April 23, 1940. L. ROSENFIELD 2,197,773

TOY ORGAN

Filed Dec. 29, 1939 2 Sheets-Sheet 1

FIG. 1.

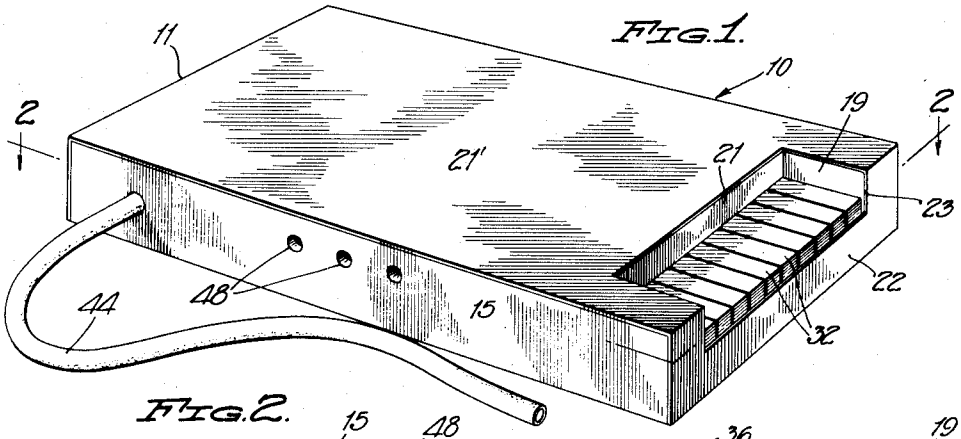


FIG. 2.

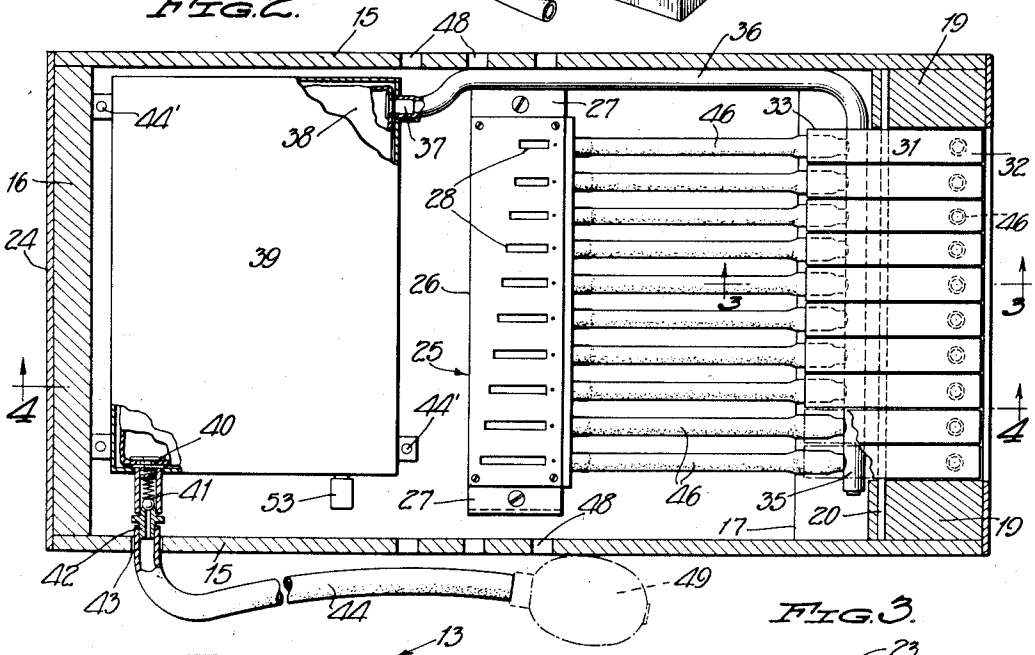
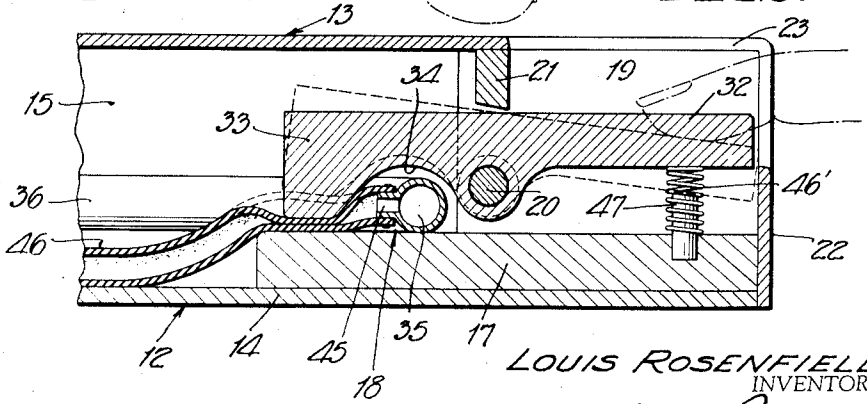


FIG. 3.



