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A. KONOFF

CRIER

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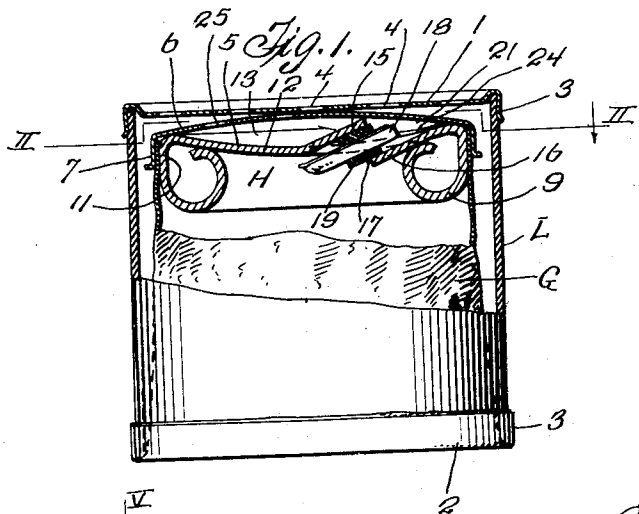
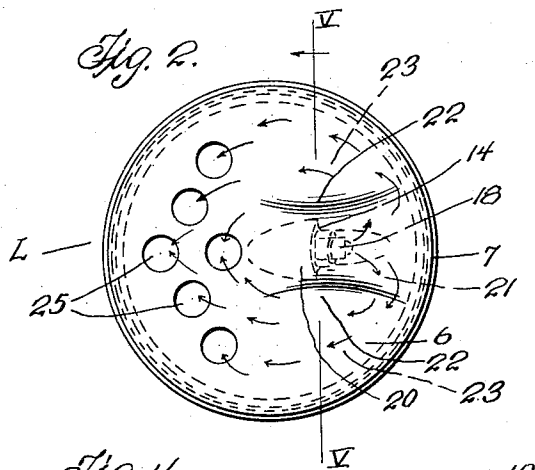
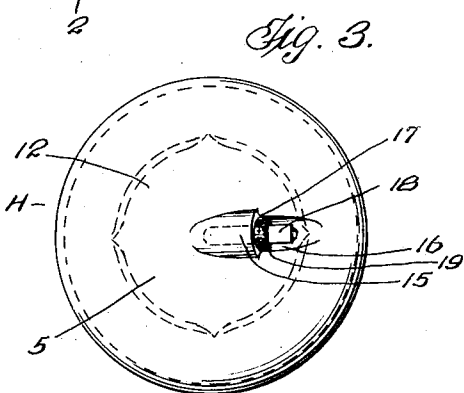
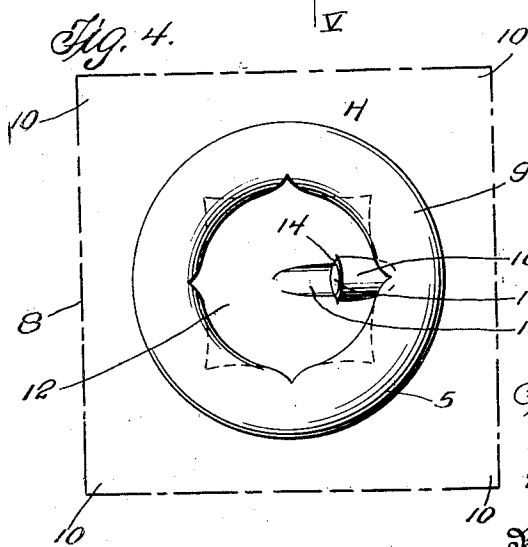
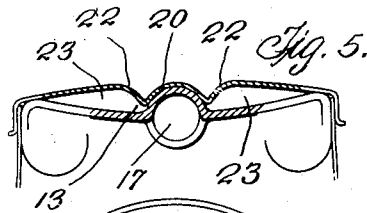
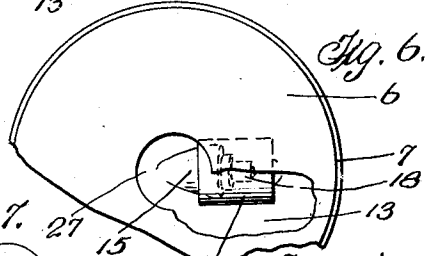


Fig. 7.

