No. 850,036. PATENTED APR. 9, 1907.

G. MORIN.

TELEGRAPHONE.

APPLICATION FILED JUNE 6, 1906. RENEWED SEPT. 27, 1906.

2 SHEETS—SHEET 1.

FIG. 1.

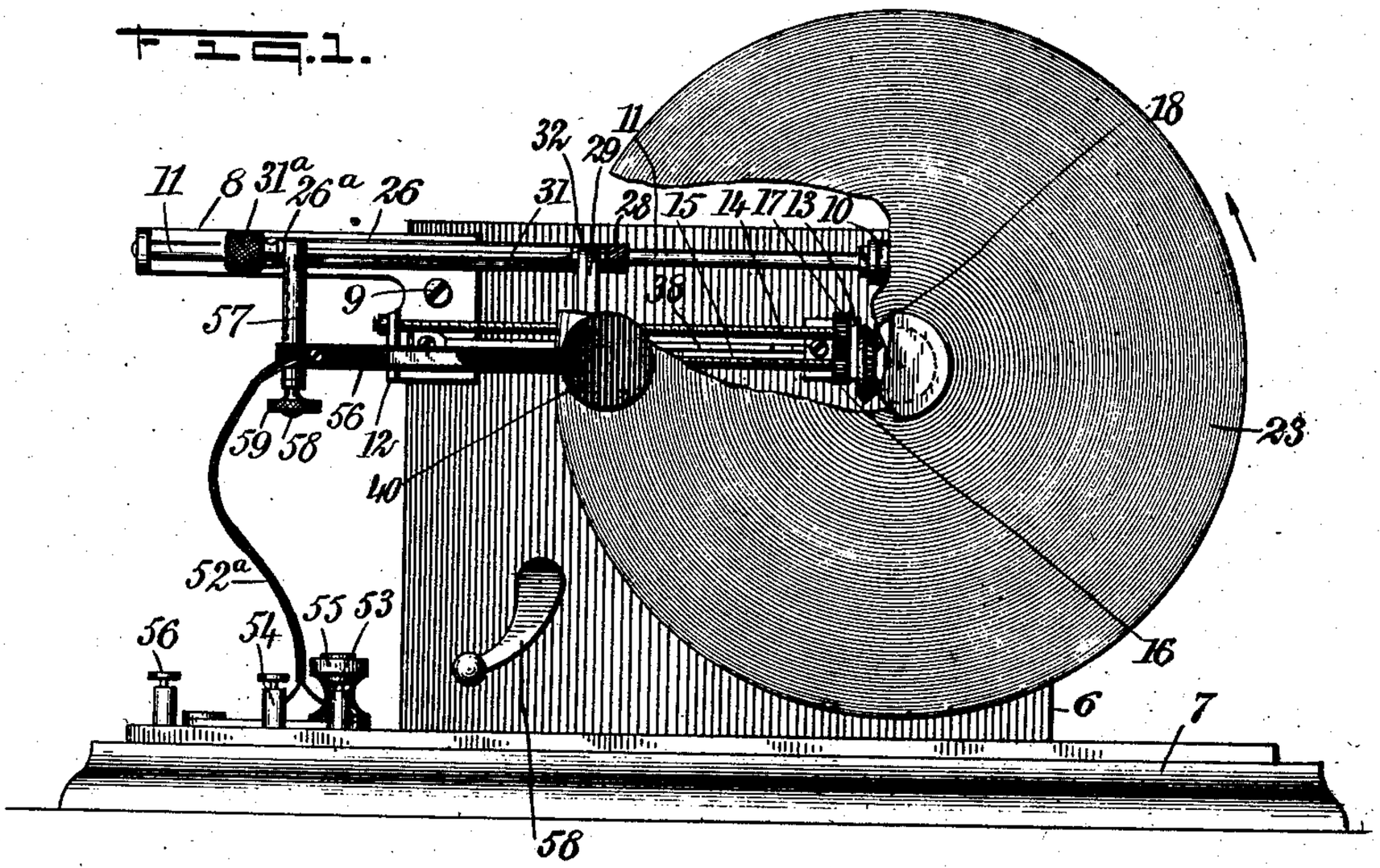


FIG. 2.

