

C. ZARR.  
DIAPHRAGM.  
APPLICATION FILED OCT. 16, 1909.

953,889

Patented Apr. 5, 1910.

FIG. 4.

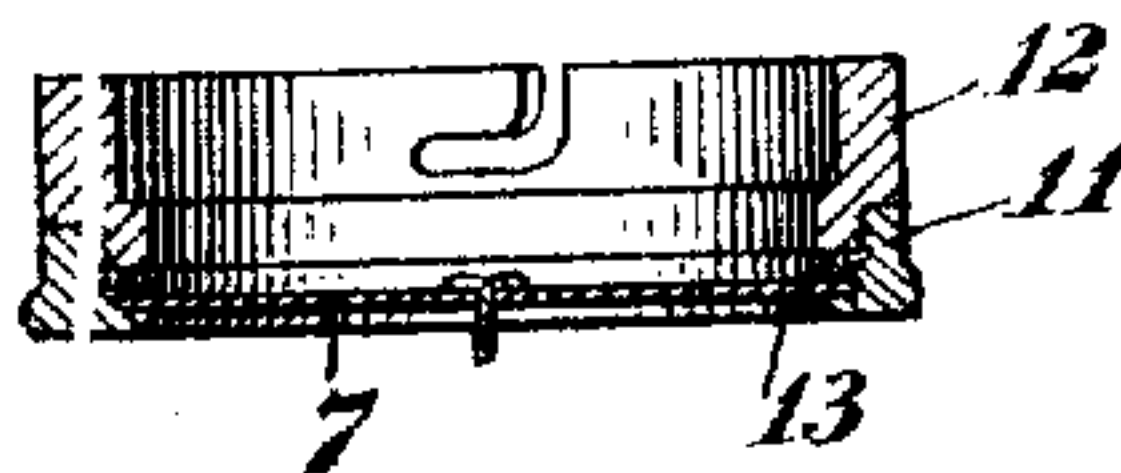


FIG. 1.

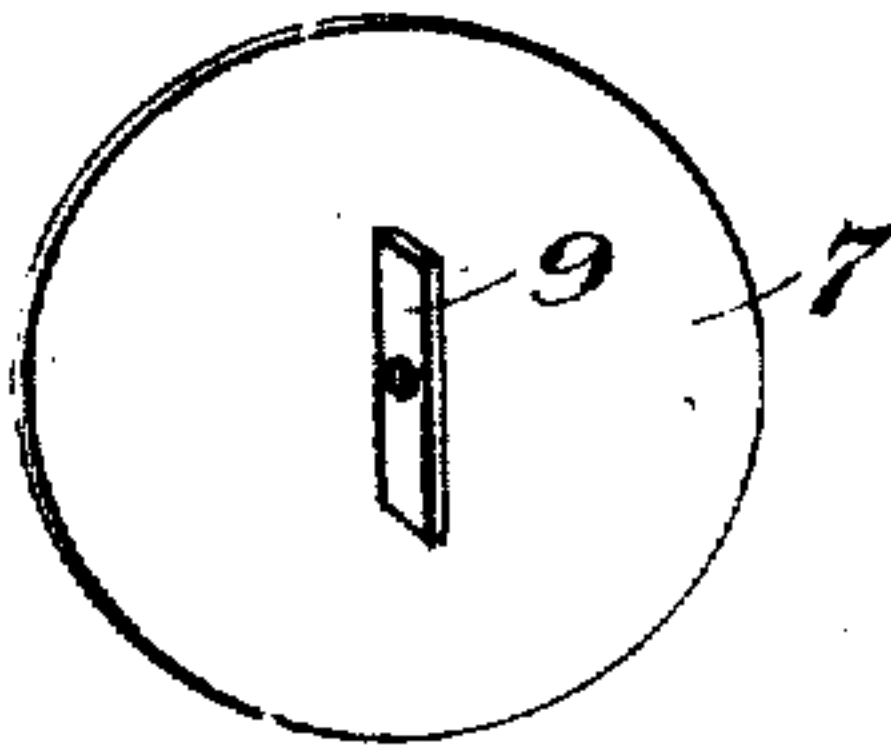


FIG. 2.

