

A. JACCARD.
TALKING MACHINE.
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978,891.

Patented Dec. 20, 1910.

2 SHEETS—SHEET 1.

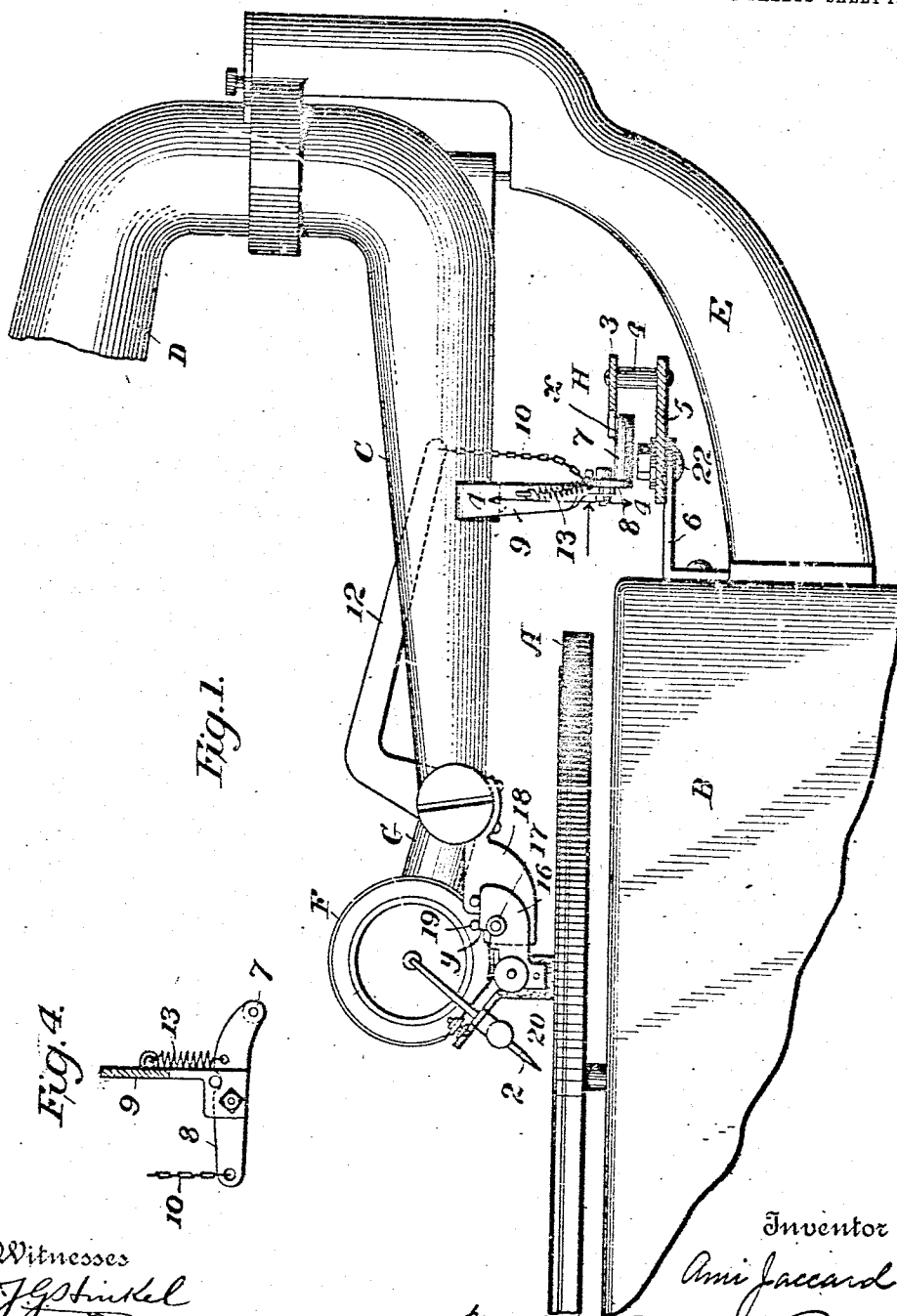


Fig. 4.

Fig. 1.

Witnesses

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2 SHEETS-SHEET 2.

