April 30, 1929. L. KNOTT 1,711,096

WHEELED MUSICAL TOY

Filed Nov. 9, 1927

Fig. 1.

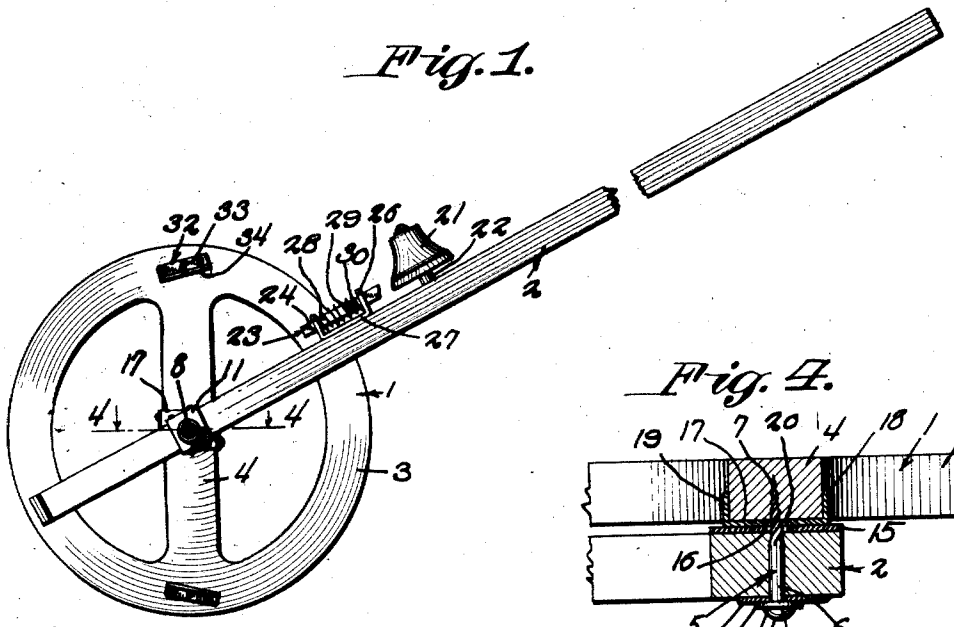


Fig. 4.

Fig. 2.

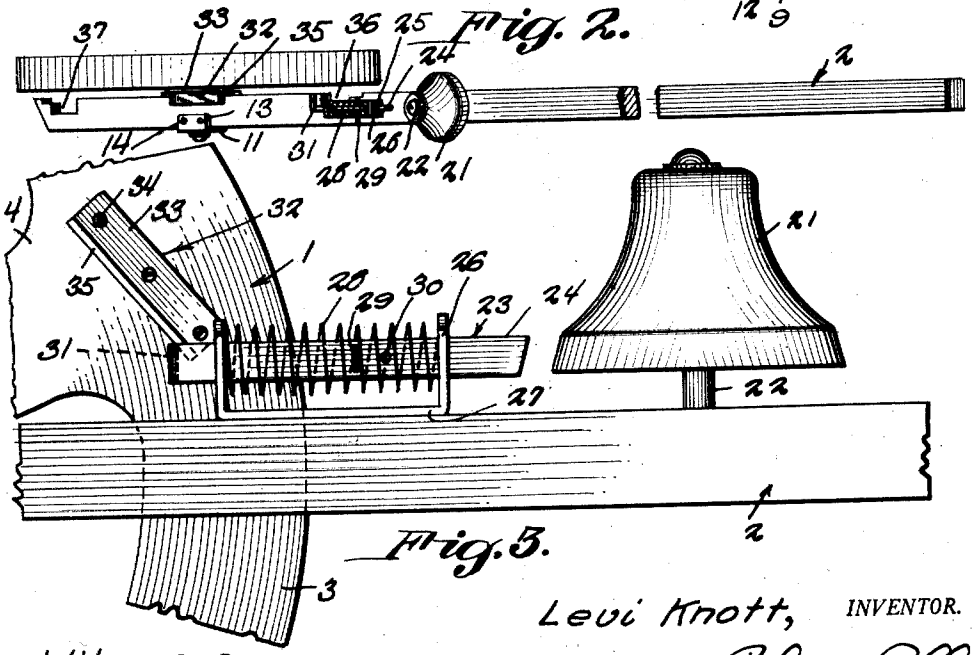


Fig. 3.

