

W. A. CHAPMAN.  
TALKING MACHINE ATTACHMENT.  
APPLICATION FILED JULY 2, 1909.

963,515.

Patented July 5, 1910.

2 SHEETS—SHEET 1.

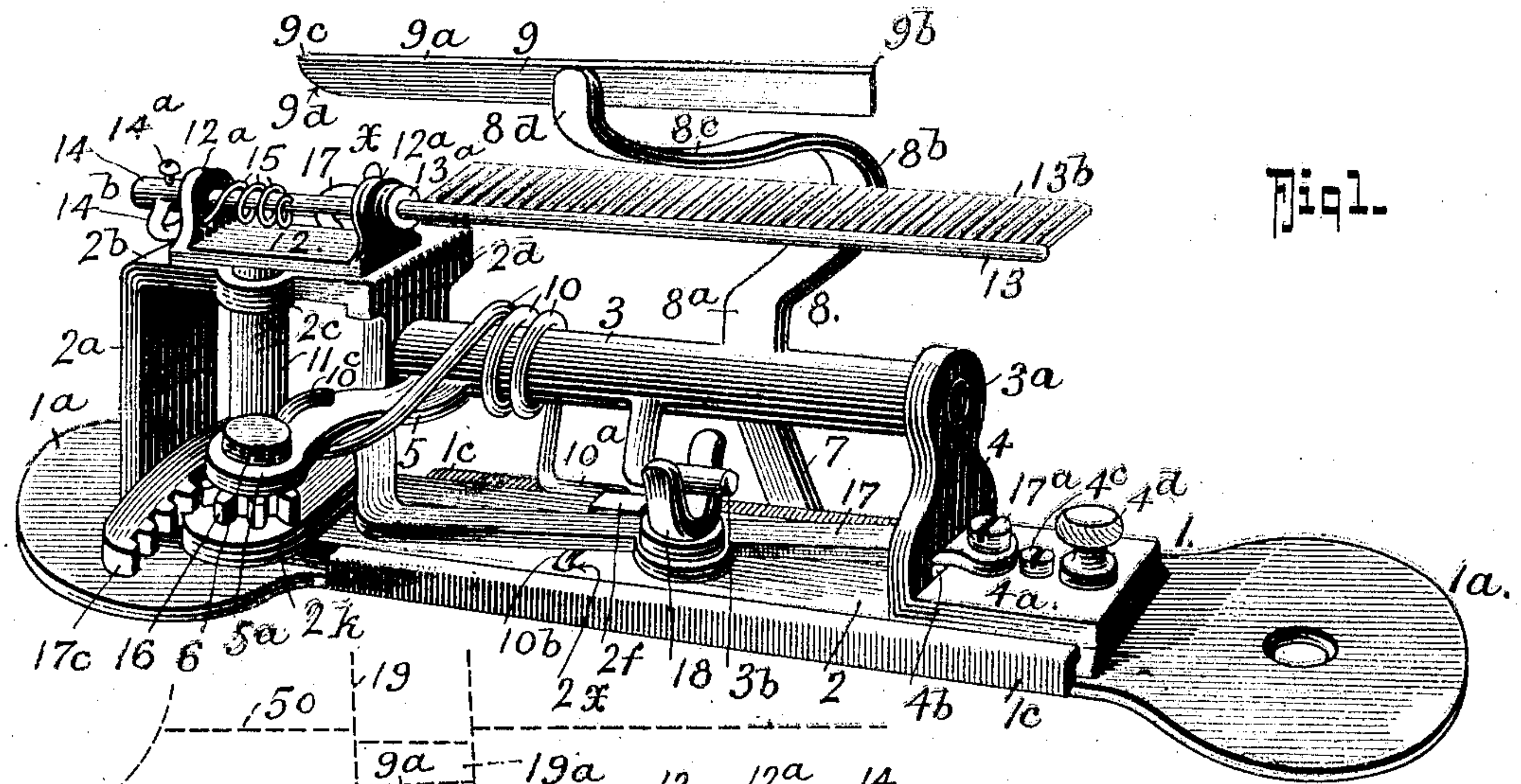


Fig. 1.

