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W. P. DOE ET AL
MUSICAL ACTION TOY
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Fig. 1.

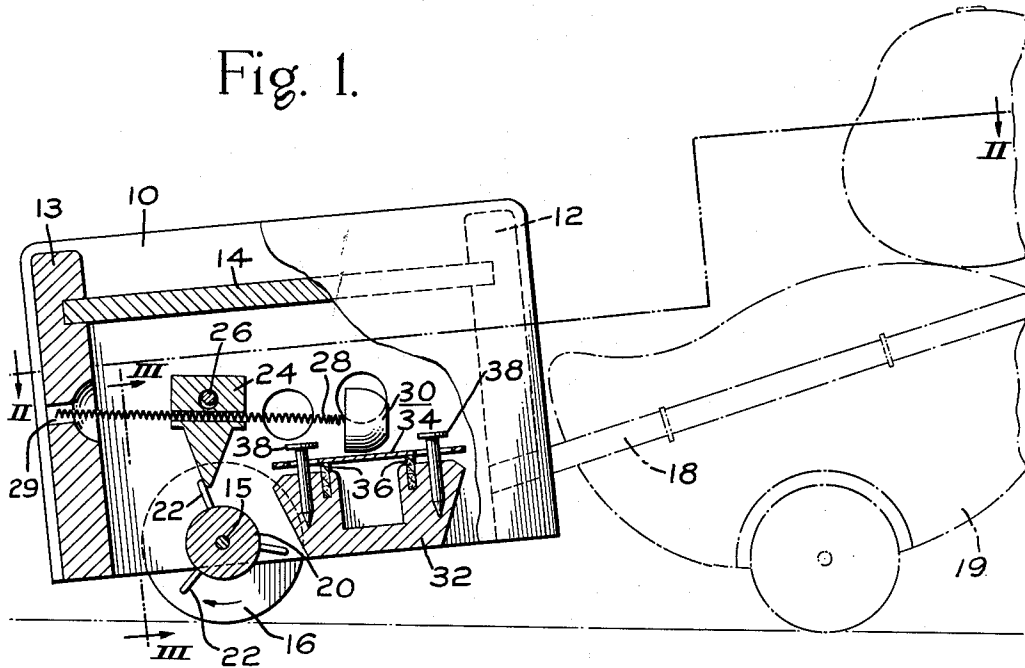


Fig. 2.

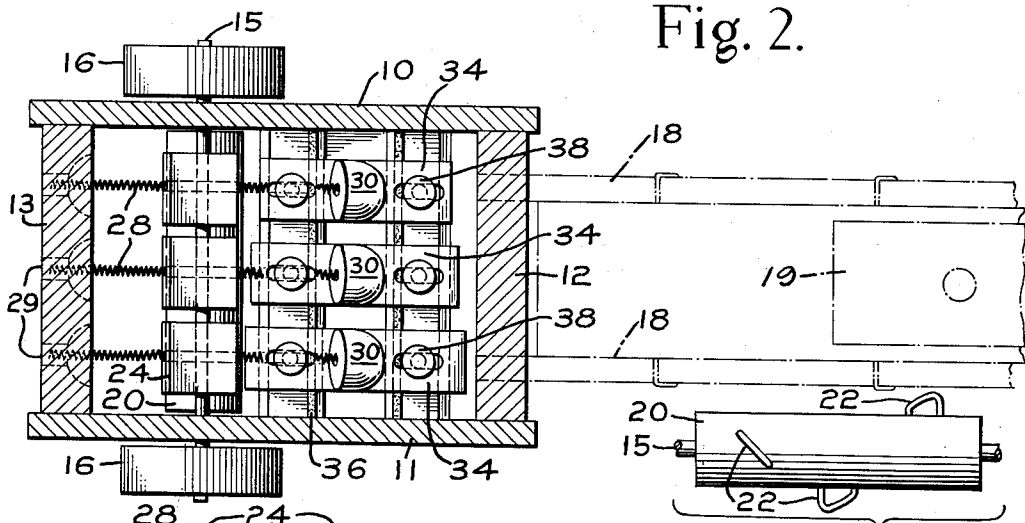
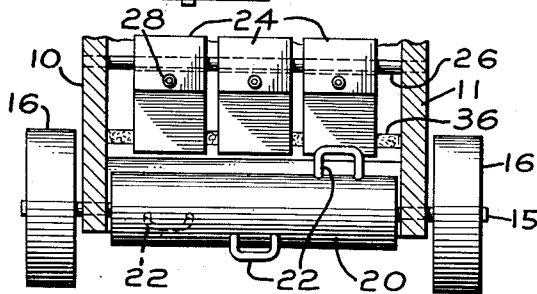


Fig. 3.

