

Nov. 6, 1951

F. J. DOFSEN
ROADWAY WITH SOUND TRACK AND
METHOD OF FORMING THE TRACKS

2,574,090

Filed Nov. 19, 1948

3 Sheets-Sheet 1

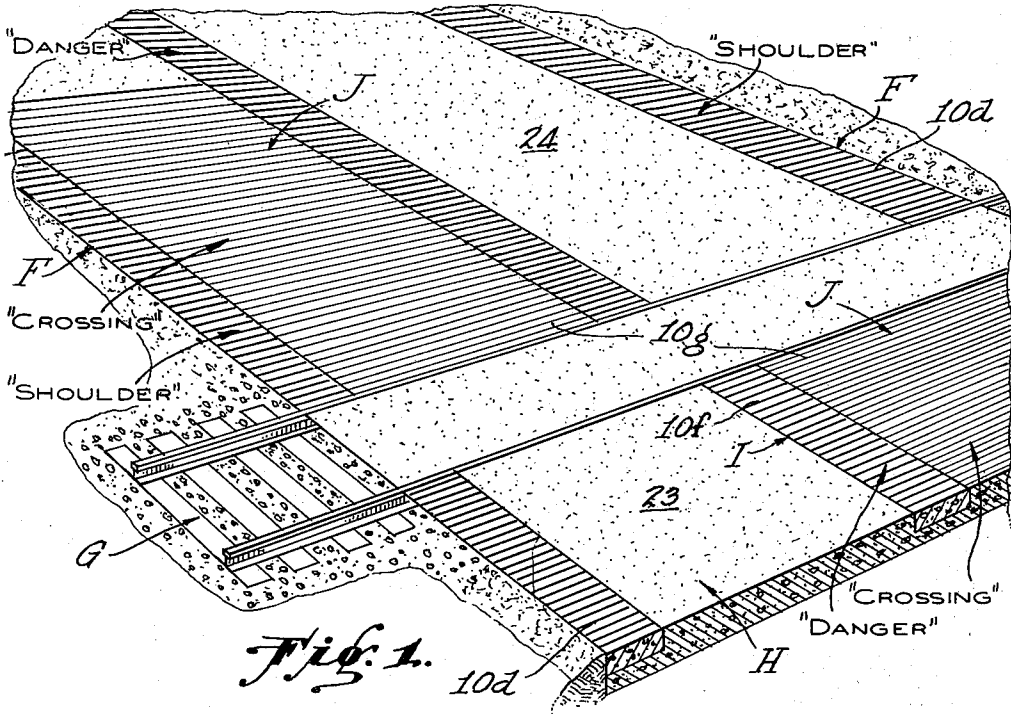


Fig. 1.

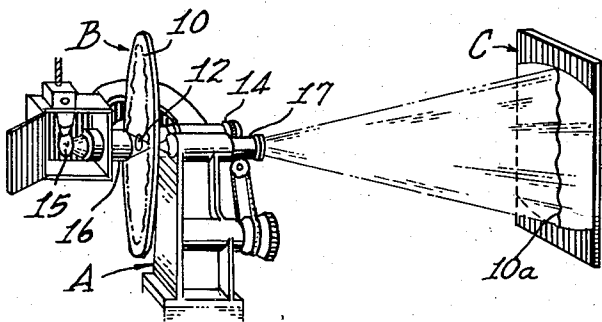


Fig. 2.

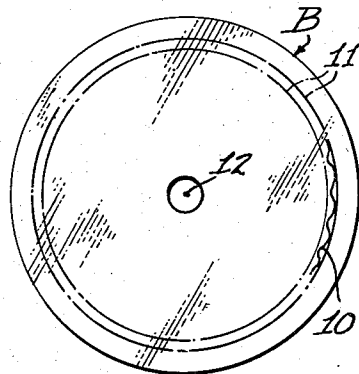


Fig. 3.