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UNITED STATES PATENT OFFICE.

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CRIER.

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This invention relates to what is generally known in the trade as a "crier", that is to a sound producing device adapted for simulating the cry of a young infant, and being intended to be placed in the body of doll baby and to operate in such manner that when the doll is moved from one position to another the device will operate to produce a single note cry.

An object of the invention is to provide a crier which will be durable and efficient in operation and which may be manufactured at low cost and in which the size of the completed device is maintained as small as possible consistent with a given duration of the period of the cry.

A more detailed object is to improve the construction and manner of forming the weight part of the device.

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 of the elements, combinations, arrangements of parts and applications of principles constituting the invention; and the scope of protection contemplated will be indicated in the appended claims.

In the accompanying drawings which are to be taken as a part of this specification, and in which I have shown merely a preferred form of embodiment of the invention:—

Fig. 1 is a vertical transverse sectional view through a crier constructed in accordance with this invention, parts of the device being shown in side elevation.

Fig. 2 is a transverse sectional view taken substantially upon the plane of line II—II of Fig. 1.

Fig. 3 is a top plan view of a part of the weight portion of the crier detached.

Fig. 4 is a bottom plan view of the part seen in Fig. 3 and illustrating in dot and dash line the form of the blank from which said part is shaped.

Fig. 5 is a detailed transverse sectional view, partly in diagram, taken substantially upon the plane of line V—V of Fig. 2.

Fig. 6 is a vertical top plan view similar to Fig. 2 but illustrating a slightly modified construction, and

Fig. 7 is a detail perspective view of the channel member appearing in Fig. 6.

Referring to the drawings for describing in detail the structure therein shown the reference character L indicates a casing having a top cover 1 and a bottom cover 2. The casing L is usually made cylindrical, a piece of ordinary card-board mailing tube being preferably employed. The covers 1 and 2 are preferably of sheet metal and have annular flanges 3 to engage about the tubular part L for holding the covers rigidly in position. The cover 1 is provided with perforations as 4 therethrough through which sound may issue from the casing, while the cover 2 is imperforate and comprises not only a bottom for the casing but also a bottom closure for a bellows bag G which is within the casing L.

The bellows bag G is formed preferably of a tubular piece of suitable material, such as rubberized cloth or the like, and its lower annular edge portion is caught between the tubular part of the casing and the flange of the cover 2, the construction of all of the parts thus far described being old and well known in this art.

The weight portion of the device is indicated by the reference character H and consists essentially of two elements namely a base member 5 and a cover member 6, the cover member having an annular flange 7 thereon depending about the base member 5 and serving to clamp the upper annular edge portion of the bellows bag G between itself and said base member to both close the upper end of the bellows bag and fix the weight portion H in proper position closing the upper end of the bellows bag.

The base member as illustrated consists of a single piece of sheet metal bent into the shape as indicated. The manner of producing and forming the base member 5 of the weight comprises an essential feature of the present improvement and it is noted particularly in this connection that the piece of material from which said base member is formed is approximately a true square, as indicated by the dot and dash lines in Fig. 4, it being apparent that in utilizing a blank of this shape no waste whatever is occasioned in the manufacture of the element. The piece of sheet metal, of the relative size as indicated by line 8, is operated upon by suitable forming and shaping dies to cause the marginal portions

of the piece of material to be curled over upon themselves and upon the central portion so as to constitute a heavy rolled edge 9, the excess of material at the corner portions of the blank, as at the points marked 5 10 in Fig. 4 is simply curled around into the rolled edge 9 to form a part of said rolled edge and add their weight to the complete article. Nothing whatever is cut 10 from the rectangular blank during this operation or in fact at any other time. In turning up the marginal portions of the blank a substantially vertical annular wall portion as 11 is provided for receiving the 15 upper end of the bellows bag and the pendant flange of the cover member.

The main or central portion as 12 of the base member is preferably bent downwardly to a suitable degree, and the central portion 20 of the cover member is bent upwardly to a suitable degree, so that when these two parts are assembled they will provide a cavity between them adapted to serve as a sound chamber 13.

