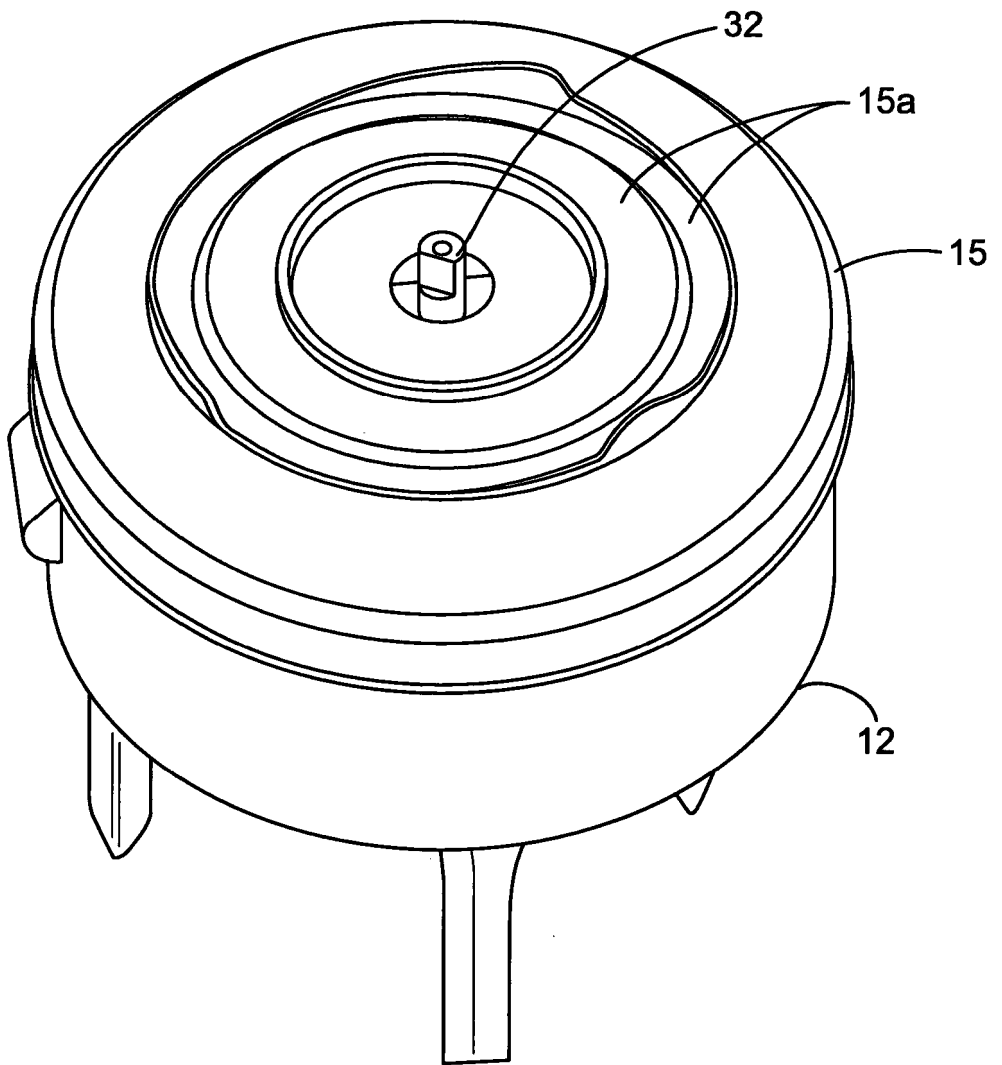
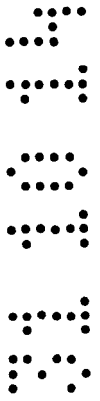


