

No. 631,912.

Patented Aug. 29, 1899.

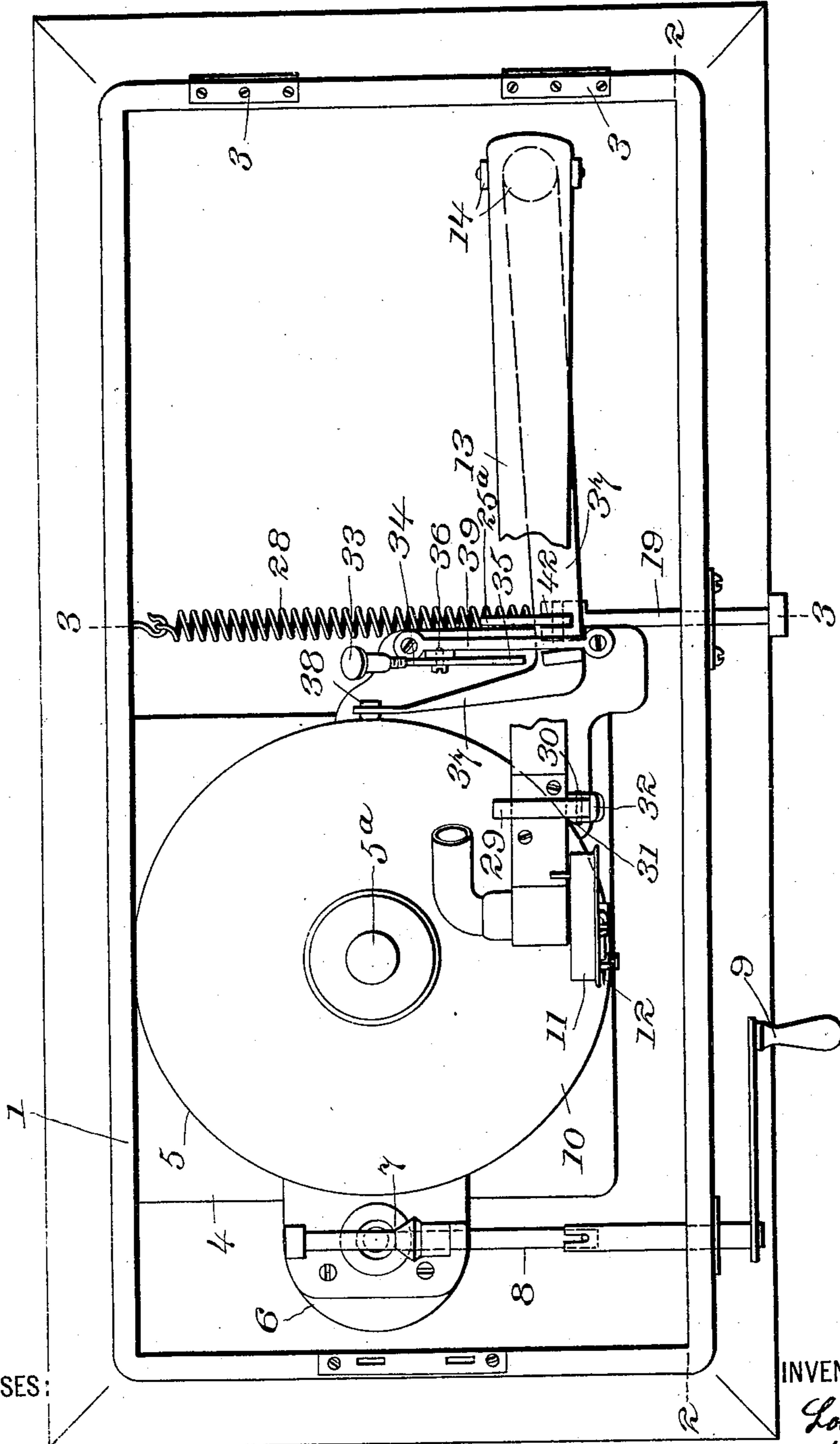
L. P. VALIQUET.
AUTOMATIC GRAMOPHONE.

(Application filed Apr. 6, 1899.)

5 Sheets—Sheet 1.

(No Model.)

Fig. 1.



