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3,219,140

ROTATABLE LOUDSPEAKER

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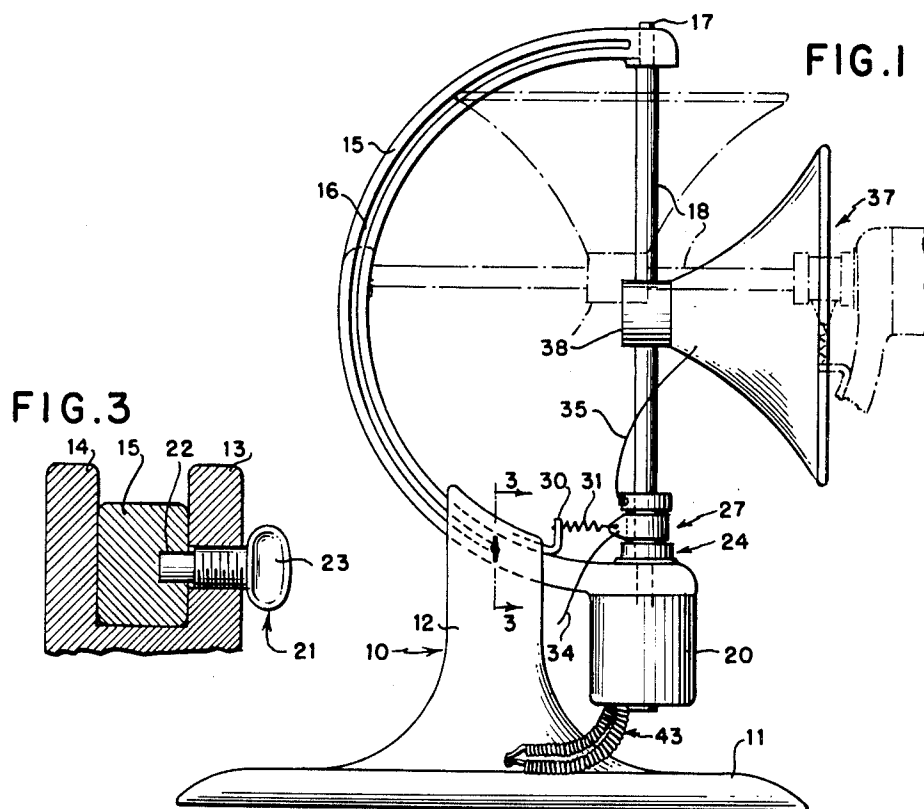


FIG. 3

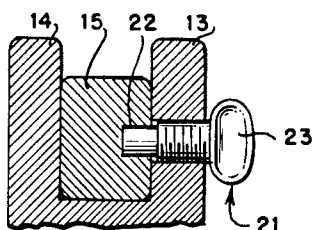


FIG. 2

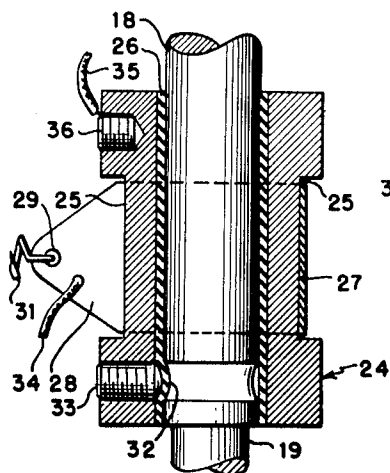
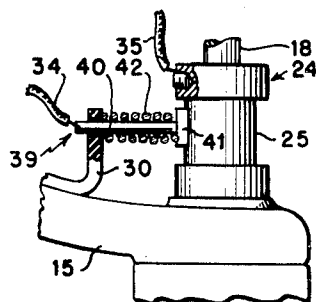


FIG. 4

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ROTATABLE LOUDSPEAKER

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5 Claims. (Cl. 181-31)

This invention relates to a rotatable loudspeaker and more particularly to a loudspeaker adapted to be directed rotatably in a plurality of selective positions.