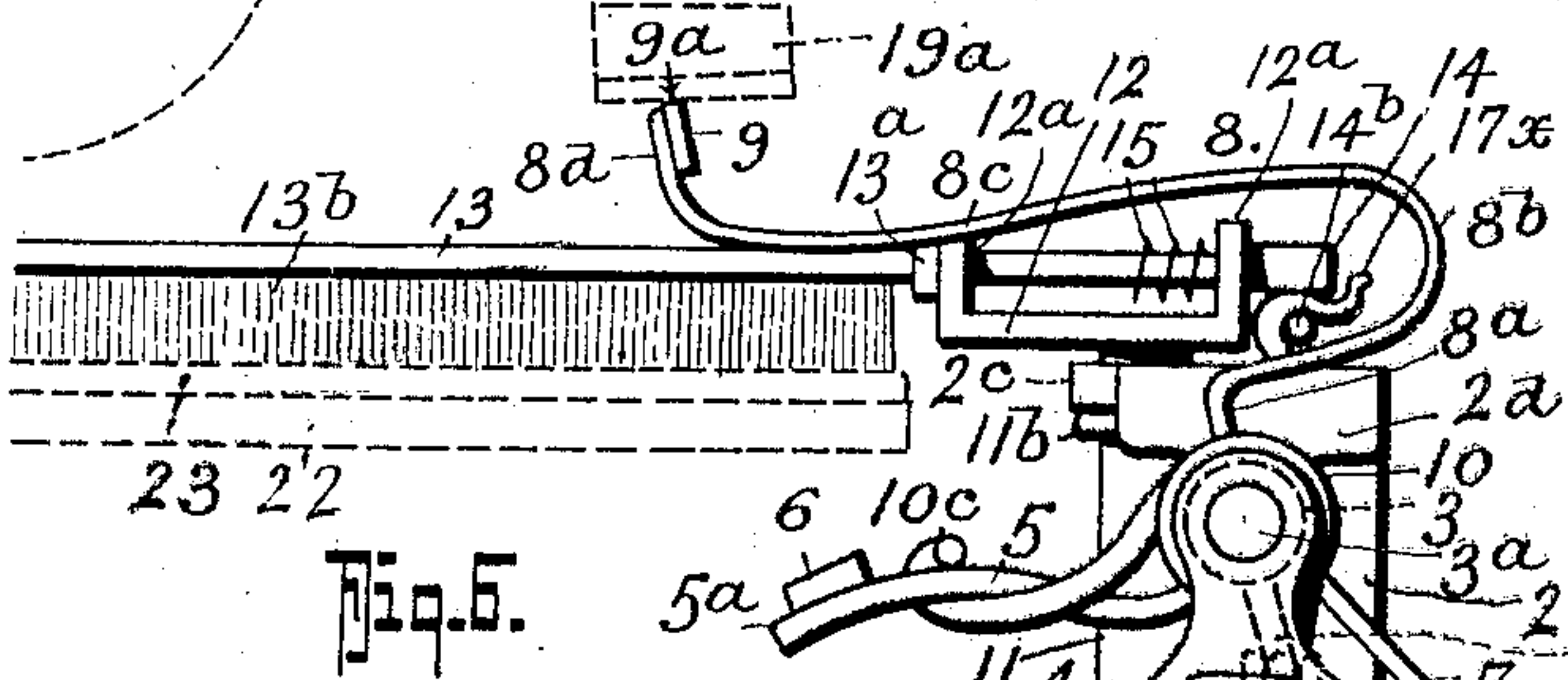


Fig. 5.

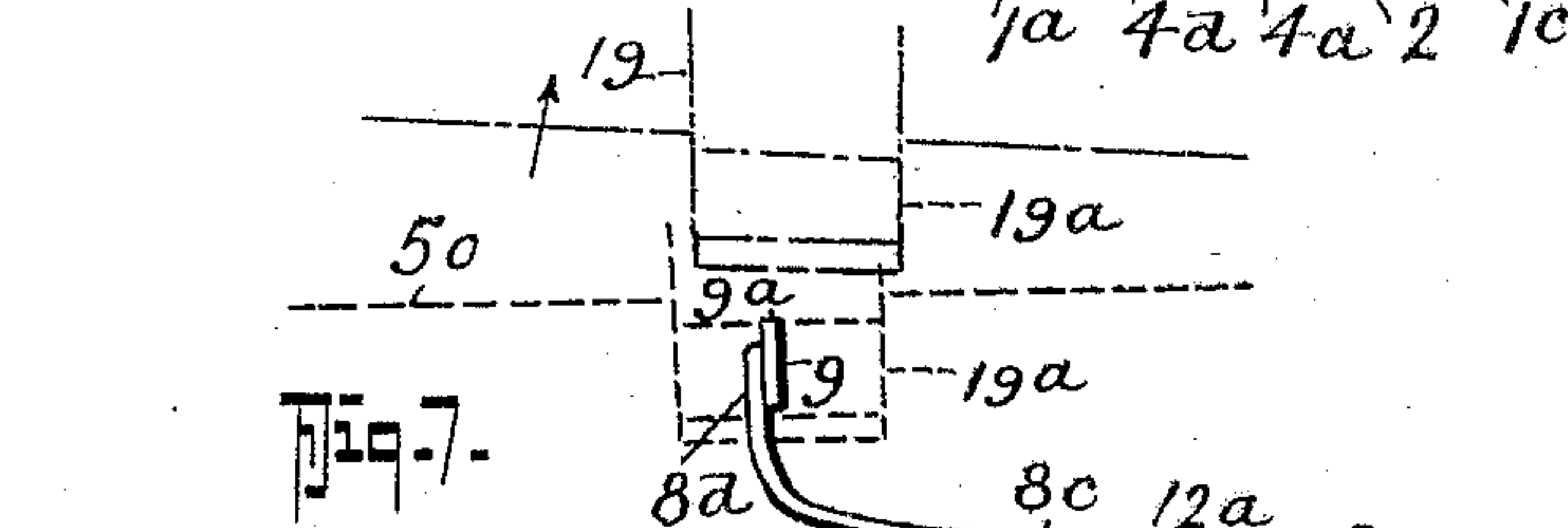
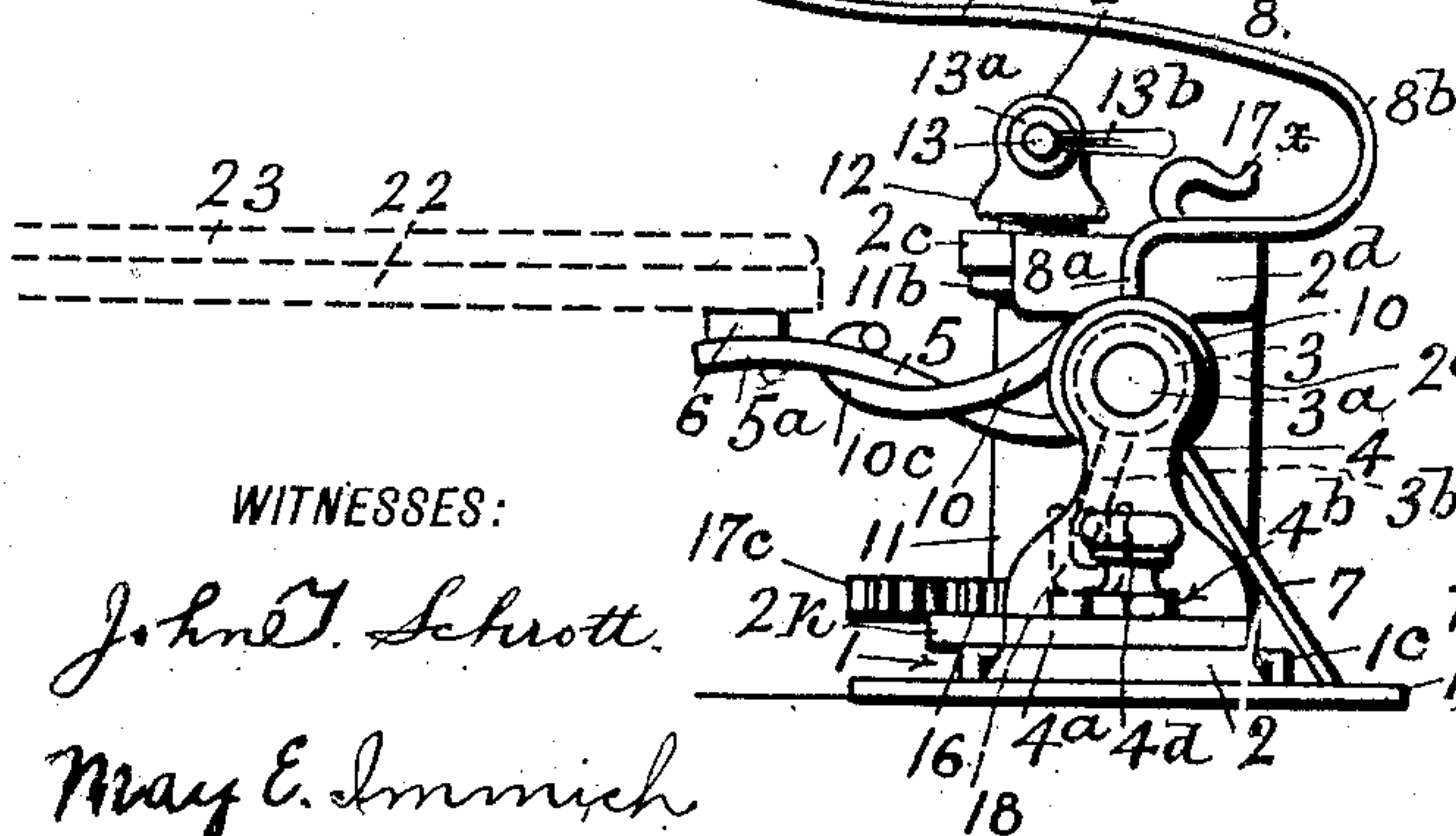