FIG. 2



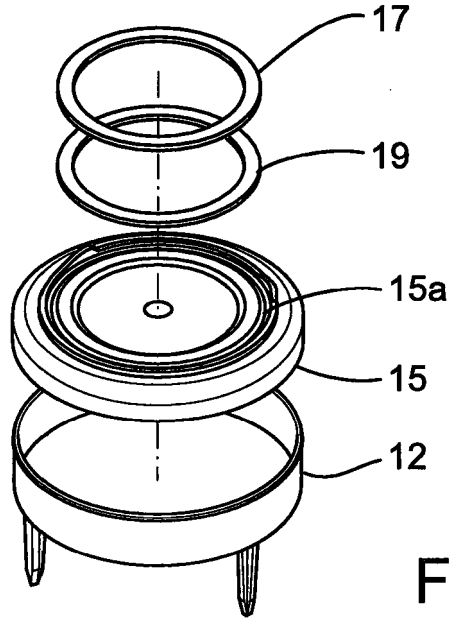


FIG. 3

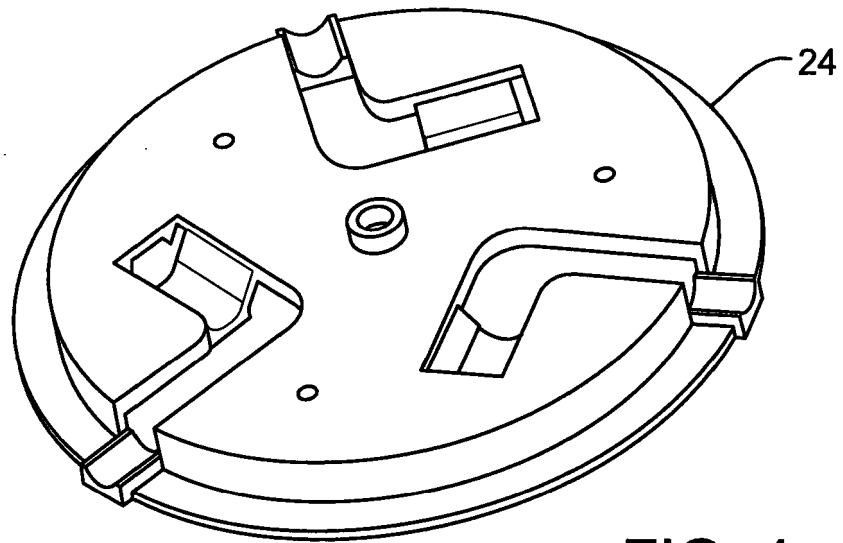


FIG. 4

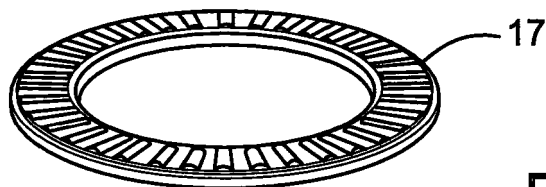
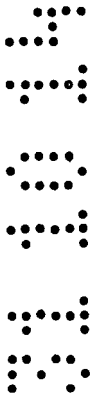


FIG. 5



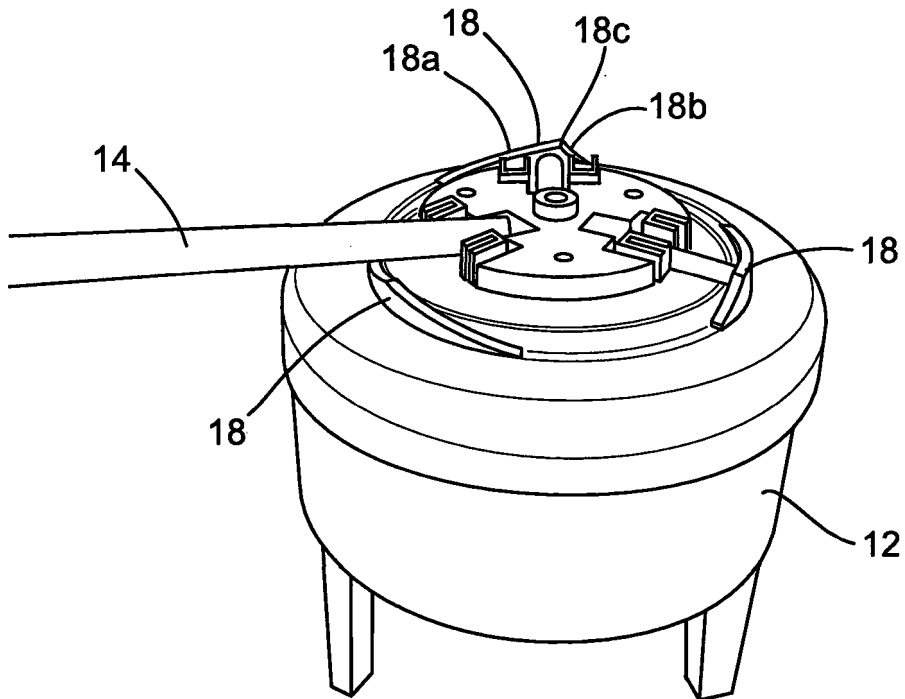
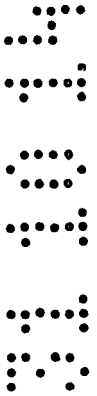


