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ELECTRICALLY DRIVEN WHEELED FIGURE TOY

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5 Claims. (Cl. 46—247)

This invention relates to an electrically operated toy and more particularly to a toy simulating a dog.

One of the objects of this invention is to provide a battery operated toy which when actuated will operate for a short period of time and then cease operation until again actuated.

Another object of this invention is to provide a toy simulating a dog, which is actuated by manually engaging the head to start operation of the toy which will then operate for a short period of time. During the operation of the toy, the toy moves forward, the eyes rotate, the lower jaw pivots and the tail wags.

It is known that children like to play with dogs and have them perform by petting them. This invention tends to simulate that action, by providing a toy dog having means extending upwardly from the head which is manually engaged by the hand, in the nature of a petting action, and by such action actuates the toy dog to perform in the manner set forth above. The toy will provide a great deal of play value and entertainment and is comparatively inexpensive to manufacture.

Other objects will become apparent as this description progresses.

In the drawings:

Fig. 1 is a side elevational view of the toy.

Fig. 2 is a top plan view.

Fig. 3 is a top plan view showing the operating elements.

Fig. 4 is an enlarged vertical view taken on lines 4—4 of Fig. 2.

Fig. 5 is a front end view.

Fig. 6 is a rear end view.

Fig. 7 is a perspective view of the operating mechanism, and

Fig. 8 is a plan view of the switch disc.

The toy has a base member 10 made of metal having side flanges 12 in which are supported front and rear axles 14 and 16 respectively. The front axle 14 has fixedly secured to it a pair of front wheels 18 which form the driving or propelling wheels and the rear axle 16 has fixedly secured thereto a pair of rear wheels 20. Fixedly secured to the front axle is a gear 22 which is driven as will be explained to propel the toy.

Secured to the front of the base 10 as at 23 is an inverted U-shaped supporting metal frame 24 which extends across the width of the base. Rotatably supported on the base 10 as at 25 and extending upwardly within said supporting frame is a vertical shaft 26 which extends through an opening in the top of the supporting frame 24 and has fixedly secured to the top thereof a horizontally positioned metal contact disc 28 provided with a small opening in which is secured a small disc 29 of insulated or non-electrical conducting material.

Fixedly secured on the lower end of the metal shaft 26 is a horizontally positioned gear 30 and fixedly secured to said shaft 26 upwardly thereof is a gear-cam generally indicated at 32 which includes an annular plate having peripheral teeth 34. An annular flange 36 extends up-

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wardly of said plate and same is provided with a continuous series of cam surfaces 38.

Secured to the base 10 as at 39 is a bracket 40 having 3 spaced upwardly extending walls 41, 42 and 43. On said walls is a transversely positioned shaft 44 which has fixed thereto exteriorly of wall 43, a small gear 46 in mesh with the gear 22 on the front axle. Also fixedly secured to said transverse shaft 44 is a worm gear 48 in mesh with gear 30 on the vertical shaft 26. Also fixedly secured to the transverse shaft 44 between walls 41 and 42 is a gear 50 which is adapted to be driven from the motor to rotate the transverse shaft 44 which will now be described.

Rotatably supported between walls 41 and 42 rearwardly of the transverse shaft 44 is a stub shaft 52 which has fixed thereto a gear 54 and a pinion 56. The pinion 56 meshes with gear 50 on the transverse shaft 44 and gear 54 meshes with a pinion on the motor shaft.

Secured to the base 10 as at 57 is a small electric motor 58 which has a pinion 60 secured to the motor shaft which pinion meshes with gear 54 on the stub shaft 52. The motor 58 when energized will through the gearing described operate the transverse shaft 44 to rotate the front axle 14 and drive the toy and will simultaneously rotate the vertical shaft 26 to rotate the gear-cam plate 32 and the contact disc 28 thereon.

Secured to each of the vertical portions of the frame member 24 below the cam-gear 32 is a horizontal shelf 62 which has a disc shaped front having a central opening therein.

Vertical rods 64 having gears 66 fixedly secured to the lower ends thereof are rotatably secured on the disc shaped portion of the shelf 62. The gears 66 rest on the disc portions and the rods extend into the openings thereof. Each of the gears 66 is in mesh with the teeth 34 of the cam-gear 32 to be rotated thereby. The upper end of each of the rods 64 supports a dome shaped member 68 which is painted to simulate an eye. It will thus be seen that the eyes rotate as the toy is propelled.

