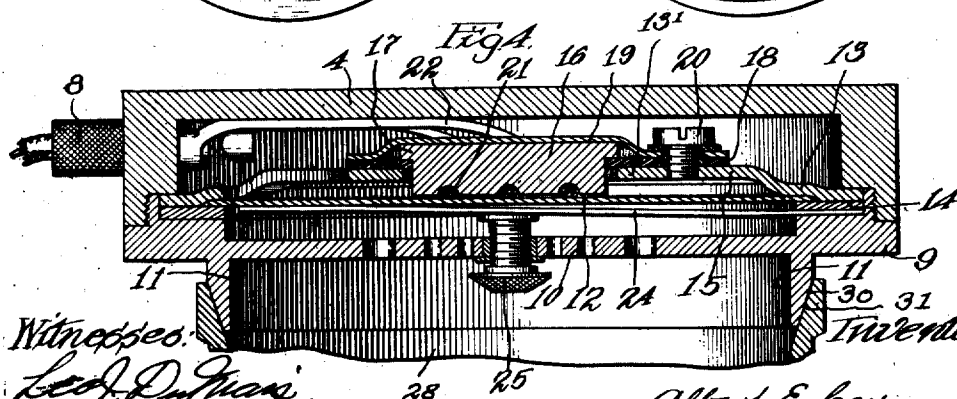
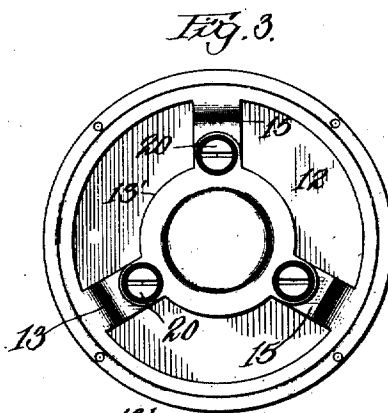
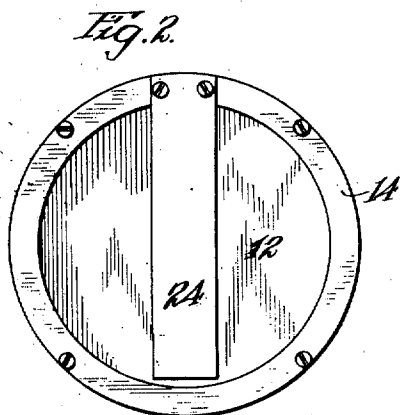
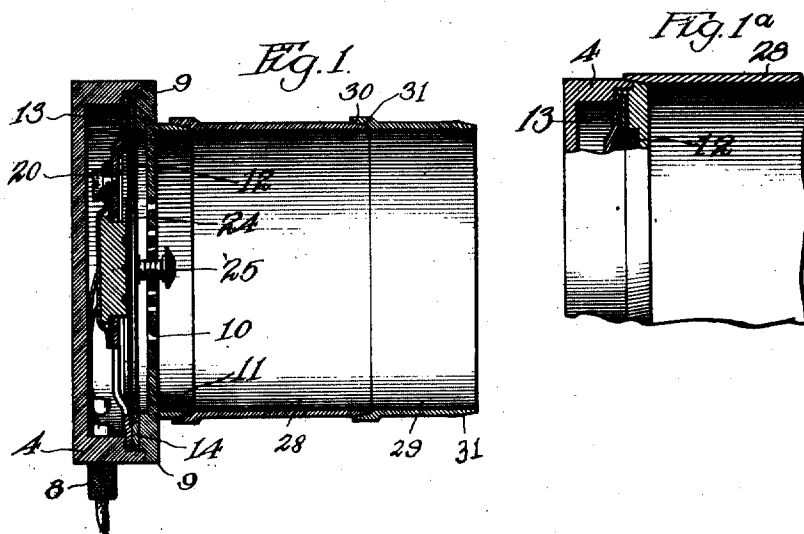


A. E. COY.
SOUND TRANSMITTING APPARATUS.
APPLICATION FILED SEPT. 14, 1914.

1,230,280.

