

(19)



Europäisches Patentamt
European Patent Office
Office européen des brevets



(11)

EP 0 699 408 A1

(12)

EUROPEAN PATENT APPLICATION

(43) Date of publication:
06.03.1996 Bulletin 1996/10

(51) Int Cl.⁶: **A47G 33/08**

(21) Application number: **95305662.9**

(22) Date of filing: **14.08.1995**

(84) Designated Contracting States:
**AT BE CH DE DK ES FR GB GR IE IT LI LU MC NL
PT SE**

(72) Inventor: **Wong, Chak Hung,**
Flat C, 22nd Floor, Tower 9
Hong Kong (HK)

(30) Priority: **12.08.1994 US 290042**

(74) Representative: **Waldren, Robin Michael**
MARKS & CLERK,
57-60 Lincoln's Inn Fields
London WC2A 3LS (GB)

(71) Applicant: **Matrix Industries Ltd.**
Kowloon (HK)

(54) An article of ornament

(57) An article of ornament which comprises a body, a motion or sound generator and a solar cell supported by the body, which solar cell is electrically connected to and for driving the motion or sound generator. The arti-

cle of ornament includes holding means which is provided adjacent the solar cell for holding an external light bulb such that the light bulb so held may illuminate and thus energise the solar cell.

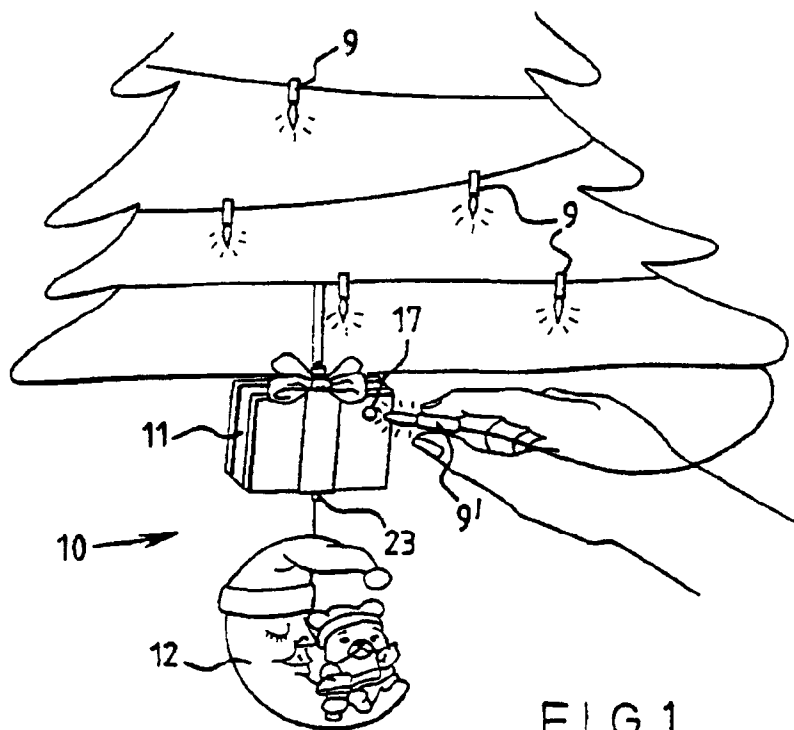


FIG. 1

EP 0 699 408 A1

Description

The present invention relates to an article of ornament for use on a Christmas tree or any other supporting structure having a light source.

SUMMARY OF THE INVENTION

According to the invention, there is provided an article of ornament which comprises a body and a motion or sound generator, characterised in that the article of ornament includes a solar cell supported by the body, said solar cell being electrically connected to and for driving the motion or sound generator, and holding means provided adjacent the solar cell for holding an external light bulb such that the light bulb so held may illuminate and thus energise the solar cell.

Preferably, the holding means is provided by a formation of the body.

More preferably, the formation is in the form of a hole.

Alternatively, the formation may preferably be in the form of a clip.

