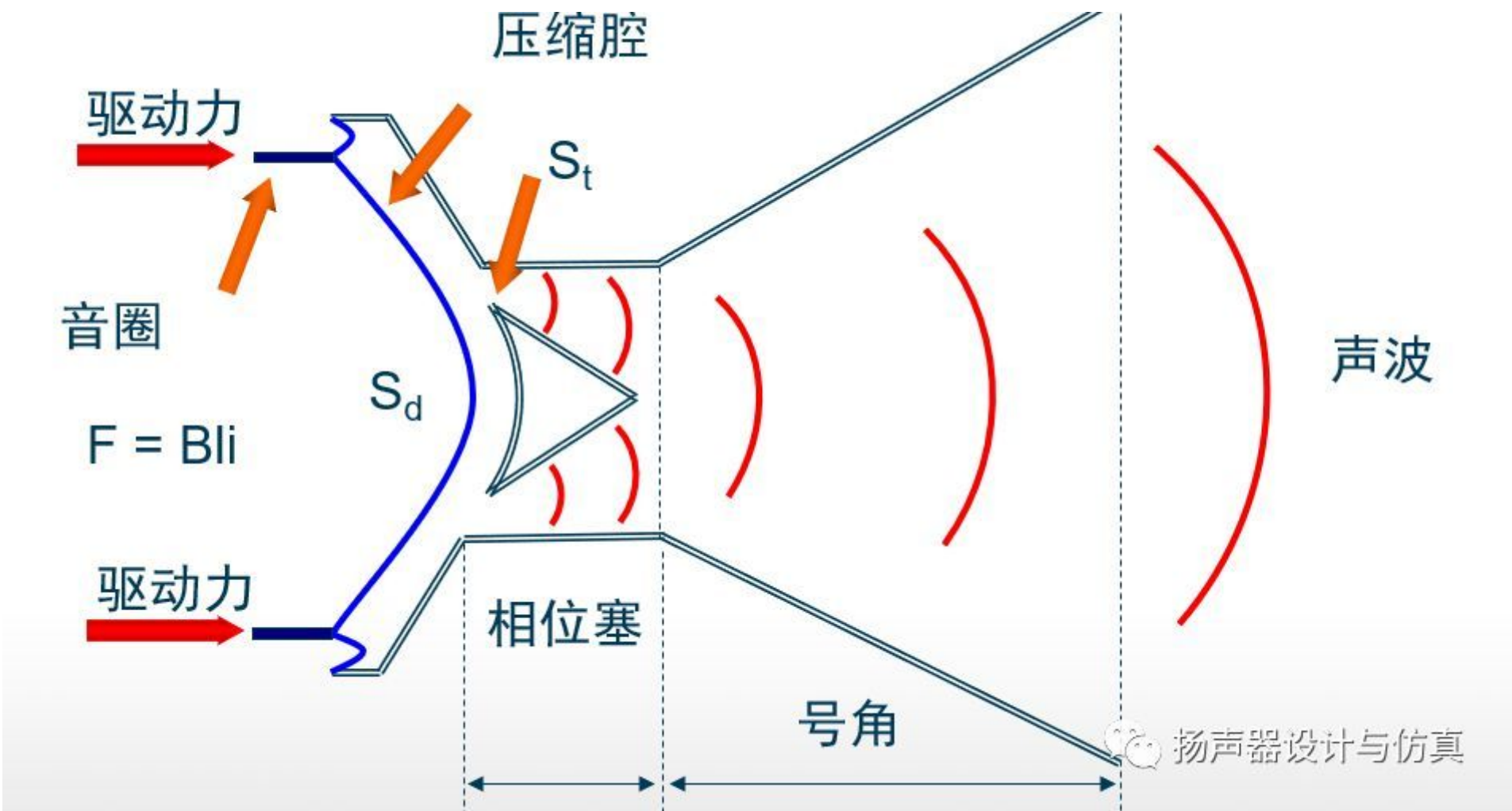


Brief introduction of compressed treble

Compressed treble is called compressed treble (or compression driver) because it compresses the air driven by the speaker unit to increase its output sound power.

The following figure is a simple principle and structure description. The compression ratio is S_d / S_t .



Compressing the treble is a bit like a power amplifier, amplifying the input signal. Design issues (acoustic resonance, diaphragm split vibration, etc.) or tolerances of materials and assembly are also easily reflected in the final frequency response and distortion. Therefore, a good compression tweeter has relatively high requirements on design / materials / assembly.

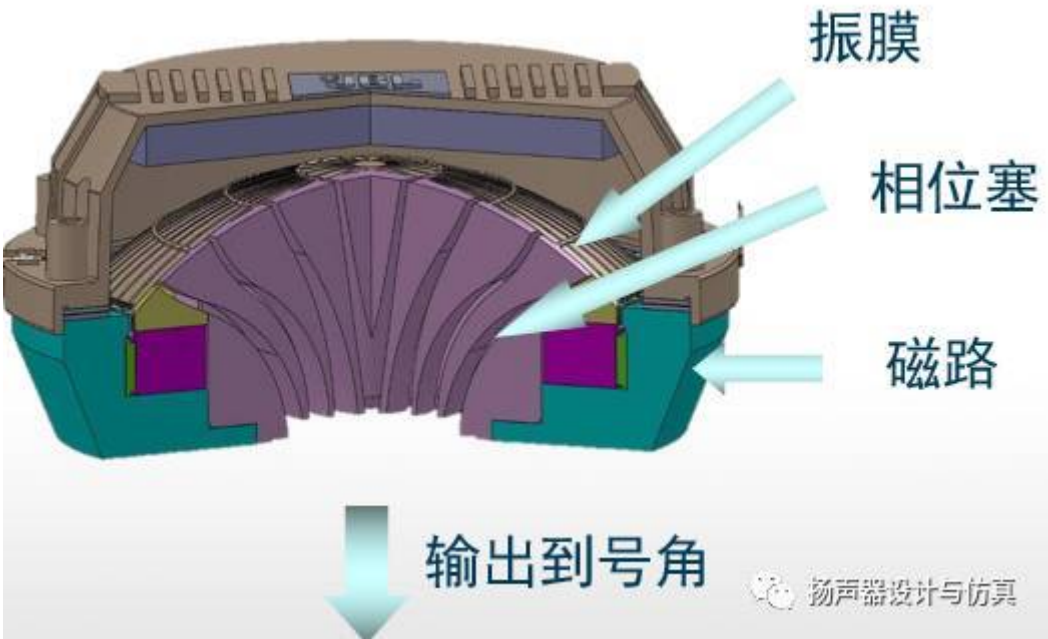
There are currently two main types of compressed treble structure:

Radiating the dome diaphragm backward compresses the treble.

