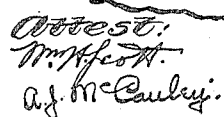


APPLICATION FILED JAN. 22, 1915.

Patented Dec. 26, 1916.

5 SHEETS—SHEET 1.



Inventor:
B. Benedict

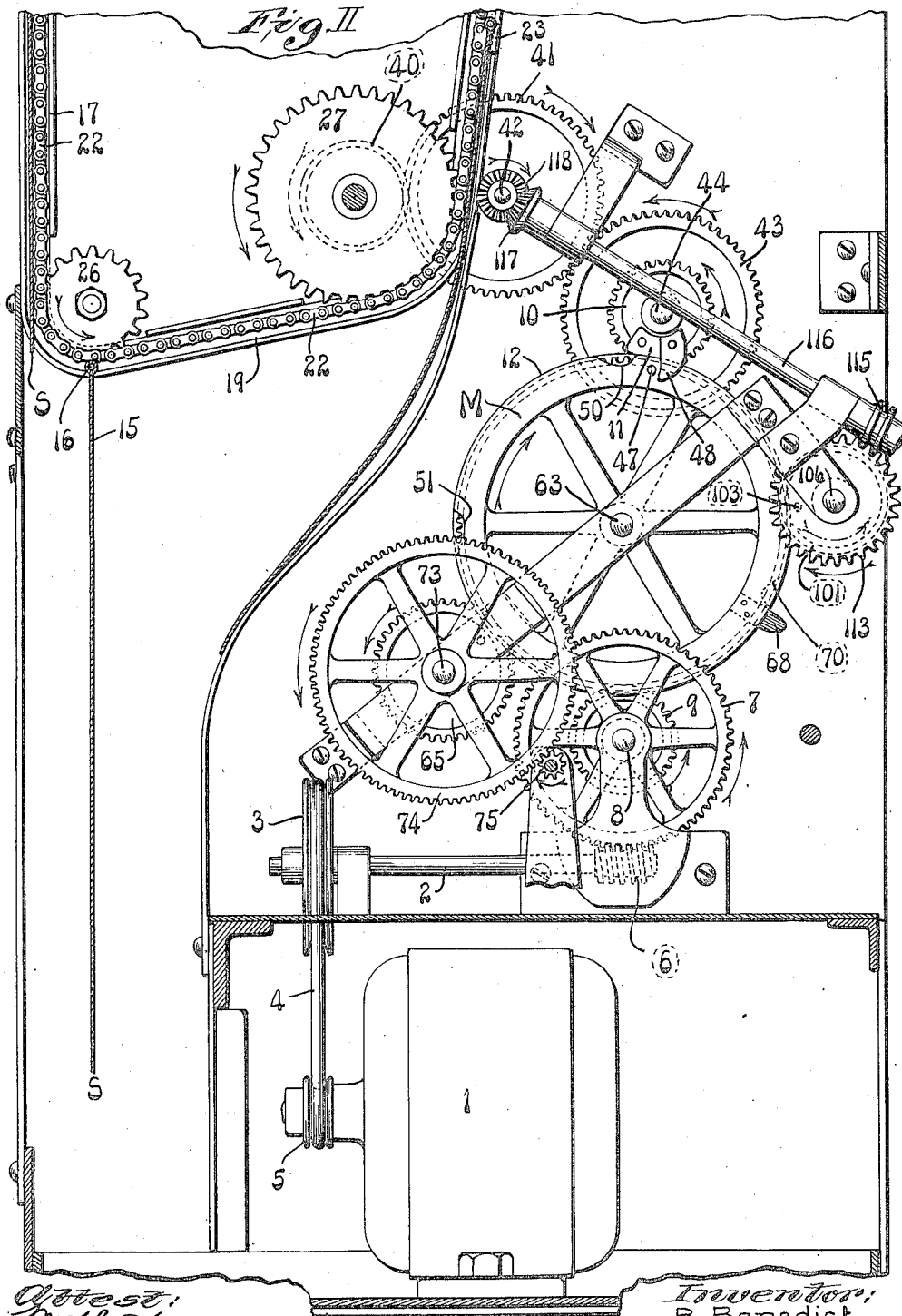
by Knight & Cook artists.

