Oct. 30, 1962 N. L. PALMER 3,060,628

INFANT'S CRIB TOY

Filed Aug. 29, 1960 2 Sheets-Sheet 1

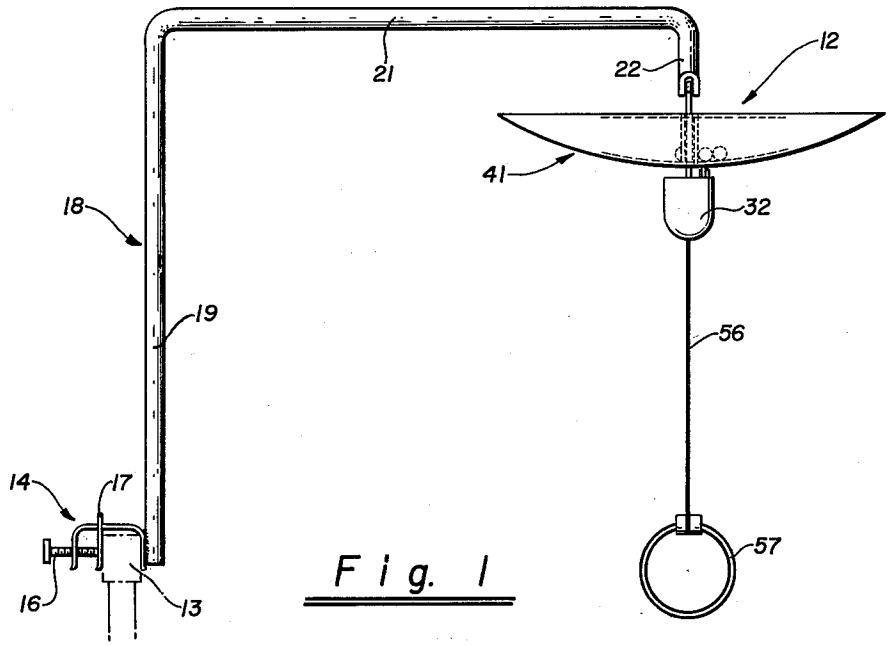

Fig. 1

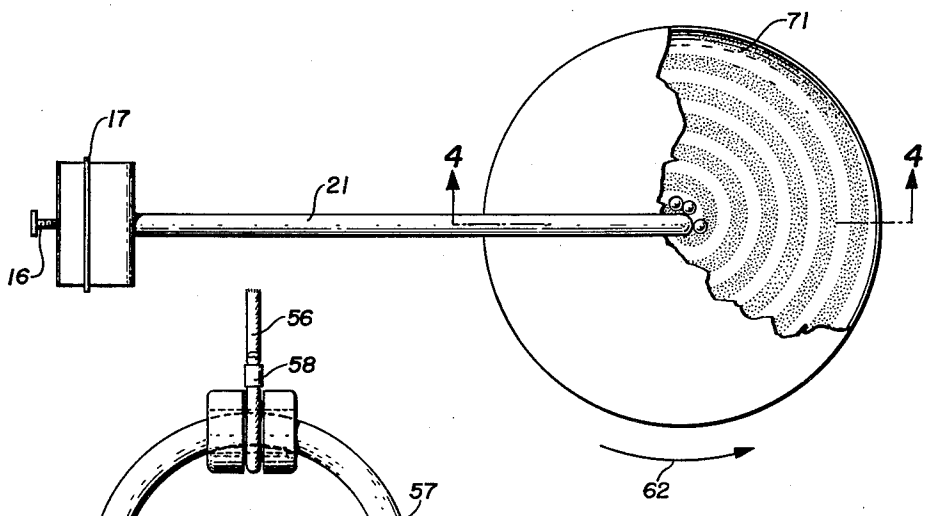

Fig. 2

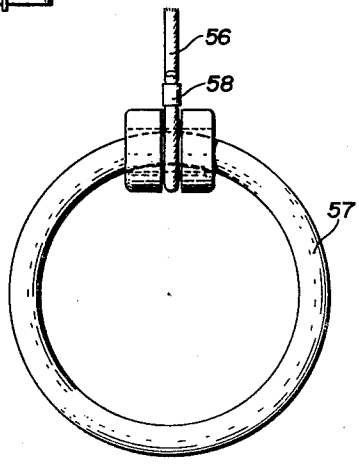

Fig. 3

INVENTOR.
Norris L. Palmer
BY Lothrop & West
Attorneys

Oct. 30, 1962 N. L. PALMER 3,060,628

INFANT'S CRIB TOY

Filed Aug. 29, 1960 2 Sheets-Sheet 2