The diaphragm material is mainly pure titanium mold or titanium mold + composite edge.

Radiating the dome diaphragm backward compresses the treble.

The diaphragm material is mainly pure titanium mold or titanium mold + composite edge.





扬声器设计与仿真



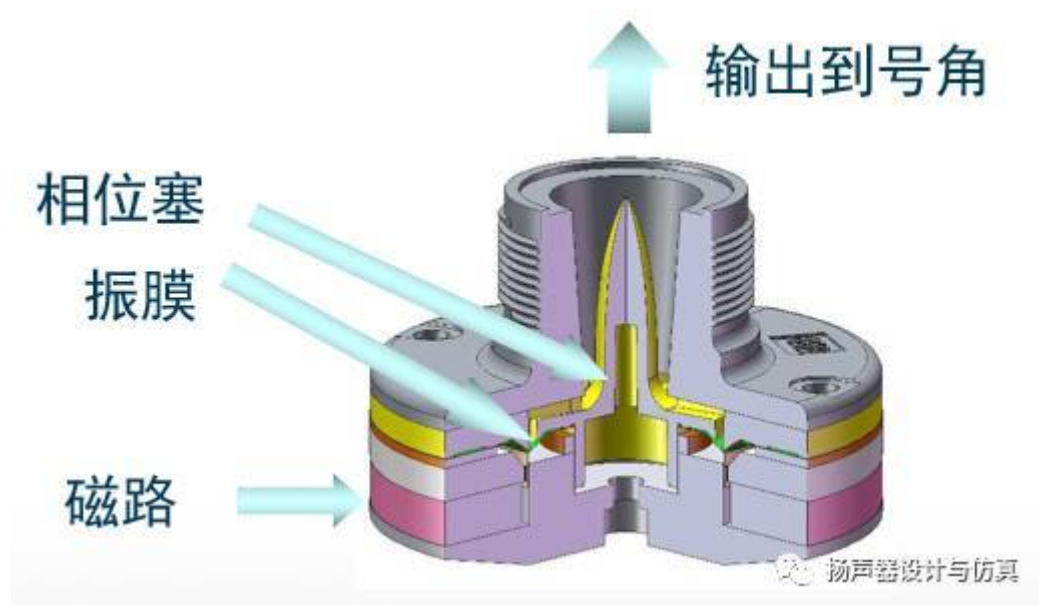
扬声器设计与仿真

Forward radiating ring diaphragm compression treble

The diaphragm materials are mainly PEN, Kapton and other materials.

Forward radiating ring diaphragm compression treble

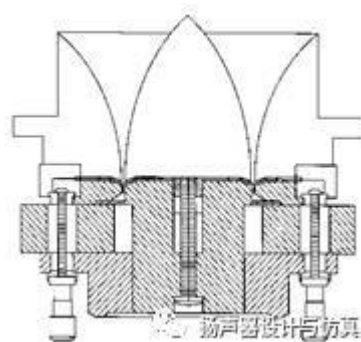
The diaphragm materials are mainly PEN, Kapton and other materials.



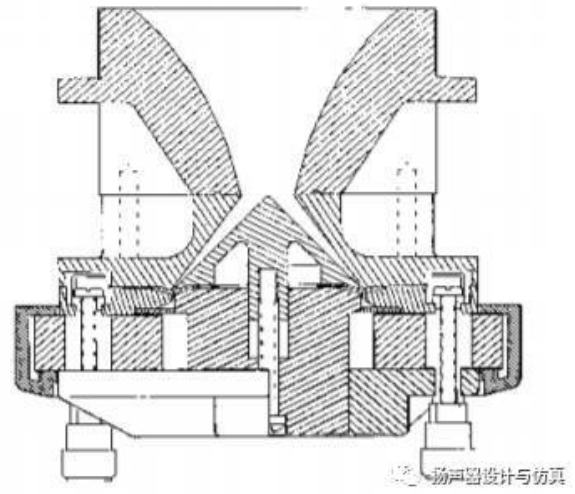
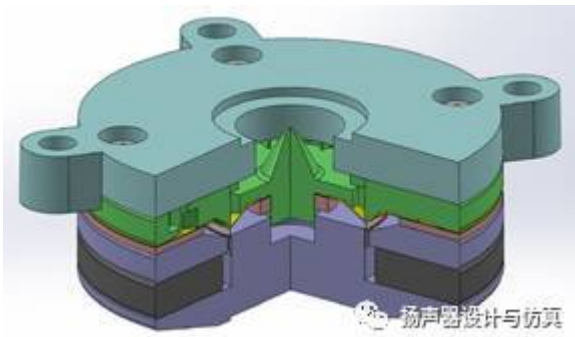
扬声器设计与仿真



