

March 14, 1967

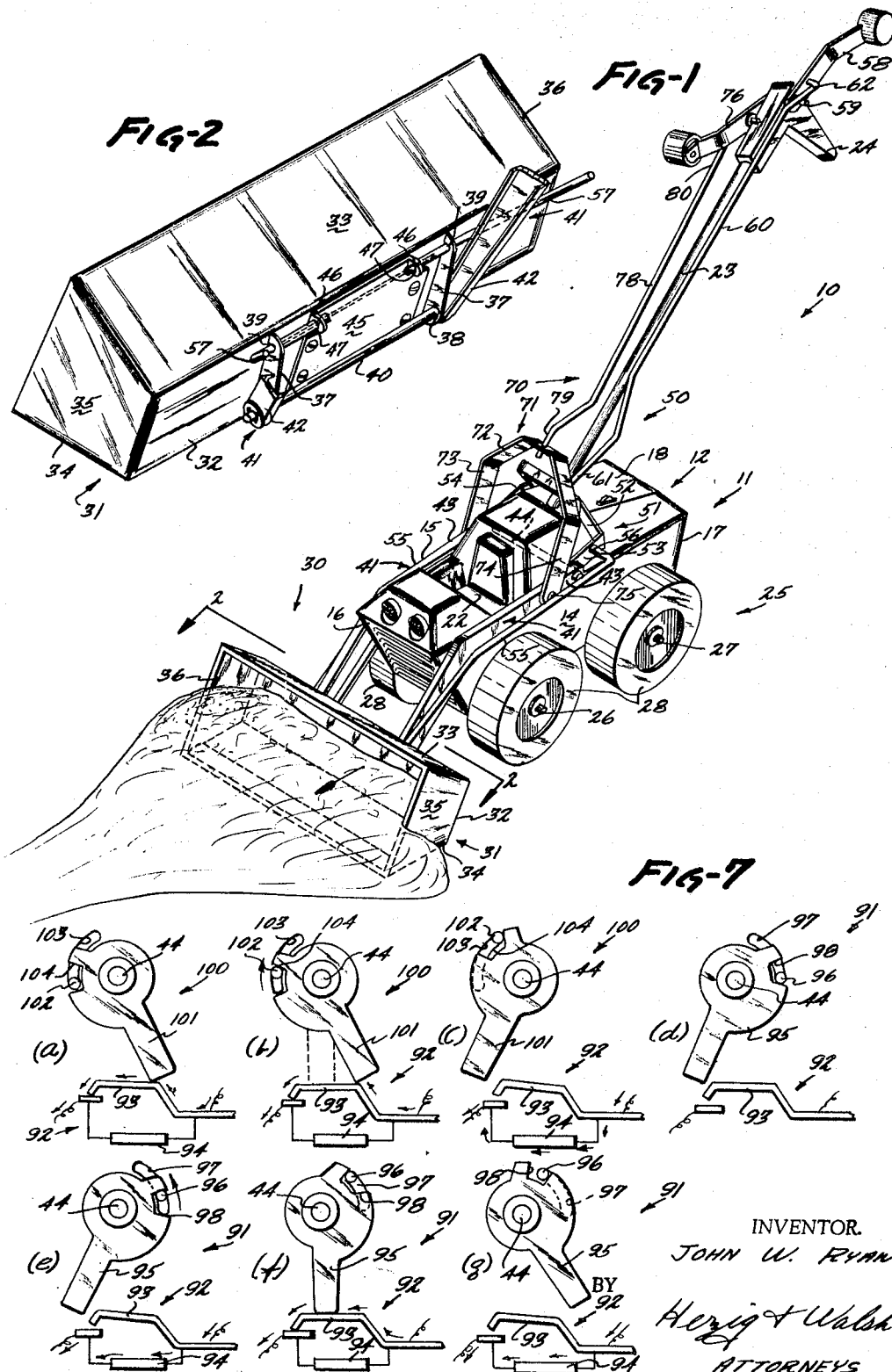
J. W. RYAN

3,308,573

SKIP LOADER TOY WITH SOUNDING MEANS

Filed Jan. 27, 1964

2 Sheets-Sheet 1



March 14, 1967

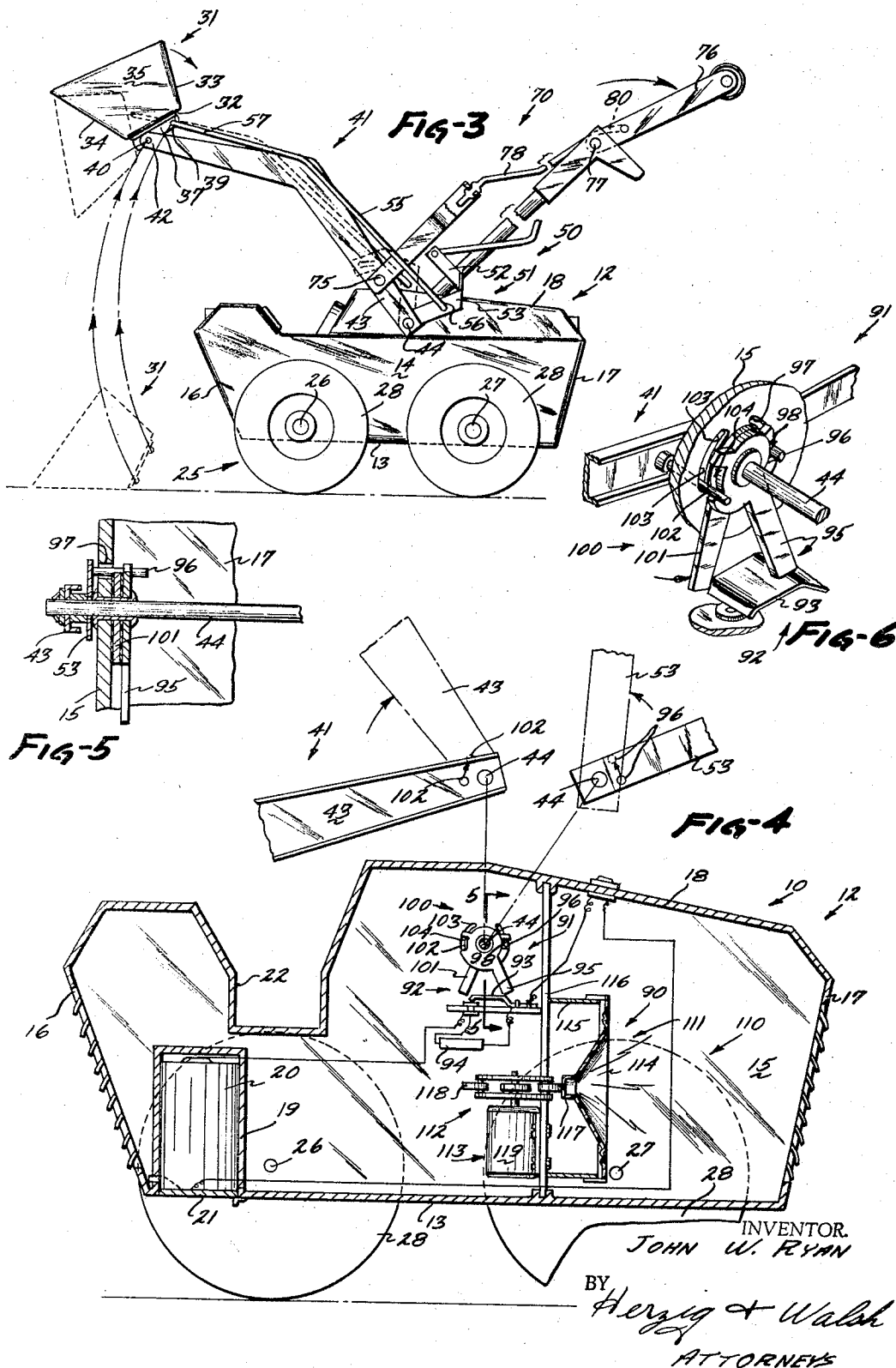
J. W. RYAN

3,308,573

SKIP LOADER TOY WITH SOUNDING MEANS

Filed Jan. 27, 1964

2 Sheets-Sheet 2



1

3,308,573

SKIP LOADER TOY WITH SOUNDING MEANS
John W. Ryan, Bel Air, Calif., assignor to Mattel, Inc.,
Hawthorne, Calif., a corporation of California
 Filed Jan. 27, 1964, Ser. No. 340,185
 2 Claims. (Cl. 46-40)

In general, the present invention relates to a skip loader toy which can be defined generally as a toy vehicle adapted to pick up, carry and dump a mass of loose material. More particularly, the present invention relates to a realistic, simply operated and constructed skip loader toy adapted to be operated by a child from a standing position.

