Oct. 3, 1961 R. N. CARVER 3,002,318

TOY

Filed March 21, 1960

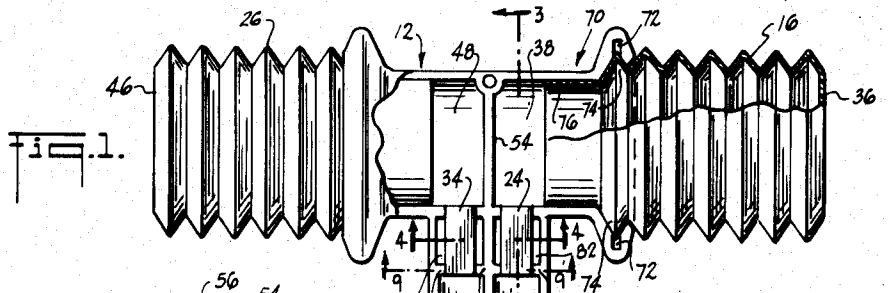



Fig. 1.

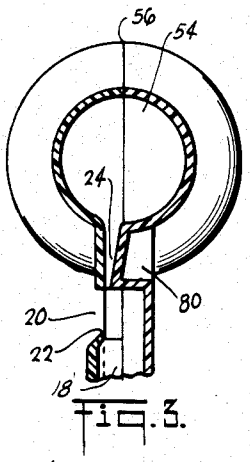



Fig. 3.

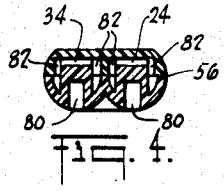



Fig. 4.

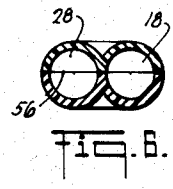



Fig. 6.

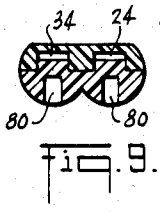


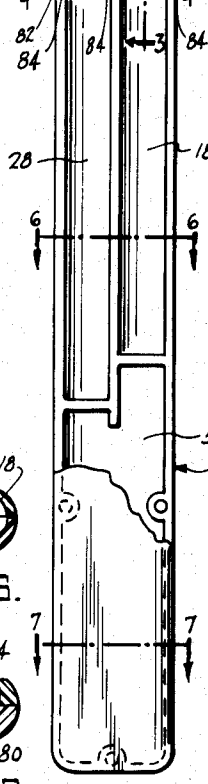

Fig. 9.




Fig. 5.




Fig. 7.



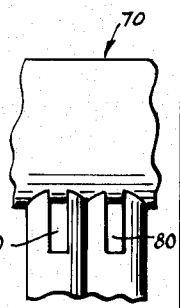




Fig. 8.




Fig. 2.

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# TOY

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This invention relates to toys, and more particulary to a musical toy mallet.

A favorite form of toy with very young children is a mallet with which to hammer. The primary object of the present invention is to generally improve toys of that character.

The usual mallet has the disadvantage of scratching or marring furniture and walls, and of producing a disturbing noise. An object of the present invention is to overcome these disadvantages, and to provide an improved toy mallet which produces a pleasant rather than a percussive sound, and which will not indent, scratch, or mar a furniture surface or wall surface struck thereby.

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

FIG. 1 is a partially sectioned elevation through a toy mallet embodying features of the invention;

FIG. 2 is an end elevation thereof;

FIG. 3 is a fragmentary section taken in the plane of the line 3—3 of FIG. 1;

FIG. 4 is a fragmentary section taken in the plane of the line 4—4 of FIG. 1;

FIG. 5 shows the mallet in use;

FIG. 6 is a section on line 6—6 of FIG. 1;

FIG. 7 is a section on line 7—7 of FIG. 1;

FIG. 8 is a fragmentary elevation looking at the side opposite that shown in FIG. 5; and

FIG. 9 is a section on the line 9—9 of FIG. 1.

Referring to the drawing, the toy mallet comprises a head generally designated 12, and a handle generally designated 14. At least a part of the head is hollow and compressible and, as here shown, the head comprises a generally cylindrical hollow bellows 26. This is molded out of polyethylene or a plastics material having the soft elastic or rubber-like characteristics of polyethylene. Such a bellows returns of its own resilience to the expanded length shown in FIG. 1, and is compressed when hit, as shown at the bottom of FIG. 5.

The mallet further comprises a wind-responsive sound-producing device which is in flow communication with the bellows, so that a sound is produced when the mallet is struck and the bellows is compressed. In the present case the sound-producing device is a whistle, and to provide this, at least a part of the handle 14 is made hollow, as shown at 28 in FIG. 1, and is provided with a whistle opening shown at 30 in FIG. 5 and like that shown at 20 in FIGS. 2 and 3. This whistle opening is provided with a thin whistle edge shown at 32 in FIG. 5, and like that shown at 22 in FIGS. 2 and 3. The air passage from the bellows to the whistle is raised to a point opposite the edge 22, as shown at 24 in FIGS. 3 and 4.

