

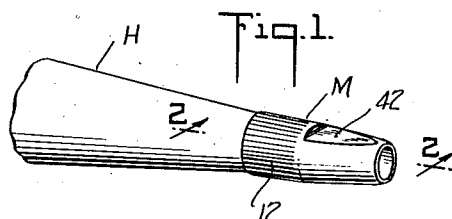
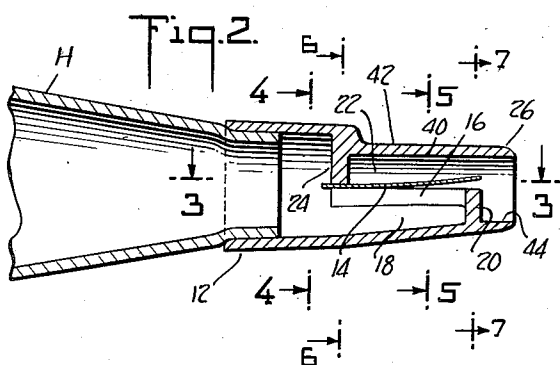
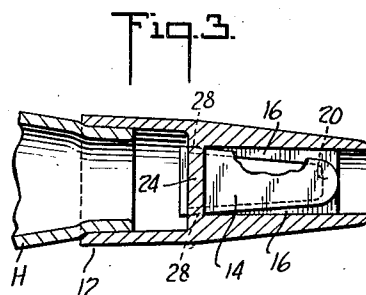
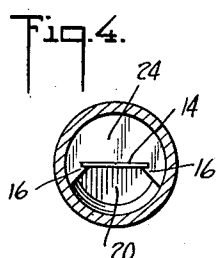
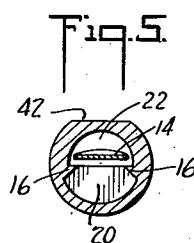
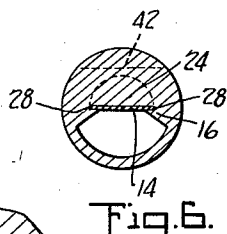
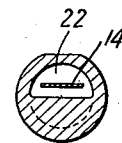
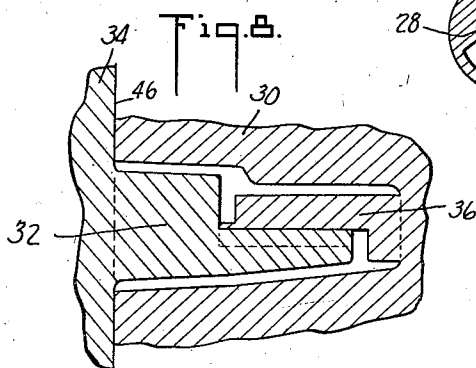
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2,296,785

MOUTHPIECE FOR SOUND PRODUCING DEVICES

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MOUTHPIECE FOR SOUND PRODUCING DEVICES

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11 Claims. (Cl. 46—180)

This invention relates to sound producing devices, and more particularly to a mouthpiece assembly for the same.

The primary object of my invention is to generally improve sound producing devices such as toy horns, and more particularly the mouthpiece for the same.

Heretofore, such mouthpiece assemblies have been made up of four or more parts. There is a metallic reed which is usually disposed collaterally of a metallic sound channel having a contact ledge for supporting the reed. This channel and reed assembly is sealed into and carried by a suitable washer or other circular carrier, which in turn is fitted into the tubular outside body of the mouthpiece. The latter is ordinarily made of wood. Inasmuch as the wooden piece is "turned" to desired shape, it is limited to a configuration such that all transverse sections through the mouthpiece are circular.

In accordance with one object of my invention, the construction of the mouthpiece assembly is simplified so as to require only two parts, one being the body of the mouthpiece, and the other being the reed. The mouthpiece is so shaped as to form the desired sound channel and contact ledge for the reed, as well as means to receive and frictionally hold the reed at one end.