Because of a child's well-known characteristics of curiosity and imitation, a wide variety of toy vehicles have been produced by the prior art which permit the child to imitate construction activity involving operations, such as picking up and dumping loose material, such as sand and dirt, as well as simply carrying such material. However, such prior art toy vehicles normally dumped the contents of their containers by opening the bottom of the container which required a relatively complicated structure which was easy to jam and usually required manipulation at the container rather than at a control point spaced therefrom. Furthermore, the more modern skip loader and equivalent vehicles actually dump the contents of their containers by rotating the container so that a toy in order to realistically produce their operation must also dump the contents of its container by rotation. Furthermore, the usual prior art vehicle requires the child to at least crouch or kneel before the vehicle while operating it and then crawl alongside the vehicle while moving it during the carrying operation. Such requirements rapidly tire the child in his play, so that he rapidly loses interest in the vehicle. Also, because of such restrictions, the child could not use the vehicle to move the pile of loose materials any significant distance and thus the realism of playing with the toy was substantially impaired. In addition, the usual prior art vehicle relied solely on its appearance and structure to simulate the activity of the actual vehicle. However, one of the most impressive characteristics of the actual vehicle, especially to a child, is the sounds which it emits during its operation. For example, the child will frequently attempt to simulate such sounds himself when playing with such vehicles. Thus, a toy vehicle which does not emit sounds substantially impairs the illusion which the child creates while playing with it.

Consequently, an object of the present invention is a realistic, simply operated and constructed skip loader toy which is adapted to accurately simulate the characteristics of actual skip loader vehicles.

Another object of the present invention is a skip loader toy adapted to be operated by the child from a standing position and to permit the child to easily move the toy over substantial distances.

Still another object of the present invention is a skip loader toy which is adapted to be operated by the child by utilizing controls at a single location.

Still another object of the present invention is a skip loader toy which includes motor sound means adapted to reproduce internal combustion motor sounds corresponding to the sounds generated during the normal operation of a skip loader.

Other objects and advantages of the present invention will be readily apparent from the following description and drawings which illustrate a preferred exemplary embodiment of the present invention.

In general, the skip loader toy of the present invention comprises a body having rolling means for permitting easy

2

movement of the body across a supporting surface. Mounted on the body is a rotatable bucket which is adapted to assume stable pick-up and dump positions and stable raised and lowered positions. The bucket is adapted to be rotated by a first lever means to and between such pick-up and dump positions. A second lever means is adapted to move the bucket to and between raised and lowered positions. Both of said lever means are adapted to be operated by the child from a standing position.

In order to facilitate understanding of the present invention, reference will now be made to the appended drawings of a preferred specific embodiment of the present invention. Such drawings should not be construed as limiting the invention which is properly set forth in the appended claims.

In the drawings:

FIG. 1 is a perspective view of a specific embodiment of the skip loader toy of the present invention.

FIG. 2 is a cross-sectional view of FIG. 1 taken along line 2-2 of FIG. 1.

FIG. 3 is a side elevation of the skip loader toy of FIG. 1 showing the pick-up and dump positions of the bucket and the raised and lowered positions of the bucket.

FIG. 4 is a partially exploded longitudinal cross-sectional view of FIG. 1 showing the motor sound means portion of the present invention.

FIG. 5 is a cross-sectional view of FIG. 4 taken along line 5-5 of FIG. 4.

FIG. 6 is an enlarged perspective view showing the regulator means portion of the motor sound means of the present invention.

FIGS. 7(a)-(c) is a schematic sequence of views showing the operation of the second regulator means portion of the present invention, while FIGS. 7(d)-(g) is a series of schematic views showing the operation of the first regulator means portion of the motor sound means.

As illustrated in FIGS. 1-7, the present invention involves a skip loader toy 10 having a body 11 with a rotatable bucket means 30 mounted thereon. The bucket means 30 is adapted to be rotated between the pick-up and dump positions by a first lever means 50 and between a raised and lowered position by a second lever means 70. The body 11 includes a housing 12 having a floor 13 with sidewalls 14 and 15 and front and rear walls 16 and 17 extending upwardly therefrom and covered by a cover 18. Within the housing 12 is an enclosure 19 for holding a pair of batteries 20 to supply power to the motor sound means 90 of the toy skip loader 10. The batteries 20 may be inserted and removed from the enclosure 19 by means of a trap door 21 which is removably mounted in the floor 13 of the housing 12. Formed in the cover 18 is a recess 22 to simulate the seat of a skip loader and mounted on the cover 18 is an upwardly extending elongated handle 23 with a handle grip 24 mounted on its upper end. The body 11 has rolling means 25 for permitting easy movement of the body 11 across a supporting surface. The rolling means 25 comprises a front axle 26 and a rear axle 27 mounted on and extending through the side walls 14 and 15 of the housing 12. Rotatably mounted on the ends of the axles 26 and 27 are wheels 28.

