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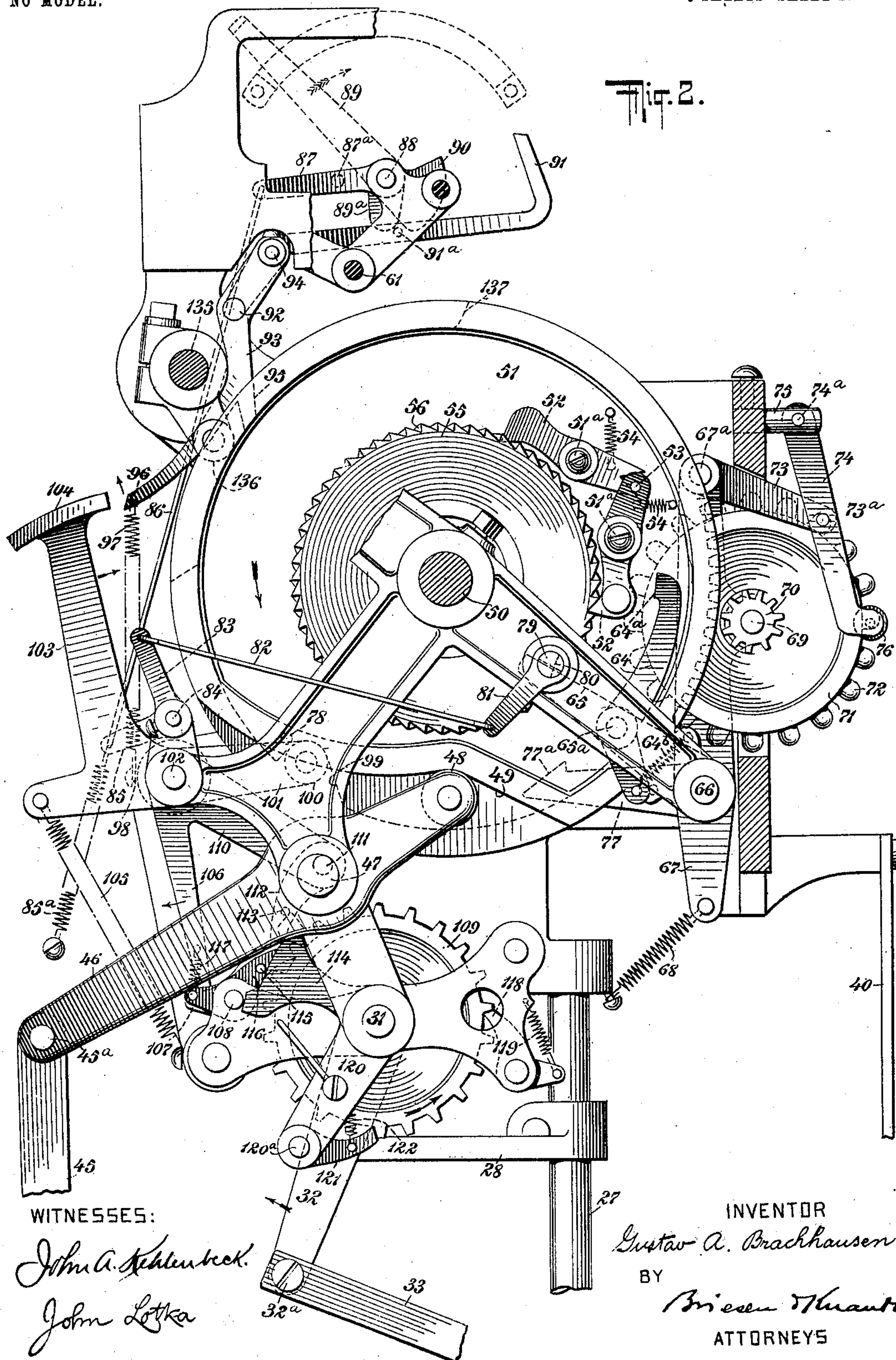
PATENTED APR. 12, 1904.

G. A. BRACHHAUSEN.  
CARRIAGE FEED DEVICE FOR MUSIC BOXES.

APPLICATION FILED JUNE 27, 1902.

NO MODEL.

5 SHEETS—SHEET 2.



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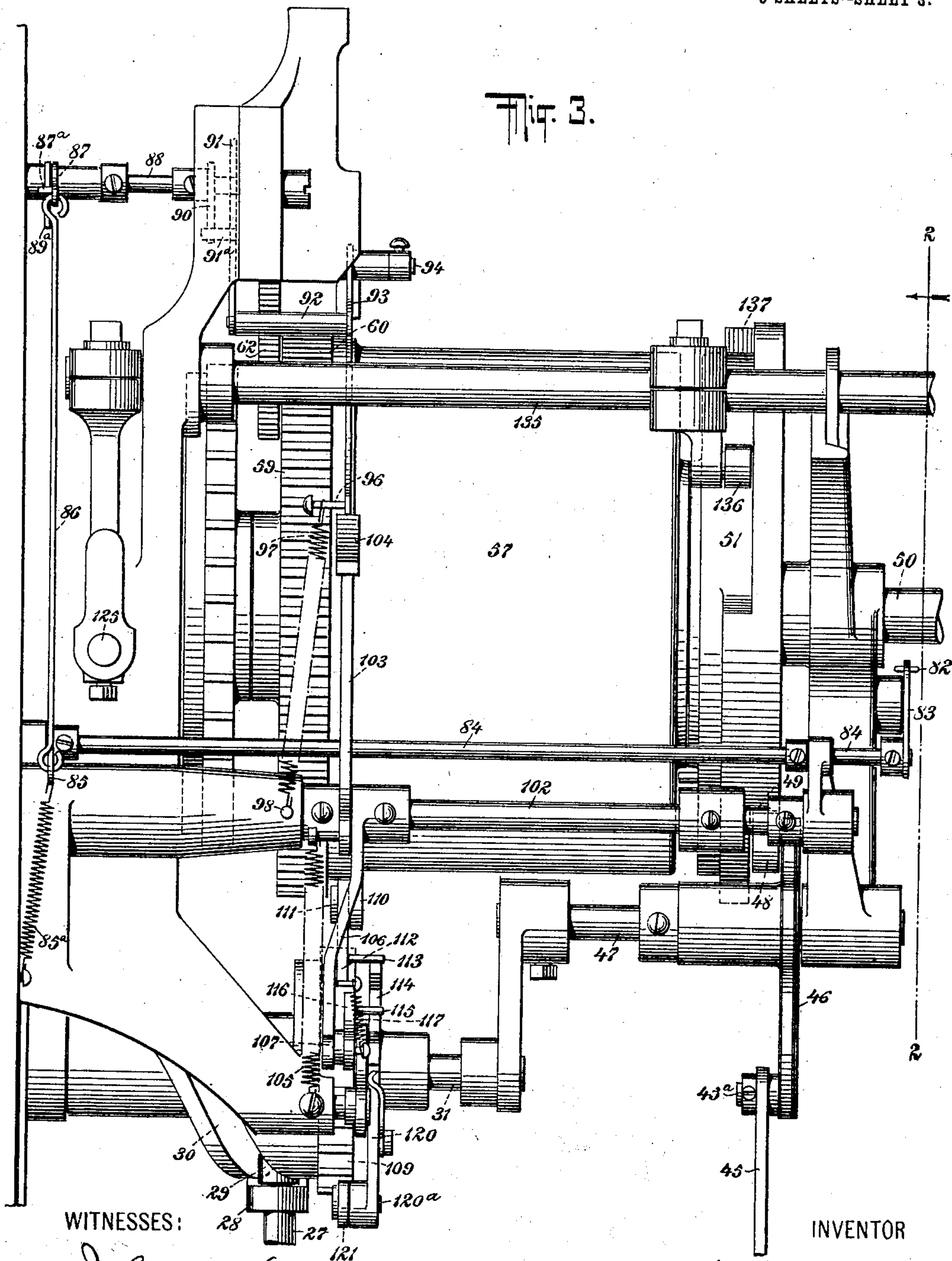
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5 SHEETS—SHEET 3.



