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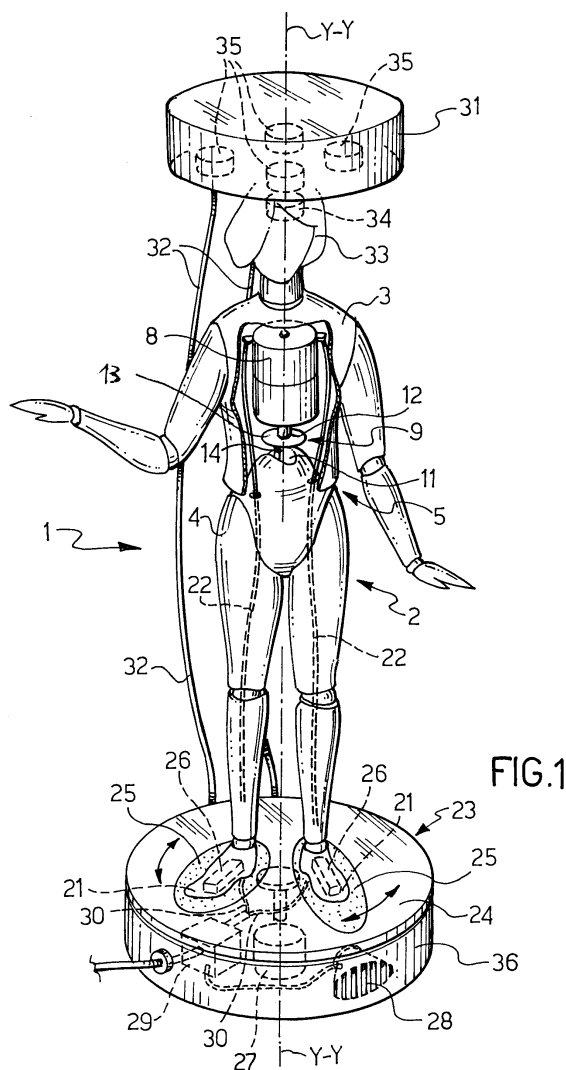
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(54) Toy comprising a self-moving toy-figure

(57) A toy comprises a toy-figure (2) having a structure formed by two parts (3, 4) connected together by a joint (5) in such a way as to be capable of relative motion, an assembly for articulating the two parts (3, 4) of the toy-figure (2) upon activation of an electric motor (8), a microphone (28) for detecting a sound signal and command and control means (29) for generating a supply signal so that the motor (8) is supplied as a function of the detected sound signal.



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Description

[0001] In a more general aspect the present invention relates to a toy comprising a self-moving toy-figure having at least two parts connected together by a joint in such a way as to be capable of relative motion, that is to say they are articulated.

[0002] In a further aspect, the present invention also relates to an assembly for animating two parts of a toy-figure connected together in such a way as to be capable of relative motion.

[0003] Within the scope of the present description the term "toy-figure" is intended to denote both toy-figures having the resemblance of a human being or living creature in general, such as a doll or animal, and other kinds, for example a marionette, a dummy and so forth.

[0004] In order to simplify the account, the present description is provided non-limitingly with particular reference to a doll.

[0005] In the matter of toys there is a well-known need to succeed in producing articulated toy-figures having similarities to human beings or living creatures in general, especially as regards their ability to move. In particular there is an insistent demand for toy-figures, such as a doll, capable of executing a series of graceful and non-repetitive movements such as to appear to be spontaneous. In other words there is a desire to get the abovementioned toy-figures to move in a manner that resembles as closely as possible the movements of an animate being imitated by such toy-figures.

[0006] The motivation behind the abovementioned needs is the pleasure consumers find in these toy-figures and consequently the large demand for them.

[0007] It is relevant here to point out that the articulated toy-figures currently present on the market are incapable of the autonomous execution of any movement other than repetitive movements because these toy-figures are equipped with mechanisms, usually spring-operated, which can only cause the toy-figures to make repetitive movements with a jerky and hence ungraceful action, most unlike the fluid and graceful actions of a live creature.

[0008] The problem addressed by the present invention is how to devise a toy comprising a self-moving toy-figure having structural and functional features such as to satisfy the abovementioned demands and at the same time to obviate the problems spoken of with respect to the toy-figures of the prior art.

[0009] This problem is solved in accordance with the matter claimed in Claims 1, 8 and 20.

[0010] Other features and the advantages of the toy comprising a self-moving toy-figure according to the invention will become clear in the description given below of certain preferred embodiments thereof. The description is given by way of non-restrictive indication with reference to the accompanying Figures, in which:

- Figure 1 is a diagrammatic perspective view in partial section of a toy comprising a self-moving toy-figure according to the invention;

- Figure 2 is a side view in partial section of the toy of Figure 1;

- Figure 3 is a perspective view of a detail of the toy-figure of Figure 1;

- Figure 4 is a perspective view in partial section of a detail of a toy-figure of a toy according to an alternative embodiment of the invention,

- Figure 5 is a simplified top view of a detail from Figure 4, and

- Figure 6 is a partially sectioned view of a detail of a toy according to a further alternative embodiment of the invention.

[0011] With reference to Figures 1 to 3, the number 1 is a general reference for a toy according to the invention comprising a self-moving toy-figure 2 that extends in a predominantly vertical direction Y-Y. In the example the toy-figure 2 takes the form of a doll having a rigid structure composed of plastic shells.

[0012] The toy-figure 2 comprises an upper part 3 corresponding to the bust and a lower part 4 corresponding to the pelvis and legs of the doll. These parts are joined together by a joint 5 so as to be capable of relative motion with respect to one another. In short, the toy-figure 2 is articulated at its central point, which is the waistline of the doll.