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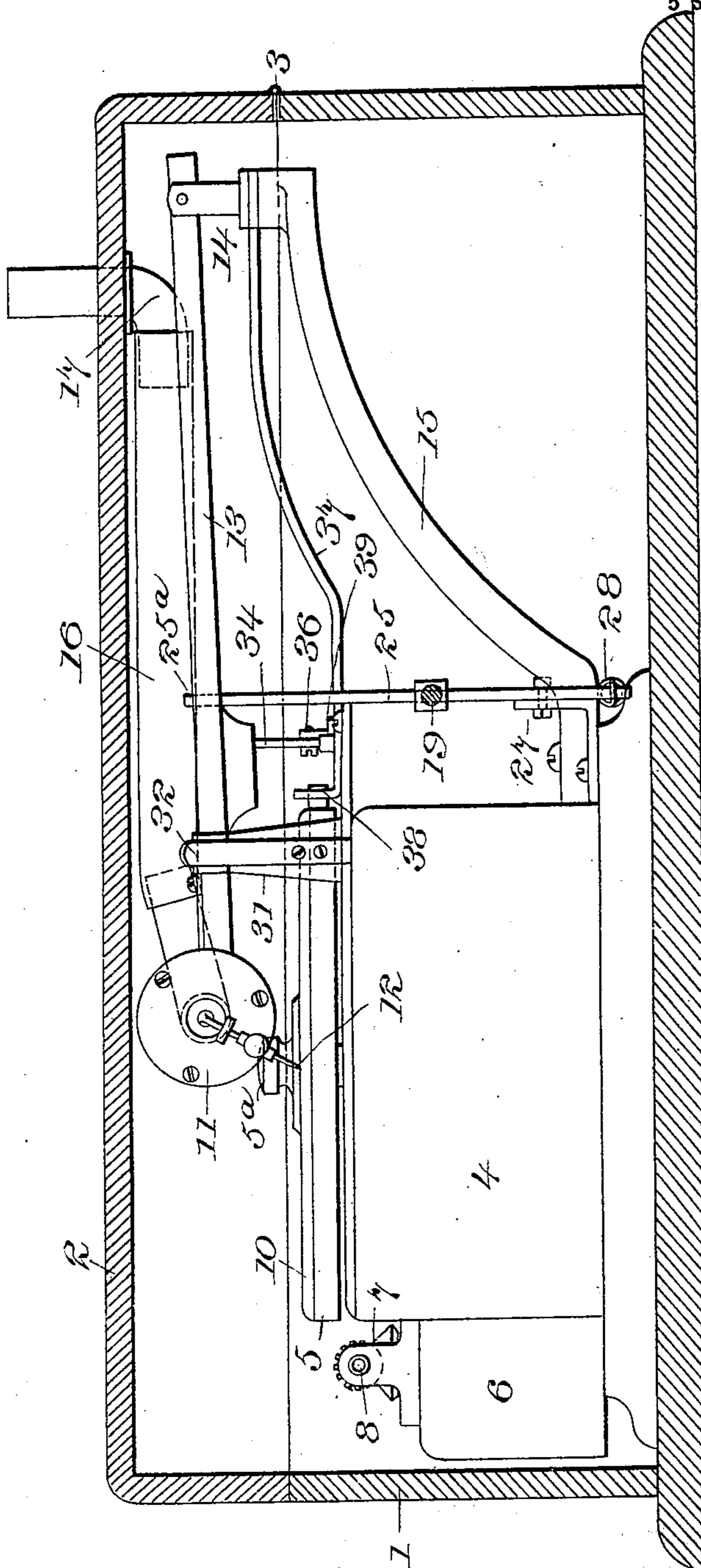
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Fig. 2.



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Fig. 3.

