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RECORD CUTTING HEAD
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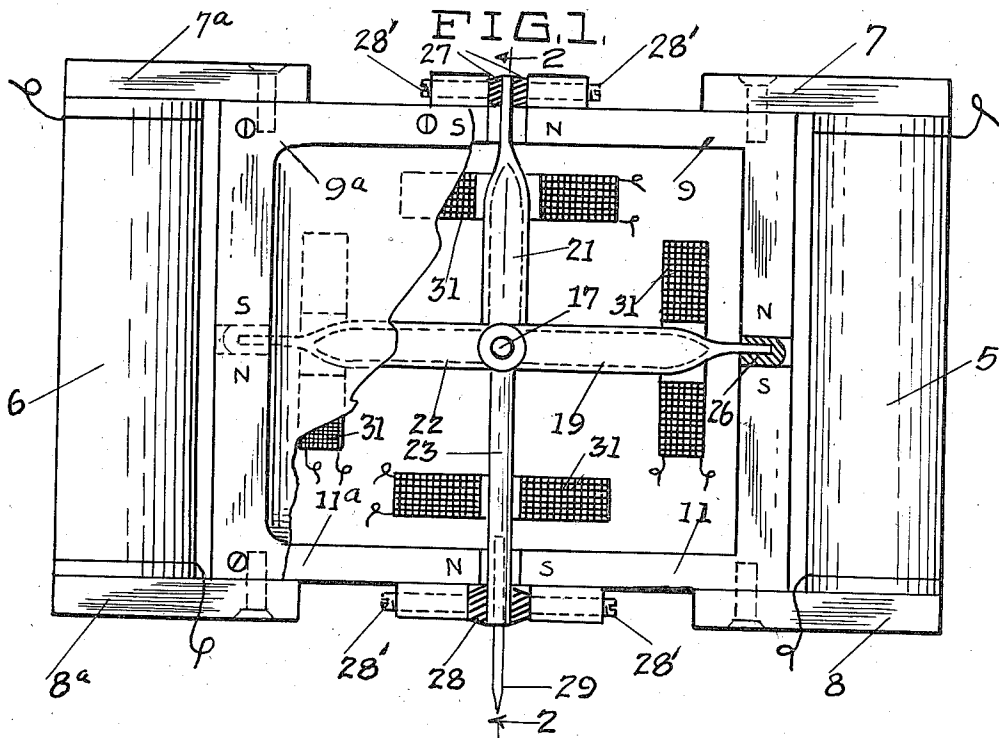
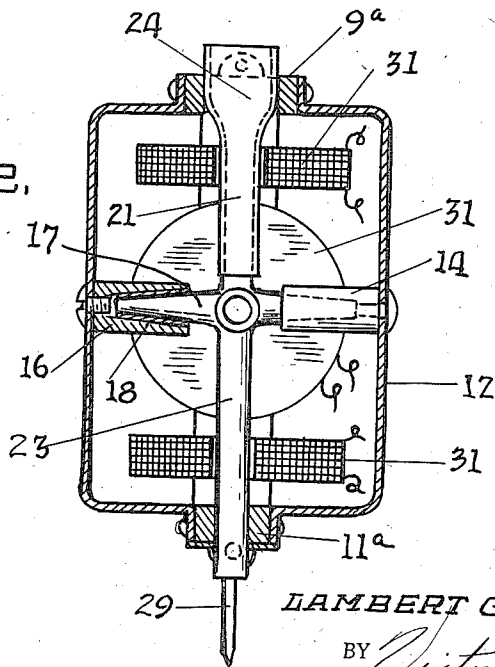


FIG. 2.



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RECORD CUTTING HEAD

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2 Claims. (Cl. 179-100.41)

This invention relates to improvements in record cutting heads and has particular reference to a cutting head for the reproduction of sound records and particularly sound records cut upon metal discs, such as aluminum discs.

The principal object of the invention is to produce a cutter head which will have an oscillating movement and not a vibrating movement.

A further object is to construct a device which will handle both high and low frequencies with equal facility.

Other objects and advantages will be apparent during the course of the following description.

