Feb. 12, 1929. 1,701,883

H. HAAS

TELEPHONE TRANSMITTER SILENCER

Filed Oct. 21, 1927 2 Sheets-Sheet 1

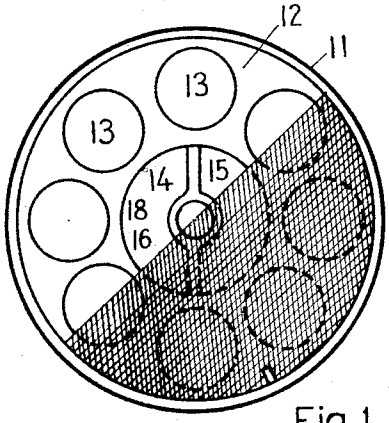

Fig. 1

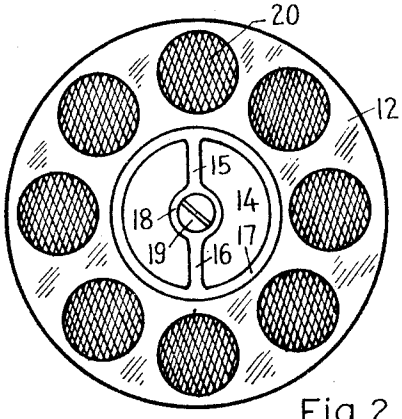

Fig. 2

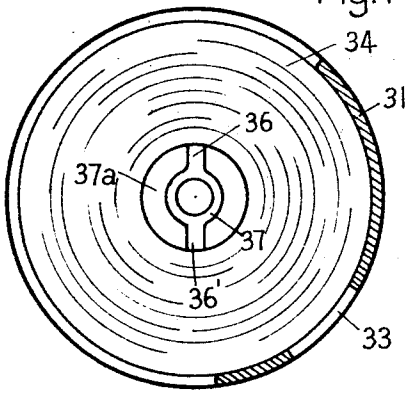

Fig. 3

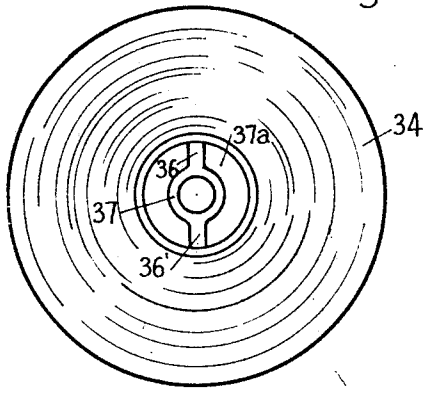

Fig. 4

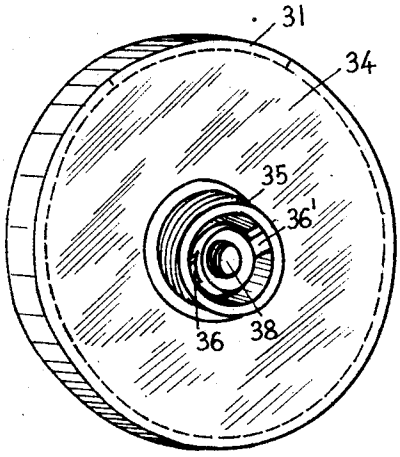

Fig. 5

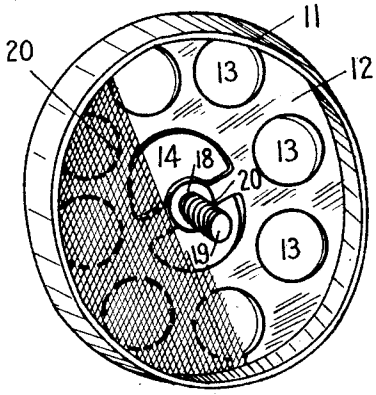

Fig. 6

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TELEPHONE TRANSMITTER SILENCER