FIG. 6



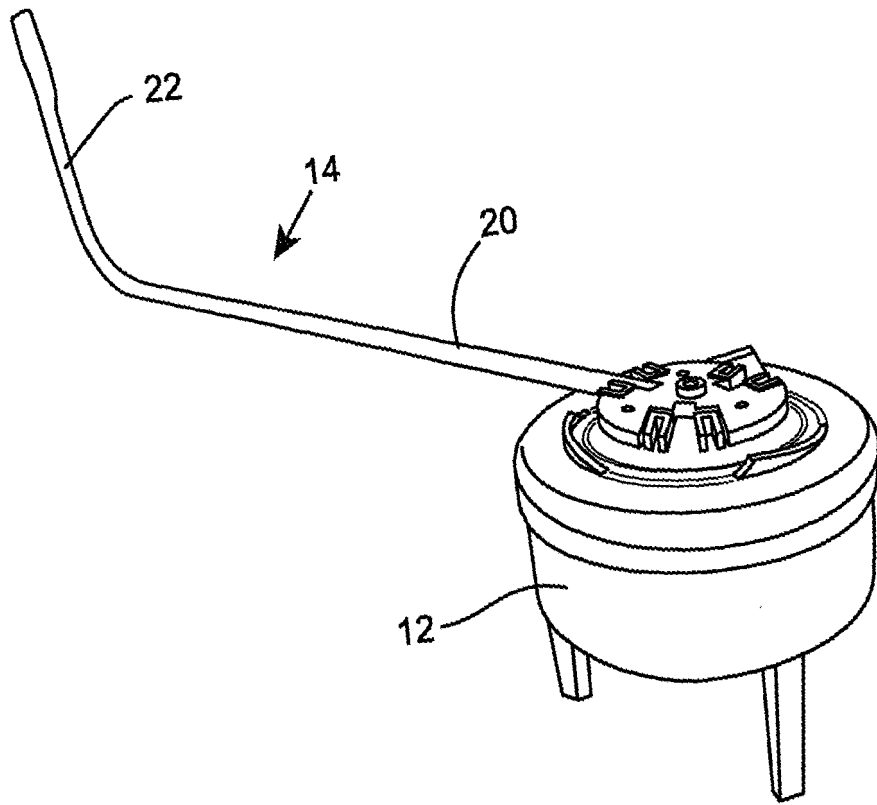


FIG. 7

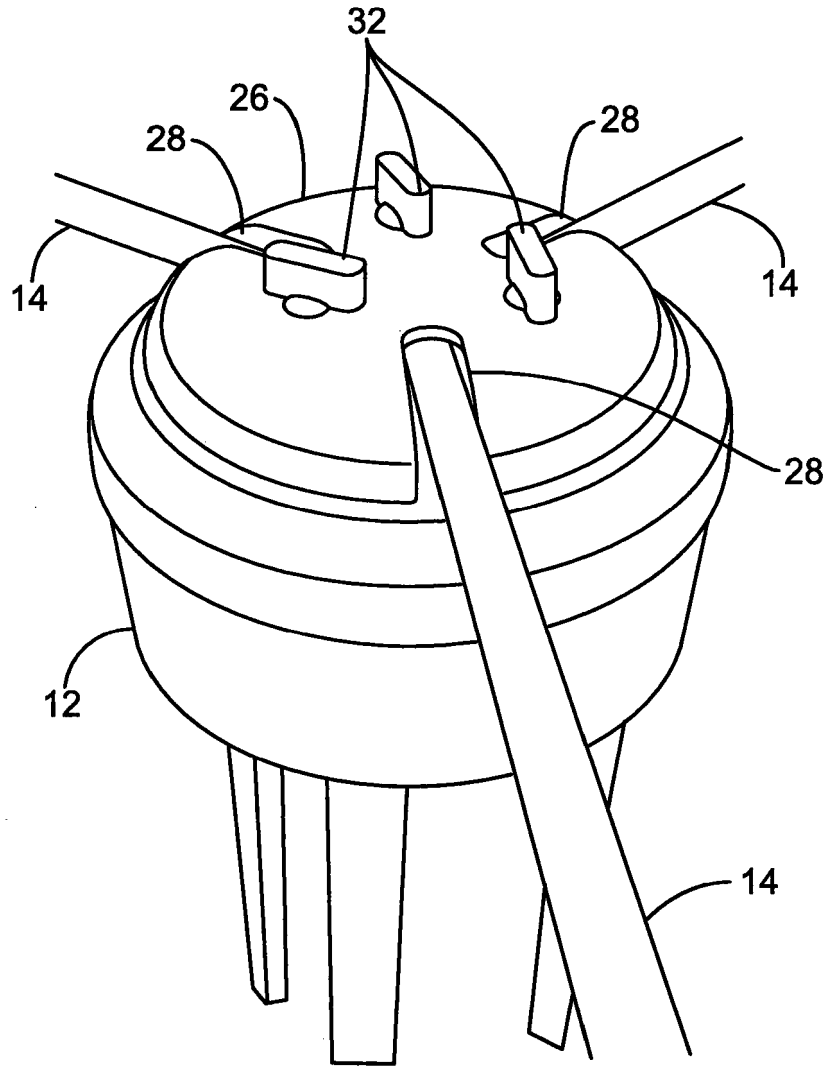
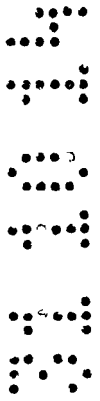