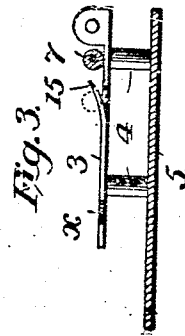
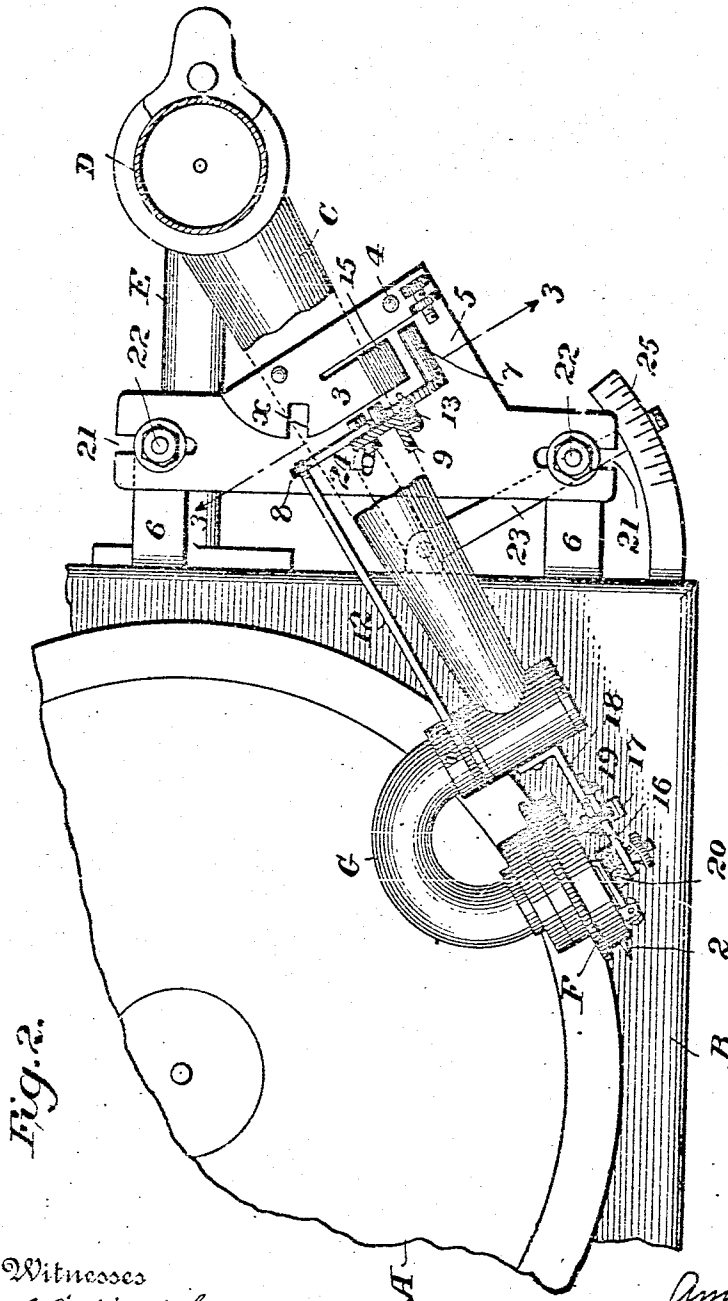


Fig. 2.

Fig. 3.

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TALKING-MACHINE.

978,891.

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To all whom it may concern:

Be it known that I, AMI JACCARD, a citizen of the Republic of France, and resident of New York, in the county and State of New York, have invented certain new and useful improvements in Talking-Machines, of which the following is a specification.

My invention relates more particularly to that class of talking machines in which the record is upon a flat circular disk, and consists in means whereby to prevent those portions of the disk which do not have any record upon them from being brought in contact with the needle, and also in means whereby to prevent the needle from being carried radially across the record or from being improperly brought against the disk, which improved features may be used together or separately and in some cases in connection with talking machines of a different character, all as fully set forth hereinafter and illustrated in the accompanying drawing, in which:

Figure 1 is a side elevation showing sufficient of a talking machine to illustrate my improvements, the parts being in the position which they occupy when the needle support is held in place by a detent adapted to be automatically shifted by the disk; Fig. 2 a plan view; Fig. 3 an edge view of the stationary portion of the shifting device; Fig. 4 a transverse section on the line 4-4 Fig. 1.

