Aug. 5, 1924. 1,503,854

F. SEELAU

RECEIVING DEVICE FOR ELECTRIC PHONOGRAPHS AND THE LIKE

Filed March 9, 1923

FIG. 1

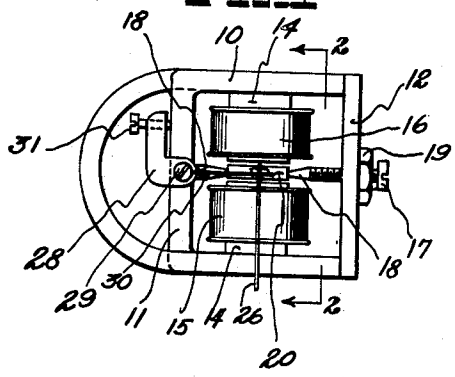
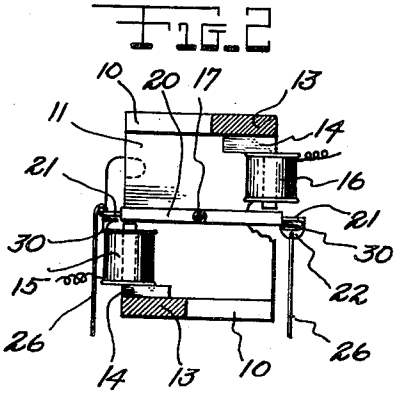


FIG. 2



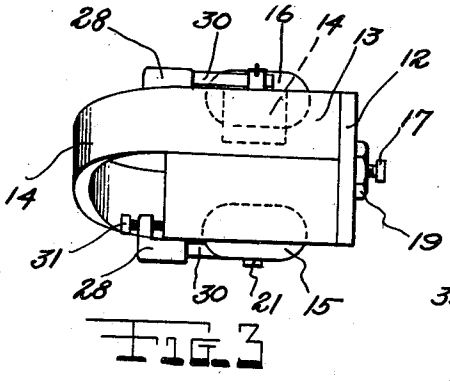


FIG. 3

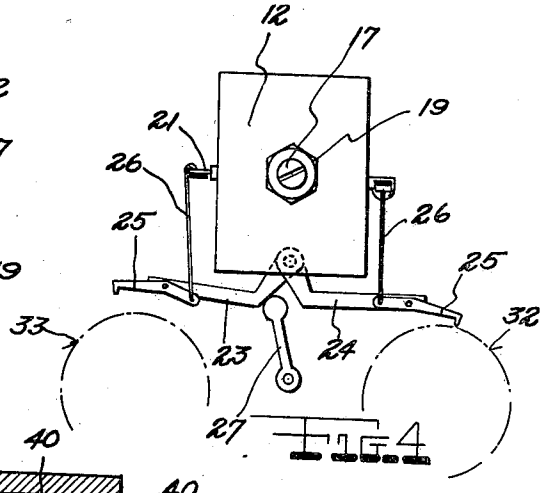


FIG. 4

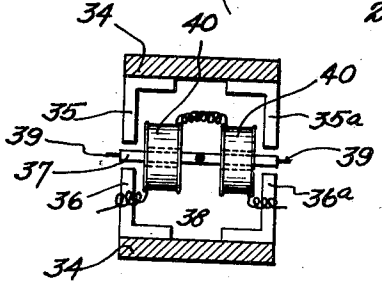


FIG. 5

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UNITED STATES PATENT OFFICE.

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RECEIVING DEVICE FOR ELECTRIC PHONOGRAPHS AND THE LIKE.

Application filed March 9, 1923. Serial No. 623,846.

To all whom it may concern:

Be it known that I, FRANK SEELAU, a citizen of Germany, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Receiving Devices for Electric Phonographs and the like, of which the following is a specification.

This invention relates to electrical appliances, and the main object is to provide a receiving device adaptable to electric phonographs or the like which will transmit a more sensitive wave vibration than those used heretofore.

Another object is to provide an electrical receiving device which has a novel means for damping the vibrator arm, and additional means whereby said damping means may be adjusted.