WITNESSES:

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*John Lotka*

INVENTOR

*Gustav A. Brachhausen*  
BY  
*Briesen & Knauth*  
ATTORNEYS



No. 757,018.

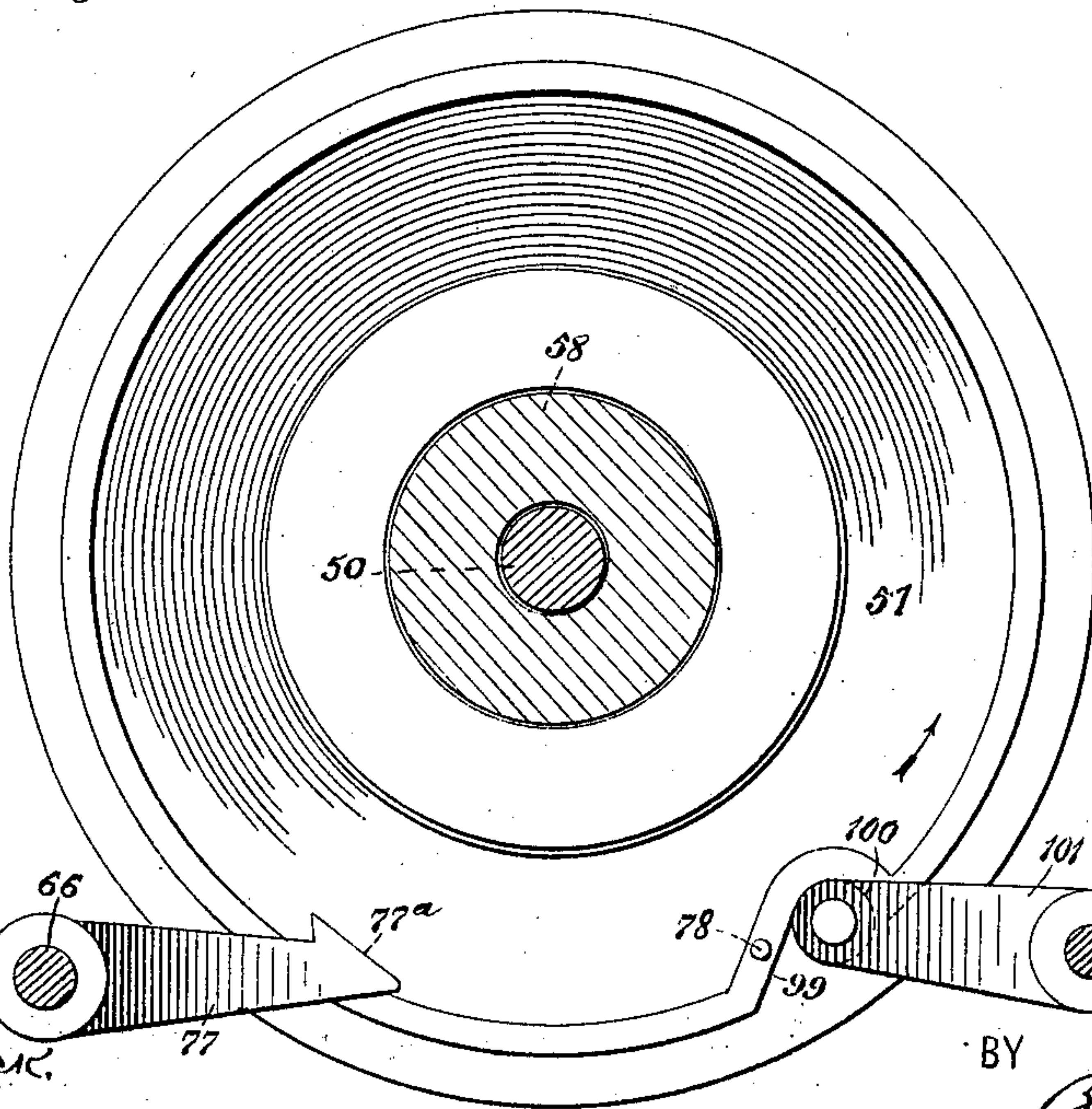
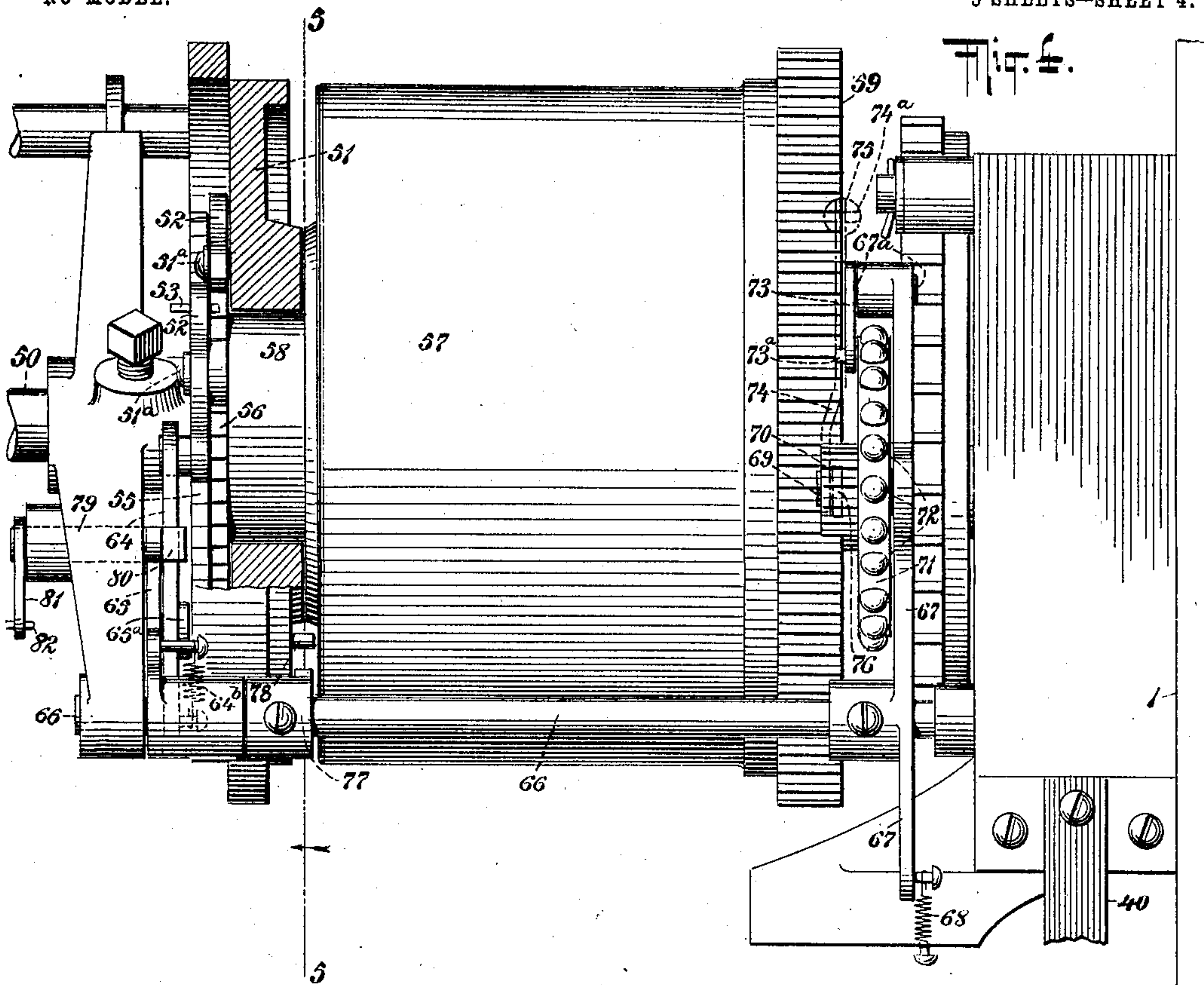
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5 SHEETS--SHEET 4.