[0013] The joint 5 preferably takes the form of a ball joint, or articulated joint that comprises a mushroom head 6 with a spherical cap and a housing 7 with a spherical internal surface. The spherical internal surface is engaged in contact with the spherical cap of the mushroom head 6 so as to embrace it over a large portion of the surface. In the example, the mushroom head 6 is integral with the lower part 4 of the toy-figure 2, while the housing 7 containing the spherical internal seat is integral with the upper part 3 of the toy-figure 2. More precisely, the housing 7 is formed in one piece with the upper part 3 of the toy-figure 2.

[0014] The connection between spherical contact surfaces that is brought about between the spherical cap of the mushroom head 6 and the spherical internal surface of the housing 7 allows the upper part 3 of the toy-figure 2 to be tilted through a predetermined angle with respect to its lower part 4. At the same time the joint 5 prevents the parts 3 and 4 of the toy-figure 2 from being detached from each other.

[0015] The toy-figure 2 advantageously comprises electrically actuated motor means 8 and means 9 for articulating together the upper part 3 of the toy-figure 2 with respect to the lower part 4 upon activation of the motor means 8. These articulating means 9 are housed within the shell defining the structure of the toy-figure 2.

[0016] In the example the motor means 8 take the form of an electric motor/gearbox unit, that is to say an electric motor connected to a speed reducer, and are housed in the upper part 3 of the toy-figure, that is in the

doll's bust, where more room is available. The motor/gearbox unit is so positioned that its output shaft 12 extends along the abovementioned axis Y-Y in the vicinity of the joint 5.

[0017] In a different embodiment not shown in the figures, the electric motor and the speed reducer can be housed in the lower part 4 of the toy-figure 2, in order to lower the centre of gravity of the toy figure 2 and to improve the stability of the toy-figure 2 during its movements. This is the preferred embodiment when the motor means are not bulky and they can be advantageously housed in the lower part 4 of the toy-figure 2. In this way, articulating means for moving other parts of the toy-figure, such as the head or the arms, can be housed in the upper part of the toy-figure, that is the doll's bust. In a preferred embodiment the said articulating means 9 comprise a cam 10 and a cam follower 11 in mutual engagement. In the example, the cam follower 11 is integral with the lower part 4 of the toy-figure 2, while the cam 10 is supported by the upper part 3 of the toy-figure 2 and is connected to the output shaft 12 of the motor/gearbox unit in order that the latter can make it rotate about the vertical axis Y-Y.

[0018] In the example the cam 10 comprises a rotating disc 13 keyed coaxially to the output shaft 12 of the motor/gearbox unit and fitted with a peg 14. The latter extends in the vertical direction Y-Y in an eccentric position with respect to the axis of rotation Y-Y. The cam follower 11 takes the form of a hole in which the peg 14 can be engaged. This hole is formed in the spherical cap of the mushroom head 6 of the ball joint and, in a preferred embodiment, has an elliptical cross section illustrated in Figure 3.

[0019] It will be clear from the above that a rotation of the output shaft 12 of the motor/gearbox unit will cause an eccentric rotation of the peg 14 about the vertical axis Y-Y. During this rotation the peg 14 will interfere with the outer edge of the hole 11, causing one part of the toy-figure 2 to move relative to the other part at the joint 5.

[0020] The reader's attention is drawn to the fact that by altering the outline of the abovementioned hole, i.e. the shape of the cam follower 11, it is possible to obtain a different articulation and hence a different movement between the upper and lower parts 3 and 4, respectively, of the toy-figure 2.

[0021] Figures 4 and 5 refer to a different embodiment of the means 9 for articulating together the upper part 3 of the toy-figure 2 with respect to the lower part 4. In this version the abovementioned articulating means 9 have a magnetic action, in the sense that they interact with each other by magnetic forces of attraction or repulsion. In the example, the articulating means 9 comprise a rotating disc 15 keyed coaxially to the output shaft 12 of the motor/gearbox unit, to which a magnet 16 is fixed eccentrically with respect to the axis of rotation Y-Y. More precisely, the magnet 16 extends in a radial direction X-X with respect to the axis of rotation Y-Y, so that as the shaft 12 rotates, one end 16a of the eccentric

magnet 16 describes a circle 18. A plurality of magnets 19 are fixed on the upper end of the mushroom head 6 of the joint 5. These magnets 19 are arranged in a ring 20 which is concentric with and circumscribes the abovementioned circle 18. The magnets 19 are arranged so that the pole of opposite sign (in the figure the negative pole) to the pole of the end 16a of the eccentric magnet 16 (in the Figure the positive pole) is towards the inside of the ring 20.

[0022] It will be obvious from the above that a magnetic force of attraction is set up between the end 16a of the eccentric magnet 16 and the nearest magnet 19. This will cause the magnets to pull towards each other and therefore tilt the upper part 3 of the toy-figure relative to the lower part 4. It will be obvious from the above that by altering the angular position of the end 16a of the eccentric magnet 16 with respect to the ring 20, i.e. by rotating the magnet 16 around the axis Y-Y, the tilt of the joint 5 is altered, that is to say the upper part 3 is articulated with respect to the lower part 4 of the toy-figure.

[0023] It should be made clear that the positioning of the magnets 19 is such that when the maximum tilt permitted by the joint 5 is reached between the upper part 3 and the lower part 4 of the toy-figure 2, the magnets 19 are still separated by a predetermined distance D (Fig. 5). This ensures that there are no unwanted contacts between the magnets 19 and the end 16a of the eccentric magnet 16, which could otherwise cause irregularities in the movements of articulation between the abovementioned parts 3 and 4 of the toy-figure 2.

[0024] The toy-figure 2 comprises two electrical contacts 21 accessible from the exterior of its structure and connected electrically by wires 22 to the motor means 8. The abovementioned electrical contacts 21 make it possible to send an electrical supply signal to the motor means 8 in order to make them rotate.

[0025] The electrical contacts 21 are preferably positioned at the points of support of the structure of the toy-figure 2, that is to say at the points on which the toy-figure 2 stands when extended vertically in the erect position over a supporting surface. In the example shown in the figure, the toy-figure 2 comprises one electrical contact 21 in the sole of each foot of the doll.