扬声器设计与仿真



扬声器设计与仿真



02

Partial compression treble patent

EdwardWente, Bell Telephone Labs, 1929

AlbertThuras, Bell Telephone Labs, 1929

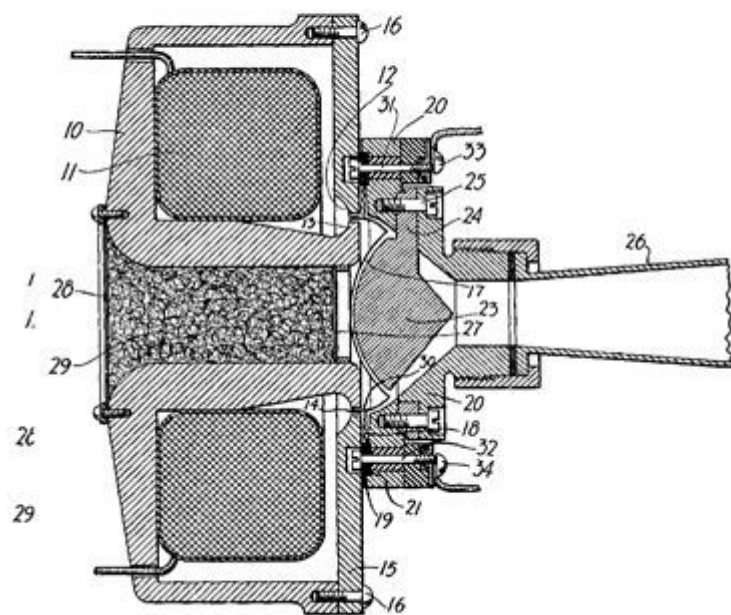
EdwardWente, Bell Telephone Labs, 1929

AlbertThuras, Bell Telephone Labs, 1929

Concave aluminum diaphragm, excitation magnetic circuit, twilled edge

April 2, 1929. E. C. WENTE 1,707,545

ACOUSTIC DEVICE
Filed Aug. 4, 1926

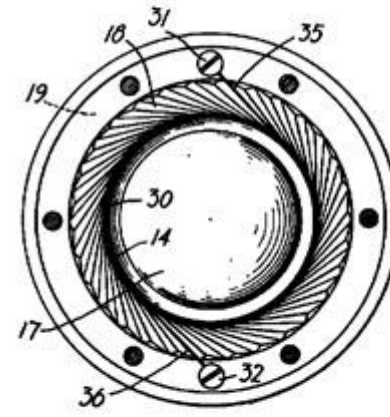
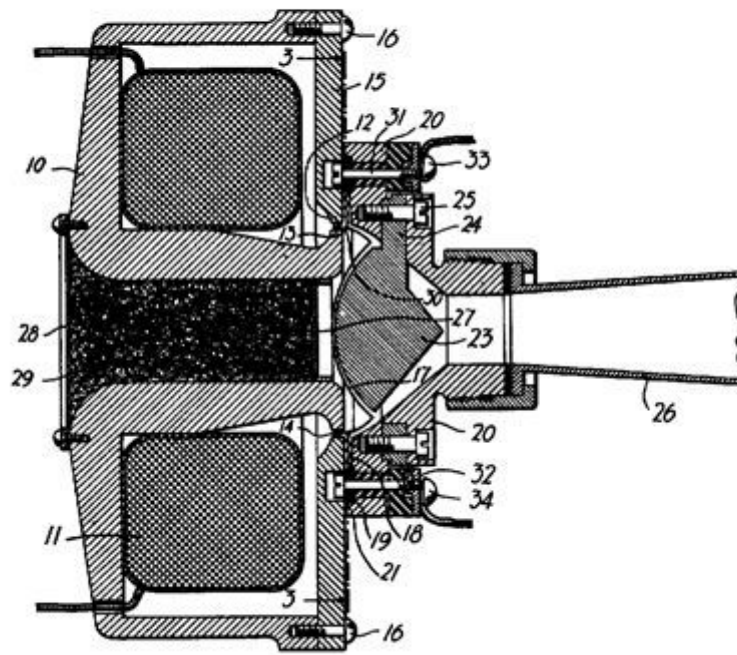


扬声器设计与仿真

April 2, 1929.

A. L. THURAS
ELECTRODYNAMIC DEVICE
Filed Aug. 4, 1926

1,707,544



扬声器设计与仿真

LionelCornwell and William Woolf, 1934

LionelCornwell and William Woolf, 1934

Voice coil inside and outside, twill side

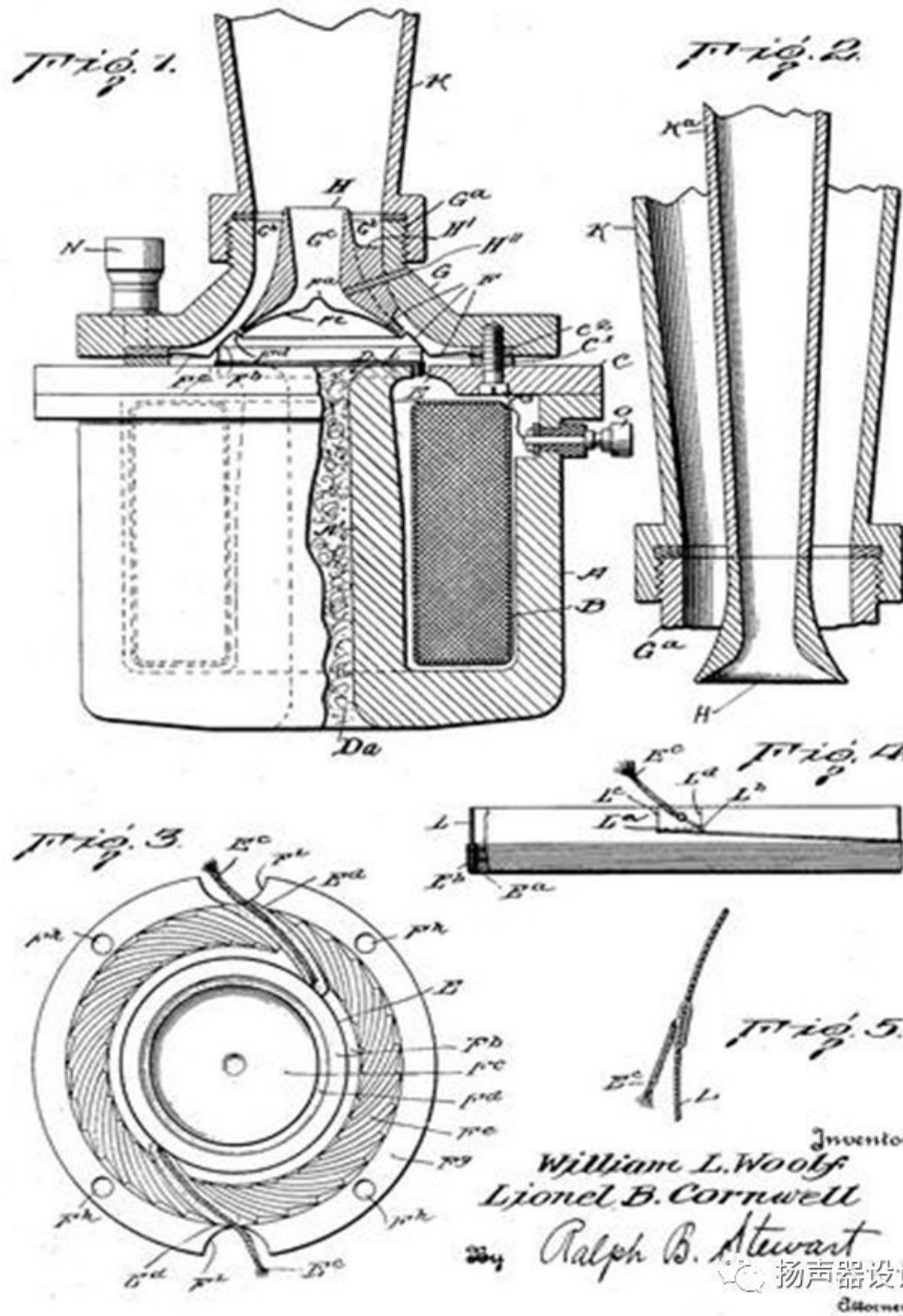
June 12, 1934.

