Aug. 6, 1929. F. C. LYON 1,723,570

SOUND AMPLIFIER

Filed July 13, 1927

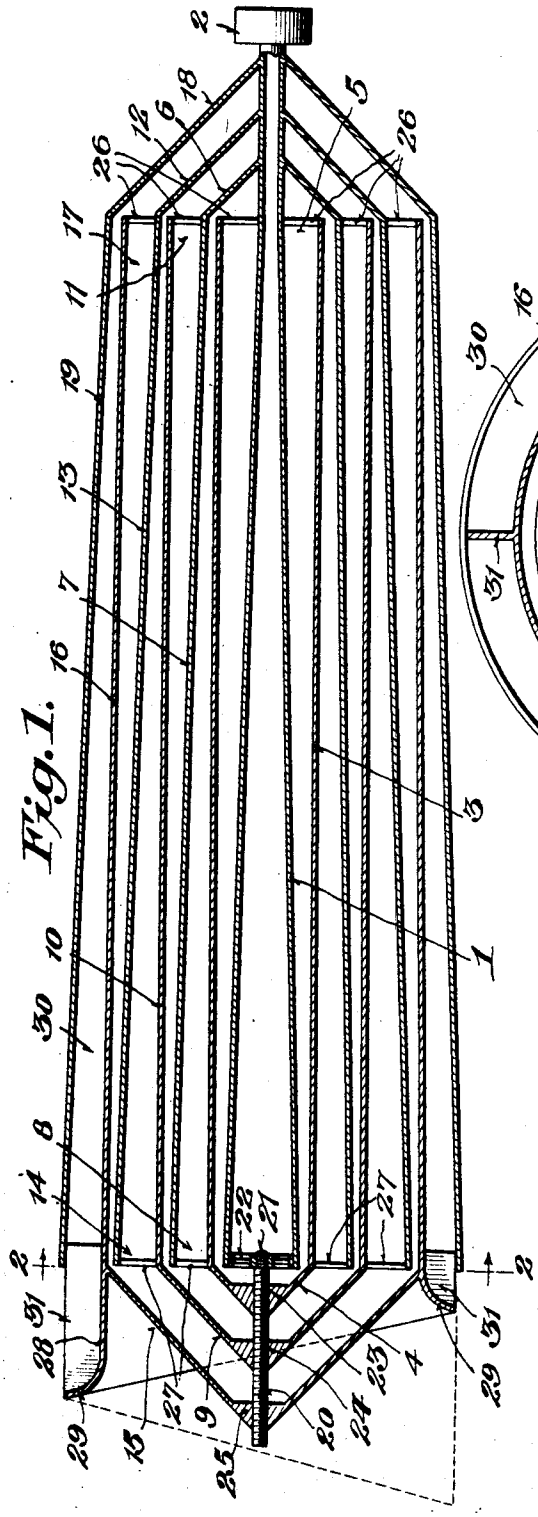


Fig. 1.

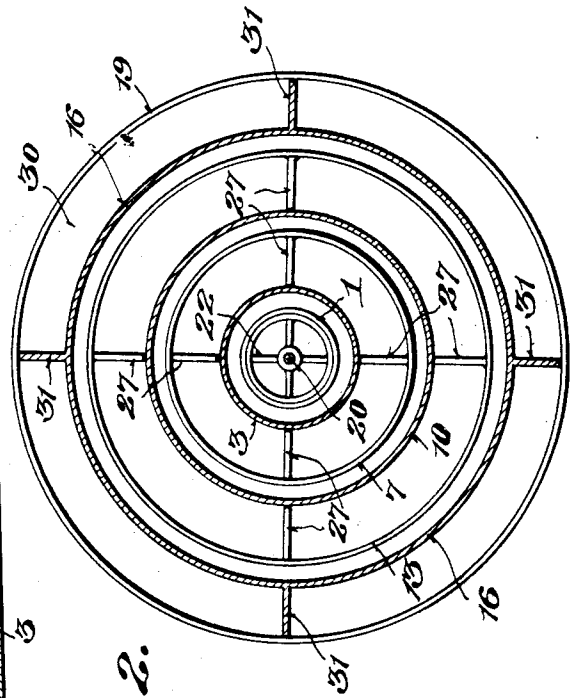


Fig. 2.

Inventor
Fred C. Lyon
By [illegible]
Attorney

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FRED C. LYON, OF FAYETTE, OHIO.

SOUND AMPLIFIER.

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This invention relates to sound amplifiers, and the primary object thereof is to provide a device of this kind which has improved sound transmitting and amplifying properties.

A further object of the invention is to provide a sound amplifier which is of simple, economical and compact construction and which is readily adaptable to amplification of varying degrees.

The invention has still further and other objects which will be later set forth and manifested in the course of the following description.

In the drawings:—

Fig. 1 is a longitudinal sectional view of the invention, and

Fig. 2 is an enlarged section on line 2—2 of Fig. 1.