[0026] As Figure 1 shows, the toy 1 comprises a base 23 that comprises a body 36 and a supporting upper table 24 on which the toy-figure 2 is positioned.

[0027] In the supporting upper table 24 are defined two portions 25 capable of supporting the toy-figure 2 at the points of support of its structure, namely the feet of the doll, when the latter is positioned erect on the base 23 (Fig. 1).

[0028] The two portions 25 of the supporting upper table 24 are made of a metallic ferromagnetic material, while the rest of the surface is made of an electrically insulating material such as plastic.

[0029] Advantageously, each of the points of support of the toy-figure 2 comprises a magnet 26 so that a mag-

netic force of attraction is set up between the above-mentioned points of support of the structure of the toy-figure 2 and the portions 25 of the supporting upper table 24, thereby keeping the toy-figure steady in its vertical position on the base 23.

[0030] For reasons which will become clearer in the remainder of the description, the downward-directed poles of both magnets 26 are of the same sign as each other.

[0031] A canopy 31 is supported above the base 23 by two upright rods 32. The toy-figure 2 is thus inserted between the base 23 and the canopy 31. The distance from the canopy 31 to the supporting table 24 is such that the top 33 of the toy-figure 2, that is the head of the doll, is positioned close to the canopy 31 without interfering with it. Magnets marked 34 and 35 are advantageously housed in the top 33 of the toy-figure 2 and in the canopy 31, respectively. These magnets are able to generate a magnetic force of attraction between the top 33 of the toy-figure 2 and the canopy 31 so as to further increase the stability of the toy-figure 2 on the supporting table 24 during the articulation of the joint 5.

[0032] The magnets 35 housed inside the canopy 31 are preferably positioned in a ring so as to circumscribe the magnet 34 contained inside the top 33 of the toy-figure 2.

[0033] In a preferred form of embodiment, the supporting upper table 24 is supported rotatably by the body 36 of the base 23, allowing it to rotate with respect to the body about an axis of vertical rotation coinciding with the axis Y-Y of the toy-figure 2.

[0034] Furthermore, the toy 1 comprises means 27 for limiting the rotation of the upper supporting table 24 with respect to the body 36 of the base 23.

[0035] In the example, these means take the form of a magnet 27 housed inside the base 23 and integral with the body 36 of the latter. The magnet 27 is positioned in such a way as to be situated along the circular path described by the portions 25 of the upper supporting table 24 during the rotation of the table and in such a way that its pole of opposite sign to that directed downwards by the magnets 26 is turned towards the supporting upper table 24. As a consequence of this, when the toy-figure 2 is positioned on the supporting upper table 24 in the manner described above and the supporting upper table 24 is rotated relative to the body 36 of the base, before one of the two magnets 26 arrives above the magnet 27, a magnetic repulsive force is set up between the magnets 26 and 27 acting in a direction such as to reverse the direction of rotation of the supporting upper table 24. In other words, the magnet 27 acts as a magnetic end-of-travel element to the rotation of the supporting upper table 24 with respect to the body 36 of the base 23.

[0036] Since, as will become clearer in the course of the description, the forces acting on the supporting upper table 24 in the appropriate direction to rotate it are very small, the use of magnetic means to limit its rotation

is found to be perfectly satisfactory. Indeed, it should be remembered that use of magnetic means makes it possible not to obstruct in any way the rotation of the supporting upper table 24 other than when it reaches the desired point of maximum rotation.

[0037] It will be obvious, nonetheless, that the limitation of the rotation of the supporting upper table 24 with respect to the body 36 of the base 23 can be achieved in other equivalent ways, for example with a spiral spring attached to the supporting upper table.

[0038] The toy 1 further comprises means 28 for detecting a sound signal and command and control means 29 able to generate a supply signal with which to supply the abovementioned electrically activated motor means 8 as a function of the detected sound signal.

[0039] The output of the command and control means 29 is electrically connected by electric wires 30 to the abovementioned metallic portions 25 of the supporting upper table 24. The supply signal generated in the command and control means 29 therefore travels to the two metallic portions 25. From here, through the electrical contacts 21 positioned in the points of support of the structure of the toy-figure 2 and the electrical wires 22, the abovementioned supply signal is transmitted to the motor means 8 which are thus made to rotate.

[0040] In the example, the abovementioned means for detecting a sound signal take the form of a microphone 28, the electrical signal from which is sent to the command and control means 29 after first being suitably amplified.

[0041] The command and control means 29 comprise:

- a first stage for periodically measuring the strength of the sound signal detected by the microphone 28,
- a second stage for comparing the measured strength of the sound signal with a predetermined threshold value,
- a third stage for actuating, for example via an inverter, the motor means 8 of the toy-figure 2 with a supply signal in order to make them rotate, and
- a fourth stage for reversing the abovementioned supply signal when the measured strength exceeds the threshold value, in such a way as to reverse the direction of rotation of the motor means 8.

[0042] In the electrical connection between the microphone 28 and the command and control means 29, a low-pass filter is preferably connected so that only the low frequencies of the detected sound signal are used when effecting the comparison with the predetermined threshold value.

[0043] The microphone 28 and the command and control means 29 may advantageously be housed inside the base 23.

[0044] The supply to the command and control means 29 may either come from a battery or via connection to mains electricity.

[0045] When the toy 1 is operating, the toy-figure 2 is stood on the supporting table 24 of the base 23 in such a way that the magnets 26 positioned at the points of support of the structure of the toy-figure 2 cling to the portions 25. This also ensures electrical contact between the abovementioned portions 25 and the electrical contacts 21 of the toy-figure.

[0046] As soon as power is supplied to the command and control means 29, for example from an ordinary battery, they generate a supply signal which causes the motor means 8 housed in the upper part 3 of the toy-figure 2, and hence the output shaft 12, to rotate. This activates the articulating means 9, for example the cam 10, which, for the reasons described earlier, results in the articulation of the upper part 3 of the toy-figure 2 with respect to the lower part 4 at the joint 5. In effect, the toy-figure 2 turns about the central point, that is to say about the waistline of the doll.

