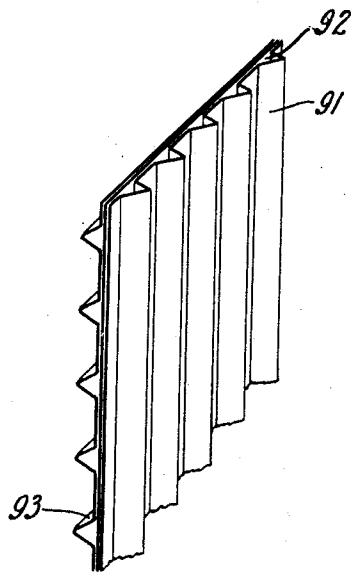
Oct. 20, 1931.

E. H. SMYTHE

1,828,513

SOUND REPRODUCER

Original Filed Aug. 17, 1926



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Patented Oct. 20, 1931 1,828,513

UNITED STATES PATENT OFFICE

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SOUND REPRODUCER

Original application filed August 17, 1926, Serial No. 129,731. Divided and this application filed December 21, 1928. Serial No. 327,732.

This invention relates to sound reproducers adapted to act directly on the air and to impart vibrations to the air from relatively large surfaces.

This is a division of my application, Serial No. 129,731, filed August 17, 1926.

An object of the invention is to reproduce efficiently and faithfully all sounds within the audible range.

A related object of the invention is to distribute sound waves uniformly over the sound radiating surface.

One feature of this invention resides in providing a high degree of longitudinal as well as transverse rigidity in a sound radiator or diaphragm with a minimum of weight. More particularly a plurality of sheets of suitable material having spaced corrugations, channels or ridges therein are secured together to form a rigid unitary structure. The sheets are preferably secured together so that the corrugations, channels or ridges in one sheet are at an angle to those of the other.

In constructing the radiator in accordance with the invention there are a number of factors which may be varied to produce any desired action with respect to frequency response. The radiator may be made of various materials, of various dimensions, and of various curved and angular relations between the parts, and the weight and stiffness may be varied to give the radiator the required mass and elasticity constants for transmitting, converting into the required relative movements, and distributing the driving force. A simple and efficient driving member, preferably in the form of a long, light and rigid tube, may be provided for applying the driving force uniformly along the edge or intermediate portion of the radiator.

The invention will be described in connection with the accompanying drawing which shows a perspective view of a diaphragm having longitudinal as well as transverse rigidity.

In the construction shown in the drawing, a sheet of material 91 having vertical corrugations or ridges is pasted on one face of a flat sheet of material 92, and a second sheet 93 having horizontal corrugations is pasted on the opposite face of the flat sheet 92. The spacing of the corrugations may be in accordance with the desired degree of rigidity while still leaving wide flat plane portions for convenient and secure attachment of the corrugated sheets 91 and 93 to the flat sheet 92.

What is claimed is:

1. A diaphragm for a sound reproducer comprising a pair of corrugated sheets secured together, said sheets having plane portions between the corrugations.

2. A diaphragm for a sound reproducer comprising a pair of corrugated sheets and a plane sheet, all of said sheets being secured together in a unitary structure, said corrugated sheets having a flat portion on each side of each corrugation.

3. A sound reproducer comprising a plurality of juxta-positioned sheets having spaced corrugations with flat portions between said corrugations and a plane sheet interposed between them, the flat portions of said corrugated sheets being adhesively secured to said plane sheet.

In witness whereof, I hereunto subscribe my name this 20th day of December, 1928.

EDWIN H. SMYTHE.