I have illustrated my invention in connection with that character of talking machine in which the rotatable disk A containing the record is supported upon the box B, and the tone tube C and its associated horn D swing upon a stationary bracket E so as to carry the tone tube and sound box F over the face of the record, the needle 2 carried by or with the sound box being thus caused to traverse the record to and from the center thereof. My invention however can be as well used in connection with other forms of apparatus and whether the needle traverses the record or the latter moves beneath the needle supported upon a relatively stationary tube. As shown the sound box F is pivoted to swing upon the tube C, being supported by a movable carrier or support G, but the said support may be otherwise retained movably in respect to the tone tube

in order that the needle may be carried to an operative position to contact with the record disk or out of such position.

With the above described parts, which may be of any ordinary or suitable construction, I combine a shifter device H and suitable connections of such a character as will insure the shifting of the needle support as the needle reaches the limit of its inward movement, or the inner limit of the record, to thereby lift the needle so that it will not be brought into contact with the part of the disk at the center which has no record upon it, and also so that in returning the needle toward the periphery of the record it cannot traverse in contact with and scratch the latter. As shown the shifter device H is supported in a stationary position adjacent to the box or bracket, and consists of a blade 3 supported upon studs 4, upon a plate 5 which in turn is supported by brackets 6 connected with the box, and the blade 3 is so constructed and arranged as to coact with parts connected with the needle support G to cause the latter to swing downward as the needle is brought into operative position to bear upon the record near the periphery of the disk, and insure the upward movement of the needle when it reaches the desired limit of its movement toward the center of the disk. While this blade is constructed and combined with different connections to secure this result, I have shown the blade so constructed as to be engaged by the lateral arm 7 of a lever 8 pivoted to a bracket 9 connected with the tone tube C, the other end of the lever being connected by a chain 10 to an arm 12 of the swinging support G, and a spring 13 connected to the bracket 9 and to the outer end of the lever 8 tends to carry the latter to such a position that the lever 12 will be held in position to bring the needle 2 above the plane of the record on disk A. As the tone tube C swings inward, the pin 7 of the lever will be brought below the blade 3 and the outer end of the lever will be thereby depressed, raising the inner end and allowing the sound box to descend, bringing the needle into contact with the record. The parts remain in this position until the needle reaches the inner limit of the record, and the plate H is so proportioned that as the needle

reaches said position the pin 7 of the lever will escape the inner edge x of the blade 3, when the spring 13 will swing the outer end of the lever 8 upward, depressing the inner end and thereby rock the lever 12 to swing the needle support so as to carry the needle upward and away from the record. In this position the tone tube may be swung outward without any danger of scratching the record by the needle.

In its outward movement the pin 7 of the lever 8 is carried over the top of the blade 3, and in order that when the tone tube is swung inward the said pin may pass beneath the said blade, means must be provided whereby the said pin may be lowered, and I therefore turn the outer end 15 of the blade upward, as best shown in Fig. 3, and make this portion of spring metal or flexible so that it will yield as the pin 7 passes outward, swinging to the position shown in dotted lines Fig. 3, until the pin 7 escapes, when it will spring upward so as to depress the pin when the latter is again carried inward. Any other desired means for insuring this action may be employed. After the tone tube swings outward and is then again swung inward to bring the pin 7 in contact with the shifting blade, the needle holder would at once be depressed and the pin might be brought in contact with the edge of the record disk or lowered before it was in proper position. To prevent such a result I combine with the adjustable support for the needle a suitable detent which will automatically engage said support and hold it in its upper position whenever the support is swung to this position. As shown in Figs. 1 and 2 the said detent consists of an arm 16, pivoted at 17 to a bracket 18 secured to the tone tube and tending to swing by its weight to the position shown in Fig. 1, and thereby bring its upper edge beneath a pin or other projection 19 of the needle support, the detent taking this position as soon as the needle support is elevated, as aforesaid, when the needle reaches the desired limit of its inward movement. It will be evident therefore that when the shifting devices are operated so as to relax the chain 10, as the tone tube swings inward the needle support will not swing or move downward at once, and it is necessary to shift the detent 16 in order to bring the needle to operative position. In order that this shifting may be effected automatically at the proper moment, I provide means whereby the detent is swung only after the needle is above the record disk and the detent is in position to coact therewith. To this end I provide the detent with a shoe 20 in the form of a pad of felt or other soft material adapted to engage the roughened surface or record of the disk. When therefore the shoe of the detent engages such surface, and the disk