[0047] When a sound source, such as a radio or tape player in the on condition is placed in the immediate vicinity of the microphone 28, the microphone generates an electrical signal proportional to the sound strength of the signal detected. This signal is filtered in the low-pass filter so that only the low frequencies of the detected sound signal are sent to the command and control means 29. According to the strength of the detected sound signal, the command and control means 29 proceed in the earlier manner described to reverse the supply signal sent to the motor means 8 in such a way as to bring about an inversion of the direction of rotation of the motor means. In essence, the direction with which the toy-figure 2 is rotating about the joint 5 of the central point is reversed. Because the reversal of the supply signal and hence of the direction of rotation of the toy-figure varies with the level of the detected sound, the effect produced is to see the toy-figure moving gracefully in time with the music as if it were dancing. It should be emphasised that the movements of the toy-figure 2 vary with the music picked up by the microphone 28 and are therefore not repetitive. Briefly, the toy-figure 2 executes rotations at a faster or slower speed in response to the music or sounds detected.

[0048] The continual reversing of rotation of the motor means 8 and therefore of the direction of rotation and of articulation of the joint 5 are transmitted to the supporting upper table 24 via the points of support of the structure of the toy-figure 2. In other words, the movement of articulation of the upper part 3 of the toy-figure 2 with respect to its lower part 4, i.e. the rotation of the toy-figure 2 about the joint 5, produces angular rotations of the supporting table 24, though limited as described earlier, which enhance the impression that the toy-figure is moving in time to the music in a graceful, spontaneous, non-repetitive way.

[0049] Clearly, once the toy-figure 2 has been removed from the base 23, it can be used as an ordinary toy-figure and played with in other ways.

[0050] With reference to figure 6, the number 40 is a

general reference for a base for the toy 1, which differs from the previously described base 23. The parts of base 40, which are structurally and functionally identical to the corresponding parts of base 23, are identified by the same reference numerals and are not described below.

[0051] The base 40 comprises a body 41 and a supporting upper table 42 on which the toy-figure 2 is positioned.

[0052] In the supporting upper table 42 are defined two portions 25 capable of supporting the toy-figure 2 at the points of support of its structure, namely the feet of the doll, when the latter is positioned erect on the base 40.

[0053] The two portions 25 of the supporting upper table 42 are made of a metallic ferromagnetic material, while the rest of the surface is made of an electrically insulating material such as plastic.

[0054] Advantageously, each of the points of support of the toy-figure 2 comprises a magnet 26 so that a magnetic force of attraction is set up between the abovementioned points of support of the structure of the toy-figure 2 and the portions 25 of the supporting upper table 42, thereby keeping the toy-figure steady in its vertical position on the base 40.

[0055] The supporting upper table 42 is supported rotatably by the base 40, in order to rotate with respect to the body 41 about an axis of vertical rotation Y-Y, which coincides with the axis Y-Y of the toy-figure 2.

[0056] The base 40 comprises motor means 43 to rotate the upper supporting table 42 with respect to the body 41 of the base 40. Advantageously, said motor means 43 are activated by the same supply signal generated by the command and control means 29. In other words, the signal generated by the control means 29 causes the activation of the motor means 43 housed in the base 40, and hence of the supporting upper table 42.

[0057] According to the strength of the detected sound signal, the command and control means 29 proceed in the earlier described manner to reverse the supply signal sent to the motor means 43 in such a way as to bring about an inversion of the direction of rotation of the motor means 43, that is the direction with which the supporting upper table 42 rotates about the axis of vertical rotation Y-Y.

[0058] Alternatively, said motor means 43 can be activated by a different supply signal generated by the command and control means 29 or by a signal generated by different command and control means.

[0059] According to a further embodiment, magnetic means are connected to the supporting upper table in correspondence of the portions capable of supporting the toy-figure and the points of support of the structure of the toy-figure comprises portion of metallic ferromagnetic material. This allow a magnetic force of attraction between the portions of the supporting upper table and the points of support of the structure of the toy-figure be realised without any magnet housed within the structure

of the toy-figure, namely within the feet of the doll. As can be appreciated from the above description, the toy comprising a self-moving toy-figure according to the invention fulfils the abovementioned requirements and obviates the disadvantages spoken of with reference to the toys of the prior art.

[0060] Clearly, a person skilled in the art may, in order to satisfy specific requirements that may arise, make numerous modifications and changes to the toy comprising a self-moving toy-figure described above, all of which will nonetheless be contained within the scope of protection of the invention as defined by the following claims.

[0061] For example, the ball joint can be replaced with some other functionally equivalent type of joint capable of allowing articulation of the upper part of the toy-figure with respect to the lower part.

[0062] In addition, the means for articulating together the upper and lower parts of the toy-figure can be replaced with a functionally equivalent cam and cam-follower assembly, not excluding a positive-drive cam system.

[0063] It is possible to envisage a toy without a supporting base and canopy. In this case the means for detecting a sound signal, and the command and control means, can be housed inside the structure of the toy-figure.

[0064] The toy-figure may also comprise more than one point of articulation so as to obtain different effects. For example, in the case of a doll, the head of the doll may be articulated with respect to the bust, using the same output shaft of the motor/gearbox unit or by a mechanical motion drive.

[0065] The means for articulating together the two parts of the toy-figure may comprise a solenoid integral with one part of the joint and a movable core of ferromagnetic material fitted inside the solenoid and connected to the remaining part of the joint. Polarising alternately in opposite directions the ends of the solenoid by means of the abovementioned command and control means capable of generating a supply signal, brings about a reciprocating movement of the movable core inside the solenoid. This version presents the advantage of small size and consequently is advantageous for articulating parts of the toy-figure where space is very limited, such as for example the neck and arms of a doll.

[0066] In addition, the toy may comprise a plurality of bases for supporting a corresponding plurality of toy-figures independently of each other.

