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PULL TOY WITH PHONOGRAPH

Filed Jan. 12, 1968

Fig 1

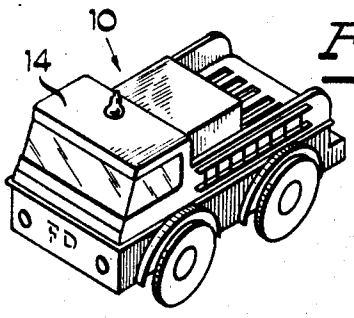


Fig 4

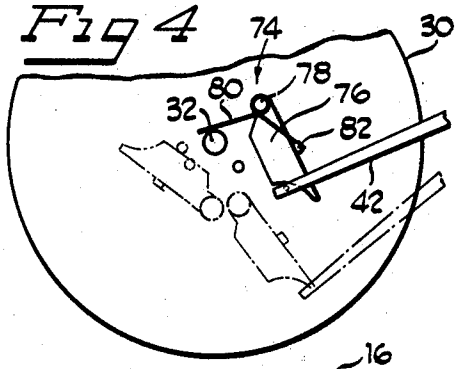


Fig 2

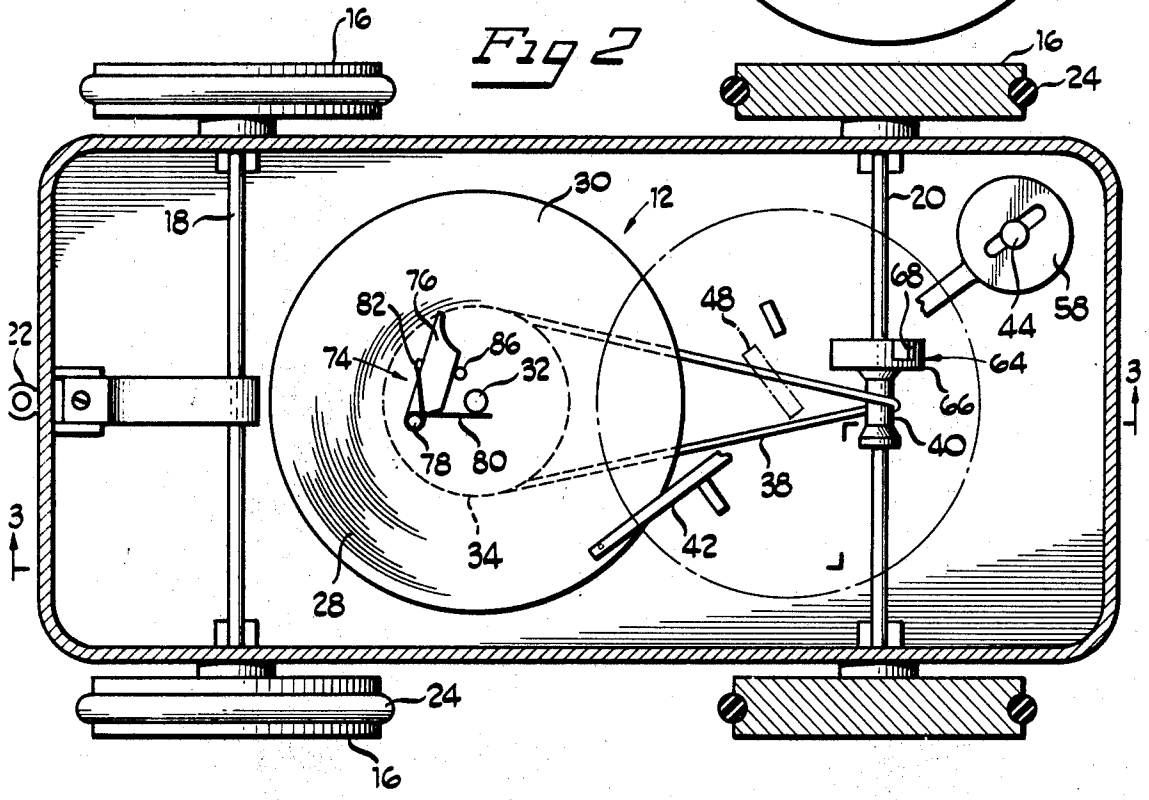
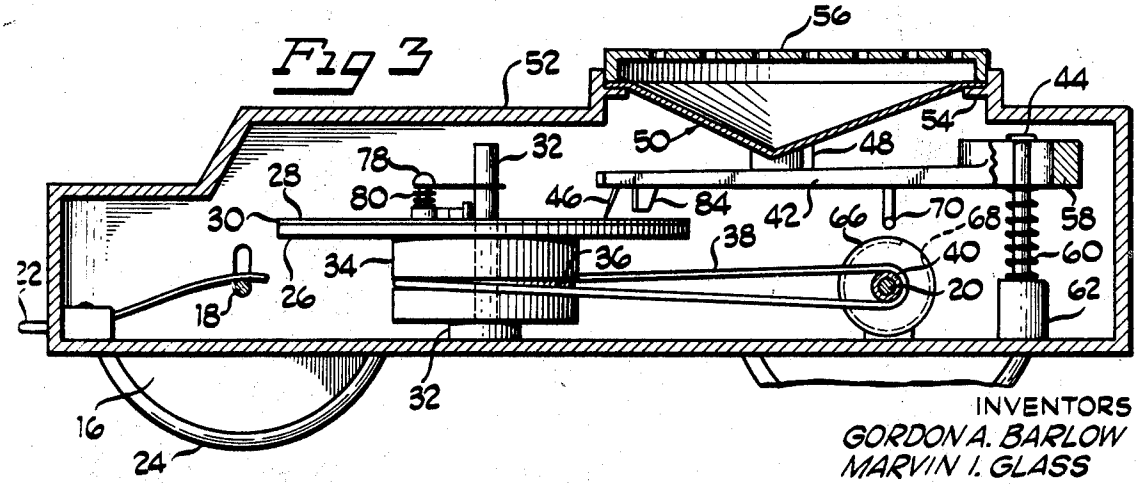


