Dec. 4, 1962 R. AYE 3,066,442

ANIMATED PULL TOY

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FIG. 1

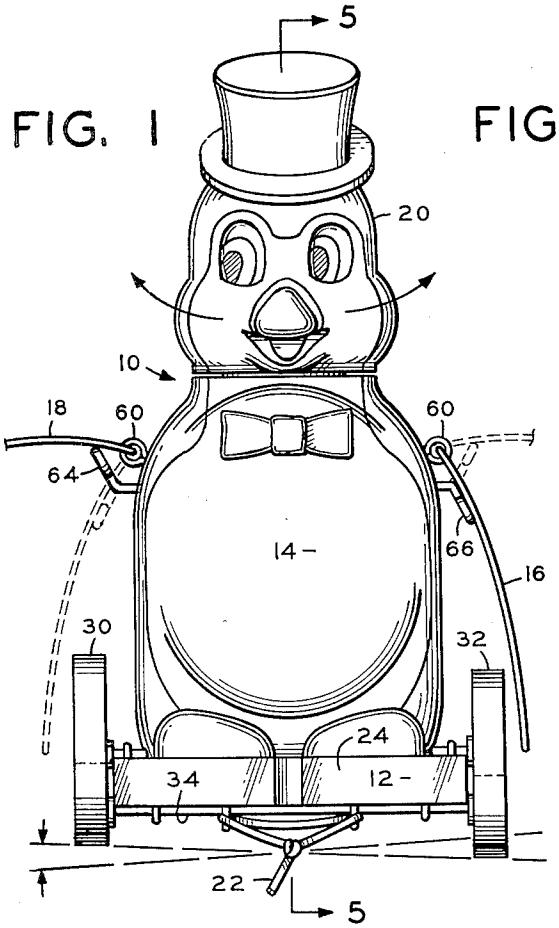
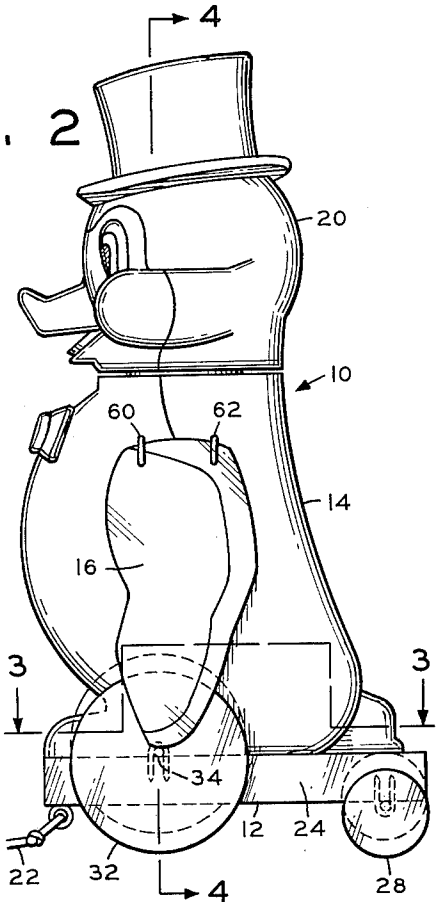


