

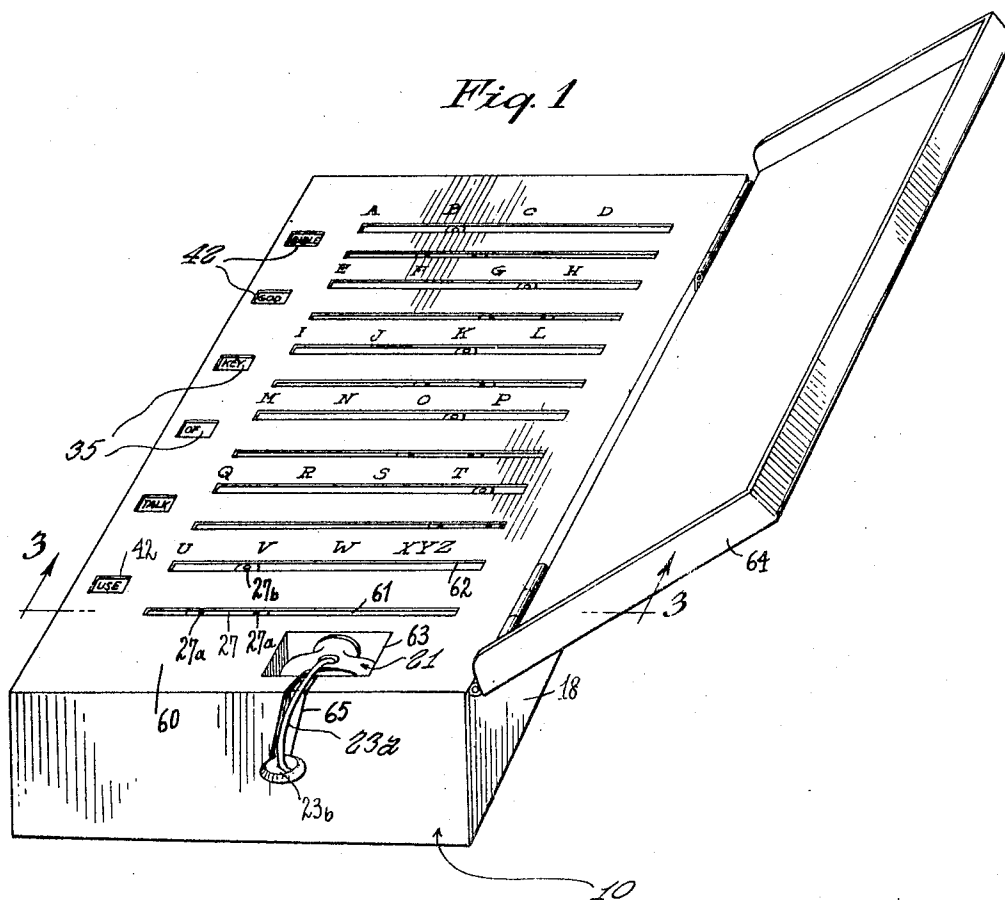
Aug. 25, 1953

L. L. ERDOS
SPEAKING DICTIONARY

2,650,097

Filed June 28, 1947

3 Sheets-Sheet 1



LESLIE L. ERDOS,