These and other objects will become apparent in the description below, in which characters of reference refer to like-named parts in the drawing.

Referring briefly to the drawing, Figure 1 is a side elevational view of my preferred form of receiving device.

Figure 2 is a cross sectional view taken on line 2—2 of Figure 1.

Figure 3 is a top plan view of Figure 1.

Figure 4 is an end elevational view of the device showing the method of selectively shifting the impression hammers into position.

Figure 5 is a sectional elevational view showing the modified form of device.

Referring in detail to the drawing, the numeral 10 indicates the main body of the device which comprises a top and bottom wall joined by a side wall 11. The open ends of the body on the opposite side to wall 11 are joined by a relatively heavy plate 12 which is secured to the ends in an approved manner. The body member is rigidly secured in place on the instrument with which it is to be used. The bottom wall of the body is cut out longitudinally on one side, and a similar cut-out-portion occurs on the top wall but on the opposite side. The arms 13 of a U-shaped magnet 14 are inserted and permanently fixed in said cut-out portions. Each of these magnet arms has an angular soft iron member 14 securely attached thereto and projects from adjacent surfaces of said arms 13. Electro-magnet coils 15 and 16 are wound about said core brackets and are energized by an outside transmitting source (not shown).

The side wall 11 and the plate 12 have each a threaded screw 17 passing therethru which is provided with a pointed end 18. The screw which passes thru plate 12 may be readily rotated, and when adjusted may be locked in position by a locking nut 19. The pointed ends 18 of the screws 17 are engaged in conical detents formed in the sides of a relatively wide vibrator bar 20. The length of said arm is determined by the distance between the core members 14. A relatively thin leaf 21 extends from each end of the bar, one of which has a yoke 22 formed thereon. A pair of angular levers 23 and 24 are pivoted at their adjacent ends to a convenient position on the lower wall 10. The outer ends of said levers have each a hammer 25 pivoted thereto intermediate of its length. The adjacent ends of the hammers are connected to the leaves 21 by corresponding links 26, which are formed of rigid wire. An arm 27 having a semi-circular hand which is pivoted at its lower end is adapted to engage the side edges of either of the annular levers.

An angular bracket 28 is pivoted to each side of the body and rotates thru a small angle about the screw 29. Each bracket is provided with a slit in which a sensitive flat spring member 30 is secured, said spring projecting horizontally, its outer end covering the underside of the corresponding vibrator bar extension 21 but spaced apart therefrom. The upper end of each bracket member is provided with a screw 31 which engages the surface of the side wall 11 and when manipulated varies the plane of the spring, thereby shifting the same nearer or farther from the extension 21 of the vibrator arm.

Figure 5 illustrates a modified type of device in which the numerals 34 indicate the ends of a permanent magnet. The upper surface of this magnet has a pair of pole shoes 35 and 35ª secured thereto. The lower end of said magnet is similarly provided with a pair of pole shoes 36 and 36ª. A vibrator arm 37 pivoted on the screws 38 intermediate of its length, is provided with small extensions 39 at its respective ends A pair of coils 40 are rigidly mounted within the device and have enlarged openings thru which said vibrator bar 37 passes.

In use, the device is connected to a source of transmitting electrical energy thru the coils 15 and 16. The hammers 25 are poised above the corresponding recording cylinders 32 and 33 in such position that the pointed ends of said hammers when rotated are capable of contacting with the peripheries of the cylinders. The fluctuations of the current thru the coils 15 and 16 cause the cores 14 to be strengthened or weakened to a corresponding degree. When the transmitting current is of relatively low intensity the cores will attract the end of the vibrator bar 20 in the same degree. Likewise if the current is increased the vibrator bar will be attracted in said cores to a greater degree. The depth of this angular movement is transmitted thru the links 26 to the impression hammer 25 which is rotated to a slight degree and pierces the peripherial surface of the respective receiving cylinder to a corresponding depth thereby recording the impression received by the cores. The angular movement of the vibrator bar 20 may be damped by an angular movement of the spring 30 which is accomplished by manipulation of the screws 31. Figure 4 shows the method of using this device, the purpose of the two pivoted levers 23 and 24 and the hammers 25 mounted thereon permitting alternate operation of either of said hammers, upon completion of the record on the other cylinder. The arm 27 which engages the side edges of the levers 23 and 24 is adapted to selectively lift either of said levers and thereby rotate the respective hammer thereon out of and the other into position for operation. Said arm 27 is so located as to permit alternate or simultaneous operation of the hammers, as is apparent.