A further object is to facilitate manufacture of the body of the mouthpiece, and I find that this may be done by molding the same directly to finished shape. In accordance with further features and objects of the invention, the mouthpiece may be molded out of any of the common, available plastics, thus providing a structure possessing a greatly improved and more costly appearance than the common wood mouthpiece heretofore employed. Despite the use of a more costly and desirable material, the complete mouthpiece assembly made in accordance with the present invention may be manufactured and sold at a cost less than that of the four-part wood mouthpieces heretofore employed.

Still another object of the invention is to so design the mouthpiece that it may be molded between the halves of a simple two-part mold without necessitating special collapsible or retractable cores or the like.

To the accomplishment of the foregoing and such other objects as will hereinafter appear, my invention consists in the mouthpiece assembly and its elements and their relation one to the other, as hereinafter are more particularly described in the specification and sought to be de-

fined in the claims. The specification is accompanied by a drawing, in which:

Fig. 1 is a perspective view showing the mouthpiece end of a horn embodying the mouthpiece of the present invention;

Fig. 2 is a longitudinal section taken in the plane of the line 2—2 of Fig. 1;

Fig. 3 is a horizontal section taken in the plane of the line 3—3 of Fig. 2;

Figs. 4, 5, 6 and 7 are transverse sections taken in the planes of the lines 4—4, 5—5, 6—6, and 7—7, respectively, of Fig. 2; and

Fig. 8 is a schematic section explanatory of the manner in which the mouthpiece may be molded in a two-part mold.

Referring to the drawing, and more particularly to Fig. 1, the sound producing device here illustrated is a horn comprising a generally conical body H, only the small end of which is shown, and a mouthpiece M, the large end of which is dimensioned to frictionally receive the small end of the horn H. The horn body may be made of any suitable sheet material such as cardboard, metal-foil coated paper, sheet metal, or the like. The mouthpiece M is molded of a suitable plastic, and may accordingly be made transparent or colored, and its appearance may be enriched by various marbled finishes frequently employed with such materials. Moreover, because of the nature of the molding operation, the exterior of the mouthpiece, particularly at the larger end 12, may be ornamentally fluted, thus further improving the appearance of the same.

Referring now to Figs. 2 through 7 of the drawing, the mouthpiece assembly is made up of a single integrally molded body of plastic and only one additional part, specifically the reed 14 which is stamped out of thin resilient sheet metal, in accordance with known practice. The reed is preferably tapered in outline, as is most clearly shown in Fig. 3. It overlies a suitable reed contact ledge 16 extending longitudinally along each side of the mouthpiece. The space or sound channel 18 beneath the reed is blocked at the movable end of the reed by a lower partition or wall 20, while the space 22 above the reed is blocked at the stationary end of the reed, by an upper partition or wall 24. The contact ledge 16 supports and limits the reed against downward movement, and it will be understood by those skilled in the art, that the resulting arrangement will produce a desired vibration of the reed when air is blown into the small end 26 of the mouthpiece. From one viewpoint, it may be explained that the reed contact ledges 16, the forward or

lower partition wall 20, and the lower half of the mouthpiece, combine to form a sound channel 18 beneath the reed, which sound channel corresponds to that heretofore provided by a special trough-shaped metal fitting or channel. It will also be understood that while I have referred to the "top" and "bottom" of the mouthpiece, and to the spaces "above" and "below" the reed, these terms are employed merely for convenience, because the mouthpiece will operate regardless of the position in which it is held.

The molded mouthpiece is further provided with means to receive and frictionally hold the reed in proper operative position. For this purpose, the mouthpiece is provided with grooves 23 best shown in Figs. 4 and 6, said grooves being disposed between the upper partition 24 and the ends of the reed contact ledges 16. In assembling the mouthpiece, the reed is inserted into the receptive channels 23 through the large end of the mouthpiece, and because of the tapered shape of the reed, it may be pushed firmly into position until the edges of the reed are tightly frictionally held in the grooves 23.