The portion 12 of the base member is 25 formed with a slit 14 therethrough and the immediately adjacent parts of said portion 12 are pressed in opposite directions as 15 and 16 so as to form an angularly disposed circular opening 17 through said portion 12 30 adapted to receive a reed 18, said reed being carried by a suitable carrier 19, preferably of cork or the like, which fits snugly into the opening 17 and serves to hold the reed 35 firmly in position substantially as illustrated.

By mounting the reed in the manner described two very important objects are attained, namely, first, no material whatever 40 is cut away from the base member 5 in the formation of the reed receiving opening 17, and, second, the reed is held in an inclined, almost horizontal, position so that it does not project materially above the plane 45 of the main portion of the base member and hence does not add to the thickness of said base member. The height of the entire crier is thus maintained at a minimum and the amount of movement available for the 50 weight portion H is maintained at a maximum.

The opening 17 is disposed preferably at one side of the centre of the base member, and the portion 15 of said base member 55 which is bent upwardly in the formation of said opening preferably engages against the under surface of the cover member 6, and said cover member 6 adjacent to the portion 15 is preferably curved as at 20 to follow the 60 curvature of said portion 15 and constitute a channel 21 leading from the upper end of the reed in the direction of the length of the reed toward the adjacent margin of the sound chamber 13.

At opposite sides of the channel portion

20 the material of the cover 6 is bent again upwardly as at 22—22 to provide a pair of said passages or channels 23 within the sound chamber and communicating with the outer portion of the channel 21 as at 24 70 so that the sound issuing from the upper end of the reed after traversing the channel 21 will be divided and lap back upon itself through the passages 23—23 to the 75 opposite side of the sound chamber where it will pass out of the sound chamber through one or more openings as 25 formed through the cover 6, as graphically indicated by the arrows in Fig. 2.

The sound, after leaving the openings 25, 80 will move outwardly through the apertures 4 of the top wall of the casing.

It will be understood that in the illustration Fig. 1 the weight portion H of the device is shown in its uppermost position 85 with the bellows bag G distended and ready to be collapsed by the downward gravity movement of the weight. As the weight gravitates downwardly the air from within the bellows bag will be forced outwardly 90 through the reed 18, which is the only available exit, and in so doing will cause the reed to sound a note. The sound waves in traversing the channels or passages 21—23 will be appropriately muffled or modified to 95 closely approximate the cry of the human child.

When the weight has completely descended the cry will cease and not be repeated again until the doll has been turned 100 over to cause the weight to again move to bellows distending position, and then turned back again to allow the weight to fall, as is common and well known in this art.

The modification shown in Figs. 6 and 105 7 proposes a structure which is in all respects the same as has been above described except that a separately formed channel member as 26, shown detached in Fig. 7, is 110 employed in the second chamber 13 instead of shaping the cover 6 to provide the channel. Also the cover 6 is shown as provided with only a single sound outlet opening as 27 positioned centrally of said cover.

When this device is in use the sound waves 115 issuing from the reed 18 will pass along beneath the channel member 26 to the outer end thereof adjacent the margin of the sound chamber 13 whence they will divide 120 and pass along opposite sides of the channel member 26 and within the sound chamber to the opening 27.

As many changes could be made in this construction without departing from the 125 scope of the invention as defined in 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. 130

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

1. A sound producing device comprising
5 a bellows closed at one end, a gravity movable weight closing the opposite end of the bellows, a sound producing element arranged to be operated by the air displaced by the gravity movement of said weight, and
10 said weight comprising an annular member formed from a single rectangular piece of sheet material having its corner portions turned inwardly to constitute parts of said weight.

15 2. A sound producing device comprising a bellows closed at one end, a gravity movable weight closing the opposite end of the bellows, a sound producing element arranged to be operated by the air displaced
20 by the gravity movement of said weight, and said weight comprising a part formed from a single rectangular piece of sheet material having its corners and other marginal portions thereof turned inwardly to constitute
25 a rolled edge upon said weight.