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NO MODEL.

5 SHEETS—SHEET 5.

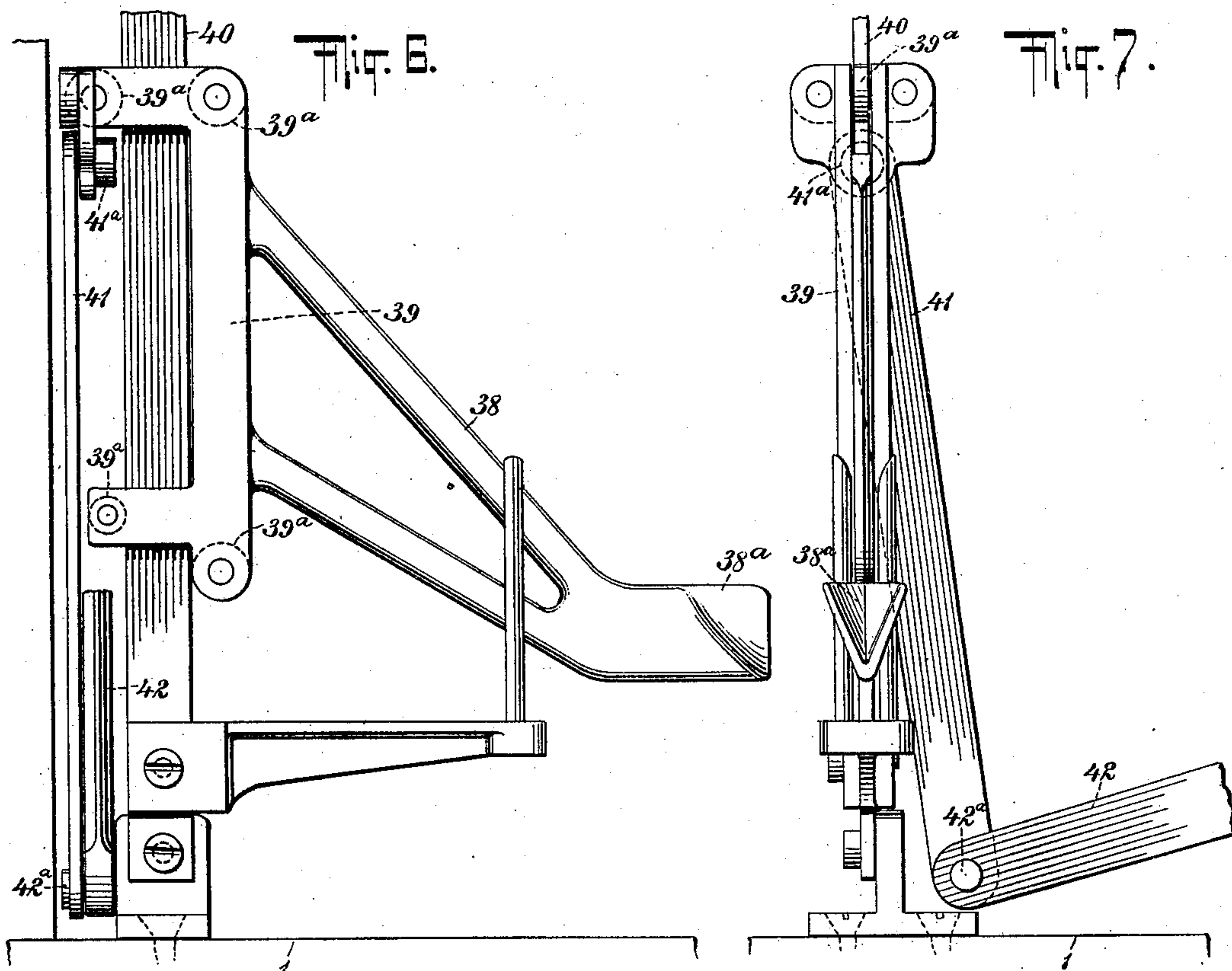
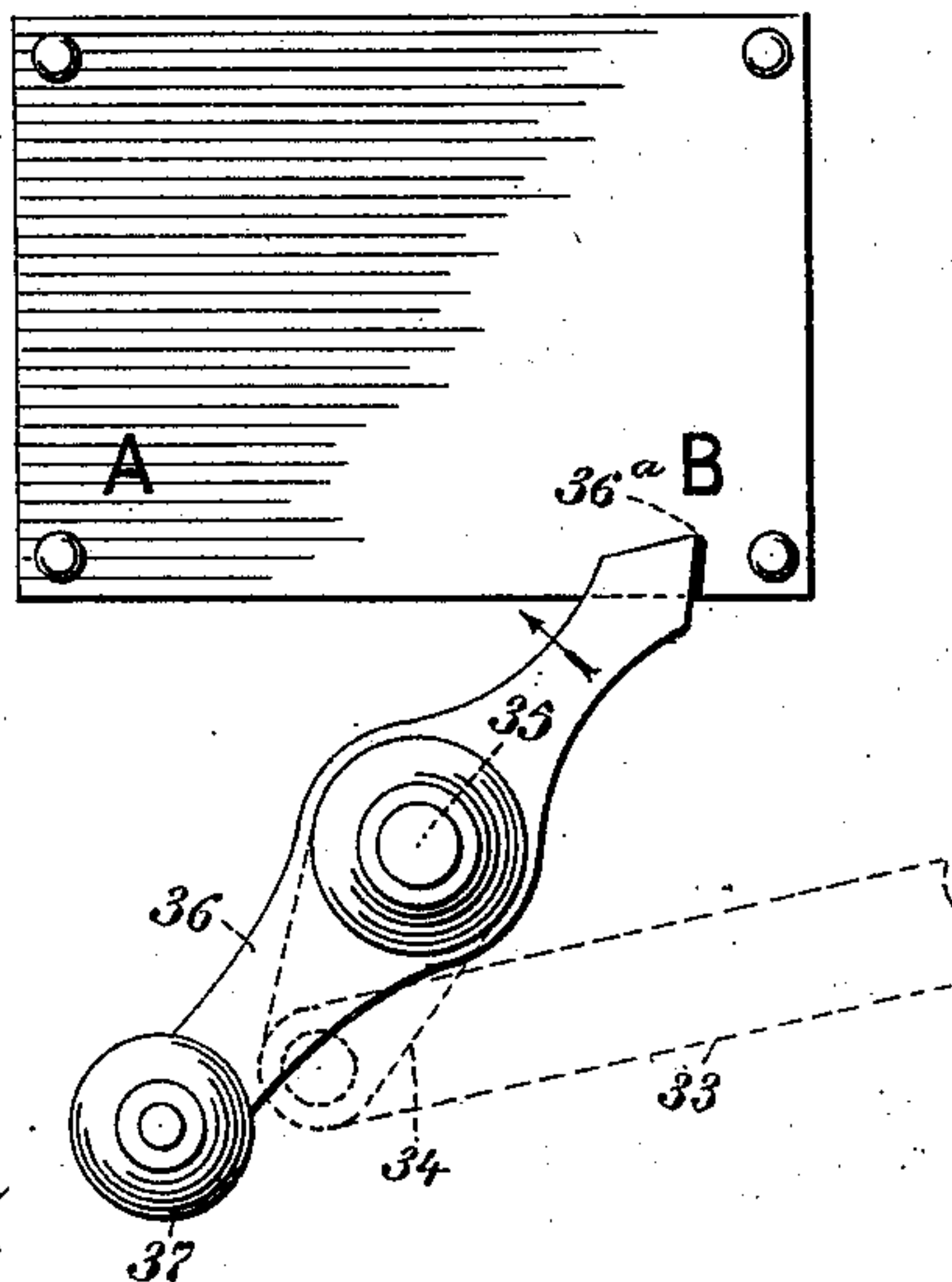


Fig. 8.



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# UNITED STATES PATENT OFFICE.

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REGINA MUSIC BOX COMPANY, OF RAHWAY, NEW JERSEY, A COR-  
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## CARRIAGE-FEED DEVICE FOR MUSIC-BOXES.

SPECIFICATION forming part of Letters Patent No. 757,018, dated April 12, 1904.

Application filed June 27, 1902. Serial No. 113,419. (No model.)

*To all whom it may concern:*

Be it known that I, GUSTAV A. BRACHHAUSEN, a citizen of the United States, residing at Rahway, Union county, State of New Jersey, have invented certain new and useful Improvements in Carriage-Feed Devices for Music-Boxes, of which the following is a specification.

My invention relates to music-boxes, and particularly to that class of music-boxes in which a carriage is employed for successively conveying a plurality of sheets or disks into operative position, so that the instrument may play several tunes in succession.

The object of my present invention is to provide means whereby the carriage may be fed either by hand or automatically and whereby also it becomes possible to interrupt the feeding of the carriage, so that the same piece may be played twice or more, thus providing a repeating action.

The invention will now be described with reference to the accompanying drawings, and the features of novelty will then be pointed out in the appended claims.