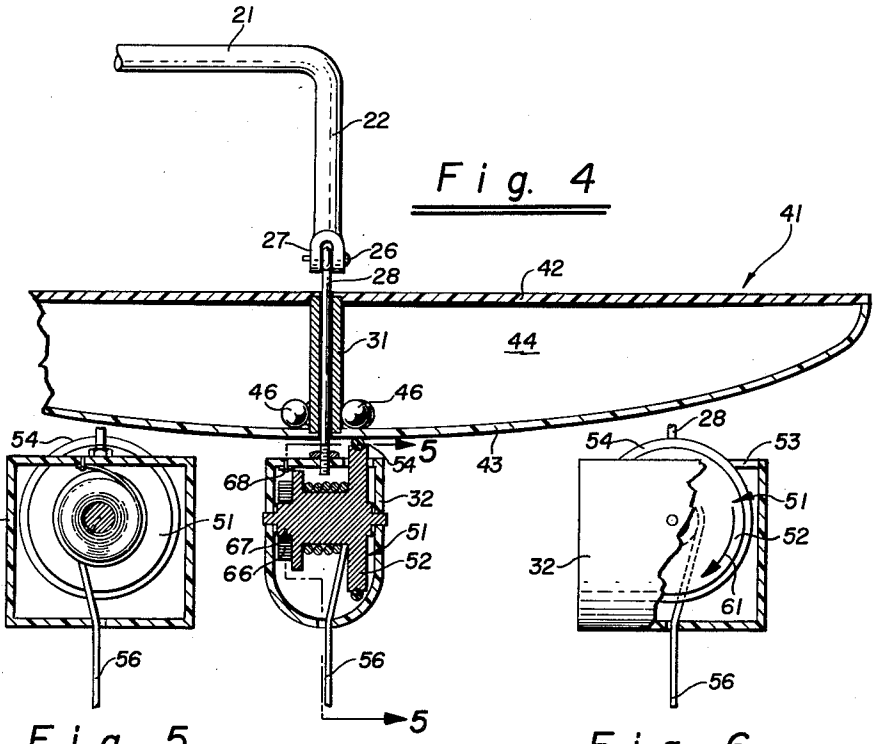

Fig. 4

Fig. 5

Fig. 6

Fig. 7

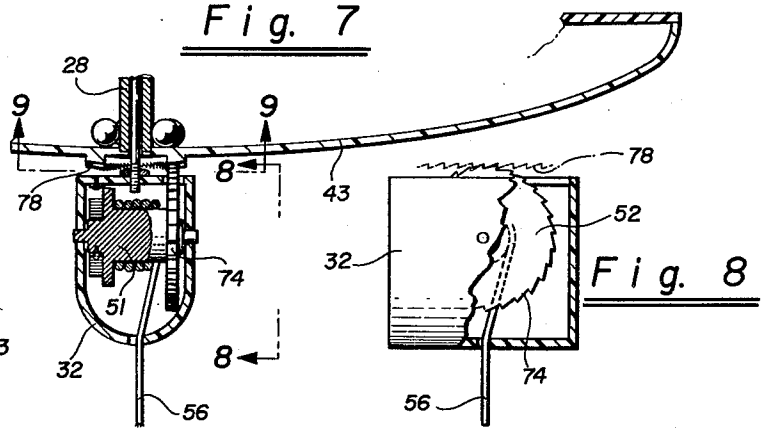

Fig. 8

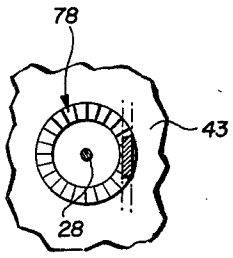

Fig. 9

INVENTOR.
Norris L. Palmer
BY Lothrop & West
Attorneys

United States Patent Office 3,060,628 Patented Oct. 30, 1962

3,060,628

INFANT'S CRIB TOY

Norris L. Palmer, 1301 Keeney Way, Sacramento 25, Calif.

