July 18, 1961 R. W. CRAWFORD 2,992,511

MUSICAL INSTRUMENT

Filed Feb. 17, 1958

2 Sheets-Sheet 1

FIG. 1

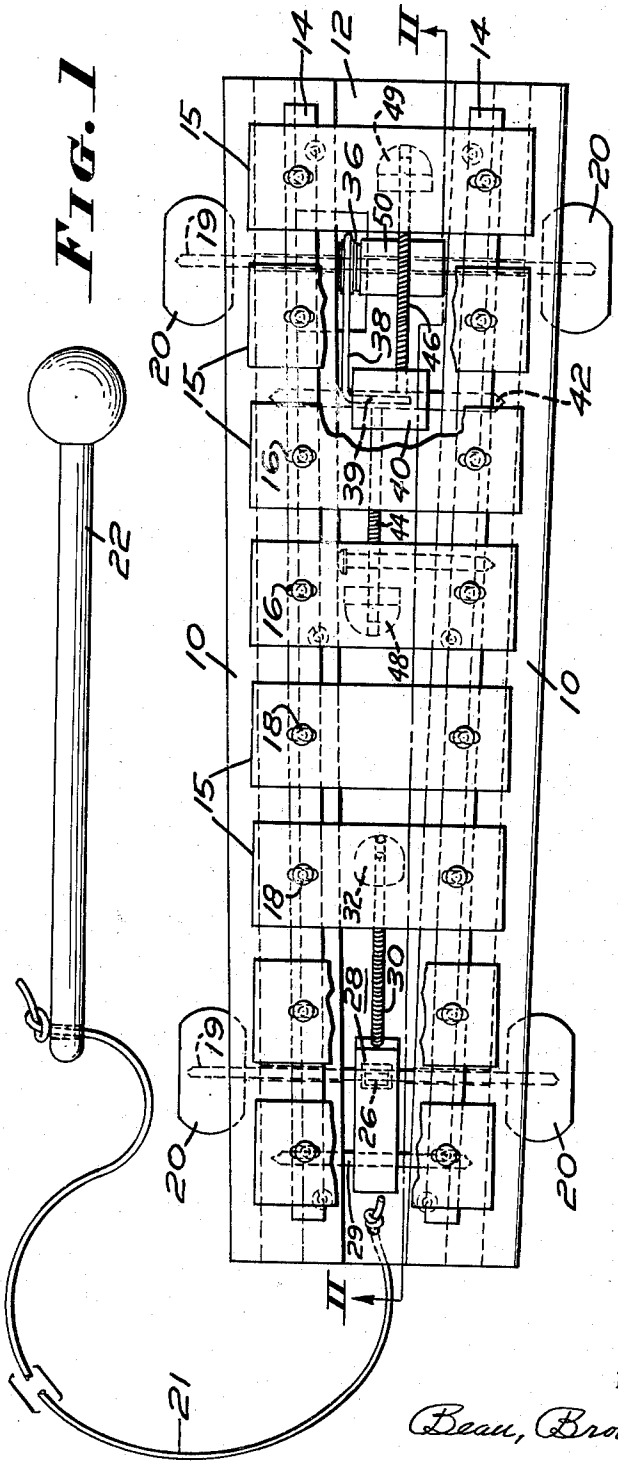
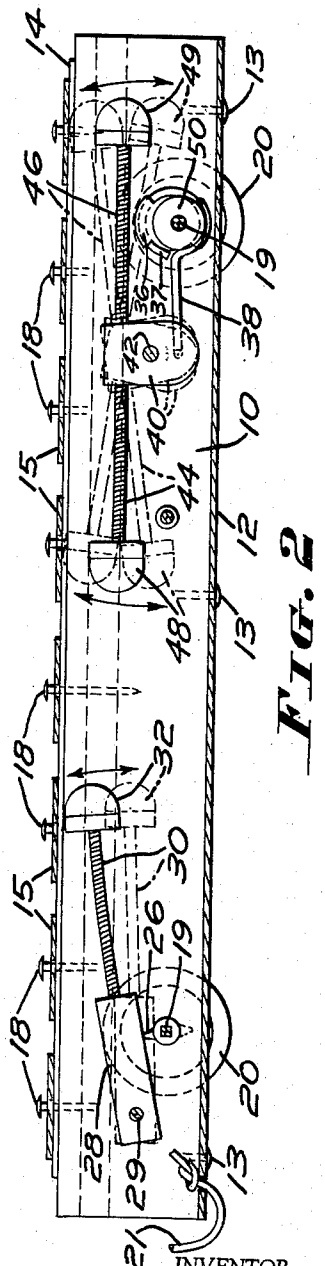


