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TALKING MACHINE

Filed May 6, 1925

2 Sheets-Sheet 1

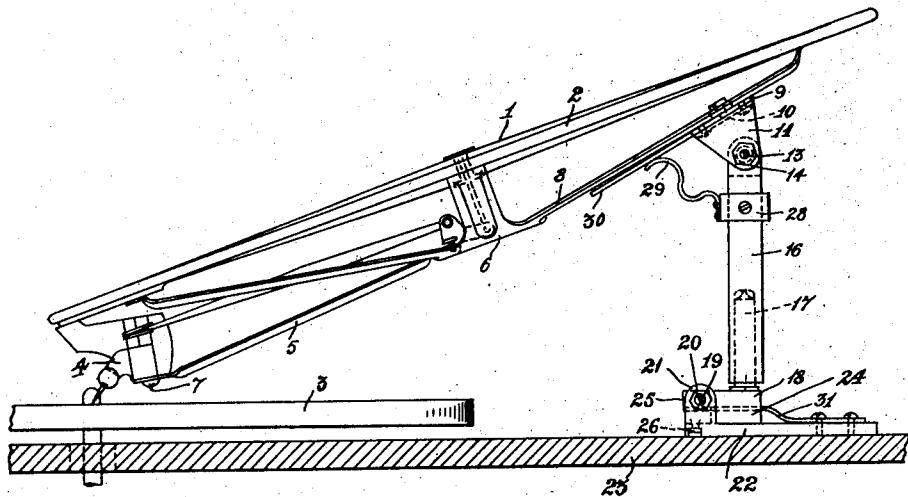


Fig. I.

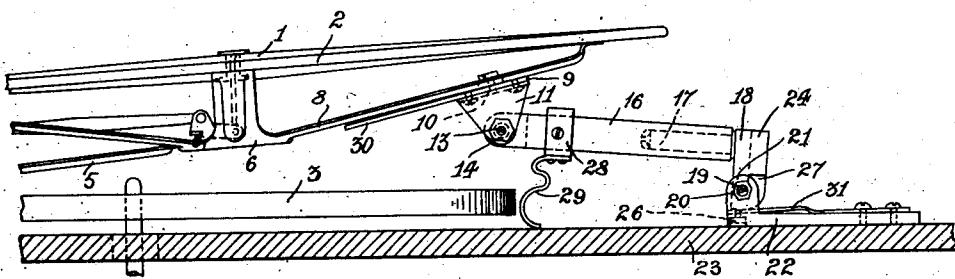


Fig. 2.

