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2,712,201

WHISTLE FOR PNEUMATIC TOYS

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FIG. 1.

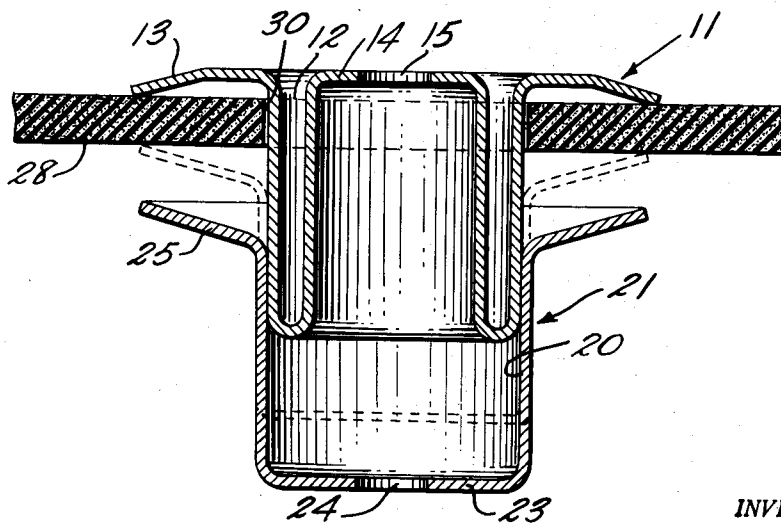
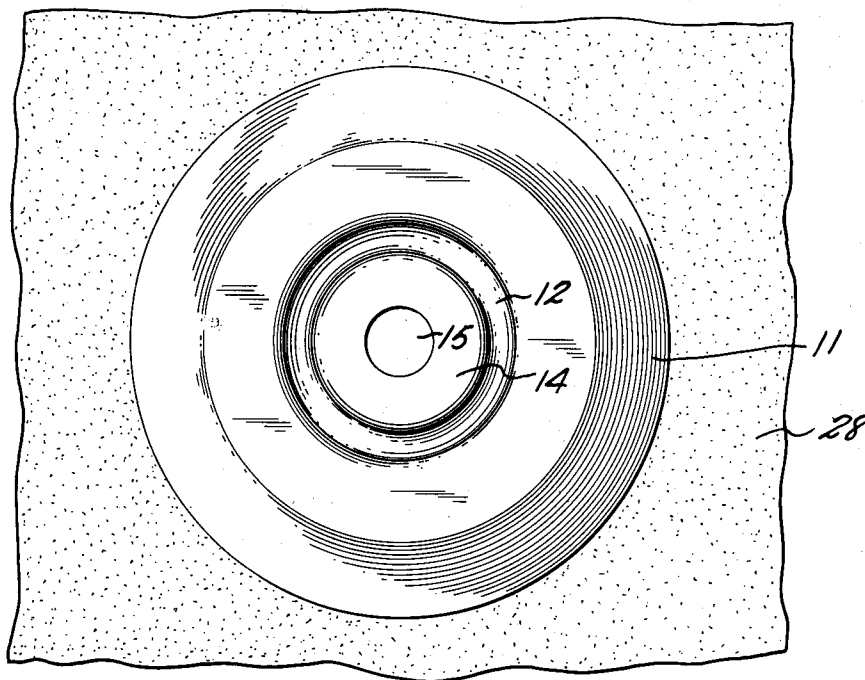


FIG. 2.

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WHISTLE FOR PNEUMATIC TOYS

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5 Claims. (Cl. 46—117)

In order to provide sound for inexpensive rubber toys, whistles are inserted in the walls or skin of the toys. When a toy with such a whistle is squeezed, or allowed to expand again after squeezing, the passage of air through the whistle causes the sound.

These whistles are popular because of their simplicity and low cost. They are held in place by flanges that extend outwardly across the immediately adjacent portions of both the outside and inside surfaces of the wall or skin through which they extend; and the openings into which they are inserted are stretched to permit passage of the inside flange during assembly of the whistle and the toy.

A serious disadvantage of these whistle-equipped toys has been the ease with which the whistles are dislodged. This is dangerous with babies and small children because they are likely to swallow the whistles.

It is an object of this invention to provide an improved construction for whistles that are to be used in toys and to provide an improved method of effecting assembly of the whistle in the toy. This invention provides inner and outer flanges on the whistle of such great extent that the whistle cannot be dislodged from the toy, yet the construction retains the simplicity and low cost of the prior art.

Other objects, features and advantages of the invention will appear or be pointed out as the description proceeds.

In the drawing, forming a part hereof, in which like reference characters indicate corresponding parts in all the views:

Figure 1 is a greatly enlarged view of the front of a whistle, embodying this invention and held in a skin of an air-filled toy; and

Figure 2 is a sectional view taken along a diameter of the whistle shown in Figure 1.

The whistle includes a front element 11 in which there is a deep drawn, circular or annular corrugation 12, with its recess opening toward the front of the whistle. This annular recess is spaced inwardly from the periphery of the front element 11 so as to leave a flange 13 extending radially outward beyond the recess of the annular corrugation 12.

Another flange 14 extends inwardly from the recess to an opening 15 at the center of the front element 11. The outside wall of the annular corrugation 12 is cylindrical throughout at least a portion of its depth. The outside diameter of the cylindrical portion of the corrugation is substantially equal to the inside diameter of a cylindrical recess 20, formed in a rear element 21 of the whistle.

The cylindrical recess 20 has a bottom 23 in which there is an opening 24 in substantial alinement with the opening 15 of the front element 11. A flange 25 extends outwardly around the entrance of the cylindrical recess 20.