FIG. 2



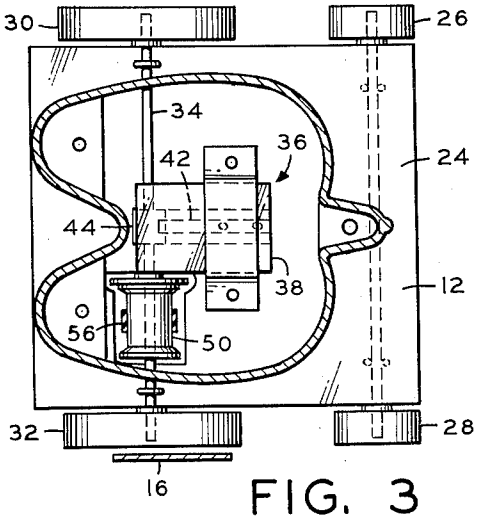


FIG. 3

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FIG. 6

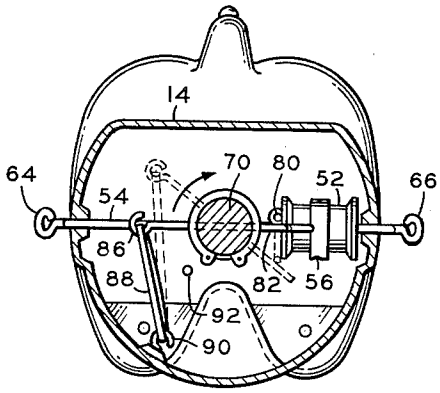


FIG. 5

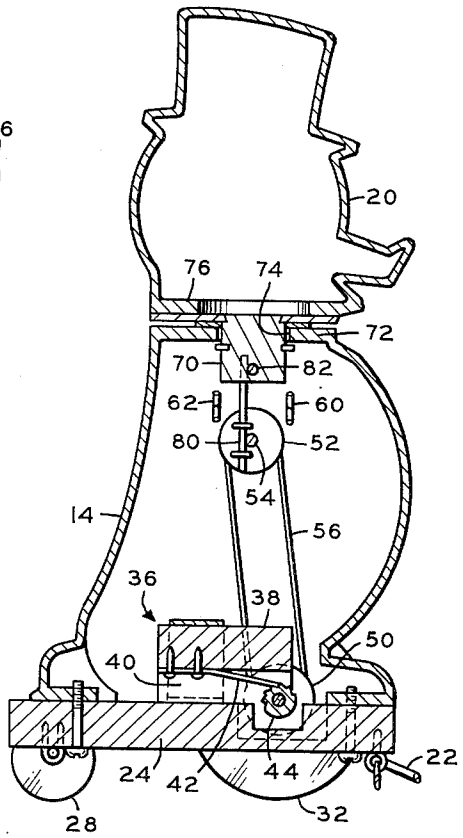


FIG. 4

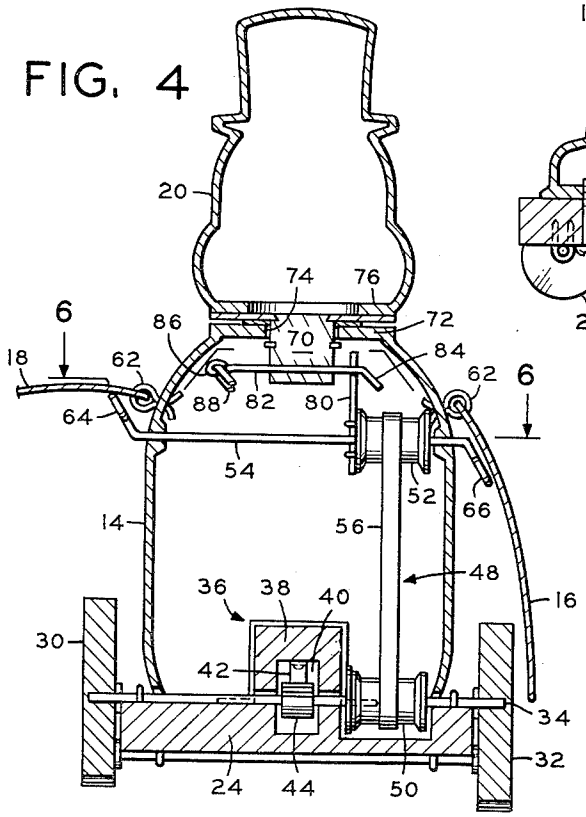
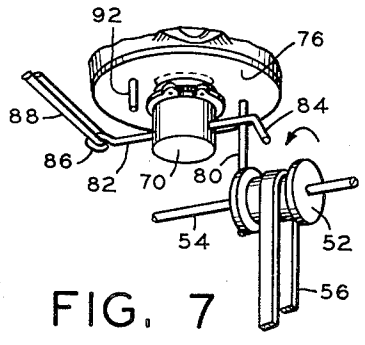


FIG. 7



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ANIMATED PULL TOY

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3 Claims. (Cl. 46—99)

This invention relates to improvements in toys, and, in particular, is concerned with an animated pull-type of toy whereby the motion of the wheels, as the toy is pulled along the ground, imparts movement to various body portions of the toy which may be made of a plastic material.

It is a particular feature of this invention that a toy, such as a toy bird or other animal, can have motion imparted to it by a very simply constructed mechanism that is powered by the movement of the wheels and axle forming a body support upon which the toy is mounted. The movement of the wheels drives an axle which can cause a sounding motion and, in addition, serves as a powering means to operate body portions so that full animation is obtained. Particularly, the invention is in the embodiment of a toy bird whereby flapping of the wings is obtained, coupled with an oscillation of the head, to provide a life-like movement.

It is a particular advantage of the construction of the toy that there is a built-in safety feature provided by means of the powering mechanism. This is obtained by an elastic drive belt, in the nature of a rubber band or the like, connecting the driving shaft to mechanism for moving the wings and the head. The elastic band provides slippage should for any reason a child grasp the wings or the head and prevent movement. This, of course, is a normal circumstance in toys where children provide very rough treatment. By the avoidance of direct linkages, damage to the toy is prevented and the elastic drive belt operates much in the fashion of a slip device or clutch to prevent breakage in such instances.