Fig 3



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PULL TOY WITH PHONOGRAPH

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ABSTRACT OF THE DISCLOSURE

A childs pull-toy which produces a sound characteristic of the configuration of the toy as the latter is pulled along a supporting surface. The toy is wheel supported and includes a housing containing a record turntable which is driven from one of the axles carrying a pair of the supporting wheels. A tone arm within the housing includes a stylus which is positionable to ride in the sound groove on the record with the tone arm engaging an acoustical amplifying cone.

BACKGROUND OF THE INVENTION

The present invention relates generally to pull toys of the type used by small children. This invention incorporates with such pull toys a phonograph device for automatically reproducing a sound appropriate to the toy as the toy is pulled along its supporting surface. A repeat device is provided on the phonograph, so that no setting or manipulation is required of the child in order to continuously obtain a sound as the toy is pulled.

SUMMARY OF THE INVENTION

A pull toy comprising a housing, a plurality of wheels supporting said housing, an axle carried by said housing and having one of said wheels fixed to each of the opposite ends thereof, a turntable rotatably supported within said housing and including a sound track on the upper surface thereof, means drivingly connecting said axle with said turntable, a tone-arm pivotally mounted within said housing and including a needle in position for engagement with said record, and an amplifying cone supported in said housing with the apex portion thereof in engagement with said tone arm.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of a pull toy embodying the present invention;

FIG. 2 is an enlarged plan view of the toy, with parts broken away and in section to illustrate the mechanism within the toy;

FIG. 3 is a sectional view taken generally along the line 3—3 in FIG. 2; and

FIG. 4 is a fragmentary view of the phonograph device, illustrating the operation of the repeat mechanism.

DESCRIPTION OF THE PREFERRED EMBODIMENT

As illustrated in the drawing, the present invention is directed to pull toy **10**, including a phonograph device **12** within the toy which is driven from one of the supporting wheel structures. The rotation of the wheels, as the toy is pulled along a supporting surface, is effective to rotate a turntable disposed within the toy and thereby produce a series of sounds.

More particularly, the illustrated toy **10** is in the form of a fire truck and includes a body portion **14** and four support wheels **16** fixed to the opposite ends of a front axle **18** and a rear axle **20**, respectively. The forward end of the truck includes a hook **22** on which a string or the like is tied and through means of whcih the toy may be

pulled along the supporting surface. Each of the wheels include a tread portion **24** of soft rubber or the like, so as to provide maximum traction between the supporting surface and the wheels.

Enclosed within the truck body **14** is the phonograph device **12** comprising a rotatable turntable **26** having its upper surface positioned generally horizontal and including a sound track **28** formed thereon. This sound track may be in the form of a record **30** fixed to the turntable, as illustrated, or the sound may be recorded directly on a plastic turntable. The turntable **26** is rotatably supported on a cylindrical post **32** projecting upwardly from the bottom of the truck body, through means of a large cylindrical portion **34** on the underside of the turntable which has a bore at its center which is slidable over post **32**. The upper portion of post **32** is of reduced diameter and extends through an opening in the center of the turntable and record. Cylindrical part **34** includes a circumferential groove **36** into which is fitted an endless flexible belt **38** which is also disposed around a pully-like part **40** fixed to the central portion of the rear axle **20**. Consequently, as the rear wheels **16** rotate, drive is transmitted from rear wheels **16**, axle **20** and thence through the endless belt **38** to the turntable **26**.

