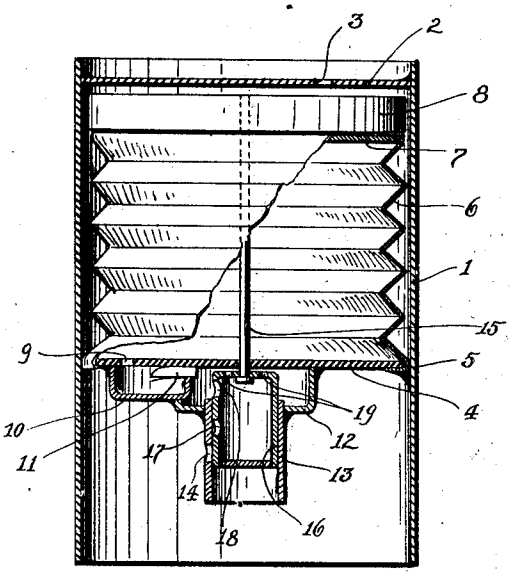
Nov. 30, 1926. 1,609,073

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TALKING TOY MECHANISM

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UNITED STATES PATENT OFFICE.

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TALKING-TOY MECHANISM.

Application filed March 21, 1923. Serial No. 626,500.

This invention relates to sound producing devices, more particularly such as are used in toys, and it is herein intended to devise a sound producing mechanism for use in talking dolls.

One object of this invention is to provide a sound producing device of the class described, which will emit a sound closely simulating the cry of a child, and which at the same time may be cheaply constructed, and rugged enough to withstand the rough usage to which such devices are ordinarily subjected.

Another object of the invention is to provide a new and improved sound producing device of the class described, which shall be simple and effective in construction, so arranged that the device will emit a sound closely simulating the cry of a child, and which at the same time shall be capable of enunciating distinct syllables if desired.

Other objects and aims of the invention, more or less specific than those referred to above, will be in part obvious and in part pointed out in the course of the following description, and the scope of protection contemplated will be indicated in the appended claims.

With reference to the drawings in which there is shown a preferred form of embodiment of this invention, the single figure is a view partially in vertical cross-section of the device.

With reference now to the drawing in which similar reference characters refer to similar parts throughout the views thereof, the reference character 1 refers to a casing made of some light, cheap material such as cardboard, fibre or the like, this casing being preferably of cylindrical form and having one end closed by a head 2 which is provided with an aperture 3.

Mounted intermediate the ends of the casing is a second head 4, and between the peripheral edges of the head 4 and the inner walls of the casing is clamped the marginal edge 5 of a circumferentially creased tubular bellows 6. The free end of the bellows is clamped between a disc 7 and a suitable weight 8, the latter preferably being made of cast lead or some similar material thus forming a compressible air chamber.

Positioned over an aperture 9 which passes through the head 4 is a chamber 10 in which is mounted a reed pipe having a reed 11, the reed pipe extending through the wall of this chamber and into a second chamber 12 which lies adjacent thereto. The chamber 12 is provided with a tubular extension or passageway 13 which is open at its outer end, and disposed through the wall of the extension 13 at a point near its open end is a side opening or orifice 14.

The weight 8 is provided with a centrally disposed rod 15 which extends from one end of the bellows to the other, passing through the head 4 and having positioned at its outer end a closed tube 16 which makes a fairly tight sliding fit with the interior walls of the extension 13. The tube 16, which serves the purpose of a valve, is provided with spaced side openings or apertures 17 and 18 on the side wall thereof, these apertures or orifices being so positioned as to register with the orifice 14 as will later be described. At its upper end, the tube is provided with a second pair of apertures 19.

It will be understood that sound producing devices of this character are designed primarily for use in the so-called "talking dolls", the device here described being intended for use in a talking doll and being commercially known as a "voice". This voice is to be concealed within the body of the doll and to be so positioned that the movements of the body of the doll will cause the voice to emit a sound. For instance, it may be desired to cause the doll to give off a cry when the doll is laid in reclining position. For this purpose the voice will be so disposed within the body of the doll that when the doll is made to recline, the weight will be in the position shown in the drawing, the bellows being fully distended, and at the instant the reclining position is assumed, the weight will be free to move under the influence of gravity to collapse the bellows.