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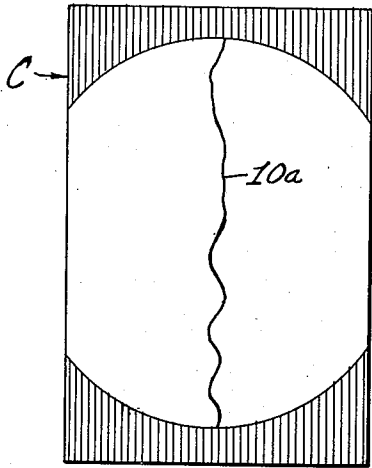


Fig. 4.

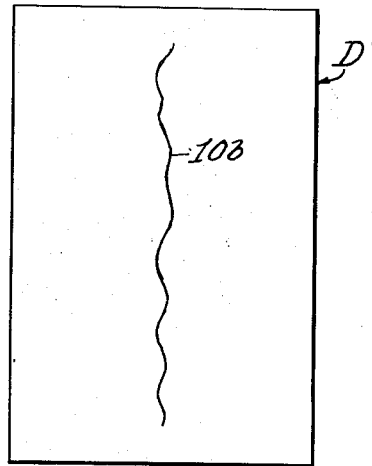


Fig. 5.

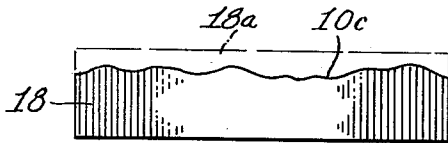


Fig. 6.

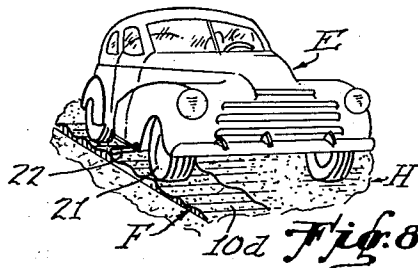


Fig. 8.

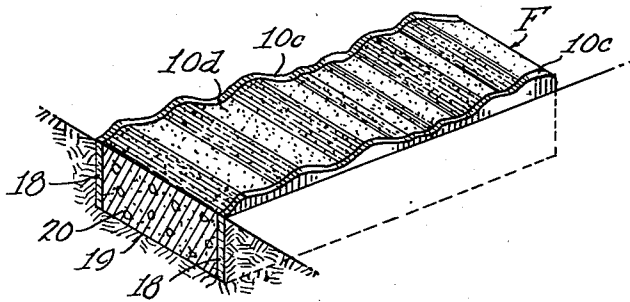


Fig. 7.

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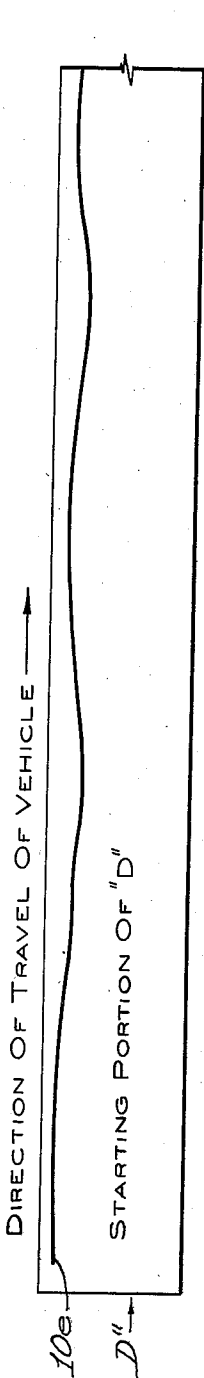


Fig. 9.

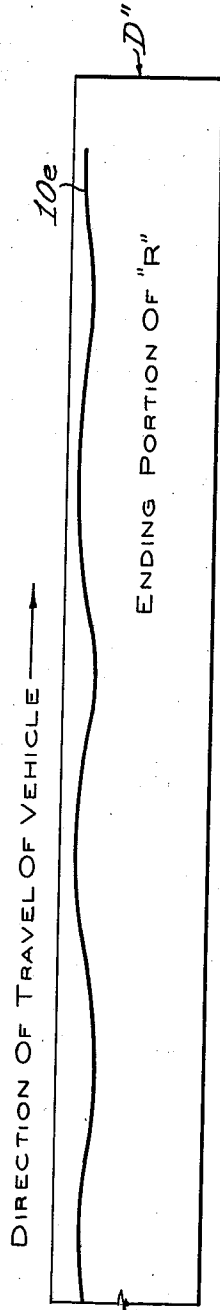


Fig. 10.

