July 19, 1932. R. D. CARGILL 1,868,304

MOUNTING FOR ELECTRIC PICK-UPS FOR GRAMOPHONES

Filed Aug. 27, 1929

FIG. 1

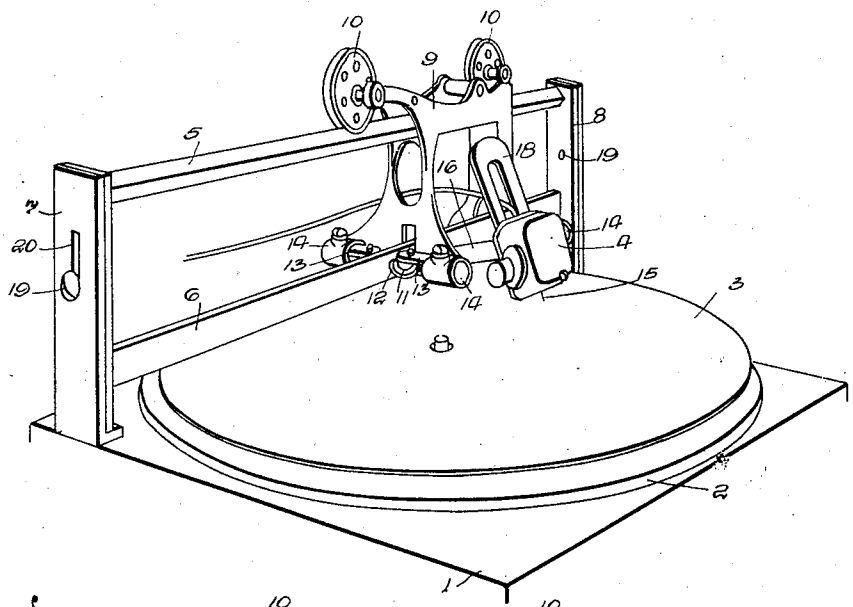
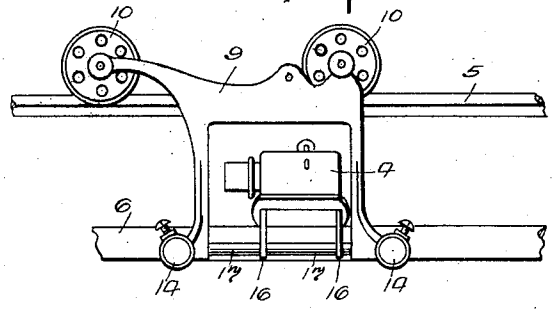


FIG. 2



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MOUNTING OF ELECTRIC PICK-UPS FOR GRAMOPHONES

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This invention relates to electric pick-ups for gramophones as employed for electrically reproducing the sound in lieu of the use of the directly acting reproducing unit and sound-box.

As hitherto employed, the pick-up unit has been mounted either upon the end of the tone-arm in place of the reproducing-unit or upon a special arm pivoted at a point beyond the periphery of the turn-table.

In either case, owing to the pivotal movement of its mounting arm the unit, in performing the necessary travel between the periphery and centre of the record, describes an arch which tends to cause the needle to become more or less jambed against the sides of the volute groove of the record.

In the case of an electric pick-up a tendency of this kind is apt to have a seriously detrimental effect upon the reproduction since an oscillatory movement of the needle from side to side of the groove is relied upon for the purpose in distinction to the mainly vertical movement of the needle in the case of an ordinary reproducing unit.

The said jambing tendency also is apt to cause excessive wear of the grooves of the records, more particularly those in which owing to the nature of the recorded music, the indentations are sharply cut.

It is the object of the present invention therefore to provide a novel means for mounting the pick-up unit whereby the same will be caused to traverse the record in a straight line radially of such record, or approximately so.

In carrying this object into effect the present invention consists briefly of a stationary track arranged above the turntable to extend thereacross parallel with a diametrical line of such turntable and upon which track is mounted to be capable of travelling movement longitudinally therealong a carriage whereby the reproducing unit is supportably mounted, the said attachment of the unit to the carriage being preferably such as to permit the unit a floating action thereby to ensure its needle maintaining firm contact with the grooves of the records.

In order that the nature of the invention and its construction may be clearly understood, it will now be fully described and explained with reference to the accompanying sheet of drawing illustrating by way of example a practical embodiment of the invention, wherein:—

Fig. 1 is a perspective view showing a gramophone equipped with an electric pick-up mounted in accordance with the present invention, and,

Fig. 2 is a side elevation of the said mounting showing the pick-up in its raised condition as when changing the record or replacing the needle.

As here shown 1 represents the base or cabinet of a gramophone having a revolving turn-table 2 whereon a record as 3 is adapted to be mounted as customary.

According to the present invention, for the purpose of mounting an electric pick-up, as 4 which may be of any known or appropriate form, there is provided and arranged above the turntable 2 to extend thereacross parallel with a diametrical line of such turntable, a stationary track which man conveniently take the form here shown and consisting of a pair of rails as 5 and 6 disposed in parallel relation one above the other and supported at their extremities by means of pillars or supporting members 7 and 8 attached to the structure of the gramophone at points to the outer sides of the periphery of the turntable 2.