Witnesses
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UNITED STATES PATENT OFFICE.

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WHEELED MUSICAL TOY.

Application filed November 9, 1927. Serial No. 232,158.

This invention relates to improvements in toys and more particularly to an improved wheeled musical toy, and one of the objects of the present invention is to provide a toy of this class including a bell, a handle upon which the bell is supported, and a wheel supported for rotation upon the handle, in combination with means, actuated through rotation of the wheel, to effect sounding of the bell, the said means being adapted to be rendered operative regardless of the direction in which the wheel is rotated, so that a child using the toy may pull or draw the toy over the ground surface or push the toy over the ground.

Another object of the invention is to provide means of a simple and substantial, and yet highly efficient character, for actuating the striker for the bell, and to so construct this means that it will not be liable to become disarranged or damaged so as to render it useless.

Another object of the invention is to provide, in a toy of the character stated, a novel striker and novel means upon the wheel of the toy, for intermittently actuating the striker in the rotation of the wheel, as the toy is propelled over the ground.

While the accompanying drawings and the description which is to follow, constitute a disclosure of the preferred embodiment of the invention, it will be understood that various changes may be made within the scope of what is claimed.

In the accompanying drawings:

Fig. 1 is a side elevation of the toy embodying the present invention;

Fig. 2 is a top plan view of the toy;

Fig. 3 is a detail fragmentary side elevation of a portion of the toy, the view illustrating the manner in which the tripping members upon the wheel are adapted to coact with the striker for the bell, in the rotation of the wheel;

Fig. 4 is a detail horizontal sectional view taken substantially on the line 4—4 of Figure 1 looking in the direction indicated by the arrows.

The toy embodying the invention consists essentially of a wheel which is indicated in general by the numeral 1 and a handle member which is indicated in general by the numeral 2. The wheel 1 comprises an annular body or rim 3 and a diametric web or spoke 4 which, where the body is made of wood, may constitute an integral part with the body, it being only necessary, in this instance, in manufacturing the toy, to remove segmental portions of a circular, flat wooden disk, in order to produce the wheel. The handle 2 is preferably in the form of a bar of wood which is preferably of rectangular cross section, and in order that the wheel 1 may be rotatably mounted upon the handle 2, and free rotation of the wheel permitted, a spindle 5 comprising a stem 6, is formed at one end of the stem with a tapered threaded portion 7 which is driven into the web 4 of the wheel, intermediate the ends thereof and therefore in a position concentric to the periphery of the wheel. The stem 6 is provided at its other end with a head 8 which is preferably formed with a transverse groove 9, as in the case of ordinary round head screws, so that a screw driver may be applied to the stem in securing the stem in place or in removing the stem. A washer 10 is fitted upon the stem 6 immediately inwardly of the head 8, and a bearing plate 11 is disposed against the outer side of the handle 2 and is formed with an opening 12 through which the stem 6 of the spindle 5 is fitted, opposite marginal portions of the bearing plate 11 being bent at right angles from one side of the plate as at 13 to provide flanges which overlap the upper and under sides of the handle 2, nails or other suitable securing elements 14 being driven through openings in the said flanges 13 and into the handle 2 so as to secure the bearing plate in place. A washer 15 is disposed against the other side of the handle and has an opening 16 therein located centrally thereof and of a diameter to freely accommodate the inner end of the threaded portion 7 of the spindle 5. A bearing plate 17, similar to the plate 11, is disposed against the web 4 of the wheel 1 and is provided with flanges 18 which project at right angles from opposite edges thereof and which overlap the opposite longitudinal edges of the said web, (nails or other suitable securing elements 19 being driven through the flanges and into the said edges of the web. The bearing plate 17 is provided centrally with an opening 20 through which the threaded portion 7 of the spindle 5 is freely engaged. It will now be evident that, by the construction illustrated and described, the wheel 1 is mounted for free rotation at one side of the handle 2 of the toy.