is rotating, by its contact with the shoe it will tend to lift the outer end of the detent, when its upper edge will escape the pin 19 and the latter and the associated needle support will swing downward, a shoulder y of the detent then preventing the latter from again assuming its normal position until the needle holder is lifted at the termination of its recording operation, when the detent will swing downward and bring its upper edge beneath the pin 19.

Inasmuch as all of the record disks in use are not of the same dimensions, that is, the record portion does not always terminate at the same distance from the center of the disk, it is desirable to adapt the shifting devices to these varying conditions, which may be done by providing means for adjusting them upon their support. As shown the plate 5, which supports the blade 3, is connected with the brackets 6 so as to slide longitudinally thereon. As shown the plate has slots 21 through which extend pins or screws 22 into the arms of the brackets 6, and by sliding the said plate 5 upon the support the terminal edge x of the shifting blade may be brought to any position required to cause the shifting of the needle support at any desired period of the operations. One means of thus shifting the parts consists of an L-shaped lever 23 pivoted to a bracket, provided with a pin 24 extending into a slot of the plate 5, the outer arm of the plate traversing a graduation or scale upon an arm 25 extending from the bracket 6, but any other suitable shifting means may be employed.

Without limiting myself to the construction shown, I claim:

1. The combination with the swinging tone tube of a talking machine, the needle, and the swinging support for the needle, of a lever supported on the tone tube and connected with the needle support, and means for automatically rocking said lever to lift the needle as the tone tube reaches the desired limit of its movement in one direction.

2. The combination with the swinging tone tube of a talking machine, the needle, and the swinging support for the needle, of a lever supported on the tone tube and connected with the needle support, a spring acting on said lever to lift the needle support, and means for automatically rocking the lever against the action of said spring and maintaining it in such adjusted position during a predetermined portion of the swinging movement of said tube in one direction.

3. The combination of the swinging tone tube and needle and movable support therefor of a talking machine, a lever moving with the tone tube and connected with said support for raising and lowering the latter,

and a bearing arranged to make contact with said lever to swing the latter and lower said support as the needle is brought into operating position.

5 4. The combination with the swinging tone tube of a talking machine, of a needle, a swinging support for the needle, auto-
10 matic means for moving said support to lift the needle as the tone tube reaches the desired limit of its inward movement, and a
detent carried by the tone tube for engaging and holding said support when elevated.

5 5. The combination with the swinging tone tube of a talking machine, of a needle,
15 a swinging support for the needle, automatic means for moving said support to lift the needle as the tone tube reaches the desired limit of its inward movement, and a
20 detent for engaging and holding said support when elevated, said detent provided with a shoe for engaging the record.

25 6. The combination with the swinging tone tube of a talking machine, of a needle, a swinging support for the needle, automatic means for moving said support to lift
the needle as the tone tube reaches the desired limit of its inward movement, and a
30 detent for engaging and holding said support when elevated, said detent provided with a yielding shoe for engaging the record.

35 7. The combination with the swinging tone tube and needle and needle support movable on said tube, of a needle shifter comprising a fixed shifting device over
which the tone tube swings, and parts connected with the needle support to contact
40 with said device on swinging the tone tube.

40 8. The combination with the swinging tone tube, needle and support for the needle movable on said tube, of a lever supported
on the tube and connected with said needle support, and a fixed shifting device arranged
45 to make contact with and shift said lever as the needle is carried to operative position.

50 9. The combination with the needle of a talking machine, of a support for said needle movable to carry the needle to and from a record and adapted to swing laterally, of means
constantly acting to hold the needle elevated, and means for rendering said lifting
55 means inoperative during a predetermined portion of each lateral movement of the needle.