W. L. WOOLF ET AL

1,962,374

ACOUSTIC DEVICE

Filed Sept. 24, 1929

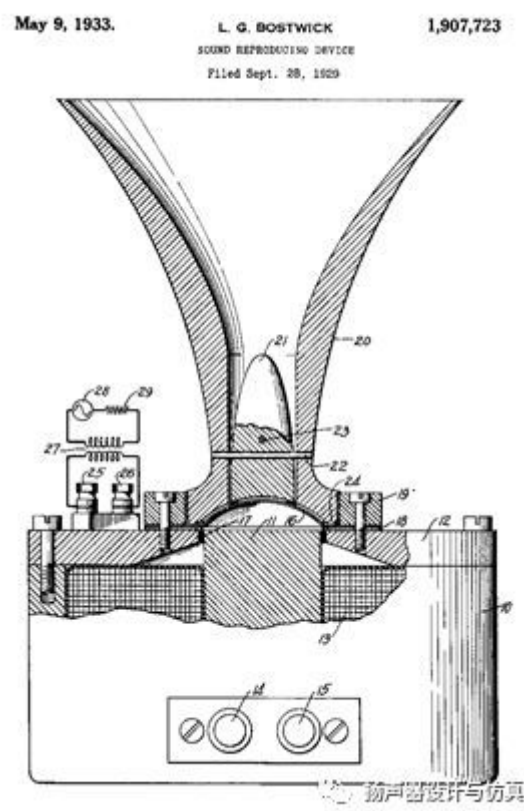


LeeBostwick, Bell Telephone Labs, 1933

Dome diaphragm, excitation

LeeBostwick, Bell Telephone Labs, 1933

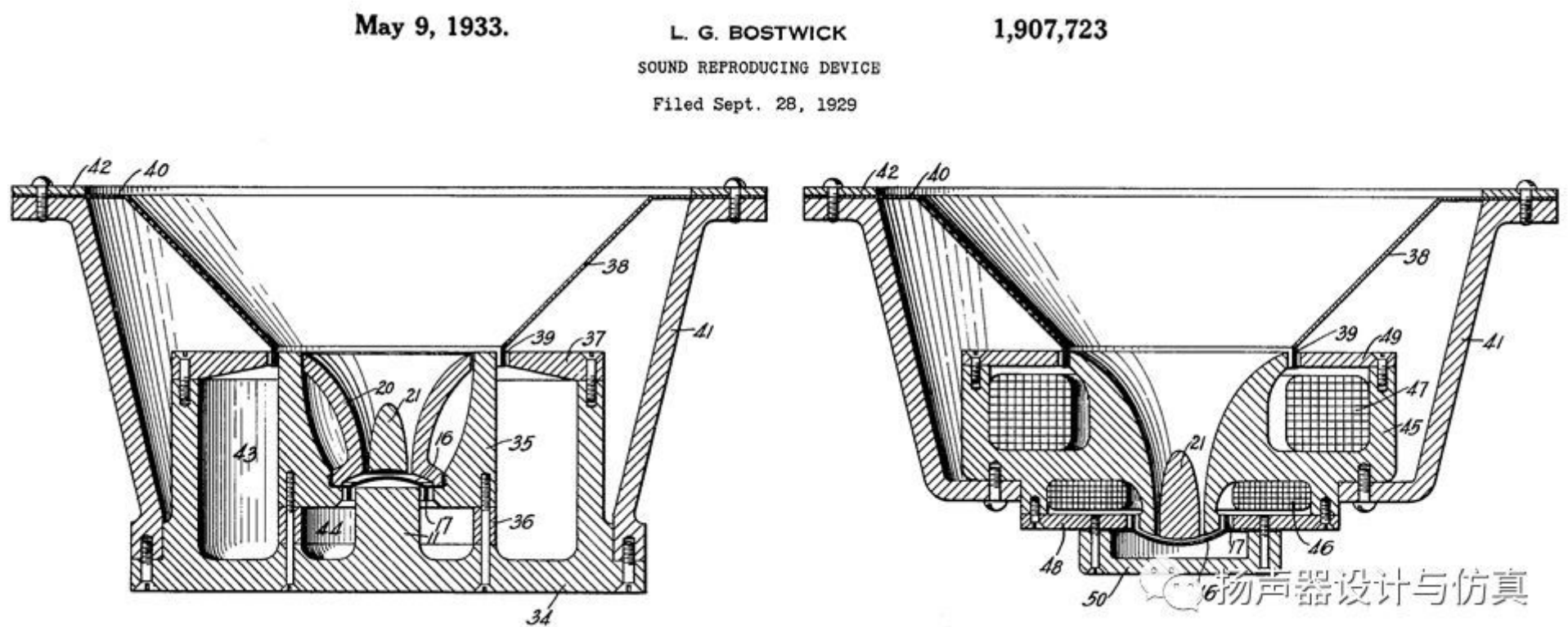
Dome diaphragm, excitation



LeeBostwick, Bell Telephone Labs, 1933

LeeBostwick, Bell Telephone Labs, 1933

Coaxial speaker



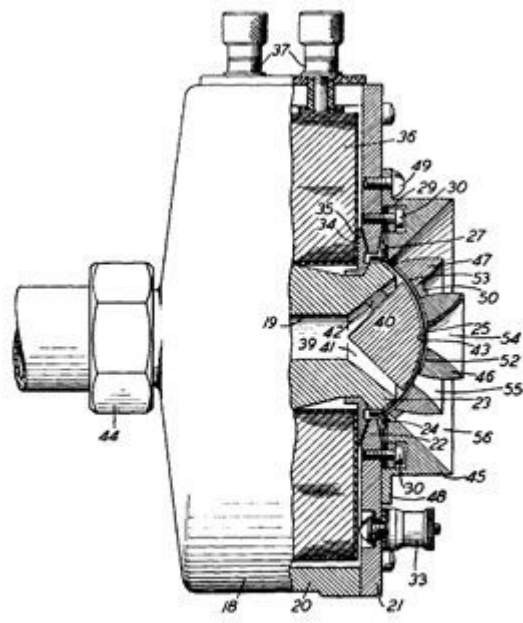
EdwardWente, Bell Telephone Labs, 1933