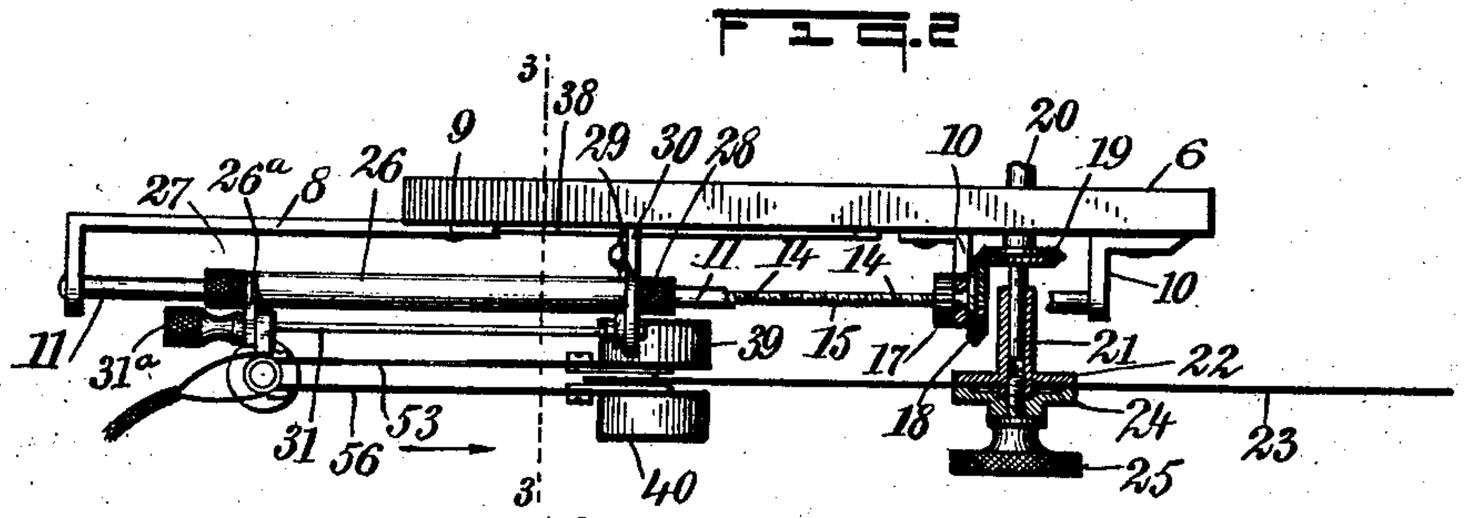
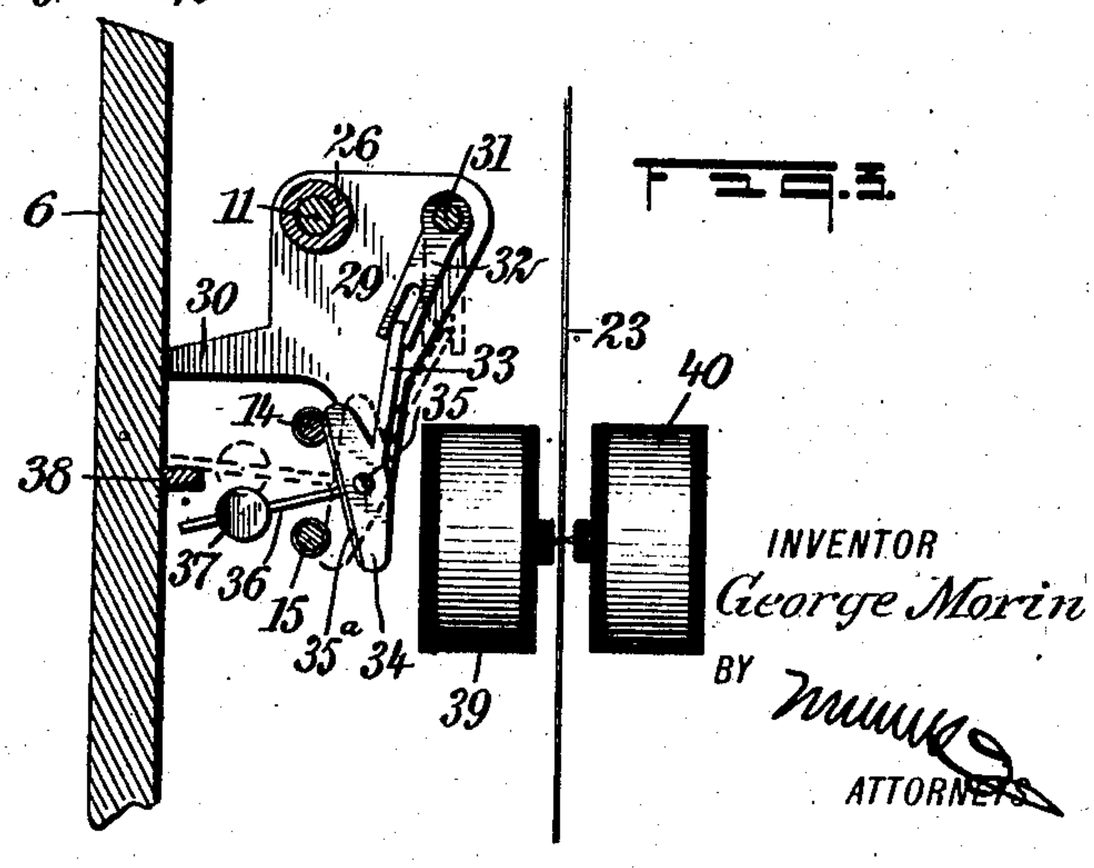