Claims

1. Toy-figure comprising a structure having at least two parts (3, 4) connected together by a joint (5), in such a way as to be capable of relative motion, and an assembly for animating said parts (3, 4) which comprises an electrically activated motor means (8)

for moving said parts (3, 4) and articulating means (9) for articulating said parts (3, 4) with respect to each other when said motor means (8) are activated, said motor means (8) being contained inside the structure of the toy-figure (2), characterised in that said motor means (8) are connected electrically to electrical support contacts (21) accessible from the exterior of said structure.

2. Toy-figure according to Claim 1, in which said electrical contacts (21) are positioned at a point of support of the structure of the toy-figure (2).
3. Toy-figure according to Claim 2, having two separate points of support, each of which is associated with a respective electrical contact (21).
4. Toy-figure according to Claim 1, in which said parts (3, 4) are the upper part (3) and lower part (4) of the toy-figure (2), said toy-figure (2) being articulated at the central point.
5. Toy-figure according to Claim 1, in which said upper part (3) and lower part (4) of the toy-figure (2) are the bust and the pelvis of a doll, said doll being articulated at the waistline.
6. Toy-figure according to Claim 1, in which:
 - said articulating means (9) comprise a cam (10) and a cam follower (11) in mutual engagement, each being connected to a different one of said parts (3, 4),
 - said motor means (8) are connected to either the cam (10) or the cam follower (11),
 - the cam (10) comprises a disc (13) rotating about a predetermined axis of rotation (Y-Y) and has a peg (14) in an eccentric position with respect to said axis of rotation (Y-Y), and
 - the cam follower (11) comprises a hole in which the peg (14) can be engaged.
7. Toy-figure according to Claim 1, in which said parts (3, 4) are the upper part (3) and lower part (4) of the toy-figure (2) and the motor means are housed in the lower part of the toy-figure.
8. Toy comprising:
 - means (28) for detecting a sound signal,
 - command and control means (29) for generating a supply signal for electrically activated motor means (8) as a function of the detected sound signal, and
 - a toy-figure (2) in accordance with any one of Claims 1 to 7, in which the electrically activated motor means (8) of the toy-figure (2) are activated by said supply signal generated by the

command and control means (29) .

9. Toy according to Claim 8, in which the command and control means (29) comprise a first stage for periodically measuring the strength of said sound signal, a second stage for comparing the measured strength of the sound signal with a predetermined threshold value, a third stage for actuating the motor means (8) with a supply signal and a fourth stage for reversing said supply signal when the measured strength exceeds the threshold value. 5 10
10. Toy according to Claim 9, comprising a low-pass filter connected between said means (28) for detecting a sound signal and said first stage. 15
11. Toy according to Claim 8, comprising a base (23; 42) having a body (36;41) and an upper supporting table (24;42) capable of supporting said toy-figure (2), the supporting upper table (24;42) being supported rotatably by the body (36;41) of the base (23; 40). 20
12. Toy according to Claim 11, in which said base (23) comprises means (26, 27) for limiting the rotation of the supporting upper table (24) with respect to the body (36) of the base (23). 25
13. Toy according to Claim 12, in which said means for limiting the rotation of the upper supporting table (24) comprise magnets (26) integral with the upper supporting table (24) during the rotation of the latter and a magnet (27) integral with the body (36) of the base (23), the function of said magnets (26, 27) being to interact with each other with a magnetically repulsive force when a predetermined angular position of the supporting upper table (24) is reached with respect to the body (36) of the base (23), in such a way as to provide a magnetic end-of-travel element to the rotation of the supporting upper table (24) and to reverse its direction of rotation. 30 35 40
14. Toy according to Claim 11, in which said base (40) comprises motor means (43) to rotate said upper supporting table (42) with respect to the body (41) of the base (23), wherein said motor means (43) are activated by said supply signal generated by the command and control means (29). 45
15. Toy according to Claim 8, comprising a base (23; 40) having a supporting upper table (24;42) in which are defined portions (25) capable of supporting said toy-figure (2) at points of support of the structure of the toy-figure, said toy (1) comprising magnetic means (26) for producing a magnetic force of attraction between said points of support and said portions (25) of the supporting upper table (24;42). 50 55
16. Toy according to Claim 8, comprising a base having a supporting upper table in which portions capable of supporting said toy-figure and comprising magnetic means are defined and wherein the points of support of the structure of the toy-figure comprises portions (21) of ferromagnetic metallic material in order to have a magnetic force of attraction between the portions of the supporting upper table and the points of support of the structure of the toy-figure.
17. Toy according to Claim 8, comprising a base (23; 40) having a supporting upper table (24) in which are defined portions (25) capable of supporting said toy-figure (2) at points of support of the structure of the toy-figure, wherein said portions (25) are electrical contacts to which said supply signal generated by the command and control means (29) is sent and wherein the toy-figure (2) comprises electrical contacts (21) positioned at the points of support of the structure and electrically connected to the motor means (8).
18. Toy according to Claim 8, in which said means (28) for detecting a sound signal and said command and control means (29) are housed inside the structure of the toy-figure (2).
19. Toy according to any one of Claims 11, 15, 16 and 17, in which said means for detecting a sound signal and said command and control means (29) are housed in said base (23;40) .
20. Toy according to any one of Claims 11, 15, 16 and 17, comprising a canopy (31) supported above the base (23) and above the toy-figure (2), magnetic means (34, 35) being housed in said canopy (31) and in the upper end (33) of the toy-figure (2) in order to generate a magnetic force of attraction between the top of the toy-figure (2) and the canopy and increase the stability of the toy-figure (2) during its movement.
21. Assembly for animating two parts (3, 4) of a toy-figure connected together in such a way as to be capable of relative motion, the assembly comprising electrically activated motor means (8) for moving said parts (3, 4) and articulating means (9) for articulating said parts (3, 4) with respect to each other when said motor means (8) are activated, said articulating means (9) comprise a cam (10) and a cam follower (11) in mutual engagement, each being connected to a different one of said parts (3, 4), said motor means (8) being connected to either the cam (10) or the cam follower (11), characterised in that the cam (10) comprises a disc (13) rotating about a predetermined axis of rotation (Y-Y) and having a peg (14) in an eccentric position with respect to said axis of rotation (Y-Y), the cam follower (11) compris-

ing a hole in which the peg (14) can be engaged.