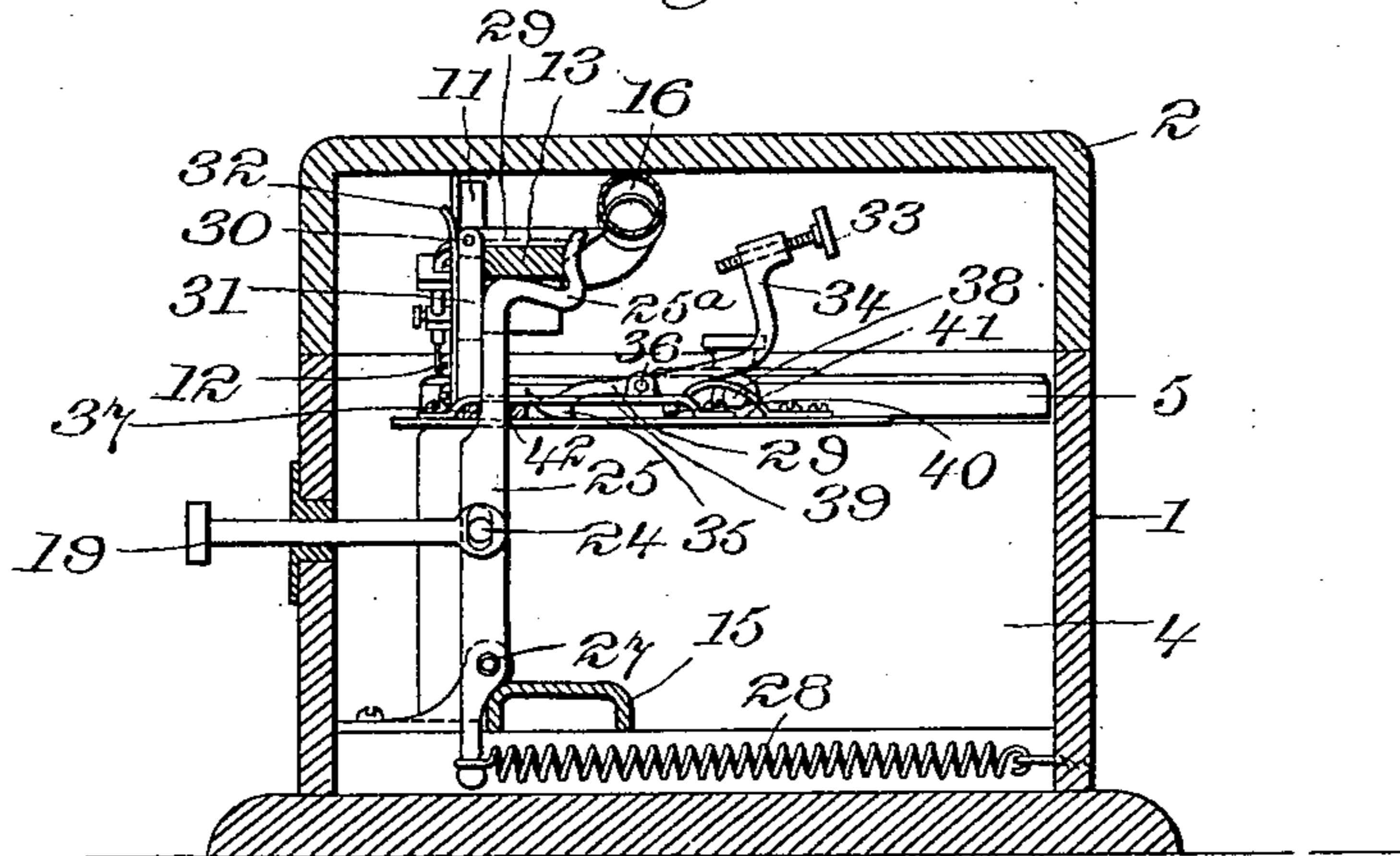
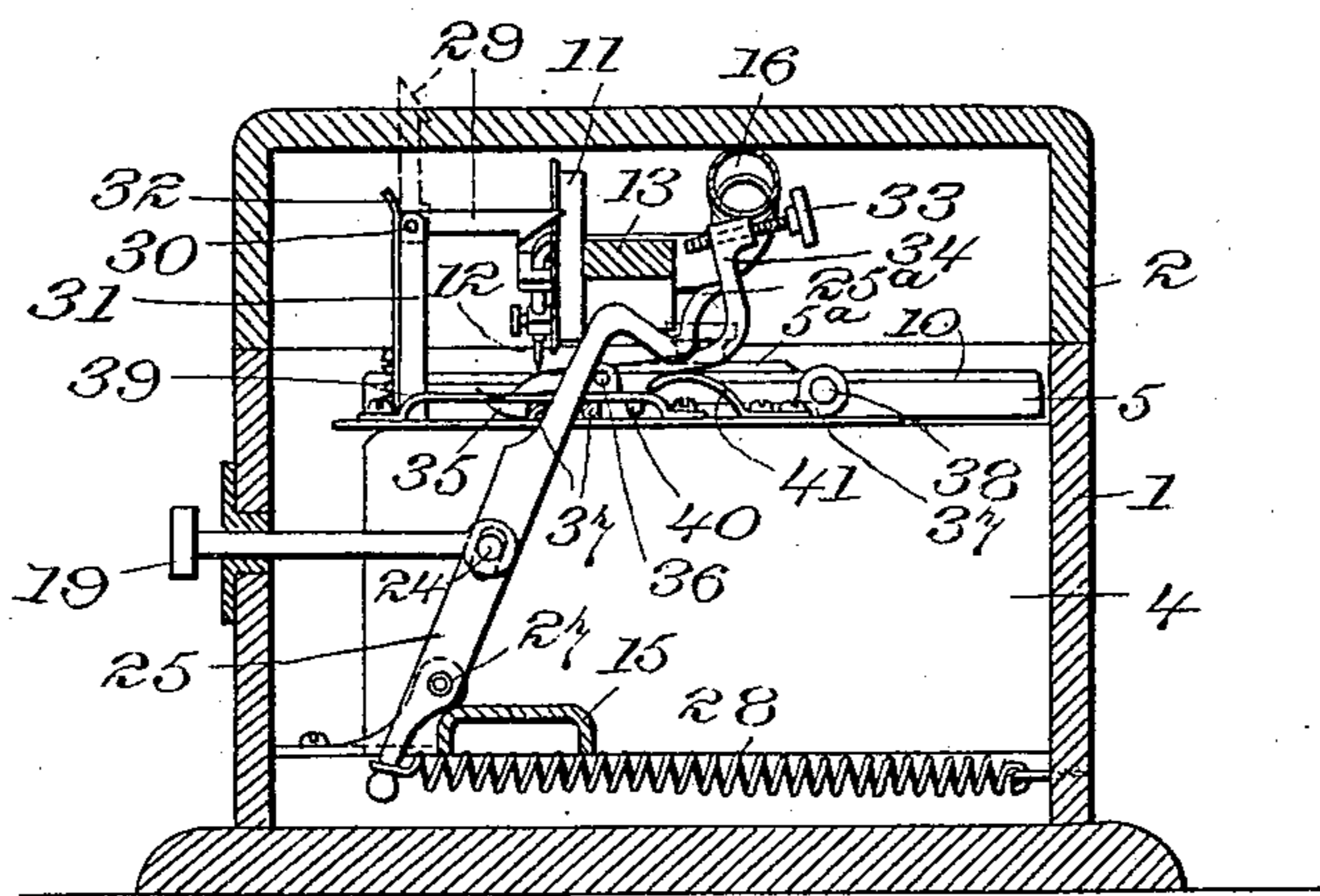


Fig. 4.