Figure 1 is a sectional elevation of my improved music-box from front to rear. Fig. 2 shows a portion of the mechanism on a larger scale than Fig. 1 and is a cross-section taken on line 2 2 of Fig. 3. Fig. 3 is a rear view of the parts shown in Fig. 2. Fig. 4 is a front view of the same parts. Fig. 5 is a sectional elevation on the line 5 5 of Fig. 4. Fig. 6 is a front elevation of the mechanism for carrying the tune-disks to and from the carriage. Fig. 7 is the side view of the same mechanism, and Fig. 8 is an exterior face view of the mechanism for feeding the carriage by hand and for controlling the automatic action of the carriage-feed mechanism.

Upon the frame 1 of the machine are disposed brackets 2, to which are secured on each side longitudinal tracks 3, extending from front to rear. Upon these tracks is adapted to travel the note-sheet carriage. This carriage may be of any suitable construction and, as shown, is provided with rollers 4, journaled in brackets 5, depending from longitudinal

bars 6, connected by cross-bars 7, which are held in place by screws 7<sup>a</sup>. From the longitudinal bars 6 rise rods 8, which are spaced from each other so as to receive between them the note-sheets or tune-disks, this being a well-known construction. Upon the front bar 7 are secured brackets 9, carrying the frame 10 of an indicator. On this frame is secured a plate 13, having a vertical slot 14, and on said plate is arranged to indicate a pointer 15, connected by a pin 16, moving in the slot 14, with a weight or slide 17 arranged in the rear of the frame 10. A cord or wire 18 leads from the weight 17 upwardly over a roller 19, journaled at the top of the frame 10, then downwardly to a roller 20, journaled in a bracket 21, which projects from the front cross-bar 7, and finally to the rear of the box, where it is fastened to a bracket 22 or to any other suitable stationary part. It will be obvious that as the carriage moves backward the indicator 15 will move downward along the plate 13 and will thus indicate which is the piece temporarily in playing position. I have described this indicating mechanism only for the sake of completeness and make no claim in the present application to the indicating mechanism, as this feature forms the subject-matter of another application for patent filed of even date herewith.

I will now describe the mechanism for feeding the carriage, and for the sake of simplicity I will first describe how this mechanism is operated manually.

Rigidly connected with the carriage 6 is a bracket 23, with a rigid arm 24 projected therefrom, said arm having a pivotal connection at 24<sup>a</sup> with a link 25, pivotally connected at 25<sup>a</sup> with a crank-arm 26, fastened upon a vertical rock-shaft 27. The upper portion of this rock-shaft carries another crank-arm, 28, which at its free end is provided with an anti-friction-roller 29 or its equivalent, (see Fig. 3,) which roller fits into a cam-groove 30 in a cam which is mounted loosely upon a shaft 31. Upon this shaft is also mounted rigidly an arm 32, connected, as will be described hereinafter, with a ratchet mechanism for in-



termittently turning the cam 30—that is, when the arm 32 swings in one direction it will turn the cam to a certain extent, while when it moves in the other direction it will leave the cam stationary. The cam 30 is a V-cam, so that as the cam is given an intermittent rotation it will turn the rock-shaft 27 first in one direction and then in the other, thus feeding the carriage forward step by step and then backward. A swinging movement may be imparted to the arm 32 by means of a link 33, pivotally connected with a crank-arm 34 on a short shaft 35, which extends to the outside of the casing. This shaft carries exteriorly of the casing an arm 36, provided with an indicator 36<sup>a</sup> and with a handle 37, by means of which the requisite swinging movement of the arm 32 is obtained. The purpose of the indicator 36<sup>a</sup> will appear hereinafter.

The mechanism for carrying the tune-disks to and from the carriage will now be described.

At each side of the carriage are located shoes 38<sup>a</sup> on holders 38, located at the lower ends of slides 39, preferably provided with antifriction-rollers 39<sup>a</sup>, which bear on stationary vertical tracks 40. These tracks, as shown in Fig. 1, are arranged to coincide with a plane between two adjacent arms or holders 8, and they also practically coincide with the plane in which the tune-disk is held while in its active position. With each of the slides 39 is connected a link 41, as indicated at 41<sup>a</sup>, and these links are connected, as at 42<sup>a</sup>, with crank-arms 42, mounted upon a cross-shaft 43. This shaft also has a central crank 44, connected at 44<sup>a</sup> with a link 45, which is connected at 45<sup>a</sup> with a lever 46. The fulcrum of this lever is indicated at 47, (see Fig. 3,) and at its inner end this lever carries a roller 48, arranged to engage a cam 49 upon a disk 51, which is loosely mounted upon an axle 50. The weight of the parts is sufficient to keep the roller 48 against the cam 49.

It will be understood that in the position shown in Fig. 2 the holders 38 39 will be in their lowermost position. As the disk 51 and cam 49 are rotated by means to be described presently, the cam 49 will cause the outer end of the lever 46 to rise, thus producing a corresponding movement of the holders 38 39 and of the tune-disk carried by them. The mechanism for carrying the note-sheets to and from the carriage is not claimed herein, as it forms the subject-matter of another application for a patent filed by me concurrently herewith.

Upon the disk 51 are secured pivotally at 51<sup>a</sup> pawls 52, the outer ends of which have a pin-and-notch connection 53 and are pulled outward by springs 54. These pawls 52 have their inner ends located in different planes and engage, respectively, ratchet-wheels 55

56, the teeth of which face in opposite directions. These ratchet-wheels are rigid one with the other and are also rigid with a spring-drum 57, to a projection 58 of which they are secured. The drum contains a coiled spring arranged in the usual manner—that is, one end of the spring is secured to the drum and the other end to the axle 50. It will be understood that as the drum rotates it will, as long as the pawls 52 are in engagement with the ratchet-wheels 55 56, turn the disk 51 and cam 49 so as to properly operate the note-disk-conveying mechanism and other devices described hereinafter. The drum 57 also carries rigidly a gear-wheel 59, which at times operates the driving mechanism of the tune-disk, as will be described presently, and also drives, but permanently, the governor mechanism, which may be of any suitable construction. Thus I have shown a pinion 60, meshing with the gear-wheel 59 and mounted on a shaft 61, which also carries a gear-wheel 62, the latter, through any suitable intermediate mechanism, driving the fan-wings 63.