The manner in which the mouthpiece may be molded in a single operation between the halves of a simple two-part mold, is schematically illustrated in Fig. 8, referring to which it will be seen that the outside shape of the mouthpiece is determined by the mold portion 30. A part of the interior of the mouthpiece is shaped by a core 32 fixedly mounted on the mold part 34. The core 32 shapes the large end of the mouthpiece and the sound passage 18 (Fig. 2). A core 36 is fixedly mounted in die portion 30, and shapes the small end of the mouthpiece and the air passage 22 (Fig. 2). The space between core 32 and the end of core 36 forms the upper partition wall 24, while the space between the core 36 and the end of core 32 forms the lower partition wall 20. Core 32 is naturally tapered to follow the general contour of the mouthpiece. Core 36 departs from the natural contour of the mouthpiece in order to make it possible to withdraw the core from the molded piece.

Thus, referring to Figs. 2, the top surface 40 of the air passage 22 extends axially or even converges toward the axis of the mouthpiece when moving from right to left, in Fig. 2. Thus the air passage 22 above the reed is approximately semi-cylindrical, instead of being enlarged toward the left, and in practice is preferably slightly semi-frusto-conical converging toward the left, i. e., opposite to the normal shape.

The outer wall may be flattened as indicated at 42 in order to conserve material, and also because the flattening of the mouthpiece at 42 causes the same to fit the mouth more comfortably. The internal surface 44 at the small end of the mouthpiece is brought to semi-cylindrical shape, or may even converge toward the axis of the mouthpiece when moving from right to left, as viewed in Fig. 2, all for the same reason, that is, to facilitate withdrawal of the core 36 (Fig. 8) upon opening of the mold. The schematic showing of Fig. 8 has been simplified by omitting the gate for the admission of the molding material, but it will be readily understood that a series of mold cavities may be provided in a single mold with appropriate radial or branched gates leading to each of the cavities, preferably along the parting face 46 of the die. It will also be understood that while I have illustrated the cores 32 and 36 as fixed cores formed directly and integrally with the mold, in practice either of these cores

or both may be made movable to facilitate separation and discharge of the molded pieces from the mold. Even in such case, however, the mold remains of simple type in that the cores are solid, one-piece cores, the movement of which is perpendicular to the parting face, or parallel to the direction of movement of the die when the die is being opened, so that the cores may be secured to and moved by a core plate as a direct incident to the normal operation of the mold.

It is believed that the construction, operation, and method of making my improved simplified mouthpiece, as well as the many advantages thereof, will be apparent from the detailed description thereof. The mouthpiece is attractive and costly in appearance, and has a smoother and more comfortable feel to the lips. It is also more sanitary in that its polished, water-proof surfaces, may be readily cleaned. It is inexpensive to manufacture, despite the cost of the molding material, because the molding operation provides everything needed in the mouthpiece except the reed itself, and the latter is readily inserted in place with a minimum of labor.

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

I claim:

1. A molded mouthpiece assembly for a sound-producing device, said mouthpiece assembly comprising only two main parts, one being a mouthpiece made of a single piece of molded plastic, and the other being made of thin sheet material and comprising a reed, the configuration of said mouthpiece being such as to provide means to hold the reed at one end, and a sound channel of desired shape disposed collaterally of said reed.

2. A molded mouthpiece assembly for a sound-producing device, said mouthpiece assembly comprising only two main parts, one being a mouthpiece made of a single piece of molded plastic, and the other being made of thin sheet material and comprising a reed, the configuration of said molded mouthpiece being such as to provide means to hold the reed at one end, and a sound channel of desired shape disposed collaterally of said reed, the internal parts of the molded mouthpiece being so shaped as to converge toward the axis of the mouthpiece from both ends, thereby facilitating molding of the same.

3. A mouthpiece assembly for a toy horn, said mouthpiece assembly comprising only two main parts, one being a mouthpiece made of a single piece of molded plastic, and the other being made of thin sheet material and comprising a reed, the inside of said mouthpiece having grooves for frictionally receiving and holding one end of the reed.

4. A mouthpiece assembly for a toy horn, said mouthpiece assembly comprising only two main parts, one being a mouthpiece made of a single piece of molded plastic, and the other being made of thin sheet material and comprising a reed, the inside of said mouthpiece assembly having a reed contact ledge for supporting the reed, means blocking the space beneath the ledge at one end of the reed, and means blocking the space above the ledge at the opposite end of the reed.

