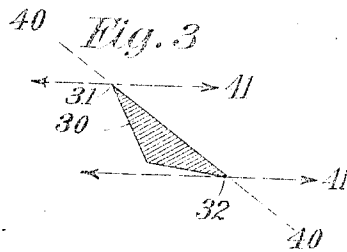
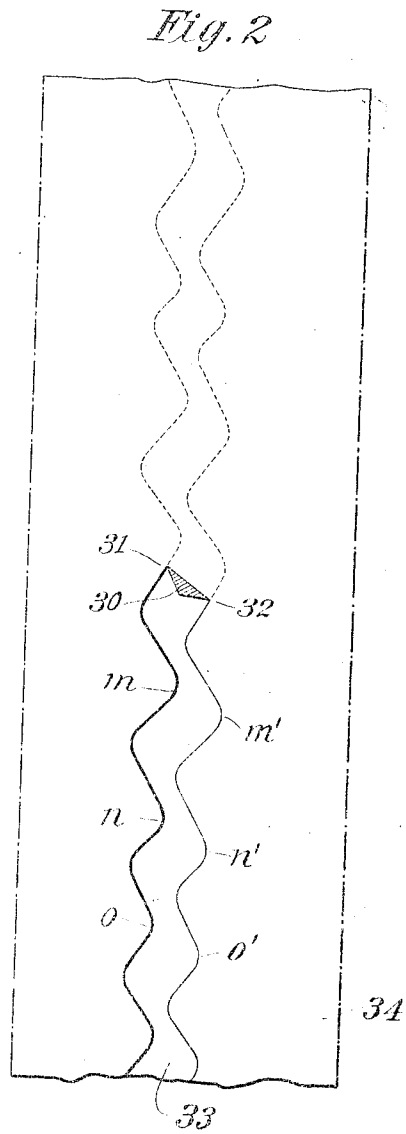
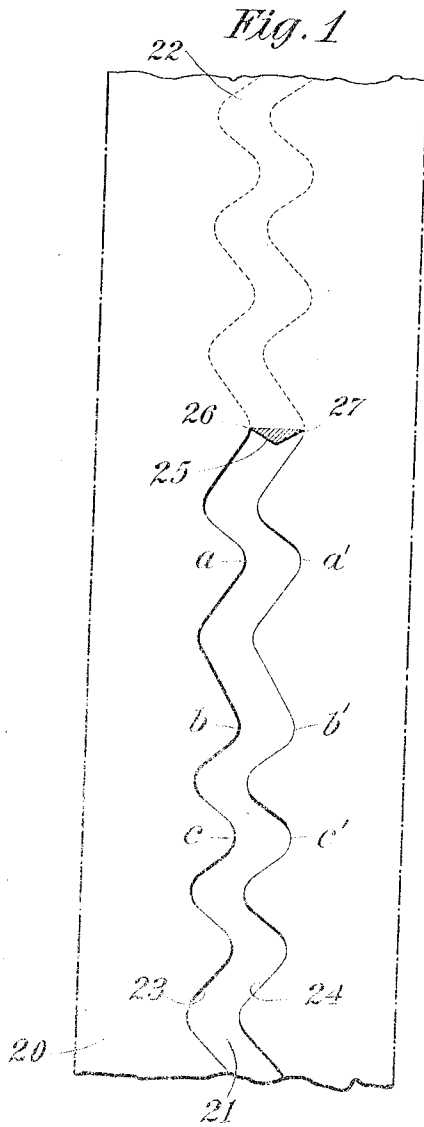


1,084,415.

Patented Jan. 13, 1914.



Witnesses:
C. E. Warfield
Geo. H. Anderson

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By his Attorneys
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UNITED STATES PATENT OFFICE.

VICTOR H. EMERSON, OF NEW YORK, N. Y., ASSIGNOR TO AMERICAN GRAPHOPHONE COMPANY, OF BRIDGEPORT, CONNECTICUT, A CORPORATION OF WEST VIRGINIA.

SOUND-RECORD AND PRODUCTION THEREOF.

1,084,415.

Specification of Letters Patent.

Patented Jan. 13, 1914.

Application filed August 2, 1912. Serial No. 712,954.

To all whom it may concern:

Be it known that I, VICTOR H. EMERSON, a citizen of the United States, and a resident of the city, county, and State of New York, (whose post-office address is 102 West Thirty-eighth street, New York city, New York,) have invented a new and useful Improvement in Sound-Records and Production Thereof, which invention is fully set forth in the following specification.