- 22.** Assembly according to Claim 21, in which said motor means (8) are connected to the cam (10) so as to make it rotate. 5
- 23.** Assembly according to Claim 21, in which said hole has an elliptical cross section.
- 24.** Assembly for animating two parts (3, 4) of a toy-figure connected together in such a way as to be capable of relative motion, the assembly comprising electrically activated motor means (8) for moving said parts (3, 4) and articulating means (9) for articulating said parts (3, 4) with respect to each other when said motor means (8) are activated, characterised in that said articulating means (9) comprise an eccentric magnet (16) connected to one of said parts (3) and a plurality of magnets (19) integral with the other of said parts (4) and arranged essentially in a ring structure (20) around the eccentric magnet (16), said motor means (8) being connected either to said eccentric magnet (16) or to said plurality of magnets (19) in order to produce relative rotation between them. 10 15 20 25
- 25.** Assembly according to Claim 24, in which said motor means (8) are connected to said eccentric magnet (16) so as to make it rotate. 30

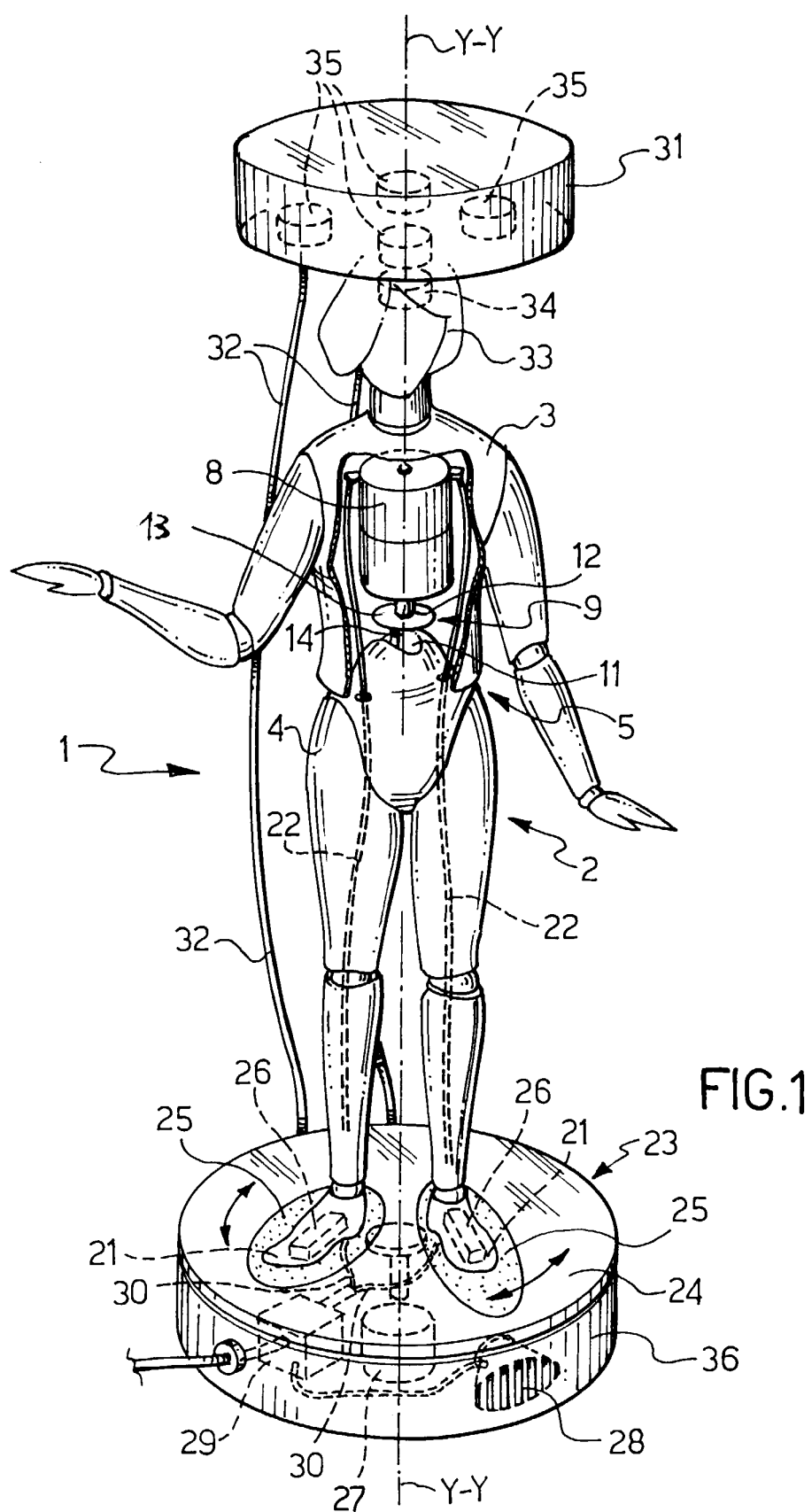
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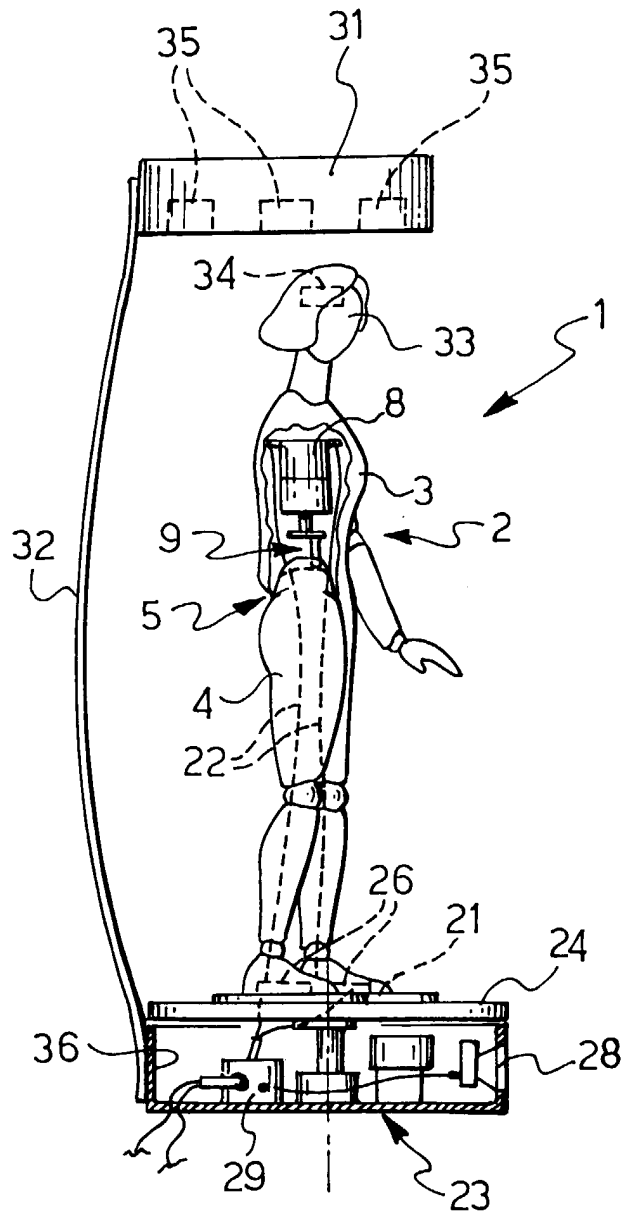