As a further feature of this invention it will be observed that the sounding mechanism is completely self contained in the toy and is separate from the motion imparting mechanism. Thus, should the movable portions of the toy body be grasped by a child, continued movement of the toy, whereby motion to the wheels is imparted, can still cause the sounding mechanism to operate and no damage can occur, because the body moving parts are not associated with the sounding mechanism. The toy is constructed of very simply formed components and can be automatically operated by merely pulling it along the ground. Thus, it can be used with no skill at all required to provide a very animated and life-like and trouble free operation. Further, by means of the safety features provided in the elastic power belt, damage through hard wear and the like can be very substantially avoided.

It is accordingly an object of this invention to provide a pull-type toy, powered by wheels that impart motion to various body portions through a friction drive belt.

It is a further object of this invention to provide a pull-type animated toy having movable wings that are operated by a driving mechanism and a friction drive belt.

It is still another object of this invention to provide an animated toy having an oscillatory head which may be operated by a friction drive belt.

Still a further object of this invention is to provide an animated toy in which the movement of the wheels moves an operating shaft and a connected friction drive belt to provide an independent sounding or noise making operation and movement of wings and oscillation of the head.

Yet another object of this invention is to provide an animated pull-type toy having movable body members and a sounding mechanism made from simply constructed parts and in which the toy is rugged in construction and

is provided with features that prevent damage to the operating mechanism by slippage of a friction drive belt and which is relatively inexpensive in cost.

Still further objects of this invention will appear in the detailed description which follows and will be further apparent to those skilled in the art.

For the purpose of illustration of this invention, there is shown in the accompanying drawings a preferred embodiment. It is to be understood that these drawings are for the purpose of illustration only and that the invention is not limited thereto. Thus, instead of an animated bird, an animated bear, or other animal, or the like, can be employed.

In the drawings:

FIGURE 1 is a view in front elevation of the toy;

FIGURE 2 is a view in side elevation of the toy taken from the right side of FIGURE 1;

FIGURE 3 is a view in section taken on the line 3—3 of FIGURE 2;

FIGURE 4 is a vertical view in section taken on the line 4—4 of FIGURE 2;

FIGURE 5 is a vertical view in section taken on the line 5—5 of FIGURE 1;

FIGURE 6 is a horizontal view in section of the toy taken in the position of the line 6—6 of FIGURE 4; and

FIGURE 7 is an enlarged fragmentary pictorial view showing the operating mechanism for oscillating the head of the toy.

Referring now to the drawings, the toy is generally indicated by the reference numeral 10 in FIGURES 1 and 2. As there shown, it comprises as its major features a wheeled base 12, a body portion 14, movable wings 16 and 18, and an oscillatable head 20. The toy is adapted to be pulled along the ground by means of a cord 22 connected to the base 12.

The base 12, as particularly shown in FIGURES 1, 2, 3, 4 and 5, is comprised of a flat base element 24, which has freely movable rear wheels 26 and 28. Eccentrically positioned powering wheels 30 and 32, which are larger than the rear wheels, are positioned at the front of the base to provide a wobbling action, but it is to be understood that evenly centered wheels may be used where desired. These wheels are rigidly keyed to a drive shaft or axle 34 to provide for the powering of the animated portions of the toy.

A sounding mechanism, generally indicated by the reference numeral 36, is positioned upon the top of the flat base element 24, and is best shown in FIGURES 3, 4 and 5. As there shown, it comprises a sounding box 38 having a hollow chamber 40. Connected to the inside of the sounding box is a noise making spring 42 having an end biased upon a sound making ratchet wheel 44. The ratchet wheel is keyed to the drive shaft 34 and rotates with it. Relative movement between the spring 42 and the noise making ratchet wheel 44 causes a loud clicking noise as the drive shaft rotates as the toy is pulled along the ground with this noise being magnified by the sounding chamber 40.

The basic powering mechanism for moving the wings and head comprising the drive belt mechanism is generally indicated by the reference numeral 48 in FIGURE 5. As there shown, it comprises a bottom pulley wheel 50 rigidly connected to the drive shaft 34. A top pulley wheel 52 is supported upon a shaft 54 journaled in opposite sides of the toy body 14. An elastic drive belt 56, which may be a rubber band or the like, is positioned over the lower pulley wheel 50 and top pulley wheel 52 so that motion of the drive shaft moves the pulley wheel 50 and imparts rotary motion to the top pulley wheel 52 through the elastic pulley belt 56. It will be particularly noted that should the top shaft be frozen or blocked in

position for any reason the pulley belt **56** will merely slipe upon the two pulley wheels and damage will thereby be prevented to the operating parts.

