

[54] **INTERCHANGEABLE DRUM RESONATORS AND GENERATORS**

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[57] **ABSTRACT**

A drum assembly is provided whereby drum resonators of various shapes and sizes, each having its own tonal qualities, is provided with a collar to receive thereon one or another interchangeable generator provided with clamping means for quickly interchanging one or another generator with a selected shaped resonator.

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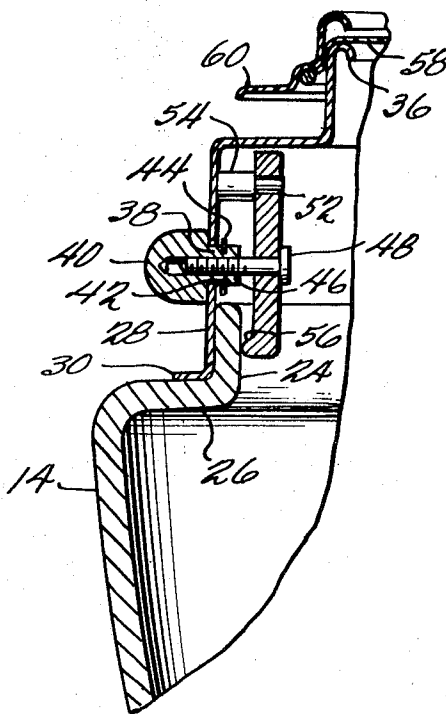
[58] Field of Search 84/411-420

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2 Claims, 4 Drawing Figures



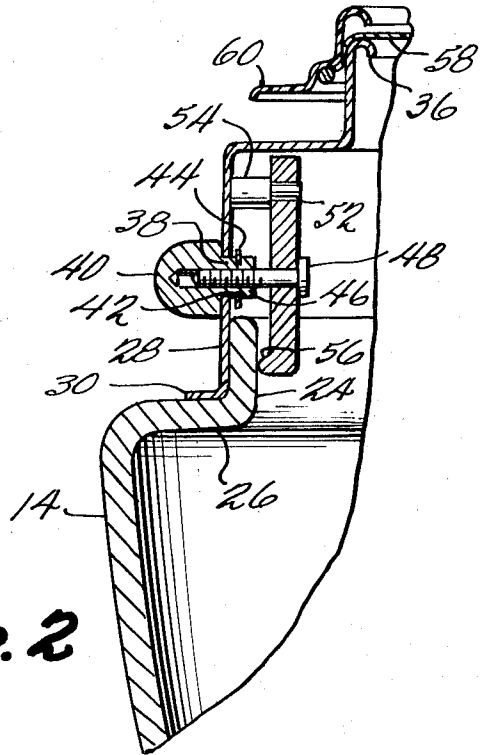
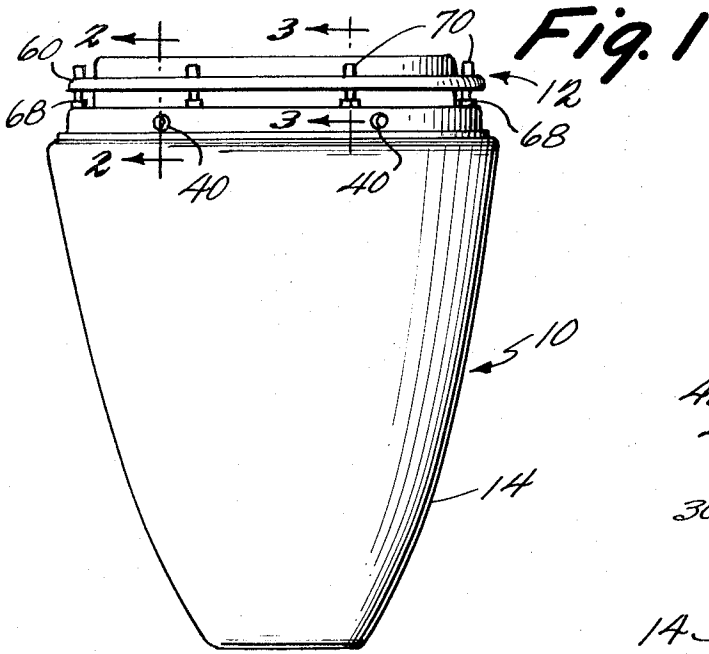