It is preferred that the body is in the form of an enclosure accommodating the solar cell, said enclosure being adapted for a said light bulb held by the holding means to be inserted into.

Preferably, the motion or sound generator is housed within the body.

The article of ornament may further include a separate body in which the motion or sound generator is housed.

In a specific construction, the motion generator may comprise an electric motor having a driving shaft, a drive output device, and a gear train for transmitting mechanical drive from the motor shaft to the drive output device.

The article of ornament may further include an object to be supported and driven by the drive output device.

In another specific construction, the sound generator may comprise a microprocessor programmed to play a music segment or tune, and a buzzer arranged to be driven by the microprocessor to re-produce the music segment or tune.

The invention will now be more particularly described, by way of example only, with reference to the accompanying drawing.

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 is a perspective view of a first embodiment of an article of ornament in accordance with the invention, showing its use on a Christmas tree;

Figure 2 is an exploded perspective view of a drive unit of the article of ornament of Figure 1;

Figure 3 is a partially broken perspective view of the drive unit of Figure 2;

Figure 4 is a perspective view of a second embodiment of an article of ornament in accordance with the invention, showing its use on a Christmas tree;

Figure 5 is an exploded perspective view of a drive unit and a power supply unit of the article of ornament of Figure 4; and

Figure 6 is a perspective view of the drive unit and the power supply unit of Figure 5.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

Referring firstly to Figures 1 to 3 of the drawings, there is shown a first article of ornament 10 embodying the invention, which article 10 is formed by a drive unit 11 and a moon-shaped object 12 hanging down from the drive unit 11.

The drive unit 11 comprises an open-bottom box-like plastics body 13 and a plastics bottom lid 14 for closing the body 13. An inverted tray 15 is located inside the body 13, which in turn holds therein a solar cell panel 16. On one side of the body 13, the walls of the body 13 and the tray 15 have a pair of aligned holes 17 positioned just below the solar cell panel 16. The tray 15 is closed from below a horizontal mounting plate 18, which supports thereon a DC electric motor 19. The motor 19 is wired to the solar cell panel 16, and has a driving shaft 20 passing downwardly through the mounting plate 18. A pinion 21 is mounted fast on the motor shaft 20.

A horizontal mounting bracket 24 is fixed at a distance below the mounting plate 18, which together rotatably locate therebetween a train of four gears 22 and a gear-toothed hook device 23. The gear train 22 is in mesh at one end with the pinion 21 and at the other end with the hook device 23, for transmitting the motor drive received from the pinion 21 to the hook device 23. The hook device 23 passes downwardly through the mounting bracket 24 and the bottom lid 14. A spring clip 25 is mounted on the mounting bracket 24, which is positioned right next to the aligned holes 17 on the body 13 and the tray 15.

As illustrated in Figure 1, the article of ornament 10 is to be used on a Christmas tree supporting a line of Christmas light bulbs 9. The drive unit 11, which is wrapped up to resemble a gift box, is hanged down from a branch of the Christmas tree, with the hook device 23 pointing downwards and supporting the moon-like object 12.

An adjacent light bulb 9' is inserted into the aligned holes 17 and is held by the spring clip 25 in a position close to the solar cell panel 16.

With the Christmas light bulbs 9 and in particular the light bulb 9' switched on, the solar cell panel 16 generates and supplies electrical power to the motor 19, which in turn sets via the pinion 21 and gear train 22 the hook device 23 into rotation. The moon-like object 12 is thus

turned.

Referring now to Figures 4 to 6 of the drawings, showing a second article of ornament 30 embodying the invention, which is formed by a drive unit 31, a moon-like object 32 hanging down from the drive unit 31, and a power supply unit 33 wired to the drive unit 31.