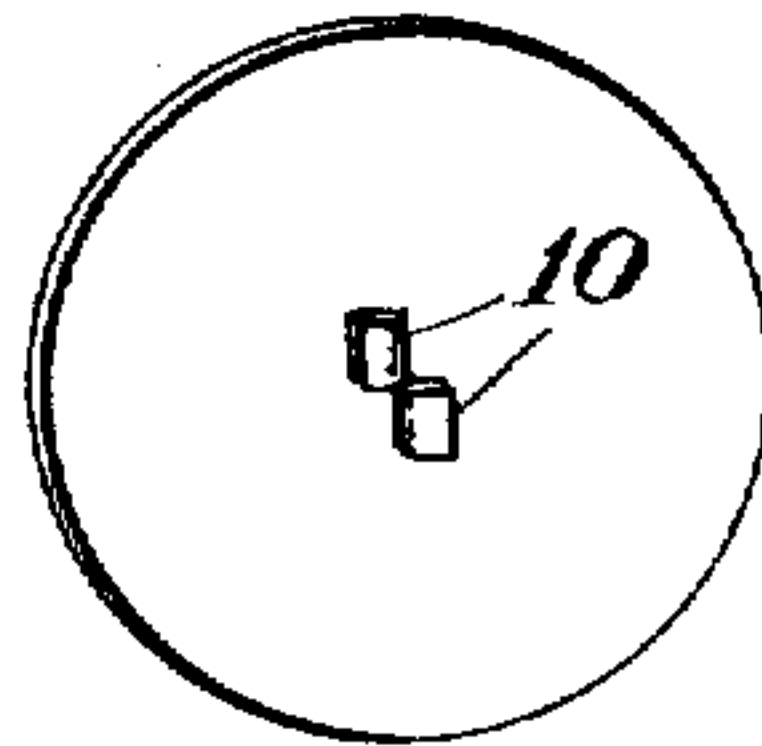


FIG. 3.

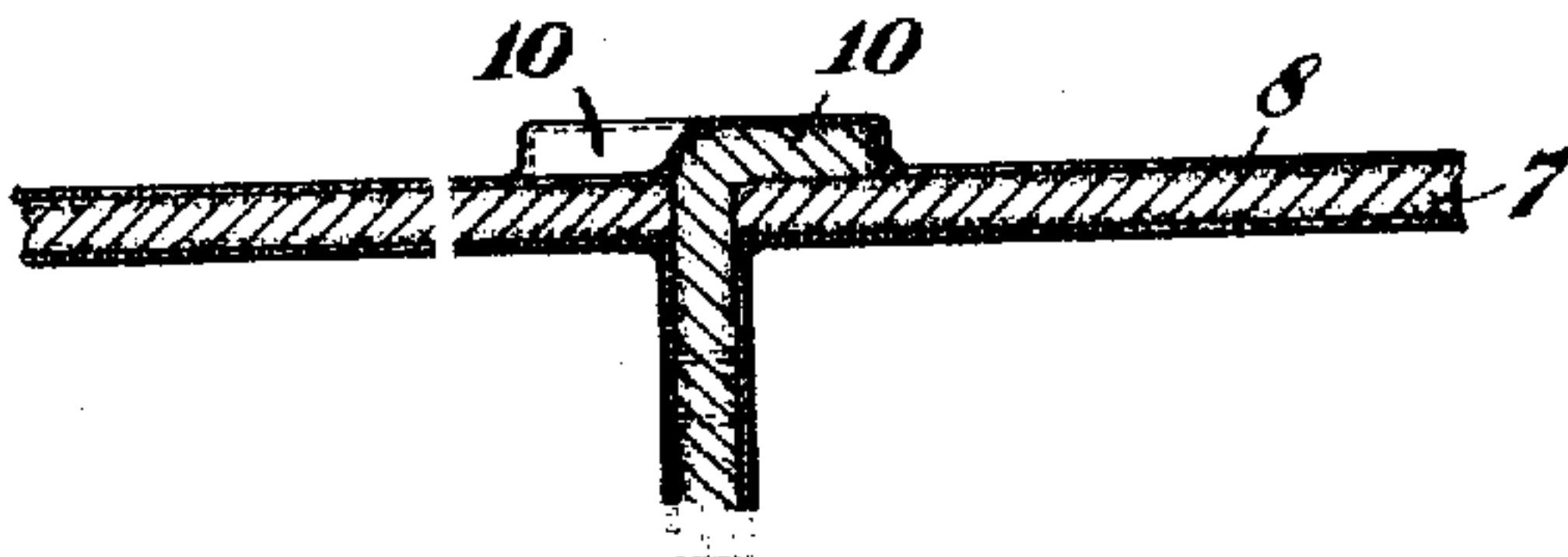
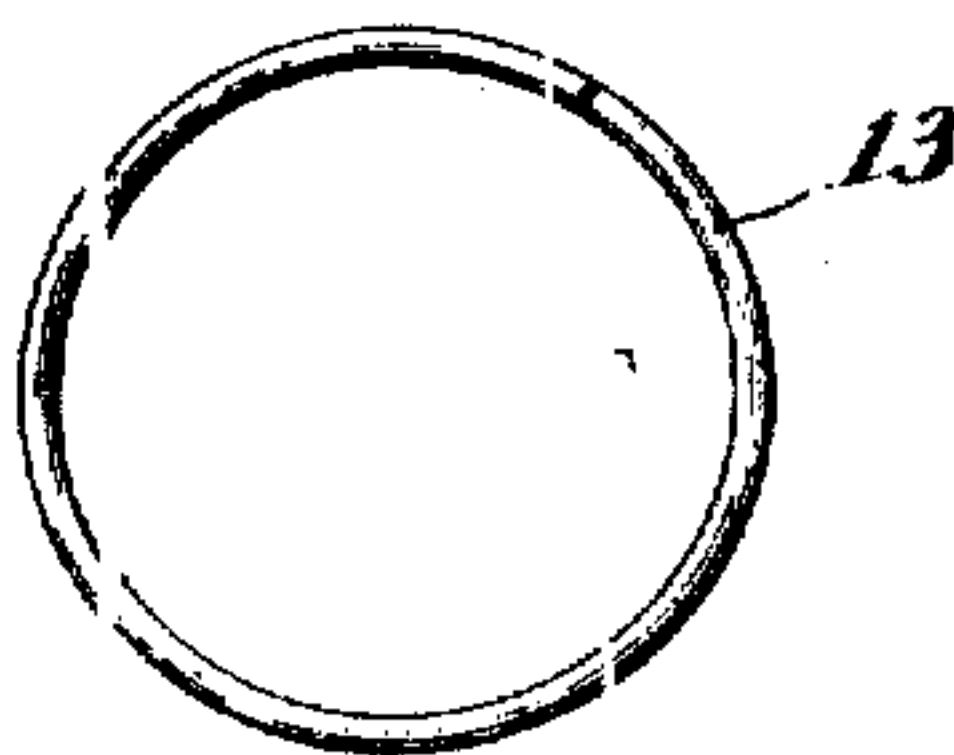


