

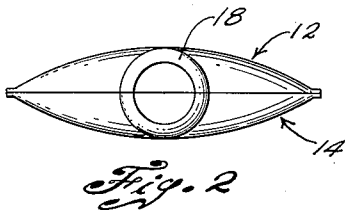
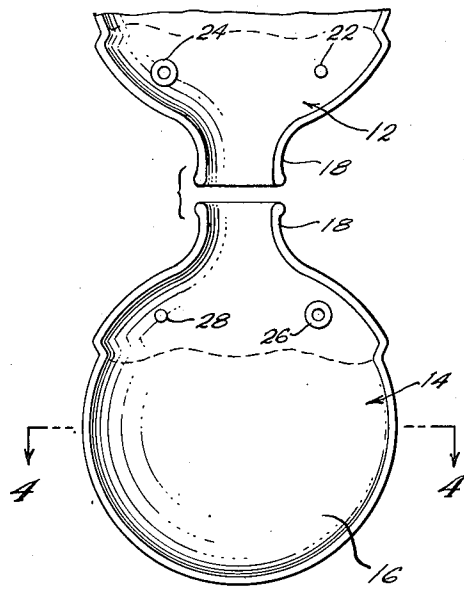
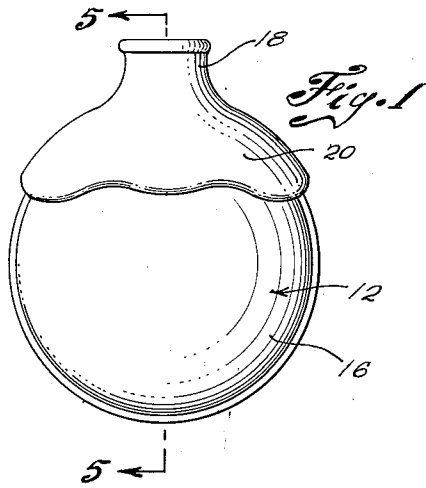
Feb. 26, 1952

P. A. DERHAM

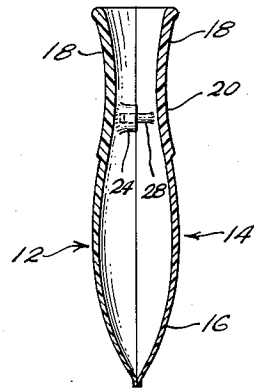
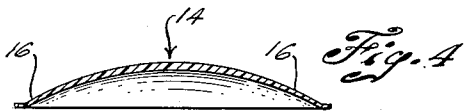
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MUSICAL TOY

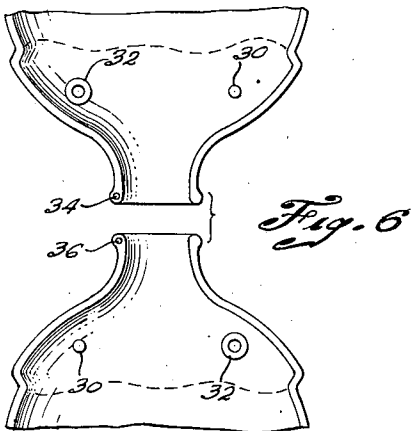
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*Fig. 3*



*Fig. 5*



*Fig. 6*

INVENTOR.  
PHILIP A. DERHAM  
BY *James and Franklin*  
ATTORNEYS.

# UNITED STATES PATENT OFFICE

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## MUSICAL TOY

Philip A. Derham, Rosemont, Pa., assignor to  
Louis Marx & Company, New York, N. Y., a  
corporation of New York

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2 Claims. (Cl. 46—182)

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This invention relates to toys, and more particularly to a voice operated musical toy.

It has already been proposed to make a musical toy consisting of oppositely dished shell-like halves held together in edge-to-edge relation and having a mouth opening at one edge for admitting singing or humming sounds between the halves, said halves being vibratile and being held or modulated with any desired varying pressure by the hands. One object of the present invention is to generally improve toys of the specified character.

A more particular object is to facilitate holding the vibratile or diaphragm portions of the toy between the hands at any angle which is comfortable to the user. In fact, the angle may be changed from time to time as the toy is used.