Fig. 4.



INVENTORS
WALTER P. DOE and
HERMAN G. FISHER
BY

Beau, Brooks, Buckley & Beau,
ATTORNEYS.

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MUSICAL ACTION TOY

Walter P. Doe and Herman G. Fisher, East Aurora, N. Y., assignors to Fisher-Price Toys, Inc., East Aurora, N. Y.

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8 Claims. (Cl. 46-114)

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This invention relates to action toys, and more specifically to musical toys of the type wherein music producing mechanisms are motivated in response to trundling of the toy across a floor or pavement surface or the like.

One of the objects of the present invention is to provide an improved toy of the character described whereby an improved music producing action is obtained.

Another object of the invention is to provide an improved toy employing a musical sound producing unit of the percussion bar or "xylophone" type.

Another object of the invention is to provide an improved toy as aforesaid which is so designed and constructed as to be adapted to be fabricated relatively inexpensively.

Another object of the invention is to provide an improved toy as aforesaid which is of mechanically simple and rugged construction.

Another object of the invention is to provide an improved toy as aforesaid which is productive of improved musical tones.

Other objects and advantages of the invention will appear from the specification hereinafter.

In the drawings:

Fig. 1 is a fragmentary side elevation, partly in section, illustrating a toy wagon embodying an improved music producing mechanism of the present invention;

Fig. 2 is a fragmentary section, taken along line II—II of Fig. 1; and

Fig. 3 is a fragmentary section, taken along line III—III of Fig. 1; and

Fig. 4 is a fragmentary elevational view of a modified form of the actuator element of the mechanism, in disassembled relation therefrom.

As shown in the drawing, the invention is embodied in a toy wagon illustrated as comprising side panels 10—11; end panels 12—13; and a top panel 14; the toy wagon being mounted by means of an axle 15 and side wheels 16—16 for rolling movement over a floor or pavement or the like.

As indicated at 18—18 the wagon may be fitted with shafts leading into connection with an animal-simulating figure such as is indicated at 19; whereby the toy will present the appearance of a wagon device being pulled by a toy animal, or any other arrangement such as may be preferred. The toy device may be equipped with either a pull string or a push rod (not shown) whereby it will be appreciated that a child may pull or push the toy across a floor surface or the like whereupon the traction wheels 16—16 which

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are geared to the axle 15 will cause the latter to rotate incidental to movement of the toy.

The musical sound producing mechanism of the present invention is illustrated as being activated in response to rotation of the axle 15. For this purpose interiorly of the wagon device the axle 15 is conveniently fitted with a wood cylinder 20 into which are driven wire staples 22 at intervals around the periphery of the cylinder 20. Furthermore, the staples 22 are relatively spaced longitudinally of the cylinder 20 so as to be adapted to pluck against laterally aligned rockers 24 which are individually pivotally suspended from a cross bar 26 which extends transversely between the side panels 10—11 of the wagon construction.

Each of the rockers 24 is bored in fore and aft direction to receive in slide-fitting and rigidly extending relation therethrough a helically coiled wire spring 28; the rocker 24 engaging the spring intermediately of its ends and the rear end portion of each spring being loosely received within a relatively large opening 29 formed in the rear panel 13 of the wagon construction, while the front end portion of each spring mounts in firmly fixed relation thereon a striker head 30.

A cross channel-sectioned beam 32 formed of wood or other suitable material as shown in Fig. 1 is mounted to extend transversely of the interior of the wagon construction, and in turn mounts thereon a series of percussion or "xylophone" bars in registry with each of the striker heads 30, as indicated at 34. Preferably as shown in the drawing, the musical bars 34 are provided with spaced vertical supports by means of parallel felt strips 36 having their lower edges embedded in the cross beam 32; and the percussion bars 34 are held against sliding disassembly from the cross beam 32 as by means of headed nails 33 driven through enlarged apertures in the percussion bars.