In preferred form the mallet is made symmetrical, and two whistles are provided, which preferably differ in pitch. Referring to FIG. 1, the handle 14 has two elongated resonating chambers 18 and 28, and these differ in length, which leads to a difference in pitch. Each of the resulting chambers has a whistle opening indicated



at 20 and 30 in FIG. 5, and each of the openings has a thin whistle edge indicated at 22 and 32. In both cases the air passage leading to the whistle edge is raised to the level of the edge, as indicated in FIG. 4 at 24 and 34.

Reverting to FIG. 1, the head comprises two generally cylindrical bellows, these being marked 16 and 26. The bellows 16 constitutes one end of the head and is closed at its outer end 36, and the bellows 26 constitutes the other end of the mallet head, and is closed at its outer end 46. The inner end of bellows 16 is in flow communication at 38 with the whistle chamber 18, and the inner end of bellows 26 is in flow communication at 48 with the whistle chamber 28. The parts 38 and 48 are separated by a partition 54.

In the structure here shown the handle 14 and the midportion 70 of the mallet head are molded out of a rigid plastics material. The structure is preferably molded in two parts which are subsequently cemented together on a parting line 56 (FIG. 2). The separation line between the two parts is also evident in FIGS. 3, 4, 6 and 7.

To reduce the amount of plastics material needed for the handle, and to reduce the weight of the mallet, the end portion of the handle which could be solid is preferably hollow, as shown at 58 in FIGS. 5 and 7. The two halves 60 and 62 (FIG. 7) are secured together in edge-to-edge relation by means of a suitable solvent or cement, as is well known in this art, and further appropriate small pins or dowels, and mating holes, may be provided at spaced points along the meeting edges to hold the edges in registration when they are cemented together.

A section through the handle at the resonant sound pipes 18 and 28 is shown in FIG. 6, and it will be seen that here the configuration divides the two sides of the handle, in contrast with FIG. 7, where such a division is not necessary.

In FIG. 3 the air passage 24 is so disposed as to direct its air stream against the whistle edge 22. For this purpose one side of the handle is moved up or filled in, as shown by the flat areas at the numerals 24 and 34 in FIGS. 1 and 4. The plastics material could be solid therebeneath, but in order to save material and to improve the molding operation, the outer surface is appropriately indented as indicated at 80 in FIGS. 3, 4, 8 and 9. At this point the material of the lower half of the mallet projects above the parting plane.

In respect to air discharge passages 24 and 34, these are best shown in FIG. 9. The clearance spaces 82 in FIGS. 1 and 4 are closed at the ends of the passage as will be seen at 84 in FIG. 1. It happens to be convenient in the mechanical assembly of parts which must fit closely together, to reduce the area over which they contact, and therefore such a fit is provided at 84, while using generous clearance at 82. Differently expressed, a section like the section 4—4, but taken through the parts 84, becomes the section shown in FIG. 9, with its simple flat rectangular air passages at 24 and 34.

The midportion 70 of the mallet head is also made in two parts, the continuation of the parting plane 56 being shown at the very top of FIGS. 2 and 3. Each half of the handle is molded integrally with its corresponding half of the midportion of the head.

This leaves the matter of attachment of the bellows 16 and 26 to the midportion 70 of the mallet head, and in the present case this is done by mechanically interlocking the parts. This will be clear from the upper right hand part of FIG. 1, in which it will be seen that the otherwise generally cylindrical midportion 70 of the mallet head is expanded and formed reversely to provide a rather deep annular groove at 72. This is dimen-

sioned to receive the innermost convolution **74** of the bellows. In addition, the bellows as made preferably includes a cylindrical end portion **76**, and this is dimensioned to fit in the cylindrical part **70** of the mallet head. Advantage may be taken of the flexibility and resilience of the polyethylene material to insert it in the position shown, following which it remains securely in place.

The bellows may be made in accordance with known techniques for the molding of polyethylene or equivalent plastics material. In the present case the bellows is formed by the so-called "blow molding" method, much as is done in the formation of squeeze bottles, and the like. The neck **76** is integral with the bellows.

It is believed that the method of constructing and assembling my improved toy mallet, as well as the advantages thereof, will be apparent from the foregoing detailed description. The mallet is light in weight and harmless in the hands of a child. It may be struck against furniture or a wall surface without scratching or marring the same. A small child is intrigued by the production of a whistle sound on striking the mallet, and further by the fact that a different tone or pitch is obtained when reversing the mallet and striking the other side.

It will be understood that while I have shown and described my invention in a preferred form, changes may be made in the structure shown without departing from the scope of the invention, as sought to be defined in the following claims.

I claim:

1. A toy mallet comprising a head and a handle extending at right angles to the head, an end part of the head being a generally cylindrical hollow bellows with a closed soft outer end, said bellows having accordion pleated sides and being molded out of a plastics material having the characteristics of polyethylene, and a wind responsive sound producing device in flow communication with said bellows, whereby when the mallet is struck the bellows is compressed and a sound is produced, said handle and the midportion of said head being molded out of a rigid plastics material.