FIG. 8



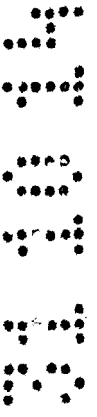
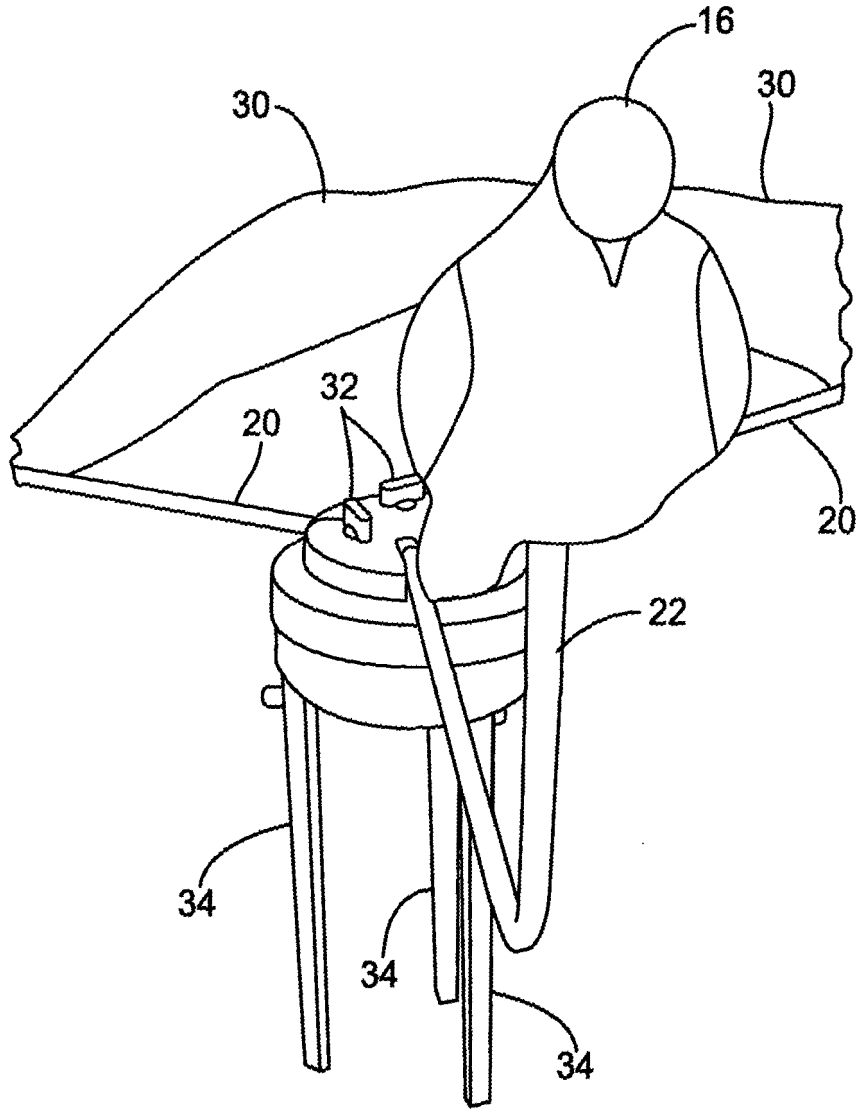


FIG. 9

BIRD DECOY UNIT

This present invention relates to decoy devices, apparatus and methods for use in hunting, and more particularly, to a bird decoy unit, which is especially useful in hunting birds.

5

Decoying can be done with a surprising variety of birds. It works well with most species that fly to and from feeding, roosting, and watering sites. Ducks and geese are most commonly associated with this style of hunting, but many other birds can be taken with the use of decoys. Regardless of the bird species being pursued, using decoys to attract birds is executed much the same way. First, decoys are deployed in a location being used or frequented by the species sought. Hunters then conceal themselves nearby, within shotgun range of the decoys, and take birds as they approach the decoy spread. Use of decoys often is coupled with calls or other means of attracting birds.

15 Of course, the effectiveness of a decoy bird depends upon the attractiveness of the decoy to the birds. Many efforts have been made to provide decoys with improved effectiveness. These efforts include making decoy birds actively simulate the motion of birds. However, many of these active simulations do not accurately reproduce the activity of real birds and further improvement is needed.

20

Decoy systems for use in hunting have been disclosed with a rotating base with arms holding decoy birds. However, prior decoy systems with a rotating base and arms holding decoy birds do not mimic birds feeding on the ground through upward and downward movement and combined with flapping wings. A need exists to accomplish a more lifelike representation of

birds that mimics their activity while feeding through providing a rotating system with up and down movement of the decoy birds and flapping of wings.