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2 Sheets-Sheet 2

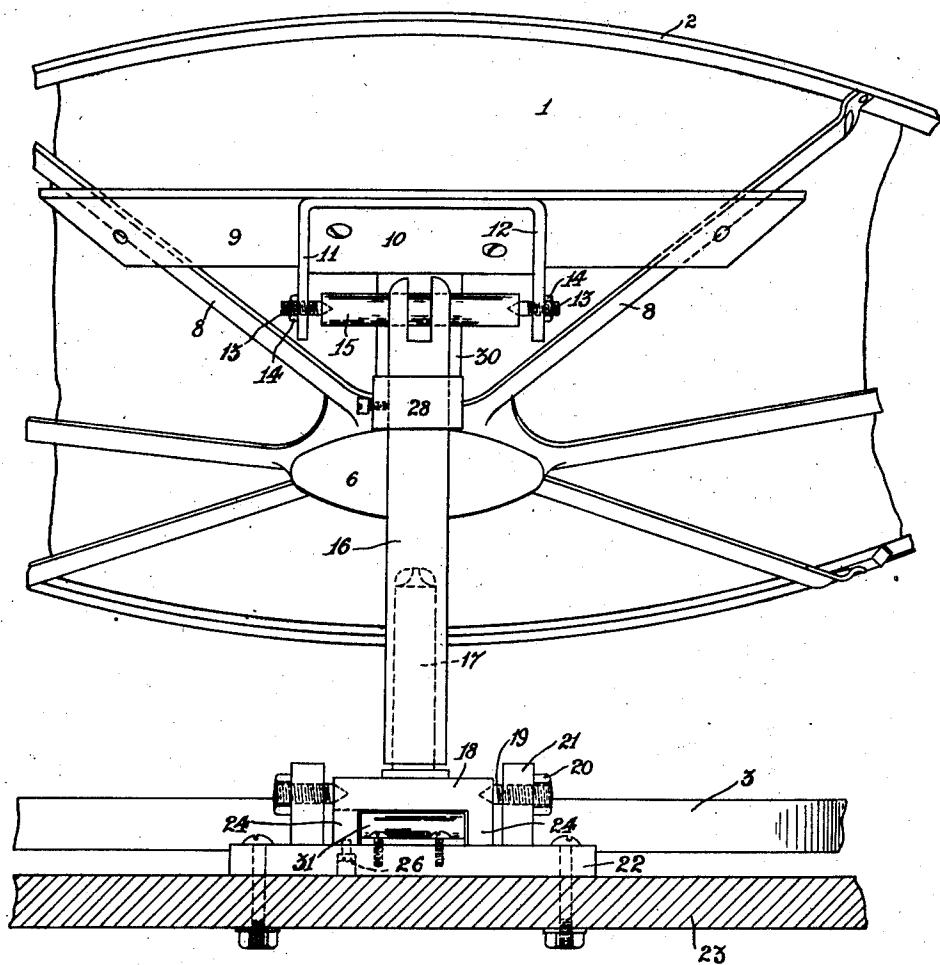


Fig. 3.

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UNITED STATES PATENT OFFICE.

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TALKING MACHINE.

Application filed May 6, 1925, Serial No. 28,444, and in Great Britain May 14, 1924.

This invention relates to improvements in talking machines and in particular to improved means of mounting a large diaphragm, adapted to play without a sound arm.

The object of the invention is to enable the diaphragm to be so mounted that it is easily handled for changing the reproducing needle and for inserting the needle in the sound line.

According to the invention a talking machine is provided in which a diaphragm of the type referred to above has the stylus holder mounted at or near to its edge, said diaphragm being mounted to rock about a point substantially diametrically opposite the stylus holder so that the stylus can move both transversely across the record and vertically.

The diaphragm may be mounted to lie in any convenient plane during playing; for example it may lie in a plane inclined to that of the record or turntable.

In constructions of talking machine embodying this invention it may be found advantageous to mount the diaphragm in such a manner that it can be moved, when not in use, into a position substantially parallel with the record, so that the cabinet of the machine shall not require to be of unusual depth between the lid and the motor board.

The invention is illustrated by way of example in the accompanying drawings in which

Fig. 1 is a side elevational view of a machine with the parts in the playing position.

Fig. 2 is a similar view to Fig. 1 but with the parts in the non-playing position.

Fig. 3 is a rear elevational view on a larger scale showing the diaphragm carrying means.

Referring to the drawings, 1 is the diaphragm carried within a stiff holding rim 2, said diaphragm and rim lying during playing, as will be seen from Fig. 1, in a plane inclined to that of the turntable 3. The stylus holder 4 is mounted on the front or lower

end of the diaphragm holding rim 2 and is maintained in position by bolts or the like passed through the rim 2, and a member 5 extending from the centre of the spider 6 and secured to said stylus holder 4 by screws 7 or other suitable means. Upon the rear arms 8 of the spider is mounted, by means of bolts or the like, a flat plate 9 and to this plate is

fixed in turn a member 10 having two downwardly extending lugs 11, 12, which carry pointed screws 13 and lock-nuts 14 which co-operate with recesses in the ends of a short rod 15 to form bearings in which the spider 6 and the diaphragm carried thereby, can rock. The rod 15 is carried at one end of a rod 16 which is bored at its other end to receive a pillar 17 which forms a vertical pivot about which the rod 16 and the parts carried thereby can rotate during the passage of the needle across the record during playing. The pillar 17 is rigidly mounted upon a plate 18 adapted to rock about a horizontal axis determined by bearings formed by screws 19 and lock-nuts 20 carried in lugs 21 up-standing from a plate 22 screwed to the motor board 23, which engage in recesses formed in the sides of the plate 18. Lugs 24 are provided on the plate 18 to arrest the rotation of the latter in one direction (clockwise in Figs. 1 and 2) by engagement with the plate 22. Movement in the opposite direction is limited by the engagement of the end face 25 of the plate 18 with an adjustable stop screw 26 projecting upwardly from the base plate 22. A strong leaf spring 31 is provided on the base plate 22 which serves to maintain the plate 18 and the parts which are carried thereby, in either of the two alternative positions; i. e. in the playing position shown in Fig. 1 by upward pressure against the under surface of the plate 18 and in the non-playing position shown in Fig. 2 by upward pressure against the forward end 25 of plate 18. The front end of the lug 24 on the same side as screw 26 is cut away as shown at 27 so that it shall not foul said screw 26 during movement. 28 is a collar, adjustable longitudinally of the rod 16 and carrying a spring 29 which engages with an extension 30 of plate 9 bolted to spider arms 8 to take a portion of the weight which would otherwise rest, through the stylus, upon the record.