Fig. 7.



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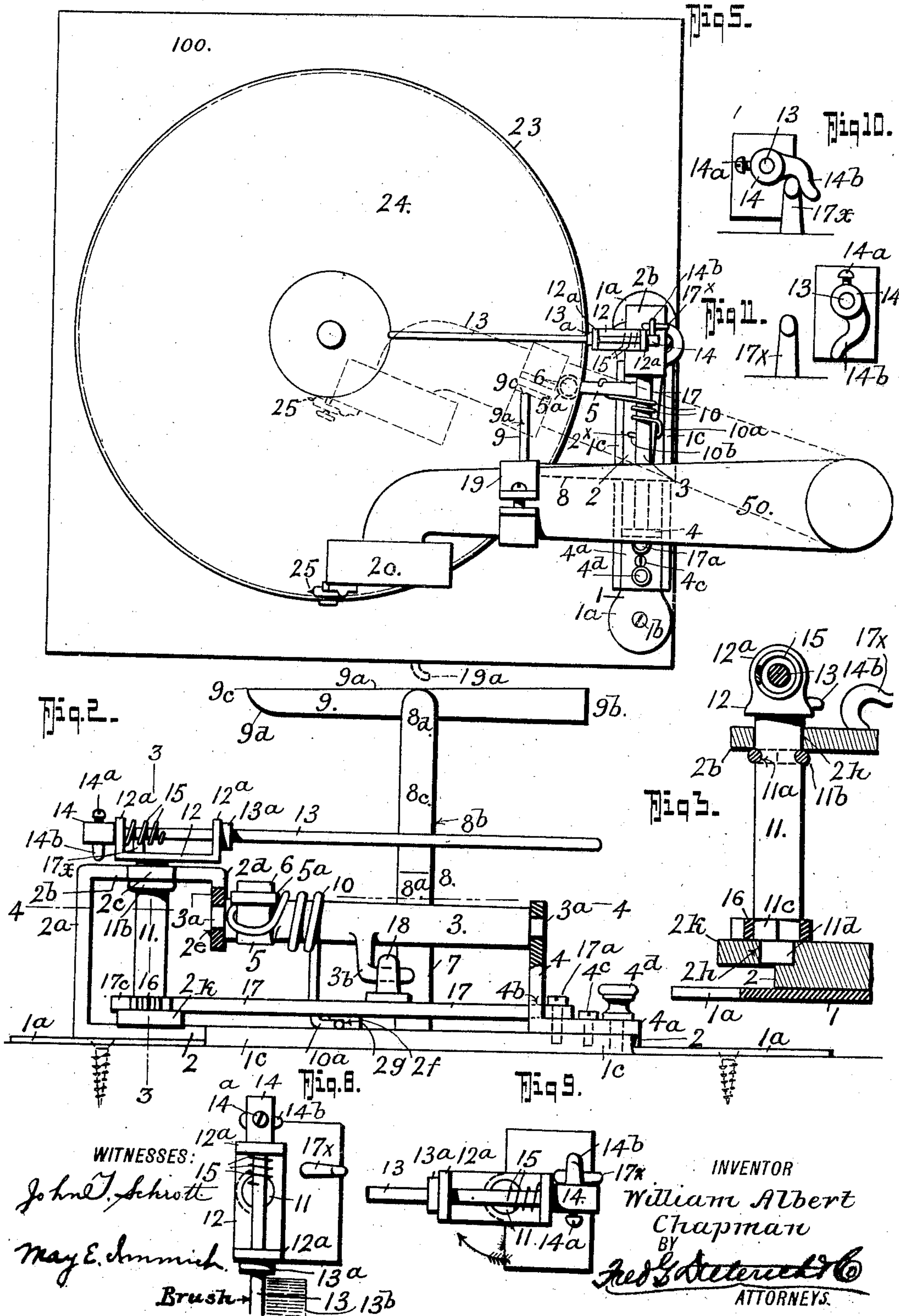
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# UNITED STATES PATENT OFFICE.