According to a first aspect of the invention, there is provided a decoy unit for birds
5 comprising a base and at least one decoy bird, wherein the at least one decoy bird is operatively connected to the base such that the at least one decoy bird moves in a substantially circular path with respect to the base, and wherein the at least one decoy bird moves in an upward and/ or downward direction with respect to the base during rotation to mimic a feeding movement of the birds.

10

Preferably, the decoy unit comprises at least one arm. In one embodiment, the decoy unit comprises three arms.

Preferably, the base comprises a mounting plate, wherein the at least one arm is attached to
15 the mounting plate, and wherein the decoy unit is adapted to move the at least one arm in an upward and/ or downward direction with respect to the base.

Preferably, the at least one decoy bird is attached to the at least one arm, wherein movement
of the at least one arm and therefore the at least one decoy bird in an upward and/ or downward
20 direction with respect to the base simulates the feeding movement of the birds.

Preferably, the at least one arm is pivotally attached to the mounting plate via a horizontal axis, wherein rotation of the at least one arm causes the at least one decoy bird to move in an upward and/ or downward direction.

Typically, the at least one decoy bird moves in a circular pattern. Such circular rotation of the decoy bird advantageously mimics the activity of the birds.

5 In one embodiment, the at least one decoy bird is positioned such that the head of the decoy bird faces the direction of rotation. In one embodiment, the at least one decoy bird rotates in a clockwise direction with respect to the base. In another embodiment, the at least one decoy bird rotates in a counter- clockwise direction with respect to the base.

10 Preferably, the at least one arm is detachably connected to the base. Preferably, the at least one arm is detachably connected to the mounting plate of the base. Such detachable connection of the at least one arm to the base allows the at least one arm to be removed from the base, for example, during transport of the decoy unit.

15 Preferably, the base comprises a base cap. Preferably, the base and/ or base cap comprise a plastics material. Preferably, the mounting plate comprises metal.

Preferably, the at least one arm comprises a first member which extends substantially horizontal to the upper surface of the base and a second member which extends substantially
20 perpendicular to the first member. Preferably, the first member may be attached to the base, and the second member may be attached to a decoy bird. Preferably, a proximal end of the first member may be attached the base and a distal end of the second member may be attached to the decoy bird. Such arrangement of the first and second member of the at least one arm with

respect to the base advantageously assists in rotation of the decoy unit with respect to the base in a way that mimics the feeding movement of the birds.

Preferably, the at least one arm comprises a receiver to facilitate attachment of the at least one decoy bird to the at least one arm. Preferably, the receiver is provided at the distal end of the second member of the at least one arm. Preferably, the second member is attached to the base of the at least one decoy bird.

In a preferred embodiment, the base comprises at least one wedge member to facilitate upward and downward movement of the at least one arm with respect to the base. Typically, the at least one wedge member is provided on the mounting plate of the base and extends substantially perpendicular to the upper surface of the base. In one embodiment, at least two wedge members are provided, wherein the wedge members are spaced apart on the upper surface of the base such that they assist in the periodic lifting and lowering of the at least one arm and thus the at least one decoy bird. Advantageously, the at least one wedge member assists in the upwards and/or downwards movement of the at least one arm and thus the at least one decoy bird in a way that imitates the natural movement of a bird during feeding. In one embodiment, the wedge member comprises an apex, wherein the angle of the wedge member on either side of the apex allows provides a gradual slope. In another embodiment, the angle of the wedge member on one side of the apex allows provides a gradual slope and the angle on the other side of the apex provides a slope having a sharper gradient. Advantageously, the sharp gradient causes the wings of the decoy to flap as the wings fall against the air pressure.

Preferably, the base comprises a motor to drive rotation of the mounting plate. In one embodiment, the base comprises a battery operated motor. In another embodiment, the base comprises an electric motor, or another motor suitable for driving rotation of the mounting plate.

5

Preferably, the at least one arm is directly mounted on a motor shaft. Preferably, the at least one arm is arranged to be mounted rotationally about an axis offset but parallel to the motor axis. Advantageously, the relative rotational speed of the at least one arm may be adjusted using a gear train ratio.

10

In a preferred embodiment, the decoy bird comprises at least one wing. Preferably, the at least one wing moves with respect to the body of the decoy. Preferably, the at least one wing is provided such that it flaps when the at least one decoy bird is moved in an upwards and/ or downwards direction with respect to the base, thus further enhancing the appearance of natural movement in the decoy bird.

15

In an alternative embodiment, the base is attached to a floating platform, wherein movement of the at least one decoy bird with respect to the base imitates the movement of birds on water. In this embodiment, the at least one arm is positioned such that the second member points in a downward direction. Typically, the second member is attached to a keel via a receiver. Advantageously, in this arrangement, the bird decoy unit imitates the movement of birds swimming in water, for example, in a circular motion.

