

UNITED STATES PATENT OFFICE

2,491,037

METAL PLAYER FOR SOUND RECORD TAPE

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3 Claims. (Cl. 274—11)

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An object of my invention is to provide a metal player primarily designed for reproducing sound from a sound record metal tape. In my patent, 2,060,287, issued November 10, 1936, on a Sound record and process of producing the same, I disclose a metal tape with sound recordings thereon, this tape being connected to a sound transmitter in which one wall constitutes a diaphragm for making the sound recordings audible when the operator's finger nail is moved over the side of the tape having the sound recordings.

In the present invention I provide a metal player to take the place of the fingernail, and the player is designed to receive the tape and the operator's fingers can press the player against the surface carrying the sound recordings as the player is moved along the tape. The tape may have any desired sound recording formed thereon and the particular construction of the tape can take the form shown in my patent above referred to.

The metal player is designed to be stamped out from sheet metal and to be cut and shaped by a blanking and forming die. In this way the metal player can be cheaply constructed and sold at a low price. The metal player has novel means for causing the tape to vibrate in accordance with the sound producing undulations as the player is moved along the tape, these vibrations being transmitted to the diaphragm of the sound transmitter.

The invention is extremely simple in construction and permits a better sound reproduction to be made from the tape than is possible with the use of the finger nail alone.

Other objects and advantages will appear in the following specification, and the novel features of the device will be particularly pointed out in the appended claims.

Figure 1 is a side elevation partly in section of a small sound transmitter and shows the metal player receiving the sound record tape and being moved therealong, the tape in turn having one end attached to the diaphragm wall of the sound transmitter or reproducer;

Figure 2 is a diagrammatic view of the metal player on a greatly enlarged scale, the metal tape being received in the player;

Figure 3 is a transverse section taken along the line III—III of Figure 2; and

Figure 4 is a plan view of the blank from which the metal player is formed, the blank being shown on the same enlarged scale as in Figures 2 and 3.

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 appended claims without departing from the spirit and scope of the invention.

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In carrying out my invention, I provide a small sound transmitter or reproducer indicated generally at A in Figure 1. The sound reproducer may be in the form of a box having a diaphragm wall 1 and a front wall 2, in which an opening 3 is provided. The box has a cover 4 that carries a flange 5 designed to enter the box interior as illustrated in Figure 1. The dash line position of the cover 4 shows how the cover can be opened when it is desired to place the sound tape B and the metal player C in the box. The box has tabs 6 that are folded under the cover when the latter is closed.

I do not wish to be confined to any particular type of sound reproducer or transmitter because it is possible to use a diaphragm without any box or sound directing compartment associated therewith. The diaphragm has a slot 7 through which an end of the sound record tape B is fed and the tape is held against accidental withdrawal by a knot 8 tied in the tape end which is received within the sound reproducer A.

As already stated, the metal tape B may be of the type shown in my Patent 2,060,287, although it may comprise any flexible strip made of any material that has sound recordings 9 formed in one side thereof. In my copending application, Serial No. 652,092, filed March 5, 1946, on a Method and apparatus for proportionately enlarging a sound track, I disclose one means of manufacturing the tape. The present invention pertains to the metal player which is used for vibrating the tape and to cause the latter to vibrate the diaphragm 1 to emit the desired sounds.

The metal player is indicated generally at C and I will first describe the shape of the blank from which the metal player is formed. The blank is illustrated in Figure 4 and it will be noted that it is T-shaped. The blank has a stem or main body portion 10 and a cross bar 11. The free end of the stem is made circular as shown at 12, and this circular portion has a projection 13 formed at its center. The projection is elongated and extends in the same direction as the longitudinal axis of the stem. A portion of the stem which is disposed close to the cross bar is slotted at 14 and this slot extends through a greater distance than one-half the length of the stem and provides two relatively thin resilient arms 15 that function in a manner hereinafter described.

The cross bar 11 has a central portion that is provided with a curved edge 16 which is designed to be aligned with the curved edge 12 when the metal player stem 10 is bent into its final looped shape. At the center of the cross bar, I provide a projection 17 which is similar to the projection 13 and is also aligned with the longitudinal axis of the stem. When the stem is bent back upon

itself to form the looped shape shown in Figure 2, the projections 13 and 17 will oppose each other.