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WITNESS:

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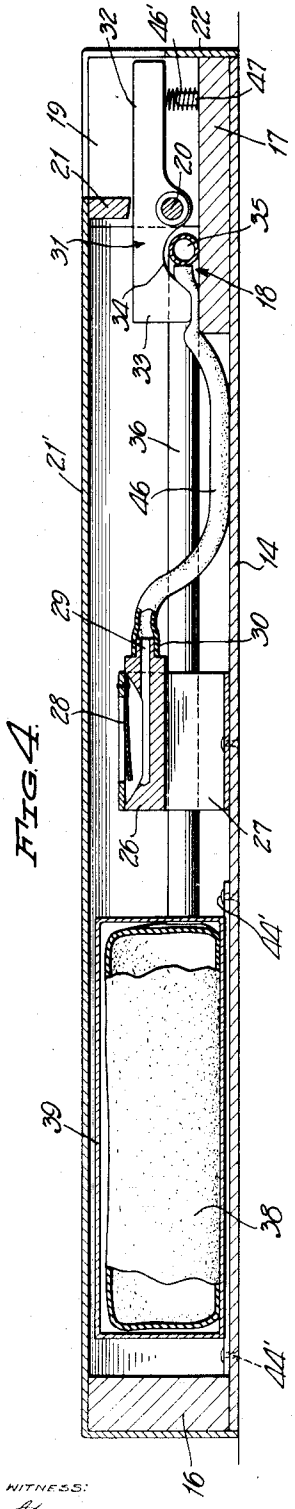


FIG. 4.

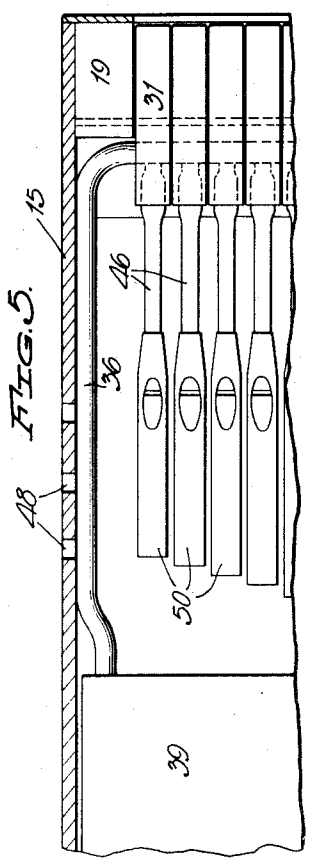


FIG. 5.

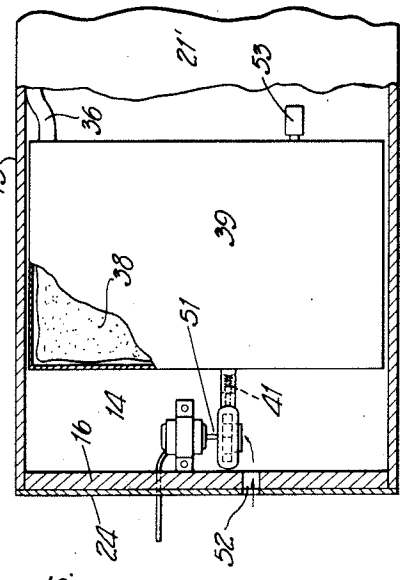


FIG. 6.

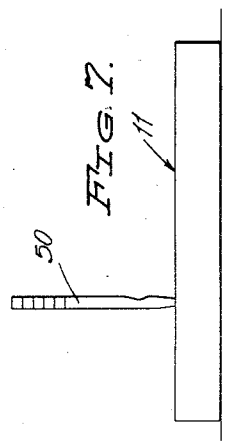


FIG. 7.

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UNITED STATES PATENT OFFICE

2,197,773

TOY ORGAN

Louis Rosenfield, Brooklyn, N. Y.