The pin 53, previously mentioned, is adapted to engage a hook 64<sup>a</sup> upon an arm 64 when this arm is thrown in by means that will appear hereinafter. The hook-arm is pivoted at 65<sup>a</sup> upon an arm 65, fulcrumed at 66 upon a suitable part of the frame. A spring 64<sup>b</sup> has a tendency to throw the hook-arm 64 inward. On the shaft 66 is rigidly mounted an arm 67, which a spring 68 tends to pull in such a direction that the upper part of the arm 67 will be carried away from the gear-wheel 59. This upper part of the arm 67 has bearings for the shaft 69, carrying a pinion 70, adapted to mesh with the gear-wheel 59, said pinion being rigid with the driving-disk 71, provided with balls 72 or other suitable mechanism for rotating the tune-disks when in position. At the upper end of the arm 67 is pivotally secured, as at 67<sup>a</sup>, a link 73, pivotally connected at 73<sup>a</sup> with an arm 74, fulcrumed at 74<sup>a</sup> upon a bracket 75. The free lower end of the arm 74 carries a roller 76, which is adapted to project through a slit which is made in tune-disk at the starting-point at the side of the circular series of openings, into which the balls 72 fit. It will be understood that while a piece is being played and the roller 76 is kept in an inner position by engagement with the solid portion of the tune-disk the pinion 70 will engage the gear-wheel 59, and the driving engagement of these parts will not cease until the roller 76 registers with the slit in the tune-disk, when the spring 68 will be allowed to withdraw the pinion 70 from engagement with the driving gear-wheel 59. If, therefore, through carelessness or other cause, a tune-disk has been improperly placed, this tune-disk will be turned partially instead of receiving a full revolution and will come to a stop automatically as soon as it is in the proper position for the next start. The mechanism



controlled by the tune-disk or note-sheet for automatically stopping said sheet at the end of the piece forms the subject-matter of another application filed by me simultaneously herewith, and is therefore not claimed in the present application. On the shaft 66 is further rigidly secured an arm 77, provided at its free end with an inclined face 77<sup>a</sup>, which is adapted to be engaged by a pin 78 on the disk 51. The purpose of this pin is to throw the arm 67 and the pinion 70 inward, so as to start the tune-disk. Of course as soon as the pin 78 clears the inclined face 77<sup>a</sup> the spring 68 tends to throw the pinion 70 out of engagement with the gear-wheel 59; but such movement, as before explained, cannot take place for the reason that the solid portion of the tune-disk engages the roller 76.

The arm 65 is located with its free end adjacent to a short shaft 79, which is provided with a flat surface 80, as indicated by dotted lines in Fig. 2. In the position shown in said figure, which is the position before the start, the arm 65 is so located that the hook of the arm 64 is not in the path of the pin 53. The shaft 79 carries rigidly an arm 81, which is connected by a link 82 with a crank-arm 83 on a shaft 84. This shaft also carries another crank-arm, 85, connected by a link 86 with a repeating-lever 87, mounted loosely on a shaft 88. This shaft carries rigidly a starting-lever 89, which is provided with a downward extension 89<sup>a</sup>, adapted to engage a pin 87<sup>a</sup>, projected from the lever 87. The starting-lever also has a segment 90, which is adapted to engage a pin 91<sup>a</sup> on a stop-arm 91. The latter in the position of rest engages a suitable part of the governor, thereby preventing movement of the entire mechanism. The stop-arm 91 is provided with a cross member 92, which is rigidly secured to an arm 93, fulcrumed at 94. (See Figs. 2 and 3.) The arm 93 has a toe 95, which rides on a cylindrical surface of the drum 57. A spring 85<sup>a</sup> normally pulls the lever 87 down at its left-hand end, Fig. 2, and a spring 97, attached to the frame at 98 and to the arm 93 at 96, has a tendency to keep the toe 95 against the drum 57. When the starting-lever 89 is operated in the ordinary way, it is moved to a central position, so as not to shift the lever 87 and to only throw the stop-arm 91 out of the path of the governor, thereby allowing the spring-drum to rotate. The starting-lever has three positions—one in which it is inoperative, which corresponds to the position of rest, (see Fig. 2,) another in which it starts the mechanism, (central position,) and a third (repeating position) in which after starting the mechanism it throws the carriage-feeding device out of action. When the starting-lever is shifted into the starting position, it comes in operative engagement with the pin 91<sup>a</sup>; but, as stated, it does not engage the pin 87<sup>a</sup>. If the starting-lever is moved farther, so that the extension 89<sup>a</sup>

will engage the pin 87<sup>a</sup>, the lever 87 will be raised, thus exerting a pull on the link 86. This in turn swings the crank-arm 83 on its pivot 84 and through the medium of the link 82 rocks the arm 81. A partial rotation is thus given to the shaft 79, the flat surface 80 of which engages the arm 65. The arm 65 is thus rocked to swing the arm 64 and the hook 64<sup>a</sup> inward, so that at a predetermined point during the revolution of the disk 51 the pin 53 will engage said hook 64<sup>a</sup> and the pawls 52 will be thrown out of engagement with the ratchet-wheels 55 56. As soon as this takes place the disk 51 and all the parts directly connected therewith will of course remain stationary—that is, the mechanism for conveying the sheets to and from the carriage will not be operated and similarly the mechanism for feeding the carriage will be thrown out of action. Thus while the other parts of the mechanism continue to work the tune-disk, which is in the playing position, will remain in such position and the corresponding piece will be repeated as long as the starting-lever 89 remains in the repeating position.