FIG. 3.



WITNESSES:

W. Harrison.

INVENTOR
George Morin
BY
ATTORNEYS

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2 SHEETS—SHEET 2.

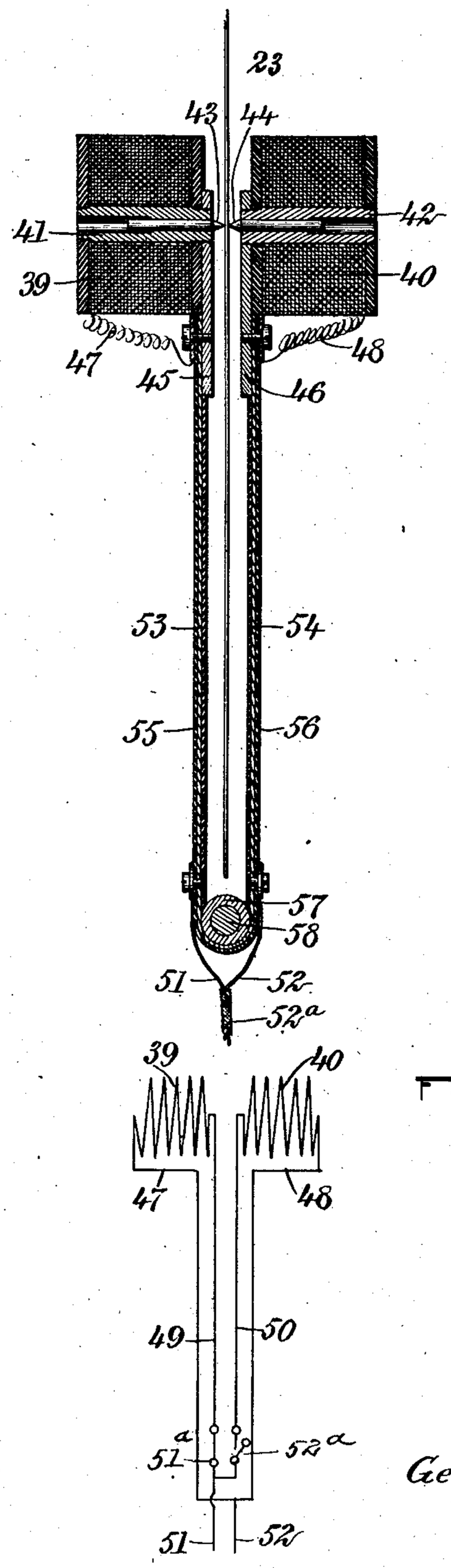

FIG. 4.

