

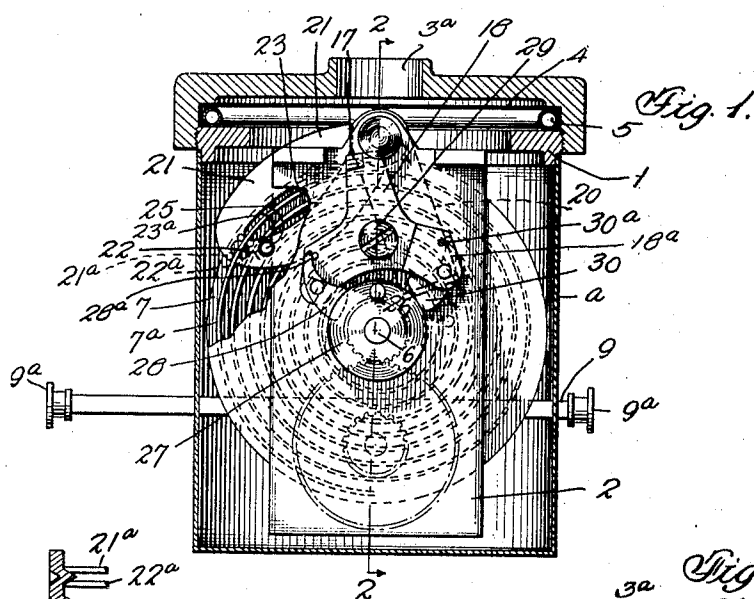
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TALKING DEVICE FOR DOLLS, ETC

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TALKING DEVICE FOR DOLLS, ETC.

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This invention relates to toy talking devices adapted for use as voices in dolls, etc. In carrying out the invention, I provide a pair of record disks secured to a common shaft, each disk having a spiral magnetic record thereon, a magnetizable diaphragm, magnetizable members extending from the records to the diaphragm, means for rotating the disks alternately in opposite directions, and means for shifting the magnetizable members from the record on one disk to the record on the other disk, when the direction of rotation of the disks is reversed. By these means, the words represented by the record on one disk will be reproduced by the diaphragm when the disks are rotating in one direction, and the words represented by the record on the other disk will be reproduced by the diaphragm when the disks are rotated in the reverse direction.

In the accompanying drawing,

Fig. 1 is a central section through the casing enclosing the working mechanism, the latter being shown in side elevation, looking from right to left in Fig. 3, and partly broken away;

Fig. 2 is a section through the casing on the line 2—2 of Fig. 1, the working mechanism being shown in elevation;

Fig. 3 is an end view, partly broken away, with the diaphragm and cap piece removed; and,

Fig. 4 is a detail view showing part of one of the record disks.

Referring to the drawing, *a* indicates a suitable housing, shown in cylindrical form, closed at one end and having at its upper end an inwardly projecting flange or ring 1, which serves as a support for a U-shaped frame 2, having flanges 2^a which are secured to the underside of the ring 1. A cap piece 3 is threaded onto the ring 1 and serves to retain a diaphragm 4, of steel, between the cap piece and the ring, a resilient tube 5 being arranged between the diaphragm and the ring, at the periphery of the diaphragm. The cap piece is provided with an opening 3^a, through which the sound produced by the diaphragm may be heard.

A shaft 6 extends through the sides of the

frame 2, near its central portion, and on this shaft are secured two record disks 7 and 8. The shaft is rotatable by means of a rack rod 9, extending through the side wall of the casing *a* and engaging a relatively small gear 10, which is secured to a larger gear 11, journaled on the frame 2, this larger gear meshing with a pinion 12 on the shaft 6. The rack rod 9 is provided with knobs 9^a at its ends, and when the rod is moved in one direction, the disks will be rotated a number of times, and when the rod is moved in the opposite direction, the disks will be rotated a number of times in the reverse direction. The disks are made of steel and each has on one of its faces a spiral ridge magnetized by the well known Poulsen method, as described in the U. S. Patent No. 788,728, May 2, 1905, to produce a talking record thereon. These spiral ridges are indicated at 7^a and 8^a on the disks 7 and 8, respectively. The gearing is arranged so that with a full movement of the rod 9 from one side to the other, the disks will rotate as many times as there are turns in the spirals on a disk.