AlbertThuras, Bell Telephone Labs, 1936

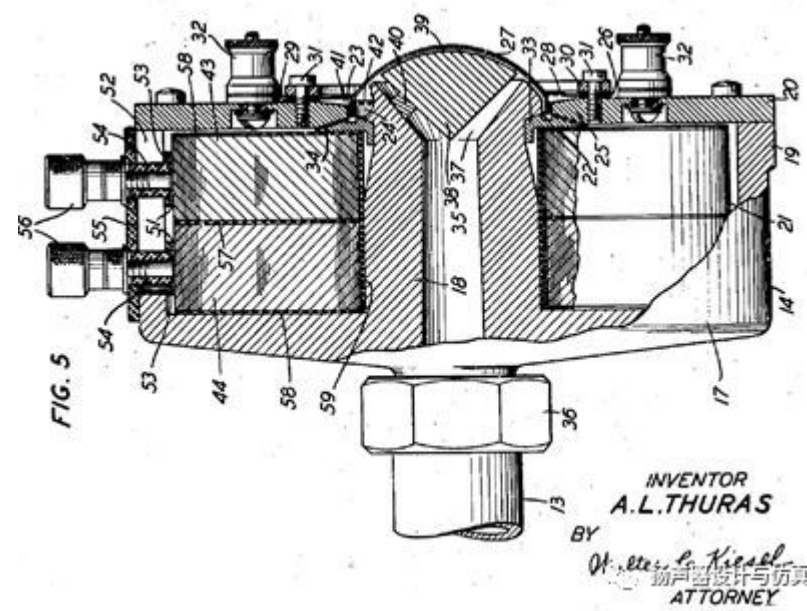
EdwardWente, Bell Telephone Labs, 1933

AlbertThuras, Bell Telephone Labs, 1936

Radiation on both sides



扬声器设计与仿真

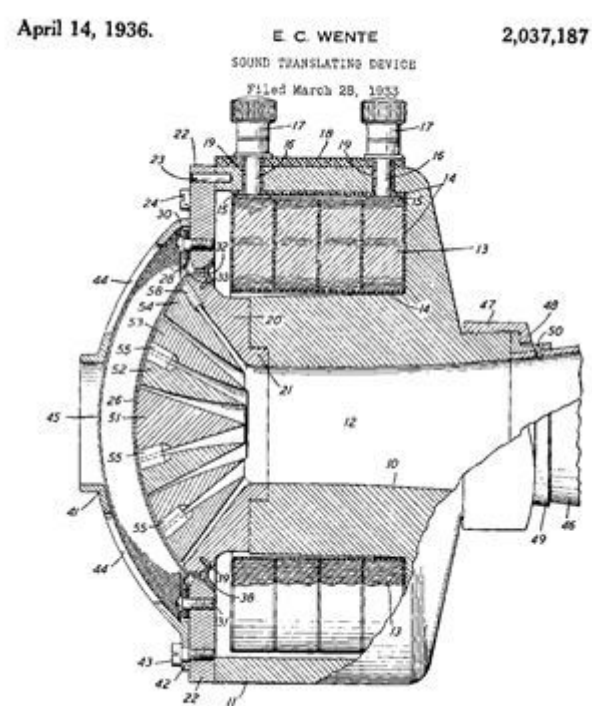


EdwardWente, Bell Telephone Labs, 1936

Very close to modern products

EdwardWente, Bell Telephone Labs, 1936

Very close to modern products



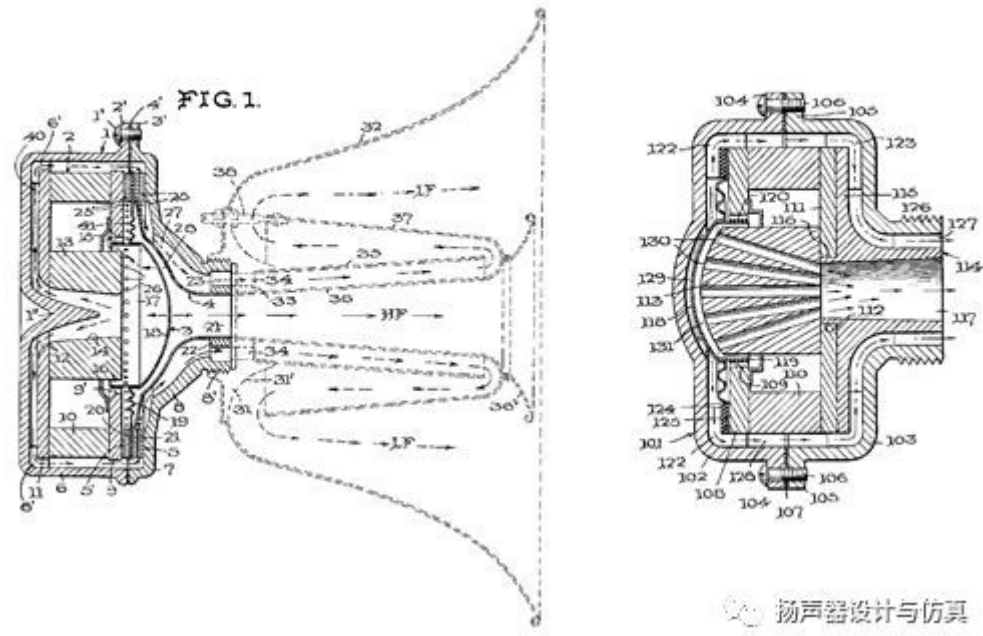
扬声器设计与仿真

SidneyLevy, 1958