FIG. 2

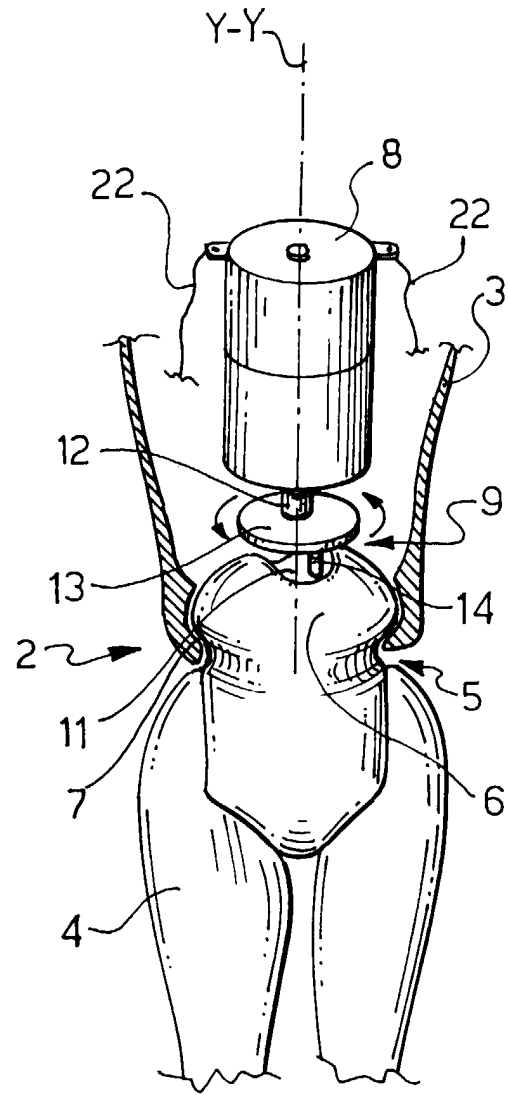
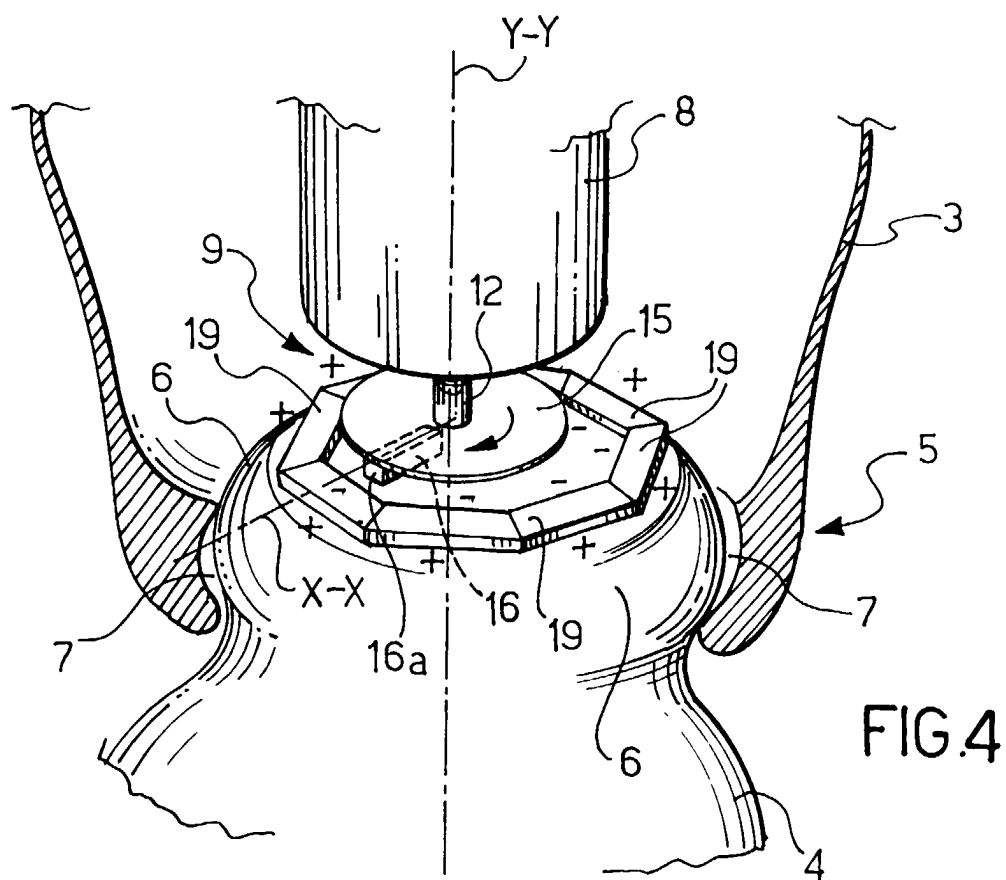
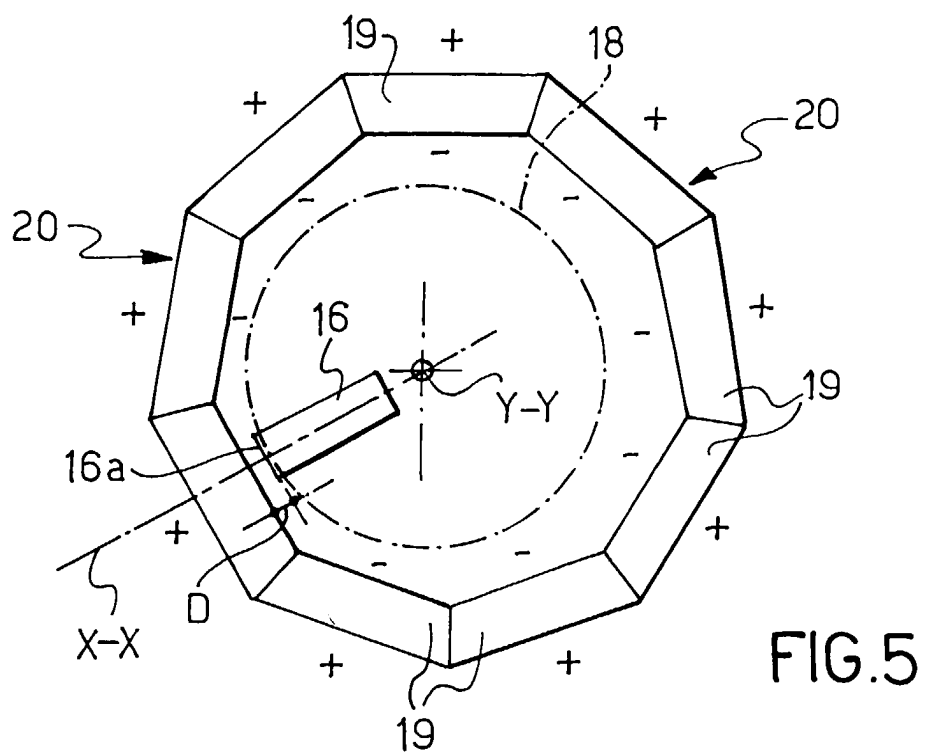