WILLIAM ALBERT CHAPMAN, OF SMITHVILLE, ARKANSAS.

## TALKING-MACHINE ATTACHMENT.

963,515.

Specification of Letters Patent.

Patented July 5, 1910.

Application filed July 2, 1909. Serial No. 505,677.

*To all whom it may concern:*

Be it known that I, WILLIAM ALBERT CHAPMAN, residing at Smithville, in the county of Lawrence and State of Arkansas, have invented certain new and useful Improvements in Talking-Machine Attachments, of which the following is a specification.

My invention in an automatic controlling, feeding and cleaning device for attachment to talking machines of the disk type.

Attempts have heretofore been made to provide automatic devices to start and stop the machine by using an arm for effecting the tripping of trigger mechanisms at fixed points by impact, but such devices have not been found practicable in use, since in the designing of devices of that type apparently no regard was had to the wide divergence in area covered by the sound grooves of the different makes of records, nor even to the lesser variations occurring among records of the same manufacturer. Furthermore, in all such devices which have come to my attention, no means are provided for adjusting the movement of the sound box carrying arm and stylus with relation to the width of the record. In the devices above referred to the liability of the needle to jump from one record groove to another is increased and no means is provided whereby the machine, in an emergency, may be stopped by hand.

It is therefore one of the objects of my invention to provide a device free from the foregoing defects.

It is also known that a considerable weight, existant in the arm of the horn, and the attached sound box of the machine, is supported on the point of the needle, which, in consequence, is forced into the material of the record, thereby developing a much greater degree of friction than is desirable in the attainment of the best results. This excess weight, not only absorbs much of the power of the driving mechanism, but is also an active agent of destruction in breaking down the wall of the sound grooves as well as a prolific source of discordant sound that seriously impair the production of harmonic sounds. It is further known, that the inner wall of the sound groove is the one most vital in reproduction, and that with use, where the sound groove alone forms both guide and retainer of the needle point, there results an irregular widening of the groove

which admits of play of the needle point and its jumping from one groove to another already traversed under the ever present tendency of the needle, under centrifugal force, to drift toward the outer or peripheral edge of the disk.

It is therefore a further object of my invention to counter-balance the weight of the sound box carrying arm and its attached parts and to utilize a part of such weight to overcome the centrifugal force that tends to drift the needle toward the periphery of the disk, thereby overcoming the objections above noted. It has also been found in practice that where means have been provided for cleaning the record disk such means have usually been applied to the sound box and therefore add to the weight of the sound box, increasing the tendency of the needle to jump from one groove to another and requiring special fittings to adapt the cleaning devices to the sound box, objections which my device is designed to eliminate.

More briefly then it is the object of my invention to provide a device free from the aforesaid defects and whereby the acts of starting and stopping of the machine and the cleaning of the disk are rendered automatic in their operation, yet if need be, operative by hand.

My invention also has for its object to accomplish these acts without shock or jar to the driving mechanism and the other operative parts of the talking machine, and to cause the various acts of the various parts of the device to be sequential in their operation as well as automatic so that they go through a definite cycle of operations from the moment the machine is set in operation until it stops.

A further object of this invention is to provide an attachment of the character stated wherein all operations are subject to and have their operative beginning in the act of placing the needle point in the sound groove of the record. Therefore, the device will go through its cycle of sequential operations, terminating in the act which stops the machine.

With other objects in view which will be hereinafter fully apparent to those skilled in the art, the invention also embodies those novel details of construction, combination, arrangement and operation of parts, all of



which will be first fully described, then be specifically pointed out in the appended claims, and illustrated in the accompanying drawings, in which:

5 Figure 1, is a perspective view of my invention in its normal or inoperative position. Fig. 2, is a front elevation thereof. Fig. 3, is a section on the line 3—3 of Fig. 2. Fig. 4, is a horizontal section on the line 4—4 of Fig. 2, a part of the rock shaft being  
10 broken away to more clearly show the parts beneath. Fig. 5, is a top plan view illustrating the application of the invention. Fig. 6, is an end elevation showing the position of the parts when the record is being  
15 played. Fig. 7, is a similar view showing the position of the arm (in dotted lines) at the end of the record, and in its raised position (in dot and dash lines) with the parts  
20 of the attachment in their inoperative or normal position. Figs. 8 and 9, are detail views illustrating the manner of turning the brush in its bearings. Figs. 10 and 11, are diagrammatic views hereinafter referred to.  
25 Referring now to the accompanying drawings, in which like letters and numerals of reference indicate like parts in all of the figures, 1 represents the base plate which is provided with apertured ears 1<sup>a</sup> at its ends,  
30 through the medium of which it may be secured by screws 1<sup>b</sup> to the bed of a talking machine 100. The base 1 has upturned and inturned flanges 1<sup>c</sup> which form a channel in which the carriage 2 is longitudinally ad-  
35 justable. The carriage 2 has one end bent upwardly at right angles to the plane of the carriage, as at 2<sup>a</sup>, and backwardly as at 2<sup>b</sup>, parallel with the base of the carriage 2, the end of the parallel portion 2<sup>b</sup> being down-  
40 wardly turned as at 2<sup>d</sup> parallel with the upturned portion 2<sup>a</sup>, for a purpose presently to appear. The upper section 2<sup>b</sup> of the carriage 2 has a forwardly extended bearing 2<sup>c</sup> for a shaft 11, hereinafter again referred  
45 to. The downwardly projected member 2<sup>d</sup> of the carriage is apertured as at 2<sup>e</sup> to receive one of the bearings 3<sup>a</sup> of a rock shaft 3 whose other bearing 3<sup>a</sup> is held in an aperture in a bracket 4, whose base 4<sup>a</sup> is screwed at 4<sup>c</sup>  
50 to the carriage 2, the standard portion of the bracket 4 being slotted as at 4<sup>b</sup> to permit passage of the rack carrying lever 17, hereinafter again referred to. A set screw 4<sup>d</sup> passes through the base 4<sup>a</sup> of the bracket 4  
55 and through the carriage 2 to secure it in its adjusted positions to the base 1.