Upon the said track is mounted to be capable of travelling movement longitudinally therealong a carriage 9 whereby the unit 4 is mounted.

The said carriage may conveniently consist of a suitable body as here shown provided with anti-friction wheels or rollers 10 the peripheries of which are adapted to bear upon the upper edge of the rail 5 so that the body of the carriage will depend therefrom, while at its lower portion the said body will preferably be provided with rollers 11 rotatable in a horizontal plane with their peripheries in engagement with opposite lateral sides of the rail 6, thereby to restrain the carriage from lateral swinging movement.

The said upper bar is preferably arranged to present an inverted V-shaped upper edge

to the wheels 10 the peripheries of which are suitably grooved to receive it, thereby to ensure correct alignment of the travel of the carriage, while the lower rollers 11 will preferably be provided with tyres or peripheral surfaces 12 of rubber or other resilient material to engage the rail 6 without noise or chatter.

The said lower rollers 11 are preferably mounted in such a manner as to permit of their being adjusted in the direction to and from the rail 6 and which purpose may conveniently be accomplished as here shown by mounting such rollers within forks 13 which latter are received within transverse bores 14 provided in the lower portions of the carriage.

The mounting of the unit 4 upon the carriage is preferably such as to permit the said unit a floating action whereby its needle as 15 may be maintained in firm contact with the groove of the record.

As here shown this mounting is accomplished by providing the unit with a pair of arms as 16 which are hingeably connected with the body of the carriage at its lower portion by means of a horizontal axis 17 disposed longitudinally with the travel of such carriage along the track.

In the preferred form of the construction the said unit is preferably provided also with a plate or arm 18 which when such unit occupies its operative position, as here shown in Fig. 1, projects at an angle upwardly and inwardly past the hingeable axis 17 and therefore serves to partly counterbalance the unit and so relieve the needle of a portion of the weight of such unit.

The said arrangement is such also that when the record is to be changed and the needle replaced the unit may be turned upon its said axis into the upward position here shown in Fig. 2 and in which position such unit rests upon the rail 6 thereby leaving the space between the lower edge of the said rail and the surface of the table clear.

Provision may be made for enabling the height of the track to be adjusted. Thus for example as here shown this may be accomplished by making each of the pillars 7 and 8 in two parts one of which is connected to the ends of the rails 5 and 6, while the other part in each case is attached to the gramaphone structure, such parts being interconnected by means of a set-screw 19 tapped into one part and extending through a longitudinal slot as 20 in the other part, the arrangement being such that by slackening the said screws the parts attached to the rails may be slid up or down in relation to the other parts.

If thought desirable also the rails 5 and 6 instead of being separate as here shown may be continuous or conjoined by a suitable web.

In operation, a record being in place upon the turntable the carriage will be moved to the required position along the track to place the reproducing unit in the required position for its needle to engage the commencement of the groove of the record. As the record revolves therefore the engagement of the needle with the groove will cause the carriage to travel progressively along the track the movement of the needle being in a straight line radially of the record or virtually so.

I claim:

1. In a sound reproducing device having a turntable, mounting means for an electric pick-up, comprising a stationary track disposed above said turntable and extending thereacross parallel with a diametrical line of the turntable, a carriage having supporting wheels adapted to run upon said track, guide rollers carried by said carriage and rotatable in a horizontal plane with their peripheries in contact with opposite lateral sides of the track thereby to restrain the carriage from lateral swinging movement, and means carried by said carriage for supporting an electric pick-up

2. In a sound reproducing device having a turntable, mounting means for an electric pick-up, comprising a stationary track disposed above said turntable and extending thereacross parallel with a diametrical line of the turntable, a carriage having supporting wheels adapted to run upon said track, guide rollers carried by said carriage and rotatable in a horizontal plane with their peripheries in contact with opposite lateral sides of the track thereby to restrain the carriage from lateral swinging movement, and means carried by said carriage for supporting an electric pick-up, said guide rollers being provided with tires of resilient material thereby to engage the track without noise.

3. In a sound reproducing device having a turntable, mounting means for an electric pick-up, comprising a stationary track disposed above said turntable and extending thereacross parallel with a diametrical line of the turntable, a carriage having supporting wheels adapted to run upon said track, guide rollers carried by said carriage and rotatable in a horizontal plane with their peripheries in contact with opposite lateral sides of the track whereby to restrain the carriage from lateral swinging movement, and means for hingedly securing an electric pick-up to said carriage for swinging movement in a plane at right angles to the travel of the carriage.

4. In a sound reproducing device having a turntable, mounting means for an electric pick-up, comprising a stationary track disposed above said turntable and extending thereacross parallel with a diametrical line of the turntable, a carriage having supporting wheels adapted to run upon said track,

guide rollers carried by said carriage and rotatable in a horizontal plane with their peripheries in contact with opposite lateral sides of the track thereby to restrain the carriage from lateral swinging movement, means for hingedly securing an electric pick-up to said carriage for swinging movement in a plane at right angles to the travel of the carriage, and an arm carried by said pick-up and projecting at an angle upward and inward past said hinge connection, thereby to partially counterbalance said pick-up and relieve the needle of a portion of the weight.

In testimony whereof I have hereunto affixed my signature.

ROBERT DOUGLAS CARGILL.