FIG. 5.

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GEORGE MORIN, OF HABANA, CUBA.

TELEGRAPHONE.

No. 850,036. Specification of Letters Patent. Patented April 9, 1907.

Application filed June 6, 1905. Renewed September 27, 1906. Serial No. 336,499.

To all whom it may concern:

Be it known that I, GEORGE MORIN, a citizen of the United States of America, and a resident of Habana, Cuba, have invented a new and Improved Telegraphone, of which the following is a full, clear, and exact description.

My invention relates to telegraphones, and more particularly to apparatus for enabling the so-called "voice-currents" to be generated in a wire or line by means of a magneto member having the form of a disk.

My invention further relates to means for enabling one or both sides of the disk to be used as desired.

My invention also relates to certain details in telegraphonic construction.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of a telegraphone equipped with my invention, certain parts being broken away for the sake of illustration. Fig. 2 is a plan view of the same, the revoluble disk and certain of its accompanying parts being shown in section and other parts being partly broken away. Fig. 3 is an enlarged vertical section upon the line 3 3 of Fig. 2 looking in the direction of the arrow and showing the means for reversing the direction of travel of the sliding carriage carrying the magnets 40. Fig. 4 is a horizontal longitudinal section through the magnets 40 and the mechanism for supporting the same upon opposite sides of the disk 23, and Fig. 5 is a diagram of the wiring for energizing the magnets.

A casing 6 is mounted upon a base 7 and is provided with a comparatively long bracket 8, secured in position by a fastening 9. Another bracket 10 is mounted directly upon the casing. These two brackets support a stationary shaft 11. The bracket 8 is provided with an extension 12, and mounted oppositely to this extension and rigidly secured to the casing 6 is a bracket 13. Twin shafts 14 15 are threaded and revolubly mounted upon the extension 12 and the bracket 13, being disposed parallel with each other, as indicated in Fig. 1. These twin shafts are provided with gears 16 17, mounted rigidly thereupon and meshing with each other.

A bevel-gear 18 is mounted rigidly upon the shaft 15 and serves to turn the same. This bevel-gear meshes with another bevel-gear 19, the latter being rigidly connected with a revoluble spindle 20. This spindle has a reduced portion 21, upon w'.ch is mounted a mushroom-head 22, and engaging the latter is a revoluble disk 23, made of steel or other magnetic material and held rigidly against the mushroom-head 22 by means of a clamp 24, secured in place by a revoluble screw 25. By this arrangement the disk 23 is readily removable from the mushroom-head 22 and is also adjustable in relation thereto, and yet when fixed in position is quite firmly connected with the spindle 20, being moved positively by the rotation thereof.

A bearing-sleeve 26 is slidably mounted upon the stationary shaft 11, and connected with the ends of this bearing-sleeve are milled nuts 27 28. The nut 28 secures a plate 29 rigidly to the sleeve 26. This plate 29 is provided with a lug 30, which loosely engages the casing 6 and is slidable relatively thereto.

A rocking shaft 31 is provided with a slotted arm 32, depending therefrom. This slotted arm engages a projection 33, extending upwardly from a rocking head 34, the latter being connected by a pivot 35 with the plate 29. The head 34 is provided with longitudinal threads 35^a and is also provided with an arm 36, carrying a weight 37.

A shelf 38 is mounted rigidly upon the casing 6 and is adapted to support the arm 36, and consequently the weight 37, as indicated by dotted lines in Fig. 3. The rocking head 34 is adapted to occupy the two positions indicated, respectively, by full and dotted lines in Fig. 3. When the head 34 is in the position indicated by full lines, the threads 35^a engage the threaded shaft 14, and when the head 34 occupies the position indicated by dotted lines the threads in question engage the threaded shaft 15. The shafts 14 and 15 are similarly threaded, so that the revolution of the shaft 14 tends to carry the head 34 toward the center of the revoluble disk 23, whereas that of the shaft 15 tends to carry the head 34 in the contrary direction—that is, away from the center of the disk 23. The rocking shaft 31 is provided with a knob 31^a, whereby this shaft may be rocked by hand, so as to move the arm 32, and thus rock the head 34, as indicated by full and dotted lines in Fig. 3.