5 designates the brake arm which is formed with the rock shaft 3 and has the outer end 5<sup>a</sup> cupped to receive the brake pad  
60 6 of leather, or other suitable material. Projecting downwardly from the rock shaft 3 is a finger 7, which, when the parts are in their normal or inoperative position, rests against the rear side of the base plate 1<sup>a</sup> and forms a

stop to limit the rotary movement of the 65 shaft 3 in one direction.

8 is an arm formed with the shaft 3 and for a portion of its length projecting upwardly therefrom as at 8<sup>a</sup>, and then bent into a loop as at 8<sup>b</sup> and terminating in a forwardly projecting curved portion 8<sup>c</sup>, the end 8<sup>d</sup> of which supports a slide bar 9 which is formed integral with the arm 8, in any desired manner. The slide bar 9 is held with its longitudinal axis parallel to that of the 75 rock shaft 3 and that of the base 1<sup>a</sup> while the upper edge 9<sup>a</sup> of the bar 9 is beveled slightly from the end 9<sup>b</sup> to the end 9<sup>c</sup>, for a purpose hereinafter made clear, while the end 9<sup>c</sup> is undercut as at 9<sup>d</sup> for a purpose also 80 hereinafter more fully apparent. A coil spring 10 encircles the shaft 3 and has one of its ends 10<sup>c</sup> hooked around the arm 5 while its other end is bent as at 10<sup>a</sup> to underlap a lug 2<sup>f</sup> which is formed with the base 85 2 and is undercut as at 2<sup>g</sup> to receive the spring 10, while the end 10<sup>b</sup> of such spring is downwardly bent and passed into an aperture 2<sup>h</sup> of the carriage 2.

11 is the shaft which is directly mounted 90 in bearing apertures 2<sup>h</sup> in the upper plate 2<sup>b</sup> of the carriage 2, and a bearing aperture 2<sup>h</sup> in an integrally formed projection 2<sup>k</sup> of the plate 2. The shaft 11 has a groove 11<sup>a</sup> beneath the plate 2<sup>b</sup> in which a split ring 11<sup>b</sup> 95 is sprung to prevent the shaft 11 "riding up" in its bearings. At its lower end the shaft 11 is squared, as at 11<sup>c</sup>, to receive a mutilated pinion 16 and beneath the squared portion 11<sup>c</sup> the shaft is again rounded as at 11<sup>d</sup> to enter the bearing 2<sup>h</sup> in the bracket 100 plate 2<sup>k</sup> of the carriage 2, see Fig. 3.

Mounted on the upper end of the shaft 11, above the plate 2<sup>a</sup> is a turn-table 12 105 which has lugs 12<sup>a</sup> apertured to receive the rod 13, of a brush 13<sup>b</sup> which rod is held from longitudinal movement by a collar 13<sup>a</sup> and a second collar 14 that is secured to the rod 13 by a set screw 14<sup>a</sup>, as shown in Figs. 1, 8 and 9 of the drawings. A coil spring 110 15 is wound around the rod 13 between the lugs 12<sup>a</sup> and has one end passed through an aperture in one of the lugs 12<sup>a</sup> and the other end passed through an aperture in the rod 13, whereby such spring will normally hold 115 the brush 13<sup>b</sup> in a horizontal position.

17<sup>x</sup> is a cam projection formed on the upper portion of the plate 2<sup>b</sup> to cooperate with a similar cam projection 14<sup>b</sup> on the collar 14 (see Figs. 8, 9, 10 and 11) to turn the 120 rod 13 and bring the brush 13<sup>b</sup> in a vertical plane, when such cam sections 17<sup>x</sup> and 14<sup>b</sup> are brought into contact with one another.

The bar 17, hereinbefore referred to, is projected through the slot 4<sup>b</sup> in the bracket 125 4 and pivoted at 17<sup>a</sup> to the base 4<sup>a</sup> of such bracket, while the free end of the rack bar 17 is looped or curved at 17<sup>b</sup> and provided



with a toothed arc segment 17<sup>c</sup> to cooperate with the pinion 16 on the shaft 11, in a manner hereinafter explained. Swivelly connected to the bar 17 is a forked member 5 18 in which the angle finger 3<sup>b</sup> of the shaft 3 plays, the finger 3<sup>b</sup> lying in a direction parallel to the shaft 3.

19 is a collar secured to the horn arm 50 of the machine and having a bearing shoe portion 19<sup>a</sup> to ride on the slide bar 9 in a manner hereinafter explained.

In the drawings the turn-table of the talking machine is designated by the reference character 22, and the record disk by the reference numeral 23, the record area of sound grooves being indicated by the number 24.