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UNITED STATES PATENT OFFICE

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ROADWAY WITH SOUND TRACKS AND METHOD OF FORMING THE TRACKS

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2 Claims. (Cl. 94—1.5)

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The present invention relates to a roadway with sound tracks and method of forming the tracks. It consists of the combinations, constructions and arrangement of parts of the roadway and sound track, and the steps of the method as hereinafter described and claimed.

An object of my invention is to provide a roadway having sound tracks therein, which are designed to produce audible and understandable words as a vehicle passes therealong. The body of the vehicle constitutes a sound box. The words produced in this manner serve as warnings to the driver. These warning words are produced automatically as the vehicle travels over the sound tracks, regardless of light and weather conditions.

For example, a divided highway may have a sound track extending therealong between the lanes of the roadway, which will coast with the travelling vehicle to give the warning "Danger" as the vehicle moves from one lane to another. Sound tracks may be provided along the shoulders of the roadway to give the warning "Shoulder" when the vehicle approaches too close to the side of the roadway for safety. Another example would be giving the warning "Crossing" as the vehicle approaches an intersection.

A still further object of my invention relates to a method of producing a sound track for a roadway that will be sufficiently large and accurate to give the proper warning to the driver.

This invention embodies parts of the apparatus and steps disclosed in my copending application, Serial No. 652,092, filed in the United States Patent Office on March 5, 1946, entitled "Method and Apparatus for Proportionally Enlarging a Sound Track."

Other objects and advantages will appear as the specification proceeds. The novel features will be set forth in the claims hereunto appended.

For a better understanding of my invention, reference should be had to the accompanying drawings, forming part of this application, in which:

Figure 1 is a perspective view of a portion of a two-lane roadway at a railroad crossing, with sound tracks designed to give various warnings to a driver of a vehicle as the latter travels along the roadway;

Figure 2 is a fragmentary portion of an apparatus for enlarging an original sound track on a screen;

Figure 3 is a face view of a transparent disc showing the original sound track thereon greatly enlarged for the purpose of clarity;

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Figure 4 is a front elevational view of the screen disclosing the original sound track enlarged thereon in true proportion and without distortion;

Figure 5 illustrates a strip of material having a trace thereon corresponding with the enlarged sound track outline of Figure 4;

Figure 6 shows a form board with its upper portion cut away in accordance with the sound track trace illustrated in Figure 5;

Figure 7 discloses two of these form boards arranged parallel with one another and the space therebetween filled with concrete, the upper surface of the concrete being trowelled off to have the same configuration as the upper edges of the form boards;

Figure 8 is a schematic view illustrating a vehicle moving over a sound track on a roadway; and

Figures 9 and 10 disclose strips of material having an actual enlargement of portions of a sound track for the word "Danger"—only the starting and ending portions of this word being disclosed.

While I have shown only the preferred form of my invention, it should be understood that various changes, or modifications, may be made within the scope of the annexed claims without departing from the spirit thereof.

Referring now to Figures 2-4, inclusive, I disclose fragmentary portions of the apparatus that I employ in making a sound track. The entire apparatus is fully disclosed in my copending application mentioned above. However, the part of the apparatus with which I am concerned in the present invention is fully disclosed in these three views.

In Fig. 2, I show a supporting frame A, which rotatably carries a transparent disc B having an original sound track 10 inscribed thereon. In actual practice, the disc B has a thin layer of transparent material applied thereto and the original sound track is inscribed in this material. Figure 3 shows a portion of the sound track 10 greatly enlarged, but actually it will be no greater in size than the usual sound track groove in a phonograph record.