60 10. The combination with the needle of a talking machine, of a support for said needle, movable to carry the needle to and from the record, means for shifting said
support to lift the latter as the needle reaches the inward limit of a record, and a
65 detent carried by said support for automatically engaging and holding the support in its shifted position.

35 11. The combination with the needle of a talking machine, of a support for said needle

movable to carry the needle to and from the record, means for shifting said support to lift the latter as the needle reaches the inward limit of a record, a detent for automatically engaging and holding the support
70 in its shifted position, and means for shifting the detent to release the support when the needle is brought to position to engage a record.

12. The combination with the tone tube, 75 sound box pivoted thereto and needle carried by said box, of a lever supported on said tube and connected with said box, and a shifter plate supported to make contact
80 with and swing said lever as the needle is carried into starting position over a record.

13. The combination with the tone tube, sound box pivoted thereto and needle carried by said box, of a lever connected with
85 said box, and a shifter plate supported to make contact with and swing said lever as the needle is carried into starting position over a record, said parts arranged to release
the lever as the needle reaches the desired limit of its inward movement. 90

14. The combination with the swinging tone tube, sound box pivoted thereto and needle carried by said box, of a lever supported on said tube and connected with said
95 box, and a shifter plate arranged to make contact with said lever to lower the support as the needle reaches starting position and proportioned to permit the lever to pass
from contact therewith as the needle reaches the inward limit of a record. 100

15. The combination with the swinging tone tube, sound box pivoted thereto and needle carried by said box, of a lever supported on said tube and connected with said
105 box and adjustable, and a shifter plate supported to make contact with and swing said lever as the needle is carried into starting position over a record.

16. The combination with the movable needle support of a talking machine, of a 110 detent moving with the needle support and arranged to engage and hold said support when raised, and means for automatically lifting the support when the needle reaches
the inner limit of a record. 115

17. The combination with the movable needle support of a talking machine, of a 120 detent mounted to move with the needle support and adapted to cooperate therewith to hold the needle in an inoperative position, and means for automatically bringing such
detent into action when the needle reaches the end of a record.

18. The combination with the movable needle support of a talking machine, of a 125 detent mounted to move with the needle support and adapted to cooperate therewith to hold the needle out of contact with a record, means rendering said detent inoperative
when the needle is engaging a record, 130

and means for automatically bringing the detent into action as the needle reaches the end of the record.

19. The combination with the movable needle support of a talking machine, of a detent arranged to automatically engage and hold said support when raised, and a shoe carried by the detent in position to engage a record as the detent is brought above the latter.

20. In a talking machine, the combination with a record, a sound box, means whereby a relative movement may be effected between said record and box so that the latter may be supported with its needle beyond or in engagement with the record, said box being also movable vertically to and from the record, of a spring connected with and adapted to elevate the box when the needle thereof is not over the record, and a shifter arranged to depress the box as the needle is brought to operative position.

21. In a talking machine, the combination with a record, a tone tube, a sound box connected with the tube, and means whereby the tube and box may be moved so that the latter may be supported with its needle beyond or in engagement with the record, said box being also movable vertically to and from the record, a spring operating to elevate the box when the needle thereof is not over the

record, and a shifter adapted to depress the box as the needle is brought over the record.

22. In a talking machine, the combination with a record disk, a sound box, and means whereby the sound box may be moved laterally over the disk and supported with its needle beyond or in engagement with the record on said disk, said box being also movable vertically to and from the disk, of a spring connected with and adapted to elevate the box when the needle thereof is not over the record, and a shifter adapted to depress the box as the needle is brought above the record by lateral movement of the sound box.

23. The combination with the tone tube of a talking machine and with the sound box and movable support therefor, of a spring and connections for lifting said support, a shifter for shifting the connections to lower the support as the needle is brought to operative position, and a detent arranged to automatically engage and hold the box in its position when elevated.

In testimony whereof I affix my signature in presence of two witnesses.

AMI JACCARD.

Witnesses:

A. W. LEVY,
JACOB J. DORMAN.