March 11, 1924. 1,486,132

H. C. EGERTON

TELEPHONE TRANSMITTER BUTTON

Filed Sept. 14, 1920

Fig. 1.

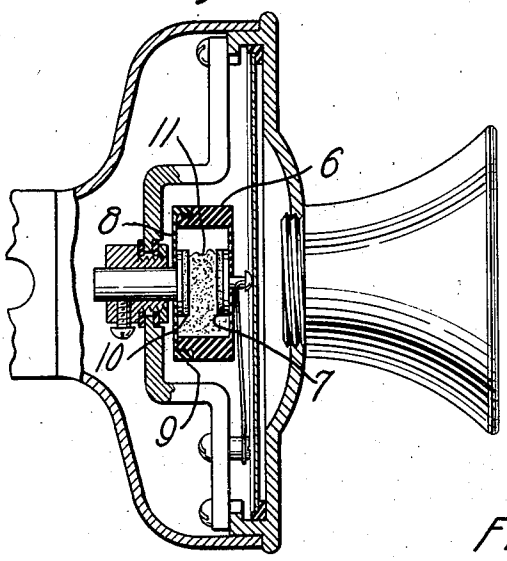



Fig. 2

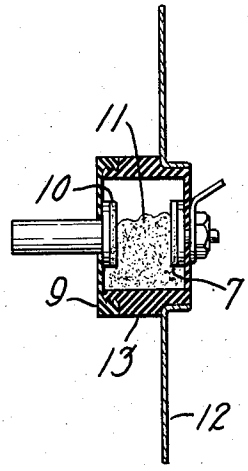



Fig. 5.

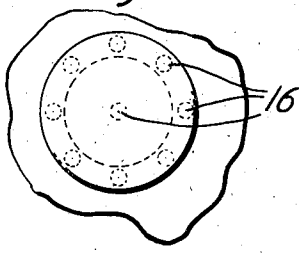



Fig. 3.

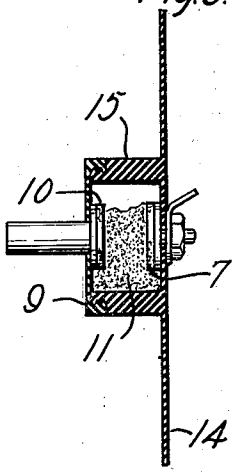
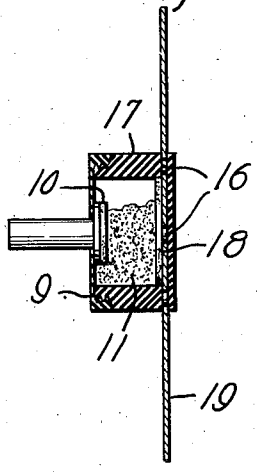



Fig. 4.

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Patented Mar. 11, 1924. 1,486,132

# UNITED STATES PATENT OFFICE.

HENRY C. EGERTON, OF MAPLEWOOD, NEW JERSEY, ASSIGNOR TO WESTERN ELECTRIC COMPANY, INCORPORATED, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

## TELEPHONE-TRANSMITTER BUTTON.

Application filed September 14, 1920. Serial No. 410,323.

*To all whom it may concern:*

Be it known that I, HENRY C. EGERTON, a citizen of the United States, residing at Maplewood, in the county of Essex, State of New Jersey, have invented certain new and useful Improvements in Telephone-Transmitter Buttons, of which the following is a full, clear, concise, and exact description.

This invention relates to telephone transmitter buttons and more particularly to those which are carried on the back of the diaphragm proper.

An object of this invention is to provide a comparatively light transmitter button and one which may be readily attached.

Another object is to produce a button which will of itself, facilitate the movement of the electrodes during the vibrations of the diaphragm.

It has been found that a button composed of fabric which has been impregnated is well suited for carrying out this invention. Fabric, such as paper, cloth and the like, is treated with a liquid or semi-liquid material which, upon being subjected to heat treatment, commonly referred to as "curing," solidifies and forms a hard, elastic, homogenous structure.

In the preferred form of the invention, the fabric having been impregnated with a phenolic condensation product, is molded into the desired shape. The diaphragm which may be composed of metal, impregnated fabric or the like, is provided with a hole at its center, the diameter of said hole depending upon the size of the molded button to be used. The button is then molded into this opening in such a way as to insure a firm union with the diaphragm. The unitary structure thus produced is then subjected to a certain predetermined temperature in a suitable heating chamber until the phenol condensation product has been completely cured.

A button thus fabricated has been found to assist greatly in the movement of the electrodes during the vibrations of the diaphragm. Heretofore this has been accomplished by the insertion of supplementary diaphragms composed of resilient material resulting in a somewhat complicated button structure. The elasticity of the material which forms the impregnated medium in the embodiment of this invention is such that the movement above referred to is accomplished without the further addition of other apparatus.

In the drawings Fig. 1 shows an application of the invention to a commercial solid back type transmitter.

Figs. 2, 3 and 4 show other forms of the invention adapted to fit solid back type transmitters.

Fig. 5 shows the method of securing the button to the diaphragm in Fig. 4.

In Fig. 1 the button is a separate unit mounted in a commercial type transmitter. The cup 6 of phenol condensation product or equivalent material has a comparatively thick wall and a thin flexible bottom. A flexible disc 8 of the same material as the cup having a threaded flange 9 is secured to cup 6 forming a chamber for the usual electrodes 7 and 10 and the comminuted material 11.

In Fig. 2 a diaphragm 12 is provided with a central opening into which cup 13 may be molded forming a unitary structure therewith.

In Fig. 3 a diaphragm 14 is also formed of phenol condensation product and integral with cup 15.

In Fig. 4 a diaphragm 19 is of sheet metal and perforated at the center with a number of holes 16. The cup 17 is secured to the diaphragm 19 in the molding process, the material impregnating the diaphragm and forming a reinforcing layer on its face. The front electrode 18 is mounted directly on the diaphragm.

Although the forms shown in Figs. 2, 3 and 4 are applicable to solid back transmitters it is obvious that by mounting the rear

electrode in the same manner as the front electrodes of Figs. 2 and 3 they may be used in inertia type transmitters.

What is claimed is:

A telephone button comprising a cup formed of phenol condensation product, said cup having a bottom responsive to sound vibrations, a substantially rigid marginal wall integral with said bottom, and a flexible cover of similar material, said cover having a threaded flange integral therewith and engaging the wall of the cup to secure said cover thereto.

In witness whereof, I do hereunto subscribe my name this 2nd day of September A. D., 1920.

HENRY C. EGERTON.