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W. C. JONES
REPRODUCING APPARATUS

1,746,730

Filed May 14, 1927

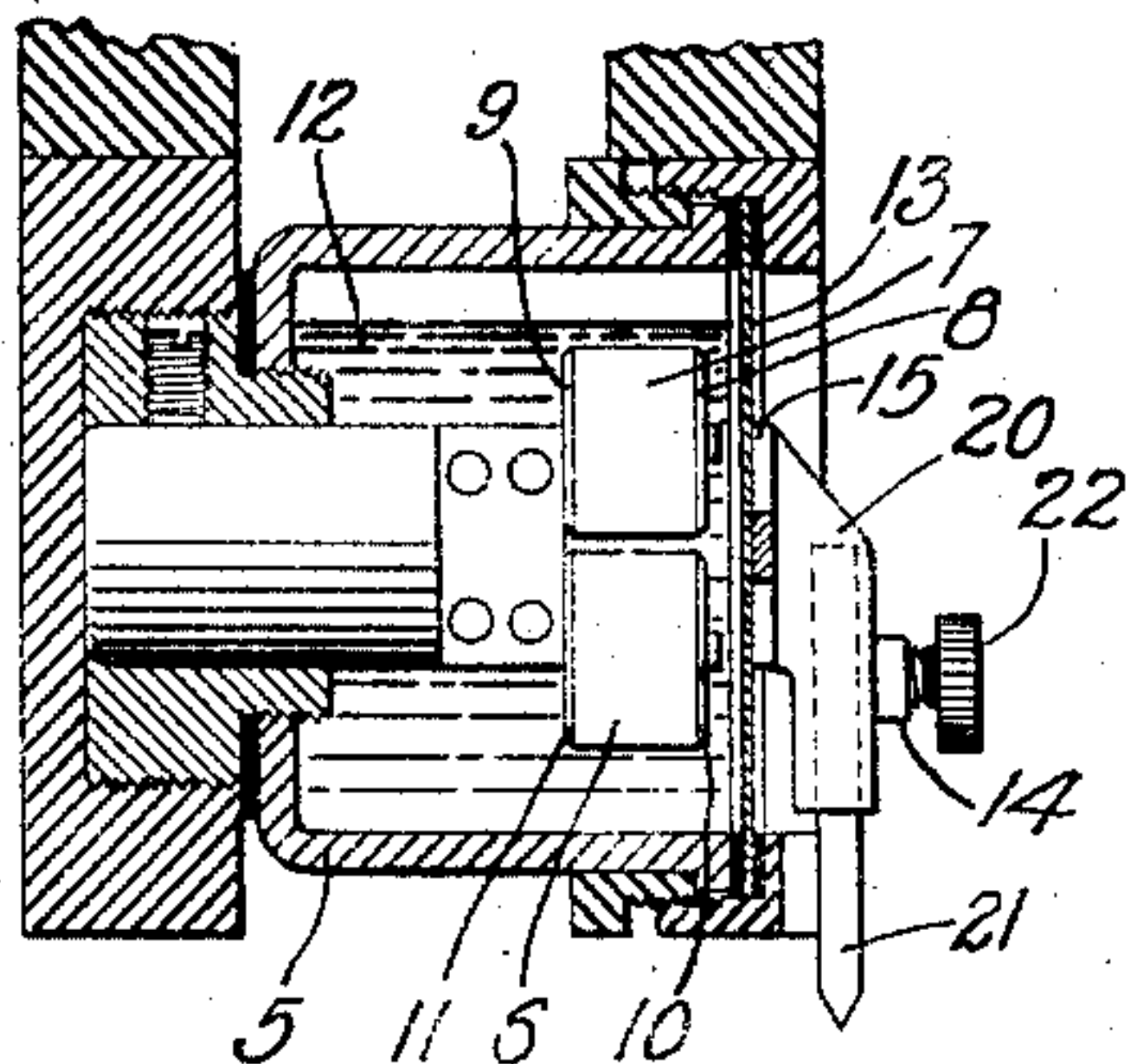


FIG. 1.

