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N. H. HOLLAND

ACOUSTIC DIAPHRAGM

Filed June 12, 1926

Fig. 1.

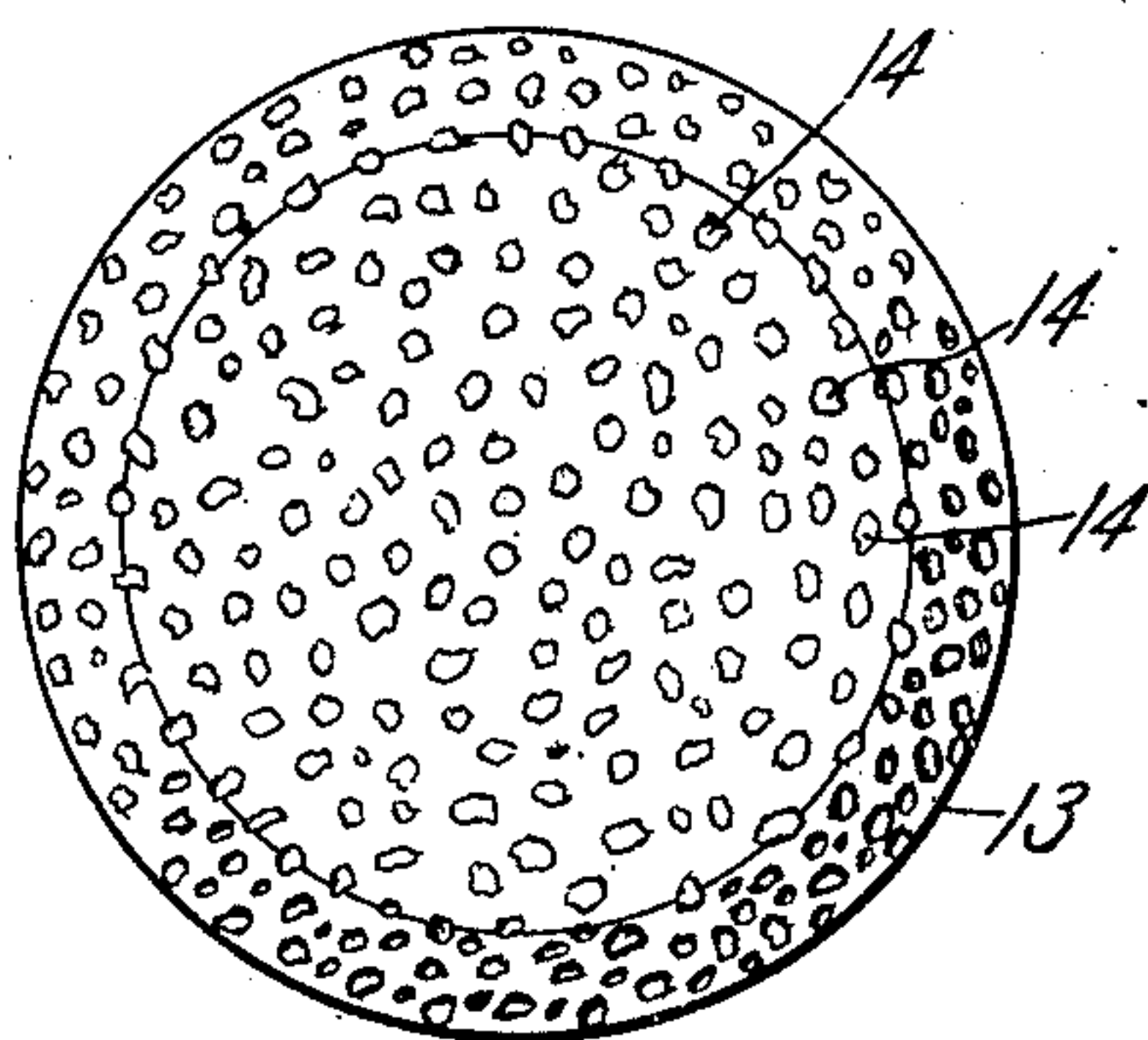
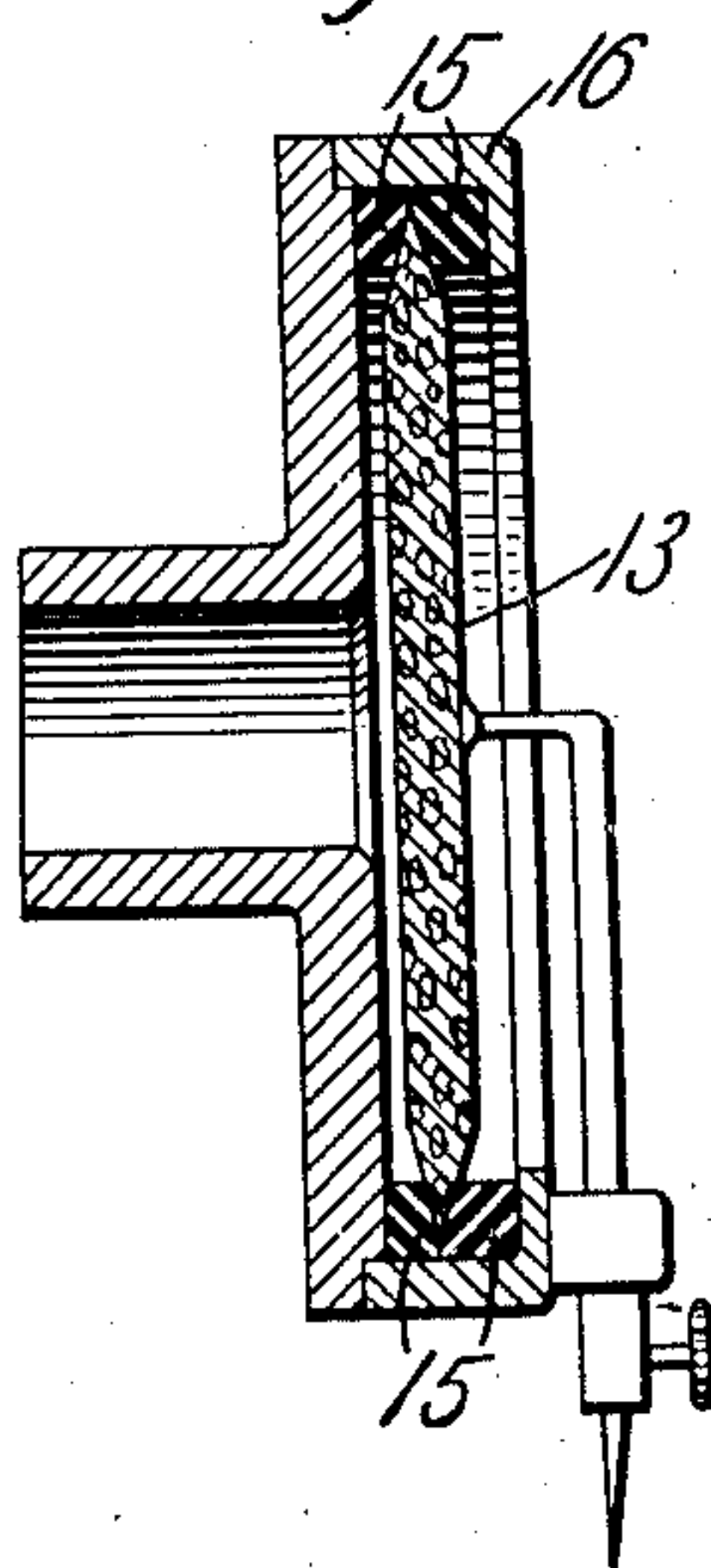