Having thus described the general construction of my invention, the operation is substantially as follows:

20 Operation: The operator, having attached the device to his talking machine, adjusts the carriage 2 through the medium of the set screw 4<sup>a</sup> to properly position the bar 9, so that when the needle 25 is placed in the 25 outer groove of the sound record 24, as shown in Fig. 5 of the drawings, the clip 19<sup>a</sup> will rest on the bar 9 adjacent to the end 9<sup>b</sup> thereof and so that when the needle 25 is in the innermost sound groove (see dotted lines in Fig. 5) the shoe 19<sup>a</sup> of the clip 19 30 will just leave the bar 9 at the end 9<sup>c</sup>. Having thus adjusted the device, the set screw 9<sup>a</sup> is tightened down. Now assume that it is desired to play a piece, the operator places 35 the needle 25 in the outer sound groove 24 of the disk 23. Performing this act causes the shoe 19<sup>a</sup> of the clip 19 to engage the slide bar 9, which in turn depresses such bar 9 from the position shown in Fig. 7 to that 40 shown in Fig. 6, thereby rocking the rock shaft 3 and releasing the brake device from contact with the underside of the turn-table 22. Rocking the shaft 3 in this manner causes the angle finger 3<sup>b</sup> to rock the rack 45 bar 17 from the position shown in dotted lines in Fig. 4 to the position shown in full lines in such figure, thereby turning the shaft 11 through an angle of 90 degrees to bring the brush 13<sup>b</sup> over the disk 23 into 50 the position shown in Fig. 5. Swinging the brush from the position shown in Figs. 1 and 7 to the position shown in Figs. 5 and 6 causes the cam member 14<sup>b</sup> to engage member 17<sup>x</sup> and turn the brush rod 13 through 55 an angle of 90 degrees to bring the brush 13<sup>b</sup> from the horizontal position, shown in Figs. 1 and 7, to the vertical position, indicated in Figs. 5 and 6, thereby bringing such brush into contact with the record face 60 of the disk 23. The act of placing the needle 25 in the outer sound groove, as before stated, releases the brake from beneath the turn-table 22, and this permits the motor to turn the turn-table, in the usual man-

ner, and as the needle 25 is in contact with 65 the sound grooves 24 of the disk 23, the record will be played.

By virtue of the upper face 9<sup>a</sup> of the slide bar 9, being beveled from the end 9<sup>b</sup> toward the end 9<sup>c</sup> the weight of the arm 50 and its 70 carried parts (which weight is largely counterbalanced by the spring 10) serves to tend to cause the arm 50 to slide down the runway, from end 9<sup>b</sup> to end 9<sup>c</sup>, and thus maintain the needle 25 in contact with the inner 75 wall of the sound groove of the record disk 23. As the needle 25 approaches the innermost sound groove, the shoe 19<sup>a</sup> will leave the bar 9 and thus permit the spring 10 to restore the shaft 3 to its initial position with the 80 brake device in contact with the underside of the turn-table 22 and the bar 9 elevated. Restoring the shaft 3 to its initial position, the finger will reverse the direction of movement in the rack bar 17 which thereby re- 85 verses the rotation of the shaft 11 and brings the brush arm 13 from the position shown in Figs. 5 and 6 back to the position shown in Figs. 1, 2, and 7 of the drawings, and at the same time the cam 14<sup>b</sup> will dis- 90 engage the cam 17<sup>x</sup> and permit the spring 15 to bring the brush rod 13 back to its initial position, as shown in Figs. 1, 2 and 7 of the drawings, thus the talking machine will be automatically stopped as the needle 95 25 reaches the end of the record and the working parts of my invention will be restored to their initial positions. In order to lessen possible friction between the end 9<sup>c</sup> of the bar 9 and the shoe 19<sup>a</sup>, when the said 100 shoe leaves the bar 9, I bevel the under surface of the bar 9 at the end 9<sup>c</sup>, as indicated at 9<sup>d</sup>, and above referred to. The relative operation of the cams 14<sup>b</sup> and 17 will be clearly understood by reference to 105 Figs. 8, 9, 10 and 11 of the drawings. As the brush 13<sup>b</sup> is restored to its initial position after having been swung over the disk 23 it will be automatically cleaned by engagement with the arm 8 as it enters the 110 loop portion 8<sup>b</sup> thereof.

From the foregoing description taken in connection with the accompanying drawings it is thought that the complete construction and operation of my invention will be read- 115 ily apparent to those skilled in the art, and I wish to call attention to the fact that my invention embodies certain peculiar characteristics, namely,—1st, the acts of starting and stopping are adjustable with relation 120 to one another and to the width of the grooved portion of the record and are uniformly and positively exhibited without shock or jar to the driving mechanism; 2nd, that all adjustments are made by one simple act, 125 (through the adjustment of the carriage 2 by moving such carriage when the set screw 4<sup>a</sup> is loosened), and the operative period of



the device is made subjective to the width of the grooved portion of the record and the stoppage of the machine is governed by the end of such grooved portion of the record; 3rd, means are provided whereby the needle is made to bear with a fixed and uniform pressure against the inner side of the sound groove and is thus guided through the volute groovings, the wall of which governs the rate of progression of the needle in the direction transverse to that of the length of the grooves and the result of the needle being drifted toward the periphery of the sound disk by centrifugal action is thereby compensated; 4th, that the excessive weight of the horn arm and sound reproducer heretofore supported upon the point of the needle is directly utilized as the operative force of this device and this removal of weight is effected by utilizing the same as the power for compressing a spring whereby a balance is had between the weight and the spring, the weight being the governing power; 5th, that by neutralizing the weight, the friction between the needle point and the record is reduced and thus the labor of the motor is reduced and smoother action had with greater life given the record; 6th, the province of the spring 10 is two-fold, 1st; it forces the friction or brake block into operative contact with the turntable of the machine at the proper time to stop the machine and hold it inoperative until the weight of the horn arm is again imposed upon the runway bar, and 2nd; it gives resilient support to the said arm of the horn and sound box; 7th, the arm of the machine may be raised, lowered or swung around without in any way affecting the device, the machine only becoming operative when the needle point is placed in one of the sound grooves; 8th, in order to stop the machine while operating, it is only necessary to raise the arm of the horn and thus permit the spring 10 to perform its reversing function and apply the brake.