The drive unit 31 resembles a sphere and has a two-part body 34 which is formed by an upper part 34A and a lower part 34B. A horizontal partition 35 is located between the body parts 34A and 34B, which provides a seat for mounting a DC motor 36. The motor 36 has a driving shaft passing downwardly through the partition 35, on which a pinion 37 is mounted fast. A mounting plate 38 is fixed at a distance underneath the partition 35, between which a gear 39 is rotatably located in mesh with the pinion 37. The gear 39 extends downwards through the mounting plate 38. Two additional gears 40 and a gear-toothed hook device 41 are rotatably located between the partition 38 and the lower body part 34B, which are sequentially in mesh one with another. The gears 39 and 40 form a gear train for transmitting the motor drive received from the pinion 37 to the hook device 41. The hook device 41 passes downwardly through the lower body part 34B.

The power supply unit 33 has a flat rectangular plastics body 42 which is formed by a tray-like base 42B and a transparent top lid 42A and holds therein a solar cell panel 43. At one end of the base 42B, an integral U-shaped holder 44 is formed, which is provided at a level just above the lid 42A when the lid 42A is put in place. The back (bottom side) of the base 42B is provided with a spring-biased clip 45.

In use, as shown in Figure 4, the drive unit 31 is hanged down from a branch of a Christmas tree decorated with a line of Christmas light bulbs 29. The moon-like object 32 is supported on the hook device 41. The power supply unit 33 is clipped onto an adjacent branch.

A light bulb 29' nearby is inserted into the holder 44 of the power supply unit 33, as illustrated in Figure 6, which holds the light bulb 29' immediately above the transparent lid 42A in order for the light bulb 29' to illuminate the solar cell panel 43 below. The solar cell panel 43 operates to generate and supply electrical power to the motor 36, which in turn drives and rotates the hook device 41 and hence the moon-like object 32.

Comparing the two articles of ornament 10 and 30, it will be appreciated that the motor/gear mechanism and the solar cell panel do not necessarily have to be housed in the same body. Also, the light bulb concerned can be located either inside or outside the body.

It is envisaged that the idea of making use of power from a readily available nearby light source by means of a solar cell, as in accordance with the invention, may be applied to the driving of a sound generator for use on a Christmas tree or any other supporting structure having a light source.

The sound generator may incorporate a microproc-

essor programmed to play a music segment or tune and a piezoelectric buzzer connected to the output of the microprocessor for re-producing the music segment or tune under the control of the microprocessor. Such a sound generator is generally known as in existing music greeting cards. The electronic circuitry of the sound generator may be placed in the same manner as the drive units or motion generators of the embodiments described in detail above.

The invention has been given by way of example only, and various other modifications of and/or alterations to the described embodiments may be made by persons skilled in the art without departing from the scope of the invention as specified in the appended claims.

Claims

1. An article of ornament comprising a body and a motion or sound generator, characterised in that the article of ornament includes a solar cell supported by the body, said solar cell being electrically connected to and for driving the motion or sound generator, and holding means provided adjacent the solar cell for holding an external light bulb such that the light bulb so held may illuminate and thus energise the solar cell.
2. An article of ornament as claimed in claim 1, characterised in that the holding means is provided by a formation of the body.
3. An article of ornament as claimed in claim 2, characterised in that the formation is in the form of a hole.
4. An article of ornament as claimed in claim 2, characterised in that the formation is in the form of a clip.
5. An article of ornament as claimed in claim 1, characterised in that the body is in the form of an enclosure accommodating the solar cell, said enclosure being adapted for a said light bulb held by the holding means to be inserted into.
6. An article of ornament as claimed in claim 1, characterised in that the motion or sound generator is housed within the body.
7. An article of ornament as claimed in claim 1, further including a separate body in which the motion or sound generator is housed.
8. An article of ornament as claimed in claim 1, characterised in that the motion generator comprises an electric motor having a driving shaft, a drive output device, and a gear train for transmitting mechanical drive from the motor shaft to the drive output device.

9. An article of ornament as claimed in claim 8, further including an object to be supported and driven by the drive output device.

10. An article of ornament as claimed in claim 1, characterised in that the sound generator comprises a microprocessor programmed to play a music segment or tune, and a buzzer arranged to be driven by the microprocessor to re-produce the music segment or tune.