Fig. 2

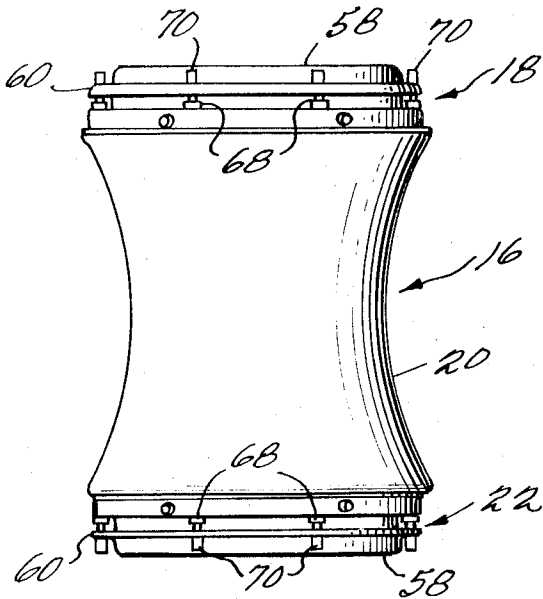
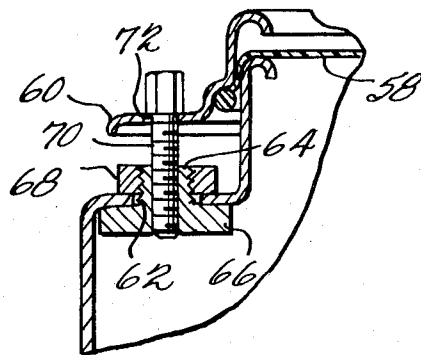


Fig. 4

Fig. 3



INTERCHANGEABLE DRUM RESONATORS AND GENERATORS

Heretofore drums have been provided in various sizes and shapes for their particular tonal qualities. Examples of such drums are bass, tom-tom, snare and bongo. They are generally of similar construction and merely differ in shape and size. Usually they consist of shells or resonators having mounted thereon around their periphery a number of lugs or engaging members to receive tensioning rods to secure a head or generator onto one or both of the ends of the resonator. Such lugs are mounted onto the resonators by means of bolts and nuts, such bolts passing through the resonator. Although washers and cushioning sleeves around the bolts have been employed it is almost impossible to eliminate the vibration between the bolting means and the shells. Furthermore, these incursions through the shell interfere with the pure resonance qualities of the shells. My invention eliminates the receiving lugs on the shells, leaving it free to yield pure tonal response free from internal vibrational interruptions.

Since no mountings are required on the outer side of my resonators there is less restriction on the materials of construction. Previous drums were made from material which had to be thick enough to carry the stress and load of the mounting and tensioning devices so that the shells would not split, crack or warp under resulting stresses, loads or tensions. Materials such as plywood were necessary in the construction of conventional drums because of its strength and manufacturing characteristics and not for audio reasons.

Plexiglas, another material that has been used for conventional drums, has fairly good audio qualities but great care is necessitated in attaching, mounting and clamping devices to the drum. Even with reinforcement and cushioning devices Plexiglas may craze or split under such stresses, loads and tensions.

Since my drum shell is free from attachments it may be made of various suitable rigid materials thinner than previously required. Furthermore, the external surface thereof need not be smooth to receive attachments and therefore may have an infinite aesthetic variety of texture such as deep or shallow grooves, deep or shallow pits, uniform or free-form lattice work and the like.

Another decided disadvantage of the conventionally constructed drums is the impossibility of changing resonators quickly and easily. My invention achieves this result which is now especially helpful to the performer playing under a host of various conditions such as in large auditoriums, small rooms, recording studios, with and without amplification and the like whereby different resonators are required to maintain a consistent quality of audio excellence.

An object of my invention is to eliminate mountings or accessories attached to the shell of the resonator to improve its vibratory function.

Another object is to provide for a resonator which can be constructed of any thickness using a host of construction materials such as wood, plastic or metal in any thickness, especially of greater thinness than heretofore done, without fear of physical breakdown due to stress, tension and the like.

A still further object is to provide almost any conceivable shape of resonator which can be adapted to the generator including long tubes, short tubes, long parabolic chambers, long cones, short cones, long rect-

angular chambers, short rectangular chambers and the like.