Alnico magnet

SidneyLevy, 1958

Alnico magnet



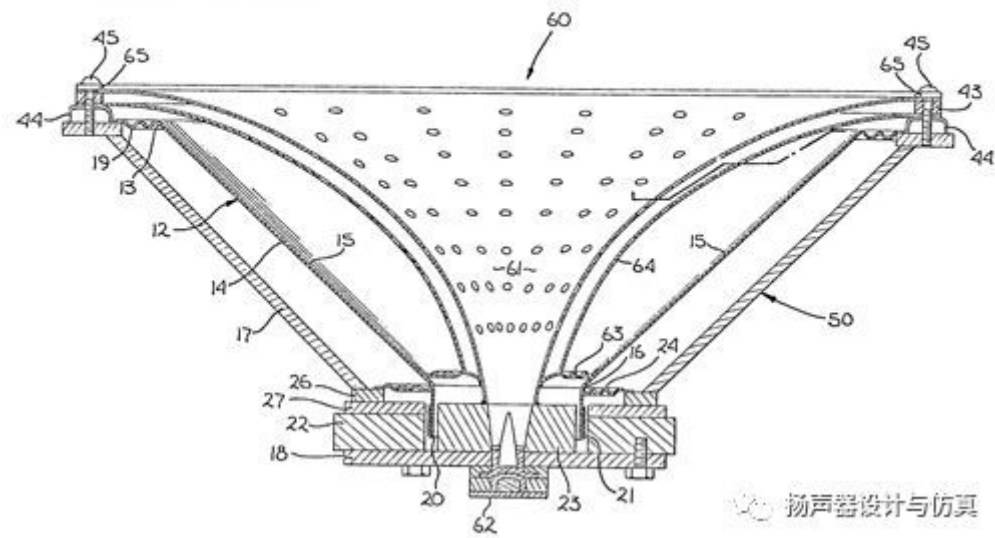
扬声器设计与仿真

MarshallBuck, Cerwin-Vega Inc., 1986

MarshallBuck, Cerwin-Vega Inc., 1986

Coaxial

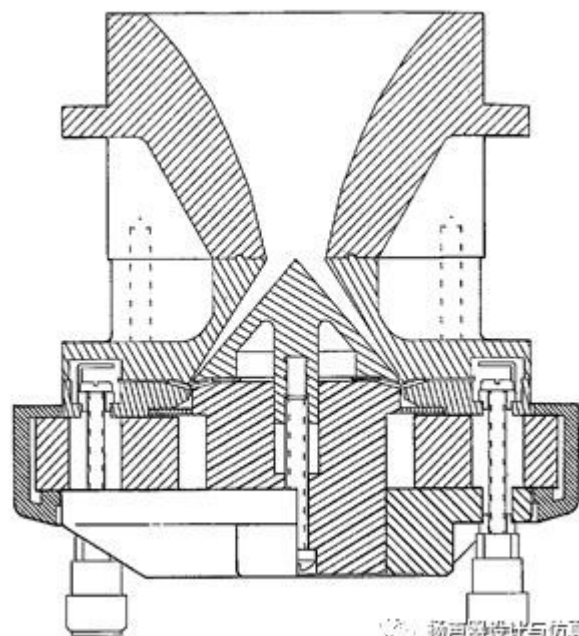
[54] MULTIPLE SOUND TRANSDUCER SYSTEM
 UTILIZING AN ACOUSTIC FILTER TO
 REDUCE DISTORTION
 [75] Inventor: Marshall D. Buck, Los Angeles,
 Calif.
 [22] Filed: Oct. 12, 1982
 Patent Number: 4,619,342
 Date of Patent: * Oct. 28, 1986