From the foregoing description it is thought the operation and advantages of my invention will be readily apparent to those skilled in the art to which it appertains.

What I claim is:

1. In a talking machine of the disk type, resilient means for supporting the horn and sound box arm and simultaneously tending to move it toward the center of the record disk.

2. An attachment for talking machines of the disk type comprising a brake applying means and a disk cleaning means, and means governed by the weight of the horn arm for controlling the action of said brake applying means and said cleaning means.

3. An attachment for talking machines of

the disk type comprising a brake applying means and a disk cleaning means, and means governed by the weight of the horn arm for controlling the action of said brake applying means and said cleaning means, and means for simultaneously tending to move said horn arm with the sound box needle toward the inner wall of the sound groove of the record disk.

4. In an attachment for talking machines of the disk type, a brake applying means, a cleaning means controlled by the movement of the brake applying means, a power supplying device connected with said brake applying means for applying the brake, and means carried by said brake applying means for engaging the horn arm of the talking machine in virtue of which the weight of said arm will store power into said power applying means and simultaneously release said brake and operate said cleaning means.

5. In an attachment for talking machines, a brake applying means, means normally tending to operate said brake, combined with means operated by the weight of the horn arm for releasing said brake, and means for adjusting the time of action of said weight of said horn arm.

6. In an attachment for talking machines of the disk type, a brake applying means, means normally tending to operate said brake, combined with means operated by the weight of the horn arm for releasing said brake, means for adjusting the time of action of the weight of said horn arm, and means normally tending to move said horn arm in one direction to maintain the stylus needle in contact with the inner wall of the sound groove.

7. In an attachment for talking machines of the disk type, a brake applying means, means normally tending to operate said brake, combined with means operated by the weight of the horn arm for releasing said brake, means for adjusting the time of action of the weight of said horn arm, together with a disk cleaning means and operative connections between said disk cleaning means and said brake applying means for moving the disk cleaning means into and out of operative position.

8. In an attachment for talking machines of the disk type, a brake applying means, means normally tending to operate said brake, combined with means operated by the weight of the horn arm for releasing said brake, means for adjusting the time of action of the weight of said horn arm, means normally tending to move said horn arm in one direction to maintain the stylus needle in contact with the inner wall of said groove, together with a disk cleaning means and operative connections between said disk cleaning means and said brake applying



means for moving the disk cleaning means into and out of operative position.

9. An attachment for a talking machine of the disk type, comprising a base plate, a carriage adjustable thereon, a brake mechanism mounted on said carriage, and means normally tending to apply the brake of said brake mechanism, means for limiting action of said applying means in one direction, and means coöperatively connecting said brake mechanism with the horn arm of a talking machine in virtue of which the weight of said arm will overcome the action of the brake applying means and release said brake.

10. An attachment for talking machines comprising a base plate, a carriage adjustable thereon, a brake mechanism mounted in said carriage, means normally tending to apply the brake of said brake mechanism, means for limiting the action of said applying means in one direction, means coöperatively connecting said brake mechanism with the horn arm of a talking machine in virtue of which the weight of said arm will overcome the action of the brake applying means and release said brake, a cleaning brush pivotally mounted on said carriage, and means coöperatively connecting said brush with said brake mechanism for moving said brush into and out of operative position.

11. An attachment for talking machines of the disk type, comprising a base plate, a carriage adjustable thereon, a brake mechanism mounted in said carriage, and means normally tending to apply the brake of said brake mechanism, means for limiting the action of said applying means in one direction, means coöperatively connecting said brake mechanism with the horn arm of a talking machine in virtue of which the weight of said arm will overcome the action of the brake applying means and release said brake, a cleaning mechanism also mounted on said carriage comprising a pivotally mounted brush, connections between said brush and said brake mechanism for moving said brush from one position to another, and other means for turning said brush on its pivot to bring it into and out of engagement with a record disk.

12. An attachment for talking machines of the disk type, comprising a base and a carriage mounted thereon, said carriage having bearings, a rock shaft mounted in bearings, a brake arm carried by said rock shaft and having a brake shoe, means normally tending to turn said shaft in one direction, means for limiting the turning of said rock shaft in such direction, and another means for coöperatively connecting said rock shaft with the horn arm of the talking machine in virtue of which when the horn arm is in position with the stylus or needle operatively

placed in the record groove, the weight of said arm will turn said rock shaft in an opposite direction to release said brake.

13. An attachment for talking machines of the disk type, comprising a base plate, a carriage adjustable thereon, a brake mechanism mounted on said carriage, and means normally tending to apply the brake of said brake mechanism, means for limiting the action of said applying means in one direction, means coöperatively connecting said brake mechanism with the horn arm of a talking machine, in virtue of which the weight of said arm will overcome the action of the brake applying means and release said brake, a cleaning mechanism also mounted on said carriage comprising a turn-table mounted on said carriage and having bearings, a brush carried by said turn-table, and means coöperatively connecting said rock shaft with said turn-table in virtue of which the movement of the rock shaft will be applied to said turn-table to turn the same.