FIG. 2



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FIG. 3

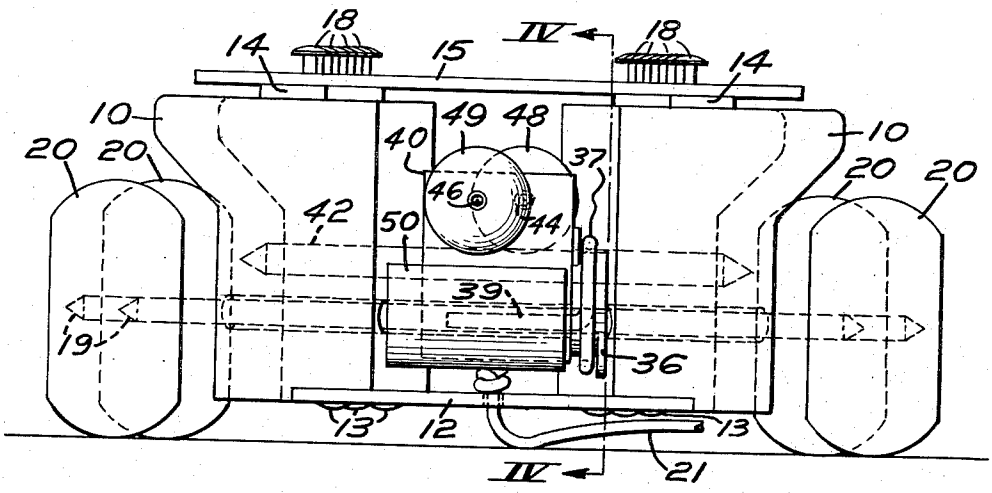
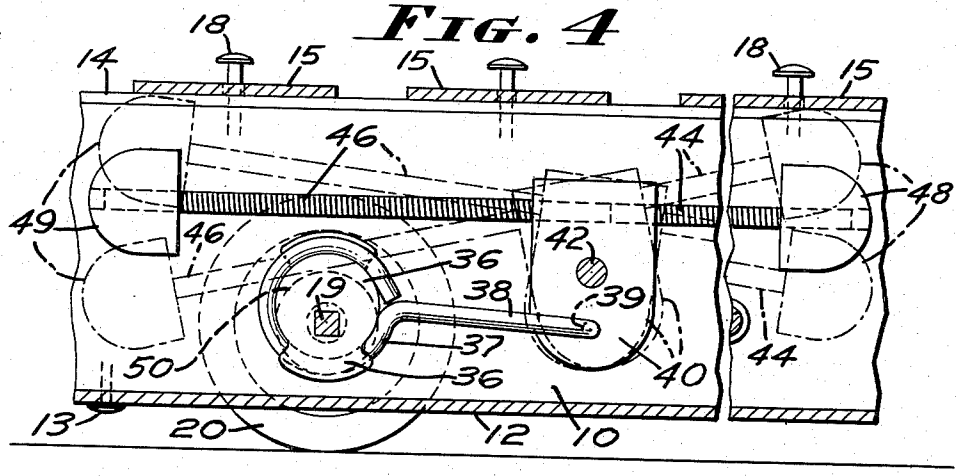


FIG. 4



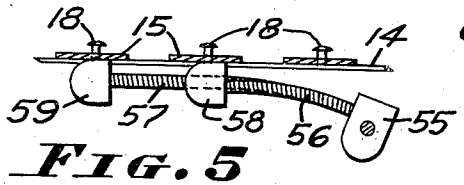


FIG. 5

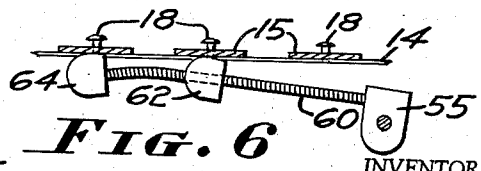


FIG. 6

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2,992,511
MUSICAL INSTRUMENT