20

In one embodiment, the decoy unit comprises three arms configured to support three decoy birds. Preferably, the three arms are spaced apart at substantially equidistant positions with respect to one another.

5 Preferably, the decoy unit may be used for birds and/ or fowl, including crows and/ or ducks. In another embodiment, the decoy unit may be used for any bird species for which shooting is permissible by law. In particular, the decoy unit has been found to be effective in decoying woodpigeon and corvids such as rooks, crows and magpies.

10 According to a second aspect, there is provided a method of manufacturing a decoy unit according to the first aspect.

 According to a third aspect, there is provided a method of decoying birds comprising use of a decoy unit as set out hereinabove.

15 Accordingly, the overall objective of this invention is to provide a decoy unit for birds in which the birds rotate on a base and move upward and downward to mimic a feeding motion of birds.

20 It is another objective of this invention to provide a rotational base for rotating arms to attach that is adapted to move the arms upward and downward.

Yet another objective of this invention is to attach decoy birds to the arms of the device and move the arms upward and downward during rotation so that the decoy birds simulate feeding movement.

5 Yet another objective of the invention is to cause the upward and downward movement by incorporating wedge members for lifting the arms periodically during rotation around the base.

The invention will be further described by way of example, with reference to the following
10 drawings and figures, in which:

Figure 1 is a perspective view of an embodiment of the bird decoy unit of the present invention;

Figure 2 is a perspective view of the base of the decoy unit of Figure 1;

Figure 3 is a schematic view of the base of the decoy unit of Figure 1;

15 Figure 4 is a perspective view of the mounting plate of the decoy unit of Figure 1;

Figure 5 is a perspective view of a bearing of the decoy unit of Figure 1;

Figure 6 is a perspective view of a base used with the bird decoy unit of Figure 1;

Figure 7 is a perspective view of a base and arm used with the bird decoy unit of Figure 1;

Figure 8 is a further perspective view of a base and arms used with the bird decoy unit of Figure

20 1; and

Figure 9 is a further perspective view of a base, arms and a decoy bird used with the bird decoy unit of Figure 1;

The following description is intended to provide the reader with a better understanding of the invention. The description is not intended to be limiting with respect to any element not otherwise limited within the claims.

5 The present invention relates to a decoy unit 10 for birds comprising a base 12 and at least one decoy bird 16, wherein the at least one decoy bird is operatively connected to the base such that the at least one decoy bird moves in a substantially circular path with respect to the base, and wherein the at least one decoy bird moves in an upward and/ or downward direction with respect to the base during rotation to mimic a feeding movement of the birds.

10

The present invention relates to a bird decoy unit to assist a hunter in outwitting birds and fowl. The bird decoy unit is suitable for a variety of birds and fowl and can be adapted to comprise decoy birds formed as a particular type of bird. The bird decoy unit is arranged in the embodiment shown (for example, in Figure 1) for the decoy birds to rotate on a base and move
15 upward and downward to mimic the lifelike movement of birds during feeding.

Figure 1 shows an embodiment of the bird decoy unit 10 with a base 12 incorporating a battery operated motor, electric motor, or other motor to drive rotation of the base. A battery may be provided within a compartment within the base, and may be used to provide power to
20 drive the motor. The motor operates to turn a mounting plate 24 on a portion of the base to which the arms 14 are attached. The decoy bird will generally face the direction of rotation and rotate accordingly clockwise, or if modified, counter-clockwise. Figure 1 shows a typical configuration of the bird decoy unit 10 comprising three decoy birds 16 attached as satellites of

the hub to the arms. The arms will rotate these three decoy birds around the hub in a circular pattern.

As shown in Figure 2, preferably, the at least one arm 14 is directly mounted on a motor shaft 32. Preferably, the at least one arm is arranged to be mounted rotationally about an axis offset but parallel to the motor axis. Advantageously, the relative rotational speed of the at least one arm may be adjusted using a gear train ratio. Typically, the motor comprises a square sided shaft 32 which extends in an upward direction from the motor. The mounting plate 24 is preferably attached to the shaft 32 via a screw, such as a hex head screw. Preferably, the base 12 includes a washer 19 and thrust bearing 17. Preferably, the washer 19 and thrust bearing 17 are inserted within a groove 15a positioned on the upper surface of the base cap 15. Preferably, the mounting plate 24 is placed on top of the thrust bearing 17. Advantageously, this arrangement ensures rotation of the mounting plate 24 on a set of bearings and not against the upper surface of the base cap 15. Figure 2 illustrates the base 12 of the decoy unit 10, and a shaft 32 of the motor. The arrangement of the base 12 of the decoy unit is shown in Figure 3, wherein the base comprises a base cap 15 and wherein a bearing 17 and washer 19 are positioned within grooves 15a provided within the surface of the base cap. The mounting plate 24, as shown in Figure 8, is then positioned on top of the thrust bearing 17, as illustrated in Figure 5. Preferably, the mounting plate 24 comprises metal. Preferably, the base 12 and/ or base cap 15 comprises a plastics material.