Mounted on the body 11 is a rotatable bucket means 30 adapted to assume stable pick-up and dump positions and stable raised and lowered positions.

The bucket means 30 includes a container in the form of a scoop 31 having a bottom 32, side walls 33 and 34 and end walls 35 and 36 with an open top. The bottom 32 of the scoop 31 has a pair of spaced parallel ridges 37 mounted thereon and extending between the front wall 34 and rear wall 33. Adjacent the rear and front walls 33 and 34, the ridges 37 have axially aligned holes 38 and 39, respectively. Extending through the holes 38 of

the ridges 37 is a freely rotatable pivot axle 40. Rotatably mounted on each end of the pivot axle 40 is the front end 42 of the support arm 41. The rear ends 43 of the support arms 41 are rotatably mounted on a support axle 44 mounted on the cover 18 of the housing 12. In addition, the scoop 31 has a reinforcing plate 45 mounted on its bottom 32. The reinforcing plate 45 has a pair of spaced parallel upstanding ears 46 having axially aligned holes 47 therethrough.

The bucket means 30 is adapted to be rotated to and between its pick-up and dump positions by a first lever means 50 mounted on the body 11. The first lever means 50 includes a U-shaped first pivot arm 51 formed out of a crossbar 52 and legs 53 and 54. The free ends of the legs 53 and 54 of the first pivot arm 51 are rotatably mounted on the ends of the support axle 44. Pivotally connected to each of the legs 53 and 54 are the rear ends 56 of the guide bars 55. The front ends 57 of the guide bars 55 extend through the aligned holes 39 and 47 of the ridges 37 and ears 46 of the scoop 31 are rotatable therein.

The first lever means 50 also includes a first control lever 58 pivotally mounted on a pin 59 extending from the handle grip 24 on the upper end of the handle 23. Connected between the first pivot arm 51 and the first control lever 58 is a first link bar 60 with its first end 61 attached to the crossbar 52 of the pivot arm 51 and its second end 62 pivotally mounted on the first control lever 58 above the pivot pin 59 and angled past the pivot pin 59. Thus, when the first control lever 58 is rotated so that the bucket means 30 is in a pickup position, the second end 62 of the first link bar 60 is rotated into a past center position with reference to the pivot pin 59 of the first control lever 58. Consequently, the tension on the first link bar 60 causes the first control lever 58 to assume a stable position when the bucket means 30 is in a pickup position, since end 62 of the first link bar 60 is braced against the pivot pin 59.

The bucket means 30 is also adapted to be moved between a raised and lowered position by a second lever means 70 mounted on the body 11. The second lever means 70 includes a U-shaped second pivot arm 71 formed out of a crossbar 72 and legs 73 and 74. The free ends of the legs 73 and 74 of the second pivot arm 71 are rotatably mounted on pivot pins 75 extending outwardly from the rear ends 43 of the support arms 41. The second lever means 70 also includes a second control lever 76 pivotally mounted on a pin 77 extending outwardly from the handle grip 24 mounted on the upper end of the elongated handle 23. Connected between the second pivot arm 71 and the second control lever 76 is a second link bar 78 whose first end 79 is mounted on the crossbar 72 in the second pivot arm 71. The second end 80 of the second link bar 78 is pivotally connected to the second control lever 76 above the pivot pin 77 and angled past the pivot pin 77 when the second control lever 76 is positioned to have the bucket means 30 in a raised position. Thus, the second control lever 76 assumes a stable position with the raised position of the bucket means 30, since the tension on the second link bar 78 tends to seat its end 80 more securely against the pivot pin 77. Both the first lever means 50 and the second lever means 70, as illustrated, are adapted to be operated by the child from a standing position, since the first control lever 58 and second control lever 76 are each mounted on the upper end of the handle 23.