B. BENEDICT.
TALKING MACHINE.
APPLICATION FILED JAN. 22, 1915.

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5 SHEETS—SHEET 2.

1,210,138.



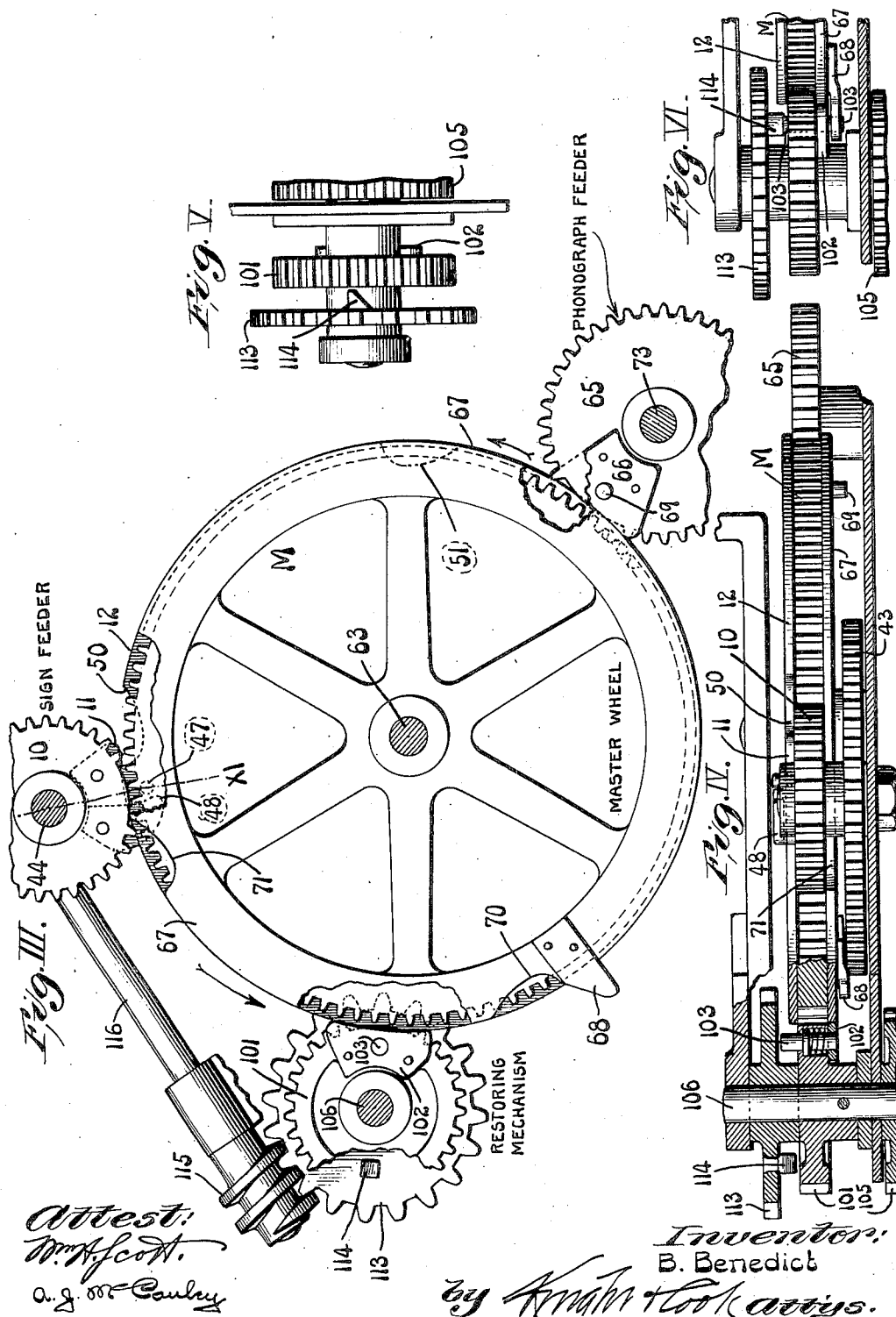
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1,210,138.

