

Nov. 18, 1924.

1,515,931

W. A. CROSBEE
ELECTRIC SOUND PRODUCING HORN

Filed Feb. 5, 1924

Fig. 1.

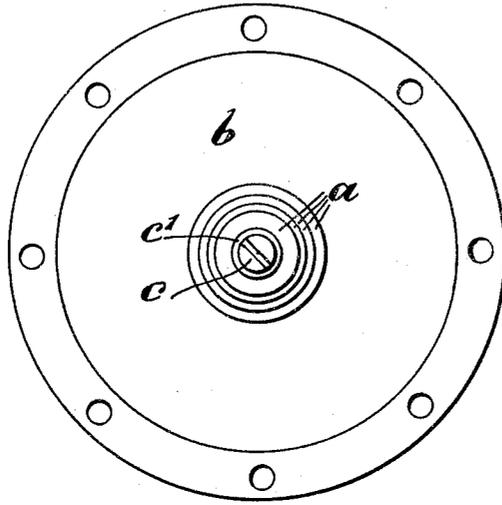


Fig. 2.

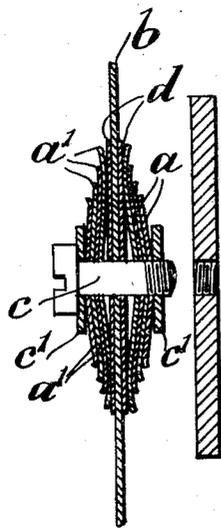
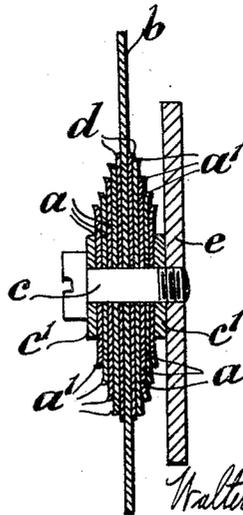


Fig. 3.



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UNITED STATES PATENT OFFICE.

WALTER ARTHUR CROSBEE, OF MALVERN, ENGLAND.

ELECTRIC SOUND-PRODUCING HORN.

Application filed February 5, 1924. Serial No. 690,854.

To all whom it may concern:

Be it known that I, WALTER ARTHUR CROSBEE, a subject of the King of Great Britain, residing at Malvern Hotel, Malvern, in the county of Worcester, England, have invented certain new and useful Improvements Relating to Electric Sound-Producing Horns, of which the following is a specification.

The present invention has relation to electric sound producing horns for use upon motor vehicles, and the like, and relates more particularly to the diaphragms used in such horns, the present invention having for its object to provide efficient strengthening means for their operative centre parts.

The present invention comprehends a vibratory diaphragm having two or more laminations or discs on each side of the diaphragm of a character adapted to be compressed or slightly altered in shape during the tightening or clamping operation.

The present invention further comprehends a vibratory diaphragm having two or more laminations or discs on each side formed to a slightly conical or dished configuration so that in the tightening operation they are converted from such shape to a flat configuration whereby the centre of the diaphragm is very efficiently held.

In order that this invention may be clearly understood and readily carried into practice, reference may be had to the appended explanatory sheet of drawings, upon which:—

Figure 1 is an elevation of a diaphragm having centre strengthening means constructed according to the present invention.

Figure 2 illustrates in transverse section the present strengthening means prior to the tightening or clamping operation.

Figure 3 is a similar view after the tightening or clamping operation.

In a convenient embodiment of the present invention two or more sheet metal discs or laminations *a* are employed on each side of the diaphragm *b* conveniently four in number, and each of these discs or laminations *a* is stamped or formed to a shallow

conical configuration or dish formation (see Figure 2) and in the stamping operation, or by another operation the edge of the disc is rounded off as at *a*¹ (see particularly Figure 3). The discs are adapted to be aggregated against the diaphragm with their concave faces innermost. In the tightening or flattening operation by the screw pin *c* with washers *c*¹ the discs are slightly expanded outwardly and the rounded edges *a*¹ prevent any cutting of the diaphragm by the discs, or of one disc by another, the pin passing through perforations in discs and diaphragm. Conveniently a canvas disc *d* is interposed between the innermost disc or lamination and the diaphragm. The metal discs or laminations *a* may be of a metal similar to that constituting the diaphragm *b*, and the screw pin *c* in one instance may screw into a circular armature *e*. By tightening this screw member *c* the laminations on each side of the diaphragm are tightened on to that member and the armature securely held. Alternatively these laminations *a* may be mounted upon a centre pin adapted to directly actuate the interrupter contacts of the horn.

In a modification of the present invention, the laminations or discs *a* may be coned, curved, or equivalently treated and may if desired, be slit radially or otherwise to assist in the compressing operation, the desideratum in each instance being that the laminations or discs bear against the diaphragm or against one another when tightened over their whole central superficial area. The laminations may gradually reduce in diameter on each side of the diaphragm. If desired, only two of the largest laminations on each side of the diaphragm may be coned or equivalently treated and the remainder being of a smaller character may be of flat or substantially flat formation.

What I claim as my invention and desire to secure by Letters Patent is:—

A vibratory diaphragm for an electric horn comprising a diaphragm disc and a series of laminations on opposite sides of said disc at the center thereof, said lamina-

tions being concavo-convex and arranged with their concave sides towards said disc, and fastening means extending through the centers of said disc and laminations and pressing said laminations and disc together, so that said laminations bear against one another, and the innermost laminations bear also against said disc at all points from the peripheries to the centers of said laminations, and forming a solid body at the center of the diaphragm. 10

In witness whereof I have hereunto set my hand.

WALTER ARTHUR CROSBEE.