Patented June 19, 1917.
2 SHEETS—SHEET 1.



Witnesses:

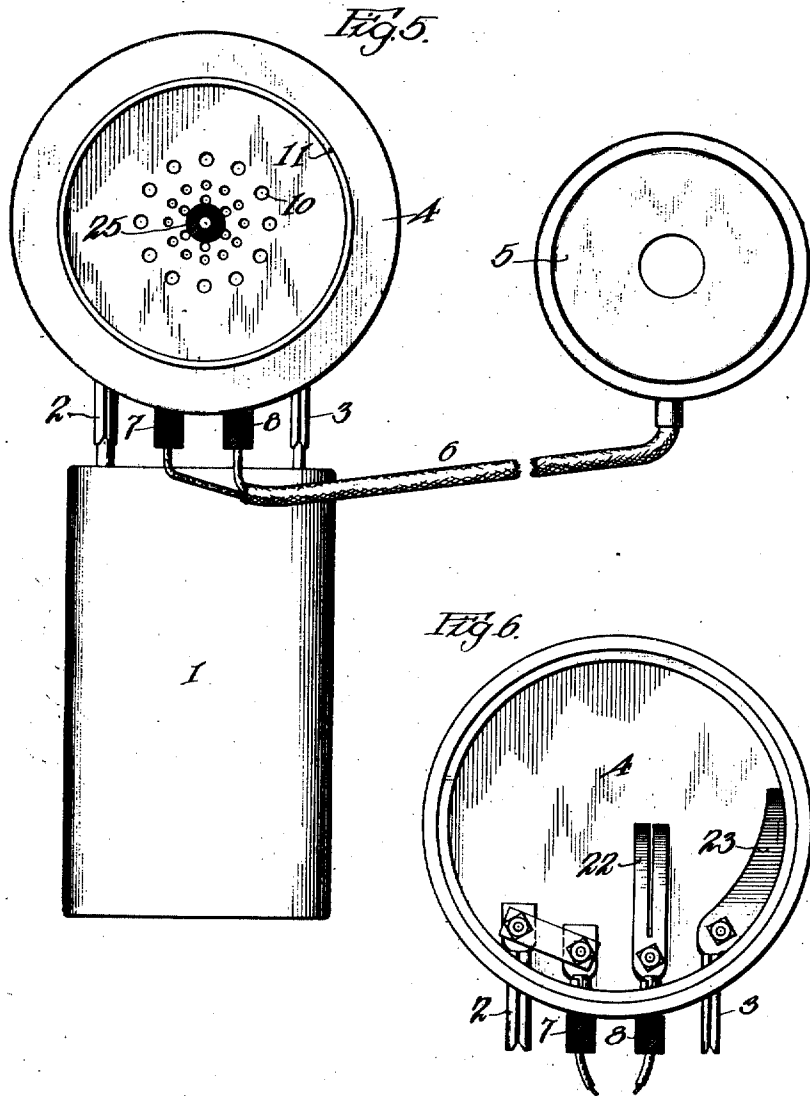
Leof. DuMars.
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UNITED STATES PATENT OFFICE.

ALBERT E. COY, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE MAGNIPHONE COMPANY, A CORPORATION OF ARIZONA.

SOUND-TRANSMITTING APPARATUS.

1,230,280.

Specification of Letters Patent.

Patented June 19, 1917.

Application filed September 14, 1914. Serial No. 861,553.

To all whom it may concern:

Be it known that I, ALBERT E. COY, a citizen of the United States of America, and a resident of Chicago, in the county of Cook, State of Illinois, have invented certain new and useful Improvements in Sound-Transmitting Apparatus, of which the following is a specification.