Filed Oct. 21, 1927 2 Sheets-Sheet 2

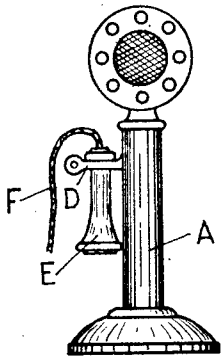

Fig. 7

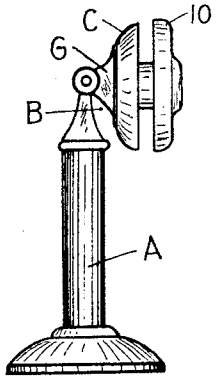

Fig. 8

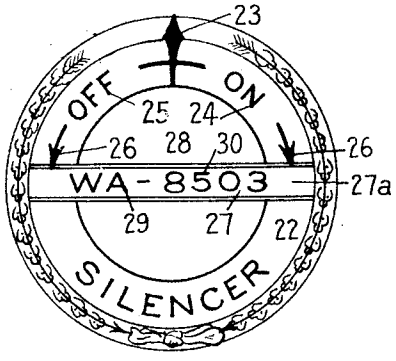

Fig. 9

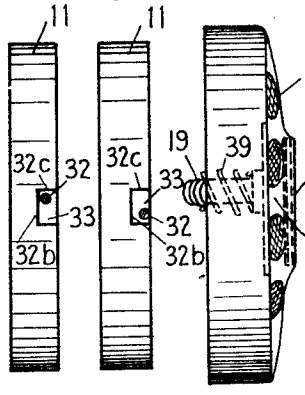

Fig. 10 Fig. 11 Fig. 12

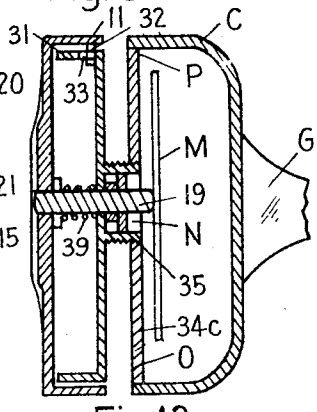

Fig. 13

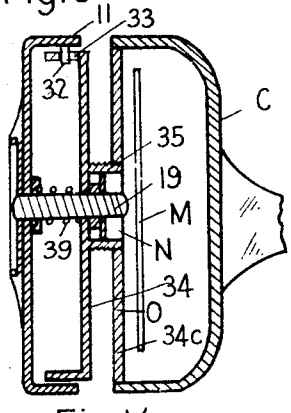

Fig. 14

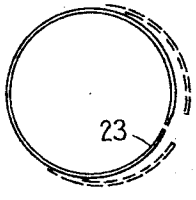

Fig. 15

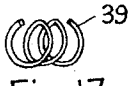

Fig. 17

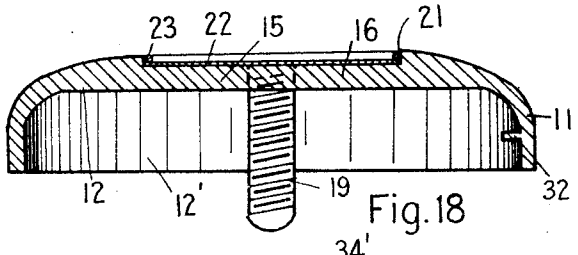

Fig. 18

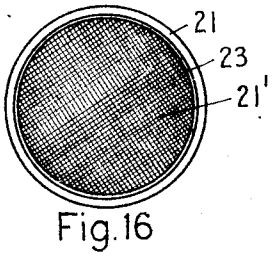

Fig. 16

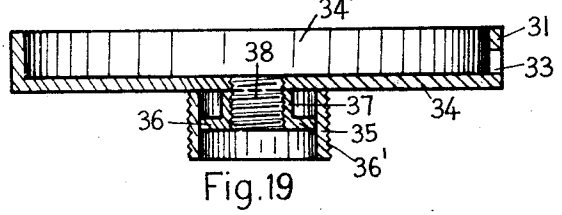

Fig. 19

Hartwell Haas.

INVENTOR

Patented Feb. 12, 1929. 1,701,883

UNITED STATES PATENT OFFICE.

HARTWELL HAAS, OF LOS ANGELES, CALIFORNIA, ASSIGNOR OF ONE-THIRD TO J. O. FRANCIS HAAS, OF LOS ANGELES, CALIFORNIA.

TELEPHONE TRANSMITTER SILENCER.

Application filed October 21, 1927. Serial No. 227,773.

This invention relates to improvements in telephone apparatus and more particularly to telephone transmitters, and has for its object to provide a simple, efficient and inexpensive device of this character.

One of the objects of this invention is to provide an instrumentality designed for removable attachment to a telephone transmitter and effective to eliminate unnecessary noises and sounds originating externally of the instrument, and to concentrate the incoming sounds thru the telephone receiver so as to render the same more audible to the telephone user.

Another object of this invention is to provide an improvement in telephone transmitters designed to silence the diaphragm therein at stated intervals when it is desired to receive clear messages thru the receiver instrument.

A further object of this invention is to provide means for manually cutting out extraneous sounds from passage thru the transmitter, which, ordinarily, would tend to energize the diaphragm in this transmitter and thus carry the sounds to the distant telephone speaker.