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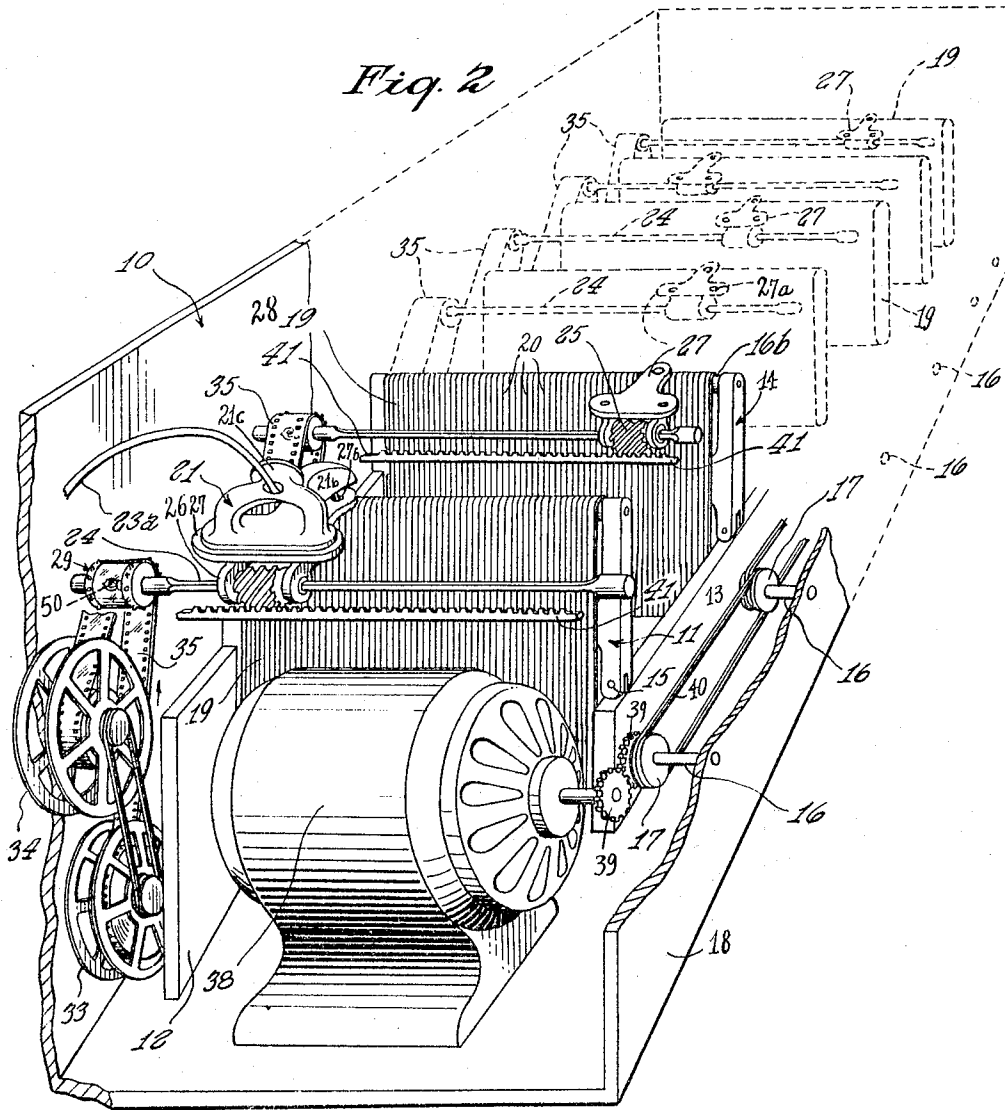
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SPEAKING DICTIONARY