The parts are so dimensioned and relatively arranged that whenever the traction wheels 16—16 rotate to thereby drive the axle cylinder 20, the staple devices 22 thereupon pluck their respective rockers 24 so as to tilt the latter away from their normal straight line attitudes (due to the natural stiffness of the spring devices 28) so as to lift the striker heads 30 relative to the percussion bars 34. Then, upon further rotation of the axle unit the rocker are released by the staples 22 whereupon the natural resiliencies of the spring devices 28 operate to cause the striker heads to be brought down sharply into percussion contact with the musical bars 34. When the asso-

ciated rocker 24 is released from the lifting pressure of the corresponding staple the inherent resiliency of the spring member 23 functions immediately to tend to straight out the spring member so as to return the rocker 24 to its normal downwardly pointed attitude as shown in Fig. 1.

This action upon the rocker 24 thereupon operates to impart to the rear end portion of the spring 23 a levelling out pressure which functions to cause the striker head 30 to tend to rebound away from its striking contact against the associated musical bar 34; thereby preventing any muffling of the musical tone vibrations which have been set up in the bar 34 by virtue of the percussion impact just received. In order to obtain the full effect referred to hereinabove, it is preferred to arrange that the rear end portion of the spring 23 is relatively free to move slightly in and out as well as up and down in the aperture 29 in the rear wall portion of the toy wagon construction; thereby avoiding the imposition of any secondary restraining forces upon the free action of the spring 23 as described hereinabove. At the same time the aperture 29 functions to position the rear end portion of the spring 23 while the rocker 24 operates simultaneously to position the intermediate portion of the spring 23; thereby stabilizing the spring generally in the desired attitude throughout the entire cycle of operation.

As shown in Fig. 2, for example, the percussion bars 34 may be provided of any desired number and of different dimensions and/or otherwise provided so as to produce different musical sounds when vibrated upon impacts with the striker heads 30.

It will of course be appreciated that the various elements of the toy construction may be fabricated of any desired materials and may be relatively dimensioned in any preferred form; and that the musical bar devices 34 and the associated striker heads 30 may be provided in any desired number so as to produce any desired combination of musical tones incidental to rotation of the wheel axle unit of the toy device. As shown in Figure 4, it is preferred to dispose the staples 22 in inclined attitudes instead of parallel to the longitudinal axis of the shaft 15, when driving the staples into the cylinder 20. This imparts an improved "wiping" action of the staples against the contact end portions of the rockers 24.

It will be appreciated that the toy construction of the invention provides a particularly compact toy parts arrangement as well as an improved music bar striker mechanism. The fact that the picker cylinder 29 and the music bar support block 32 are disposed in side-by-side relation while the bar striker springs 28 extend crosswise thereabove and are stabilized by their mountings at 29 in the toy box wall, enables the enclosing box structure to be of greatly reduced dimensions compared to arrangements of the prior art. Also, it will of course be understood that whereas only one form of the invention has been shown and described in detail, the invention is not so limited, but that various changes may be made therein without departing from the spirit of the invention or the scope of the appended claims.

What is claimed is:

1. In a musical toy of the percussion bar type, in combination, a support member, wheel means mounting said support member for rolling movement across a floor or the like, a sounding bar

mounted upon said support and adapted to be hammered to produce musical sounds, a resilient spring device flexible away from the longitudinal axis thereof, said spring device being rigidly mounted intermediately of its ends upon a rocker device which is in turn pivotally mounted upon said support, said support member comprising positional restraint means engaging one end of said spring device, a bar striker member mounted upon the other end of said spring device, cam means extending from said wheel means for intermittently rocking said rocker device so as to cause said striker to be lifted and then released to snap back into percussion striking action against said bar.

2. In a musical toy of the xylophone bar type, in combination, a support member, wheel means mounting said support member for rolling movement across a floor or the like, a sounding bar mounted upon said support and adapted to be struck to produce musical sounds, a resilient spring, said spring being carried intermediately of its ends upon a rocker pivot device extending from said support, support member comprising positional restraint means engaging one end of said spring, a striker member mounted upon the other end of said spring, cam means extending from said wheel means for intermittently rocking said rocker pivot device so as to cause the striker end portion of said spring to be elastically deflected and then released so as to snap back into percussion striking action against said bar.