A shaft 13 is slidably mounted in bearings 14 and 15 on the upper end of the frame 2. A spring 16, interposed between the bearing 14 and a head 13^a on the shaft, normally presses the latter to the left, in Fig. 2, and a cam 17, on a pivoted lever 18, hereinafter described, is adapted to engage the head 19 on the shaft 13 and move the shaft in opposition to said spring. A permanent magnet 20, of U-form, has suitable openings through its pole pieces and the shaft 13 extends through these openings. Magnetizable arms or members 21 and 22, composed of soft iron, are arranged between the pole pieces of the magnet, and a washer 23, of non-magnetizable metal, is arranged between said magnetizable arms. The several arms and the magnet pole pieces are clamped together and secured to the shaft 13 by suitable collars 24. The poles of the permanent magnet and the adjacent parts of the magnetizable arms or members 21 and 22 extend close to the diaphragm 4. The arm 21 has a polar projection 21^a, extending toward the spiral on the disk 7, and it also has a polar projection 21^b ex-

tending toward the spiral on the disk 8. The magnetizable arm or member 22 has a polar projection 22^a extending toward the spiral on the disk 7, and it has a polar projection 22^b, extending toward the spiral on the disk 8. The polar projections 21^a and 22^a are adjacent one another and adapted to engage on opposite sides of the spiral ridge on the disk 7, and the pole-pieces 21^b and 22^b are adapted to engage on opposite sides of the spiral ridge on the disk 8.

The arm 22 has a boss 22^c in which is mounted a sliding brass pin 25, which extends into the grooves formed by corresponding turns on the spirals of both disks. The pin 25 serves as a guide for holding the polar projections of the magnetizable members in contact with the spirals on the disks. The magnet 20 is inclined oppositely from the arms 21 and 22, and serves to counterbalance said arms.

The spring 16 normally holds the polar projections 21^a and 22^a of the members 21 and 22 against the spiral on the disk 7. These members are automatically shifted from engagement with the record on one disk into engagement with the record on the opposing disk by the lever 18, which is rocked when the disks are turned in the counterclockwise direction, to force the cam 17 under the head 19, and which is rocked in the opposite direction, to remove the cam from under the head when the disks are rotated in the clockwise direction. A pin 26 carried by a disk 27 on the shaft 6 causes the shifting of the lever. The lever 18 has three arms, as shown, and is pivoted centrally to the frame 2 by a screw 29. One arm of the lever carries a centrally pivoted dog 28, which may be passed by the pin 26 when the latter is rotating in the clockwise direction, but which will lock against a projection 28^a on the lever when engaged by the pin 26, as the latter rotates in counterclockwise direction. When the dog locks against the projection, the lever will be shifted to throw the cam under the head 19, and this will cause the shaft 13 to slide in its bearings and carry the magnetizable members 21 and 22 out of engagement with the spiral on the disk 7 and into engagement with the spiral on the disk 8. Another arm 18^a of the lever, offset from the body of the lever, carries a centrally pivoted dog 30, which will lock against a projection 30^a when engaged by the pin 26, moving in clockwise direction, and this will cause the lever to rock in the direction to carry the cam 17 from under the head 19 and permit the shaft 13 to be returned to its normal position by the spring 16. This will cause the magnetizable members to move from the disk 8 to the disk 7. When the pin 26 turns in the counterclockwise direction, it will pass the dog 30 without operating the lever. When the push rod 9 is in the position shown in Fig. 1, the projections 21^a and 22^a will engage the outermost turn of the spiral