5

10

15

20

25

30

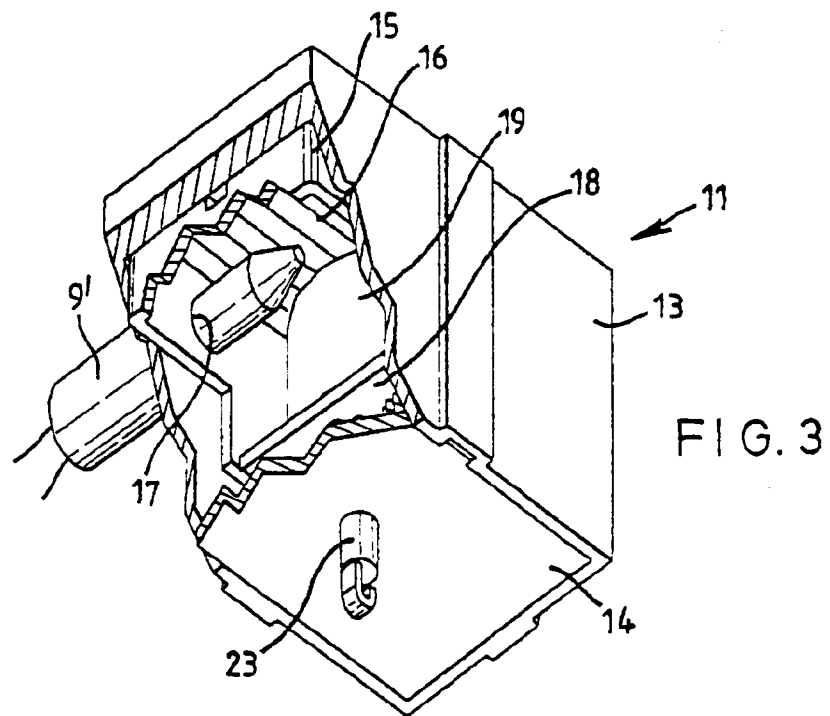
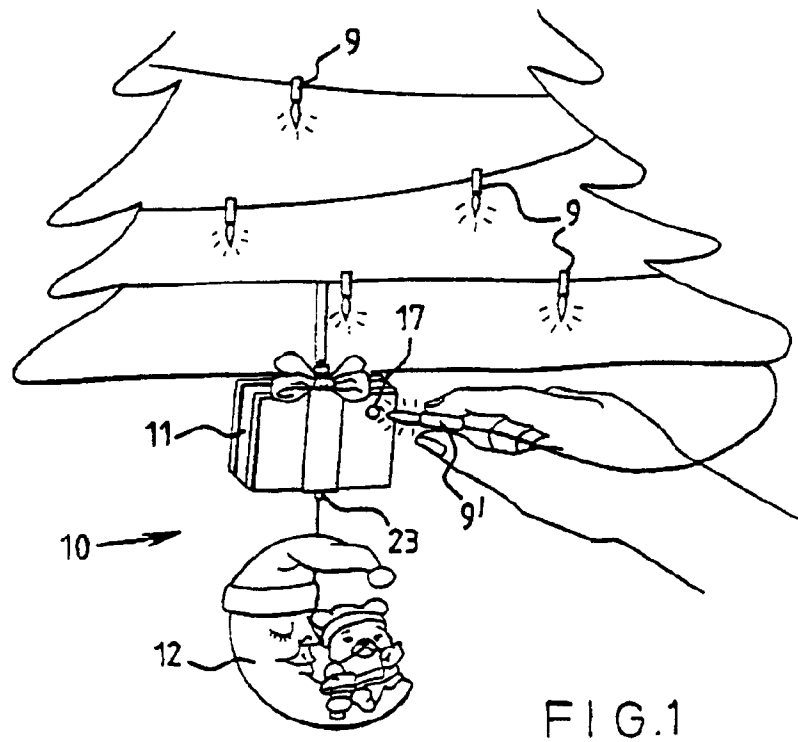
35