2. A toy mallet comprising a head and a handle in the usual perpendicular relation, at least a part of said handle being hollow and having a whistle opening with a thin whistle edge to provide a whistle structure, an end part of the head being a generally cylindrical hollow bellows with a closed soft outer end, said bellows having accordion pleated sides and being molded out of a plastics material having the characteristics of polyethylene and being in flow communication with said hollow handle, whereby when the mallet is struck the bellows is compressed and a whistling sound is produced.

3. A toy mallet comprising a head and a handle in generally perpendicular relation, said handle being hollow to provide two elongated collateral chambers of different length, each of said chambers having a whistle opening with a thin whistle edge to provide a whistle structure, said whistles differing in pitch because of the difference in length of the resonating chambers, said head comprising two generally cylindrical compressible portions, one compressible portion constituting one end of the head, the other compressible portion constituting the other end of the head, the inner end of one compressible portion being in flow communication with one whistle, and the inner end of the other compressible portion being in flow communication with the other whistle, the arrangement being such that when the mallet is struck it produces a whistle sound, the pitch being dependent on which end of the mallet head is struck.

4. A toy mallet comprising a head and a handle in generally perpendicular relation, two wind operated sound producing devices, one device producing a sound different from the other, said head comprising two generally cylindrical hollow bellows, one bellows constituting one end of the head and being closed at its outer end, the other bellows constituting the other end of the head and being closed at its outer end, the inner end of one bellows being in flow communication with one sound producing device, and the inner end of the other bellows being in flow communication with the other sound producing device, the arrangement being such that when the mallet is struck it produces a sound.



5. A toy mallet comprising a head and a handle in generally perpendicular relation, two wind operated sound producing devices, one device producing a sound different from the other, said head comprising two generally cylindrical hollow bellows, one bellows constituting one end of the head and being closed and soft at its outer end, the other bellows constituting the other end of the head and being closed and soft at its outer end, the inner end of one bellows being in flow communication with one sound producing device, and the inner end of the other bellows being in flow communication with the other sound producing device, said bellows having accordion pleated sides and being molded out of a plastics material having the characteristics of polyethylene, the arrangement being such that when the mallet is struck it produces a sound, said handle and the mid-portion of said head being molded out of a rigid plastics material.

6. A toy mallet comprising a head and a handle in generally perpendicular relation, said handle being hollow to provide two elongated collateral chambers, each of said chambers having a whistle opening with a thin whistle edge to provide a whistle structure, one whistle producing a sound different from the other, said head comprising two generally cylindrical hollow bellows, one bellows constituting one end of the head and being closed at its outer end, the other bellows constituting the other end of the head and being closed at its outer end, the inner end of one of the bellows being in flow communication with one whistle, and the inner end of the other bellows being in flow communication with the other whistle, the arrangement being such that when the mallet is struck it produces a whistle sound.

7. A toy mallet comprising a head and a handle in generally perpendicular relation, said handle being hollow to provide two elongated collateral chambers, each of said chambers having a whistle opening with a thin whistle edge to provide a whistle structure, one whistle producing a sound different from the other, said head comprising two generally cylindrical hollow bellows, one bellows constituting one end of the head and being closed and soft at its outer end, the other bellows constituting the other end of the head and being closed and soft at its outer end, the inner end of one bellows being in flow communication with one whistle, and the inner end of the other bellows being in flow communication with the other whistle, said bellows having accordion pleated sides and being molded out of a plastics material having the characteristics of polyethylene, the arrangement being such that when the mallet is struck it produces a whistle sound, said handle and the midportion of said head being molded out of a rigid plastics material.

8. A toy mallet comprising a head and a handle in generally perpendicular relation, said handle being hollow to provide two elongated collateral chambers of different length, each of said chambers having a whistle opening with a thin whistle edge to provide a whistle structure, said whistles differing in pitch because of the difference in length of the resonating chambers, said head comprising two generally cylindrical hollow bellows, one bellows constituting one end of the head and being closed at its outer end, the other bellows constituting the other end of the head and being closed at its outer end, the inner end of one bellows being in flow communication with one whistle, and the inner end of the other bellows being in flow communication with the other whistle, the arrangement being such that when the mallet is struck it produces a whistle sound, the pitch being dependent on which end of the mallet head is struck.

9. A toy mallet comprising a head and a handle in generally perpendicular relation, said handle being hollow to provide two elongated collateral chambers of different length, each of said chambers having a whistle opening with a thin whistle edge to provide a whistle structure, said whistles differing in pitch because of the difference in length of the resonating chambers, said head comprising two generally cylindrical hollow bellows, one bellows constituting one end of the head and being closed and soft at its outer end, the other bellows constituting the other end of the head and being closed and soft at its outer end, the inner end of one bellows being in flow communication with one whistle, and the inner end of the other bellows being in flow communication with the other whistle, said bellows having accordion pleated sides and being molded out of a plastics material having the characteristics of polyethylene, the arrangement being such that when the mallet is struck it produces a whistle sound, the pitch being dependent on which end of the mallet head is struck, said handle and the mid-portion of said head being molded out of a rigid plastics material.



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