Application December 29, 1939, Serial No. 311,448

8 Claims. (Cl. 84—330)

This invention relates to improvements in toy musical instruments, and more specifically to a toy organ.

The primary object of the invention is to provide a musical toy which may be played like an organ to produce musical notes having a sound like that which emanates from an organ.

Another feature of the invention resides in a toy organ on which simple musical tunes may be played, and which will be helpful to children interested in musical education.

Another feature of the invention is the provision of a toy organ in which the air pressure to the different wind actuated musical devices, such as metallic reeds, musical pipes, or the like is controlled by a simple and novel keyboard action.

A further feature of the invention is the provision of a toy organ in which the reeds or pipes are blown by air pressure which is built up in an inflatable bladder, there being a means whereby the supply of air pressure may be restored should it drop to a degree incapable of effecting a blowing of the reeds or pipes.

A still further feature of the invention is to provide a toy organ in which the parts are inexpensive, easy to assemble, and which are enclosed to prevent tampering thereof by children.

Many other features of the invention will become apparent as the following specification is read in conjunction with the accompanying drawings, in which

Figure 1 is a perspective view of the toy organ.

Figure 2 is an enlarged horizontal sectional view on the line 2—2 of Figure 1, with parts broken away.

Figure 3 is an enlarged detail vertical sectional view on the line 3—3 of Figure 2, the key lever being shown in normal position in full lines and in depressed position in dotted lines.

Figure 4 is an enlarged vertical longitudinal sectional view taken substantially on the line 4—4 of Figure 2.

Figure 5 is a fragmentary horizontal sectional view illustrating the use of musical pipes instead of metal reeds.

Figure 6 is a top plan view with parts in section of a modified form of air inflating means.

Figure 7 is a detail side elevational view illustrating the manner in which the musical pipes may be arranged upstanding in the manner of a conventional pipe organ.

Referring to the drawings by reference characters, the numeral 10 designates my toy organ in its entirety and which includes a rectangular box like casing 11 composed of a base section 12 and a cover section 13. The base section 12 comprises a flat rigid bottom wall 14 from which rises parallel side walls 15—15 and a rear wall 16. The base section 12 is open at its front and extending across the bottom wall 14 at the front and fixedly secured thereto, is a slat 17, the upper face 18 of which is flat and defines a platform for a purpose to be hereinafter explained. Fixed to the slat 17 and rising upwardly at the ends thereof are bearing blocks 19—19 and mounted in the blocks 19—19 are the ends of a rod 20. Bridging the space between the bearing blocks 19 and terminating in spaced relation with respect to the slats 17, is a cross rail 21, which in conjunction with the bearing blocks 19 serves to provide three walls about the keyboard presently to be explained.

The cover section 13 comprises a flat top wall 21', a front wall 22, the top and front walls being cut away as at 23 to expose the keyboard as best illustrated in Figures 1 and 3 of the drawings. Formed integral with the top wall 21 and depending therefrom is a rear wall 24. The cover 13 may be constructed of relatively stiff cardboard, and when fitted over the base 12 and glued or otherwise secured thereto it provides a box like casing 11.

Fixedly supported upon the bottom wall 14 approximately midway between the front and rear ends of the casing is a wind musical instrument 25 which may be termed a harmonica, although it embodies only those reeds which function by exhaling, those reeds of a harmonica which are operable by inhaling being eliminated. The instrument 25 comprises an elongated body 26 supported in an elevated position by brackets 27. Supported by the body 26 is a row of metal reeds 28, which reeds are capable of producing different musical notes, and I have illustrated in the drawings, ten reeds which are capable of producing two notes over the conventional octave of eight notes. Each metallic reed includes an air inlet 29 which is defined by a forwardly extending nipple 30.

Pivotally mounted upon the rod 20 are key levers 31, there being one key lever for each of the reeds 28, therefore ten key levers are arranged side by side upon the rod 20. Each key lever 31 includes a forwardly extending finger portion 32 and a rearwardly extending hammer or head portion 33. The under side of the head portion 33 is arched as at 34 in order to clear an air supply manifold pipe 35 which is supported upon the platform 18 and which extends

beyond the end 11. One end of the manifold pipe 35 is closed, whereas the other end is provided with a pipe extension 36 which extends rearwardly along one of the side walls 15 and is fixedly attached to the air outlet nipple 37 of an inflatable bladder 38. The bladder 38 is enclosed in a casing 39 which restricts the inflation of the bladder so as to confine it and prevent the bladder from being distended against the walls of the casing. The bladder is provided with an air inlet 40 in which a check valve 41 is arranged, the outer end of the check valve having a nipple 42 which registers with an opening 43 in one of the side walls 15 of the casing. One end of a rubber blow tube 44 is inserted through the opening 43 and fits onto the nipple 42, whereupon a person may put the free end of the blow tube in his mouth and blow therethrough so as to inflate the bladder 38 to build up compressed air therein. The check valve 41 prevents the escape of air from the bladder through the air inlet. The casing 39 which encloses the bladder 38 is fixedly secured to the bottom wall 14 by rivets or the like 44.