B. BENEDICT.
TALKING MACHINE.
APPLICATION FILED JAN. 22, 1915.

Patented Dec. 26, 1916.
5 SHEETS—SHEET 3.



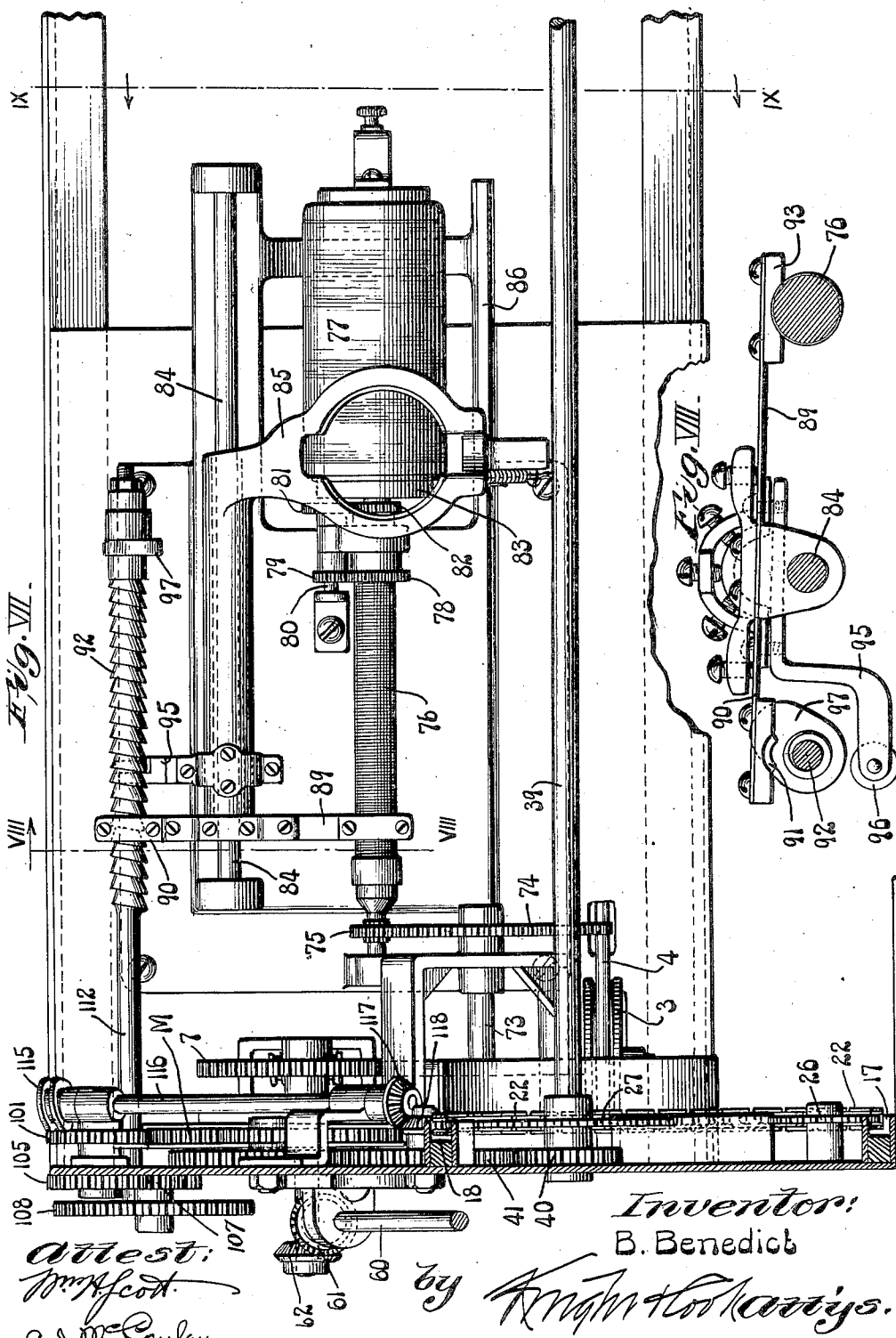
B. BENEDICT.
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5 SHEETS—SHEET 4.