The numeral 21 indicates a bell which is mounted upon a post 22 which is fixed with respect to the upper side of the handle 2 and projects upwardly at right angles therefrom,

the bell being supported upon the handle at a point slightly spaced with respect to the periphery or rim of the wheel 3.

The striker for the bell is indicated in general by the numeral 23 and the said striker comprises a bar 24 of metal which is slidably mounted in slots 25 formed in upstanding ears 26 located at the ends of a bracket plate 27 which is secured upon the upper side of the handle in advance of the post 22, one end of the bar 24 being presented toward the rim of the bell 21. A compression spring 28 is arranged upon the bar 24 and bears at its opposite ends against the ears 26, and a pin 29 is fitted through one or the other of a pair of openings 30 in the bar and secured in place with its end portions projecting in opposite directions beyond the opposite sides of the bar and between two adjacent coils of the said spring. It will be understood that by varying the position of the pin, the pin will be located closer to or more remote from that end of the spring which bears against the ear 26 which is next adjacent the bell 21. It will now be evident that movement of the striker bar 24 in either direction will be against the tension of the spring 28, greater resistance being offered to such movement by the longer portion of the spring which is between the pin 29 and the ear 26 which is next adjacent the wheel, than is offered by that portion of the spring between the pin and the other ear 26. The bar 24 at its forward end or in other words its end which is located opposite the body 3 of the wheel 1, is turned to extend laterally inwardly to provide an abutment indicated by the numeral 31, this abutment projecting laterally toward, and having its end relatively close to, the wheel body 3 and preferably substantially in the plane of that side of the handle 2 which is presented toward the wheel.

In order that the striker bar 24 may be retracted against the tension of the spring and then released so as to be driven by the spring in a direction to impact the bell 21 and sound the said bell, tripping members, indicated in general by the numeral 32, are provided upon that side of the body 3 of the wheel which is next adjacent the handle 2 and preferably at diametrically opposite points and opposite the ends of the web 4. Each of these tripping members comprises a plate 33 which is secured by screws or otherwise, as indicated by the numeral 34, to the said side of the wheel body 3, the plate being provided along one longitudinal edge with an outstanding flange 35 which projects at right angles from the plate and in the direction of the handle 2. It will be observed by reference to Figure 1 of the drawings that the two tripping members 32 are positioned to extend chordally with respect to the circle described by the periphery of the wheel body 3 and that the said members are oppositely angularly disposed or in other words are disposed at such angles as to occupy a position on lines converging in the direction of one side of the wheel. By reference to Figure 3 of the drawings it will be observed that as the wheel 1 is rotated in a clockwise direction as shown in the said figure, it being assumed that, in the position of the abutment member 30, illustrated in said figure, the toy is being drawn over the ground surface, the flange 35 of the abutment member will ride behind the abutment portion 31 of the striker 23 thus retracting the striker bar 24 against the tension of the spring 28, the spring being subjected to gradually increasing tension due to the angular disposition of the abutment member with respect to the periphery of the wheel. As the trailing end of the flange 35 or in other words the end which is nearer the axis of the wheel, rides past the abutment 31, the striker bar 24 will be released, and the spring 28 will immediately act to impel the bar in the direction of the bell 21 and effect impact of the rear end of the bar against the rim of the bell. Inasmuch as the other trip member 32 is positioned oppositely with respect to the member shown in Figure 3, its flange 35 will merely ride against the forward side of the abutment 31 and shift the striker bar 24 a short distance in a rearward direction against the tension of that portion of the spring which is located between the pin 29 and the ear 26 which is next adjacent the bell 21, without however effecting impact of the bar with the bell. On the other hand, when the toy is pushed or wheeled in a forward direction, and the wheel is rotated toward the left in Figure 1, for example, the last mentioned trip member 32 will coact with the abutment 31 in a manner to actuate the striker 23. It will be evident that inasmuch as the pin 29 extends between two adjacent coils of the spring 28, the movement of the bar 24 is yieldably resisted, in both directions, and therefore, when the bar is released, after being retracted, and strikes the bell 21, it will be immediately retracted from engagement with the bell, so that there is no likelihood of its remaining in contact with the bell to deaden the vibration thereof. In order that the trip members 32 may readily pass the handle 2, the said handle is formed, opposite the striker 23, and in its side which is opposed to the wheel 1, with a recess 36, a similar recess 37 being formed in the said side of the handle 2 close to the forward or lower end of the handle, the recesses 36 and 37 being spaced from the axis of the wheel a distance equal to the distance between the said axis of the wheel and the trip members 32.