In the accompanying drawing forming a part of this specification and in which like numerals are employed to designate like parts throughout the same,

Fig. 1 is a side elevation of my improved cutter head with a portion thereof broken away, and Fig. 2 is a vertical cross section taken on the line 2-2 of Fig. 1.

In the cutting of sound records, particularly in metal, there is considerable damping action due to the drag of the needle upon the disc and consequently it has been virtually impossible to cut metal records which would reproduce the proper tones. Applicant has, therefore, constructed a cutter head which has the stylus supporting armature correctly balanced and powerfully controlled so as to overcome the needle drag and at the same time being sufficiently powerful to cut the necessary indentations in the record with proper facility.

In the accompanying drawing wherein for the purpose of illustration is shown a preferred embodiment of my invention, the numerals 5 and 6 designate a pair of electromagnets mounted on opposite sides of my device. As both sides are duplicates, but one side will be described, and the letter *a* will be affixed to the numbers of the opposite side.

The magnet 5 has pole pieces 7 and 8 which are in turn connected to angular shaped bars 9 and 11, respectively. Therefore, when the magnet 5 is energized the ends of the bar 9 will both become the north poles of an electromagnet, while the ends of the bar 11 will both become south poles. On the opposite side of the device the electromagnet 6 is wound in such a way that the bar 9*a* produces south poles at its ends and the bar 11*a* becomes north poles at its ends. To the bars 9, 11, 9*a*, and 11*a* are non-magnetic side plates 12 and 13. These side plates carry bearings 14 and 15 into which the tapered ends of a shaft 17 project. A rubber cushion 18 is

interposed between the bearings and the tapered ends of the shaft. This shaft carries a plurality of radially extending arms 19, 21, 22, and 23. The arm 21 extends upwardly and has a flat portion 24 which lies between the horizontal extremities of the bars 9 and 9*a*. The arm 23 extends downwardly between the horizontal extremities of the bars 11 and 11*a*. The arm 19 has its end flattened and projecting between the vertical extremities of the bars 9 and 11, and the arm 22 has its extremity flattened and lying between the ends of the bars 9*a* and 11*a*.

Rubber dampers 26 are inserted between the horizontal ends of the arms 19 and 22 and their respective magnetic bar ends. Rubber dampers 27 and 28 are caused to bear against the upper end of the arm 21 and the lower end of the arm 23. These dampers are adjustable through the medium of adjustment screws 29. The arm 23 is bored so as to receive a stylus 29 therein, which stylus serves as the cutting element for the rod. Power coils 31 having an air core, are positioned over each of the arms 19, 21, 22, and 23 and spaced therefrom, as shown in Fig. 1 so that these arms may move therein without contact therewith. These coils 31 are connected in series parallel which gives the effect of two separate cutters delivering their combined power to one central point, thereby making possible the necessary damping to center the armature and yet keep all of the high frequency movements up to ten thousand without producing any resonance. The purpose of the electromagnets 5 and 6 is obvious, namely, that they produce a balanced condition in the armature which is only overcome by the power coils when fluctuating current is impressed thereon, thus creating the necessary stylus movement to produce the record.

It is to be understood that the form of my invention herewith shown and described is to be taken as a preferred example of the same and that various changes relative to the material, size, shape and arrangement of parts may be resorted to without departing from the spirit of the invention or the scope of the subjoined claims.

Having thus described my invention, I claim:—

1. A cutter head for a record producing mechanism, comprising an electromagnet, a series of angular bars arranged in rectangular formation and having their ends spaced one from the other, an armature pivotally mounted within the rectangle, the ends of said armature lying between the ends of said bars, damping means controlling the movement of said armature, said armature

being adapted to hold a stylus and power coils surrounding said armature, said coils acting on said armature to cause movement thereof.

5 2. A cutter head for the production of records, including a pair of electromagnets, pole pieces secured to said electromagnets, an angular bar secured to each of said pole pieces, the arrange-
10 ment of said angular bars being such as to form a rectangle with the ends of said angular bars being spaced one from the other, a shaft centrally positioned with respect to said rectangle,

a plurality of arms carried by said pivoted bar, the ends of said arms each being positioned between the adjacent ends of two of said angle bars, damping means for positioning said armature, and a power coil associated with each of said arms whereby when said power coils are energized said armature will be moved against the action of said damping means and said electromagnet. 5

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