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Filed Feb. 17, 1958, Ser. 715,749
6 Claims. (Cl. 46—111)

This invention relates to action toys and more particularly to a novel musical toy which is operable either by manual striking thereof or automatically in response to trundling thereof across a floor 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 top plan view of a toy embodying the present invention;

FIG. 2 is a sectional view taken along line II—II of FIG. 1;

FIG. 3 is a rear end elevational view of the toy of FIGS. 1, 2;

FIG. 4 is a fragmentary sectional view taken along line IV—IV of FIG. 3;

FIG. 5 is a fragmentary side elevational view of a modified form of striker component of the mechanism of the present invention; and

FIG. 6 is a view corresponding to FIG. 5 of still another modified form of striker component.

As shown in the drawing, the invention is embodied in a toy xylophone comprising a pair of sills 10—10 disposed in generally parallel relation and relatively assembled by means of a base board 12 and headed nails 13. The sills mount strips of felt or the like as indicated at 14—14 which in turn support transversely disposed xylophone bars 15 which are of graduated lengths so as to produce different musical notes when hammered upon by means of a suitable striker, as is well known in the xylopone art. To maintain the bars 15 in operative position on the sill assembly, the bars are apertured as indicated at 16 so as to loosely engage headed nails 18 driven into the sills 10—10 as is also conventional.

The sills 10—10 are rollably supported for push or pull motivation across a floor or similar supporting surface by means of axles 19—19 and rollers or wheels 20; and as shown in FIG. 1 a pull cord 21 may be conveniently attached to one end of the base plate 12 and arranged to carry at its other end a striker mallet 22. Thus, it will be appreciated that the toy may be pulled by means of the mallet handle by a child across a floor or supporting surface, and that the mallet may also be employed at will for hammering upon the xylophone bars to provide musical notes in the manner of conventional playing of a xylophone type musical instrument.

As shown in the drawing herewith in FIGS. 1–2, the axles 19—19 are variously equipped to provide automatic percussive actuations of the musical bars 15 whenever the toy is pushed or pulled across a supporting floor or the

like. For example, the axle at the left hand end of the toy as shown in FIGS. 1–2 is shown to be of square sectioned form and carries in keyed relation thereon a cam device 26 which is adapted to periodically throw upwardly, upon rotation of the axle 19, one end of a pitman 28 which is pivoted to the sills 10—10 by means of a cross shaft 29. From the free end of the pitman 28 a coil spring 30 extends, and terminates in a striker head 32 formed of hard wood or the like; and the parts are so dimensioned that as the axle 19 rotates the cam 26 the latter periodically causes the striker 32 to be kicked upwardly into percussive contact with the registering xylophone bar 15. The elastic nature of the spring 30 permits the striker head to rebound smartly subsequent to each hammering upon the bar 15, and otherwise imparts to the striker head a "lively" action. In fact, the parts will preferably be so arranged that whenever the toy is idle with the cam 26 in top lifting position as shown in FIG. 2, the striker head 32 will be slightly below and clear of the bar 15. By virtue of this arrangement the striker head 32 tends to rebound more quickly from each percussive contact with the bar 15, while the flexible nature of the spring 30 nevertheless provides for adequate transmission of the cam throw forces to the striker head to insure smart striking thereof against the plate 15.

FIGS. 1–4 also illustrate another form of automatic striker actuation mechanism in conjunction with the axle 19 at the right hand end portion of the toy as viewed in FIGS. 1–2. In this case the square sectioned axle 19 carries a flanged eccentric button 36 in the peripheral groove of which is carried the bent eye portion 37 of a connecting rod 38 which extends forwardly from the axle 19 and terminates in a right angle bent end portion 39 which slip-fits endwise into an eccentric bored portion of a rocker device 40 which is pivotally mounted between the sills 10—10 by means of a transverse pin 42. Thus, it will be appreciated that rolling motion of the toy across a floor or like surface will cause the eccentric 36 to drive the connecting rod 38 alternately toward the left and right as viewed in FIGS. 1, 2, 4, thus oscillating the rocker 40 about the pin 42. Coil springs 44, 46 extend forwardly and rearwardly from the rocker 40 and carry corresponding striker heads 48, 49 for periodic impingements upon the bars 15, as in the manner of the striker head 32 referred to hereinabove.