When the weight starts to move downwardly, the bellows will collapse and force air from the aperture 9 into the reed chamber 19 and the reed pipe, and thence into the chamber 12, the compressed air also entering the closed tube 16 through the apertures 18 and 19. As this air, however, is not permitted to pass into the atmosphere except by slight leekage, no sound will be produced by the reed. However, as the weight moves downwardly, it will move with it the closed tubular piston valve 16 until finally the aperture 17 will register with the orifice 14,

whereupon a volume of air will be expelled into the atmosphere, thus causing a distinct cry. The continued downward movement of the weight will finally cause the aperture 17 to pass out of registry with the orifice 14. whereupon the air expelled from the bellows will be prevented from rapidly exhausting into the atmosphere and the sound from the reed will be stopped.

The further movement of the weight, however, will eventually bring the aperture 18 into registry with the orifice 14, whereupon the air which has entered the tube through the apertures 19 will now be permitted to pass rapidly into the atmosphere, thus producing a second cry. The relative location of the various ports will be so designated as to cause these cries to succeed each other rapidly, this resulting in a distinct "ma-ma" sound.

When the second port or aperture in the tube 16 has passed out of registry with the orifice 14, no further sound will be emitted and at this time the bellows will be nearly completely collapsed. The doll will then be raised to the upright position whereupon the action of gravity will be to draw the weight to its outer limit of travel so as to distend the bellows and cause the parts to assume their original relations. As the bellows is distended, air will be drawn into the interior thereof through the orifice and the ports in the tubes, but during this intake of air no sound will be produced inasmuch as the vibrating member of the reed is so positioned that it will be forced from its seat. In the upright position of the doll, however, the weight will be prevented from causing the collapse of the bellows and will only be released when the doll is made to recline.

While I have shown a means for regulating the emitted sound which causes the enunciation of two distinct syllables, it will be clear that various other forms of tube provided with ports by apertures which are to register with the sound orifice may be provided so that a single syllable or various combinations of syllables, short or long, may be emitted. Obviously, the reed will be selected so as to give a high pitched cry and when the device is used, it will produce a sound closely simulating the cry of an infant.

As will be seen, the head 4 is positioned well within the casing so that all the working parts are sheltered and protected. It will be seen further that the device consists of a few moving parts, none of which are expensive to manufacture, and that these parts are not likely to get out of order or to be worn out. The bellows will be made ordinarily of a cheap water-proof material such as a rubberized or otherwise treated fabric and the other parts, with the exception of the reed and the rod, may be constructed of molded fibre or other similar materials.

It will be seen that I have provided a device well adapted to attain the objects and aims set forth. As has been explained, the characteristics of the sound may be varied at will by simply adjusting other forms of aperture tubes in position on the rod.

As many changes could be made in this construction without departing from the scope of the following claims, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative only and not in a limiting sense.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. A device of the class described, comprising, in combination, sound producing means including a collapsible air chamber and means to control the communication of said sound producing means with the atmosphere, said controlling means including a chamber having a tubular extension therefrom, said extension being provided with an orifice through the walls thereof, a tube having its outer end closed mounted within said extension, said tube being provided with spaced apertures adapted to register successively with said orifice whereby to place said sound producing means in communication with the atmosphere, said tube being moved past said orifice by the collapse of said air chamber.

2. A device of the class described comprising, in combination, a casing, a head mounted intermediate the ends thereof, means to produce a blast of air mounted on one face of said head, sound producing means on the other face of said head in communication with said first named means, and means to control the communication of said sound producing means with the atmosphere, said last named means including a chamber provided with an orifice and a tube having a closed end and provided with spaced apertures adapted to be brought successively into registry with said orifice, said tube being movable past said orifice by the operation of said blast producing means.