The construction of wings **16** and **18** is best shown in FIGURES 1, 2 and 4. As there shown, wing **16** is formed of a rigid material and is loosely connected to the body **14** by hooks **62** passing through openings in the top of the wing element. The wing **18** is connected in identical fashion to the opposite side of the body. The means for imparting movement to the two wings **16** and **18** comprises oppositely turned wing operating arms that extend from the shaft **54**. Thus, as will be apparent in FIGURE 4, there is connected at the left end of the shaft **54** a wing operating arm **64**, while at the opposite end, and bent to the opposite direction, is a wing operating arm **66**. As the shaft **54** rotates the operating arms **64** and **66** will strike the underneath portions of the wings **18** and **16**, respectively, to cause them to move upwardly and downwardly in a flapping motion. It will, of course, be understood that where desired the arms **64** and **66** may be bent in the same direction to give a simultaneous movement of the wings rather than a sequential movement should this be desired.

The structure of the oscillatory head **20** is best shown in FIGURES 4 through 7. As there shown, the head **20** is mounted upon an oscillatable stub shaft **70** which is supported upon the top of the body **14**. This relationship is shown in FIGURES 4 and 5. The top of the body is comprised of a flat portion **72** having an opening **74** receiving the head stub shaft **70**. The bottom of the head has a flat portion **76** which meets closely with the top of the body so that the exterior portion of the body and the head form what appears to be a continuous surface. This structure enhances the relative movement of the parts through the mating flat portions of the bottom of the head and top of the body to form a bearing surface.

The mechanism for oscillating the head comprises a striker bar **80** which is rigidly connected to the upper pulley wheel **52**. This striker bar is adapted to contact an operating arm generally indicated by the reference numeral **82**, and which is carried by the stub shaft **70**. It will be noted that the operating arm **82** has a bent end portion **84** which facilitates the contacting by the striker bar **80**. The other end of the operating arm **82** has a hooked portion **86** which receives one end of a rubber band **88**. This rubber band is connected at its other end to a hook **90** attached to the inside of the body as shown in FIGURE 6. In the unoperated position of the operating arm the rubber band **88** will bias the operating arm to a position where the arm **82** contacts a stop pin **92**, which is connected to the bottom of the upper wall portion **72** of the body. This stop pin **92** is shown in disembodied fashion in FIGURE 7 as it is connected to the wall portion **72** rather than the bottom portion **76** of the head.

Operation

The toy may be very simply operated with all of its features by simply pulling it along the ground or the floor, or the like. As it is pulled along by the cord **22** the eccentric wheels **30** and **32** will impart a wobbling action. Further, as these wheels are moved by frictional contact with the ground, the shaft **34** will be caused to rotate. The movement of the shaft **34** imparts all of the power necessary for the noise making and the movement of the wings and the head.

Thus, as the shaft **34** rotates it will cause the ratchet wheel **44** to rotate. This rotation will cause a clicking noise by virtue of the contact of the end of the spring **42** with the grooves in the ratchet wheel. The noise will be magnified through the hollow chamber **40** in the sound box **38**.

Further, as the shaft **34** rotates, rotary movement of the drum or pulley wheel **50** will follow. This in turn causes the movement of the friction pulley belt **56** to cause the movement of the top pulley wheel **52** and the shaft **54**. The shaft **54**, as it rotates, will cause the flapping upwardly and downwardly of the two wings **16** and **18**. Thus, as shown in FIGURE 4, the contacting of the shaft end portion **64** will move the wing **18** and continued rotation will cause the flapping upwardly and downwardly of the wing **16** by the wing operating end portion **66** of the shaft. In this operation it should be noted that should for any reason a child grasp the wings so as to move them against the end portions of the wing operating arms **64** and **66**, or should these elements be seized by a child, continued pulling of the wheels to impart the motion to the pulley wheel will not cause damage. Thus, slippage will occur between the pulley belt **56** and the pulley wheel **50** and the operating parts will not be injured.

In the above operation the rotary movement of the upper pulley wheel **52** also causes oscillating movement of the head to back and forth positions. As the striker bar **80** moves in the rotary fashion, as shown in FIGURE 7, it will first contact the operating arm end portion **84** of the shaft **82**. Continued movement in the direction of the arrow shown in FIGURE 7 will cause the head **20** to move in the direction of the arrow of FIGURE 7, which will be in a clockwise direction viewed from the top. This operation is also shown in FIGURE 6 with the dotted position of the head operating arm indicating the nearing of completion of the rotary movement of the head.