Two magnets 39 40 are provided with tubu-

lar soft-iron cores 41 and annealed pole-pieces 43 44, of soft iron, these pole-pieces being pointed and adapted to engage the opposite faces of the magneto-disk 23, as indicated in Fig. 4.

Insulating-plates 45 46 are connected rigidly with the magnets 39 40. These magnets are connected with wires 47, 48, 49, and 50, as indicated in Fig. 5.

The wires 49 and 50 are connected in parallel with each other with reference to a line-wire 51, which is provided with a hand-switch 51ª, while the wires 47 48 are similarly connected in parallel with each other with reference to the line-wire 52, the latter being provided with a hand-switch 52ª.

Springs 53 54 of metal support the magnets 39 40. These springs are insulated by jackets 56, of insulating material, and are supported upon a vertical bearing-sleeve 57, which is free to swing slightly upon a pivot 58, the latter being rigidly connected with the bearing-sleeve 26 by means of a plate 26ª. This plate coacts with the plate 29 in supporting the rocking shaft 31. By means of an adjustable thumb-nut 59 the bearing-sleeve 57 may be clamped rigidly in position, as indicated in Fig. 1, with any desired degree of play—that is, it may be adjusted by means of the thumb-nut 59. The tubular sliding member 26, together with the plates 26ª 29 and other parts carried by it, constitute a part which I call a "carriage."

The motor mechanism, of which the spindle 20 is a part, is wound in the usual manner by means of a crank 59ª. This motor mechanism forms no part of my invention and is therefore omitted.

The operation of my device is as follows: The disk 23 having been previously provided upon one or both of its faces with a magnetic record is mounted in position, as described. The preparation of the disk may be made by means of the apparatus above described, in which event the magnets 40 are energized from a telephone-line, or at least from a telephonic receiver. The disk being of steel or other magnetic material acquires upon one or both of its faces an invisible spiral record-line, different portions of which are magnetized to different extents and in different senses in the same manner as a wire, cylinder, or other magneto member used in the Poulsen telegraphone. The disk is preferably smooth. Motion being communicated by the spindle 20 to the bevel-gears 19 and 18, the twin screw-shafts 14 and 15 revolve in opposite directions. The arm 36 is now raised into the position indicated by dotted lines in Fig. 3 and rested upon the adjacent shelf. This is done by the operator grasping the milled head 31ª, and thereby manipulating the shaft 31. The rotation of the screw-shaft 15 while the latter is engaged by the head 34 causes the carriage to travel toward the center of the disk 23, and consequently carries the magnets 40 from the edge of the disk and toward the center thereof. The pointed pole-pieces 43 44 are by movements of the disk acted upon inductively by the magnetic record, so that alternating currents are generated in both magnets 39 and 40 if the disk 23 has both of its faces provided with identical records. If, however, only one face of the disk 23 is provided with a record, only one of the magnets 39 40 is energized.