For the purpose of operating the carriage-feed device the disk 51 is provided with a cam portion 99, arranged to operate a roller 100 upon an arm 101, fulcrumed at 102 on the frame of the machine and provided with an extension 103, having a stop-plate 104. It will be understood that when the disk 51 is started the arm 103 will be swung inward, so that its stop-plate 104 will come under the arm 93 and will thus hold the arm 93 in such a position as to keep the stop-arm 91 away from the fan until the roller 100 again drops into the cam-recess 99. A spring 105 is used to press the roller 100 against the disk 51. Rigid with the arms 101 103 are two arms 106 and 110, respectively. The lower end of the arm 106 engages a pawl 107, fulcrumed at 108 upon a stationary part of the machine, and normally maintains the said pawl out of engagement with a ratchet-wheel 109. This pawl is adapted under certain conditions, through the action of a spring, to engage the ratchet-wheel 109, which is rigid with the cam 30, previously mentioned. The arm 110 carries at 111 a pawl 112, also adapted to engage the ratchet-wheel 109, and this pawl is provided with a pin 113, by means of which the said pawl may be held away from the ratchet-wheel by engaging an arm 114, which has two end portions raised relatively to a central recess. In the position of rest shown in Fig. 2 the pawl 112 is out of action, being in engagement with one of the ends of the arm 114, and the central portion of said arm engages a pin 115 on a pawl 116, which is mounted loosely on the fulcrum 108. A spring 117 serves to hold the pawl 116 against the ratchet-wheel unless it is withdrawn therefrom by the end portion of the arm 114. To hold the ratchet-wheel 109 against backward movement, I provide a pawl 118, pivoted on the frame and under the



influence of a spring 119. On the shaft 31 (on which the ratchet-wheel 109 and cam 30 are mounted loosely) I secure rigidly the arm 114, before mentioned, the arm 32, and a crank-arm 120, provided with a feed-pawl 121, under the influence of a spring 122 and pivoted at 120<sup>a</sup>. With the arm 114 in the position illustrated by Fig. 2 the automatic carriage-feed is out of action. This will be obvious upon considering that when the arms 106 110 are swung outward by the action of the cam 99 the pin 113 simply rides on the end of the arm 114 without engaging the ratchet-wheel 109, and the pawls 107 116 simply hold the ratchet-wheel against accidental forward movement as long as the arm 114 remains in this position. When, however, the handle 37 is left in such a position that the central depressed portion of the arm 114 will be engaged by the pin 113—that is, when the index 36<sup>a</sup> points to A in Fig. 8—it will be seen that the pawl 112 will be in engagement with the ratchet-wheel 109, while the pawl 116 will be moved out of engagement with said ratchet-wheel, since the pin 115 will rest upon the end portion of the arm 114. When, therefore, the parts are in this position and the cam 99 causes the arms 106 and 110 to swing outward, the pawl 112 will feed the said ratchet-wheel 109, and the pawl 107 will be allowed to drop in between two teeth of the ratchet-wheel, and will thus limit the feed-movement. There will thus occur a step-by-step motion of the carriage, one step for each revolution of the disk 51, which corresponds to one revolution of the note-sheet. Of course when it is desired to repeat a piece of music the handle 37 must be left in such a position (index 36<sup>a</sup> at B, Fig. 8) that the arm 114 will stand as indicated in Fig. 2, so that the automatic carriage-feed device will be out of action. The manual feed of the carriage is produced, as hereinbefore described, by rocking the handle 37 to and fro, which imparts a similar motion not only to the feed-pawl 121, but to the arm 114. The motion is at first contrary to the feed direction from the position in Fig. 2, so that the pawl 121 slips over the ratchet-wheel 109, and during this movement the arm 114 is so shifted as to bring the pawl 112 into engagement with the ratchet-wheel and the pawl 116 out of engagement therewith. Then the feed movement occurs, at the end of which the parts again reach the position shown in Fig. 2.

Any suitable mechanism may be employed for holding the note-sheets in position while they are being rotated, and in the drawings I have only indicated some parts of the mechanism usually employed for this purpose.

123 is a transverse rod provided with rollers 124 and carried by arms 125. 126 is a central bearing-plate, which may be pulled inward by a connection 127, operated by an arm 128, fulcrumed on a two-armed collar 129, the lower

arm of which, 130, is connected with a central point 130<sup>a</sup>, adapted to fit the opening at the center of the note-disk. A link 131 is connected with the arm 128 and with another arm 132, carrying a guide-roller 133, to prevent excessive buckling of the note-sheet. These parts are operated through the medium of a crank 134 on a shaft 135, provided with a roller 136, operated by a cam 137 on the disk 51.

The operation of the music-box when it is desired to repeat the same tune is as follows: The handle 37 and the parts connected therewith are placed on the position shown in Figs. 1, 2, and 8 and the starting-lever 89 is thrown fully over, so that it will engage not only the pin 91<sup>a</sup>, but also the pin 87<sup>a</sup>. By its action on the pin 91<sup>a</sup> the starting-lever throws the stop-arm 91 away from the governor, and thus allows the spring-drum to rotate. The drum in its rotation will through the medium of the pawls 52 carry the disk 51 along with it. As soon as this disk begins to rotate the cam 99 will swing the arms 101, 103, 106, and 110 on their pivot 102, and will thus bring the plate 104 under the arm 93, so as to hold the stop-arm 91 out of engagement with the governor during a complete revolution of the disk 51. The movement of the arms 106 and 110 will in this particular case be without any effect. The disk 51 in its rotation by means of the cam 49 swings the lever 46 so as to carry a note-sheet from the carriage to the playing position. At the time the sheet reaches this position the cam 137 becomes operative to clamp the said sheet and to center it on the pivot 130<sup>a</sup>, and at about the same time the pin 78 on the disk 51 engages the inclined face 77<sup>a</sup>, thereby swinging the pinion 70 into driving engagement with the gear-wheel 59. The note-sheet will then begin to rotate, and the driving engagement of the wheels 59 70 will be preserved even after the pin 78 has cleared the inclined face 77<sup>a</sup> by the action of the solid portion of the note-sheet on the roller 76. Toward the end of a complete revolution the pin 53 will engage the hook 64<sup>a</sup>, which, as before described, is in its inner position, and thus the pawls 52 will be thrown out of engagement with the ratchet-wheels 55 56, and the disk 51 will be stopped. The only parts which then continue to move are the drum, with the wheel 59, which remains in mesh with the pinion 70, and it follows that the note-sheet will continue to be rotated, and thus the same piece will be repeated. If the starting-lever 89 is moved back to the initial or stop position, the hook 64<sup>a</sup> will be swung outward, so as to again allow the pawls 52 to engage the ratchet-wheels 55 56, and the continued rotation of the disk and of the cams connected therewith will restore the parts to their original position in the following manner: When the end of the piece is reached, the roller 76 will project through the slit provided in the note-sheet for this pur-