In this action the operating arm will be moved against the force of the biasing rubber band **88**. Continued rotary movement of the upper pulley wheel **52** causes disengagement of the striker bar **80** with the operating arm portion **84**. As this disengagement occurs the rubber band **80** will move the head from the intermediate position shown in FIGURE 6 to a point where the operating arm **82** is stopped by the limiting action of the stop pin **92**. It will be readily apparent that as the pulley wheel **52** continues to rotate as the toy is pulled along the ground the movement is repeated so that the head moves back and forth in oscillating fashion.

It will be apparent that by the instant invention an animated toy has been provided to give both a sounding action and movement of the wings and the head. It will be readily apparent that the movement of the wings could also take the form of movement of arms or other limbs and that the invention is not limited to a toy bird. The toy is one that is rugged and has a built-in safety feature by means of the provided elastic friction drive belt, which may, in the actual production, be a rubber band or the like. The life-like action provided and simple operation makes the toy quite desirable in its convenience for production and simplicity in use.

Various changes and modifications may be made within this invention as will be readily apparent to those skilled in the art as mentioned previously. Such changes and modifications are within the scope and teaching of this invention as defined by the claims appended hereto.

What is claimed is:

1. An animated bird comprising a wheeled base and a body having feet, movable wings and a head which is vertically supported for oscillation about a vertical axis by the body, said wings being loosely supported at a top portion to the body, said wings being gravity biased downwardly, and said head being spring biased in one direction, power means comprising an axle secured to wheels supported by the base, said axle being rotated by frictional contact of the wheels with the ground as the toy is manually moved upon the ground, said power means further including a slippable pulley belt connecting a lower pulley wheel secured to the axle with an upper pulley wheel secured to a rotary operating shaft supported by the body, and wing operating means and head operating means carried by said operating shaft cooperating through an alternate engaging and disengaging cycle with the wings and the head, respectively, to effect an intermittent oscillating motion of the wings

about a horizontal axis and the head about a vertical axis, said head operating means comprising an operating arm connected to the head and engageable intermittently by a striker member, supported by the second mentioned pulley wheel for a portion of each cycle of revolution of the operating shaft.

2. An animated bird comprising a wheeled base and a body having feet, movable wings and a head which is vertically supported for oscillation about a vertical axis by the body, said wings being loosely supported at a top portion to the body, said wings being gravity biased downwardly, and said head being spring biased in one direction, power means comprising an axle secured to wheels supported by the base, said axle being rotated by frictional contact of the wheels with the ground as the toy is manually moved upon the ground, said power means further including a slippable pulley belt connecting a lower pulley wheel secured to the axle with an upper pulley wheel secured to a rotary operating shaft supported by the body, and wing operating means and head operating means carried by said operating shaft cooperating through an alternate engaging and disengaging cycle with the wings and the head, respectively, to effect intermittent oscillating motion of the wings about a horizontal axis and the head about a vertical axis, said head operating means comprising an operating arm connected to the head and engageable intermittently by a striker member, supported by the second mentioned pulley wheel, for a portion of each cycle of revolution of the operating shaft, the biasing of said head being effected by biasing said operating arm to a limiting position in which it is ready to be engaged by the striker member.

3. An animated bird comprising a wheeled base and a body having feet, movable wings and a head which is vertically supported for oscillation about a vertical axis

by the top of the body, said wings being loosely supported at a top portion to the body, said wings being gravity biased downwardly, and said head being spring biased in one direction, power means comprising an axle secured to wheels supported by the base, said axle being rotated by frictional contact of the wheels with the ground as the toy is manually moved upon the ground, said power means further including a slippable pulley belt connecting a lower pulley wheel secured to the axle with an upper pulley wheel secured to a rotary operating shaft supported by the body, and wing operating means and head operating means carried by said operating shaft cooperating through an alternate engaging and disengaging cycle with the wings and the head, respectively, to impart motion thereto, said wing operating means comprising eccentric elements at the end of the operating shaft intermittently engaging and disengaging from the wings to cause movement of the same, said head operating means comprising an operating arm connected to the head and engageable intermittently by a striker member, supported by the second mentioned pulley wheel, for a portion of each cycle of revolution of the operating shaft and a sounding means operable independently of the wing and head operating means comprising a sound box having a sound spring cooperating with a sound ratchet wheel carried by said axle.

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