A tone arm **42** is pivotally mounted at one end on a vertically extending shaft **44** fixed within the truck body, and the other end of the tone arm includes a stylus or needle **46** positioned for engagement with the record **30**. An intermdeiate portion of the tone arm is in constant engagement with a rib **48** formed on the apex of an acoustical type amplifying cone **50**, which is fixed to the upper wall **52** of the truck body **14**. Cone **50** is supported at its periphery by a circular ledge **54** defined in upper wall **52**, and a perforated cover portion **56** is fixed in place on wall **52** at the top of the amplifying cone. The amount of pressure of the stylus **46** on the sound track is determined by the mass of the tone arm pivot **58** and the pressure exerted by a coil spring **60** which is interposed between pivot portion **58** a mount **62** for shaft **44** fixed to the botom of the truck.

While it is desirable, during ordinary usage of the toy **10**, to maintain engagement between the stylus **46** and the sound track on record **30**, it is also desirable to be able to separate stylus **46** from the sound track, for example, during shipment of the toy. Thus, there is provided suitable means for achieving this objective, such as a camming means, indicated at **64**, which is operable from a position outside the truck to elevate stylus **46** away from the record **30**. More particularly, one flange portion **66** of pulley **40** is enlarged in diameter and includes a radially slotted portion **68** which cooperates with a depending L-shaped part **70** (FIG. 3) on tone arm **42** to provide a lock-out for the latter. In assembling the toy, the rear of the tone arm is depressed until part **70** on the tone arm is moved through slot **68** and the pulley **40** is rotated to lock part **70** within the circular flange **66**. This movement of the tone arm pivots it clockwise about its point of engagement with rib **48** and lifts the needle **46** out of engagement with record **30**. In order to reposition the tone arm **42** for engagement of needle **46** with the sound track **30** on turntable **26**, the rear wheels **16** are rotated until the slot **68** in pulley **40** is at its uppermost position where part **70** is free to move upwardly under the biasing action of spring **60**. As a result of the freeing of part **70**, tone arm **42** moves to the position seen in FIG. 3 with stylus **46** engaging the record **30**.

In order that the sound sequences on the record **30** might be reproduced in a generally continuous manner when the toy is being pulled along the supporting surface, there is provided a repeat mechanism **74** for the phonograph. This mechanism includes an arm portion **76** which is pivoted at one end on a pin **78** projecting upwardly

from the turntable, and a coil spring 80 which is wound around pivot pin 78 and has one end fixed to a projection 82 on arm 76 and the other end engages the spindle shaft 32. The free end of arm 76 is curved and is normally positioned adjacent the center of the record or sound track, as seen in FIG. 2. As the tone arm 42 carrying stylus 46 moves to the innermost groove portion on the record 30, a cam portion 84 on the arm engages the outer end of arm 76 and moves upwardly to lift the arm and needle out of contact with the record. Continued rotation of the turntable causes needle 46 to force arm 76 outwardly, against the action of the coil spring 80, to a position adjacent the outer periphery of the turntable. At this point the stylus 46 moves off the curved outer end of the arm and drops into the outermost groove on the record 30. The spring 80 then returns arm 76 to its position abutting a stop pin 86 in readiness to again pick up the stylus and tone arm as stylus 46 again reaches the center portion of the record. The general sequence of movement of repeat mechanism 74 as it is engaged by stylus 46 is indicated schematically in FIG. 4.

What is claimed is:

1. A pull toy comprising a housing, a plurality of wheels supporting said housing, an axle carried by said housing and having one of said wheels fixed to each of the opposite ends thereof, a turntable rotatably supported within said housing and including a record on the upper surface thereof, means drivingly connecting said axle with said turntable, a tone-arm pivotally mounted within said housing and including a stylus in position for engagement with said record, an amplifying cone supported in said housing with the apex portion thereof in engagement with said tone arm, a generally vertical post providing

the pivot mounting for one end of said tone arm, a coil spring disposed about said post in upwardly biasing relation to said tone arm, said stylus being fixed to the other end of said tone arm in position for engagement with said record, said tone arm engaging said cone at an intermediate position along the tone arm, and cooperating means on said tone arm and on said axle which are selectively positionable to releasably lock said tone arm in a position wherein said stylus is held out of engagement with said record.

2. A pull toy as set forth in claim 1, wherein said turntable drive means comprises a pulley fixed to said axle for rotation therewith, and an endless flexible, drive belt positioned around said pulley and said turntable so that the latter rotates as said axle is rotated.

3. A pull toy as set forth in claim 1, including means on said turntable which is operable to engage said tone arm, as the stylus moves to the inner end of the sound track on the record, and reposition said stylus at the outer end of the sound track for repeat playing of the record.

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46—175, 204; 274—20