1,210,138.



1,210,138.

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APPLICATION FILED JAN. 22, 1915.

Patented Dec. 26, 1916.
5 SHEETS—SHEET 5.

Fig. IX.

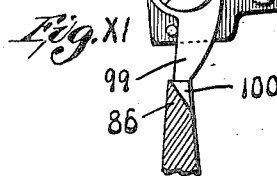
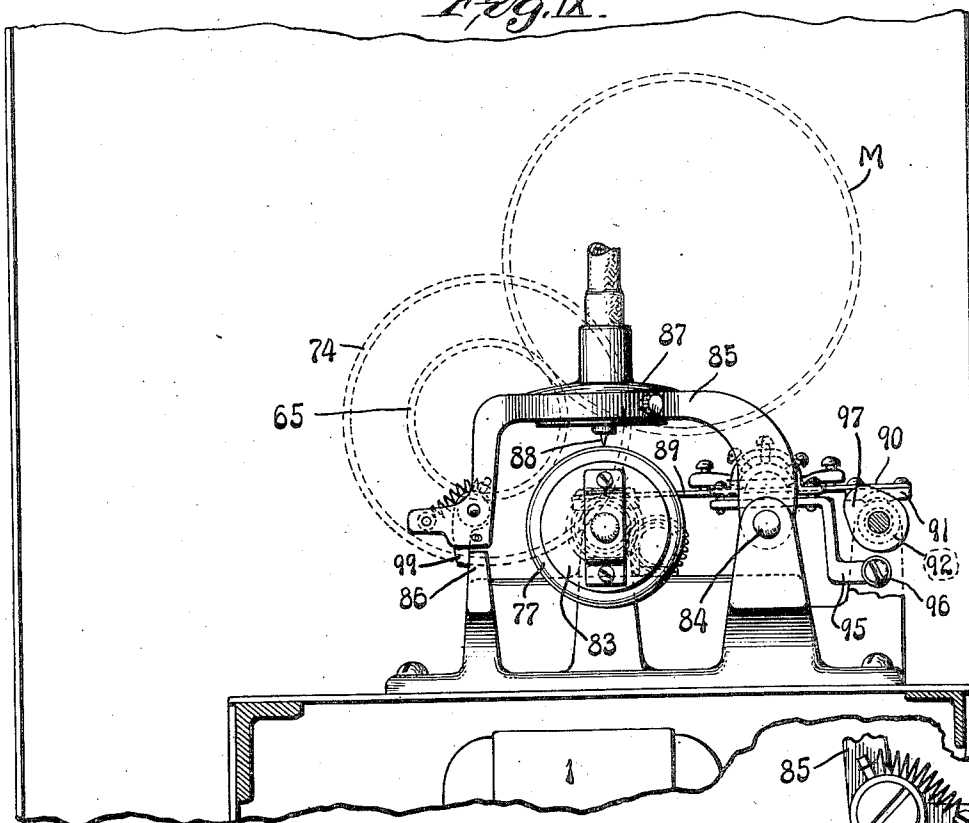
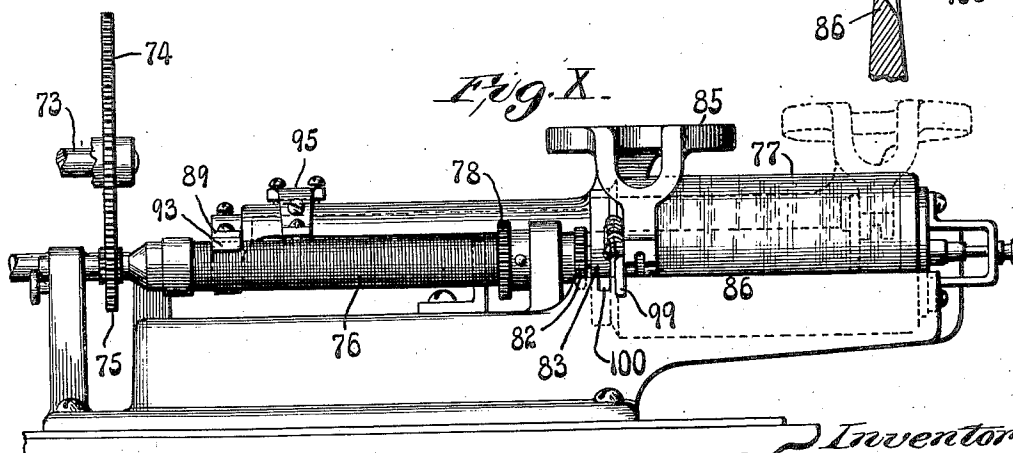