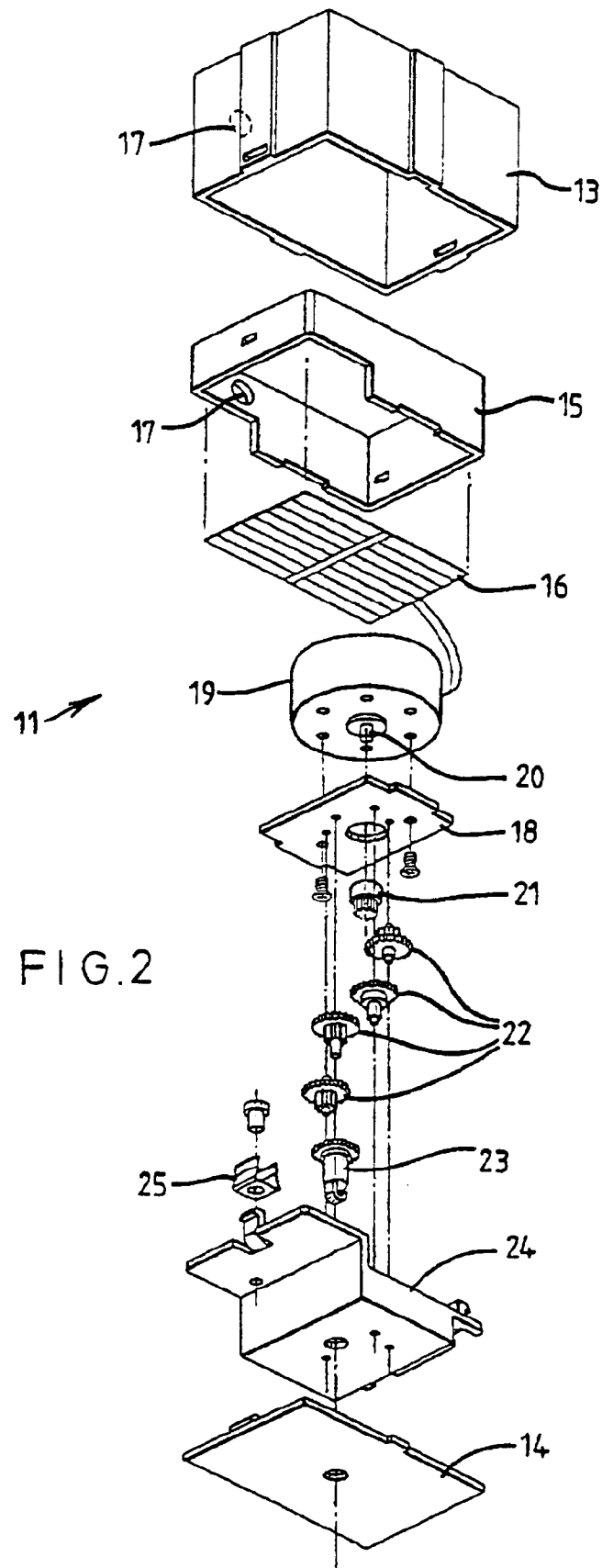
40

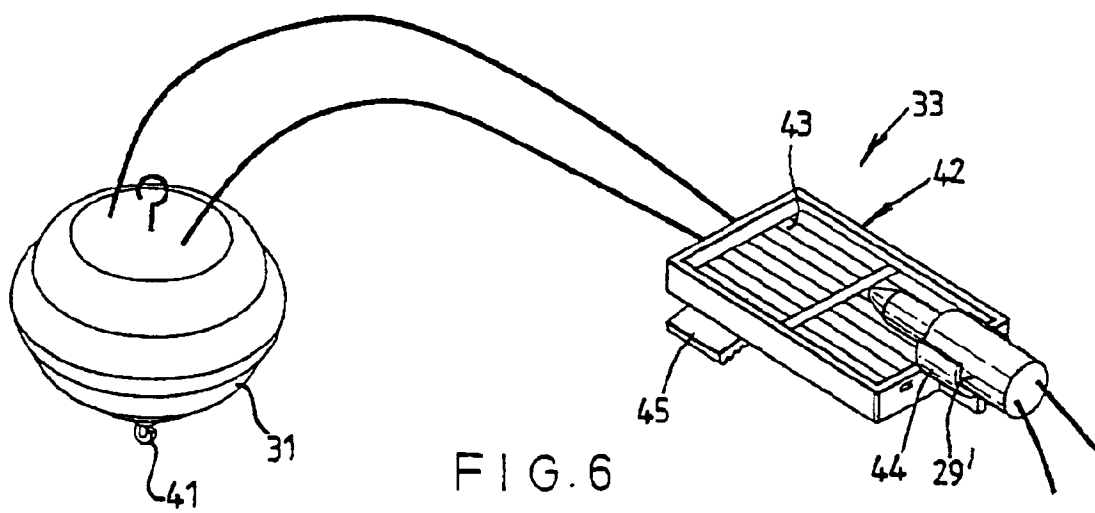