Fig. 2.



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UNITED STATES PATENT OFFICE.

NEWMAN H. HOLLAND, OF MONTCLAIR, NEW JERSEY, ASSIGNOR TO BELL TELEPHONE LABORATORIES, INCORPORATED, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

ACOUSTIC DIAPHRAGM.

Application filed June 12, 1926 Serial No. 115,472.

This invention relates to acoustic diaphragms and more especially to such diaphragms for use in phonographs or loud speakers as sound radiators.

5 The object of this invention is to provide a diaphragm which has high elastic reactance and small mass and which is strong and can be produced economically.

10 In accordance with this invention such a diaphragm is attained by utilizing a substance which is intrinsically strong, impervious to moisture and has a large number of holes, voids or cells distributed substantially uniformly throughout the structure.

15 The invention will be better understood from the following description in connection with the attached drawing in which Fig. 1 is a front view of a diaphragm in accordance with this invention and Fig. 2 shows the diaphragm in section mounted in a phonograph sound box.

20 The drawing illustrates a diaphragm 13 made from one of the so-called prepared porous metals. The pores or holes 14 are not uniform in size but are substantially evenly distributed.

25 Porous metals are made in a variety of ways. Basically, however, the methods consist in mixing two or more metals and then removing one or more of them by differential

chemical, mechanical, electrical or electro-chemical process. The various methods are differentiated by the manner of removing the metals not wanted, and form no part of this invention.

35 The strength and elasticity of the diaphragm will depend upon the metal or metals of which it is made and its mass will be small as compared with a non-porous piece of the same size.

40 Another material which may be used for diaphragms in accordance with this invention is what is known as spongy celluloid, which is ordinary celluloid treated to make it porous. This material may be produced by the process, 45 for example, disclosed in Austrian Patent 8,607, October 8, 1913, which is an addition to No. 63,556. See also U. S. Patent 1,142,619 to G. Pum and A. Glaessner.

50 The outer edge of the diaphragm is preferably reduced in thickness and is clamped between rings 15 of a resilient material such as rubber. A clamping ring 16 holds the rings 15 in position.

55 What is claimed is:

An acoustic diaphragm comprising a thin metallic disc of porous construction.

In witness whereof, I hereunto subscribe my name this 10th day of June, A. D., 1926.

NEWMAN H. HOLLAND.