This invention relates to that class of telephone apparatus in which means is provided for regulating the intensity and amplitude of the vibrations of the diaphragm of the transmitter, and for properly directing the sound waves to such diaphragm with an elimination of foreign sounds in the vicinity of the instrument. And the present improvement has for its object to provide an effective structural formation and association of parts whereby the degree or amplitude of the vibrations of the transmitter diaphragm can be readily adjusted to attain the desired intensity, purity, and distinctness in the sound transmitted, with an elimination or avoidance of loud, harsh, or grating tones in one case, and in the other case attain a distinct and effective transmission of soft and low sounds.

In the accompanying drawings:—

Figure 1 is a longitudinal section of a telephone transmitter embodying the present improvements.

Fig. 1* is a detail sectional elevation of a modification.

Fig. 2 is a detail elevation of the front portion of the diaphragm and its attached accessories.

Fig. 3 is a similar view of the rear portion of the aforesaid diaphragm and attached accessories.

Fig. 4 is an enlarged detail longitudinal section of the transmitter.

Fig. 5 is a general elevation illustrating the association of the present invention with a local battery and receiver, and adapted for use of persons of defective hearing.

Fig. 6 is an elevation of the interior of the transmitter casing, the diaphragm and its attached accessories being removed.

Similar reference numerals indicate like parts in the several views.

Referring to the drawings, 1 represents the local battery adapted for connections with suitable terminal sockets 2 and 3 of the transmitter casing 4; while 5 designates

an ordinary receiver having flexible line connections 6 with terminal necks 7 and 8 of the transmitter casing 4 aforesaid. The parts so associated being adapted for the use of persons with defective hearing.

The transmitter casing 4 above referred to is of the usual shallow cup shape shown, and provided with the usual closure disk or cover 9, the marginal portion of which is formed with a screw-threaded rim which screws into a screw-threaded offset of the circular wall of the casing 4, to confine in proper position the diaphragm and its attached accessories, as usual in the present class of telephone transmitters. The aforesaid closure disk or cover 9 is formed with the usual centrally disposed cluster of small apertures 10 for the passage of the sound waves to the transmitter diaphragm and in the present improvement is provided with an annular outstanding rim 11, the periphery of which is made tapering for the purpose hereinafter stated.

12 designates the transmitter diaphragm of any ordinary form or construction, preferably of the flat disk form shown.

13 designates a cup shaped skeleton head formed with an annular receiving recess for the marginal portion of the diaphragm 12 which is held in place in said recess by a marginal confining ring 14 and suitable binding screws as shown. Said skeleton head 13 in addition to the marginal portion above mentioned has a central portion 13' orificed for the passage of the microphone member hereinafter described, with said central portion integrally connected to the marginal portion by a plurality of radial arms 15 as illustrated in Figs. 1, 3, and 4.

16 designates a microphone block of carbon or like conducting material, and preferably formed with a peripheral supporting flange 17 at one end as shown. Said microphone block 16 projects through the central orifice of the aforesaid central portion 13' of the skeleton head 13, without electrical contact therewith, and is supported in place thereon and in insulated relation thereto, by an interposed washer 18 of insulating material, a binding cap 19 of metal, and insulating binding screws 20, as shown more particularly in Fig. 4.

The front end of microphone block 16 is in separated relation to the adjacent face of

the transmitter diaphragm 12 aforesaid, and said front face of the block is formed with a plurality of cells or recesses 21 for the reception of granules of carbon by which microphone properties are imparted to the structure, and as usual to the present type of transmitters.

22 designates a contact finger attached to the transmitter casing 4, with its free end bearing against the binding cap 19, aforesaid, and adapted to electrically connect the microphone block 16 with a terminal sleeve 8 of the transmitter casing 4.

23 designates a companion contact finger attached to the transmitter casing 4, with its free end bearing on the marginal portion of the skeleton head 13 and adapted to electrically connect the diaphragm 12 with a terminal socket 3 of the transmitter casing 4.