Another object of the invention is to improve the method of securing the vibratile halves together. Most of the area is the diaphragm area, the edges of which are uncemented in order not to interfere with the desired vibrations. The remaining area is preferably thickened and is less vibratile. In accordance with the present invention, this thickened area is provided with mating pins and sockets, preferably located well inside the edges. The pins and sockets are cemented or otherwise secured together, and in consequence the edges of the toy, even at the thickened area, may remain uncemented. This is convenient and economical when assembling the toy, for the appropriate cement or solvent need be applied to only the pins or/and sockets, and need not be applied to the edges. In this way the operating characteristics of the toy may be reproducibly controlled. On the contrary, when cement is applied to the edges it tends to spread, and it is difficult to accurately control the precise length over which the edges are secured together. That in turn affects the freedom of vibration of the diaphragm portions.

To accomplish the foregoing general objects, and other more specific objects which will hereinafter appear, my invention resides in the musical toy elements and their relation one to another as are hereinafter more particularly described in the following specification. The specification is accompanied by drawings in which:

Fig. 1 shows a voice operated musical toy embodying features of my invention;

Fig. 2 is an end elevation of the same looking toward the mouthpiece;

Fig. 3 shows the mating halves of the toy separated;

Fig. 4 is a section taken approximately in the plane of the line 4—4 of Fig. 3;

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Fig. 5 is a section taken approximately in the plane of the line 5—5 of Fig. 1; and

Fig. 6 is a view similar to Fig. 3, but showing a slight modification.

Referring to the drawing, the musical toy comprises oppositely dished shell-like halves 12 and 14 held together in edge-to-edge relation. Said halves each comprise a relatively thin vibratile diaphragm portion 16 and a neck portion 18. The neck portions when combined are circular in section, as is best shown in Fig. 2. This facilitates holding the diaphragm portions between the palms of the hands at any angle which is comfortable to the user. In fact the angle may be changed from time to time in the course of a single song, either for comfort, or for appearance or "showmanship," or to better modulate the music.

The halves of the toy preferably also include a relatively thickened shoulder portion 20. When, as is here the case, the halves are generally circular in outline, the shoulder portions 20 occupy a segment of the generally circular area, most of the area being occupied by the diaphragm portion 16.

The halves of the toy are held in registration and are secured together by means of pins and mating sockets formed in the thickened or shoulder area 20, and preferably well inside the edges thereof. This is best shown in Fig. 3, in which it will be seen that the half 12 has molded integrally therewith a pin 22 and a socket 24, and that the half 14 has molded integrally therewith a socket 26 and a pin 28. In securing the halves of the toy together, it is merely necessary to apply a suitable cement or solvent to the pins or/and sockets, and to them join the halves of the toy, as shown in Fig. 5. It is not necessary to apply cement or solvent to the edges of the toy, and that fact constitutes one important advantage of the present invention.

It will be understood by those familiar with the art that the edges of the diaphragm portions are nicely matched or fitted together in edge-to-edge relation, but that they are not coalesced or joined by cement or solvent. This is imperative in order to insure free vibration of the vibratile or diaphragm portions of the toy. However, the edges of the thickened shoulder portion or segmental portion 20 have been cemented together in order to hold the toy together. It is difficult to control the flow of the cement or solvent, which tends to spread by capillary attraction along the edges of the diaphragm portion. Inasmuch as the freedom of vibration of the diaphragm portion varies when the length of

coalesced edge varies, the operation of the toy is relatively unpredictable when the toys are manufactured under rapid production conditions.

In accordance with the present invention, no cement or solvent is applied to the edges of the toy at all. This is true of the neck portion and shoulder portion, as well as the diaphragm portion. The halves are held together solely by the pin and socket connections. Inasmuch as these are located inside the edges of the toy, the cement or solvent may be applied thereto without any of the same reaching the edges.

