

W. P. STUNZ.
 CUSHION FOR DIAPHRAGMS OF TELEPHONIC AND LIKE INSTRUMENTS.
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1,062,559.

Patented May 20, 1913.

Fig. 1.

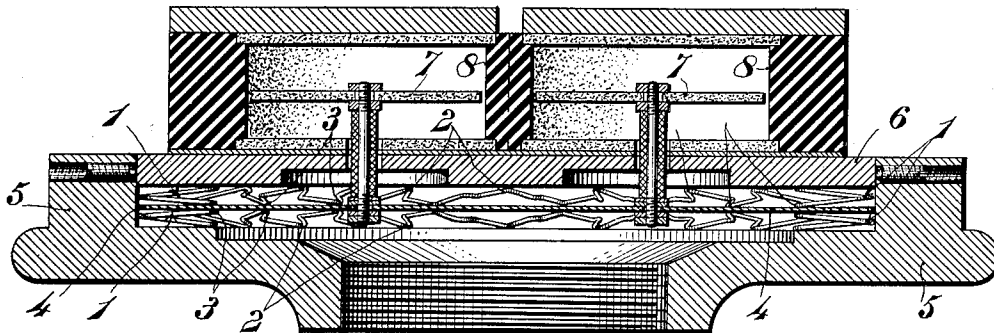


Fig. 2.

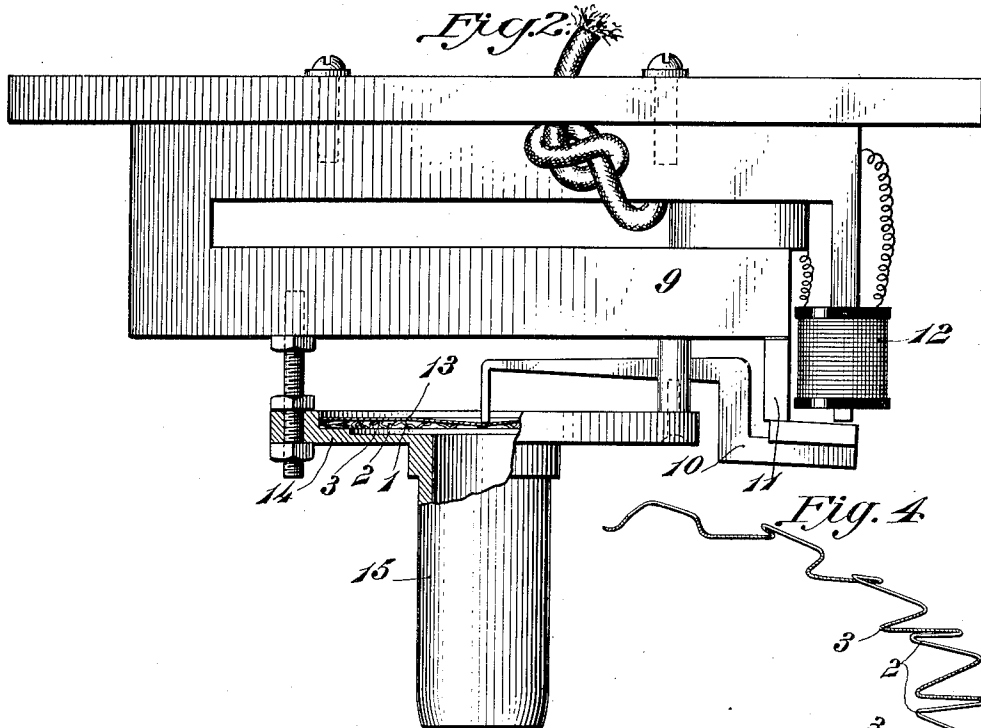


Fig. 4.

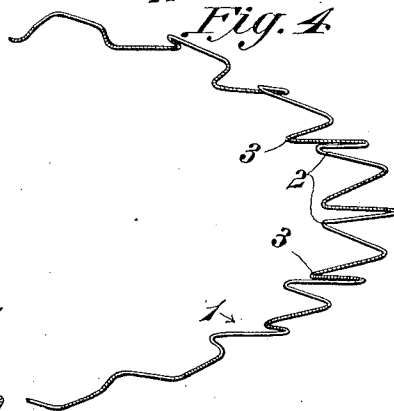
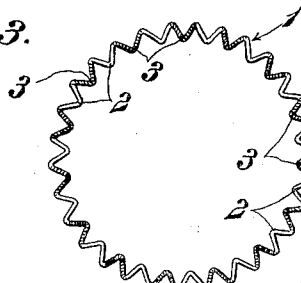


Fig. 3.



Witnesses:
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UNITED STATES PATENT OFFICE.

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CUSHION FOR DIAPHRAGMS OF TELEPHONIC AND LIKE INSTRUMENTS.

1,062,559.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, WILLIAM PRESTON STUNZ, a citizen of the United States, residing at Lansdowne, in the county of Baltimore and State of Maryland, have invented certain new and useful Improvements in Cushions for Diaphragms of Telephonic and Like Instruments; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention relates to mountings for the diaphragms of telephonic and like instruments, and has for its object to produce a mounting which will afford a greater amplitude of action or movement of the diaphragm and provide greater and more uniform elasticity than prior elastic mountings and also serve to prevent deterioration with age.

