

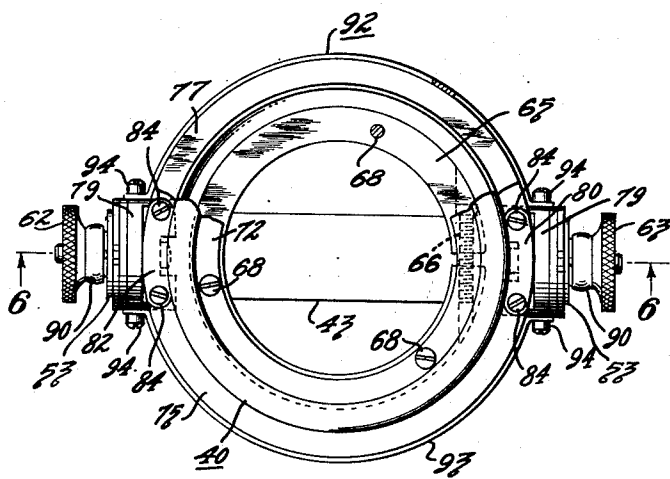
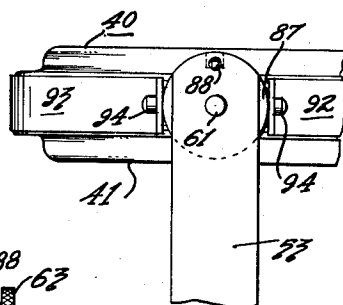
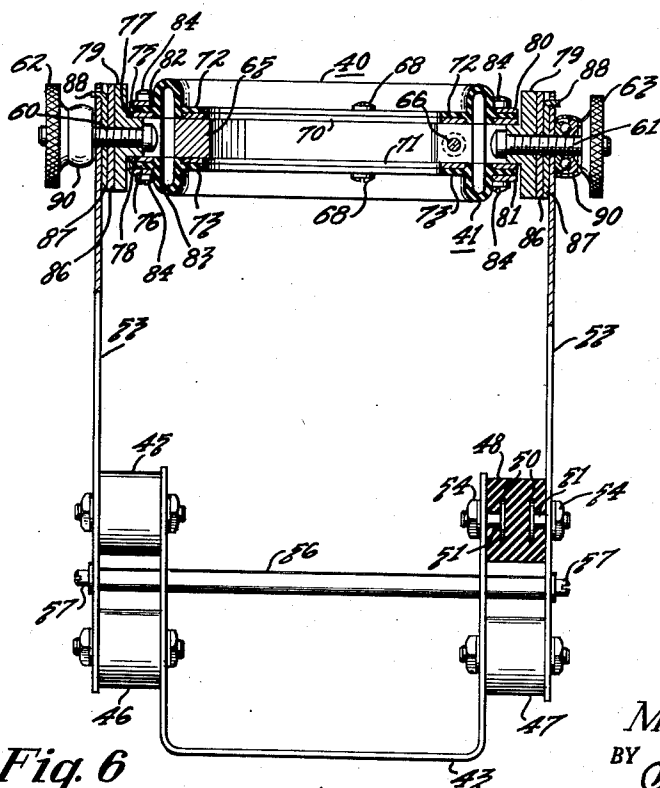
Sept. 9, 1952

M. RETTINGER
MICROPHONE MOUNT

2,610,018

Filed June 17, 1948

2 SHEETS—SHEET 1



INVENTOR.
Michael Rettinger
BY *W. R. Loshaw*
ATTORNEY.