The skip loader toy 10 also includes motor sound means 90 which are adapted to reproduce internal combustion motor sounds corresponding to the sounds generated during the normal operation of a skip loader. The motor sound means 90 includes a first regulator means 91 adapted to operate the motor sound means at high speed during the rotation of the bucket means 30 between its pickup and dump positions. The first regulator means 91 comprising a switching means 92 for changing the motor sound to and

between high speed and low speed operations. As illustrated particularly in FIGS. 4 and 7, the switching means 92 in its closed position sends current directly to the motor sound means through the switch arm 93 for high speed operation. However, in its open position the current is directed through a resistance element 94 so that the motor sound means operates at low speed. The first regulator means 91 also includes the first trip arm 95 rotatably mounted on the support axle 44 extending through the cover 18 and is adapted to operate the switching means 92. Mounted on the leg 53 of the first pivot arm 51 of the first lever means 50 is a first drive pin 96 which is adapted to operate the trip arm 95. The drive pin 96 extends through a slot 97 in the side wall 15 and is slidably received in a notch 98 formed in the first trip arm 95.

The operation of the first regulator means 91 is illustrated in FIGS. 7(d)-(g). When the scoop 31 is in a pickup position, the first trip arm 95 is positioned as illustrated in FIG. 7(d) so that the switching means 93 is open and the motor sound means 90 is idling or at low-speed operation. When the first control lever 58 is moved to the dump position, the leg 53 is raised as illustrated in FIG. 4 so that the first drive pin 96 is moved along notch 98 in the first trip arm 95 and causes the first trip arm 95 to rotate successively to the positions shown in FIGS. 7(e) and (f). In such position, the switching means 92 is in closed position so that the motor sound device operates at high speed. Finally, when the scoop 31 reaches its dump position, the first trip arm 95 is rotated by the drive pin 96 to the position illustrated in FIG. 7(g) so that the switch means 92 is again in open position and the motor sound means 90 returns to a low-speed operation.

The motor sound means 90 also includes a second regulator means 100 which is adapted to operate the motor sound means 90 at high speed during the movement of the bucket means 30 between its raised and lowered positions. The second regulator means 100 comprises the same switching means 92 used in the first regulator means 91 for changing the motor sound means to and between high-speed and low-speed operations. Also, the second regulator means 100 includes a second trip arm 101 rotatably mounted on the axle 44 and adapted to operate the switching means 92. Mounted on the rear end 43 of the support arm 41 is a second drive pin 102 which extends inwardly through a slot 103 in the cover 18 and is received in a notch 104 in the trip arm 101. Thus, the second drive pin 102 is mounted on the second lever means 70 and is adapted to operate the trip arm 101. The operation of the second regulator means 100 is illustrated particularly in FIG. 4 and FIGS. 7(a)-(c). When the bucket means 30 is in a lowered position, the trip arm 101 is positioned by the drive pin 102 seated in the notch 104 of the trip arm 101 so that the switching means 92 is in a closed position, as in FIG. 7(a). Thus, when the skip loader is scooping up loose material into the bucket means 30, the motor is operating at a high speed. When the bucket means 30 is moved between its lowered and raised positions, the drive pin 102 moves the trip arm 101 into the position illustrated in FIG. 7(b) so that the switching means 92 continues to be held in a closed position and the motor sound means continues to operate at a high speed. However, when the bucket means 30 reaches a raised position, the drive pin 102 moves the trip arm 101 to the position illustrated in FIG. 7(c) so that the switching means 92 is then opened and the motor sound means drops to low-speed operation.

The motor sound means 90 also includes a sound generating portion 110 which is shown generally in FIG. 4 and is described in detail in applicant's copending application, Serial No. 313,285, filed October 2, 1963, now Patent No. 3,236,008, entitled Motor Sounds. As disclosed in applicant's said copending application, the sound generating portion of the motor sound means includes a resonator 111 adapted to emit an internal com-

5

bustion motor sound when struck, a rotatably mounted impeller 112 having at least one lug mounted on its periphery adapted to strike the resonator during the rotation of said impeller 112 and drive means 113 for rotating the impeller 112. The resonator 111 includes a flexible cone 114 mounted on a frame 115 which is attached to a brace 116 within the body 12. The cone 114 has an apex plug 117 adjacent to the remaining portion of the sound generating portion 110. The impeller 112 is rotatably mounted adjacent to the plug 117 of the cone 114 and has a plurality of lugs 118 spaced around its periphery adapted to strike the plug during the rotation of the impeller 112. The impeller 112 is rotated by the drive means 113 which includes a motor 119 which is directly connected to the impeller 112 and adapted to rotate it.