Filed Aug. 29, 1960, Ser. No. 52,709
1 Claim. (Cl. 46—59)

The invention relates to toys for children and, more particularly, to toys especially suitable for use by infants in their cribs.

It is an object of the invention to provide a toy which is easily attached to and detached from an infant's crib.

It is still another object of the invention to provide a toy which is capable of amusing an infant in a crib for long periods of time and which serves, as well, to improve the coordination of the user.

It is yet another object of the invention to provide a spinning toy which maintains for a long time the interest of the user owing partly to the fact that the elements move in alternately opposite directions.

It is a further object of the invention to provide a spinning toy which, while being relatively inexpensive, is durable and long-lived.

It is another object of the invention to provide a generally improved spinning toy.

Other objects, together with the foregoing, are attained in the embodiments described in the following description and shown in the accompanying drawings in which:

FIGURE 1 is an end elevation view showing the device in a typical environment, namely, being attached to the top rail of an infant's crib, the rail being shown in fragmentary fashion;

FIGURE 2 is a top plan view, a portion of the spinning member being broken away to reveal underlying details;

FIGURE 3 is a view, to an enlarged scale, of the hand-ring;

FIGURE 4 is a fragmentary section, the plane of section being indicated by the line 4—4 in FIGURE 2;

FIGURE 5 is a section of the drive and return mechanism, the plane of section being indicated by the line 5—5 in FIGURE 4;

FIGURE 6 is an elevational view of the right-hand side of the drive mechanism shown in FIGURE 4, a portion being broken away to show interior details;

FIGURE 7 is a fragmentary section of a modified form of structure, the plane of section being similar to that in FIGURE 4;

FIGURE 8 is a view similar to FIGURE 6 but showing a modified drive mechanism, the view being indicated by the line 8—8 of FIGURE 7; and

FIGURE 9 is a sectional view of a portion of the modified drive mechanism, the plane of section being indicated by the line 9—9 of FIGURE 7.

While the device of the invention is susceptible of numerous physical embodiments, depending on the environment and requirements of use, substantial numbers of the herein shown and described embodiment have been made and used and all have performed in an eminently satisfactory manner.

The spinning toy of the invention, generally designated by the numeral 12, is conveniently mounted on the top rail 13 of a child's crib (not shown in its entirety) by a bracket 14, the bracket 14 comprising a screw 16 bearing against a clamping plate 17 urged by the screw against the rail 13.

A toy-supporting member 18, or arm, preferably includes a vertical portion 19, secured to the bracket 14, a horizontal portion 21 extending inwardly to about the center of the usual crib, and a short vertical or depending portion 22 at the distal end of the arm.

Pivotally mounted on a pin 26 (FIG. 4) extending

across the bifurcated lower end 27 of the portion 22 is a rod 28.

The depending, swingable rod 28 serves not only as an axle upon which a bearing 31 is journalled, but also as a support for a housing 32, the lower end of the rod 28 being in threaded engagement with the housing 32 and being secured by a lock nut.

The principal rotating member of the spinning toy comprises a transversely enlarged and flattened hollow drum 41 mounted on the rotatable bearing 31. The drum 41 is preferably made from a transparent or translucent "plastic" material and includes a planar upper member 42 and an arcuate lower member 43 defining an interior chamber 44.

A plurality of rolling members, such as balls 46, is disposed within the chamber. The balls tend to locate, by gravity, at the lowest portion of the arcuate member 43. However, when the drum 41 is rotated, centrifugal force causes the balls to move outwardly, the displacement distance being dependent upon the angular velocity of the drum. The sound of the balls, and their appearance, as they move, is one of the items of continuing interest to the user.