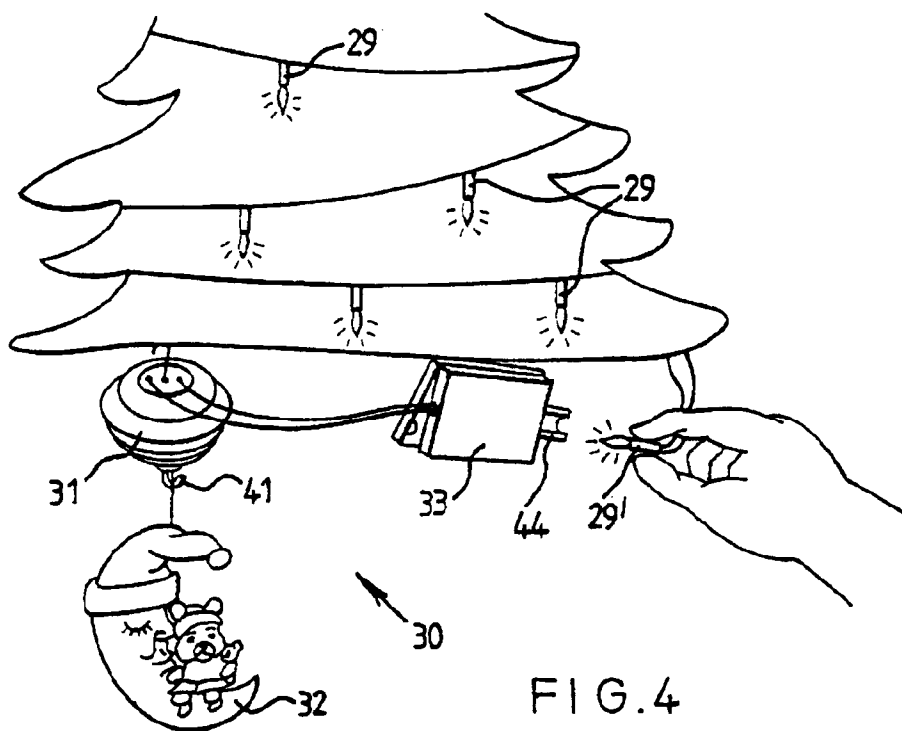
45

