Oct. 9, 1928.

1,687,359

N. BALDWIN

LOUD SPEAKER

Filed Oct. 9, 1926

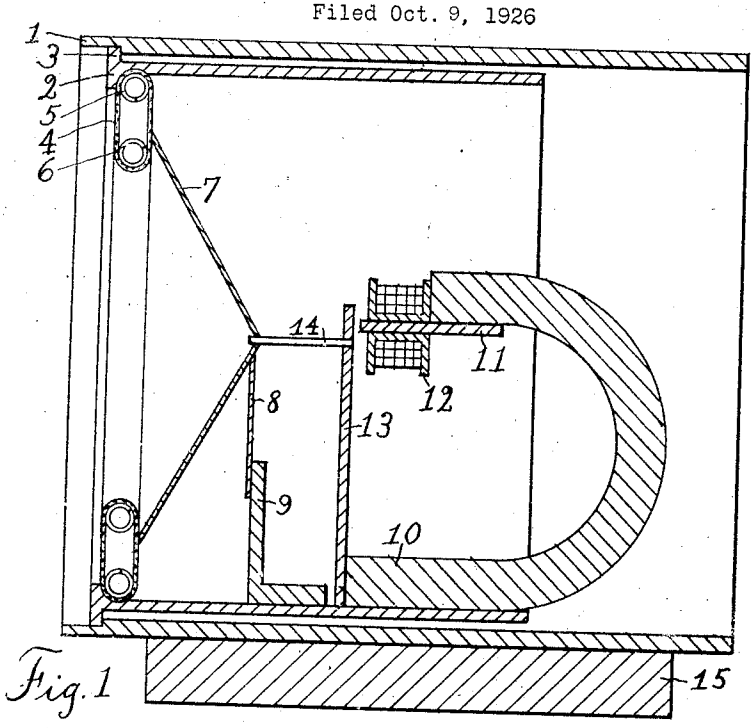


Fig. 1

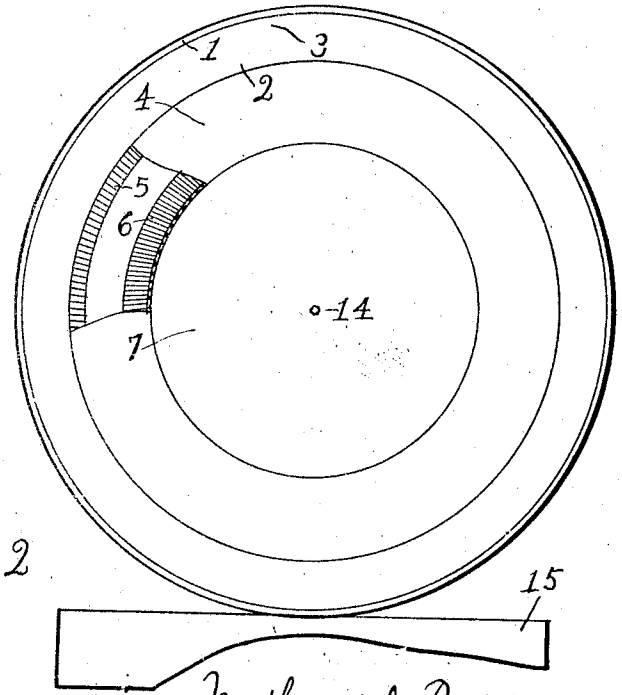


Fig. 2

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LOUD SPEAKER.

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The present invention appertains to loud speakers and particularly to those in which large diaphragms are used without horns.

The principal object is to provide a conical diaphragm having a simple, light, durable, and non-elastic mounting.

I attain this and other objects by the mechanism illustrated in the accompanying drawing in which Fig. 1 is a section showing the relation of the various parts of the structure and Fig. 2 is a front elevation of the instrument showing part of the diaphragm mounting cut away and also part of the base cut away.

Numeral 1 designates a cylindrical housing in which the working elements are mounted. The ring member 2, which is also cylindrical in form, has a flange 3 which fits into a recess in the housing 1 and this ring member carries the diaphragm and the other working parts. The diaphragm is mounted upon a combination of parts as follows:

Numeral 4 designates a tubular annulus made of thin pliable material such as rubber, leather, or woven fabric. Within this soft tubular annulus are two rings to give it definite shape. The outer ring 5 which may be a rod or a compressed spiral spring, as shown in the figure, holds the outer wall of the annulus 4 in a recess formed in the ring member 2. The inner ring 6 which may be a cord or a stretched spiral spring as shown in the figure, holds the tubular annulus 4 in a flattened shape with the side walls under slight tension. The cone-shaped diaphragm 7 is placed in position with its edge pressing against one of the flexible side walls of the annulus 4 and is held in this position by the pressure of a spring 8 which is fastened to the cone 7 near its apex and also to a bracket 9 carried by the ring member 2. The spring 8 holds the diaphragm concentric with the housing and the pressure against the flexible wall of the annulus 4 closes the front end of the housing, and the diaphragm is allowed to vibrate with very little resistance.

The flexible annulus against which the edge of the diaphragm rests may preferably consist of tubular fabric held in place by concentric rings, as shown, but not necessarily so. It may be single ply and may be stretched upon any desired framework.

The operating element may be of any desired form but as here illustrated it consists of a magnet 10, polepiece 11, spool 12 and armature 13 connected by a link 14 to the diaphragm 7. The housing 1 is supported by the base plate 15.

I claim:

1. A loud speaker comprising a diaphragm and an annulus of stretched fabric contacting with the edge of said diaphragm.

2. A loud speaker comprising a conical diaphragm and an annulus of stretched fabric contacting with the edge of said diaphragm.

3. A loud speaker comprising a conical diaphragm, an annulus of stretched fabric contacting with the edge of said diaphragm, an outer frame to hold said fabric, and an inner tensioning ring to stretch said fabric.

4. A loud speaker comprising a conical diaphragm, an annulus of stretched fabric contacting with the edge of said diaphragm and a spring to hold said diaphragm in contact with said annulus.

5. A loud speaker comprising a conical diaphragm, and a tubular fabric annulus contacting with the edge of said diaphragm.

6. A loud speaker comprising a conical diaphragm, a tubular fabric annulus contacting with the edge of said diaphragm, and a ring within said tubular annulus to stretch said tubular annulus.

7. A loud speaker comprising a conical diaphragm, a tubular fabric annulus contacting with the edge of said diaphragm, and a spring to hold said diaphragm against said annulus.

NATHANIEL BALDWIN.