A housing for the toy generally indicated at 70 is provided which forms the body and head of the dog and said housing is preferably formed with square corners and of box-like appearance to give a unique and distinctive robot style body. The housing may be formed of plastic material and made of two longitudinal half sections 71 and 72 suitably joined together and suitably secured to the base 10 to cover the mechanical structure of the toy. The housing has front and rear skirt portions 73 and 74 which enclose the front and rear wheels respectively.

The head portion designated by the numeral 76 has a forwardly extending horizontal upper member 77 which is substantially flat at the top but rounded at the forward end and same has a continuous depending lip 78. The member 77 simulates the upper jaw of the mouth. It supports a rubber bulbous member 79 representing a nose which is connected to a reed sound member (not shown) positioned inside of the upper jaw so that a sound is produced when the bulb is compressed. A lower jaw member generally designated at 80 has a continuous upwardly extending lip 81 and is pivotally secured to the upper jaw as follows. The upper jaw has downward extensions 82 which support a transverse rod 84 which rod is secured to the lower jaw. The lower jaw has a cutout 85 so as not to interfere with the cams 38 of the gear-cam 32. Extending from the rear of the lower jaw is an arcuate shaped band or rim 86 which has secured to it an L-shaped member 88 in engagement with the cam surfaces 38 of the gear-cam member. A spring 90 is secured to the transverse rod 84 with the opposite ends of the spring engaging the horizontal portion of the supporting frame 24 and the lower jaw 80 to normally maintain the lower jaw in closed position as best seen in Fig.

4. As the gear-cam 32 rotates the cam surfaces 38 in engagement with member 88 on the lower jaw will cause the lower jaw to pivot to open and closed positions.

Secured to the top of the supporting frame 24 is a metal post 92 to which is secured in spaced relation a lower metal contact finger 94 and an upper metal contact finger 96. The outer end of the lower contact finger 94 is U-shaped and is adapted to constantly engage the top of the contact disc 28 on the vertical shaft 26 and is on the same radius as the insulated disc 29 thereon to make contact therewith once during such revolution of contact disc 28 for the purpose of breaking the electrical circuit as will be described. The fingers 94 and 96 are spaced radially from each other but the electrical circuit is established from the conductor 103, post 92, contact finger 94, contact plate 28, metal shaft 26 to base 10 to which the motor 58 is grounded.

Vertically supported in the head portion 26 of the toy for vertical sliding movement is a manually depressible plunger 98 having a dome shaped head 99 positioned exteriorly of the head of the toy figure. The plunger rests on the top contact finger 96 and when the plunger is depressed the contact finger 96 bends downwardly and makes contact with the contact plate 28 to close the electrical circuit and energize the motor 58.

The upper portion of the housing which forms the toy body is provided with a rectangular shaped opening 100 through which a pair of dry cell batteries B are inserted. The dry cells are supported on a platform 102 in the interior of the housing as best shown in Fig. 4. The platform has a pair of contact elements 104 and 106 which are engaged by the negative and positive poles of the two batteries. Contact 104 being connected to one of the poles of the motor 58 by conducting wire 107 and contact 106 being connected by conducting wire 108 to the post 92. A removable metal cover 110 closes the rectangular opening 100 and same is detachably secured to the housing. Said cover 110 has contact elements making contact with the opposite ends of the dry cell batteries. The circuit is completed from post 92, through contact finger 94, contact plate 28, metal shaft 26, base plate 10 to which the electric motor 58 is grounded.

A vertical post 112 is secured to the base 10 at the rear thereof and pivotally supported at the upper end of said post as at 114 is a member 116 shaped in the form of a right angle with the horizontal portion thereof secured to a connecting link 118 whose opposite end is secured to the crank portion 17 of the rear axle 16, so that as the axle rotates the member 116 is rocked or pivoted. Extending from the upper end of the member 116 is a rod 120 having a ball 122 mounted on the end thereof. Member 116, rod 120 and ball 122 form the tail of the dog. The sides of the housing 70 adjacent the head 76 are provided with slots through which are pivotally secured simulated flaps or ears 124 which may be manually pivoted. The housing is also provided adjacent the eyes with semi-cylindrical members 126 which enclose the gears 66 and rods 64 on which the eyes are mounted.

The operation will be understood from the following but will be briefly summarized.