Figure 6 illustrates the base 12 of the decoy unit in which arm 14 is detachably connected to the base. In the embodiment shown, the base includes three wedge shaped flanges forming lifts 18, also referred to as risers, that extend substantially perpendicular to the top surface of the

base. The lifts are spatially separated on the top surface of the base to provide for periodic lifting and lowering of the arms and the rotating portion of the base moves the arms in a circular motion. Each lift includes a gradual rise in the surface of the wedge shape 18a thereof so as to cause the arm to move upward away from the surface of the base. After the apex of each lift 18, a gradual
5 declining surface 18b is provided to lower the arm as rotation of the rotation member of the base continues to move the arms. Thus, the lifts cause the arms to create an up and down motion when rotated in a circular pattern. This vertical movement imitates the natural movement of birds jumping around feeding on the ground, or in the water. The bird decoy unit can be equipped with winged decoys that flap when the up and down motion is achieved by rotation of
10 the arms, thus further enhancing the appearance of natural movement in the decoy birds.

In one embodiment, the wedge member comprises an apex 18c, In another embodiment, the angle of the wedge member on one side of the apex allows provides a gradual slope and the angle on the other side of the apex provides a slope having a sharper gradient. Advantageously,
15 the sharp gradient causes the wings of the decoy to flap as the wings fall against the air pressure.

Figure 7 shows an arm 14 of the decoy unit. The arm 14 includes an elongate horizontal member 20 connected to the base in a generally horizontal position, subject to upward and downward movement thereof. The arm further includes a vertical member 22 formed of a bend,
20 wherein the vertical member is substantially perpendicular to the horizontal member. The connection of the horizontal member 20 to the base 12 causes the vertical member 22 to orient in an upward direction to support the decoy birds 16. The distal end of the vertical member includes a receiver, which allows for attachment of the decoy bird to the arm.

Figure 8 shows the arms 14 of the decoy unit connected to the mounting plate 24 of the base 12. In this embodiment, three arms are spaced at substantially equidistant positions to support three decoy birds 16. The arms are hinged within the mounting plate 24. The mounting plate 24 includes open slots 28 in the cover 26 to allow upward and downward movement of the arms as the rotation of the mounting plate moves the arms across the lifts 18. The arms are attached by removing three locking screws 32 from the cover 26 of the mounting plate or carousel. The cover is removed by pulling upwards, and a pin on the end of each horizontal member of the arms 14 is inserted into the slot provided on the carousel. Each arm is pulled forward until it snaps into position, and this method is repeated for each arm until all three of the arms are installed. The cover 26 is replaced and attached to the base by the locking screws 32.

In an alternative embodiment, the arms 14 can be turned upside down on the base unit so that the vertical member 22 points in a downward direction. The base unit may be attached to a floating platform. The vertical member 22 may then be attached to a keel via a receiver. In this arrangement, the bird decoy unit can imitate birds swimming in a circular motion in the water.

Figure 9 shows the bird decoy unit comprising a decoy bird 16. The decoy bird shown is formed as a woodpigeon, although the decoy bird may be formed as other birds and fowl, such as crows and ducks. In the embodiment wherein the decoy is provided in the form of a woodpigeon, the decoy comprises flexible and lightweight wings 30 that attach to the top of the decoy bird 16. The wings 30 move relative to the body of the decoy 16. A die cut hole in each wing is placed over top of the decoy bird. The front edge of the hole is inserted into an open slit provided within a tab (such as a hanger tab) provided on the top of the decoy bird. A snug fit for

the wing is provided by lifting up slightly on the back of the wing and pulling it firmly backwards until the hole fits perfectly over the hanger tab. This is repeated for each wing 30.

With respect to the embodiment shown in Figure 9, and each decoy bird 18, is attached to
5 the vertical member 22 of the arm 14 by inserting a tip of the rotating arm into a hole provided in
the bottom of the body of the decoy bird 16 by applying pressure. Extension legs 34 are
typically attached to stubs provided on the base 12 to allow for additional height of the bird
decoy unit where needed. Once the bird decoy unit is installed firmly into the ground at the
desired location, the power to the motor is turned on to begin the decoying action.

10

While specific embodiments are described in the present disclosure, those who are skilled
in the art may make various other changes and modifications without departing from the scope of
present invention.