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Patented Aug. 29, 1899.

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AUTOMATIC GRAMOPHONE.

(Application filed Apr. 8, 1899.)

(No Model.)

5 Sheets—Sheet 4.

Fig. 5.

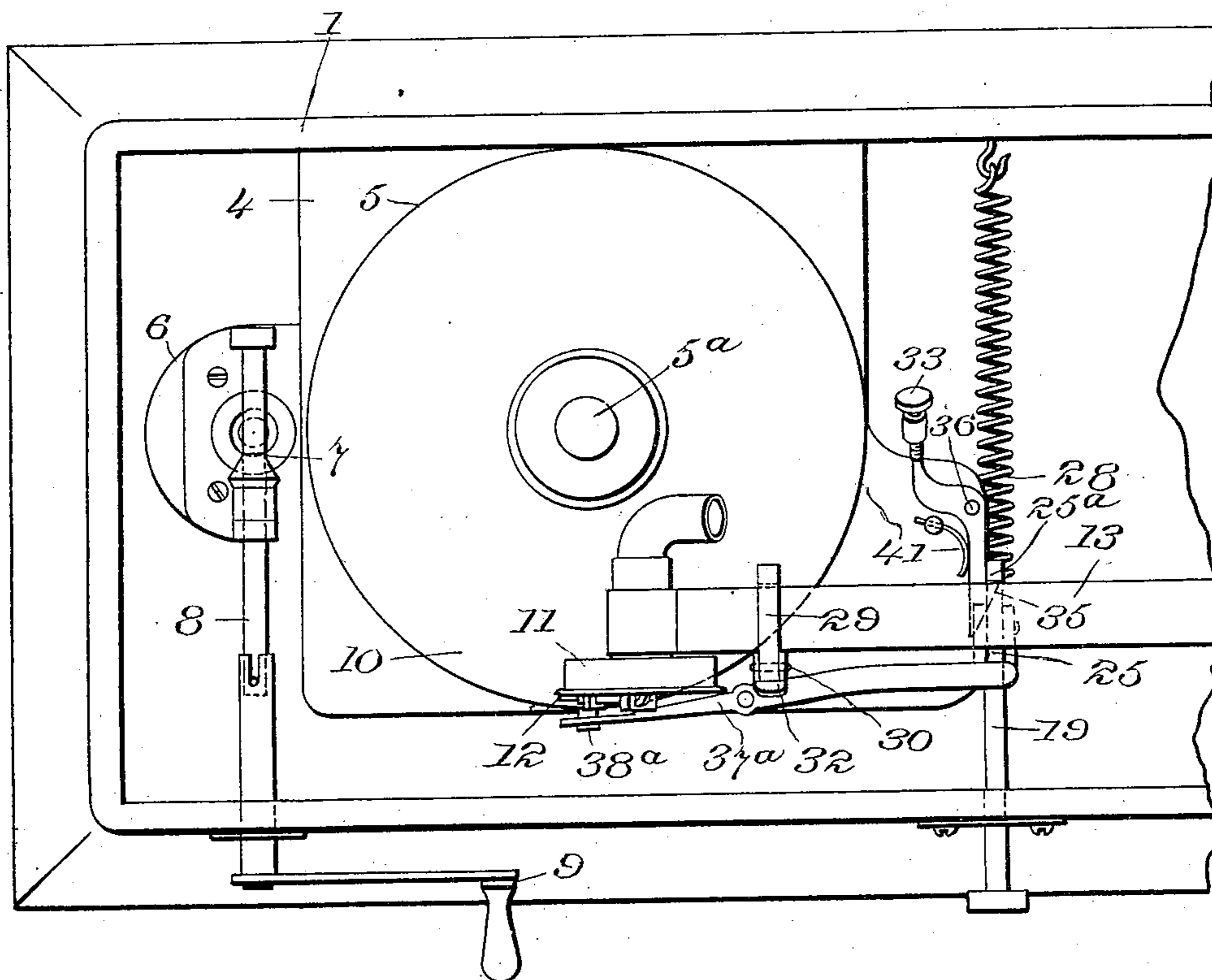
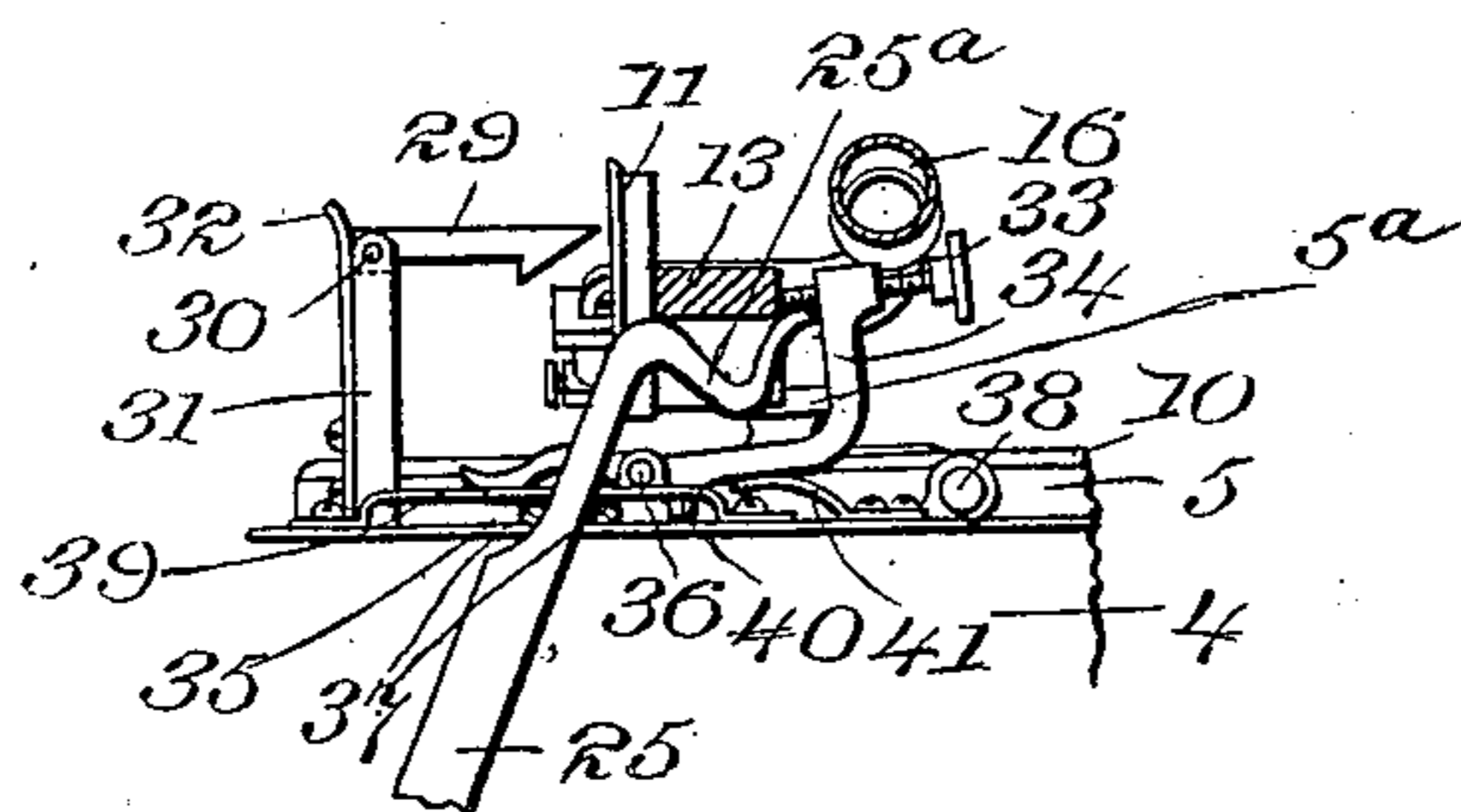