14. An attachment for talking machines of the disk type, comprising a base and a carriage mounted thereon, said carriage having bearings, a rock shaft mounted in said bearings, a brake arm carried by said rock shaft and having a brake shoe, means normally tending to turn said shaft in one direction, means for limiting the turning of said rock shaft in such direction, another means for coöperatively connecting said rock shaft with the horn arm of the talking machine in virtue of which when the horn arm is in position with the stylus or needle operatively placed in the record groove, the weight of said arm will turn said rock shaft in an opposite direction to release said brake, a turn-table mounted on said carriage and having bearings, a brush carried by said turn-table, and means coöperatively connecting said rock shaft with said turn-table in virtue of which the movement of the rock shaft will be applied to said turn-table to turn the same.

15. An attachment for talking machines of the disk type, comprising a base plate, a carriage adjustable thereon, a brake mechanism mounted on said carriage, and means normally tending to apply the brake of said brake mechanism, means for limiting the action of said applying means in one direction, means coöperatively connecting said brake mechanism with the horn arm of a talking machine, in virtue of which the weight of said arm will overcome the action of the brake applying means and release said brake, a cleaning mechanism also mounted on said carriage comprising a turn-table mounted on said carriage and having bearings, a brush carried by said turn-table, means coöperatively connecting said rock shaft with said turn-table in virtue of which the movement of the rock shaft will be ap-



plied to said turn-table to turn the same, and means for turning said brush in its bearings in said turn-table as said turn-table is moved from one position to another.

5 16. An attachment for talking machines of the disk type, comprising a base and a carriage mounted thereon, said carriage having bearings, a rock shaft mounted in said bearings, a brake arm carried by said  
10 rock shaft and having a brake shoe, means normally tending to turn said shaft in one direction, means for limiting the turning of said rock shaft in such direction, another means for coöperatively connecting said  
15 rock shaft with the horn arm of the talking machine in virtue of which when the horn arm is in position with the stylus or needle operatively placed in the record groove, the weight of said arm will turn said rock shaft  
20 in an opposite direction to release said brake, a turn-table mounted on said carriage and having bearings, a brush carried by said turn-table, means coöperatively connecting said rock shaft with said turn-  
25 table in virtue of which the movement of the rock shaft will be applied to said turn-table to turn the same, and devices connecting said turn-table and said brush for turning said brush in its bearings in said  
30 turn-table as said turn-table is moved from one position to another.

17. An attachment for talking machines of the disk type, comprising a base plate and a carriage adjustably mounted thereon,  
35 said carriage having bearings, a rock shaft mounted in said bearings and having a brake carrying arm, a spring normally tending to turn said rock shaft in one direction, means carried by the  
40 rock shaft for engaging said base to limit the turning movement of said rock shaft, an arm carried by said rock shaft, a slide bar carried by said arm, a second shaft  
45 mounted in bearings in said carriage, a turn-table carried by said second shaft and having bearing ears, a brush having a rod portion mounted in said bearing ears, and means normally holding said brush in a  
50 definite position, a rack bar pivoted in said carriage and having a rack segment, a pinion on said second shaft for engaging said rack segment, operative connection between said rock shaft and said rack bar in virtue  
55 of which the movement of the rock shaft will be imparted to said bar to turn said second shaft, and means for turning said brush rod in its bearings as said second shaft is turned from one position to another, and an attachment for the horn arm of a talking  
60 machine to engage said slide bar to operatively connect said horn arm with said slide bar at times.

18. An attachment for talking machines of the disk type wherein is provided a ver-  
65 tically and laterally movable horn arm, com-

prising a brake applying means and a disk cleaning means, and means governed by the weight of the horn arm for moving the disk cleaning means into and out of operative relation to the disk and for controlling the  
70 action of said brake applying means.

19. In an attachment for talking machines of the disk type having vertically movable horn arms, means for counteracting the ac-  
75 tion of centrifugal force on the needle, said means comprising an inclined plane and means governed by the weight of said horn arm and coöperating with said inclined plane to move said needle in a direction  
80 opposite to that in which the centrifugal force acts.

20. An attachment for talking machines of the disk type, comprising an inwardly projecting brake applying means, and means  
85 controlled by the weight of the horn arm for governing the action of said brake applying means, and means continuously acting on said horn arm tending to move it with the stylus toward the center of the  
90 record disk.

21. An attachment for talking machines of the disk type, comprising a rotative brake applying means, means controlled by the weight of the horn arm for governing the  
95 action of said brake applying means, means continuously acting on said horn arm tending to move it with the stylus toward the center of the record disk.

22. An attachment for talking machines of the disk type, comprising an inwardly  
100 projecting rotative brake applying means, means controlled by the weight of the horn arm for governing the action of said brake applying means, and means continuously acting on said horn arm tending to move  
105 it with the stylus toward the center of the record disk.

23. An attachment for talking machines of the disk type, a brake applying means, a disk cleaning means, and means governed  
110 by the weight of the horn arm for simultaneously releasing the brake applying means and projecting the disk cleaning means into position over the disk.

24. An attachment for talking machines  
115 of the disk type, a brake applying means, a disk cleaning means, means governed by the weight of the horn arm for simultaneously releasing the brake applying means and projecting the disk cleaning means into  
120 position over the disk, and for simultaneously permitting said brake applying means to come into operation and for removing said disk cleaning means from over the disk.

25. In a talking machine of the disk type  
125 having a pivoted horn arm for movement in a vertical plane, means for counteracting the action of centrifugal force on the needle comprising an inclined plane in operative  
130 engagement with the horn arm to cause said



horn arm to drift in a direction opposite to that in which the centrifugal force acts.

26. In a talking machine of the disk type wherein is included a horn arm having horizontal and vertical movement, means for simultaneously resiliently supporting said horn arm and causing it to drift and con-

tinuously move the sound box toward the center of the record disk.

WILLIAM ALBERT CHAPMAN

Witnesses:

S. A. D. JONES,  
OTTIS HILL.