15

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CLAIMS

1. A decoy unit for birds comprising a base and at least one decoy bird, wherein the at least one decoy bird is operatively connected to the base such that the at least one decoy bird moves in a substantially circular path with respect to the base, and wherein the at least one decoy bird moves in an upward and/ or downward direction with respect to the base during rotation to mimic a feeding movement of the birds.
5
2. A decoy unit according to claim 1, wherein the base comprises a mounting plate and at least one arm, wherein the at least one arm is attached to the mounting plate, and wherein the decoy unit is adapted to move the at least one arm in an upward and/ or downward direction with respect to the base.
10
3. A decoy unit according to claim 2, wherein the at least one decoy bird is attached to the at least one arm, wherein movement of the at least one arm in an upward and/ or downward direction with respect to the base simulates the feeding movement of the birds.
15
4. A decoy unit according to claim 2 or 3, wherein the at least one arm is pivotally attached to the mounting plate via a horizontal axis, and wherein rotation of the at least one arm causes the at least one decoy bird to move in an upward and/ or downward direction.
20
5. A decoy unit according to any preceding claim, wherein the at least one decoy bird is positioned such that the head of the decoy bird faces the direction of rotation.

6. A decoy unit according to any preceding claim, wherein the at least one decoy bird rotates in a clockwise or counter-clockwise direction with respect to the base.
- 5 7. A decoy unit according to any one of claims 2 to 6, wherein the at least one arm is detachably connected to the base.
8. A decoy unit according to any one of claims 2 to 7, wherein the at least one arm comprises a first member which extends substantially horizontal to the upper surface of the base and a second member substantially perpendicular to the first member.
- 10 9. A decoy unit according to claim 8, wherein the first member is attached to the base, and wherein the second member is attached to a decoy bird.
- 15 10. A decoy unit according to claim 9, wherein the second member of the at least one arm comprises a receiver provided at the distal end thereof, wherein the receiver facilitates attachment of the decoy bird to the at least one arm.
- 20 11. A decoy unit according to any one of claims 2 to 10, wherein the base comprises at least one wedge member to facilitate upward and downward movement of the at least one arm with respect to the base.
12. A decoy unit according to claim 11, wherein the at least one wedge member is provided on the mounting plate of the base and extends substantially perpendicular to the top surface thereof.

13. A decoy unit according to any preceding claim, wherein the base comprises a motor to drive rotation of the mounting plate.
- 5 14. A decoy unit according to any one of claims 2 to 13, wherein the at least one arm is directly mounted on a motor shaft.
15. A decoy unit according to claim 14, wherein the at least one arm is arranged to be mounted rotationally about an axis offset but parallel to the motor axis.
- 10 16. A decoy unit according to claim 14 or 15, wherein the relative rotational speed of the at least one arm is adjusted using a gear train ratio.
- 15 17. A decoy unit according to any preceding claims, wherein the decoy bird comprises at least one wing.
18. A decoy unit according to any preceding claim, wherein the base is attached to a floating platform, and wherein movement of the at least one decoy bird with respect to the base imitates the movement of birds in water.
- 20 19. A decoy unit according to any one of claims 2 to 18, wherein the unit comprises three arms configured to support three decoy birds.
20. A method of manufacturing a decoy unit according to any one of claims 1 to 19.

21. A method of decoying birds comprising use of a decoy unit according to any one of claims 1 to 19.

5 22. A decoy unit as substantially described herein and with reference to the accompanying drawings.

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15

20



Application No: GB1407866.1

Examiner: Mr Christopher Saul

Claims searched: 1 - 22

Date of search: 12 January 2015

Patents Act 1977: Search Report under Section 17

Documents considered to be relevant:

Category	Relevant to claims	Identity of document and passage or figure of particular relevance
X	1 - 22	JP2003018951 A (YAGUCHI) See WPI Abstract Accession No 2003-496739 and figures
X	1 - 22	JP H06276909 A (MOCHIZUKI) See English language abstract and figures
X	1 - 22	US2008/092427 A1 (BRINT) See paragraphs 10 - 18 and figures
X	1 - 12, 17 - 21	CA2792534 A1 (PETROUNEVITCH) See pages 2, 3 and figures
X	1 - 22	US2775453 A (HANS) See column 1 lines 15 - 58 and figures
X	1, 2	GB2201900 A (WIT) See page 1 line 16 to page 2 line 11 and figures
A	-	US2009/260274 A1 (ROGERS) See paragraphs 10 - 18 and figures

Categories:

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.

Field of Search:

Search of GB, EP, WO & US patent documents classified in the following areas of the UKC^X :

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Worldwide search of patent documents classified in the following areas of the IPC

A01M; A63H

The following online and other databases have been used in the preparation of this search report

WPI, EPODOC



International Classification:

Subclass	Subgroup	Valid From
A01M	0031/06	01/01/2006
A01M	0029/06	01/01/2011