The dimensions in the case of one particular example of my invention were as follows, but it should be understood that these dimensions are submitted solely by way of illustration, and not in limitation of the invention:

The halves of the toy were molded out of a suitable thermoplastic material, for example, polystyrene. The generally circular toy was approximately  $2\frac{1}{2}$ " in diameter. The thickness of the shoulder portion was 0.050", and the same applies to the neck portion, except at the edge which, of course, is much thicker in order to present a nicely rounded surface to the lips and mouth. The diaphragm portion was approximately 0.025" thick although this thickness was increased toward the center of the diaphragm, and there reached a thickness of 0.040". The pins 28 had a diameter of  $\frac{3}{32}$ ", and the sockets a diameter of  $\frac{1}{8}$ ". The holes in the sockets were, of course, dimensioned to receive the pins. The circular mouthpiece had an outside diameter of about  $\frac{3}{4}$ ", the inside diameter being appreciably smaller. The radius of curvature on which the halves were dished was of the order of  $2\frac{1}{2}$ ", this differing somewhat for the outside surface and the inside surface, and for different parts of said surfaces, with a view to producing the desired taper in thickness previously referred to.

Fig. 6 illustrates a slight modification of the invention which is similar to that so far described, but which, in addition to the two main pins 30 and sockets 32, is provided with another smaller pin 34 and socket 36 at the lip of the mouthpiece. In this case the pin 34 is merely a slight protuberance or teat projecting from the parting face, while the socket 36 is merely a mating hole or indentation. Such an additional pin and socket may, if desired, be provided to help hold the halves of the toy in registration when securing the same together, but is not necessary unless it is preferred to increase the tolerance in the fit of the main pins and sockets. It should be understood that the cement or solvent need be and preferably is applied to only the main pins and sockets, and is not applied to the auxiliary pin and socket 34, 36.

It is believed that the construction and operation of my improved musical toy, as well as the advantages thereof, will be apparent from the foregoing detailed description. It will also be apparent that while I have shown and described the invention in a preferred form, changes may be made in the structure disclosed, without departing from the spirit of the invention, as sought to be defined in the following claims. In the claims the term "cemented" is used for convenience, but is intended to include sticking together in any manner, as by means of a solvent.

I claim:

1. A voice operated musical toy comprising approximately circular, oppositely dished, shell-like halves held together in edge-to-edge relation, said halves being made out of one of the known molding plastics, and each comprising a relatively thin vibratile diaphragm portion occupying most of the generally circular area, said diaphragm portions being free at the edges for vibration, said vibration being controlled by manual pressure directly thereon, a relatively thick shoulder portion adjacent said diaphragm portion and occupying a remaining segment of the generally circular area, and a relatively thick generally semi-cylindrical neck portion outside of and contiguous said shoulder portion, said neck portions when combined being circular in section and thereby facilitating holding the diaphragm portions directly between the hands at any angle which is comfortable to the user, said halves being held in registration and being secured together by pins and mating blind sockets formed in the aforesaid thickened segment and located closely adjacent but within the edges thereof, said pins and sockets being cemented together, and the edges of said halves being unsecured except at and by said pins and sockets.

2. A voice operated musical toy comprising approximately circular, oppositely dished, shell-like halves held together in edge-to-edge relation, said halves being made out of one of the known molding plastics, and each comprising a relatively thin vibratile diaphragm portion occupying most of the generally circular area, said diaphragm portions being free at the edges for vibration, said vibration being controlled by manual pressure directly thereon, a relatively thick shoulder portion adjacent said diaphragm portion and occupying a remaining segment of the generally circular area, and a relatively thick neck portion outside of and contiguous said shoulder portion, said neck portions when combined forming a protruding mouthpiece, said halves being held in registration and being secured together by pins and mating blind sockets projecting inwardly from and formed integrally with the aforesaid thickened segments and located closely adjacent but within the edges thereof, said pins and sockets being cemented together, and the edges of said halves being unsecured except at and by said pins and sockets.

PHILIP A. DERHAM.

#### REFERENCES CITED

The following references are of record in the file of this patent:

#### UNITED STATES PATENTS

Number	Name	Date
194,119	Arpissella	Aug. 14, 1877
847,240	Chamberlain	Mar. 12, 1907
1,207,504	Converse	Dec. 5, 1916
1,219,241	Buchler	Mar. 13, 1917
1,259,600	Carlisle	Mar. 19, 1918
1,735,697	Rutkowski	Nov. 12, 1929
1,809,508	Colby	June 9, 1931
2,211,102	Davis	Aug. 13, 1940
2,452,658	Horne	Nov. 2, 1948
2,529,693	Horne	Nov. 14, 1950