To facilitate assembly of the toy construction the eccentric button 36 may be separately fabricated of plastic material or the like, comprising an integral fabrication, and used in conjunction with a spacer sleeve 50 which loosely fits upon the axle 19 to complete the filling of the space between the sills 10—10 thereby maintaining the eccentric and pitman components in proper alignment.

The eccentric button 36 can conveniently comprise, for example, a circular body portion having two, diametrically opposed peripheral flanges, integral therewith, one on each of the opposite sides thereof. The two peripheral flanges are segmental, extending along only a minor portion of the periphery, whereby eccentric 36 and eye portion 37 of connecting rod 38 are readily assembled by merely tilting one relative to the other, and then slipping eccentric 36 into eye portion 37 with the peripheral flanges alined in the direction of movement and with the flange intended to be positioned on the remote side of the eye portion 37 being thereby inserted therethrough. Spacer sleeve 50 and the adjacent sill 10 act to preclude such tilting of eye portion 37 relative to eccentric 36 as might otherwise result in accidental disassembly thereof.

FIG. 5 illustrates a modified form of striker arrangement wherein the pitman or rocker as indicated at 55 is provided with a plurality of striker carrying springs 56, 57 mounting striker heads 58, 59 respectively. The springs are provided of assorted lengths so as to dispose

the striker heads to contact different xylophone bars. FIG. 6 illustrates a further modified form of striker arrangement wherein a single spring **60** extending from the rocker **55** mounts a plurality of striker heads as indicated at **62, 64**; the striker heads being disposed on the spring **60** at different distances from the rocker **55** so as to contact different xylophone bars.

I claim:

1. A musical toy comprising, at least two percussion-responsive sound producing devices mounted on a toy frame, means mounting said frame for movement across a supporting surface, automatic striker means including a rocker device pivoted on said frame, resilient arm means mounted on said rocker device for movement therewith about the pivot axis thereof, at least two striker heads carried by said resilient arm means in alinement with different ones of said sound producing devices, and actuating means for oscillating said rocker device about its pivot axis to cause said striker heads to intermittently strike said sound producing devices as said toy is moved along a supporting surface, said rocker device providing a common support for said striker heads.

2. A toy as set forth in claim 1, wherein said resilient arm means comprises a common arm carrying both of said striker heads at spaced points therealong.

3. A toy as set forth in claim 1, wherein said resilient arm means comprise at least two resilient arms each carrying one of said striker heads.

4. A toy as set forth in claim 3, wherein said resilient arms project laterally from the same side of said rocker device.

5. A toy as set forth in claim 3, wherein said resilient arms project laterally from opposite sides of said rocker device.

6. A musical toy comprising, a percussion-responsive sound producing device supported on a frame, axle means journaled on said frame and wheel means carried by said axle means for rolling said toy across a supporting surface, a rocker device pivoted on said frame, a resilient arm mounted on said rocker device for movement therewith about the pivot axis thereof, a striker head carried by said resilient arm in alinement with said sound producing device for striking the same, and means for oscillating said rocker device about said pivot axis to cause said striker to intermittently strike said sound producing device as said toy is rolled along a supporting surface, said last-named means including an eccentric carried by said axle means for rotation therewith, and a connecting rod journaled adjacent one end thereof on said eccentric, said eccentric comprising a body member loosely receiving said one end of said connecting rod therearound, and substantially diametrically opposed segmental flange parts projecting generally radially from said body member on opposite sides thereof and loosely confining said connecting rod end thereon, said connecting rod being eccentrically pivotally connected adjacent the other end thereof to said rocker device and thereby translating rotation of said eccentric into oscillation of said rocker device.

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