B. F. FREEBLE.

PHONOGRAPHIC WARNING DEVICE.

APPLICATION FILED NOV. 25, 1919.

1,417,983.

Patented May 30, 1922.

2 SHEETS—SHEET 1.

Fig. 1.

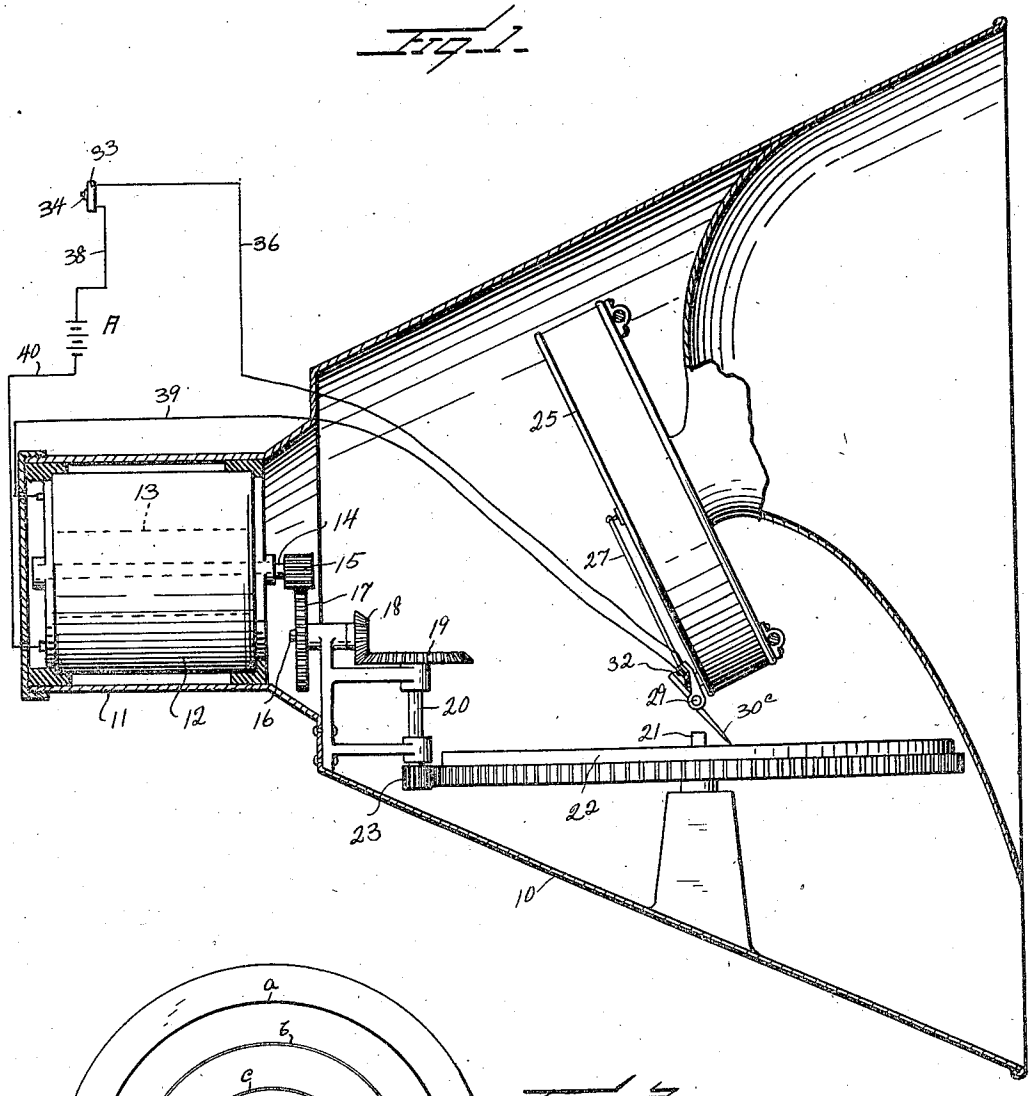
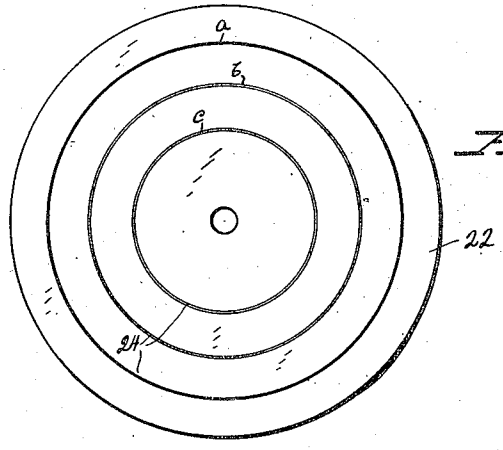


Fig. 2.