7^a. If, now, the rod 9 is moved toward the right in Fig. 1, the record disks will be turned counterclockwise and the pin 26 will engage the dog 28, on the lever 18, and rock said lever so as to force the cam 17 under the head 19 on the sliding shaft 13, and this shaft will move and carry the polar projections 21^a and 22^a out of engagement with the spiral 7^a and bring the polar projections 21^b and 22^b into engagement with the outermost turn of the spiral 8^a on the record disk 8. As the disks continue to rotate in the counterclockwise direction, the magnetic record on the disk 8 will be conveyed to the diaphragm through the magnetizable members 21 and 22. The guide pin 25, which engages the grooves in both records will guide the polar projections inwardly to the central parts of the disk. After the arms 21 and 22 have swung to the central part of the disk in engagement with the spiral on the disk 8, as just explained, a movement of the push rod 9 to the left will cause the record disks to rotate in the clockwise direction, and the pin 26 will engage the dog 30 and rock the lever so as to disengage the cam 17 from the head 19 on the shaft 13, and the spring 16 will then move said shaft and cause the polar projections 21^b and 22^b to leave the disk 8, and the projections 21^a and 22^a to engage the innermost turn of the spiral on the disk 7. The continued rotation of the record disks will cause the projections 21^a and 22^a to traverse the spiral 7^a to its outer turn and the magnetic variations in the successive portions of the spiral will be transmitted through the members 21 and 22 to the diaphragm 4, causing the words corresponding to these variations to be produced by the diaphragm. Thus, by moving the rod 9 in one direction, the record on one disk will be reproduced, and by moving the rod in the opposite direction, the record on the other disk will be reproduced. Each spiral is long enough to contain a record corresponding to several words. It will be understood that the magnetizable record on one disk will commence at the outermost turn of the spiral and end at the innermost turn, while the record on the opposing disk will commence at the innermost turn and end at the outermost turn of the spiral.

What I claim is:

1. In a toy talking device, a steel spiral having a magnetic record thereon, a diaphragm, two magnetizable members mechanically engaging the spiral and extending from the record to points close to the diaphragm, and means for rotating the spiral.

2. In a toy talking device, two steel spirals having magnetic records thereon, a diaphragm, means for rotating said spirals alternately in opposite directions, magnetizable members extending from the diaphragm and adapted to engage the spirals, and means for shifting said members from engagement with one spiral into engagement with the other

when the direction of rotation of the spirals is reversed.

3. In a toy talking device, two steel spirals having magnetic records thereon, the record
5 on one spiral reading from its peripheral turn inwardly and the record on the other spiral reading from its innermost turn outwardly, a diaphragm, means for rotating said spirals in alternately opposite directions, magnetiz-
10 able members extending from the diaphragm and adapted to engage the spirals, and means for shifting said members from engagement with one spiral into engagement with the other when the direction of rotation of the
15 spirals is reversed.

4. In a toy talking device, a shaft, two disks mounted on said shaft and each having a spiral with a magnetic record, means for rotating said shaft, a diaphragm, magnetiz-
20 able arms pivotally mounted adjacent the diaphragm to swing between the spirals and adapted to engage the spirals, means normally holding the arms in engagement with one spiral, and means for automatically shifting
25 the arms into engagement with the other spiral when the direction of rotation of the spirals is reversed.

5. In a toy talking device, a shaft, two disks mounted on said shaft and each having a spi-
30 ral with a magnetic record, means for rotating said shaft, a diaphragm, magnetizable arms pivotally mounted adjacent the diaphragm to swing between the spirals and having two pairs of polar projections, means nor-
35 mally holding the arms with one pair of projections engaging one of the spirals, and means for automatically moving the arms to cause the other pair of projections to engage the other spiral, when the direction of rotation of the spirals is reversed.

40 6. In a toy talking device, a shaft, two disks mounted on said shaft and each having a spiral with a magnetic record, means for rotating said shaft, a diaphragm, magnetizable
45 arms pivotally mounted adjacent the diaphragm to swing between the spirals and adapted to engage the spirals alternately, a guide-pin of non-magnetic material movable with said arms and having its ends fitting be-
50 tween corresponding convolutions of both spirals, and means for shifting the magnetizable arms from engagement with one spiral into engagement with the other spiral when the direction of rotation of the spirals is re-
55 versed.

In testimony whereof I hereunto affix my signature.

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