Fig. 6.



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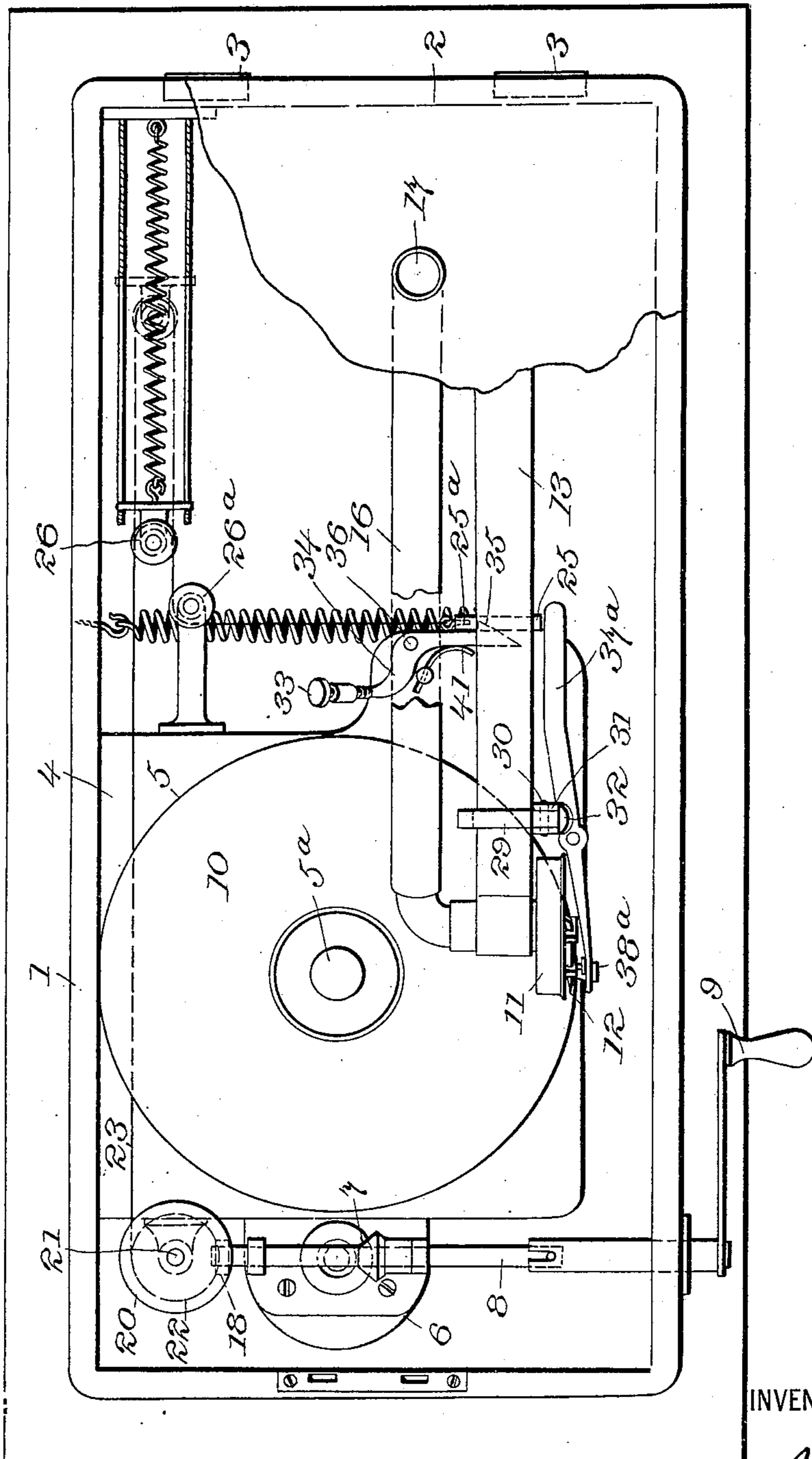
L. P. VALIQUET.
AUTOMATIC GRAMOPHONE.