Sept. 9, 1952

M. RETTINGER
MICROPHONE MOUNT

2,610,018

Filed June 17, 1948

2 SHEETS—SHEET 2

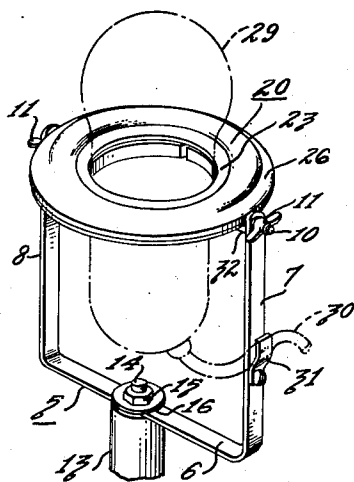


Fig. 1

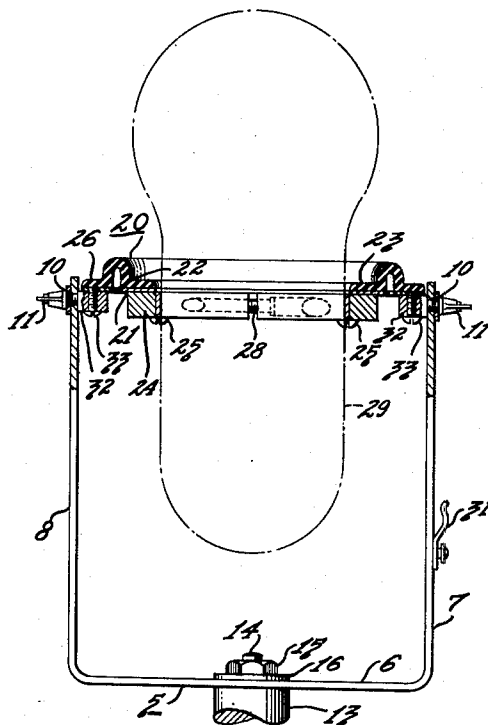


Fig. 2

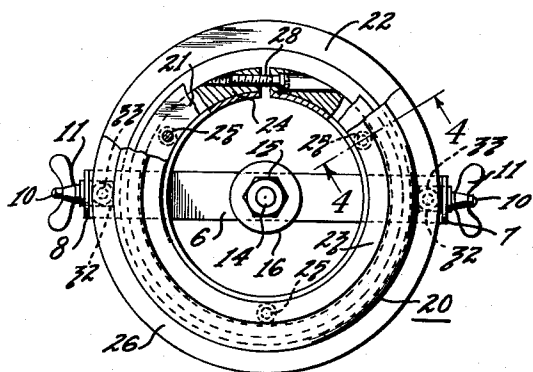


Fig. 3

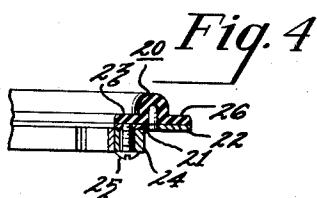


Fig. 4

INVENTOR.
Michael Rettinger
BY *Carl R. Lohew*
ATTORNEY.

UNITED STATES PATENT OFFICE

2,610,018

MICROPHONE MOUNT

Michael Rettinger, Encino, Calif., assignor to
Radio Corporation of America, a corporation
of Delaware

Application June 17, 1948, Serial No. 33,493

5 Claims. (Cl. 248—358)

1

This invention relates to suspension means and particularly to a resilient and shockproof mounting for sound pickup equipment such as microphones. This application is a continuation-in-part of application, Ser. No. 756,192, filed June 21, 1947, now abandoned.

In the art of sound detection for either public address, sound reinforcing, or sound recording systems, microphones are employed, these microphones being particularly sensitive to both sound waves and external mechanical movements. Thus, it is necessary that they be mounted so that they may be moved by rotation or by tilting in the direction of the sound source without having the movement introduce extraneous sounds in the circuit. Spring and rubber band mountings have been previously employed which are generally heavy, bulky, unsightly, and difficult to maintain, the present invention being directed to a simplified mounting which prevents vibrations of the supporting structure or boom from introducing noise in the circuit. Resilient material, such as medium soft rubber, is used and which is in the form of one or more annular rings with U-shaped cross-sections. The mount is not only particularly efficient to shockproof the microphone, but also provides a pleasing and neat appearance.

