April 22, 1930. W. DUBILIER 1,755,636

LOUD SPEAKER

Filed Sept. 22, 1927

Fig. 1

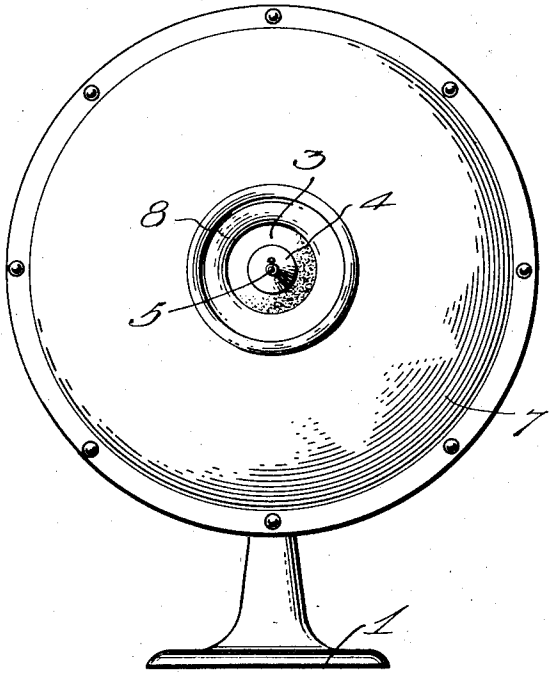
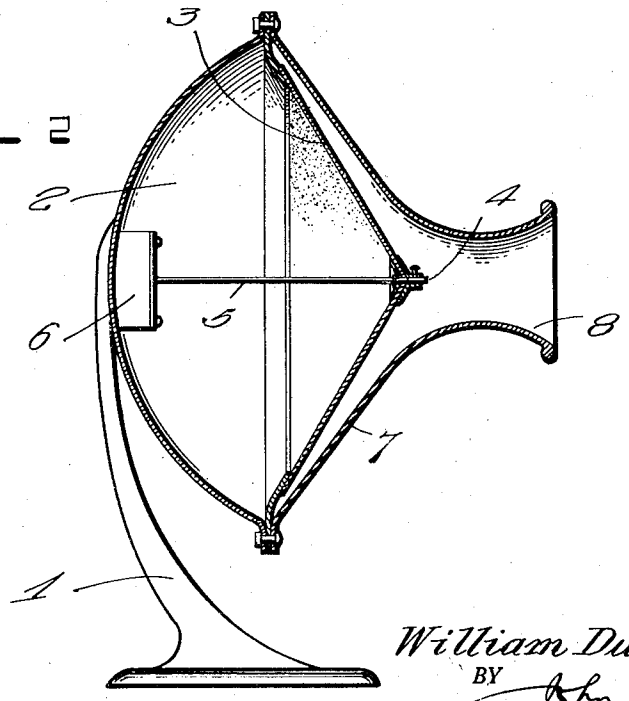


Fig. 2



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UNITED STATES PATENT OFFICE

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LOUD-SPEAKER

Application filed September 22, 1927. Serial No. 221,277.

My invention relates broadly to sound reproducing apparatus and more particularly to a loud speaker for radio broadcast reception.

One of the objects of my invention is to provide a loud speaker in which the advantageous characteristics of both the horn type loud speaker and the conical diaphragm type of loud speaker are combined.

Another object of my invention is to provide an inexpensive assembly for a loud speaker device incorporating both a horn and a conical shaped sound reproducing diaphragm.

My invention will be more clearly understood by reference to the following specification and the accompanying drawing in which:

Figure 1 is a front view of a loud speaker embodying the principles of my invention; Fig. 2 is a side elevation partially in cross-section of the loud speaker of my invention.

Referring to the drawings in detail reference character 1 represents a supporting base which carries a housing 2 thereon terminating in an annular peripheral edge forming an enclosure for the cone shaped sound reproducing diaphragm 3. The sound reproducing diaphragm 3 is supported from its apex 4 from a link member 5 which extends from the armature of an electromagnetic driving device 6.

Secured to the annular peripheral edge of the housing 2 I provide a horn 7 which extends outwardly from the housing 2 tapering away from the surface of the cone shaped diaphragm 3 and finally terminating in the bell 8. The horn has its wall 7 substantially conical shaped and closely conforming to the surface of the sound reproducing diaphragm 3 at its periphery but with the gap between the inner surface of horn 7 and the outer surface of the sound reproducing diaphragm 3 widening toward the center of the horn.

The construction illustrated in the drawings is one of the preferred embodiments of my invention, but I desire that it be understood that modifications may be made and that no limitations upon my invention are intended other than are imposed by the scope of the appended claims.

What I claim as new and desire to secure by Letters Patent of the United States is as follows:

1. A loud speaker comprising a supporting member, a housing carried by said supporting member, an actuating device positioned within said housing, a cone shaped diaphragm actuated by said actuating device and a horn carried by said housing and conforming to the shape of said cone shaped diaphragm for providing a chamber between the exterior surface of said cone shaped diaphragm and the interior wall of said horn.

2. A loud speaker comprising a supporting member, a housing carried by said supporting member, an actuating device disposed within said housing, a cone shaped diaphragm actuated by said actuating device, a horn supported by said housing and having its interior surface tapering away from the exterior surface of said cone shaped diaphragm toward the center thereof and terminating in a bell adjacent the apex of said cone shaped diaphragm.

3. A loud speaker comprising a supporting member, a housing carried by said supporting member and terminating in an annular peripheral edge, an actuating device positioned within said housing, a cone shaped sound reproducing diaphragm having its annular edge terminating in the plane of the peripheral edge of said housing and connected at its apex with said actuating device and a horn supported at one end by the annular peripheral edge of said housing and terminating in a relatively small diameter bell at its opposite end, said horn tapering away from the exterior surface of said cone shaped diaphragm intermediate the ends of said horn.

4. A sound reproducing device comprising a large size diaphragm inherently weakening the higher harmonics, an air obstruction wall opposite said diaphragm to form an outwardly flaring air chamber for accentuation of said higher harmonics.

5. A loud-speaking device comprising a large size cone-shaped diaphragm, an air

obstruction wall opposite said diaphragm to form an outwardly flaring sound air chamber.

6. An electric loud-speaking device comprising a large size cone-shaped diaphragm, an air obstruction wall opposite said diaphragm to form a primary outwardly flaring sound air chamber and a secondary magnifying air chamber associated with said first chamber.

7. In combination with an electric loudspeaker, a loudspeaker actuating element, a cone-shaped sound producing surface operated by said element and a sound amplifying chamber associated with said cone-shaped surface to form a tapering opening towards the apex of said cone.

In testimony whereof I affix my signature.

WILLIAM DUBILIER.