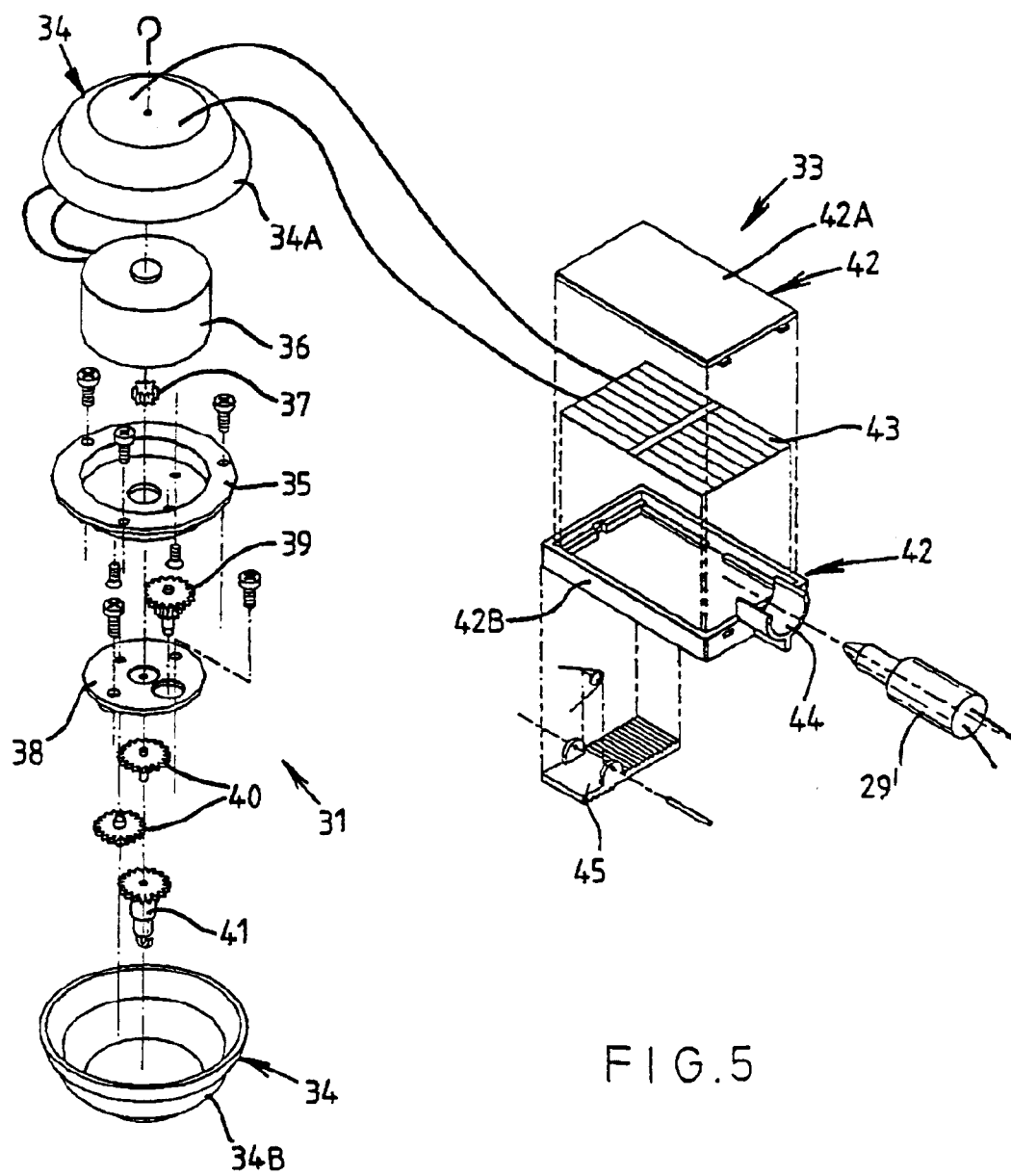
50

55











European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 95 30 5662

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
A	GB-A-2 209 309 (FRESHFORD LTD.) * page 9, line 13-22; figure 5 * ---	1	A47G33/08
A	US-A-4 923 721 (GILMORE) * figures 1-3 * ---	1	
A	EP-A-0 357 422 (MORRISON) * figure 2 * ---	1	
A	US-A-5 034 658 (HIERING ET AL.) * claim 21 * -----	1	
			TECHNICAL FIELDS SEARCHED (Int.Cl.6)
			A47G
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 20 November 1995	Examiner Beugeling, G.L.H.
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

EPO FORM 1503 01.92 (P04 C01)