The principal object of the invention, therefore, is to facilitate the mounting of a sound pickup device.

Another object of the invention is to provide an improved mounting structure for a sound pickup device.

A further object of the invention is to provide simple, light weight, and efficient shockproof mounts for a microphone.

Although the novel features which are believed to be characteristic of this invention will be pointed out with particularity in the appended claims, the manner of its organization and the mode of its operation will be better understood by referring to the following description read in conjunction with the accompanying drawings, forming a part hereof, in which:

Fig. 1 is a perspective view of a microphone mount embodying the invention.

Fig. 2 is a cross-sectional view of the mount shown in Fig. 1.

Fig. 3 is a plan view, partially in cross-section, of the mount shown in Figs. 1 and 2.

Fig. 4 is a cross-sectional view of a detail of the mount taken along the line 4—4 of Fig. 3.

Fig. 5 is a plan view, partially in section, of another modification of the mount,

2

Fig. 6 is an elevational view of the embodiment shown in Fig. 5 and taken along the line 6—6 of Fig. 5, and

Fig. 7 is a detail view of the upper end of the mount shown in Figs. 5 and 6.

Referring now to the drawings in which identical numerals identify like elements, a U-shaped yoke, shown generally at 5, has a cross member 6 and leg members 7 and 8, the ends of the legs being drilled to accommodate bolts 10 having wing nuts 11. The cross member 6 may be mounted on a rod 13 which may be on a stand or the end of a boom, the attachment being made simply by inserting the threaded bolt 14 in a hole in the member 6 and tightening the member 6 by means of the nut 15, between which and the member 6 is a washer 16.

The principal element of the mount is a soft rubber annular ring 20 having a U-shaped cross-section, the inner and outer flanges 23 and 26, respectively, of which are bonded to flat metallic or aluminum rings 21 and 22, respectively. The ring 21 is then attached to a microphone mounting ring 24 by any suitable means, such as by three screws 25, the ring 24 being split and the ends adjustable by a screw 28 in order to attach the microphone firmly in the mount, the outline of one type of microphone being shown by the broken lines 29. As shown in Fig. 4, the holes in the ring 24 are larger in diameter than the diameter of the screws 25. To fasten the microphone in the ring, the screws 25 are first loosened, the screw 28 then tightened to tighten the ring on the microphone, and the screws 25 then tightened. The microphone has output conductors encased in a cable 30 which may be attached to the leg 7 by a spring clip 31.

The outer supporting ring 22 has attached thereto a yoke mounting ring 32 in any suitable manner, such as by screws 33, the ring 32 having the threaded bolts 10 attached diametrically opposite one another so that the mount may be attached to the yoke 5 and tilted in any desired position.

The above described structure provides particularly efficient insulation for the microphone from vibrations introduced in the yoke 5 by the microphone boom or other supporting structure, as well as providing free suspension of the microphone. The resilient ring 20 permits free longitudinal, transverse and rotational movements within predetermined limits, while the entire mount is simple, economical, easy to maintain, and neat in appearance.

Referring now to Figs. 5, 6, and 7, a modifica-

3

tion of the mount of Figs. 1 through 4 is shown with two opposing annular U-shaped, soft rubber rings 40 and 41 and a mechanical filter on the supporting yoke 43 which may be attached to a rod such as shown at 13 in the above described modification. This filter includes four rubber cylindrical blocks 45, 46, and 47 and 48, the latter being shown in cross-section to indicate that the heads 50 of screws 51 are embedded in the rubber along the axis of the blocks. The screws 51 pass through a hole in one of the legs of yoke 43, and a hole in one of the side support members 53 and on which nuts 54 are threaded. The other blocks 45, 46, and 47 are attached or mounted in the same manner, a rod 55 passing through holes in yoke 43 and members 53 mid-way between the blocks, the rod being held in position by nuts 57. This filter thereby insulates shocks in the yoke 43 from the upper microphone mounting structure.