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2 SHEETS—SHEET 2.

Fig. 3.

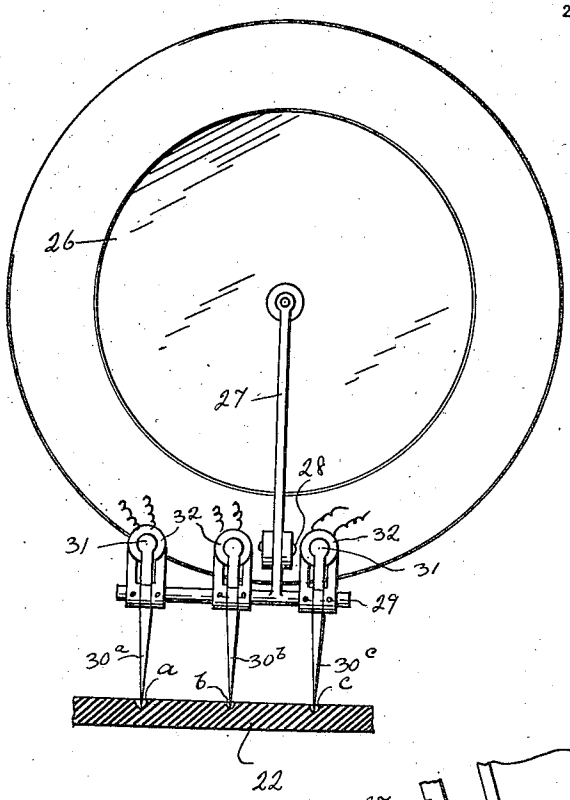


Fig. 5.

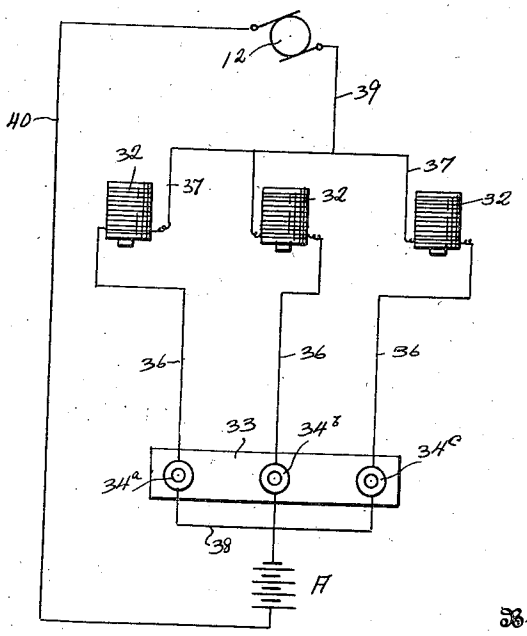
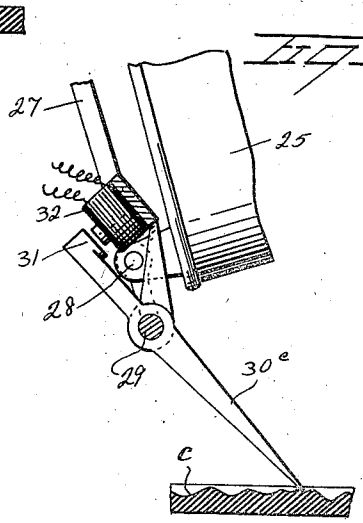


Fig. 4.



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UNITED STATES PATENT OFFICE.

BENJAMIN F. FREEBLE, OF BROWNSVILLE, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO JOHN MATTA, OF BROWNSVILLE, PENNSYLVANIA.

PHONOGRAPHIC WARNING DEVICE.

1,417,983. Specification of Letters Patent. Patented May 30, 1922.

Application filed November 25, 1919. Serial No. 340,516.

To all whom it may concern:

Be it known that I, BENJAMIN F. FREEBLE, a citizen of the United States, residing at Brownsville, in the county of Fayette and State of Pennsylvania, have invented certain new and useful Improvements in Phonographic Warning Devices, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to signalling devices, and particularly to signalling devices including a sound reproducer and a phonographic record associated therewith.

The general object of this invention is to provide a device of this character which includes a sound record, a sound reproducer, and an amplifying horn, the sound record having thereon one or more record grooves, each groove having thereon a phonautogram adapted to cause the reproduction of articulate words of a certain warning signal.