3. A sound producing device comprising a bellows closed at one end, a gravity movable weight closing the opposite end of the bellows, a sound producing element arranged to be operated by the air displaced
30 by the gravity movement of said weight, said weight comprising a part having an annular marginal rolled edge thereon, and said part being formed of a single rectangular
35 piece of sheet material the entire marginal portions of which are turned inwardly to constitute said rolled edge.

4. A sound producing device comprising a bellows bag closed at one end, a gravity
40 movable weight closing the opposite end of the bellows, a sound producing element arranged to be operated by the air displaced by the gravity movement of said weight, said weight comprising a part having an
45 annular marginal rolled edge thereon engaged by the bellows bag, and said part being formed of a single rectangular piece of sheet material the entire marginal portions of which are turned inwardly to constitute
50 said rolled edge, together with a separately formed member engaging about said rolled edge to hold the bellows bag connected thereto.

5. A sound producing device comprising a
55 bellows bag closed at one end, a gravity movable weight closing the opposite end of the bellows, a sound producing element arranged to be operated by the air displaced by the gravity movement of said weight, said
60 weight comprising a part having an annular marginal rolled edge thereon engaged by the bellows bag, and said part being formed of a single rectangular piece of sheet material the entire marginal portions of which
65 are turned inwardly to constitute said rolled

edge, together with a perforated cover member co-operative with said mentioned part to provide a sound chamber into which the sound producing element communicates, and said cover having a portion arranged to hold
70 the bellows bag connected with the weight.

6. A sound producing device comprising a bellows closed at one end, a gravity movable weight closing the opposite end of the bellows, a sound producing element arranged
75 to be operated by the air displaced by the gravity movement of said weight, the weight having a sound chamber therein into which the sound producing element communicates at one side of the center of the sound chamber, and there being a sound outlet opening
80 through a wall of the sound chamber at the opposite side of said center, together with means for providing a channel extending away from the center of the sound chamber
85 to near the margin of the sound chamber arranged to receive the sound from the sound producing element and to conduct said sound toward said margin at a point removed from
90 said outlet opening.

7. A sound producing device comprising a bellows closed at one end, a gravity movable weight closing the opposite end of the bellows, a sound producing element arranged to be operated by the air displaced by the gravity
95 movement of said weight, the weight having a sound chamber therein into which the sound producing element communicates at one side of the center of the sound chamber, and there being a sound outlet opening
100 through a wall of the sound chamber at the opposite side of said center, together with means arranged to define tortuous passages within the sound chamber extending from the sound producing element to said sound
105 outlet opening.

8. A sound producing device comprising a bellows closed at one end, a gravity movable weight closing the opposite end of the bellows, a sound producing element arranged
110 to be operated by the air displaced by the gravity movement of said weight, means supporting the sound producing element in position projecting longitudinally into the sound chamber in a direction toward one side
115 of the sound chamber, and there being a sound outlet opening through a wall of the sound chamber at the side of the sound chamber diametrically opposite to the side toward
120 which the sound producing element is projected.

9. A sound producing device comprising a bellows bag closed at one end, a gravity movable weight closing the opposite end of the bellows bag, a sound producing element
125 to be operated by the air displaced during the gravity movement of the weight, said weight comprising an annular member formed of sheet metal, the bellows bag engaging the marginal edge of the weight, a
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member engaging over the bellows bag and sealing the bellows bag to the weight, said last mentioned member having a part also serving to define a sound chamber in the weight, the piece of sheet metal comprised in the weight having a slit formed there-through, the portions of sheet metal at opposite sides of the slit being spread in opposite directions to provide an opening within which the sound producing element is arranged said portions holding the sound producing element in position projecting longitudinally into the sound chamber in a direction toward one side of the sound chamber, and there being a sound outlet opening through a wall of the sound chamber at the

side of the sound chamber diametrically opposite to the side toward which the sound producing element is held protected.

10. A sound producing device comprising a bellows closed at one end, a gravity movable weight closing the opposite end of the bellows, a sound producing element arranged to be operated by the air displaced by the gravity movement of the weight, and said weight comprising an annular member formed from a single rectangular piece of sheet material having a rolled edge part including the corner portions of said rectangular piece.

In testimony whereof I affix my signature.
ALEXANDER KONOFF.