Another object of this invention is to provide an attachment for telephone transmitter in the form of a new mouthpiece intended to replace the conventional mouthpiece, for the distinct purpose of improving the audibility of the instrument, and for the further purpose of preventing the mingling of outside noises with the voice sounds entering the transmitter.

A still further object of this invention is to provide a mechanical appliance connectible to the mouthpiece of the telephone transmitter and having movable means under control of the person at the receiving end of the line for rendering the diaphragm of the transmitter dead so as not to respond in vibration to the sounds passing into the instrument.

Another object of my invention is to provide a device of the character described with means for receiving and retaining securely a number plate to indicate the telephone number of the instrument.

Another object of this invention it to provide an enclosed body shaped to facilitate the reception of external voice vibrations and the exclusion of foreign or extraneous noises as far as possible, and capable of entirely excluding all sounds from reaching the telephone user at the point where messages are received.

A still further object of my invention is to provide an actuator manually controlled for instantly incapacitating the transmitting instrument from conveying sounds thru the instrument, so that while the user of the transmiter can hear the message coming through the receiver, he himself cannot transmit his own voice vibrations to the user at the distant end of the line, as long as the actuator has been operated. By restoring the actuator to its normal position, the transmitter line is rendered serviceable to transmit sounds, so whenever the user desires to talk into the transmitter to be heard, he restores the actuator to its normal position.

And a further object of my invention is to simplify the construction of a transmitter silencer by mechanical means exclusively to the end that the transmitting instrument may be cut in or out, as the exigencies may call for, at the instant and under complete control of its user.

With the above and other objects in view my invention consists in the combination, arrangement and details of construction disclosed in the drawings and specification, and then more particularly pointed out in the appended claims.

In the drawings, wherein similar reference characters designate similar parts thruout the respective views.

Figure 1 is a rear elevation of the movable part of my silencer,

Figure 2 is a front end elevation thereof.

Figure 3 is a front elevation of the fixed part of my silencer,

Figure 4 is a rear end elevation of the fixed part of my silencer,

Figure 5 is a perspective view of the fixed silencer part,

Figure 6 is a perspective view of the movable silencer part,

Figure 7 is a front elevation of a transmitter showing my invention applied thereto,

Figure 8 is a side elevation of the transmitter,

Figure 9 is a plan view of the number plate useable in connection with my invention,

Figure 10 is an end elevation, in part, of the fixed part,

Figure 11 is a view similar to Figure 10 but showing a qualified position of the fixed part,

Figure 12 is an end elevation of the movable part,

Figure 13 is a vertical cross-sectional view, showing both parts assembled and in operative position,

Figure 14 is a view similar to Figure 13 and showing the parts in inoperative normal position,

Figure 15 is a plan view of a split band hereinafter described,

Figure 16 is a top plan view of an optional form of screen,

Figure 17 is a plan view of a coiled spring optionally used,

Figure 18 is a cross-sectional view of the movable silencer part and

Figure 19 is a cross-sectional view of the fixed silencer part.

Referring to the drawings, which are merely illustrative of my invention I disclose one embodiment of my invention calculated to perform the desirable function of silencing the telephone transmitter so far as the reception of outside sounds by the distant message sender is concerned, and so far as rendering ineffectual the passage of voice sounds thru the transmitter. 10 broadly designates my appliance, which consists of two parts, one a fixed and the other a movable part.

The movable part comprises a cap-like section having the annular rim or flange 11 enclosing a space 12′, the rear wall thereof being designated 12. This rear wall 12 may be provided with any suitable cut-away portions allowing sound waves to enter the appliance, such as a circumferentially extending series of spaced apart preferably circular holes or openings 13; these openings 13 encircling a central opening 14 formed in the rear wall 12. A spider is arranged diametrically in the opening 14, in the form of a concentric hub 18 supported by the oppositely extending radial arms 15 and 16 formed integral or otherwise arranged in the opening 14.

A screw bolt or pin 19 is screw threaded at one end into the hub 18 of the movable section 11 of my appliance, which pin will preferably extend forwardly of the front plane of this section as shown in Figure 18. It is designed preferably to screen the openings 13 by the reticulated or wire-mesh lining 20, for the purpose of preventing the ready entrance thru the openings 13 of foreign particles, this lining lending itself for receiving an antiseptic medicament.

The fixed silencer section is also in the shape of a cap-like section having an annular rim or flange 31 enclosing the circular space 34′, the rear wall thereof being designated 34. This section is of a slightly smaller diameter than the section 11 and has a central forwardly projecting externally threaded nipple 35 projecting from the rear wall 34 thereof registering with the central opening 37^a in this rear wall; a spider is also mounted in opening 37^a, consisting of the central hub 37 formed with the oppositely extending radially disposed arms 36 and 36′.