The weight with which the stylus rests upon the record can be varied at will by moving the collar 28 up or down the rod 16.

During playing, up and down movement of the diaphragm, necessitated, for example, by a turntable or record not rotating in a true horizontal plane, takes place about the horizontal axis determined by bearing screws 13 and rod 15, while the movement of the

stylus across the record is permitted by rod 16 rotating about the vertical pillar 17.

- When it is desired to move the diaphragm from the position of playing as shown in 5 Fig. 1, the diaphragm is pulled to the left and the rod 16, pillar 17, and plate 22 are moved about the horizontal axis, formed by pins 19, against the pressure of spring 31, until the position shown in Fig. 2 is reached. 10 This arrangement obviously requires much less depth between the turntable and the top of the lid of the machine when closed than would be the case if the diaphragm remained in the raised playing position.

15 I claim:

1. In a talking machine of the large diaphragm type wherein a record turntable is mounted above a motor board, a supporting spider for the diaphragm, a stylus carried by 20 the spider and operatively connected to the diaphragm, and means coacting with said stylus to support said diaphragm for playing in a plane inclined with respect to said turntable, said means including a member pivoted to the motor board at one side of said turntable, and means, permitting movement of the diaphragm in vertical and horizontal planes, mounted on said member and secured to said spider at a point substantially diametrically opposite said stylus.

2. In a talking machine of the large diaphragm type wherein a record turntable is mounted above a motor board, a supporting spider for the diaphragm, a stylus carried by 35 the spider and operatively connected to the diaphragm, and means coacting with said stylus to support said diaphragm for playing in a plane inclined with respect to said turntable, said means including a member pivoted to the motor board at one side of the turntable, means for yieldingly maintaining said member in upright position, and means carried by said member and secured to said spider for permitting movement of the diaphragm in vertical and horizontal planes.

3. In a talking machine of the large diaphragm type wherein a record turntable is mounted above a motor board, a spider secured to said diaphragm, a stylus carried by 50 the spider and operatively connected to the diaphragm, means mounted on the motor board and attached to said spider for coacting with the stylus to support the diaphragm in an inclined playing position relative to the turntable, said means including telescoping members, and means pivotally connecting one of said members to the motor board to permit movement of the diaphragm to non-playing position substantially parallel to the turntable.

4. A talking machine of the large diaphragm type wherein a turntable is rotatably mounted above a motor board, a stylus mounted adjacent the edge of the diaphragm 65 and operatively connected to the latter, means

coacting with the stylus to support said diaphragm for playing in a plane inclined with respect to said turntable and said means including a normally stationary pillar secured to the motor board at one side of the turntable, a vertically disposed rod pivotally mounted on said pillar, and means pivotally connecting said rod and diaphragm.

5. In a talking machine of the large diaphragm type wherein a record turntable is 70 mounted above a motor board, a mounting for the diaphragm comprising a plate secured to the motor board at one side of the turntable, a pillar pivotally secured to said plate and adapted to be moved to a position substantially parallel with the motor board, means yieldingly maintaining said pillar in an upright position, a rod pivotally mounted on said pillar, means operatively connecting said diaphragm and rod, and yielding means carried by the rod adapted to engage said last named means when the diaphragm occupies a playing position.

6. In a talking machine of the large diaphragm type wherein a record turntable is 75 mounted above a motor board, a mounting for said diaphragm comprising a plate secured to the motor board at one side of the turntable, a pillar pivotally secured to said plate, means for yieldingly maintaining said pillar in a substantially vertical position or in a position substantially parallel with the motor board and means mounted on the pillar and secured to the diaphragm for permitting movement of the diaphragm in vertical and 85 horizontal planes.

7. A mounting for a talking machine diaphragm comprising a diaphragm spider, a pivotally mounted supporting pillar, means connecting said spider and pillar permitting movement of the diaphragm in vertical and horizontal planes, and a yielding element adjustably secured to said last named means and normally having engagement with said spider, said yielding element being adapted 100 to support said last named means when the diaphragm is moved to non-playing position.

8. In a talking machine of the large diaphragm type wherein a turntable is rotatably mounted above a motor board, a normally upright pillar pivotally secured to the motor board at one side of the turntable, means including a spider for pivotally securing the diaphragm to said pillar and adjustable means including a resilient member supported by the pillar and having abutting engagement with the spider when the diaphragm is in playing position, said resilient means being adapted to engage said motor board to yieldingly support said pillar when the diaphragm 115 is moved to a position substantially parallel with the motor board.

In testimony whereof I have signed my name to this specification.

HORACE LEOPOLD TUCKER BUCKLE.