Fig. X.



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UNITED STATES PATENT OFFICE.

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TALKING-MACHINE.

1,210,138.

Specification of Letters Patent.

Patented Dec. 26, 1916.

Application filed January 22, 1915. Serial No. 3,775.

To all whom it may concern:

Be it known that I, BERNARD BENEDICT, a citizen of the United States of America, a resident of the city of New York, in the county of New York, State of New York, have invented certain new and useful Improvements in Talking-Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to improvements in talking machines or phonographs, and it pertains more especially to mechanisms whereby the carriage of a machine of this kind is restored for repeated forward movement and continuous operation of the machine. A mechanism of this description is of particular value where a talking machine or phonograph is used in conjunction with display devices to attract or hold attention thereto.

The invention also includes certain new details of construction which will be hereinafter pointed out.

Figure I is a front elevation, partly broken away, of an advertising device embodying the features of my invention. Fig. II is an enlarged vertical section of the lower portion of a device, looking toward the left side of the housing. Fig. III is an enlarged detail view illustrating the master wheel and the mutilated wheels which are driven intermittently in response to movements of the master wheel. Fig. IV is a top or plan view, partly in section, of the parts shown in Fig. III, also showing a fragment of the left hand wall of a casing and certain other wheels not shown in Fig. III. Fig. V is a rear elevation showing the drive wheel for restoring the phonograph reproducer, and the rotatable controller wheel for controlling the operation of said drive wheel. Fig. VI is a top or plan view of the parts shown in Fig. V, and also shown in cross section in Fig. IV, the cam projection on the controller wheel being positioned to shift the yieldable pin into the path of a trip finger on the master wheel. Fig. VII is an enlarged top or plan view partly in section illustrating the driving mechanism at the left wall of the housing and the phonograph near the lower end of the housing. Fig. VIII is a transverse section taken approximately on the line

VIII—VIII, Fig. VII. Fig. IX is a section taken approximately on the line IX—IX, Fig. VII. Fig. X is a front elevation of the phonograph, the reproducer being omitted. Fig. XI is an enlarged detail view of the pawl and track whereby the reproducer carriage is supported while the carriage is being returned to its starting position.

In the accompanying drawings, I have elected to show my improvement in talking machines as it would be used in connection with a sign displaying mechanism, but inasmuch as said displaying mechanism is not herein claimed, description of it is unnecessary and will be omitted.

1 designates a constantly running motor which is preferably an electric motor although it may be a mechanical motor in so far as my invention is concerned.

2 designates a transmission shaft provided with a pulley 3, and 4 is a belt passing around said pulley and fitted to the drive wheel 5 of the motor 1. A worm 6 fixed to the shaft 2 (Fig. II) meshes with a worm wheel 7, the latter being fixed to a shaft 8.