Another object in this connection is to provide means whereby any one of the several phonautograms may be selected and used so that the same device or mechanism may be used for uttering any one of a plurality of warning signals.

A further object is to provide a mechanism of this character so constructed that the same warning signal may be repeated time after time so long as the operator desires.

A further object is to provide a record having a plurality of record tracks or phonautograms thereon, to provide a plurality of styluses operating, one with each of said tracks or phonautograms, and provide very simple means whereby any one of these styluses may be rendered active, the others remaining inactive so as to thereby reproduce any one of the warning signals desired.

Another object is to provide a construction of this character wherein the motor for operating the record, and the sound reproducing mechanism are embodied within a single unit, the sound reproducing mechanism being disposed within an amplifying horn.

And a further object is to provide a mechanism of this character in which the selected mechanism is controlled by one or more electric buttons, and wherein the operation of the record driving motor is controlled by an electric button.

Other objects will appear in the course of the following description.

My invention is illustrated in the accompanying drawings, wherein:—

Figure 1 is a longitudinal sectional view of a phonographic signal constructed in accordance with my invention, this figure also showing the wiring connections;

Figure 2 is a face view of the phonographic record;

Figure 3 is an inside face view of the sound box showing a portion of the record in section;

Figure 4 is a fragmentary detail view showing the mounting of one of the styluses and showing the record in section;

Figure 5 is a wiring diagram of the electrical connections.

Referring to these drawings, it will be seen that my signalling mechanism consists essentially of an amplifying horn 10, which is preferably of metal, though it might be made of other material, and which is contracted towards its inner end and at its inner end is provided with the unitary, cylindrical, or other shaped casing 11, wherein is disposed an electric motor comprising field magnets and windings 12 and the armature 13. This electric motor is of any suitable and usual construction and requires no special description. The armature shaft 14 carries on its extremity a pinion 15. The power for the motor will preferably be taken from a battery, as will be later explained.

Mounted within the horn in any suitable manner, as upon suitable supporting brackets, is a longitudinal shaft 16 carrying a relatively large gear wheel 17 engaged by the pinion 15 and this shaft 16 carries a relatively small bevelled pinion 18 engaging with a relatively large bevelled pinion 19 mounted upon a shaft 20 which is transverse to the shaft 16, and extends over to one side of the horn. Mounted upon a shaft 21 also carried by the horn is the record supporting turn table 22, the periphery of which is formed with gear teeth which mesh with a relatively small pinion 23 carried upon the shaft 20. It will thus be seen that I have provided means for rotating the turn table 22 and the record carried thereby at a relatively low speed, though the armature shaft will rotate at a relatively high speed. Of

course, it is obvious that other gearing might be disposed within the amplifying horn 10 for this purpose and that I do not wish to be limited to the particular arrangement of gearing illustrated.

The turn table 22 carries upon it a record having formed in its face two or more record grooves or phonautograms 24. Each of these grooves forms a complete circle and each groove or phonautogram is entirely separate from and independent from any other groove or phonautogram. One of the phonautograms may be of the words "Look out," or the phrase "Get out of the way," or some phrase of like implication, and is designed to be used if the automobile is moving straight ahead and as a warning to pedestrians or to other cars. The second track, groove, or phonautogram may have thereon the phonautographic record of such a word as "Left," or such a phrase as "Going to the left," while the third record may have the phonautographic reproduction thereon of such a word as "Right." or "Going to the right." Of course, I do not wish to be limited to these particular phrases, as they are merely indicative of the phrases which might be used in connection with the signal. I have designated these three phonautographic tracks or phonautograms as *a*, *b* and *c* respectively. These tracks may be disposed relatively close to the periphery of the record or equidistantly from the periphery towards the center of the record, and it is intended that these tracks shall be relatively wide and relatively deep. In other words, shall be magnified beyond the size of ordinary phonautograms so as to secure a large amplitude of vibration for the reproducing needle or stylus and secure a large volume of sound issuing from the amplifying horn. This phonographic record will preferably be made of metal, though not necessarily so. It is obvious that delicacy of enunciation and accuracy of tonal value is not required in a device of this kind. The main thing is that the volume of sound shall be large and that the word or words shall be clearly enunciated. For the purpose of reproducing the sound, I mount within the amplifying horn 10 or the casing forming the base of said horn, a sound box 25 which may be constructed in any ordinary or usual manner. The phonographic record or phonautograms *a*, *b* and *c* are supposed to be "hill and dale" records as distinguished from laterally cut records, but I do not wish to be limited to this. I have illustrated the sound box as being constructed to operate with a hill and dale record, but the principle of this sound box may be equally well applied to a laterally cut record. The sound box may be constructed in any suitable manner, but is provided with a diaphragm 26 having the usual stylus-carrying lever 27 pivoted to it, at 28. Beyond the pivotal point of this lever, there is provided a cross bar 29, and pivoted upon this cross bar are three styluses 30^a, 30^b and 30^c coacting with the three grooves *a*, *b* and *c*. Each stylus is loosely mounted upon the cross bar 29, but is illustrated as extending beyond the cross bar and formed to provide an armature 31. Coacting with each armature is a small electro-magnet 32. Now when any one of these electro-magnets is energized, it will draw the upper end of the corresponding stylus against the magnet and this will cause the stylus to extend stiffly from the cross bar 29. If the stylus is held by the electro-magnet 32 from any movement relative to the cross bar, then it is obvious that the vibrations communicated to this stylus from the record will be communicated to the lever 27 and thus to the diaphragm 26. If, however, any one of the electromagnets 32 is demagnetized, it is obvious that the stylus will rest by its own weight on the face of the record, and that no vibration will be communicated to the lever 27. In other words, the stylus will "float" along the record groove.