3 Sheets-Sheet 2



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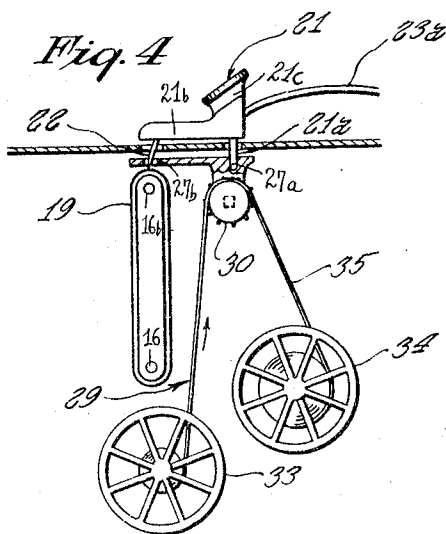
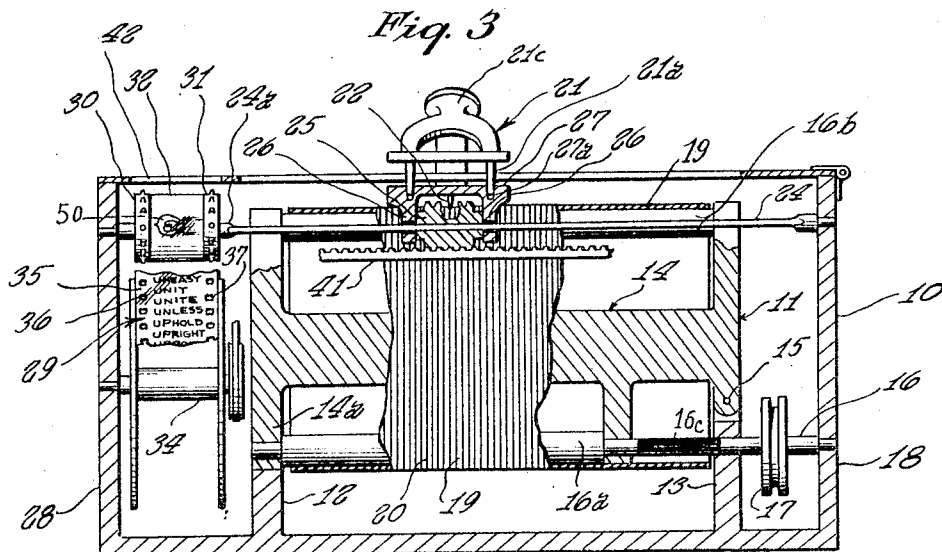
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SPEAKING DICTIONARY

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3 Sheets-Sheet 3



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UNITED STATES PATENT OFFICE

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SPEAKING DICTIONARY

Leslie L. Erdos, New York, N. Y.

Application June 28, 1947, Serial No. 757,754

14 Claims. (Cl. 274—1)

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This invention relates to devices to audibly pronounce respective sound representations of graphical symbols, like words in a language, and has for its main object to provide a device of this character in which any one symbol or word may be pronounced at once, independently of any other.

Another object of this invention is to provide a device as characterized hereinbefore, which will be efficient, and quick and simple in operation.

Another object of this invention is to provide a device of this type, in which the words of a selected language may be arranged alphabetically, like in any other dictionary, and the audible pronunciation of each word will also be arranged in a corresponding system, and means will be provided whereby any one word may be quickly and easily selected, and its pronunciation audibly produced independently of any other word, or its audible representation, so that my device may be called a speaking dictionary.

Still other objects of this invention will be apparent as the specification of the same proceeds, or will be pointed out therein, and, among others, I may mention: to provide a device as indicated hereinbefore, which will be simple in construction, comparatively inexpensive to manufacture, and adapted to mass manufacturing, and wherein efficient and easy means will be provided to exchange the device for other systems of symbols, like another language.

In the drawings forming a part of this specification and accompanying the same:

Fig. 1 is a perspective view of the preferred embodiment of my invention, in an assembled position, ready for use, being arranged in a casing or box, the lid of which is shown open;

Fig. 2 is another perspective view showing the inside mechanism of my device, the top of the casing being removed, all for clearness of showing, this figure being on a much larger scale than Fig. 1;

Fig. 3 is a sectional view across the front of the device, the section line being indicated at 3—3 of Fig. 1;

Fig. 4 is a diagrammatic fragmentary detail.

Referring now to the drawings more in detail, by characters of reference, my device in its preferred form is arranged in a casing, box or housing, generally indicated by the numeral 10 (Fig. 2).

A frame structure, generally indicated by the numeral 11 (Fig. 3) is built in the casing, being formed of two longitudinal stationary side members 12 and 13, and a plurality of upper T-shaped pivoted members, generally indicated by the numeral 14, each being pivoted, as at 15.