It is an object of this invention to provide a rotatable loudspeaker adapted to send out messages while rotating.

It is another object of this invention to provide a rotatable loudspeaker swingable through an arc while rotating.

These and other objects of this invention will become apparent upon reading the descriptive disclosure taken in conjunction with the accompanying drawing of an illustrative embodiment of this invention and in which;

FIG. 1 is a side view of the rotatable loudspeaker showing in dotted outline the speaker swung through an arc of 90 degrees,

FIG. 2 is a view taken at line 2-2 of FIGURE 1,

FIG. 3 is a view taken at line 3-3 of FIGURE 1, and

FIG. 4 is a modification of FIGURE 1 showing an alternative manner of conducting an electric current to the rotating speaker.

Referring to the drawing a base 10 is provided with a base plate 11 and vertical upright 12. The base plate 11 may be removeably secured to a foundation structure by conventional means such as bolts and nuts if so desired. Usually the upright of the base 10 is so heavy as to firmly hold the device in place by the force of gravity alone.

The upright 12 of the base 10 is provided at its top most terminus with a curved U-shaped channel (FIGURE 3) formed by a pair of channel forming ridges 13 and 14 intergal with said upright 12.

A crescent shaped or C-shaped frame piece 15 is adapted to slidably fit into the channel formed by ridges 13 and 14 and is provided with a curved groove 16 preferably of a length to permit the crescent-shaped frame piece 15 to swing through an arc of at least 90 degrees. The slot 16 may be of a length substantially equal to the length of the crescent-shaped frame piece 15, in which event the frame-piece may be swung through an arc of about 180 degrees.

The crescent frame piece 15 is provided with a top aperture to receive the top journal 17 of rotatable shaft 18, and also with a bottom aperture in the base of the crescent-shaped piece 15 of a size adapted to receive the bottom shaft section 19 (FIG. 2) of the shaft 18.

An electrical motor 20 (FIG. 1), is fixedly secured to the bottom of the frame piece 15 by conventional means (not shown). The motor shaft and shaft 18 may be of integral and unitary construction.

As shown in FIG. 3 the channel ridge 13 is provided with a screw threaded aperture and a mating screw threaded wing nut 21 is threading engaged in said aperture. The wing nut 21 is provided with a prong end 22 adapted to be inserted into groove 16 and to frictionally engage the base wall of the groove when the wing nut 21 is tightened by inward rotation of its thumb plate. Thus the wing nut 21 is adapted to lock the crescent shaped frame piece 15 in any selected position.

The rotatable shaft 18 is provided with a metal slip-on collar 24 (FIG. 2) having a middle cylindrical section 25 of smaller diameter. A sleeve 26 of any conventional electrical insulating material is disposed intermediate the shaft 18 and the collar 24.

An electricity conducting metal clamp 27 of substantially a U-shaped construction is disposed in rubbing contacting relationship with section 25 of collar 24. Clamp

27 is provided with a triangular integral extension 28 having an aperture 29 therein. An angular pillar 30 of electrical insulating material is secured by conventional means such as lock screws or bolts to the frame piece 15 and a tension spring 31 is disposed between said pillar 30 and extension 28 thereby drawing the clamp in snug rubbing contact with collar 24. Graphite powder may be used as a lubricant between clamp 27 and collar 24 because of its electrical conducting property.

The cylindrical shaft 18 is provided with a circular groove 32. The collar 24 is also provided with a screw threaded aperture and a setscrew 33 is fitted into the aperture and tightened against shaft 18 thereby locking the collar 24 to the shaft 18 to cause rotation of said collar 24 and shaft 18 as a unit.

An electrical impulse carrying conduit 34 from an amplifier (not shown) is secured by conventional soldering means to extension 28 and a conduit 35 is secured by locking screw 36 to collar 24 and also to a conventional loudspeaker horn 37, secured thereto by conventional means.