For the purpose of electrically energizing any one of the magnets 32 so as to thereby render active any one of the styluses 30^a, 30^b or 30^c, I provide in convenient relation to the driver's seat, and preferably upon the steering post, a plate 33 or other support having therein three circuit closers in the form of push buttons, designated 34^a, 34^b and 34^c, each of these buttons controlling one of the magnets 32. These buttons may be of any desired form, and I have illustrated a conventional form of circuit closing switch, designated generally 34, and from each circuit closer a conductor 36 extends to the corresponding magnet, and from each magnet extends a conductor 37 which is electrically connected to the battery. Of course, a wire 38 also extends from each circuit closer to the battery. Thus, when any one button is depressed, the circuit will be closed from the battery through the button to the corresponding electro-magnet 32. This will render the corresponding needle or stylus active and thus the corresponding record *a*, *b*, or *c* will be reproduced, provided the record tablet and turn table are being rotated.

The rotation of the record turn table is controlled preferably by the circuit closer 34^a, 34^b or 35^c controlling the passage of current to the magnets 32, and to this end I have shown the conductors 37 as being connected to a common conductor 39 leading to one of the brushes of the electric motor 12 while a conductor 40 from the electric motor leads to the battery A. Thus, it will be seen that when any one of the circuit

closers are depressed to close a circuit through the corresponding magnet, the circuit will also be closed through the motor. Of course, it is obvious that the circuits may be differently arranged in order to secure the same effect without departing from the spirit of the invention. It is obvious also that a separate circuit closer might be used for closing the circuit through the battery and motor if desired.

My signal is intended to be used for motor vehicles, motor boats, power boats, and is also adapted to be used for the sounding or uttering of fire alarm signals, in which case, of course, the record turn table or tablet will contain a series of phonautograms adapted to reproduce different signal numbers as the record is rotated. Thus, the operator by selecting the proper record and depressing the corresponding button, as prevously described, will cause the machine to utter the signal number in a loud and greatly amplified tone which may be of sufficient volume as to warn a village or town of fire and the location of the fire. The device may be used in other situations wherever it is desired to give a certain signal and repeat that signal for an indefinite period at the will of the operator.

While I have illustrated a particular arrangement of parts and particular details of construction, I do not wish to be limited to these, as it is obvious that many changes might be made in the details of the construction and arrangement of parts without departing from the spirit of the invention as defined in the appended claims.

I claim:—

1. An audible warning signal mechanism for motor cars including a phonographic record having thereon a plurality of circular phonautographic grooves, each formed to reproduce words of warning, an electric motor for driving said record, a sound box having a diaphragm, a plurality of styluses associated with the sound box and diaphragm and each adapted to operatively engage one of said grooves, and manually controlled means for closing a circuit through said motor and simultaneously rendering any selected one of the styluses operative to transmit sound vibrations or disconnecting the motor from a source of energy and simultaneosuly rendering the previously operative stylus inoperative to transmit sound vibrations.

2. An audible warning signal mechanism for motor cars including a phonograph record having thereon a circular phonautographic groove formed to reproduce words of warning, an electric motor for driving the record, a sound box having a diaphragm, a stylus carried by the sound box and engaging said groove and normally out of operative engagement with the diaphragm, and manually controlled means for causing the stylus to shift into sound reproducing engagement with the diaphragm and simultaneously connect the motor with a source of energy or releasing the stylus from its operative engagement with the diaphragm of the sound box and simultaneously disconnecting the motor from its source of energy.