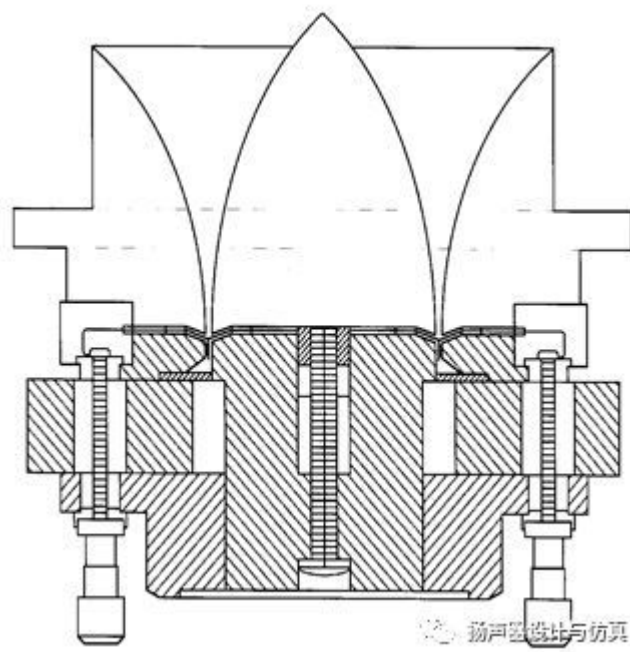
扬声器设计与仿真

JBL ring diaphragm 1955

JBL ring diaphragm 1955



扬声器设计与仿真

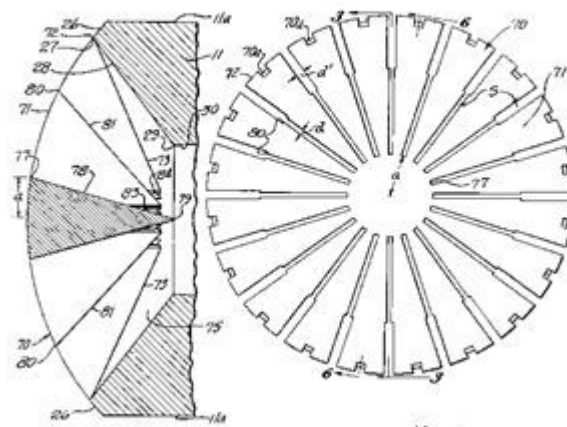


扬声器设计与仿真

Radial phase plug

Radial phase plug

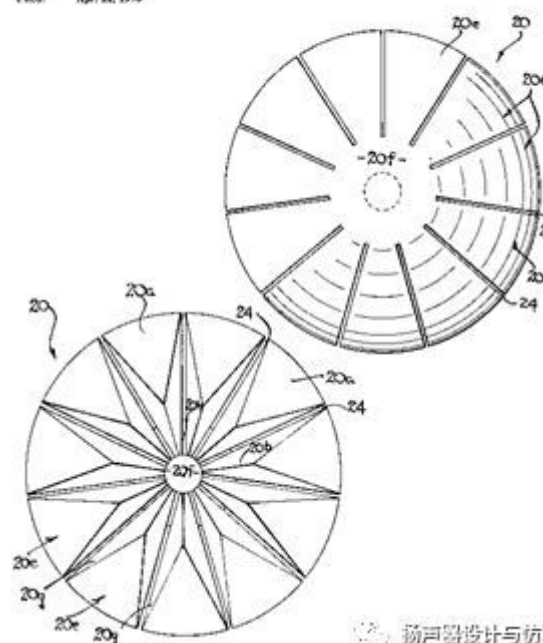
Dec. 19, 1939. J. F. BLACKBURN 2,183,528
LOUDSPEAKERS
Filed Aug. 14, 1937



扬声器设计与仿真

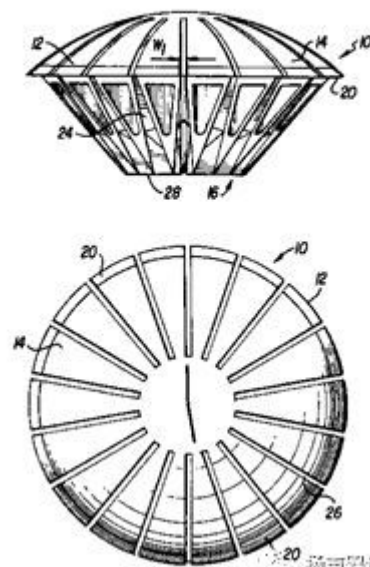
ACOUSTICAL TRANSFORMER FOR
HORN-TYPE LOUDSPEAKERS
Inventor: Clifford A. Hennicksen, Yorba Linda,
Calif.
Filed: Apr. 11, 1976

4,050,541
Sept. 27, 1977



扬声器设计与仿真

COMPRESSION DRIVER PHASE PLUG
 Inventor: Donald Keith Aron, Ironton, Mo.
 Filed: Jan. 4, 1998
 Patent Number: 6,064,745
 Date of Patent: May 16, 2000

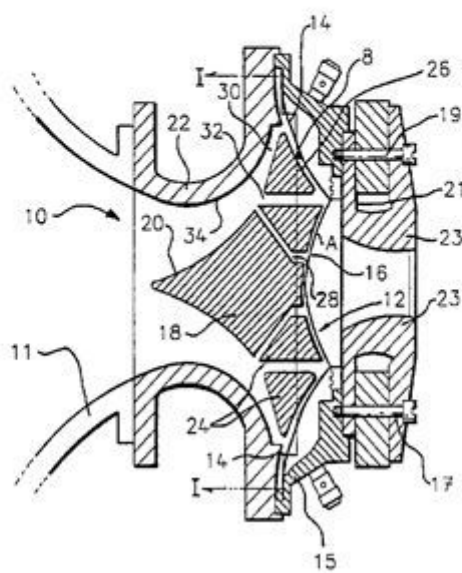


扬声器设计与仿真

Alan Adamson. 1990

Alan Adamson. 1990

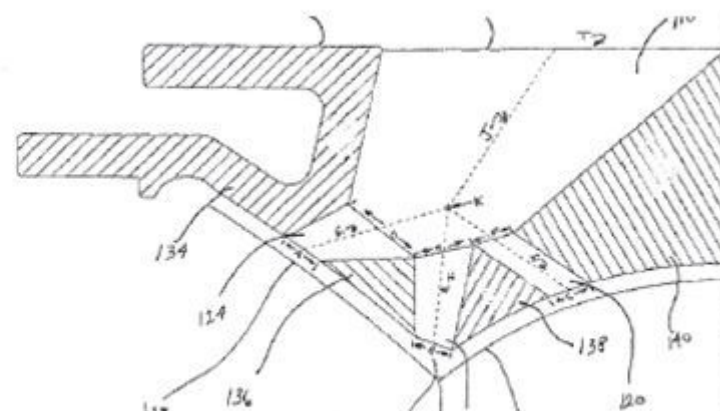
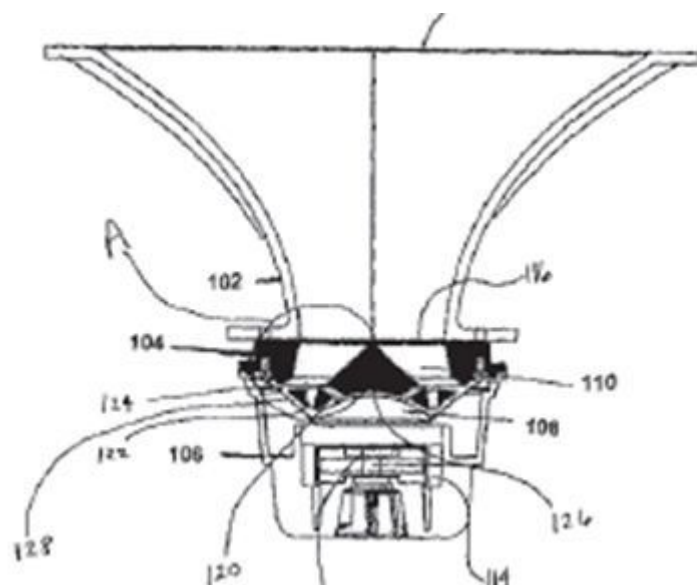
LOUDSPEAKER DESIGN
 Inventor: Alan B. Adamson, 817 Broch Road,
 Unit #9, Piceting, Ontario, Canada,
 L1W 3L9
 Filed: Oct. 14, 1988
 Patent Number: 4,975,965
 Date of Patent: Dec. 4, 1990