I claim:—

1. A device of the class described comprising a body having a top and bottom wall, a side wall on said body, a plate secured to the body opposite the wall, pointed screws projecting from the side wall and plate members, a coil on the top and bottom wall of the body spaced apart from each other, cores in said coils, and means on said screws adapted to be vibrated by said cores upon passage thru said coils of a fluctuating transmitting current.

2. A device of the class described comprising a body having a top and bottom wall, a side wall on said body, a plate forming the other side wall, pointed screws in said side walls, a vibrator bar pivoted intermediate its length on said screws, a core on the top wall of the body aligned with one end of said bar, a similar core on the bottom wall of said body aligned with the opposite end of said bar, coils wound about said cores, said coils when traversed by a fluctuating transmitting current being adapted to vibrate said bar, impression hammers on said device, and means for transmitting said vibrations to the hammers.

3. A device of the class described comprising a body having a top and bottom wall, a side wall on said body, a plate forming the other side wall, pointed screws in said side wall, a vibrator bar pivoted intermediate its length on said screw, a core on the top wall of the body aligned with one end of said bar, a similar core on the bottom wall of said body aligned with the opposite end of said bar, coils wound about said cores, said coils when traversed by a fluctuating transmitting current being adapted to vibrate said bar, a pair of angular levers pivoted at adjacent ends to the bottom wall of the body, a fulcrumed hammer at the outer end of each lever, a wire member connecting the hammer with the corresponding end of the vibrator bar, the latter when actuated being adapted to rotate said hammer members simultaneously, means for selectively causing said hammers to operate, and means for damping the vibration of said bar.

4. The combination with an electric phonograph or the like, having a pair of recording cylinders rotatably mounted side by side, of a receiving device having a main body above said cylinders, said body having a top and bottom wall, a side wall on said body, a plate forming the other side wall, pointed screws in said side walls, a vibrator bar pivoted intermediate the length on said screws, a core on the top wall of the body aligned with the one end of said bar, a similar core on the bottom wall of said body aligned with the opposite end of said bar, coils wound about said cores, said coils when traversed by a fluctuating transmitting current being adapted to vibrate said bar, a pair of angular levers pivoted at adjacent ends to the bottom of the body, a fulcrumed hammer at the outer end of each lever, a wire member connecting the hammer to the corresponding end of the vibrator bar, an arm pivoted below said angular levers, said arm when rotated being adapted to lift either of the angular levers and thereby rotate the impression hammer out of active position, said hammers when lowered being adapted to have one end contact with the corresponding cylinder, and means for damping the vibrations of said bar.

5. In combination with an electric phonograph or the like having a pair of recording cylinders rotatably mounted side by side, a receiving device having a main body mounted above said cylinders, said body having a top and bottom wall, a side wall on said body, a plate forming the other side wall, pointed screws in said side walls, a vibrator bar pivoted on said screws, a core on the top wall of the body aligned with one end of said bar, a similar core on the bottom wall of said body aligned with the opposite

end of said bar, coils wound about said cores, said coils when energized adapted to vibrate said bar, pivoted brackets mounted on said body, springs extending from said brackets to a position beneath the ends of said vibrator bar, screws on said brackets adapted to rotate the same, said springs adapted to form damping means for the vibrator bar, a pair of angular levers pivoted at adjacent ends to the bottom wall of the body, a fulcrumed hammer at the outer end of each lever, a wire member connecting the hammer to the corresponding end of the vibrator bar, and an arm pivoted below said angular levers, said arm when rotated being adapted to lift either of the angular levers and thereby rotate the impression hammer out of active position, said hammers when lowered being adapted to have one end contact with the corresponding cylinder.

In testimony whereof I affix my signature.

FRANK SEELAU.