Referring now to the mounting structure at the upper ends of members 53, these members have holes through which bolts 60 and 61 pass and on the ends of which are threaded knurled finger nuts 62 and 63, respectively. A split microphone supporting ring 65 with a tightening screw 66 similar to ring 24 and screw 28 is attached by screws such as shown at 68 to two flat rings 70 and 71 to which are bonded the flat surfaces of the inner flanges 72 and 73, respectively, of the two U-shaped rubber rings 40 and 41. The flat surfaces of the outer flanges 75 and 76 of the rubber rings are bonded to two flat rings 77 and 78, respectively, these rings being attached by straps 80, 81, 82, and 83 and screws 84 to pivot blocks 79 through which the bolts 60 and 61 pass.

To provide tilting and a locking action, fiber or similar types of washers 86 are interposed between blocks 79 and washers 87, the latter having ears 88 which are accommodated in holes or notches in the upper ends of members 53 so the washers 87 rotate with members 53. These washers are on the pivot bolts 60 and 61. Thrust bearings 90 of the ball bearing type are provided between members 53 and nuts 62 and 63 to create the desired locking friction on the surfaces of washers 86. This type of bearing prevents the tightening and loosening of nuts 62 and 63 when bolts 60 and 61 are rotated by rotation of blocks 79 into which the bolts are threaded and which rotate with the tilting of the microphone. Cover strips or bands 92 and 93 surround the unit and are attached to pivot blocks 79 by screws 94.

The modification shown in Figs. 5, 6, and 7, therefore, provides additional insulation for the microphone over that of the first described embodiment and is particularly desirable where heavier microphones are subject to shocks and sudden movements.

I claim:

1. A vibration mount comprising a plurality of resilient rings having U-shaped cross-sections and flanges, the surfaces of the flanges of each ring lying in the same plane and parallel with each other, pivot blocks having openings in

4

alignment, flat rings attached to the surfaces of said flanges and to said pivot blocks for supporting an object, supports for said pivot blocks, and adjustable tensioning means associated with said supports and said pivot blocks, said supports including parallel members extending from said pivot blocks, a yoke with parallel members between the parallel members of said supports, resilient elements for interconnecting all of said parallel members, and means for supporting said second mentioned parallel members.

2. A vibration mount in accordance with claim 1, in which said tensioning means includes frictional washers, threaded bolts in said openings, nuts on said bolts, thrust bearings between said supports and said nuts for varying the friction on the surface of said washers, and locking means for said friction varying means.

3. A vibration mount comprising a yoke having a pair of parallel members, a second pair of parallel members, a plurality of resilient elements connecting said parallel members, said elements being in two pairs, each pair having their axes in alignment, a rod interconnecting all of said parallel members intermediate said pairs of resilient elements and having its axis parallel with the axes of said elements, resilient means mounted on the ends of said second pair of parallel members for supporting an object, and means for supporting said second pair of parallel members.

4. A vibration mount in accordance with claim 3, in which said resilient means includes a pair of rubber rings having U-shaped cross-sections and flat-surfaced flanges facing each other, adjustable means attached to certain of said flanges for supporting said object within said rubber rings, pivot blocks for attaching other of said flanges to said second pair of parallel members, means for rotating said pivot blocks, means for varying the friction at said pivot blocks, and means for locking said friction varying means.

5. A vibration mount in accordance with claim 3, in which said resilient means includes a pair of rubber rings having U-shaped cross-sections and flat-surfaced flanges facing each other, adjustable means attached to certain of said flanges for supporting said object within said rubber rings, pivot blocks for attaching other of said flanges to said second pair of parallel members, frictional washers between said pivot blocks and said parallel members, means for varying the friction on said frictional washers, and means for locking said friction varying means.

MICHAEL RETTINGER.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,142,587	Ledbetter	June 8, 1915
1,506,557	Bird	Aug. 26, 1924
1,783,874	Dryden	Dec. 2, 1930
2,352,591	Wallerstein	June 27, 1944