pose. This will throw the pinion 70 out of mesh with the gear-wheel 59 and will stop the rotation of the note-sheet. At the same time the roller 136 will drop into the recess of the cam 137, thus releasing the note-sheet from its clamping devices. Thereupon the cam 49 will by its action on the roller 48 allow the slides 39 to move downward, so as to convey the sheet back to the carriage. This is the operation when the music-box is desired to repeat the same piece. When it is desired to change the pieces automatically, the handle 37 is thrown over into its other position, as indicated by the arrow in Fig. 9, and the starting-lever instead of being thrown fully over is moved only half-way into the starting position. With this adjustment of parts the hook 64<sup>a</sup> will always remain in its outer position except when it is thrown inward for a brief period by the engagement of the pin 78 with the inclined surface 77<sup>a</sup>. At this time, however, the pin 53 will be quite a distance away from the hook 64<sup>a</sup>, so that said hook will remain inactive altogether. The operation will therefore be substantially as before described except that the disk 51 will always remain in driving connection with the spring-drum, and therefore as soon as the note-sheet has received a complete revolution the roller 76 will spring outward to stop the note-sheet, which will then be released and conveyed back to the carriage. When the note-sheet has again reached the carriage, the roller 100 drops into the recess of the cam 99, and the pawl 112 slips back over the teeth of the ratchet-wheel 109. The feeding of this ratchet-wheel and of the carriage takes place at the beginning when the cam 99 gives the pawl 112 its feed throw. The indicator 15 always enables a person to tell at a glance which piece is in the playing position.

I desire it to be understood that I do not restrict myself to the specific construction shown in the drawings, but that various modifications may be made without departing from the nature of my invention.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a music-box, the combination with the driving mechanism for the note-sheet, of a carriage arranged to hold a plurality of note-sheets, means for feeding said carriage, means for conveying the note-sheets to and from the carriage, and means for connecting the said driving mechanism with the carriage-feed device and with the note-sheet conveying device, or disconnecting the said driving mechanism therefrom, so that the note-sheets may be changed or the same note-sheet played over, as desired.

2. In a music-box, the combination with a driving mechanism comprising a driving drum, and a note-sheet-driving device arranged to coöperate with said drum, of means for throwing the note-sheet-driving device into

and out of operative connection with the drum, a carriage arranged to hold a plurality of note-sheets, mechanism for feeding the carriage, mechanism for conveying the note-sheets to and from the carriage, an operating device for said feed mechanism and conveying mechanism, means for connecting said operating mechanism with the driving-drum, and means for disconnecting the driving-drum from said mechanism.

3. In a music-box, the combination with a driving mechanism comprising a driving-drum, and a driving device for the note-sheet, of means for controlling the operative connection of said driving device with the drum, a note-sheet-changing device, an operating device therefor, means for connecting said operating device with the driving-drum, and means for disconnecting the operating device from the driving-drum.

4. In a music-box, the combination with a drum having operative connections to drive a note-sheet, and a ratchet-wheel held to turn therewith, of a disk mounted to turn about the same axis as the drum, but loose relatively thereto, a pawl mounted on said disk and arranged to engage the ratchet-wheel so as to connect the said disk with the drum, means for throwing the pawl out of engagement with the ratchet-wheel, and a note-sheet-changing device actuated by said disk.

5. In a music-box, the combination with a drum having operative connections to drive a note-sheet, a note-sheet-changing device, an operating-disk for said note-sheet-changing device, said disk being mounted loosely in relation to the drum, means for connecting the operating-disk with the drum so that they will revolve together, and a movable disconnecting device arranged to project into the path of said connecting means and to free the disk from the drum.

6. In a music-box, the combination with the driving mechanism for the note-sheet, of a carriage arranged to hold a plurality of note-sheets, hand-operated mechanism for feeding the carriage, automatic mechanism likewise arranged to feed the carriage, and a controlling-arm connected with the hand-operated mechanism and arranged to engage the automatic mechanism in such a manner as to throw the latter mechanism out of action in a certain position of said arm.

7. In a music-box, the combination with the driving mechanism for the note-sheet, of a carriage arranged to hold a plurality of note-sheets, hand-operated means for feeding the carriage, automatic mechanism for feeding the carriage, a controlling-arm operatively connected with the hand-operated mechanism and arranged to throw the automatic mechanism out of action, automatic mechanism for conveying the note-sheets to and from the carriage, and means controlling the connection of said automatic mechanism with the driving



mechanism, whereby said automatic mechanism may be thrown out of action while the driving mechanism of the note-sheet remains in action.

5 8. In a music-box, the combination with the driving mechanism for the note-sheet, of a carriage arranged to hold a plurality of note-sheets, a carriage-feed device, pawls extending in opposite directions and arranged to  
10 drive the carriage-feed device, and to arrest it respectively, connected arms for operating said pawls, and means for imparting a rocking motion to said arms from the said driving mechanism.

15 9. In a music-box, the combination of the driving mechanism for the note-sheet, mechanism for normally arresting said driving mechanism, a starting device for throwing said arresting means out of action, a stop arranged  
20 to temporarily keep the starting device in its releasing position, a carriage-feed device, which, together with said stop, is actuated by the driving mechanism, and a note-sheet carriage operated by said feed device.

25 10. In a music-box, the combination with the driving mechanism for the note-sheet, of a carriage arranged to hold a plurality of note-sheets, a carriage-feed device, a device for conveying the note-sheets to and from the carriage,  
30 an operating-disk controlling said carriage-feed device and conveying device, means for normally connecting said operating-disk with the driving mechanism, a device for disconnecting the operating-disk from the driv-

ing mechanism, and a starting-lever, having 35 means for releasing the driving mechanism by the initial movement of said lever so as to cause the operation of the note-sheet, the conveying device and the carriage-feed device, and means operative upon a further move- 40 ment of the starting-lever, for throwing the disconnecting device into action so as to render the conveying device and the carriage-feed device inactive.

11. In a music-box, the combination with the 45 driving mechanism for the note-sheet, of a note-sheet-changing device, operating mechanism therefor, means for normally connecting said operating mechanism with the driving means, a disconnecting device for freeing 50 the said operating mechanism from the driving mechanism, and a starting-lever, having means for releasing the driving mechanism, by the initial movement of said lever so as to cause the operation of the note-sheet and the 55 note-sheet-changing device, and means operative upon a further movement of the starting-lever bringing the disconnecting device into action so as to interrupt the operation of the note-sheet-changing device. 60

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

GUSTAV A. BRACHHAUSEN.

Witnesses:

EUGENE EBLE,  
JOHN LOTKA.