9 designates a pinion secured to the shaft 8, and meshing with the master wheel M. The master wheel is provided with a continuous circular row of teeth, and it is driven constantly through the medium of the mechanism just described.

Means for feeding the phonograph reproducer.—The phonograph includes a reproducer carriage which is driven intermittently through the medium of a mutilated drive wheel 65 associated with the master wheel M (Figs. II and III). The mutilated wheel 65 has a blank portion which faces the teeth of the master wheel M (Fig. III) when said wheel 65 is in its idle position, and it is driven intermittently to impart a step by step movement to the phonograph reproducer. Referring to Fig. IX, the mutilated wheel 65 is provided with a locking plate 66 having an arcuate face which engages a flange 67 on the master wheel so as to lock said mutilated wheel in its idle position. A finger 68 carried by the master wheel is adapted to engage a pin 69 projecting from the mutilated wheel 65. When the finger 68 strikes the pin 69 the mutilated wheel 65 is shifted from its inoperative position and a portion of its locking plate 66

enters a notch 70 in the flange 67. This movement engages the teeth of the mutilated wheel 65 with the gear teeth of the master wheel. When the mutilated wheel 65 has made almost one complete revolution a portion of its locking plate enters a notch 71 in the flange 67, and said mutilated wheel is then restored to its idle position.

The feeding mechanism driven by the mutilated gear wheel 65 comprises a shaft 73 fixed to said mutilated wheel, a gear wheel 74 fixed to said shaft, and a pinion 75 meshing with the gear wheel 74. The pinion 75 is fixed to a feed screw 76 (Figs. VII and X). The phonograph record 77 is rotated through the medium of a gear wheel 78 (Fig. VII) fixed to the feed screw 76 and meshing with a pinion 79 secured to a short shaft 80.

81 designates a pinion fixed to the shaft 80 and meshing with a pinion 82, the latter being secured to the rotatable record holder 83. The reproducer carriage, which is fed by the feed screw 76, is pivotally supported by a guide rod 84. This carriage is provided with an arm 85 which extends over the record 77, the free outer end of said arm being located above a track 86 which extends upwardly from the base of the phonograph mechanism. The reproducer 87 (Fig. IX) is provided with the usual needle 88 adapted to engage the phonograph record.

89 and 90 designate a pair of arms extending from and adjustably secured to the reproducer carriage (see Figs. VII and VIII). A nut element 91 secured to the arm 90 is adapted to engage a restoring screw 92, and a nut element 93 secured to the arm 89 is adapted to engage the feed screw 76 as shown most clearly in Fig. VIII. During the step by step feeding movements of the reproducer carriage, the nut element 93 is engaged with the feed screw 76 and the carriage is advanced in response to the rotary movements of said feed screw. During these movements the nut element 91 is disengaged from the restoring screw 92 as shown in Fig. VIII.

40 designates a pinion (see Fig. II) fixed to a shaft 39 and meshing with a gear wheel 41 secured to a shaft 42, the gear wheel 41 being in mesh with a gear wheel 43 secured to a shaft 44.

Means for imparting intermittent movement to the train of gearing just described is provided with and comprises a mutilated gear wheel 10 fixed to the gear wheel 43 and adapted to be driven intermittently by the master wheel M. The master wheel is provided with an endless circular row of gear teeth, but the mutilated gear wheel 10 is in the form of a segment having a blank portion which faces the teeth of the master wheel (Fig. III), when the mutilated gear wheel occupies its idle position.

The mutilated gear wheel 10 is provided with a locking plate 11 having an arcuate face which engages the periphery of a flange 12 on the master wheel, so as to lock said mutilated wheel in its idle position, Fig. II.