3. A device of the class described comprising, in combination, a casing, a head intermediate the ends thereof, a bellows on one face of said head and having a weight at its free end, a reed chamber on the other face of said head in communication with the interior of said bellows, an orifice chamber mounted on said head in communication with said reed chamber through said reed, and said orifice chamber having a tubular extension from the wall thereof, said tubular extension being provided with a laterally disposed orifice, a tube having a closed outer end disposed within said extension and provided with spaced apertures adapted to be brought successively into reg-

istry with said orifice and a rod upon which said tube is mounted, said rod being attached at its other end to said weight whereby the movement of said weight will place said reed into communication with the atmosphere as said apertures register with said orifice.

4. A device of the class described comprising, in combination, a casing, a head intermediate the ends thereof, a bellows on one face of said head and having a weight at its free end, a reed chamber on the other face of said head in communication with the interior of said bellows, an orifice chamber mounted on said head in communication with said reed chamber through said reed, said orifice chamber having a tubular extension provided with a laterally disposed orifice, a rod attached to said weight having its other end disposed centrally of said extension and a tube mounted on said rod and lying within said extension, said tube having a closed outer end and a plurality of spaced apertures disposed so as to be brought successively into registry with said orifice whereby the collapse and distension of said bellows will cause said tube to be moved past said orifice.

5. A device of the class described having in combination, a compressible air chamber, a reed pipe associated therewith and operated by air forced therethrough upon operation of said compressible air chamber, a tubular passageway through which the sound from the reed pipe is adapted to issue and a tubular valve through which the sound from the reed pipe is adapted to issue, said valve sliding in said passageway, and means operating said valve as the compressible air chamber is operated.

6. A device of the class described having in combination, a compressible air chamber, a reed pipe associated therewith and operated by air forced therethrough upon operation of said compressible air chamber, a tubular passageway through which the sound from the reed pipe is adapted to issue and a tubular valve through which the sound from the reed pipe is adapted to issue, the tubular part of said valve having a sliding fit with the inside of the tubular passageway, and means actuating said valve responsive to the operation of said compressible air chamber.

7. A device of the class described having in combination, a compressible air chamber, a reed pipe associated therewith and operated by air forced therethrough upon operation of said compressible air chamber, a tubular passageway having a side opening through which the sound from the reed pipe is adapted to issue, a tubular piston valve operating in said passageway, said valve having an orifice cooperating with said side opening, and means operating said valve as the compressible air chamber is operated.

8. A device of the class described having in combination two heads, a bellows, one end of the bellows being connected to one head and the other end of the bellows being connected to the other head, one of said heads being weighty and movable toward and from the other head by gravity to compress and distend the bellows, a reed pipe associated with one of said heads and operated by air forced therethrough upon operation of the bellows, a tubular passageway through which the sound from the reed pipe is adapted to pass, a hollow tubular piston valve slidable back and forth in said passageway, one of said tubular members having a side orifice through which the sound from the reed pipe is adapted to issue and the other tubular member having a plurality of side openings adapted to register with said orifice as the valve is operated, and means operating said valve responsive to the operation of said bellows.

9. A device of the class described having in combination a tubular casing, a tubular bellows therein having a head at one end fixed with respect to the casing and a weighty head at the other end movable by gravity back and forth in the casing to compress and distend the bellows, a reed pipe associated with one of said heads, and operated by air forced therethrough upon operation of the bellows, a tubular passageway associated with said head and through which the sound from the reed pipe is adapted to pass, a hollow tubular piston valve slidable back and forth in said passageway, one of said tubular members having a side orifice through which the sound from the reed pipe is adapted to issue and the other tubular member having a plurality of side openings adapted to register with said orifice as the valve is operated, and means operating said valve responsive to the operation of said bellows.

In testimony whereof, I affix my signature.

FRED EVANS.

Certificate of Correction.

It is hereby certified that in Letters Patent No. 1,609,073, granted November 30, 1926, upon the application of Fred Evans, of Summit, New Jersey, for an improvement in "Talking-Toy Mechanism," errors appear in the printed specification requiring correction as follows: Page 1, line 101, for the numeral "19" read *10*, and line 106, for the misspelled word "leekage" read *leakage;* page 2, line 17, for the word "designated" read *designed;* and that the said Letters Patent should be read with these corrections therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 1st day of February, A. D. 1927.

[SEAL.]

M. J. MOORE,
Acting Commissioner of Patents.