(Application filed Apr. 6, 1899.)

(No Model.)

5 Sheets—Sheet 5.

Fig. 4.



WITNESSES:

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UNITED STATES PATENT OFFICE.

LOUIS P. VALIQUET, OF NEW YORK, N. Y.

AUTOMATIC GRAMOPHONE.

SPECIFICATION forming part of Letters Patent No. 631,912, dated August 29, 1899.

Application filed April 6, 1899. Serial No. 711,899. (No model.)

To all whom it may concern:

Be it known that I, LOUIS P. VALIQUET, a citizen of the United States of America, and a resident of New York city, New York county, State of New York, have invented certain new and useful Improvements in Automatic Gramophones, of which the following is a specification.

My invention relates to automatically-operating devices generally, and is more specifically designed to produce a mechanism for automatically operating what is known as the "gramophone."

My invention has many of the features of construction and principles of operation described in my application, Serial No. 694,824, filed October 28, 1898, but is designed to be thrown into operation by means other than coin-operated mechanism.

The preferred form of apparatus embodying my invention is illustrated in the accompanying five sheets of drawings, in which—

Figure 1 is a plan view of the apparatus with the top of the case containing the same removed and a portion of the needle-carrying arm broken away. Fig. 2 is a vertical section on line 2 2 of Fig. 1. Fig. 3 is a section on lines 3 3 of Fig. 1, showing the needle-carrying arm in its initial position and the mechanism at rest. Fig. 4 is a similar section showing the gramophone in operation, the parts being in the position occupied by them just before the return mechanism is tripped into operation. Fig. 5 shows a modified form of brake-lever. Fig. 6 is a diagrammatic detail showing the retaining device just after it has been tripped and the return mechanism released and starting into operation to return the needle-carrying arm to the initial position shown in Fig. 3. Fig. 7 shows a modification in which the winding up of the motor sets and trips the mechanism.

Throughout the drawings like reference-figures refer to like parts.

I have shown the gramophone and attached mechanism in a casing 1, having a hinged cover 2, attached to the casing by the hinges 3 3 at one end. A sliding or other form of movable cover might of course be employed.

The gramophone has the ordinary form of base 4, containing rotating mechanism, (not shown,) on which the rotating table 5 is

mounted. A spring-motor of any desirable form (not shown) is located in the addition 6 of said gramophone-base. This motor is wound up by means of bevel-gears 7, a shaft 8, and winding-handle 9, the latter being outside of the casing 1. On the rotating table is the ordinary gramophone-record 10, clamped thereon by a thumb-screw 5^a in the usual manner, so as to rotate therewith. On this record rests the reproducing-needle 12 of the sound-box 11, carried by the swinging arm 13, said arm being mounted by a universal joint 14 on the pivot-bracket 15, fastened to the gramophone-base, all in the usual and well-known manner, when the machine is in operation and reproducing sounds from the record.

16 is a piece of tubing of rubber or other flexible material extending from the sound-box 11 to the elbow-shaped tube 17, which extends through the cover of the surrounding casing and to which an ordinary horn may be connected.

The pusher 19 is normally held back by the spring 28 or equivalent elastic device. This pusher is preferably connected to the lever 25 by means of the pin-and-slot connection 24. This lever 25 is pivoted on the bearings 27 in the bottom of the case 1 and so controlled by the spring 28 that its upper hook-shaped end 25^a is against the swinging arm 13 and under the same when the said arm is in its initial position against the stop 31. The pivoted catch 29, mounted on the stop 31 by the pivotal joint 30 and controlled by the back spring 32, overhangs and engages with the swinging arm 13 when the latter is supported in its initial position by the spring-controlled hook-shaped lever 25 in the manner above described.