The material part of this invention involves in connection with the diaphragm of the transmitter mechanism above described, a resilient damper member having bearing contact upon the face of the diaphragm and adjustable thereon in the area of said contact and with said area increasing from a point of slight vibration of the diaphragm toward a point of greater vibration thereof, and in the preferred type of the invention illustrated in Figs. 1, 2, and 4, the adjustability and varied resiliency in the damper member are simultaneously attained by a structural formation and association of parts, as follows:

24 designates a damper member or finger of resilient plate material attached at one end in fixed relation to a marginal portion or frame of the transmitter diaphragm 12 and extending diametrically across said diaphragm as indicated in Fig. 2.

25 designates a headed adjustable screw having screw threaded bearing in the central portion of the closure disk or cover 9 of the transmitter casing 4, so as to be capable of manual adjustment in a lengthwise direction. At its inner end, the adjustable screw 25 has abutment against the resilient damper finger 24, midway the length of the same, and is adapted in its adjustment to bring more or less of the free end portion of said damper finger 24 into contact with the diaphragm 12, and with correspondingly more or less pressure at the point of the contact. Such action is adapted to afford a very effective and controllable regulation of the vibration of the diaphragm 12 in actual use.

In connection with the sound transmitting apparatus above described, it is preferable to use a sectional and variable sound collecting structure having a formation as follows:—

28 and 29 are a plurality of open ended cylindrical shells of varying lengths and

having uniform internal diameters corresponding with the internal diameter of the annular outstanding rim 11 of the closure disk or cover 9 of the transmitter casing heretofore described. In the present improvement the bore of the rim 11 will have a cylindrical form corresponding with that of the above mentioned shells 28 and 29, and the series of the parts are interchangeably connected together by forming the aforesaid rim 11 and an end portion of each shell 28, 29 with tapering exteriors 30, and in connection with such formation, forming the opposite end portions of each shell 28, 29 with correspondingly tapering or flaring interiors 31, as shown. With the above described construction the outstanding neck 11 can be used alone as a sound wave conductor where a wide range of the sound waves are to be collected. With more restricted ranges of the sound waves to be collected, either one or the other of the shells 28, 29 will be used in connection with the outstanding neck 11. And where a still less range of sound waves are to be collected, both of said shells 28, 29 will be used in connection with the outstanding neck 11, aforesaid.

Having thus described my said invention, what I claim as new and desire to secure by Letters Patent, is:—

1. In a sound transmitter of the type described, the combination of a diaphragm, damping means adapted for contact with said diaphragm and adjustable in the area of said contact with the area increasing from a point of slight vibration of the diaphragm toward a point of greater vibration thereof, substantially as set forth.

2. In a sound transmitter of the type described, the combination of a diaphragm, damping means adapted for contact with said diaphragm and adjustable from the outer edge of said diaphragm toward the center as pressure on the diaphragm is increased, substantially as set forth.

3. In a sound transmitter of the type herein described, the combination of a diaphragm, adjustable damping means adapted for contact with said diaphragm, a transmitter casing formed with an annular outstanding neck, a thumb piece located within said annular neck for manually operating said adjustable damping means, substantially as set forth.

4. In a sound transmitter of the type described, the combination of a diaphragm, a resilient damper finger attached adjacent to the margin of said diaphragm with its free end adapted for contact with the diaphragm, and means for changing the location and pressure of said free end of the damper finger upon the diaphragm, substantially as set forth.

5. In a sound transmitter of the type de-

scribed, the combination of a diaphragm, a resilient damper finger attached adjacent to the margin of said diaphragm with its free end adapted for contact with the diaphragm, and means for regulating the location of and pressure on the point of contact of said free end of the damper finger upon the diaphragm, the same comprising a temper screw having bearing in the casing

of the transmitter and abutting against the 10 damper finger, substantially as set forth.

Signed at Chicago, Illinois, this 11th day of September, 1914.

ALBERT E. COY.

Witnesses:

K. A. MARTENSEN,
A. KEHOE.