A shaft 16 passes from a side wall 18 through the stationary frame members 13 and 14a, and, co-planarily therewith, each pivoted T-shaped upper frame carries a shaft 16b. A driving pulley 17 is secured on each shaft 16 in the space be-

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tween the right hand side wall 18 of the box 10, and the stationary frame member 13.

A center portion 16a of each shaft 16 is somewhat enlarged and made of a highly frictional material, like rubber, for the purpose to be more fully explained presently.

A flexible, wide belt shaped record sheet, preferably made of an acetate plastic material and generally indicated by the numeral 19, is arranged around the two shafts 16a and 16b in a taut manner, so that when the lower shaft 16 with its frictional portion 16a is rotated, as by the rotation of the pulley 17, it will cause the acetate record belt 19 to rotate with it, causing the rotation of the free upper shaft 16b, as will be understood.

It also will be understood that the record belt 19 is of flexible material.

In the outer surface of the belt 19 are cut a great plurality of sound producing grooves 20, which grooves are vertical in the normal position of the device, and are closely set in a side by side parallel relation. Each groove will be adapted to pronounce orally one word as a part of my speaking dictionary.

A sound head, generally indicated by the numeral 21 is provided for the whole device, having a sound arm and a sound producing needle 22.

It will be seen that when the needle 22 is placed into one of the grooves 20 and the record belt 19 is caused to rotate around the shafts 16a and 16b, the word of that groove will be pronounced by the sound head 21. Such sound heads and such sound grooves are well known in this art and their detailed construction need not be further explained herein and may be of any appropriate design and operation. The word produced will be conveyed to a common loud speaker or amplifier device (not shown) through the wire 23a of the sound head 21, the construction of these devices is also well known to those versed in this art.

In front of every record belt 19, a rectangular rotatable guide rod 24 is arranged on which may slide in both directions a helical gear 25 which may be rotated by rack 41. The guide rod 24 passes through and is rotatable in depending arms 26 of a base platform 27 for the sound head 21. The helical gear 25 is enclosed between said two depending flanges 26.

As will be seen, a square guide rod 24, a helical gear 25, and a receiving base or platform 27 for the sound head is provided for every sound record belt 19.

As also has been mentioned, one common sound head 21 may be used for all the belts 19, and it will be of such construction that it may be placed on any base 27 in a removable manner, as one embodiment of such construction is indicated in the drawings. In this embodiment two holes 27a, are in the base 27 for the pins 21a of the sound head 21, and a third hole 27b also is provided through which the needle 22

may be inserted into the respective groove of the record belt 19.

On the left hand side wall 20 of the casing 10, is arranged a words carrying band or film device, generally indicated by the numeral 29, and such a device is provided for each sound belt device 19.

For this purpose the rotatable guide rod and shaft 24 is extended as at 24a and carries band moving sprocket disks 30 and 31 with a band supporting roller 32 between them. Obviously, these three parts may be made of one integral piece and secured on the rotatable shaft end 24a. A reel 33 for the unwound band and another reel 34 on which the band is to be wound, is also arranged for each band moving construction 29, and between the two is arranged a word carrying band 35 passing from the reel 33 around the sprockets 30 and 31 and on to the take up reel 34, said band 35 having the perforations 36 and 37, so that when the shaft 24a and the sprockets thereon are rotated, the action of the sprockets will cause the band to unroll at 33 and to be rolled on at 34, or vice versa, in between passing around the band roller 32.

On each sound record carrying belt 19, I arrange a great number of words, starting with the same letter of the alphabet. As shown in the drawing the first belt, as an example, will carry words starting with the letters A, B, C, D, the next one will carry words with the initial letters E, F, G, H, and so on, the last belt in the embodiment shown in Fig. 1 carrying the last words in the alphabet starting with the letters U, V, W, X, Y, Z. Obviously, other groupings of words may be made, or a separate belt for each initial letter.

The corresponding bands 35 will carry words in print, one after the other, closely set, for which the sound producing grooves are synchronized on the respective belts 19.