The air manifold pipe 35 is provided with rearwardly extending nipples 45 and the nipples are respectively disposed beneath the head portions of the key levers 31. Fitting onto the nipples 45 are the front ends of flexible rubber tubes 46, the other ends of the tubes being respectively connected to the nipples 30 of the respective metallic reeds 28. Thus it will be seen that the air inlets 29 of the reeds are connected to the air manifold pipe 35 whereby air under pressure from the bladder 38 may flow through the pipe 36, manifold 35, rubber tube 46 to the reeds 28, and which air under pressure will cause the reeds to sound musical notes. However, the compressed air to the reeds is normally shut off by reason of the hammer or head portion 33 of the key levers being forced down upon the respective rubber tubes 46 in order to kink or compress the tubes against the platform 18 to shut off the passage of air from the manifold pipes to the metallic reeds. In order to impart the necessary force to the levers to compress or flatten the tubes 46, there is an expansion spring 46' disposed beneath the respective key levers and interposed between the finger portions 32 thereof and the slats 17. The lower convolutions of the springs 46' pass around guide posts 47 and which posts act as stops for limiting the downward movement of the finger portions of the lever, and which movement is sufficient to enable the head or hammer portion 33 to move upwardly a sufficient distance to permit air to freely flow from the manifold pipe to the musical reeds.

From the foregoing description it will be seen that by selectively pressing downwardly on the finger portions 32 of the key levers, compressed air may pass to the musical reeds controlled by the actuated key levers and musical notes will be sounded, the musical sounds passing out of the casing 11 through openings 48 in the side walls 15 of the casing. When the air pressure within the bladder 38 drops to a degree insufficient to blow the reed 28, the operator reinflates the bladder 38 by blowing through the blow tube 44. If desired, the free end of the blow tube 44 may have a rubber squeeze bulb 49 attached thereto as illustrated in dot and dash lines in Figure 2 of the drawings.

In Figure 5 of the drawings, I have illustrated a modified embodiment of the invention, wherein the rubber tubes 46 leading from the manifold pipe 35 are respectively connected to the air inlet ends of musical pipes 50. The musical pipes 50 may lie horizontally within the casing as shown in Figure 5, or they may be placed upright and disposed exteriorly of the casing as illustrated in Figure 7. When the pipes which are of different lengths are arranged upright, it will resemble the front of a conventional organ.

In Figure 6 of the drawings, I have illustrated a modified form of the means for effecting inflation of the bladder 38. Instead of the blow tube 44, I provide a motor driven fan or pump 51 which is fixedly attached to the bottom wall 14 of the casing. The motor which operates the fan 51 is an electric motor and it receives its energy from the socket of an electric supply system. Air is supplied to the fan or pump 51 through an opening 52 in the rear wall of the casing, the outlet side of the pump being connected to the inlet check valve 41. Should the bladder 38 be over-inflated by either the actuation of the fan or pump 51 or by blowing through the tube 44, the excess air pressure will be relieved by a safety valve 53 which extends exteriorly of the casing 39, but which is operatively connected to the bladder 38.

While I have illustrated a toy organ which has a keyboard consisting of two notes in excess of an octave it will be understood that the key board may be extended to take in another octave more or less, and I therefore do not wish to limit myself to the range of musical notes which might be produced by this musical device. Furthermore, such changes in construction as come within the scope of the appended claims may be resorted to if desired, without in any way departing from the spirit of the invention.

Having thus described the invention, what I claim as new and desire to secure by Letters Patent of the United States, is:

1. A toy organ comprising in combination, a plurality of wind actuated musical devices each of the musical devices being capable of sounding different notes of the musical scale and having an air inlet, an air reservoir in which air under pressure is stored, means for conveying air from said air reservoir to the air inlets of the respective musical devices, said means including flexible air tube sections, one air tube section for each musical device, a series of key levers, there being one lever associated with each air tube, and spring means acting upon the key levers to cause the same to pressingly engage the respective air tubes to shut off the passage therethrough, whereby manual actuation of the key levers against the action of the springs will permit air under pressure to flow through the air tubes to effect actuation of the wind actuated musical devices.