The toy skip loader 10, as noted above, is adapted to be operated by a child from a standing position. As shown in FIGS. 1 and 3, the bucket means 30 is adapted to be moved between a lowered and raised position by operation of the second lever means 70. Thus, when the second control lever 76 is moved to a retracted position (FIG. 3), the second link bar 78 is retracted and in turn retracts the second pivot arm 71. The retraction of the second pivot arm 71 raises the support arms 41 so that the bucket means 30 is thus raised. Similarly, the first lever means is adapted to rotate the bucket means 30 between its pick-up and dump positions. Thus, when the first control lever 58 is retracted, it retracts the first link bar 60 which in turn retracts the first pivot arm 51. The retraction of the first pivot arm 51 in turn retracts the guide bar 55 and rotates the bucket means 30 to its pick-up position. Of course, by moving the first control lever 58 and second control lever 76 to their forward positions, the reversed sequence of movements takes place. Also, as set forth above, during the raising and lowering of the bucket means 30 or during its movement between its pick-up and dump positions the motor sound means 90 operates at high speed.

There are many features in the present invention which clearly shows the significant advance it represents over the prior art. Consequently, only a few of the more outstanding features will be pointed out to illustrate the unexpected and unusual results attained by the present invention. One feature of the present invention is a toy skip loader where a child may raise and lower the bucket means and move the bucket means between the pick-up and dump positions and utilizing controls at a single location while in a standing position. Another feature of the present invention is the coordination of the motor sound means with the movement of the bucket means so that when stress is placed on the bucket means, such as during its raising or lowering or during its rotation between the pick-up and dump positions, the motor sound means operates at high speed, as in an actual skip loader. Similarly, when the skip loader has the bucket means in a lowered position, the motor sound means operates at high speed during the loading operation. Still another feature of the present invention is a toy skip loader wherein the various positions of the bucket means, particularly in the raised position or in the pick-up position, are stabilized so that the forces exerted on the bucket means tends to seat the bucket means more firmly in said position.

It will be understood that the foregoing description and examples are only illustrative of the present inven-

6

tion and it is not intended that the invention be limited thereto. All substitutions, alterations and modifications of the present invention which come within the scope of the following claims or to which the present invention is readily susceptible without departing from the spirit and scope of this disclosure are considered part of the present invention.

I claim:

1. A realistic, simply operated and constructed skip loader toy comprising:

- (a) a body having rolling means for permitting easy movement of said body across the supporting surface;
- (b) a rotatable bucket means mounted on said body, said bucket means being adapted to assume stable pickup and dump positions and stable raised and lowered positions;
- (c) a first lever means mounted on said body adapted to rotate said bucket means to and between said pickup and dump positions;
- (d) a second lever means mounted on said body adapted to move said bucket means to and between said raised and lowered positions, both of said lever means being adapted to be operated by the child from a standing position;
- (e) variable speed motor sound means adapted to reproduce internal combustion motor sounds corresponding to the sounds generated during the normal operation of a skip loader;
- (f) said motor sound means including a regulator means adapted to operate said motor sound means at high speed during rotation of the bucket means between its pickup and dump positions;
- (g) said regulator means comprising switching means for changing said motor sound means to and between high speed and low speed operations concomitant with the change of said bucket means between pickup and dump positions; a trip arm rotatably mounted on said body and coacting with said switching means to operate the same; and a drive pin means mounted on said first lever means and adapted to operate said trip arm.

2. A device as in claim 1 wherein said motor sound means includes a second regulator means adapted to operate said motor sound means at high speed during the movement of the bucket between its raised and lowered positions, said second regulator means comprising a switching means for changing said motor sound means to and between high-speed and low-speed operations; a second trip arm rotatably mounted on said body coacting with said switching means to operate the same; and a second drive pin means mounted on said second lever means for actuating said trip arm.

References Cited by the Examiner

UNITED STATES PATENTS

2,985,983	5/1961	Konstenius	46—40
3,165,860	1/1965	Glass et al.	46—111

FOREIGN PATENTS

579,660	7/1959	Canada.
619,367	3/1949	Great Britain.

65 RICHARD C. PINKHAM, *Primary Examiner*.
L. J. BOVASSO, *Assistant Examiner*.