My invention relates to sound-records having a laterally-undulating record-groove of substantially uniform depth, commonly known as "zigzag" records.

The object of the invention is to produce a record of this type which will have improved acoustical qualities. Such "zigzag" records are commonly manufactured as disks with the record-groove arranged spirally thereon, but they may also be made as cylinders carrying the record-groove in a helical line around the cylinder; yet, for convenience of consideration, such record-groove may be regarded as continuing in a straight line, with the lateral undulations on either side.

The underlying thought of my invention is to provide a (zigzag) record-groove of such character as to produce a duplication or immediate repetition of each impulse imparted to the reproducing-stylus, so that theoretically there should be expected a sort of "echo" as it were; yet in actual practice no echo will be observed by the listener, but merely increased fullness or roundness of tone. This duplication or repetition is accomplished by making the original record by means of a recording-stylus having its two oppositely-extending recording-edges disposed diagonally with respect to the direction of travel of the record-groove (instead of transversely thereof as heretofore). As the result of this arrangement one recording-edge is slightly advanced in front of the other, and each concavity produced in one side-wall of the record-groove will have its complementary (and simultaneously-produced) convexity located diagonally therefrom in the opposite wall of the groove (instead of directly across therefrom).

My invention, then, consists broadly in providing a diagonally-disposed pair of oppositely-facing recording-edges for making the original sound-groove; further, in the simultaneous production of diagonally-dis-

posed and complementary concavities and convexities corresponding to sound-waves; and also in a sound-record having such diagonal arrangement of its complementary concavities and convexities.

My invention will be best understood by reference to the annexed drawings, which are on a greatly exaggerated scale, to illustrate the same diagrammatically.

In these drawings: Figure 1 represents conventionally a plan of a portion of a flat record-tablet having an ordinary zigzag record-groove, and indicating in cross-section an ordinary recording-stylus. Fig. 2 is a similar view, indicating my new record-groove, and indicating in cross-section my new recording-stylus; and Fig. 3 is a horizontal section, on a still larger scale, of my stylus.

Referring to Fig. 1, 20 indicates a portion of a flat tablet such as used for making original recordings. 21 indicates a portion of an ordinary zigzag record-groove already produced therein, and 22 a portion not yet recorded, 23 and 24 denoting the side-walls thereof. 25 represents the usual recording-stylus, showing in horizontal cross-section, and having its two recording-edges 26 and 27 directly opposite each other across the record-groove,—the line 26—27 being also the direction of vibration of this laterally-vibratory stylus 25. It will be noted that each convexity *a, b, c*, etc., has its corresponding and complementary concavity *a', b', c'*, etc., located directly opposite.

Referring now to Fig. 2, it will be noted that my new recording-stylus 30 has its two oppositely-facing recording-edges 31 and 32 arranged diagonally of the record-groove 33 in the tablet 34; that the two members of each pair of complementary concavities and convexities, as *m—m', n—n'*, etc., lie diagonally across the record-groove from each other, instead of directly opposite each other, and that the respective convexities in one side-wall are slightly in advance of the corresponding and complementary concavities in the other wall thereof.

In Fig. 3, my new recording-stylus 30 is shown on a much larger scale. The diagonal line 40—40 contains the recording-edges, while the transverse lines 41 and 41 indicate the direction of vibration of the recording-stylus as a whole. From this it will be seen that my recording-stylus is provided

with two oppositely-facing recording-edges disposed in a line diagonal to the direction of vibration of the recording-stylus itself.

Having thus described my invention, I claim:

1. A sound-record consisting of a tablet of suitable material having therein a record-groove of substantially uniform depth, and provided with a succession of corresponding and complementary concavities and convexities positioned diagonally from each other.

2. A sound record tablet having a record-groove of substantially uniform depth having lateral irregularities corresponding to sound-waves, each concavity thereof being diagonally opposite its corresponding and complementary convexity.

3. A sound record tablet having a record-groove of substantially uniform depth having in one wall lateral undulations corresponding to sound-waves, and having in the other wall reverse undulations corresponding to the same sound-waves, the first named set of undulations being uniformly in advance of the corresponding undulations in the other wall.

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

VICTOR H. EMERSON.

Witnesses:

H. WATERSON,
HENRY WATERSON, Jr.