When the toy is at rest, the contact finger 94 will be in engagement with the non-conducting small disc 29 on the contact plate 28, so that the circuit to the motor will be open. To start operation of the toy, the dome 99 is manually depressed depressing plunger 98 which flexes the upper contact finger 96 to engage the contact plate 28. This closes the circuit to the motor 58 which starts the operation to propel the toy also rotating contact disc 28. As soon as rotation of contact disc 28 starts the circuit is established through contact finger 94 in engagement with contact disc 28 and the plunger 98 can be released. The toy will continue to operate until the contact disc 28 makes a complete revolution and the non-conducting small disc 29 of the contact plate 28 engages the contact finger 94 at which time the circuit is broken and the

motor deenergized and the toy comes to a stop. This condition prevails until the plunger 98 is again depressed which starts the operation all over again.

As previously explained with the energizing of the motor 58, the toy is propelled forwardly, the lower jaw 30 is pivoting to open and closed positions, the eyes 68 are both revolving and the tail 122 is pivoted. These operations continue for a prescribed period i.e. for the time it takes the contact plate 28 to make a complete revolution. The child thus has the feeling that by petting the toy dog (manually touching the dome 99) the toy dog performs and then stops performing until again petted.

It will be understood that various changes and modifications may be made from the foregoing without departing from the spirit and scope of the appended claims.

I claim:

1. An electrically operated toy comprising in combination a toy animal figure having a body supported on wheels for movement of said toy forwardly on a supporting surface, a gear secured to said wheels, said body having a head and a pivotal jaw, a pair of rotatable eyes positioned in said head, an electrical motor within said body, a battery for operating said motor, a manually engageable member extending exteriorly of said head, said manually engageable member adapted to be actuated by the hand when petting said member simulating the act of petting an animal, means operated by the actuation of said manually engageable member for closing the circuit to energize said motor for a period of time and then to deenergize said motor, gear means in engagement with said gear and operated by said motor during its energization for rotating said wheels to drive said toy forwardly on a supporting surface, a cam member operated by said gear means, means connecting said pivotal jaw to said cam member for moving said pivotal jaw during operation of said cam member, and means connecting said eyes to said gear means to rotate said eyes during operation of said gear means.

2. An electrically operated toy comprising a toy animal figure having a body supported on wheels for movement of said toy forwardly on a supporting surface, a head supported on said body, an electric motor within said body, gear means operated by said motor for rotating said wheels to drive said toy forwardly, a battery for operating said motor, a manually depressible member extending upwardly of said head, said manually depressible member adapted to be actuated by the hand when petting said member simulating the act of petting an animal, means operated by the momentary depression of said manually depressible member for closing the circuit to said motor to operate said motor, said means including a rotatable contact disc and a contact finger operated by said manually depressible member, said contact disc having a non-electrical conducting portion, said contact finger when operated by said manually depressible member adapted to contact said disc and close the circuit to said motor to start operation of said motor and rotation of said contact disc, a second contact finger in electrical contact with said contact disc after said disc is rotating to close the circuit to said motor to continue operation of said motor and rotation of said disc until said second contact finger engages said non-electrical conducting portion and breaks electrical contact with said disc whereby said toy is caused to move forward for a prescribed period of time and then stop.

3. An electrically operated toy comprising a toy animal figure having a body supported on wheels for movement of said toy forwardly on a supporting surface, said body having a head and a pivotal jaw, a pair of rotatable eyes positioned in said head, an electric motor within said body, a battery for operating said motor, gear means operated by said motor for rotating said wheels to drive said toy forwardly on a supporting surface, means operated by rotation of said gears for rotating said eyes and pivoting said jaw, a manually depressible member

extending exteriorly of said head, said manually depressible member adapted to be actuated by the hand when petting said member simulating the act of petting an animal, a vertical shaft within said body supporting a contact plate, said contact plate having a non-electrical conducting portion, a first and second contact finger normally in non-electrical contact with said contact plate, said manually depressible member connected to said first finger and adapted when said depressible member is momentarily depressed to close electrical contact between said first finger and said contact plate to cause energization of said motor and rotation of said contact plate, said second finger being normally in engagement with said non-electrical conducting portion when said contact plate is not rotating and adapted after said contact plate is rotating to engage said plate to close the circuit to said motor for one revolution of said contact plate, said motor when energized operating to cause said toy to be driven, and simultaneously to pivot said jaw and rotate said eyes.

4. An electrically operated toy comprising a toy animal figure having a body supported on wheels for movement of said toy forwardly on a supporting surface, an electric motor within said body, gear means operated by said motor for rotating said wheels to drive said toy forwardly, a battery for operating said motor, a manually depressible member extending upwardly of said body, said manually depressible member adapted to be actuated by the hand when petting said member simulating the act of petting an animal, means operated by the momentary depression of said manually depressible member for closing the circuit to said motor for a period of time to operate said motor for said period of time, said motor when operating adapted to operate said gear means to propel said toy forwardly on a supporting surface and to arrest forward movement of said toy when said motor has ceased operating.