In proceeding in accordance with the present invention, a central inner tube 1 is employed which is open at each of its ends and which preferably is of flared or tapering formation, its end of smallest diameter having means of connection such as 2 with the sound box of a phonograph or radio or the like. A tube 3 encircles the tube 1 and has a closed cone-pointed end 4 which confronts and extends about the discharge end of the tube 1. The opposite end of the tube 3 is open as indicated at 5 and confronts the closed cone-shaped end 6 of a tube 7. The tube 7 in turn has an open end 8 which confronts and is surrounded by the cone-shaped closed end 9 of a tube 10. The tube 10 in turn has an open end 11 which confronts and is surrounded by the closed cone-shaped end 12 of a tube 13. The tube 13 has its open end 14 surrounded by the closed cone-shaped end 15 of a tube 16. The tube 16 has an open end 17 which latter confronts and is surrounded by the closed cone-shaped end 18 of an outer tube 19. By referring to Fig. 1, it will be seen that the cone-shaped ends 6, 12 and 18 have their apices perforated to receive the inner end of the central tube 1 so that the tubes 7, 13 and 19 are each supported at their rear ends by the central tube 1. A threaded rod 20 is rigidly secured at 21 to a spider 22 secured to the discharge end of the tube 1, the rod extending through and being engaged with threaded parts 23, 24 and 25 secured within the cone-shaped ends 4, 9 and 15 of the tubes 3, 10 and 16. It will thus be noted that the tubes 3, 10 and 16 are supported at their cone-shaped ends from the central tube so that the latter acts to support each of the tubes at one end thereof. Strips 26 and 27 are employed to support the open ends of the tubes from the next adjacent inner tube.

The discharge or mouth of the amplifier is provided with a circular sound deflector composed of a plate 28 curved outwardly at its periphery as indicated at 29. The inner side of the plate is secured to the periphery of the tube 16 so that the sound waves passing through the axial passage 30 will engage the plate 28 and be deflected outwardly and thereby discharged radially of the tubes. As shown in Fig. 1, the sound deflector is of spiral form thereby to provide long and short passages therein which passages may be divided into a number of divisions as desired by use of division plates 31. Obviously as many division plates as desired may be employed. The short passages provide for deep back tones, while the longer passages provide for light tones.

From the foregoing, it will be seen that sound entering the tube 1 is spread by the cone 4 and enters the tube 3 and from the latter enters the tube 7, thence enters the tube 10, then tube 13, then tube 16, and finally tube 19 and passing through the passage 30 of the latter, the sound then enters the deflector 28 and is emitted radially of the tube 19. It will thus be seen that by varying the number and length of the various tubes, varying degrees of amplification may be obtained. By turning the tube 16, the distance between the open end 5 of tube 3 and the closed end 6 of the tube 7 can be varied to control volume accordingly.

What is claimed is:—

1. In a sound amplifier, a central inner tube having each of its ends open to form a sound inlet and outlet, a tube surrounding the central tube in spaced relation thereto and having a closed conical end confronting the discharge end of the central tube and supported thereby and having its opposite end open, and a third tube surrounding the second tube in spaced relation thereto and having a closed conical end supported by the central tube and which confronts the open end of the second tube.

2. In a sound amplifier, a central inner tube having each of its ends open to form a sound inlet and outlet, a tube surround-

ing the central tube in spaced relation thereto and having a closed conical end confronting the discharge end of the central tube and supported thereby and having its opposite end open, a third tube surrounding the second tube in spaced relation thereto and having a closed conical end supported by the central tube and which confronts the open end of the second tube, and an outwardly curved circular sound deflector adjacent to the open end of the third tube having a substantially spiral-like front portion.

3. In a sound amplifier, a central inner tube having each of its ends open to form a sound inlet and outlet, a tube surrounding the central tube in spaced relation thereto and having a closed conical end confronting the discharge end of the central tube and supported thereby and having its opposite end open, a third tube surrounding the second tube in spaced relation thereto and having a closed conical end supported by the central tube and which confronts the open end of the second tube, and an outwardly curved circular sound deflector adjacent to the open end of the third tube having a series of division plates disposed radially and axially of the tubes and having a spiral-like front portion.

4. In a sound amplifier, a sound receiving chamber having a longitudinal passage and an outwardly curved sound deflector adjacent to the passage having a radially disposed sound outlet, said deflector being of circular outline and having a spiral-like front portion so as to afford an outlet of varying length.

5. In a sound amplifier, a sound receiving chamber having a longitudinal passage and an outwardly curved sound deflector adjacent to the passage having a radially disposed sound outlet, said deflector being of circular outline and having a spiral-like front portion so as to afford an outlet of varying length, said outlet having a series of division plates therein which plates extend axially of the chamber.

6. In a sound amplifier, a central tube having open ends, and a plurality of nested tubes encircling the central tube, each of the nested tubes having an open end a cone-shaped closed end, the open ends of the nested tubes extending within the cone-shaped ends of the next adjacent outer tube, the cone-shaped ends of alternating tubes being perforated to receive and be supported by one end of the central tube, means to support the remaining cone-shaped ends from the other end of the central tube, and means to support the other ends of the nested tubes from the next adjacent inner tube.

7. In a sound amplifier, a central tube having open ends, and a plurality of nested tubes encircling the central tube, each of the nested tubes having an open end and a cone-shaped closed end, the open ends of the nested tubes extending within the cone-shaped ends of the next adjacent outer tube, the cone-shaped ends of alternating tubes being perforated to receive and be supported by one end of the central tube, means to support the remaining cone-shaped ends from the other end of the central tube, means to support the other ends of the nested tubes from the next adjacent inner tube, a threaded member, and means to secure said member to one end of the central tube, the cone-shaped ends of the remaining tubes having threaded portions engaged with said threaded member.

8. In a sound amplifier, a sound receiving chamber having a longitudinal passage and a sound deflector adjacent to the passage having a sound outlet formed to emit sound radially of the passage, said deflector extending about the passage and being of varying length so as to provide a sound outlet, which correspondingly varies as to length throughout its circumference.

9. In a sound amplifier, a sound receiving chamber having a longitudinal passage, a sound deflector adjacent to the passage having a sound outlet formed to emit sound radially of the passage, said deflector extending about the passage and being of varying length so as to provide a sound outlet, which correspondingly varies as to length throughout its circumference, and a series of division plates correspondingly varying as to length arranged in spaced relation in the outlet and extending substantially lengthwise of the passage.

In testimony whereof I affix my signature.

FRED C. LYON.