The ends of the cross bar have pairs of wings 18—18 and 19—19. In Figure 4, the dash lines 20 and 21 at the bases of the wings 18 and 19, respectively, indicate the lines of fold. The wings are bent at right angles to the plane of the cross bar and when thus bent form guide channels D and E for the tape as illustrated in Figure 2. The circular end portion 12 indicated in Figure 4 has dash lines 22 that coincide with the sides of the stem 10, and a dash line 23 that extends at right angles to the lines 22, these lines indicating where the metal is to be bent. The circular portion 12 is bent slightly along these lines, as illustrated in Figure 2. The bending is such as to form a slightly cup-shaped cavity for the portion 12, so that the operator's finger F when placed in this portion, as shown in Figure 1, will have little tendency to slip off from the metal player as the finger is used for sliding the player along the tape.

The stem 10 is folded back on itself substantially at its mid-portion so that the circular end 12 will overlie the mid-portion of the cross bar 11. The flexible arms 15 permit the stem to be bent in the manner shown and will give a resiliency to the circular portion 12 for causing it to spring away from the cross bar 11 when the finger F releases its pressure on this portion. The slot 14 is disposed nearer to the cross bar 11 than to the circular portion 12 in order to provide a non-perforated stem portion 10a that is disposed adjacent to the circular end 12. Such construction gives a larger non-perforated surface against which the finger F can press.

Figure 1 shows the actual size of the metal player and it will be seen that the portion 10a is small in area, although it will provide sufficient breadth for the finger to rest against. The wings 18 and 19 when bent at right angles to the cross bar complete the forming of the metal player. The circular portion 12 will be positioned between the guide channels D and E. The slot 14 extends slightly beyond the bend or loop 14a so that the resilient arms will form the loop 14a.

From the foregoing description of the various parts of the device, the operation thereof may be readily understood.

In Figures 2 and 3 the sound record tape B is indicated as being received in the guide channels D and E. The normal position of the portion 10a with respect to the cross bar 11 is indicated by the dash lines in Figure 3. The projections 13 and 17 will face each other and this will permit the tape to be placed in the guide channels with the sound recordings 9 facing upwardly or downwardly. If the sound recordings face upwardly the projection 13 when pressed against the tape and moved therealong will cause the tape to vibrate and should the sound recordings face downwardly, the projection 17 will cause the tape to vibrate and transfer the vibrations to the sound transmitter.

The sound reproducer or transmitter A is held in one hand as indicated by the hand G in Figure 1, while the metal player C is held in the other hand. The metal player is moved along the tape from a position adjacent to the diaphragm wall 1 to the free end of the tape. During this movement the portion 10a is pressed firmly down upon the tape and kept in this position throughout the entire movement of the player along the tape. The vibrations produced by the player moving over the sound recordings are conducted by the tape to the diaphragm wall and will cause the dia-

phragm wall to vibrate in the same manner. The diaphragm in vibrating will pulsate the air disposed adjacent thereto for causing sound waves to be projected through the opening 3 of the front wall. In this way the sound reproducer A becomes a talking box should the recordings 9 be such as to produce words. Any manner of sound can be reproduced by the tape and metal player.

I claim:

1. A metal player for a sound record tape comprising a T-shaped member having a cross bar and a stem, the stem including upper and lower portions interconnected by a loop, the upper portion having a free end overlying a central portion of the cross bar, the ends of the cross bar having guide channels for guiding a sound record tape between the central portion of the cross bar and the free end of the stem, the stem being resilient for permitting the free end thereof to be yieldingly pressed down upon the tape.

2. A metal player for a sound record tape comprising a T-shaped member having a cross bar and a stem, the stem portion including upper and lower portions interconnected by a loop, the upper portion having a free end overlying a central portion of the cross bar, the ends of the cross bar having guide channels for guiding a sound record tape between the central portion of the cross bar and the free end of the stem, the stem being resilient for permitting the free end thereof to be yieldingly pressed down upon the tape, the central portion of the cross bar and the free end of the stem having cooperating projections that register with and extend toward each other to ride along the tape as the player is moved over the tape, the guide channels being aligned with the projections for centering the tape with respect to the projections.

3. A metal player for a sound record tape and made of resilient material and comprising a T-shaped member having a cross bar and a stem, the latter including upper and lower portions interconnected by a loop, the upper portion having a free end overlying a central portion of the cross bar, said stem having a longitudinal slot extending through the loop so as to increase the resiliency of the stem at the loop, the free end of the stem and the central portion of the cross bar being spaced apart to slidably receive a sound record tape therebetween, the central portion of the cross bar and the free end of the stem having cooperating projections that extend toward each other to ride along the tape as the player is moved over the tape.

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The following references are of record in the file of this patent:

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