The lever 25 engages with a horizontally-swinging brake-lever 37, pivoted on the end of the bracket 15 and carrying the brake-shoe 38, which engages the rotating table 5 when the spring-controlled lever 25 is in the position shown in Fig. 3 to hold up the needle-carrying arm 13. This engagement is preferably secured by passing the lever 25 through a slot 42 in the said brake-lever.

A modified construction is shown in Fig. 5, in which the brake-lever 37 is removed, and a lever 37^a is pivoted on the gramophone-base,

one end of the lever carrying the brake-shoe 38^a, while the other end is struck by the spring-controlled lever 25 (upon its return) to apply the brake. In this case the guide 5 39 is also dispensed with. The spring-controlled lever 25 operates exactly as in the other construction. Instead of carrying the lever 37, however, with it in its movement it merely strikes the end of the lever 37^a, when 10 it returns the swinging needle-carrying arm to its original position, and thereby forces on the brake 38^a. Of course when the swinging lever 25 is forced out from under the needle-carrying arm it leaves the end of the brake-lever 37^a, and all pressure is removed from 15 the brake-shoe 38^a, so that the machine is free to operate.

34 is a retaining device in the form of a dog pivoted at 36 and having a nose 35 arranged to slide over and grasp the brake-lever 37, thereby retaining the same and the lever 25 in a position out from under the needle-carrying arm.

33 is an adjustable screw mounted in the 25 tail of the dog 34 and located in the line of travel of the needle-carrying arm 13, as the same is fed along by the sound-record during the operation of the machine.

41 is a spring tending to hold the dog 34 30 down in engagement with the brake-lever 37, and 40 is a lug on the dog 34, projecting down in the path of the brake-lever 37 and so located with reference to the pivot 36 of said dog that when the brake-lever strikes the 35 lug it positively pulls the nose of the dog 35 down behind the brake-lever, thus assisting the action of the spring 41.

39 is a guide for the brake-lever.

The operation of my invention is as follows: The cover 2 of the casing being closed 40 and the parts of the mechanism being in the position shown in Figs. 1 and 3, the operator first winds up the spring-motor by means of the handle 9 and then forces in the pusher 45 19, which forces the spring-controlled lever 25 to the right, Figs. 3 and 4. As the spring-controlled lever 25 goes over it carries with it the brake-lever 37, until the latter has passed under the nose 35 on the retaining-dog 34, which immediately slips down behind 50 said brake-lever. When the operator removes pressure from the pusher 19, the spring 28 forces the lever 25 back against the nose 35 of the dog 34, which holds it in the position shown in Fig. 4. When the hook-shaped supporting end 25^a is forced over to the right, as above described, the swinging arm 13 is prevented from traveling with it by the pivoted spring-catch 29. When the hook-shaped 60 lever has passed out from under the swinging arm, the latter is free to drop down and the reproducing-needle 12 engages with the record 10. The brake-shoe 38 having been withdrawn from the rotating table 5 by the first 65 motion of the lever 25, said table and record carried thereby are already in rotation by the time the reproducing-needle comes down on

the record and the gramophone begins to operate, reproducing sound, which is delivered 70 through the tube 17. As the needle and sound-box are fed across the record by the action of the same in the well-known way the swinging arm 13 travels toward the adjustable screw 33, mounted in the tail of the dog 75 34. Said screw is so adjusted that the arm will strike it when the needle has reached the end of the record. A slight further movement of the swinging arm depresses the rear portion of the dog 34 against the spring 41 80 and lifts the nose 35 of the dog 34 from behind the brake-lever 37, as shown in Fig. 6. The spring 28 immediately acts to force said lever 25 back into the position shown in Fig. 3. On the way the hook-shaped end 25^a picks 85 up the needle-arm 13 and carries it back under the spring-catch 29 and holds it there in its initial position ready for a repetition of the operation. The same movement of the lever 25 has forced the brake-shoe 38 up 90 against the rotating table 5 and stops the rotation of the same. It has also forced out the pusher 19, ready for another operation. It is evident that if the pusher 19 be forced 95 in rapidly, so that under ordinary circumstances the brake-lever 37 might be forced back again by the spring 28 before the retaining device could recover from the shock and the violent throwing up of the nose 35 of 100 the dog and could respond under the action of the spring 41 to seize and retain said brake-lever, the very fact of the rapid movement of the parts thus described will carry the brake-lever beyond its normal travel up 105 against the lug 40 and so positively pull the dog 34 down into operative position and insure the retention of said brake-lever and connected parts in the position shown in Fig. 4, until tripped by the needle-carrying arm at the end of a complete operation of the 110 gramophone.

