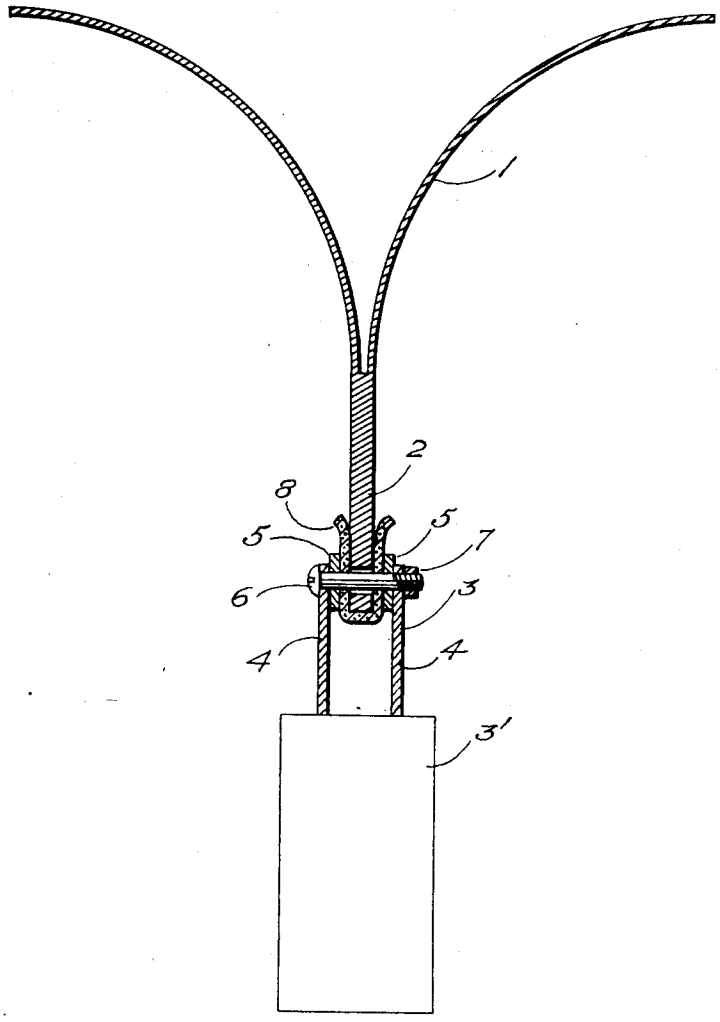
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RADIO LOUD SPEAKER

Filed July 3, 1931



Inventor

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UNITED STATES PATENT OFFICE

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RADIO LOUD SPEAKER

Application filed July 3, 1931. Serial No. 548,559.

(GRANTED UNDER THE ACT OF MARCH 3, 1883, AS AMENDED APRIL 30, 1928; 370 O. G. 757)

The invention described herein may be manufactured and used by or for the Government for governmental purposes, without the payment to me of any royalty thereon.

This invention relates to radio loud speakers and the like, but more particularly to vibratory diaphragms therefor.

I have found that a diaphragm for radio loud speakers and the like when made of a hard surfaced material such as celluloid or materials of like characteristics should be very carefully damped at all places whereat the diaphragm meets another surface. Failure to take proper precaution for such damping is likely to result in the formation of parasitic vibrations which increase in extent as the amplitude of the impressed sound producing vibrations increases.

I have heretofore proposed in my copending application, Serial No. 447,390, to damp the central meeting edges of diaphragms of celluloid and the like formed of two flexed formations. I find, however, when such hard-surfaced material as celluloid or the like is connected to a diaphragm driving unit or units by a metallic or other hard connection, a sharp characteristic is imparted to the reproduced sound, which, as far as I am aware, is due to a very minute or microscopic movement between the hard surface of the diaphragm and the hard surface of the metallic or other hard material forming the connection between the diaphragm and the actuating unit.

I have found that by damping the hard-surfaced diaphragm at the actual point or points of connection of the diaphragm with its drive unit or units, the unpleasant sharp characteristic of the reproduced sound is corrected and the purity and faithfulness of the reproduced sound greatly improved.

Referring to the accompanying drawing:

The figure is an enlarged transverse sectional view of a diaphragm of celluloid or other hard-surfaced material and illustrating an example of one form of connection employed for connecting the diaphragm to an actuating unit diagrammatically shown.

Referring to the drawing by reference numerals:

1 indicates the diaphragm, which in the example shown is made of thin celluloid or other hard-surfaced material flexed into two curved formations, and having a central portion 2. To this central portion the connection 3 of a suitable drive unit 3′ is fastened.

The example of this connection shown in the drawing includes two metallic members 4 which straddle the central portion 2 of the diaphragm. Formed on each of these members 4 on the inner sides thereof, I prefer to supply a preferably flat disk shaped plate 5 centrally perforated to receive a small transverse machine screw 6. A nut 7 clamps the diaphragm between the two flat disks 5.

In order to prevent the creation of any audible sound which may arise by reason of any minute or microscopic movement between the diaphragm and these disks 5, I interpose between the disks and the diaphragm a layer of sound damping material 8, such as chamois skin or felt, so as to completely segregate the metallic or other hard-surfaced connection 3 from direct contact with the diaphragm. The pulsations delivered by the actuating unit therefore pass through the sound damping material 8 before being impressed upon the diaphragm.

Having thus described the invention, what I claim as new and desire to secure by Letters Patent of the United States is:

1. A diaphragm for radio loud speakers and the like including two flexed formations of a hard-surfaced material and having a central edge portion intermediate the two flexed formations adapted for connection with an actuating unit, the connecting means of the actuating unit including two flat members and a transverse fastening element passed through the diaphragm and the flat members to clamp the diaphragm therebetween, and a layer of suitable sound damping material interposed between the flat clamping members and the diaphragm to segregate the connecting means of the actuating unit from the diaphragm, to the end that the pulsations from the actuating unit pass through the sound damping means before being impressed upon the diahragm.

2. A diaphragm for radio loud speakers

and the like including two flexed formations of a hard-surfaced material and having a central edge portion intermediate the two flexed formations, means for connecting the diaphragm to an actuating unit, and a layer of suitable sound damping material interposed between said connecting means and the diaphragm, whereby the pulsations from the actuating unit pass through the sound damping material before being impressed upon the diaphragm.

3. A diaphragm for radio loud speakers and the like including two flexed formations of a hard-surfaced material having a central edge portion intermediate the two flexed formations, means for driving the diaphragm, and a layer of suitable sound damping material interposed between the driving means and the diaphragm.

4. A diaphragm for radio loud speakers and the like of a hard-surfaced material, means for driving the diaphragm, and a layer of suitable sound damping material interposed between the driving means and the diaphragm, and means for clamping the sound damping material between the driving means and the diaphragm.

5. A diaphragm for radio loud speakers and the like including two flexed formations having a central edge portion intermediate the two flexed formations, means for driving the diaphragm and sound damping means established between the driving means and the diaphragm.

6. A diaphragm for radio loud speakers and the like, means for driving the diaphragm and sound damping means established between the driving means and the diaphragm, and means for clamping the sound damping material between the driving means and the diaphragm.

In testimony whereof I affix my signature.

CHARLES HUGH DUFFY.