2. A toy organ as set forth in claim 1, including in the combination, a means for recharging the air reservoir with air when the pressure therein drops below a predetermined operating pressure.

3. A toy organ comprising in combination a box like casing having sound emitting openings therein, a row of key-levers mounted within said casing at the front thereof, each of said levers having a front finger portion and a rear head portion, the front of said casing being cut away to expose the finger portions of the key levers for finger manipulation, an air supply reservoir within said casing in which air under pressure is stored, a manifold air supply pipe connected to said air supply reservoir and extending be-

neath but clear of the head portions of the row of key-levers, a plurality of wind actuated musical devices within said casing, there being one musical device for each key lever and the musical devices being capable of producing different notes of the musical scale, each musical device having an air inlet, flexible tubes connecting the respective air inlets with the manifold, a portion of said tubes underlying the respective head portions of said key-levers, and spring means acting upon said key-levers to press the head ends against said tubes and effect a kinking thereof to normally shut off the flow of air therethrough, whereby selective manual depression of the finger portions of said key-levers will effect a lifting of the head end of the key levers and permit of the passage of air to the musical devices.

4. A toy organ as set forth in claim 3, including means for replenishing the air pressure in the air supply reservoir, and automatic valve means for releasing air from the reservoir should the air pressure therein reach a predetermined excessive amount.

5. A toy organ including a wind actuated musical instrument having a row of reeds for producing different musical notes, each reed having an air inlet, a key-board including a key-lever for each reed, an air pressure supply manifold underlying the key-board, flexible rubber tubes connecting the air inlets of the reeds to said manifold pipe and having portions thereof disposed in the path of downward movement of the inner ends of said key-levers, and spring means acting to normally cause the inner ends of the levers to pressingly engage and kink said flexible rubber tubes to shut off the passage of air from said manifold to said reeds, whereby manual actuation of said key-levers against the action of said spring means will cause the same to release said tubes and permit the free flow of air from said manifold to said reeds.

6. A toy organ including a base, a row of key-levers pivoted intermediate their ends and above said base, an air pressure supply manifold fixedly mounted upon said base and extending beneath the inner ends of said key-levers and out of the path thereof, a plurality of wind actuated musical devices productive of the notes of a musical scale, each musical device having an air inlet, rubber tubes connecting the air inlets of the musical devices to the manifold, portions of the tubes resting upon said base and underlying the inner ends of the respective key-levers, expansion springs interposed between said base and the outer ends of said key-levers for causing the inner ends of the key-levers to depress said tubes against said base to shut-off the passage therethrough, whereby manual depression of the outer ends of said key-levers against the action of said springs will cause the inner ends of said key-levers to release the tubes and permit of the free passage of air from said manifold to the reeds.

7. A toy organ comprising in combination a box-like casing having an exposed key-board at the front thereof, said key-board consisting of a row of pivoted key levers, a plurality of wind actuated musical devices mounted within said casing productive of the different notes of a musical scale, each of said musical devices having an air inlet, rubber tubes extending from front to rear and contained within said casing having their rear ends respectively connected to the air inlets of the musical devices and their front ends respectively disposed beneath the inner ends of the key-levers, an air inflatable member contained within said casing, means connecting the front ends of said tubes to said air inflatable member, means for facilitating the inflation of said inflatable member, and spring means acting upon the individual key-levers for causing the inner ends thereof to normally kink the tubes to close the passage therethrough.

8. A toy organ including a plurality of wind actuated musical pipes productive of different notes of a musical scale, each musical pipe having an air inlet, a key-board composed of a row of key-levers equal to the number of musical pipes, an air pressure supply manifold underlying the inner ends of the key-levers and disposed out of the path thereof, flexible rubber tubes connecting the air inlets of said musical pipes with said manifold and having portions thereof disposed in the path of downward movement of the inner ends of the key levers, the last mentioned portions of said tubes being seated on a rigid rest, and spring means acting upon said key levers to forcibly press and flatten portions of the tubes against the rigid rest to shut off the passage therethrough, whereby manual depression of the outer ends of said key-levers will release said tubes and permit of the free flow of air from said manifold to said musical pipes.

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