5. A mouthpiece assembly for a toy horn, said mouthpiece assembly comprising only two main parts, one being a mouthpiece made of a single

piece of molded plastic, and the other being made of thin sheet material and comprising a reed, the inside of said mouthpiece assembly having means blocking the space beneath the reed at one end of the reed, and means blocking the space above the reed at the opposite end of the reed.

6. A mouthpiece assembly for a toy horn, said mouthpiece assembly comprising a mouthpiece made of a single piece of molded plastic, and a reed, said mouthpiece being generally tubular and wholly surrounding said reed, the inside of said mouthpiece having a reed contact ledge for supporting the reed, means blocking the space beneath the ledge at one end of the reed, and means blocking the space above the ledge at the opposite end of the reed, said mouthpiece having grooves for frictionally receiving and holding one end of the reed.

7. A mouthpiece assembly for a toy horn, said mouthpiece assembly comprising a mouthpiece made of a single piece of molded plastic, and a reed, said mouthpiece being generally tubular and wholly surrounding said reed, the inside of said mouthpiece having a reed contact ledge for supporting the reed, means blocking the space beneath the ledge at one end of the reed, and means blocking the space above the ledge at the opposite end of the reed, said mouthpiece having grooves for frictionally receiving and holding one end of the reed, the internal parts of the mouthpiece being so shaped as to converge toward the axis of the mouthpiece from both ends, thereby facilitating molding of the same.

8. A molded mouthpiece assembly for a sound-producing device, said mouthpiece assembly comprising a single piece of molded plastic and a reed, the molded plastic piece being generally tubular and wholly surrounding said reed, said piece including a lower partition wall near the mouth end of the mouthpiece, an upper partition wall nearer the opposite end of the mouthpiece, and a reed contact ledge extending longitudinally of said mouthpiece between the top of the lower partition wall and the bottom of the upper partition wall.

9. A molded mouthpiece assembly for a sound-producing device, said mouthpiece assembly comprising a single piece of molded plastic and a reed, the molded plastic piece being generally tubular and wholly surrounding said reed, said

piece including a lower partition wall near the mouth end of the mouthpiece, an upper partition wall nearer the opposite end of the mouthpiece, a reed contact ledge extending longitudinally of said mouthpiece between the top of the lower partition wall and the bottom of the upper partition wall, said mouthpiece being provided with grooves between the bottom of said upper partition and said contact ledge for receiving the reed with the reed overlying the contact ledge.

10. A molded mouthpiece assembly for a sound-producing device, said mouthpiece assembly comprising a single piece of molded plastic and a reed, said reed being tapered in outline, the molded plastic piece being generally tubular and wholly surrounding said reed, said piece including a lower partition wall near the mouth end of the mouthpiece, an upper partition wall nearer the opposite end of the mouthpiece, a reed contact ledge extending longitudinally of said mouthpiece between the top of the lower partition wall and the bottom of the upper partition wall, said mouthpiece being provided with grooves between the bottom of said upper partition and said contact ledge for tightly frictionally receiving the large end of the reed with the reed overlying the contact ledge, the large end of said mouthpiece being adapted to mate with the small end of a horn.

11. A molded mouthpiece assembly for a sound-producing device, said mouthpiece assembly comprising a single piece of molded plastic and a reed, said reed being tapered in outline, the molded plastic piece being generally tubular and wholly surrounding said reed, said piece including a lower partition wall near the mouth end of said mouthpiece, an upper partition wall nearer the opposite end of the mouthpiece, a reed contact ledge extending longitudinally of said mouthpiece between the top of the lower partition wall and the bottom of the upper partition wall, said mouthpiece being provided with grooves between the bottom of said upper partition and said contact ledge for tightly frictionally receiving the large end of the reed with the reed overlying the contact ledge, the large end of said mouthpiece being frustro-conical in shape and adapted to frictionally receive the small end of a horn.

VICTOR T. HOEFLICH.