Having thus described the invention, what I claim is:

1. In a wheeled musical toy, a handle, a wheel rotatably mounted upon the handle, a bell upon the handle, a striker upon the han-

dle for coaction with the bell and having an abutment portion, and abutment members upon the wheel arranged chordally with respect to the periphery of the wheel and oppositely angularly disposed, whereby to independently coact with the abutment portion of the striker to actuate the same in forward and reverse rotative movement of the wheel.

2. In a wheeled musical toy, a handle, a wheel rotatably mounted upon the handle, a bell upon the handle, a striker slidably mounted upon the handle for coaction with the bell, a spring yieldably holding the striker against movement in a direction away from the bell and in position with its striking end spaced from the bell, and constituting means for impelling the striker in the direction of the bell to impact the same when the striker is retracted and released, and means upon the wheel for coaction with the striker to actuate the same, in either direction of rotation of the wheel and, by such actuation, to retract the striker and release the same.

3. In a wheeled musical toy, a handle, a wheel rotatably mounted upon the handle, a bell upon the handle, a striker upon the handle for coaction with the bell, means for supporting the striker for movement into and out of engagement with the bell, the said means comprising spaced supporting elements, a spring upon the striker bearing at its ends between the said supporting elements, a pin upon the striker projecting between relatively adjacent coils of the spring near one end of said spring, whereby to provide for yieldable resisting of the movement of the striker in either direction and provide for greater yieldable resistance to its movement in one direction than in the other, and means upon the wheel for coaction with the striker to retract the same in the rotaion of the wheel, in the first mentioned direction of movement of the striker, whereby release of the striker by the said means will permit actuation of the striker to impact the bell under the influence of the spring and a cushioning and retraction of the striker after such impact.

4. In a wheeled musical toy, a handle, a wheel rotatably mounted upon the handle, a bell upon the handle, a striker slidably mounted upon the handle for coaction with the bell and having an abutment portion, a spring yieldably resisting movement of the striker away from the bell and acting to move the striker to impact the bell, and trip members upon the wheel positioned one to coact with the abutment portion and actuate the striker in the rotation of the wheel in one direction and the other to coact with the abutment portion and actuate the striker in the rotation of the wheel in the other direction.

5. In a wheeled musical toy, a handle, a wheel rotatably mounted upon the handle, a bell upon the handle, a striker slidably mounted upon the handle for coaction with the bell and having an abutment portion, a spring yieldably resisting movement of the striker away from the bell and acting to move the striker to impact the bell, and abutment members upon the wheel arranged chordally with respect to the periphery of the wheel and oppositely angularly positioned whereby to independently coact with the abutment portion of the striker to actuate the same in forward and reverse rotative movement of the wheel, the said abutment members being arranged diametrically with respect to the axis of the wheel.

In testimony whereof I affix my signature.

LEVI KNOTT.