扬声器设计与仿真

BernardWerner. JBL, 2006

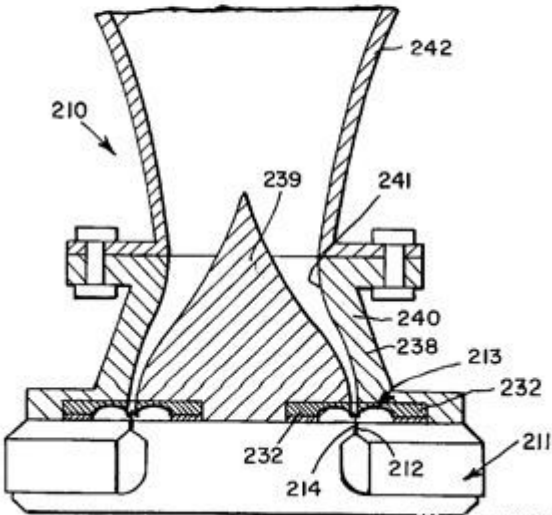
BernardWerner. JBL, 2006



扬声器设计与仿真

EugeneCzerwinski and Alex Voishvillo, Cerwin Vega, 2001

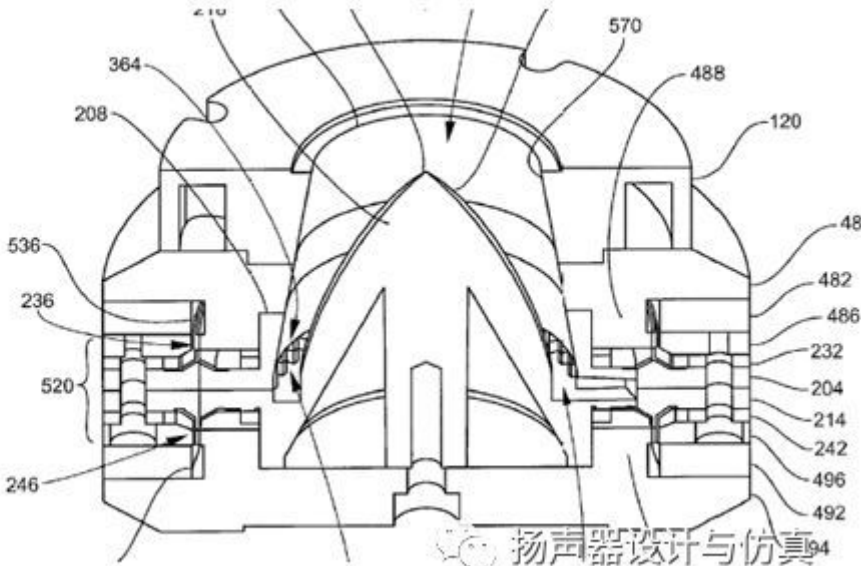
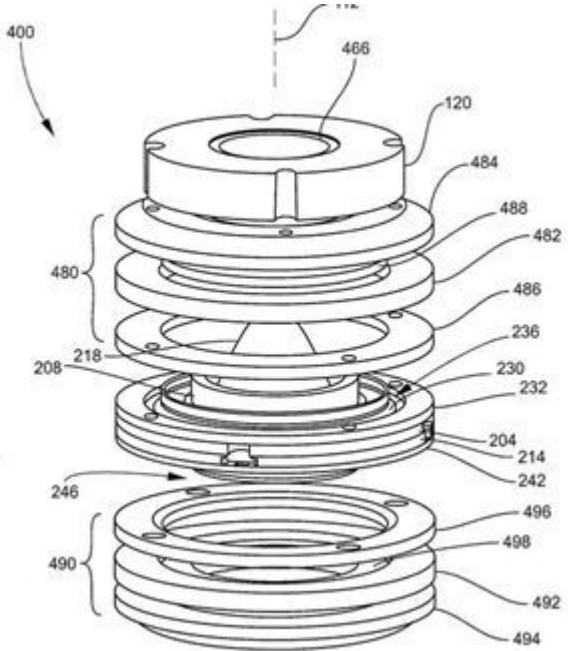
EugeneCzerwinski and Alex Voishvillo, Cerwin Vega, 2001



Alex Voishvillo, JBL Pro

Alex Voishvillo, JBL Pro

Unit D2



(19) United States
(31) Patent Application Publication
(32) Voishvillo
(10) Pub. No.: US 2007/0147647 A1
(43) Pub. Date: Jun. 28, 2007
(54) PHASING PLUG FOR A COMPRESSION DRIVER
(70) Inventor: Alexander Voishvillo, Simi Valley, CA (US)
Correspondence Address:
THE EXCELPSE GROUP
10005 BALBOA BLVD, SUITE 300
GRANADA HILLS, CA 91344 (US)
(21) Appl. No.: 11/017,604
(22) Filed: Dec. 23, 2005
(51) Int. Cl. H04R 002 (2006.01)
(52) U.S. Cl. 381/343
(57) ABSTRACT
A phasing plug for a compression driver includes a base portion and a hub portion. The base portion includes a first side, a second side, and a plurality of apertures extending between the first and second sides. The hub portion extends from the base portion along an axis. The hub portion includes an outer surface and a plurality of ribs disposed on the outer surface. A plurality of recesses are defined by the outer surface and respective pairs of adjacent ribs. At least one aperture fluidly communicates with at least one of the recesses.