The section 11 is the outer enclosing section and depending from the inner circumferential surface thereof is a pin 32; while a slot 33 is formed, for the reception of this pin 32, directly in the flange 31 of the inner section adjacent to the rear wall 34 thereof. In assembling the two sections regard will be had to provide an enclosed body as follows:— the smaller section is introduced into the larger section as shown in Figure 14 until its rear wall is spaced slightly outwardly with respect to the peripheral edge of the flange 11, and the pin 32 is at the rear of the slot 33; in this position of the parts it will be seen that the screw pin 19 has been screwed into the hub 37 in the nipple 35, this pin barely projecting thru the nipple, but projecting into the opening N formed in the wall O of the transmitter instrument. The spider in the nipple 35 supports the screw pin 19 in relative position, so the two cap sections interfit, allowing the outer cap section 11 to rotate about the inner section, the latter section being fixedly secured into the telephone transmitter; the outer section 11 cannot, however, rotate without the screw pin rotating at the same time, in its spider, so when the rotary cap section 11 is actuated and turned the screw pin will be caused to move forwardly a short distance, sufficiently to advance thru the nipple 35; as the outer section 11 thus turns the depending pin moves in the slot 33.

Figure 11 shows the relative position of the pin 32 with respect to the slot 33; in this position of parts the two cap sections are disposed as shown in Figure 14; if now, the cap section 11 is turned clockwise, it will be seen that the pin 32 also moves clockwise in the slot 33; normally, in Fig. 11, it will be seen that the pin 32 is spaced out of contact with the edge 32^b of this slot 33 and is disposed the furthest distance from the edge 32^c thereof; when the cap section 11 is rotated clockwise the pin 32 has moved to a point adjacent edge 32^c as shown in Figure 10, and as the screw pin 19 is threaded into the spider in cap section having the nipple 35, and this screw pin advances so as to project thru the nipple as shown in Figure 13, it will be seen that the cap section 11 is now flush with the back wall of the fixed cap section, and that it has moved forwardly hence edge 32^b of this cap section 11 is adjacent pin 32 as shown in Figure 10.

The cap section having the nipple 35 is removably applied to the front wall 34^c of the telephone transmitter instrument as nipple 35 screws into this wall 34^c to constitute a mouthpiece for this transmitter. So when the cap section 11 is rotated and the screw pin 19 advances thru this nipple 35, the pin will

engage the diaphragm M in the transmitter as shown in Figure 13.

It will be understood that the diaphragm M of the telephone transmitter vibrates when same is engaged by sound waves generated thru the medium of crushed carbon granules which are sensitive to current variations according to the pressure of the sound waves emanating from the speaker or from external influences; this is conventional telephone practice. As long as this diaphragm is free to respond to the sound vibrations the sounds are conveyed to the receiver at the distant end of the line so as to be heard by the user of the phone at this end. When the screw pin 19 advances a sufficient distance, as when the outside cap section is rotated, it engages with the diaphragm and deadens as well as silences this diaphragm due to the fact that the diaphragm can no longer vibrate, hence it will not respond to sound waves entering the telephone transmitter and it will be thus ineffectual to convey the sounds to the distant end of the line.

Assuming that two parties are about to converse over the line, when either party finds that the noises about the room are sufficient to render hearing thru the receiver indistinct due to outside noises gaining a preponderance over the sounds coming thru the receiver, or due to the combined sounds coming thru the receiver and about the room, he simply rotates the cap section 11 clockwise until pin 32 comes to a stop in slot 33, whereupon further rotation of the section 11 is impossible; thereupon the screw pin 19 engages the diaphragm, the latter is silenced, so that none of the noises about the room can pass thru the transmitter and be conveyed to the distant party; the user then listens to the message coming thru the receiver, and he will find that he will be able to listen to the sounds with greater clarity and volume than would be possible without the present invention; the reception of the sound is also clarified and increased. The party at the distant end cannot hear the other party talking, should the latter talk while the diaphragm shall have been deadened; so it is necessary to restore the cap section 11 to normal position to render the diaphragm sensitive to sound transmission and when this is done the distant telephone user will hear the speaker.

It will be seen that the sounds entering the present mouthpiece formed by the cap sections, may pass thru the opening 37ª of the fixed section to impinge against the diaphragm, and it will be found that such sounds having ample space in the present mouthpiece to reverberate when impinging the wall 34 and then expanding in volume just before passing thru opening 37ª and then expanding again as it enters the transmitter space P, will, even when the parts are in normal position and the new mouthpiece is being used for ordinary purposes and not for silencing the diaphragm, undergo amplification and clarification so as to be heard better by the person at the distant end of the line, and vice versa.