To the accomplishment of the foregoing and such other objects as may hereinafter appear the invention consists in an elastic mounting having features or characteristics hereinafter described and sought to be defined by the claims, reference being had to the accompanying drawing illustrating one of the mountings in two forms of telephonic instruments, one form being a transmitter and the other a receiver for purposes of illustration, and in which,

Figure 1 is a vertical section through a transmitter of the type having two movable electrodes in granular carbon cells between stationary electrodes, the movable electrodes both being connected to the diaphragm, the illustration being on an enlarged or magnified scale; Fig. 2 is a side view of one form of receiver comprising generally a permanent magnet with an amplifying lever mounted upon one pole of the magnet and spaced from the other pole carrying a coil and having its opposite end bearing against a diaphragm and showing the support for a horn, the receiver being full size; Fig. 3 is a plan view of one form of the elastic mounting; and Fig. 4 is a perspective of a portion of the mounting on an enlarged scale.

In the drawing the numeral 1 designates the mounting which is made preferably of spring or elastic wire and is in the form of an annulus and as illustrated is preferably circular in outline although it may be of other shape in outline without departing from the invention.

The mounting comprises a number of wave formed convolutions or undulations formed of loop-members, as illustrated, the branches of the undulations of the inner circle being alternately bent or deflected upward as indicated at 2 and downwardly as indicated at 3 so as to present the terminals of the inner circle of the branches in different horizontal planes, the outer circle of the undulations being preferably in the same plane and intermediate of the two planes described by the terminals of the inner circle of the branches of the undulations.

As illustrated in Fig. 1 of the drawing one of these mountings may be between the diaphragm 4 and the front plate 5 of a transmitter with some of its deflected undulations bearing against the diaphragm and the others against the plate, and the other mounting between the diaphragm and the back plate 6 of the transmitter with some of the deflected undulations bearing against the diaphragm and others against the back plate, as clearly illustrated in the drawing. In this form of transmitter the two electrodes 7 of the granular carbon cells 8 of the transmitter are connected to the diaphragm 4, but the mounting may be used for the diaphragm of any other type of transmitter than that illustrated and serve the same purpose whatever be the form or type of transmitter or instrument in which a vibratable diaphragm is employed.

In the form of receiver illustrated in Fig. 2 which shows a permanent magnet 9 with an amplifying armature or lever 10 mounted upon one pole 11 of the magnet and spaced by an air space from the other pole of the magnet having a coil 12 thereon, with the other arm of the armature-lever bearing against a diaphragm 13, the mounting is illustrated as between the diaphragm 13 and the plate 14 which carries the member 15 for attachment of an amplifying horn. In this form it will be observed that the mounting bears against only one side of the diaphragm, some of the undulations of the

inner circle of the mounting bearing against the diaphragm and others against the plate 14 so as to afford an elastic support for the diaphragm. The form of the receiver however to which the mounting for the diaphragm may be applied is immaterial as the members of an elastic suspension or cushion having the characteristics of my mounting is the same whatever be the form of the receiver or other instrument having a vibratable diaphragm.

With a mounting or elastic cushion formed as specified a greater amplitude of action is obtainable than under other elastic cushions heretofore provided and a greater and more uniform elasticity throughout the entire amplitude of action is made possible, and by reason of the mounting being made of spring or elastic wire the elasticity or resiliency of the cushion will not deteriorate with age, and there need not be any fixed attachment of the spring cushion to any part of the instrument and thus advantage obtained over a fixed attachment of the cushion. I have illustrated the mounting as circular in outline because that is the preferred form but it is obvious that a mounting other than circular in outline may be made having the essential characteristics of my invention. While I prefer to make the mounting of spring wire, yet the same may be made of other suitable material and formed with the characteristic features of my invention.

Having described my invention and set forth its merits what I claim is:—

1. A cushion for the diaphragm of a telephonic or like instrument comprising an

elastic loop-formed member having undulatory deflected branches.

2. A cushion for the diaphragm of a telephonic or like instrument comprising an elastic loop-formed member having oppositely deflected undulatory branches.

3. A cushion for the diaphragm of a telephonic or like instrument comprising an elastic loop-formed annulus having deflected undulatory branches.

4. A cushion for the diaphragm of a telephonic or like instrument comprising an elastic loop-formed annulus having undulatory branches, the inner portions of which are deflected.

5. A cushion for the diaphragm of a telephonic or like instrument comprising an elastic loop-formed annulus having undulatory branches, the inner portions of which are deflected in opposite directions.

6. A cushion for the diaphragm of a telephonic or like instrument comprising an elastic annulus having undulatory branches, the inner portions of which are deflected to different horizontal planes and the outer portions lying in substantially the same plane with each other.

7. A cushion for the diaphragm of a telephonic or like instrument comprising a spring metal loop-formed annulus having undulatory branches, the inner portions of which are deflected into different planes.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM PRESTON STUNZ.

Witnesses:

FRANK GOSNELL, Jr.,

WILLIAM PEPPER CONSTABLE.