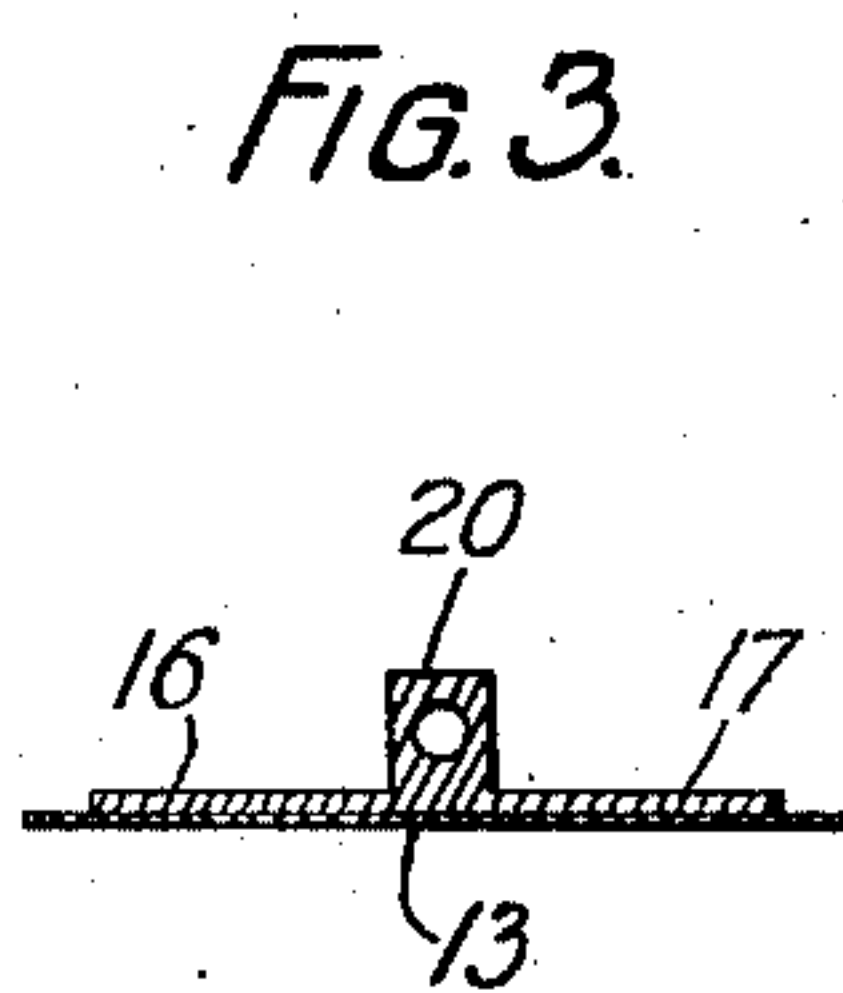


FIG. 3.