Rotation of the spinning drum is effected, in the first embodiment (FIG. 4), by a friction drive mechanism including a pulley 51 rotatably mounted within the drive mechanism housing 32. An enlarged flange 52 on the pulley extends upwardly through an opening 53 in the housing. Mounted on the periphery of the flange 52 is a ring 54, or rim, of a somewhat resilient material, such as rubber, which also provides a substantial frictional contact with the adjacent lower surface of the drum 41.

Rotation of the pulley 51 in one direction is effected by downward movement of a cord 56 having mounted on its lower end a hand-ring 57 (FIGS. 1 and 3) provided with a conventional ferrule 58 permitting the cord length to be adjusted to a length suitable for the user.

The cord 56 is reeved over the pulley, as appears most clearly in FIGURE 4, in such a fashion that as the hand-ring 57 is pulled downwardly the pulley rotates in the direction indicated by the arrow 61 in FIGURE 6. Concurrently, the drum 41, being pulled by gravity into frictional contact with the rotating ring 54, is caused to rotate about its vertical axis in the direction indicated by the arrow 62 in FIGURE 2.

As the cord 56 reaches the end of its downward run, or is otherwise brought to a halt by the user, the inertia of the spinning drum continues the rotation of the drum in the direction of the arrow 62 despite frictional slippage against the ring 54. As friction between the ring 54 and the drum 41 overcomes the inertia the drum comes to a stop.

Energy is also stored in a helical spring 66 disposed on the pulley and mounted so that at one end 67 it is secured to the pulley and at the other end 68 it is affixed to the housing. The spring is arranged so that when the cord is pulled downwardly the spring is wound up. Then, when the tension on the cord is relieved after the drum has stopped, the spring tends to unwind, thus reversing the direction of rotation of the pulley 51 and the drum 41.

It is apparent, therefore, that alternate upward and downward movement of the cord 56 effects an alternate rotational movement of the drum.

The friction type of drive reduces shock to a minimum, and the override or lag in reversal of the drum, accompanied by the movement of the balls as the drum slows down, then reverses, provides an effect which is interesting and amusing.

Indicia 71 provided on the bottom plate of the drum, such as a spiral, furnishes still another element of continuing interest to the user.

As shown in FIGURES 7, 8 and 9 the drive can be somewhat modified while leaving the remaining structure the same. The pulley **51** has a ratchet rim **74** engaging ratchet teeth **78** on the drum member **43**, the engagement being maintained by gravity. The operation is about as before although the accelerating drive is more positive and there is no drive in a reverse direction when the ring **57** is released by the user. When the drum teeth **78** overrun the ratchet rim **74**, a pleasant whirring sound occurs adding to the attraction of the toy.

It can therefore be seen that I have provided a spinning toy which serves not only as an exerciser for an infant in a crib but also as a device which helps to coordinate a child's facilities and to keep a child amused for extended periods of time.

What is claimed is:

A spinning toy comprising:

(*a*) a vertical supporting member;

(*b*) a vertical rod having its upper end pivotally mounted on said supporting member;

(*c*) a bearing journaled on said rod;

(*d*) a horizontally enlarged and flattened, hollow transparent drum mounted on said bearing for rotation therewith about a vertical axis;

(*e*) a plurality of balls disposed within said drum;

(*f*) a housing mounted on the lower end of said rod;

(*g*) a pulley rotatably mounted in said housing, said pulley including an enlarged circular flange projecting upwardly through an opening in said housing into driving engagement with the adjacent lower portion of said drum at a location displaced from said vertical axis;

(*h*) means for rotating said pulley including a cord wound over said pulley and having a free end depending therefrom; and

(*i*) means associated with said pulley for storing energy as said free end of said cord is urged downwardly away from said pulley.

References Cited in the file of this patent

UNITED STATES PATENTS

55,766	Flagg	June 19, 1866
617,069	Abrell	Jan. 3, 1899
700,861	Walters	May 27, 1902
1,404,894	Rollins	Jan. 31, 1922
1,558,450	Aronson	Oct. 27, 1925
1,814,105	Wolff	July 14, 1931
2,061,695	Dalton	Nov. 24, 1936

FOREIGN PATENTS

24,124	Great Britain	A.D. 1894