Another object is to provide a drum construction whereby the tensioning of the drumhead is contained within the generator mechanism which is provided with clamping means for quickly attaching said generator mechanism to a collar portion of a resonator which in turn is free from clamping or tensioning attachments.

A further object is to provide interchangeable generators and resonators, either audio or electronic, which can be mixed or interchanged to give any combination of audio or visual possibilities.

Another object is to provide for different sized similarly shaped resonators which can be nested one within another as well as nested various sized generators to facilitate packing and transporting a complement of drums from one place of performance to another place.

A further object is to provide for mounting accessories or drums to a common ground-level base having an upright pole to hold attachments that will mount directly to the generator and not to the resonator.

These and other objects and novel features of my invention can be more clearly and fully appreciated by referring to the following specifications and claims.

In the drawings forming a part of this specification:

FIG. 1 is a plan view of a specific embodiment;

FIG. 2 is an enlarged detail cross sectional view taken along line 2—2 of FIG. 1 showing a clamping means;

FIG. 3 is an enlarged detail cross sectional view taken along line 3—3 of FIG. 1 showing one embodiment of securing the drum head on the generator frame; and

FIG. 4 is a plan view of my invention illustrating two generators attached to one resonator.

A drum assembly 10 has a generator 12 connected on one end of a drum shell resonator 14. FIG. 4 illustrates a drum assembly 16 having a generator 18 mounted on one end of a resonator 20 and another generator 22 mounted on the other end of said resonator.

I provide a resonator 14 with an upstanding circular collar 24 having a somewhat smaller diameter than the resonator end to which it is secured by means of an integral shoulder section 26 disposed therebetween. The generator 12 has a circular shell body 28 with an outwardly slightly extending circular portion 30 which rests on shoulder 26 and an inwardly extending circular section 32 having its inner section 34 in the form of an S extending upwardly terminating in a reverse downward section 36. Shell body 28 has an inner diameter slightly larger than the outer diameter of collar 24 to which it is secured in a manner to be described. Openings 38 are spaced around the periphery of shell 28 to receive locking nuts 40 which are held loosely in place by locking washers 42 fitted in grooves 44 provided in the shank end 46 of said nuts. A locking bolt 48 engaged through opening in locking plate 50 is threadably received in nut 40. The locking plate 50 is provided with second opening 52 to receive a lug 54, one end of said lug being secured to the inner part of shell wall 28 and the other end of said lug being aligned with and received by said opening 52. A rib portion 56 extends outwardly and abuts inner collar wall 24. Upon tightening nuts 40 the generator is engaged securely around collar 24.

I provided a drum head or diaphragm 58 conventionally secured by annular pressing member 60 forming a part of the generator 12.

Openings 62 are provided in section 32 for receiving threaded boss ends 64 of clamps 66 which are rigidly secured by means of locking nuts 68 received on boss ends 64. Clamps 66 are internally threaded to receive tensioning bolts 70 which pass through openings 72 provided in member 60 to thereby provide for tensioning diaphragm 58. It is readily apparent that the means for tensioning the diaphragm are partly concealed within the generator. I have found it advantageous to provide the openings 62 somewhat larger in diameter than the boss ends 64 to permit easier alignment of the tensioning bolts through the openings of member 60 into the receiving clamps. Upon alignment locking nuts 68 can then be secured tightly.

To remove my generator from the resonator one merely unscrews the locking nuts 40 around the periphery of the generator which allows locking plate 50 to disengage from the resonator collar. The generator can then be lifted from the collar and, if desired, placed on the collar of another resonator and secured in place by tightening locking nuts 40 to engage rib 56 of each clamp 50 securely against the collar of the resonator.

It is usually not necessary to retension the diaphragm on the generator when the generators are changed from one resonator to another since there is no need to touch the tensioning bolts in making a change between generators and resonators.

Having thus described my invention with a specific example illustrated and described it should be understood that no undue limitations or restrictions are to be imposed but that the scope of my invention is to be defined by the following claims: I claim:

1. A drum comprising a shell and a generator consisting of a conventional flesh hoop secured between two retaining rings having means therebetween for adjusting tension of the vellum of said flesh hoop, one of said retaining rings having clamping means secured to a collar thereof to removably mount said collar on one end of said shell said clamping means operable on the outer surface of the drum permitting rapid interchange of different shells and generators without affecting a present tension of the vellum.

2. A drum according to claim 1 having two said generators mounted on opposite ends of said shell.

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