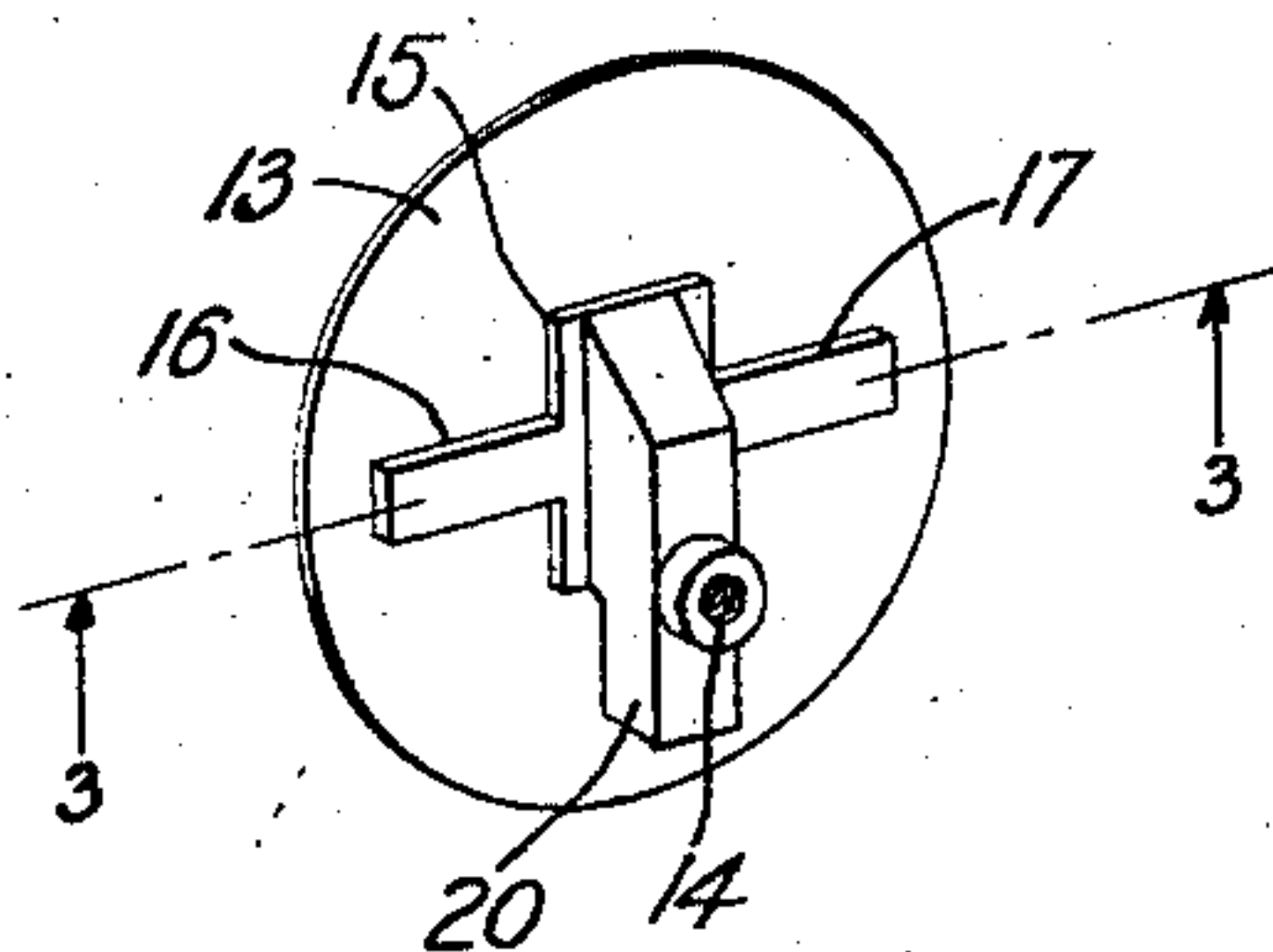


FIG. 2.

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REPRODUCING APPARATUS

Application filed May 14, 1927. Serial No. 191,515.

This invention relates to electrical reproducers and particularly to electromagnetic reproducers of the type described in a co-pending application of Henry C. Harrison Serial No. 191,012, filed May 13, 1927, and describing an electromagnetic reproducer in which the electromagnets are located in a chamber containing viscous matter and closed by a stylus operated diaphragm, the vibrations of which are damped by the lateral flow of the viscous matter between the inner face of the diaphragm and the adjacent end of the electromagnet.

The object of this invention is to provide a simple and convenient form of mounting means between the stylus and the diaphragm which will involve the minimum number of parts compatible with efficient operation and will simplify the construction both from a labor and material standpoint.

In accordance with the general features of this invention, the diaphragm which forms the flexible closure for the container constitutes the rocking support for the stylus lever which is secured thereto by supporting means which, while stiffening the diaphragm against displacement in one direction, does not materially affect its flexibility to movement produced by the stylus in the groove.

In its preferred form, the invention consists in a stylus mounting comprising an armature provided with laterally extending ribs secured to the diaphragm with the ribs extending substantially across the diameter of the free portion of the diaphragm in a direction longitudinally of the axis of movement of the stylus with respect to the diaphragm, thereby stiffening the diaphragm against flexure in a direction at right angles to that of its flexing movement.

In the drawings,

Fig. 1 is a fragmentary cross sectional view of parts of an electrical reproducer with this invention applied thereto;

Fig. 2 is a perspective of the diaphragm and armature; and

Fig. 3 is a sectional view taken in line 3—3 of Fig. 2.

As shown in the drawings, 5 designates a cylindrical container in which is housed an

electromagnet system including windings 6 and 7 located between spool heads 8 and 9, and 10 and 11 respectively. The container is preferably filled with a viscous material 12 and closed by means of a diaphragm 13 of thin flexible material preferably magnetic. In the operation of the parts above noted, the flexing of the diaphragm 13 in response to forces applied to it will cause a lateral movement of the viscous fluid between the inner face of the diaphragm 13 and the flat or substantially flat surfaces presented by the spool heads 8 and 10. This movement of the viscous material serving to produce a uniform response in the vibrating system to all vibrational frequencies within the audible range.

The present invention is concerned particularly with the mounting and operation of the armature which will now be described.

The armature comprises in general, a body portion 15 generally rectangular in cross section and having a surface area which will efficiently span the pole faces of the electromagnet. Extending at right angles to the body portion 15 and in opposite directions therefrom are a pair of narrow arms 16 and 17 which extend substantially the length of the diameter of the unrestrained portion of the diaphragm 13. The surface of the armature adjacent the diaphragm 13 is flat and the diaphragm and armature are secured together in intimate relation preferably by sweating or brazing. The arms 16 and 17 which provide with the diaphragm a rocking support for the armature are sufficiently stiff to prevent rotational movement of the armature in any direction except around an axis parallel to the arms, but are sufficiently narrow to permit substantially free flexure of the armature along the axis of rotation of the armature.

Formed integrally with and extending from the rectangular body portion 15 is a stylus supporting lug 20 drilled to receive a stylus 21 which may be secured therein by means of set screw 22.

What is claimed is:

1. In an electrical reproducer, in combination, a thin flexible diaphragm, a stylus op-

eratively connected to said diaphragm to flex it in one direction, and means for preventing the flexure of the diaphragm in a direction at right angles to the direction of flexure produced by the normal movement of the stylus.

5 2. In an electrical reproducer, in combination, a thin flexible diaphragm, a stylus for operating the diaphragm, and stylus supporting means secured to said diaphragm, said supporting means being adapted to flex
10 the diaphragm in a direction corresponding to the normal movement of the stylus and to oppose the flexure of the diaphragm in a direction at right angles to the movement of
15 the stylus.

3. In an electrical reproducer, in combination, a thin flexible diaphragm, a stylus, and means operated by the stylus for flexing the diaphragm in one direction and opposing its
20 flexure perpendicular to a line corresponding to the axis of rotation generated by the normal movement of the stylus.

In witness whereof, I hereunto subscribe my name this 13th day of May, A. D., 1927.

WARREN C. JONES.

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