It is evident, of course, that many different agencies for setting the apparatus might be substituted for the manually-operated pusher 19. One such I have shown in Fig. 7. The shaft 8 is extended, and a friction-wheel 115 18 runs under the friction-plate 20. This plate is mounted on a vertical shaft 21, which carries the drum 22. On this drum winds the cord 23, which passes around the spring-controlled pulley 26 and the fast pulley 26^a to 120 the lever 25. When the motor in compartment 6 is wound up, the shaft 21 is revolved and cord 23 wound up. The spring-controlled pulley is in the full-lined position. The winding therefore pulls lever 25 over to the position shown in Fig. 4, and the machine is ready 125 to operate. Further winding does not break the cord 23, because the friction-wheel 18 slips under the plate 20. When the operator stops winding, the gramophone begins to operate. The cord 23 is unwound from drum 130 22, the slack being taken up by spring-pulley 26, which moves into dotted-line position. When the lever 25 is tripped at the

end of the record, and flies back to position of Fig. 3, the spring-pulley 26 gives up the necessary slack to accommodate this motion, returning to full-line position; and all is ready for a repetition of the cycle of operation. The parts are so proportioned that with the winding necessary to run the shortest record the cord 23 will be taken up the amount needed to carry the lever 25 over to catch under the dog 34. When winding for longer records, the slip in the friction connection allows for excess motion. The spring-controlling pulley 26 must of course be a weak one, just strong enough to take up the cord.

The advantages of my invention result from the certainty of operation under all conditions, from the simplicity and cheapness of the apparatus employed, and from the rapidity of the return-feed action, which is practically instantaneous. It is also extremely convenient of manipulation, as by throwing up the pivoted catch 29 into the position shown in dotted lines in Fig. 4 the needle-carrying arm can be lifted out of engagement with the hook 25^a and swung to one side for changing the records, putting in a new needle, and making other adjustments.

It is evident that various changes could be made in the details of the apparatus described without departing from the spirit and scope of my invention so long as the general relative arrangement of parts shown in the drawings or the general principle of operation set forth in the specification is preserved. Weights might be substituted for springs, and other forms of moving parts might be substituted for the levers. Other agencies might operate the lever 25, other friction-couplings be used, &c.; but all these variations I consider within the general scope of my invention.

Having therefore described my invention, what I claim as new, and desire to protect by Letters Patent, is—

1. In a talking-machine the combination of the reproducing-needle and a lever which returns the reproducing-needle from its position at the end of the record to its initial position, after the operation of the talking-machine, and supports said needle in such position out of engagement with the record.

2. In a talking-machine the combination of the reproducing-needle and a lever which returns the reproducing-needle from its position at the end of the record to its initial position after the operation of the talking-machine and supports said needle in such position out of engagement with the record, together with a spring which normally holds said lever under and in engagement with the needle-carrying arm.

3. In a talking-machine the combination of the rotating table, the reproducing-needle a brake for the rotating table, a swinging needle-carrying arm, a lever which directly sup-

ports the needle-carrying arm so that the needle is held out of engagement with the record, and connections whereby the movement of the lever out from under the needle-carrying arm, releases the brake.

4. In combination with a gramophone, a lever for returning and supporting the needle-carrying arm of said gramophone, and the brake-lever for the gramophone operated by said first-mentioned lever.

5. In combination with a gramophone and the needle-carrying arm thereof, the hook-shaped lever normally supporting the needle-carrying arm of said gramophone, the pivot catch-lever overhanging the normal position of the said swinging arm when supported by the hook-shaped lever, and the back spring controlling said catch-lever.

6. In combination with a gramophone the swinging arm and reproducing-needle thereof a lever which returns the swinging arm and reproducing-needle of said gramophone to their initial position after the operation of the gramophone and supports said needle in such position out of engagement with the record, and the stop for said needle-carrying arm and overhanging spring-catch for said arm.

7. In a talking-machine the combination of the reproducing-needle, a lever which returns the reproducing-needle to its initial position after the operation of the talking-machine and supports said needle in such position out of engagement with the record, a winding-shaft for said talking-machine, and connecting means between the shaft and the first-mentioned lever.

8. In a talking-machine the combination of the winding-shaft therefor, the reproducing-needle, a lever which returns the reproducing-needle to its initial position after the operation of the talking-machine, and supports said needle in such position out of engagement with the record, a cord connected to the first-mentioned lever and means operated by the winding-shaft to wind up said cord.

9. In a talking-machine the combination of the winding-shaft therefor, the reproducing-needle, a lever which returns the reproducing-needle to its initial position after the operation of the talking-machine, and supports said needle in such position out of engagement with the record, a cord connected to the first-mentioned lever and means operated by the winding-shaft to wind up said cord, together with spring mechanism for taking up any slack in said cord.

10. In a talking-machine the combination of the reproducing-needle, a lever which returns the reproducing-needle to its initial position after the operation of the talking-machine and supports said needle in such position out of engagement with the record, a spring which normally holds said lever under and in engagement with the needle-carrying arm, means for winding up the talking-ma-

chine motor, and connections whereby said winding means moves the lever in opposition to the spring.

11. In a talking-machine the combination
5 of the reproducing-needle, a lever which returns the reproducing-needle to its initial position after the operation of the talking-machine and supports said needle in such position out of engagement with the record, a
10 spring which normally holds said lever under and in engagement with the needle-carrying

arm, a winding-shaft for the talking-machine, a cord connected to the lever, and means operated by the winding-shaft for winding up the cord in a direction to pull the lever in op- 15 position to the spring.

Signed by me at New York city, New York, this 3d day of April, 1899.

LOUIS P. VALIQUET.

Witnesses:

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