I use a common motor power, in the embodiment shown the electric motor 38, for my device, the same operating the sound record carrying belt shafts 16 through the gears 39, pulleys 17 and chains or belts 40, as will be understood.

It will be seen that when the motor 38 is set into operation, all the records 19 will move around with their shafts 16a and 16b rotating.

The needle 22 of the sound head 21 is normally disengaged from the respective grooves in the records 19.

When it is desired to hear the pronunciation of a desired word, as, for instance, the word "use," shown in the last row of words of my device, the sound head 21 will be grasped by an appropriate handle 21c, projecting therefrom, and it will be moved to the right or to the left on the square guide rod 24, obviously carrying with it the respective helical gear 25.

A stationary rack 41 is arranged in front of every sound record 19 underneath of each helical gear 25, meshing with the teeth in the rack 41. Upon moving the sound head 21 in one or the other direction, the gear 25 will be moved with it, the gear 25 and the rectangular guide rod 24, with the left hand shaft end 24a, all rotating in the same direction.

This rotation will cause the band or film 35 to move in one or the other directions, and the words on the film 35 will appear in an appropriate window 42. The moving of the sound head 21 will be continued until the desired word, in the case shown the word "use," will appear.

There is a perfect synchronization arranged

between the words appearing in the window 42 and the sound tracks 20, to which, at that time, the needle 22 of the sound producer 21 will arrive, so that when the word "use" appears in the window, the operator will lower the arm 21b of the sound producer and permit the needle 22 to engage the respective groove which now will pronounce the word "use." Obviously, in a similar manner, any other word may be produced on the other rows in my device.

It will be understood that for such selection the movable sound head 21 will be placed on the respective base or platform 27, its needle arm being out of contact with the records 19, and said head will be moved to the left or right on the respective guide rod 24 until the desired word appears in the respective window 42, when the needle 22 will be placed into the respective groove and the desired word pronounced.

My device is adapted to be used for more than one language. It can be changed with very little effort. When it is desired to change the use of my device for another language, the pivoted frames 14 will be turned upwardly on their pivots 15, whereupon bands 35 and the record belts 19 may be removed therefrom and new bands and belts applied thereon, and each returned to its operating position in my device. For this purpose shaft 16 has a yielding flexible portion 16c.

While I have shown a preferred embodiment of my invention, it is to be understood that changes and variations may be resorted to in the elements, combinations and operation of my invention, and I reserve my rights to such changes, variations, as are within the spirit of this specification, and the scope of the claims hereunto appended.

The numeral 50 in the drawings indicates an electric light of any appropriate arrangement and construction, well known to those versed in this art, and either the word carrying band 35 will be made transparent and the words printed opaquely thereon, or, vice versa, as well as the band carrying roller 32 is made of transparent material whereby the lights 50 will illuminate any word appearing in the windows 42.

I also want to remark that in the embodiment shown in the drawings, particularly in Fig. 1, the casing 10 will have a top or cover 60 in which will be provided two slots 61 and 62 for each system of bands 35 and record belts 19. The sound producing head 21 normally may be resting in a recess 63 from which it is lifted out and moved to the respective system in which words are to be pronounced or other similar operations performed, and will be placed on the respective platform 27, its pins 21a entering the holes 27a through the slot 61, and its sound producing pin being inserted into the desired sound producing groove through the respective hole under the respective slot 62, as will be understood.

The cable 23a of the sound producing head 21 may be of a length permitting the placing of said head over any system of slots 61 and 62, and said cable may be coiled up inside of the casing 10, entering the same through a hole 23b, and being adapted to be pulled out from it through said hole to a desired extent.

To permit the hinged cover 64 of the casing 10 to close thereon, cable 23a may be arranged in a groove 65 when placed into its receiving recess 63.

I also want to remark that an additional use of my invention may be for translation of one

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language into another, by pronouncing the translated material. In this way not only will the text of one language be translated into another one, but it will be audibly presented with the best pronunciation. Of course, for this purpose the bands 35 would contain the words in the language from which a translation is desired, while the grooves on the record belt 19 would be adapted to pronounce the equivalent words in the language into which they are desired to be translated.