In order to adapt the present mouthpiece for securely but removably retaining a number plate in position, it will be noted that the cap section 11 is dished out as at 21, Figure 18, and in the recess thus formed the number plate, preferably in the form of the circular disk 22, Figure 9, will be snugly seated, being retained against displacement by means of the split resilient ring 23, which snaps securely in position and is firmly lodged in this recess. This dial card or number plate is inscribed at its upper medial line with an indicator vernier mark in the shape of an arrow or the like 23; arranged in an arc, on either side of mark 23′ are the legends "Off", at the left of the mark, and "On" on the right thereof indicating that the actuating cap section 10 must be turned to the right to silence the diaphragm of the transmitter, and turned to the left to indicate that the transmitter is in normal sound transmitting condition. Extending diametrically across this plate 22 may be a column 27ª on or in which may be inscribed the legend "Wa" a contraction of Waverly, being the exchange name, and the legend "8503" as at 30, being the telephone number assigned to the particular instrument. When a person is talking into the new mouthpiece the sounds enter the circular openings 13.

From the foregoing it will be seen that a simple construction of silencer is provided; it will be understood that variations in size, material, shape, etc. of the parts may be made, so I do not mean to limit myself to the exact details of construction disclosed herein but cover all variations falling within the scope of appended claims.

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

1. A device as described consisting of an annular body having a concentric screw threaded pin of a length greater than the width of said annular body, a cap-like body removably attachable to a diaphragm casing and having a tubular part threadedly receiving said pin, and means on said annular body and cap-like body conjointly for limiting the forward movement of the pin in said tubular part.

2. A device as described consisting of an annular body having a perforated front wall, said front wall having a circular concentric countersunk recess, a spider operatively mounted in said recess and carrying a concentric forwardly projecting pin, a support within said annular body positioning the latter upon a diaphragm casing, said annular body having a rotary movement about said support, means limiting the range of rotation of said body, and means operable upon the

rotation of said body for advancing the pin forwardly.

3. A device as described consisting of mated cap sections loosely interfitting so as to provide a closed body, the outer cap section being rotatable about the inner cap section, an axis of rotation for said rotatable section, means securing the inner cap section to diaphragm casing, means whereby the rotation of said outer section silences the diaphragm in the casing, and means preventing the lateral separation of the cap sections.

4. A device as described consisting of two cap sections interfitting to provide a closed receptacle, means carried by the inner section for attachment to a diaphragm casing, the outer cap section having a plurality of voice-sound receiving openings, a screw threaded stem carried by the inner section, a screw threaded into said stem and carried by the outer section so that as the outer section turns, the screw advances in the stem so as to project therethru and engage the diaphragm, and means carried conjointly by both sections for restricting the range of rotation for the outer section.

5. A device as described consisting of a cap-like body having a concentric opening upon its front wall, said cap-like body being formed upon the exterior surface of its front wall with a countersunk seat skirting said opening for the reception of a dial plate, a diametrical bar in said opening having a screw threaded opening a screw pin threaded into the last named opening and projecting beyond the cap-like body, a second cap fitted loosely into the first cap body and formed with a forwardly projecting externally threaded nipple for connection to a diaphragm casing, a spider in said nipple having a screw threaded central, bore into which said screw pin is adjustably threaded and thru which is advances, a pin depending from the first cap body, the inner cap body having a slot in which the last named pin is movable within restricted limits as it advances, said pin being movable laterally in said slot as it moves to project thru said nipple bore.

6. A device as described consisting of a rim carrying body, means carried by said body for attachment to a diaphragm casing, a screw threadedly engaged in said body for projection into said diaphragm casing, means rotating about and around said body for actuating said screw and a pin and slot connection between said body and said means.

7. A device as described consisting of a pair of caps of varying diameter, one encased in the other, the encased cap having a forwardly projecting externally threaded sleeve, a screw on the encasing cap operatively threaded into said sleeve internally thereof, and means maintaining said caps in permanently closed relation, the encasing cap rotating around said encased cap to actuate said screw.

8. A device as described, consisting, in combination, of a diaphragm holding casing, a diaphragm deadening casing, a tubular connector connecting said two casings in separated relation, said diaphragm deadening casing having a rotary front portion, and a screw carried in said casing by said rotary front portion, being threadedly supported in said tubular connector and capable of engaging the diaphragm in the other casing.

In witness whereof he has hereunto set his hand this fifth day of October, 1927.

HARTWELL HAAS.