The horn 37 is fixedly secured to a rectangular support 38 which latter is fixed to shaft 18 by conventional securing means such as setscrews.

In the modification shown in FIG. 4, a plunger 39 having a rod 40 and a curved clamp shoe 41 is disposed between insulating pillar 30 and the middle section 25 of collar 24. The curved portion of shoe 41 is adapted to rubbingly engage the collar section 25 thus permitting flow of electrical current therebetween.

The plunger rod 40 protrudes through an aperture in support pillar 30 and a compression spring 42 is disposed about the rod 40 between pillar 30 and a clamp shoe 41 thereby urging the said shoe 41 in firm contact with rotating collar 24. The electrical wire 34 in the modification of FIG. 4 is secured to the end of rod 40 which protrudes through pillar 30.

In the apparatus of this invention the electrical wire 34 is secured to a conventional audio-amplifier (not shown) at one end and to clamp 27 or plunger 40 at the other end. The impulse current in the wire 34 passes through stationary clamp 27 or plunger 40 into rotating shaft 18. Motor 20 is energized by electrical current from conduits 43 causing rotation of shaft 18. The horn 37 thus continuously rotates with shaft 18 emitting sound at right angles thereto.

The shaft 18 may be moved selectively from a vertical position as shown to a horizontal position as shown in dotted outline and secured in place at an angle between 0° or the horizontal plane and 90° or the vertical plane and also beyond 90° to about 180°.

Clearly, the rotating horn of this invention can rotatably be directed in substantially any selected position and thus rotatably dispense sound in universal manner.

In the return of the current from the loud-speaker to the ground, the path of travel is through the shaft 18, and frame-piece 15 to the base upright support 10 and thence to the ground upon which said base 10 rests.

Having described my invention other embodiments within the ambit of this disclosure will readily occur to those skilled in the art, but all these embodiments are intended to be embraced within the scope of the claims herein.

I claim:

1. An electrical loudspeaker apparatus comprising an upright base member having a U-shaped slot in its top, a curved C-shaped member disposed slidably in said U-shaped slot of said base upright, a shaft rotatably mounted between the ends of the C-shaped member, a collar adapted to conduct electrical current disposed

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about said shaft and fixed thereto, means for electrically insulating said collar from said shaft, means for rotating said shaft, an electricity conducting stationary clamp shoe means disposed in frictional relationship against said collar, means for urging said stationary clamp shoe in firm contact with said rotating shaft, a loudspeaker fixedly secured to said shaft, and an electrical conduit disposed between said collar and said horn for conducting electrical impulses thereto.

2. The apparatus of claim 1 wherein said clamp shoe means consists of a U-shaped seizure clamp, and wherein the means for urging a firm contact between said clamp and said rotatable shaft is a tension spring, said apparatus having a pillar of electrical insulating material secured to said C-frame piece and adapted to hold one end of said tension spring.

3. The apparatus of claim 1 wherein said clamp shoe consists of a curved plate adapted to engage the surface of the rotating shaft, said apparatus having an upright apertured pillar of insulating material secured fixedly to said C-frame and having further a plunger rod secured at one end to said clamp shoe and disposed at the other end through the aperture of said pillar, and wherein said means for urging firm contact between said shoe and said shaft is a compression spring disposed between said pillar and said shoe.

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4. An electrical apparatus for dispensing sound selectively in any direction comprising a base support, a C-shaped element disposed slideably in said support, a rotatable shaft disposed between the ends of the C-shaped element, means for rotating said shaft, a horn loudspeaker secured to said shaft, and means for conveying electrical impulses to said horn loudspeaker.

5. The apparatus of claim 4 wherein said means for conveying electrical impulses to said horn comprises an electrical current conducting collar fixedly disposed about said shaft, an electrical insulating cylinder disposed between said collar and said shaft, a clamp shoe adapted to convey electrical current and firmly contacting said collar, means for conducting electrical current to said collar, and means disposed fixedly between said collar and said loudspeaker for conveying electrical current impulses to said loudspeaker.

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