3. In a musical toy of the percussion bar type, in combination, a box-like housing member, wheel means at opposite sides of said housing and an axle extending therebetween and mounting said housing member for rolling movement across a floor or the like, a sounding bar support extending transversely inside said housing member, a sounding bar mounted upon said support and adapted to be hammered to produce musical sounds, a resilient elongated spring slip fitted at one of its ends in a recess formed in a wall portion of said housing, a rocker pivoted upon said housing at a position above said axle, said spring being rigidly mounted intermediately of its ends upon said rocker, a bar striker mounted upon the free end of said spring, cam means extending from said axle for intermittently rocking said rocker so as to cause the striker end portion of said spring to be resiliently deflected and then released so as to snap back into percussion striking action against said bar.

4. In a musical toy of the percussion bar type, in combination, a toy frame having vertical side portions, wheel means mounting said frame for rolling movement across a floor or the like, a sound bar mounted to extend interiorly of said frame and adapted to be struck to produce musical sounds, a rocker pivotally mounted on said frame, a spring rigidly mounted intermediately of its ends upon said rocker, holding means at a wall portion of said frame engaging one end of said spring, a bar striker member mounted upon the other end of said spring, cam means rotating with said wheel means for intermittently actuating said rocker so as to deflect said spring and cause the striker end portion of said spring to be carried away from and then released so as to snap back into percussion striking action against said bar.

5. In a musical toy of the percussion bar type, in combination, a support member, wheel means

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mounting said support member for rolling movement across a floor or the like, a sounding bar mounted upon said support and adapted to be hammered to produce musical sounds, a resilient spring device flexible away from the longitudinal axis thereof, said spring device being rigidly mounted intermediately of its ends upon a rocker device which is in turn pivotally mounted upon said support, said support member comprising deflection restraint means slidably engaging one end of said spring device, a bar striker member mounted upon the other end of said spring device, and means extending from said wheel means for intermittently lifting and releasing said rocker device so as to cause said striker to be deflected and then released to snap back into percussion striking action against said bar.

6. In a musical toy of the xylophone bar type, in combination, a support member, wheel means mounting said support member for rolling movement across a floor or the like, a sounding bar mounted upon said support and adapted to be struck to produce musical sounds, an elongated resilient spring, said spring being carried intermediately of its ends upon a pivot device extending from said support, said support member comprising deflection restraint means slidably engaging one end of said spring, a striker member mounted upon the other end of said spring, and means extending from said wheel means for actuating the striker end portion of said spring to intermittently lift and release said striker end portion of said spring so as to snap said striker back into percussion striking action against said bar.

7. In a musical toy of the percussion bar type, in combination, a box-like housing member, wheel means at opposite sides of said housing and an axle extending therebetween and mounting said housing member for rolling movement across a floor or the like, a sounding bar support

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extending transversely inside said housing member, a sounding bar mounted upon said support and adapted to be hammered to produce musical sounds, a resilient elongated spring restrained at one of its ends by engagement with a wall portion of said housing, a rocker pivoted upon said housing at a position above said axle, said spring being rigidly mounted intermediately of its ends upon said rocker, a bar striker mounted upon the free end of said spring, and cam means extending from said axle for intermittently pivoting said rocker so as to cause the striker end portion of said spring to be resiliently deflected and then released so as to snap said striker back into percussion striking action against said bar.

8. In a musical toy of the percussion bar type, in combination, a toy frame having vertical side portions, wheel means mounting said frame for rolling movement across a floor or the like, a sound bar mounted interiorly of said frame and adapted to be struck to produce musical sounds, a rocker pivotally mounted on said frame, a spring rigidly mounted intermediately of its ends upon said rocker, holding means at a wall portion of said frame engaging one end of said spring, a bar striker member mounted upon the other end of said spring, cam means rotating with said wheel means for intermittently actuating said rocker so as to alternately deflect and release said spring and to cause the striker end portion of said spring to be carried away from and then released so as to snap back into percussion striking action against said bar.

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