During each revolution of the constantly rotating master wheel, the mutilated gear wheel 10 is tripped and its teeth are engaged with the master wheel. When the mutilated wheel has made one complete revolution it again occupies its idle position, shown in Fig. II. The means for tripping the mutilated wheel 10 comprises a pin 47 carried by the master wheel and a finger 48 projecting from the mutilated wheel 10, Fig. II. When the pin 47 strikes the finger 48 the mutilated wheel 10 is turned slightly with the result of bringing its teeth into engagement with the teeth of the master wheel. At the beginning of this movement one corner of the locking plate 11, on the mutilated wheel, enters a notch 50 in the flange 12 of the master wheel. The mutilated wheel is then free to rotate in response to the movement of the master wheel, and when said mutilated wheel has almost completed one revolution, a notch 51 in the flange 12 of the master wheel is alined with the locking plate 11 on the mutilated wheel. A portion of the projecting plate 11 then enters the notch 51, and a continued movement of the master wheel will shift the mutilated wheel to its idle position.

Means for restoring the reproducer carriage.—After the reproducer has traveled a predetermined number of steps the reproducer is automatically restored to its starting position. In restoring the reproducer carriage it is rocked about the axis of the supporting rod 84 to disengage the needle from the phonograph record, to disengage the nut element 93 from the feed screw 76, and to engage the nut element 91 with the restoring screw 92. To accomplish this, the reproducer carriage is provided with an arm 95 (Figs. VII and VIII), said arm being provided with a roller 96 which lies below the restoring screw 92. When the reproducer carriage has been fed to a predetermined position, the roller 96 lies directly below a cam 97 secured to the restoring screw 92, and said restoring screw is then rotated with the result of lifting the nut element 93 from feed screw 76, also lifting the needle from the phonograph record, and engaging the nut element 91 with the restoring screw. The rotary movement of the restoring screw will then cause the carriage to return to its starting position. The means for supporting the reproducer carriage, during its return movement, includes a spring actuated pawl 99 pivoted to the reproducer carriage and adapted to rest upon the top face of

track 86, as shown in Fig. XI. When the reproducer is in operative engagement with the phonograph record the lower end of pawl 99 lies below the top face of track 86, as seen in Figs. IX and X, but when the pivoted reproducer carriage is rocked at the beginning of its return movement, the spring actuated pawl 99 is shifted to the position shown in Fig. XI. Obviously, this pawl 99 riding along the top face of track 86, serves as means for maintaining the nut element 93 out of engagement with the feed screw 76, and for retaining the nut element 91 in engagement with the restoring screw 92 during the return movement of the carriage. When the carriage reaches its starting position the spring actuated pawl 99 enters a notch 100 in the track 86 (Figs. X and XI) and the front portion of the pivoted carriage drops by gravity to engage the needle with the phonograph record, to engage the nut element 93 with the feed screw 76 (Fig. VIII), and to disengage the nut element 91 from the restoring screw 92.

I will now describe the means for operating the restoring screw 92 after the reproducer carriage has traveled a predetermined number of steps. 101 designates a mutilated gear wheel associated with the master wheel M, and provided with a locking plate 102 having an arcuate face which engages the periphery of the flange 67 on the master wheel, see Figs. III and IV. This mutilated wheel carries a spring pressed pin 103 adapted to be projected into the path of the finger 68 carried by the master wheel. When the pin 103 is projected, the mutilated wheel is tripped by the finger 68 and said wheel then makes one complete revolution, as will be readily understood. During many revolutions of the master wheel the spring pressed pin 103 occupies the position shown in Fig. X wherein it is located out of the path of the tripping finger 68. However, after the master wheel has made a predetermined number of revolutions, in other words, after the reproducer feeder has traveled a predetermined number of steps, the pin 103 is projected into the path of the tripping finger 68. Motion is then transmitted from the master wheel to the mutilated wheel 101 and through a train of gearing to the restoring screw. This train of gearing includes a transmission wheel 105, fixed to a shaft 106 the latter being rigidly secured to the mutilated wheel 101, as shown in Fig. IV. The transmission wheel 105 operable by the mutilated wheel meshes with a pinion 107 (Fig. VII) secured to a large gear wheel 108 which meshes with a pinion 109 (Fig. I) secured to a gear wheel 110, which meshes with a pinion 111, the latter being secured to a shaft 112 which forms part of the restoring screw 92.

