Feb. 12, 1935. R. SCHMIDT 1,990,843

SOUND RECORDING

Filed Dec. 1, 1932

Fig. 1

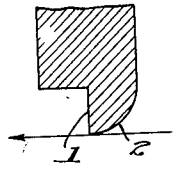


Fig. 2

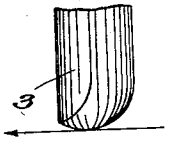


Fig. 3

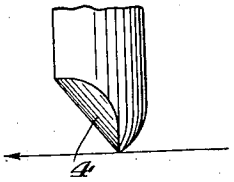


Fig. 4

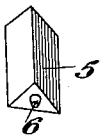


Fig. 6.

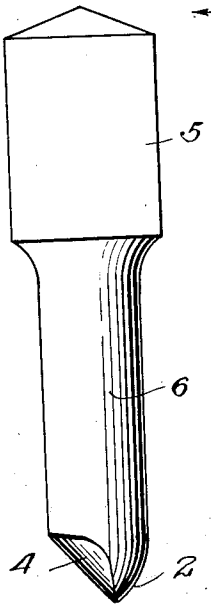
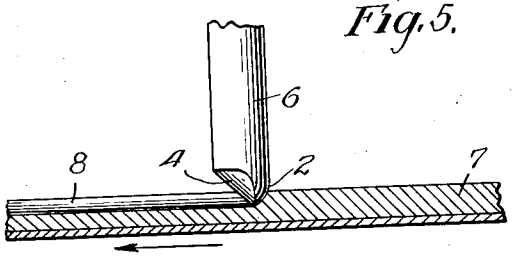


Fig. 5.



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UNITED STATES PATENT OFFICE

1,990,843

SOUND RECORDING

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Application December 1, 1932, Serial No. 645,287
In Germany December 5, 1931

2 Claims. (Cl. 274—38)

My present invention relates to sound recording and more particularly to the kind of sound recording in which the sound is registered mechanically by means of a stylus.

One of its objects is an improved stylus. Further objects will be seen from the detailed specification following hereafter.

Reference is made to the accompanying drawing in which Figs. 1 to 3 show some styli according to my invention and Fig. 4 shows the head of a stylus with the cylindrical shaft. Fig. 5 shows how the stylus engages the record base. Fig. 6 shows a perspective view of a stylus on an enlarged scale.

I have found that improved sound records are obtainable by impressing the sound track in a base of celluloid, wax or similar material by means of styli having a tip the leading face of which is spherical and the trailing face of which is cylindrical on a radius greater than that of the shaft and intersects said spherical leading face. The cylindrical trailing face may be parallel or inclined to the axis of the stylus. The leading face comprises that part of the tip of the stylus which comes into contact with the record base in the recording operation. The sound record is in this process not cut in the base, but only impressed without removing material from the base.

The radius of the cylindrical surface must be greater than that of the cylinder forming the shaft of the stylus and it is preferably made as long as is compatible with the strength of the tip of the stylus so that no deformation of the tip occurs. Thus when the radius becomes infinitely long the cylindrical surface passes over into a plane.

The portion of the head of the stylus which is to be inserted in the mount provided in the sound box is preferably given an irregular polygonal form so that by the introduction into the socket of the mount which is of a corresponding cross section, it is ensured that the active surface of the stylus necessarily receives the correct position. The cross-section of the head may, for instance, be a scalene triangle or an irregular quadrangle or pentagon.

In Figs. 1 to 3 of the accompanying drawing several forms of a stylus according to this invention are represented by way of example. The form of the tip of the stylus shown in section in Fig. 1 comprises a rear face formed in a plane 1 laid in the axis of the stylus, so that the tip of the stylus is formed by a quarter of a sphere 2. The said plane forming the rear face of the tip of the stylus may not be laid in the axis, but may be a plane parallel to the axis of the stylus. In Fig. 2 there is shown a tip of the stylus formed in a convex cylindrical surface 3 parallel to the axis of the stylus. According to Fig. 3 the rear face of the tip of the stylus is formed in a cylindrical surface 4 inclined to the axis of the stylus. This form of the tip of the stylus has the advantage that despite its little thickness the tip excels by great mechanical resistance. With this form of the tip of the stylus, the cylindrical surface is at such an inclination that the edge formed between said cylindrical surface and the hemisphere is vertical to the record base up to a height of about 30 to 50 μ (1 μ=1/1000 mm). Fig. 4 represents one form of a head 5 of a stylus with the cylindrical shaft 6 fixed thereto.

Fig. 6 shows a perspective view of a stylus according to this invention. Referring particularly to this drawing, 5 is the head of the stylus having the cross-section of a triangle. The triangle has preferably different angles so that it must always be inserted in the sound box in the same manner. To the head 5 there is fixed the shaft 6 forming one piece with the head 5. On the shaft 6 there is formed the tip of the shape shown in Fig. 3.

Fig. 5 illustrates how the tip of the stylus engages the record base. The record base is marked 7. In this record base the tip of the stylus depresses the sound groove 8. In this operation the rounded part 2 of the stylus is the leading face and the cylindrical surface 4 is the trailing face.

What I claim is:

1. A recording stylus comprising a head for positioning the same in a sound box, a cylindrical shaft integral with said head, said shaft having a tip the leading face of which is spherical and the trailing face of which is cylindrical on a radius greater than that of the shaft and intersects the spherical surface of the leading face.

2. A recording stylus comprising a head for positioning the same in a sound box, a cylindrical shaft integral with said head, said shaft having a tip the leading face of which is spherical and the trailing face of which is cylindrical on a radius greater than that of the shaft and intersects the spherical surface of the leading face at an acute angle to the axis of the shaft.

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