3. An audible signal mechanism including a single phonograph record having thereon a plurality of circular phonautographic grooves, each formed to reproduce words of warning, an electric motor for driving said record, a single sound box having a diaphragm, a plurality of styluses carried by the sound box and engaging the several grooves but normally out of engagement with the diaphragm, manually operable means associated with each stylus for causing the corresponding stylus to shift into sound reproducing engagement with the diaphragm and simultaneously connect the motor with a source of energy or cause the release of the corresponding stylus and the simultaneous disconnection of the motor from the source of energy.

4. An audible warning signal mechanism for motor cars including a phonograph record having thereon a circular phonautographic groove formed to reproduce words of warning, an electric motor for driving said record, a sound box having a diaphragm, a plurality of styluses carried by the sound box and each adapted to engage a corresponding groove, said styluses being normally out of operative engagement with the diaphragm, electro-magnetically actuated means for operatively engaging each stylus with the diaphragm when the electro-magnet means is energized, and manually operable means for simultaneously energizing any one of said electro-magnetically actuated means and the motor or simultaneously de-energizing the electro-magnetic means and the motor.

5. An audible signal mechanism including a phonographic record having thereon a plurality of independent, circular, phonautographic tracks, an electric motor for driving the record disposed in a normally interrupted circuit with a source of power, a sound box, a plurality of styluses all connected to the sound box and each associated with one of said grooves, all of said styluses being normally out of sound reproducing engagement with its corresponding groove, manually operable means for simultaneously shifting any one of said styluses into sound reproducing engagement with its corresponding groove and closing a circuit through the electric motor.

6. An audible signal mechanism including a phonographic record having thereon a plurality of independent, circular, phonautographic tracks, each reproducing cer-

tain warning signals, an electric motor for driving said record, a sound reproducer associated with the record including a reproducer arm, a plurality of styluses loosely mounted upon said arm, each associated with one of said tracks and each normally being inactive, and manually controlled means for connecting the motor with a source of current and simultaneously rendering any one of said styluses active and operatively engaged with the sound reproducing arm to cause the transmission of vibrations from the corresponding stylus to said arm or disconnecting the motor from the source of current and simultaneously rendering the heretofore active arm inactive.

7. An audible signal mechanism including a phonographic record having thereon a plurality of independent, circular, phonautographic tracks, each adapted to utter a certain warning signal, an electric motor connected to said record to drive it, a sound reproducer including a diaphragm, and a reproducer arm coacting therewith, a plurality of styluses each pivoted to said arm and each normally resting loosely on the record, and manually controlled means for connecting the electric motor to a source of energy and rendering any one of said styluses rigid with the arm to thereby cause the transmission of vibrations from the said stylus to the diaphragm.

8. An audible signal mechanism including a phonographic record having thereon a plurality of independent, circular, phonautographic tracks, each adapted to utter a certain warning signal, an electric motor connected to said record to drive it, a sound reproducer including a diaphragm, and a reproducer arm coacting therewith, a plurality of styluses each pivoted to said arm and each normally resting loosely on the record, and manually controlled means for connecting the electric motor to a source of energy and rendering any one of said styluses rigid with the arm to thereby cause the transmission of vibrations from the said stylus to the diaphragm, said means including a normally de-energized electro-magnet for each stylus connected in a normally open circuit with a source of power, and a switch whereby said circuit may be closed.

9. An audible signal mechanism including a phonographic record having thereon a plurality of independent, circular, phonautographic tracks, each adapted to reproduce a certain warning signal, an electric motor therefor, a sound reproducer including a diaphragm, and a reproducer arm, a plurality of styluses pivotally mounted on the reproducer arm and resting loosely upon the record and associated each with one of the phonautographic tracks, a plurality of electro-magnets, each associated with one of said styluses and adapted, when energized to render the stylus rigid with the arm, each of said electro-magnets being connected in an interrupted circuit with a source of energy, and manually controlled means for closing the circuit through any one of said magnets to the source of energy and simultaneously closing the circuit through the electric motor and the source of energy.

10. The combination with a phonographic record having thereon a plurality of record tracks, each track being endless and disposed approximately concentric to the center of rotation of the record, of a single sound box, and a plurality of styluses operatively connected to the sound box and associated each with one of the record tracks, there being means whereby any one of said styluses may be rendered active.

In testimony whereof I hereunto affix my signature.

BENJAMIN F. FREEBLE.