The stylus (not shown) that cuts the groove in the transparent layer on the disc B is moved laterally in accordance with the amplitude of the sound waves produced by the sound that is to be recorded. The disc B is rotated while the stylus cuts the sound track and the arrangement is such that the sound track will be concentric to the center 12 of the disc. This means that the entire recording must be confined within the single cir-

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cumferences of the circles 11 indicated by dot-dash lines in Figure 3. My copending application further discloses a transparent disc in which the sound track is fashioned on a transparent disc in a spiral arrangement in order to extend its length.

The disc B with the sound track thereon is mounted on a spindle 14, which is rotatably carried by the frame A. Any suitable means may be employed for rotating the spindle at a desired speed. Again referring to Figure 2, it will be seen that I mount a light 15 adjacent to the sound track 10. This light has its rays focused onto a portion of the sound track by an optical system of lenses indicated at 16. The rays from the light 15 are brought to a focal point on a portion of the original sound track 10. Then the rays are directed through a microscope 17 that greatly enlarges the portion of the sound track being illuminated.

The transparent record with the lateral sound track that is illuminated by the light 15 will be projected upon a screen indicated generally at C so that the enlarged sound track 10a will appear on the screen (see Figures 2 and 4).

In Figure 5, I show a strip of material D' such as paper, which may be secured to the screen C so that a trace 10b corresponding to the sound track image 10a may be drawn thereon. Any suitable means may be employed for transferring the trace 10b to the surface of a roadway over which a vehicle E travels.

Figures 6 and 7 disclose one method of accomplishing the transfer of the trace 10b to a roadway strip F. Referring to Figure 6, I disclose a form board 18 having its top portion 18a cut away to define an undulating upper edge 10c, which exactly corresponds to the trace 10b. Figure 7 illustrates a pair of these prepared form boards 18 arranged in spaced and parallel relation with one another. These boards may be held in position by any suitable means, such as being placed in a trench 19. Concrete 20 has been poured into the space between these form boards and the upper surface trowelled off to define a roadway sound track 10d that corresponds with the undulating edge 10c of the form boards. In other words, the latter are utilized as templates when making the roadway strip F.

The sound track on the strip F may be designed for coating with the wheels 21 of the vehicle or an arm 22 depending from the frame of the vehicle, to produce the word "Shoulder" as the vehicle E travels thereover. The body of the vehicle acts as a sound box to give an audible and understandable warning to the driver that he is driving on the shoulder of the roadway.

Figures 9 and 10 illustrate a trace of the starting portion of "D" and ending portion of "R." The entire word "Danger" was actually produced by the method herein described and the trace 10e drawn on a strip of paper "D."

Figure 1 illustrates the intersection of a railroad track G and a highway H. The shoulder

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strips F previously described border the highway. This view illustrates a divided highway having two traffic lanes 23 and 24 separated by a central strip I. The latter has a sound track 10f designed to produce the word "Danger" as the vehicle moves from one traffic lane to the other. Also, highway strips J are provided in both traffic lanes and have sound tracks 10g to give the warning "Crossing" as the vehicle approaches the intersection.

Although I have described the roadway as having strips to give the warnings "Shoulder," "Danger," and "Crossing," and have disclosed one method of producing sound tracks to give these warnings, I do not desire to be limited in this respect. A roller could be moved over form boards to give the desired undulating sound tracks to the roadway. Also, the enlarged sound tracks could be formed on metal strips in the manner disclosed in my copending application hereinabove identified and these strips applied to the surface of the roadway.

I claim:

1. A roadway having a signal device comprising a trackway having an irregular undulating upper surface conforming to the shape of a predetermined sound wave, said trackway being longitudinally disposed with respect to said roadway with the undulations lying above said roadway surface whereby a vehicle traveling along said roadway will cooperate therewith to produce an audible signal.

2. The herein described method of forming a roadway with a signal device on its upper surface which comprises inserting form boards in a trench, the boards having an irregular undulating upper edge conforming to the shape of a predetermined sound wave; placing roadway surfacing material abutting said form boards and contouring the surfacing material in conformation with the undulations of the form boards.

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