The disk 23 may be provided upon one of its faces with a part of a record—say one half of a speech—and the opposite face may be provided with a continuation of the same record—say the other half of the same speech. In this case I desire that only one of the pole-pieces be magnetized while the carriage and magnets travel in one direction, the other pole-piece being in turn energized while the magnets and carriage travel in the opposite direction. The magnets can be thrown out of or into circuit independently of each other by opening and closing the hand-switches 51ª and 52ª. When both pole-pieces are energized simultaneously, the electric impulses set up in the magnets 39 40 are stronger than when only one is energized. If the left-hand side of the disk is to be used, (according to view shown in Fig. 4,) the circuit is as follows: wire 51, switch 51ª, wire 49, solenoid 39, wire 47, wire 52. If both sides of the disk are to be used, the circuit is as follows: wire 51, switches 51ª and 52ª, wires 49 50 in parallel, solenoids 39 40, wires 47 48, wire 52. Where it is desired to utilize both sides of the disk for a continuous record, it is of course necessary that the magnets shall first travel from the edge to the center of the disk and then travel back from the center to the edge of the said disk. This is accomplished automatically by means of the mechanism indicated in Fig. 3. When the arm 36 rests upon the shelf 38, the rotation of the threaded shaft 15 drives the carriage, and consequently drives the magnets 39 40 toward the center of the disk 23. The end of the shelf 38 nearest the center of the disk being reached, however, the arm 36 drops by virtue of the weight 37, as indicated by full lines in Fig. 3, and the head 34 is thus automatically thrown out of engagement with the threaded shaft 15 and into engagement with the threaded shaft 14. This shaft thereupon immediately returns the carriage to its original position, the hand-switches 51ª 52ª serving meanwhile to open the circuit through one of the magnets and to close the circuit through the other. If at any time the operator desires to restore the parts to the position indicated by dotted lines in Fig. 3, he grasps the knob 31ª, moves the carriage toward the spindle 20 until the carriage reaches the limit of its stroke—that is, until it reaches a point where the arm 36 can miss

the shelf 38—and then turns the knob 31ª so as to move the arm 32 and the projection 33, thereby causing the head 34 to clear the screw-shafts 14 and 15. The knob 31ª being held momentarily in this position, the carriage may be moved by hand to any desired point along its stroke or, if at the end of a stroke, may be retracted and brought back to its original starting-point.

When the operator desires to use one side of the disk—for instance, the right side according to Fig. 4—he opens the switch 51ª and closes the switch 52ª. Similarly, when he desires to use the other side of the disk he closes the switch 51ª and opens the switch 52ª. If therefore it be desired to utilize the two sides of the disk in succession—as, for instance, if one side of the disk contains one half of his speech and the other switch contains the other half—the operator causes the carriage to travel first from the outer circumference to the center of the disk, meanwhile opening the switch 51ª and closing the switch 52ª. The direction of travel of the carriage now being reversed, he closes the switch 51ª and opens the switch 52ª. In other words, when the carriage is traveling in one direction relatively to the center of the disk one of the solenoids is energized, and in traveling in the opposite direction the other magnet is energized. By this arrangement the operator is enabled to utilize both sides of the disk, the use of one side being practically a continuation of the use of the other side.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination of a revoluble disk provided upon both of its faces with a magnetic record, magnets mounted upon opposite sides of said disk and energized thereby, one of said magnets being adapted to be energized when moving toward the center of said disk, and the other of said magnets being adapted to be energized when moving away from the center of said disk, and means for moving said magnets toward and from the center of said disks.

2. The combination of a revoluble disk provided upon both of its faces with a magnetic record, magnets mounted upon opposite sides of said disk and oppositely disposed in proximity to said faces, a carriage upon which said magnets are mounted, screw mechanism for propelling said carriage in one direction, other screw mechanism for propelling said carriage in the opposite direction, and means for shifting the control of said carriage from one of said screw mechanisms to the other of said screw mechanisms for the purpose of reversing the direction of travel of said carriage.

3. The combination of a revoluble disk provided with a magnetic record disposed upon opposite sides thereof, magnets disposed adjacent to said disk and coacting with the magnetic record thereof, a carriage for supporting said magnets, screw mechanism for propelling said carriage in one direction, screw mechanism for propelling said carriage in the opposite direction, and a manually-operated member for enabling said carriage to be moved independently of either of said screw mechanisms.

4. The combination of a revoluble disk having two faces and provided upon each of these faces with a record-surface, separate magnetic members coacting respectively with said faces for controlling an electric circuit, switch mechanism for energizing first one and then the other of the said magnetic mechanisms, and means for causing said magnetic mechanisms to travel first in one direction and then in the opposite direction.

5. The combination of a revoluble disk provided upon both of these faces with magnetic record-surfaces, a carriage movable relatively to the center of the said disk, separate magnetic members actuated by said carriage and disposed upon opposite sides of the said disk, and means completing an electric circuit through both of said magnetic mechanisms.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

GEORGE MORIN.

Witnesses:
JOHN P. MENDEZ,
JAMES H. SPRINGER.