FIG. 3



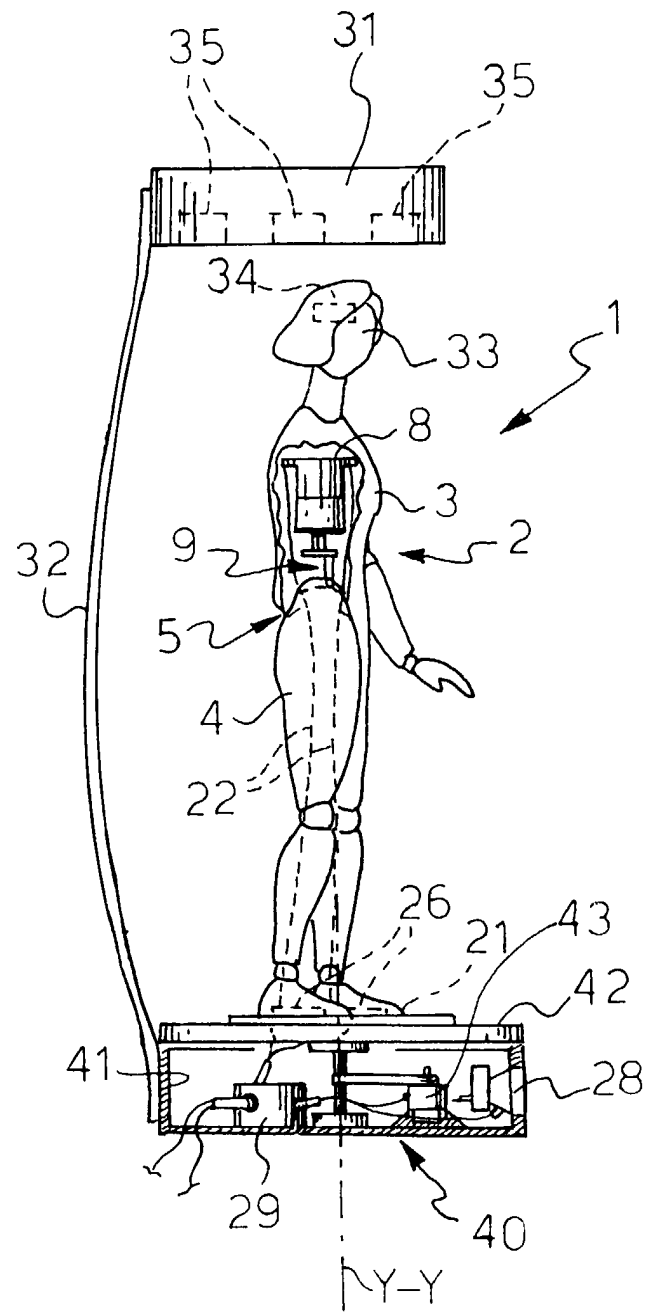


FIG. 6