The flanges 13 and 25 preferably converge toward one another in the direction of the circumferential edges of

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these flanges. With this construction, the outer edges of the flanges 13 and 25 engage with the outer and inner surfaces of a wall or skin 28 of an air-filled toy or other object with which the whistle is used.

When the whistle is to be assembled and attached to the toy, the rear element 21 is first pushed through an opening 30 in the skin 28, the opening being stretched by the flange 25 to permit the rear element 21 to pass through into the interior of the toy.

The annular corrugation of the front element 11 is then inserted through the opening 30, in the manner illustrated in Figure 2, and the cylindrical portion of the rear element is brought into engagement with the outside of the annular corrugation 12, as shown in full lines in the drawing. The front and rear elements are then pressed together, the rear element moving into the position indicated by dotted lines. As additional pressure is applied, the elements telescope to a greater extent, so that the flanges 13 and 25 are flattened out with the skin 28 clamped between them and most tightly in the region around the outer circumferences of the flanges 13 and 25.

The chamber enclosed between the lower portion of the cylindrical recess 20 and the space surrounded by the annular corrugation 12 provides the air chamber of the whistle.

The inner flange 25 is larger than can be provided in conventional whistles that have the inner flange in its permanent position with respect to the outer flange before the whistle is inserted into the toy. For this reason, the flanges grip the skin 28 across a wider area around the opening 30 and provide a much more secure connection between the whistle and the skin of the toy. The manner in which the whistle is assembled, by having the flanges 13 and 25 brought closer together and into clamping engagement with the skin 28 also provides a more secure and tighter grip for the whistle on the skin of the toy.

The cylindrical portion of the annular corrugation 12 has a press-fit in the cylindrical recess 20 of the rear element so that there is a substantial friction for preventing any possible release of the clamping pressure of the flanges 13 and 25 against the surfaces of the skin 28. This friction is sufficient to hold the elements permanently assembled with one another. The depth of the cylindrical recess 20 and the length of the cylindrical portion of the annular corrugation 12 are sufficient to provide ample friction when the flanges 13 and 25 are at various spacing from one another, including a spacing corresponding to the thickest skin with which the whistle is intended to be used. On the other hand, the front and rear elements can be pushed close enough together to make the flanges 13 and 25 also grip the thinnest skin with which the whistle is used. The press-fit of the corrugation 12 in the recess 20 continues tight no matter how close together the flanges 13 and 25 come to one another.

The preferred embodiment of the invention has been illustrated and described, but various changes and modifications can be made without departing from the invention as defined in the claims.

I claim as my invention:

1. A whistle comprising a circular front element with an annular corrugation open toward the front of the front element and having a substantially cylindrical outside wall throughout at least an extensive part of the depth of the corrugation and with its axis concentric with the center of the circular front element, said corrugation being spaced inward from the periphery of the front element for a substantial distance to leave a flange of substantial radial extent around the outside of the annular corrugation, a circular rear element with a

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cylindrical recess having an inside diameter substantially equal to the diameter of the substantially cylindrical part of the outside wall of the annular corrugation and fitting tightly as a press fit over the outside of the wall of the annular corrugation, and a flange on the rear element extending radially outwardly from the outside of the wall of the cylindrical recess for clamping against the inside face of a skin of a toy through which the corrugation of the front element extends, both elements having closed outer ends except for generally central openings for the passage of air into and from the whistle.

2. The whistle described in claim 1 characterized by a cylindrical recess equal to at least the depth of the annular corrugation minus the thickness of the thinnest skin or partition which is intended to be clamped between the flanges of the front and rear elements of the whistle.

3. In a whistle assembly having front and rear flanges extending radially across outside and inside surfaces of a skin of a toy to which the whistle is connected, the improvement which comprises a center structure of one-piece construction with the front flange and having a deep annular corrugation with a substantially cylindrical outside wall throughout most of the depth of the corrugation and an inwardly extending flange projecting radially inward from the inner wall of the corrugation to a substantially circular opening through the front of the whistle, and a cylindrical portion of one-piece construction with the rear flange and having a bottom wall with an opening therethrough that comprises the rearward opening of the whistle, the inside diameter of the cylinder being substantially equal to the diameter of the outside wall of the corrugation so as to provide a press fit for the cylinder over the outside wall of the corrugation for holding the parts of the whistle in assembled relation with the flanges firmly clamped against the outside and inside surfaces of the skin.

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4. A whistle for insertion in the wall of a rubber toy, said whistle comprising a front element having a deep drawn annular recess with at least a portion of its outside wall substantially cylindrical, along an extensive length of said outside wall, said annular recess being spaced inward from the periphery of the front element so as to leave a flange extending radially outward beyond the recess, and another flange extending radially inwardly from the recess and closing the area therewithin except for an opening in the mid-region of the front element; a rear element having a deep drawn closed bottom cylindrical recess with an inside diameter substantially equal to the diameter of the substantially cylindrical portion of the outside wall of the annular recess of the front element and fitting tightly over said substantially cylindrical portion of the outside wall, an opening through the center region of said bottom, and a flange at the forward end of the rear element and extending radially outwardly around the entrance of the cylindrical recess, the front and rear elements enclosing a perforated whistle chamber between them when they are assembled with the substantially cylindrical annular recessed portion of the front element extending into the cylindrical recess of the rear element.

5. The whistle described in claim 4, characterized by the first named flange on the front element, and the flange on the rear element, having at least a portion of each flange converging toward the other flange in the direction of the outer edges of the flanges.

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