I also want to emphasize that my device is the first one in which sound grooves are used in parallelism with one another, each groove being adapted to produce a desired audible presentation.

What I claim as new and want to protect by Letters Patent of the United States, is:

1. In a device of the class indicated, an endless substantially wide belt carrying a great plurality of parallel sound tracks in a side by side relation, each sound track being independent of all the others and adapted to reproduce a predetermined oral enunciation of its own, a longitudinally movable band carrying a plurality of graphical representations, each successive such representation having a predetermined relation to a respective successive sound track on said belt, a sound producing head, means to move said sound head transversely across said belt and the tracks thereon without operatively engaging the same, means to cause said belt to rotate; and means to cause synchronized movements between said sound head and said band including a rotatable member on said sound head, a shaft engaged by said member and rotatable therewith, said shaft carrying means to cause longitudinal movement of said band upon the rotation of the shaft, and means to cause said member to rotate upon the movement of the sound head across said belt.

2. In a device of claim 1, said member being in the form of a helical gear riding on said shaft and the means to rotate the same being in the form of a rack set along said shaft and engaged by said gear.

3. In a device of claim 1, a frame for said belt having two rollers over which the belt may run, said belt being removable from said rollers and replaceable by another one.

4. In a device of claim 3, said frame being swingable on a pivot to an open position to facilitate the exchange of the belt thereon.

5. In a device of claim 3, means to rotate one of said rollers and thereby rotate said belt.

6. In a device of claim 3, said frame being swingable on a pivot to an open position to facilitate the exchange of the belt thereon, means to rotate one of said rollers and thereby rotate said belt, said means being flexible and adapted to permit a swinging of said frame on its pivot.

7. In a device of claim 1, a platform for said sound head, depending elements for said platform by which it rests on said shaft slidably therealong, means to removably secure the sound head on said platform, a needle on the sound head normally out of engagement with said belt, said rotatable member being carried by said platform.

8. In a device of claim 7, a casing for the device having a top, said platform being underneath said top, a slot in parallelism with said shaft in said top through which said depending elements on said sound head may project within the casing, engage said platform and travel along said shaft.

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9. In a device of claim 8, a window in said top over said band adapted to disclose a graphical representation thereon corresponding to the sound track to which said sound head arrived in its movement.

10. In an arrangement of the class indicated, a plurality of devices each including an endless substantially wide belt carrying a great plurality of parallel sound tracks in a side by side relation, each sound track being independent of all the others and adapted to reproduce a predetermined oral enunciation of its own, a longitudinally movable band carrying a plurality of graphical representations, each successive such representation having a predetermined relation to a respective successive sound track on said belt, means to cause said belt to rotate, a rotatable shaft arranged across said belt spaced therefrom, means carried by said shaft for causing longitudinal movement of said band upon rotation of said shaft, a platform mounted on said shaft slidably therealong across said belt, a rotatable member carried by said platform and mounted on said shaft slidably along the same but non-rotatable relative thereto, and means to cause said member to rotate upon the movement of said platform across said belt; and a common sound head for all said devices adapted to be secured on any of the platforms to operate the sound tracks on the belt associated with the respective platform.

11. In a device of claim 10, a source of power and means to cause all the sound tracks carrying belts to be rotated by said source of power.

12. In a device of claim 1, said graphical representations being selected words and each sound track being adapted to orally pronounce a respective word.

13. In an arrangement of claim 10, a common casing for all said devices having a top and enclosing said devices so that said platforms are located underneath said top; a plurality of slots in said top, each extending parallel to one of said shafts, said slots permitting said sound head to be secured to one of the platforms and travel with the same along the shaft associated with the respective platform.

14. In an arrangement of claim 13, a plurality of windows in said top each located over one of said bands adapted to disclose a graphical representation thereon.

LESLIE L. ERDOS.

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