The means for shifting the spring pressed

pin 103 to project it into the path of the finger 68 (Figs. III, IV, V, and VI) comprises a gear wheel 113 loosely supported by the shaft 106 and provided with a cam lug 114 adapted to engage the spring pressed pin 103. When this cam lug 114 engages the spring pressed pin 103, as seen in Fig. VI, the pin is positioned to be engaged by the tripping finger 68 carried by the master wheel. The gear wheel 113, carrying the cam lug 114, moves very slowly, and it is driven through the medium of a worm 115 shown most clearly in Figs. II and III. 116 designates a shaft secured to the worm 115 also secured to a bevel gear wheel 117 meshing with a similar wheel 118, the latter being secured to the shaft 42.

It will now be apparent that the shaft 116 drives the worm 115, that the gear wheel 113 is driven very slowly by said worm, and that, when the cam lug 114, carried by the wheel 113, engages the spring pressed pin 103 the reproducer carriage is restored as previously set forth.

I claim:—

1. A device of the character described comprising a phonograph having a reproducer carriage, and power mechanism for feeding said carriage step by step and for restoring said carriage after it has traveled a predetermined number of steps, said power mechanism including an operating wheel, a drive wheel adapted to be driven by said operating wheel so as to restore the carriage and means for causing said drive wheel to partake of the movement of said operating wheel after the carriage has traveled said predetermined number of steps.

2. A device of the character described comprising a phonograph having a reproducer carriage, and a power mechanism for feeding said carriage step by step and for restoring said carriage after it has traveled a predetermined number of steps, said power mechanism including a gear wheel provided with a projection, a mutilated drive wheel adapted to mesh with said gear wheel so as to restore the carriage, means for locking said mutilated wheel while said carriage is moving step by step, a yieldable member carried by said mutilated wheel and means for shifting said yieldable member into the path of said projection to engage said mutilated wheel with the teeth of said gear wheel after the carriage has traveled a predetermined number of steps.

3. A talking machine having a reproducer carriage, power mechanism for feeding said carriage step by step to a predetermined position, said power mechanism including an operating wheel, and means for transmitting movement from said operating wheel to said carriage so as to advance the latter to said predetermined position, restoring mechanism for returning said carriage after it

reaches said predetermined position, said restoring mechanism including a drive wheel associated with said operating wheel, said drive wheel being idle while the carriage is advancing to said predetermined position, and a controlling device for causing said drive wheel to partake of the movement of said operating wheel when the carriage reaches said predetermined position.

10 4. A talking machine having a reproducer carriage, power mechanism including a master wheel and means for operating said master wheel continuously, means for transmitting movement from said master wheel to said carriage so as to advance the latter step by step to a predetermined position, and restoring mechanism for returning said carriage after it reaches said predetermined position, said restoring mechanism including a drive wheel associated with said master wheel, said drive wheel being idle while the carriage is advancing to said predetermined position, and a controlling device for causing said drive wheel to partake of the movement of said master wheel after the carriage reaches said predetermined position.

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5. A talking machine having a reproducer carriage, power mechanism including a master wheel and means for operating said master wheel continuously, means for transmitting movement from said master wheel to said carriage so as to advance the latter step by step to a predetermined position, and restoring mechanism for returning said carriage after it reaches said predetermined position, said restoring mechanism including a drive wheel associated with said master wheel, said drive wheel being idle while the carriage is advancing to said predetermined position, and a controlling device for causing said drive wheel to partake of the movement of said master wheel after the carriage reaches said predetermined position, said controlling device including a controller wheel movable in unison with said master wheel while the carriage is advancing to said predetermined position.

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BERNARD BENEDICT.

In the presence of—
L. SORGENFREY,
CHAS. GLAS.