5. An electrically operated toy comprising a toy animal figure having a body supported on wheels for movement of said toy forwardly on a supporting surface, said body having a head and a pivotal jaw, an electric motor within said body, gear means operated by said motor for rotating said wheels to drive said toy forwardly, a battery for operating said motor, a manually depressible member extending upwardly of said head, said manually depressible member adapted to be actuated by the hand when petting said member simulating the act of petting an animal, means operated by the momentary depression of said depressible member for closing the circuit to said motor for a period of time to operate said motor for said period of time, cam means operated by said gears for rotating said cam means, means connecting said cam means to said pivotal jaw for moving said pivotal jaw during rotation of said cam means, said motor when operating for said period of time adapted to operate said gears and said cam means simultaneously to propel said toy forwardly on a supporting surface and to pivot said jaw and to arrest forward movement of said toy and the pivoting of said jaw when said motor has ceased operating.

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ELECTRICALLY DRIVEN WHEELED FIGURE TOY

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4 Sheets-Sheet 1

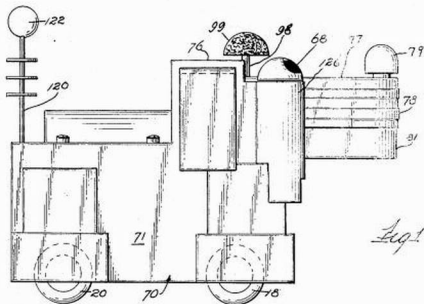


Fig. 1

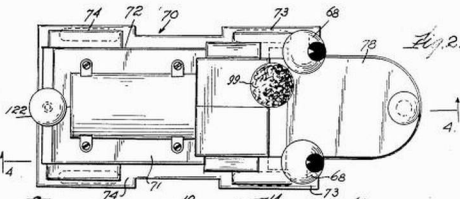


Fig. 2.

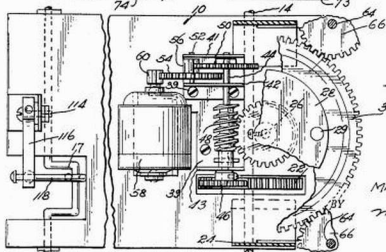


Fig. 3.

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4 Sheets-Sheet 2

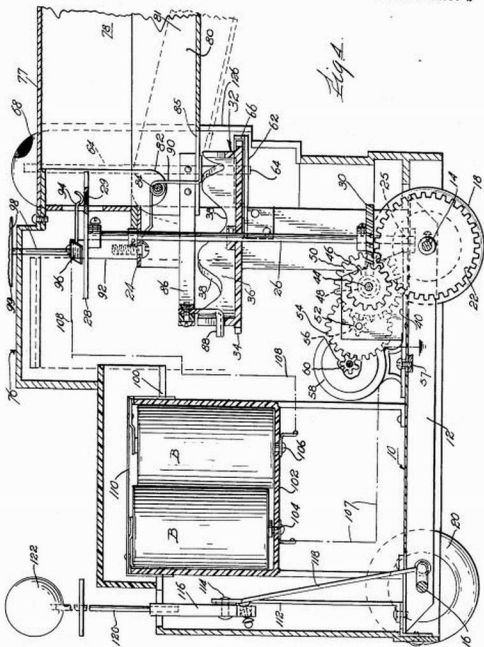


Fig. 4.

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4 Sheets-Sheet 3

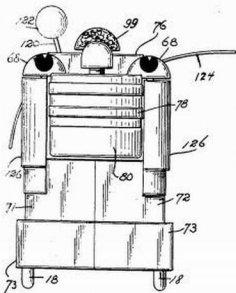


Fig. 5.

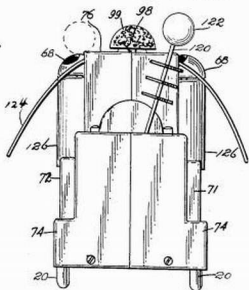


Fig. 6.

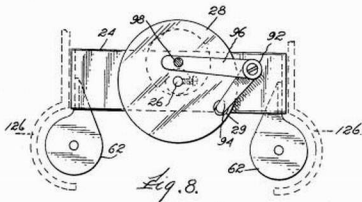


Fig. 8.

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