FIG. 5.



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# UNITED STATES PATENT OFFICE.

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## DIAPHRAGM.

953,889.

Specification of Letters Patent.

Patented Apr. 5, 1910

Application filed October 16, 1909. Serial No. 522,934.

*To all whom it may concern:*

Be it known that I, CLARK ZARR, a citizen of the United States, residing in Newberry, in the county of Lycoming and State of Pennsylvania, have invented certain new and useful Improvements in Diaphragms, of which the following is a specification.

This invention relates to diaphragms for sound conveying instruments and is particularly applicable to use in talking machines.

The object of the invention is to provide a diaphragm which will transmit the human voice, instrumental music and other sounds without detracting from the tonal qualities or adding any unpleasant sounds. The diaphragm will be made of suitably prepared and treated fiber sheet material. If a center post is employed this may be made of similar material. The fibrous sheet material diaphragm and post may be assembled and fastened together by a coating of some resilient waterproof material. In practice the diaphragm may have applied to it a gasket of yieldable material to prevent the parts which will normally clamp the diaphragm in position interfering with the proper working of the diaphragm.

In the drawings accompanying and forming a part of this specification Figure 1 is a perspective view showing one side of my improved diaphragm, namely the lower or post carrying side. Fig. 2 is a similar view of the other or upper side of the diaphragm. Fig. 3 is a broken away enlarged central cross sectional view of the diaphragm and center post. Fig. 4 is a central sectional view of a sound box illustrating the diaphragm and gasket in position; and Fig. 5 is a perspective view of a form of gasket which may be employed with the diaphragm.

The body portion 7 of the diaphragm will be made from some suitable fibrous sheet material, as for instance paper of the required thickness and stability. The diaphragm, preferably after being cut to size, will be coated with some resilient material 8, which will be incorporated to a certain extent with the fiber of which the diaphragm is made, particularly at the surface. This is illustrated by the stippling in Fig. 3.

The diaphragm of my present improvement is adapted for use in all sound conveying instruments, and is particularly useful in talking machines. When used for a

talking machine a center post will be provided for connecting the diaphragm with the other parts of the mechanism. In the present instance the center post 9 is illustrated as made of sheet material, preferably the same kind of sheet material as is the diaphragm. The post carries two prongs 10—10 which pass through a suitable opening in the center of the diaphragm and are bent over, see more particularly Fig. 3. After the center post prongs have been passed through the diaphragm and bent over in the proper position for holding the center post in place the waterproof coating material will be applied to the entire structure and properly treated and cured. The waterproofing material will not only serve its purpose as such; but will also secure the prongs and the center post in rigid relation to the diaphragm. The fibrous sheet material and coating of resilient waterproof material together give a diaphragm which responds to or produces sound vibrations without adding any undesirable tone qualities thereto or detracting in any way from the sounds which are transmitted. The center post being of the same material as is the diaphragm and treated in the same manner, and being securely held in position assists the diaphragm in the performance of its work.

It will be noted in the drawings that the center post 9 is of sheet material applied to a diaphragm of sheet material with its edge resting against the face of the diaphragm.

In Fig. 4 there has been illustrated a form of sound box carrying my improved diaphragm. The box is shown as made up of two members 11 and 12 clamping the diaphragm in position between them by means of the gasket 13, which gasket in practice will be of some yieldable material, as for instance lead wire. By having a yieldable gasket the diaphragm may be securely clamped in position without placing undue strain upon the diaphragm or permitting any movement of the diaphragm which would interfere with the sound.

Having described my invention I claim:

1. A diaphragm composed of sheet fibrous material, a center post of similar material carried by one side of the diaphragm and having securing prongs entering through the diaphragm and bent over against the other side thereof, and a waterproof resili-

ent coating upon said diaphragm, center post, and securing prongs and securing these together, substantially as specified.

2. A diaphragm composed of sheet fibrous material, a center post of similar material carried by the diaphragm, a waterproof coating surrounding the diaphragm and the

center post and securing these together, and a gasket of lead wire at the edge of the diaphragm.

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Witnesses:

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