

June 30, 1931.

W. C. JONES

1,812,634

SOUND REPRODUCER

Filed June 23, 1928

FIG. 1

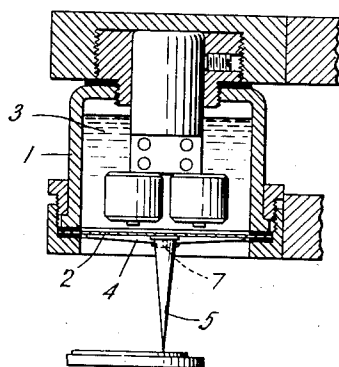
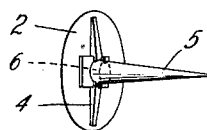


FIG. 2



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SOUND REPRODUCER

Application filed June 23, 1928. Serial No. 287,722.

This invention relates to reproducers adapted to be used for playing back directly from a soft wax surface of the original and more particularly to a stylus needle and mounting therefor to be used with such devices.

This invention has for its object the provision of a stylus needle and mounting therefor which will result in a reproducer structure of sufficiently low mass and stiffness to meet the requirements for a playback when comparatively soft recording material is used.

A needle suitable for this purpose should be sufficiently light and stiff that its length is the controlling factor in reducing the needle point mass; it should also be of a permanent or semi-permanent character and adapted for ready attachment to the associated parts without the addition of unnecessary masses to the moving structure.

In the drawings Fig. 1 is a sectional view of a reproducer embodying this invention. Fig. 2 is a perspective view of a needle showing the method of attachment to the diaphragm.

Referring to Fig. 1 the reproducer 1 is preferably of the bipolar electromagnetic type as shown and similar to that disclosed in Patent 1,746,730, granted to me February 11, 1930, in which the diaphragm 2 forms a flexible closure for the container of the viscous matter 3. The diaphragm also constitutes a rocking support for the armature 4 which greatly stiffens the diaphragm in one direction but permits substantially free flexing in the other.

In the present invention, however, the stylus holder is eliminated and the needle 5 is fitted with a threaded base member 6 which directly engages the threaded stud 7 projecting from the armature.

One form of needle which has been found suitable for play-back purposes consists of a conical shell of nickel about 1" long and sufficiently thin that its mass effective at the needle point is about .010 gms. Such a needle may be made from thin sheet material and fitted with a suitable point but it has been found preferable to electroform these

needles on a suitable mandrel as described in Patent No. 1,733,608, granted to W. G. Knox, et al., Oct. 29, 1929.

By contouring the point of this cone to fit the record grooves and then electro-depositing on it a thin layer of chromium, a needle of semi-permanent character is obtained. When it becomes necessary the needle may be replaced very easily without dismantling the reproducer due to the special construction already described.

What is claimed is:

1. A reproducer needle comprising a conical shell of metal with a hard metal surface at its point and a mounting member at its base.

2. A reproducer needle comprising a hollow conical shell of nickel, fitted with a mounting member and chromium plated and contoured at its point to fit a record groove.

3. A stiff reproducer needle having a length of the order of one inch and an effective needle-point mass of the order of .010 grams.

4. A reproducer needle comprising a hollow cone of metal having a length of the order of one inch and an effective needle-point mass of the order of .010 grams.

In witness whereof, I hereunto subscribe my name this 21st day of June, 1928.

WARREN C. JONES.