Oct. 20, 1931. A. A. JOHNSON 1,827,943

SOUND RECEIVING DEVICE

Filed April 27, 1927

Fig. 1.

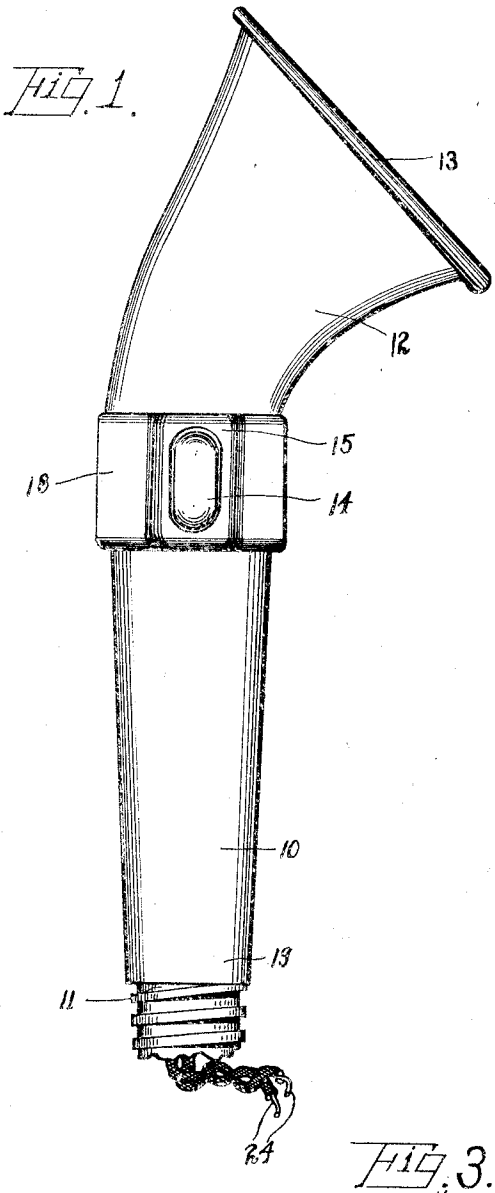


Fig. 2.

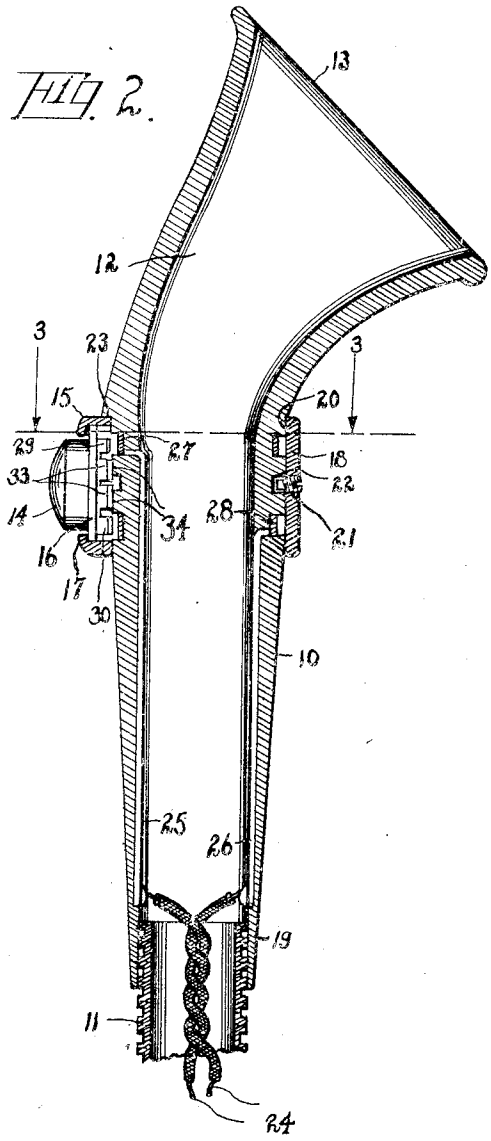


Fig. 3.

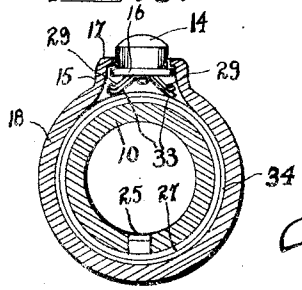
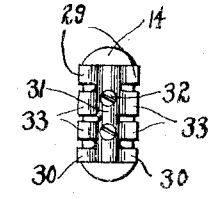
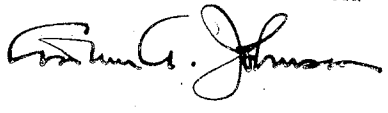


Fig. 4.



INVENTOR.



Patented Oct. 20, 1931 1,827,943

UNITED STATES PATENT OFFICE

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SOUND RECEIVING DEVICE

Application filed April 27, 1927. Serial No. 186,947.

This invention relates to sound-receiving means for sound-conveying devices such as is used with dictation machines and the like.

In dictating machines and the like, it is usual to provide a sound-receiving device in the form of a mouthpiece having a handle portion usually connected to a speaking tube attached to the sound-box of the machine. This mouthpiece is usually inclined at an angle to the handle portion so that when the dictator holds the handle portion in a convenient position parallel with his body, the lip of the mouthpiece is parallel to his face while the head is slightly inclined forwardly. Further, in order to control the dictation machine from the remote position of the handle with respect of the machine, the handle is usually provided with a finger-piece or other manually operable means, such as a switch button or a Bowden-wire; and heretofore this button was located in a predetermined and fixed position with relation to the handle making it necessary for the operator always to hold the handle in such a way that the thumb would be in position to operate the finger-piece. This fixed position is that which is preferred by most people, but frequently it is found that some persons prefer to have the finger-piece located in a different position which is more convenient for them.

Accordingly, the present invention provides means whereby the finger-piece or other manually operable device may be adjusted relative to the handle, thus permitting it to be located in a position to suit the convenience and idiosyncrasy of the particular person using the sound-receiving device.

Another feature of the present invention is the provision of an electric switch control device for sound-receiving and transmitting devices which is so related to the mouthpiece that the relationship between the inclined mouthpiece and manually operable electric switch button may be varied to suit the convenience of the operator.

These and other advantages which will hereinafter appear are attained by the present invention by the provision of a push-button structure rotatably mounted on the handle and comprising contact arms for closing the circuit between two current-carrying rings carried by the handle, preferably embedded or moulded therein.

In the embodiment shown, the supporting structure may be held in desired position frictionally or positively, as desired, against accidental or unintentional movement.

In the accompanying drawings, which illustrate the embodiment of the invention at present preferred—

Figure 1 is a side view of a sound-receiving device for use with dictation machines and the like, showing the present invention, the manually operable button being located at the side of the handle.

Fig. 2 is a longitudinal sectional view of the device shown in Fig. 1, but in this case the manually operable button and its supporting structure is adjusted so that the button is at the left side of the device.

Fig. 3 is a transverse sectional view taken on the line 3—3 of Fig. 2.

Fig. 4 is a detail view of the button showing the contact arms and the means for frictionally holding the button and its structure against rotating movement on the handle.

The sound-receiving device of the present invention shown herein comprises a handle portion 10 connecting at its lower end to a speaking tube 11 and having formed integrally with it a mouthpiece portion 12 diverging outwardly from the handle portion 10 and extending sidewise so that the lip 13 of the mouthpiece portion is at an angle to the axis of the handle portion. The speaking tube 11, a fragment of which is shown, may be connected as usual to the sound-box of a dictation machine or other sound-transmitting or recording means.

The angle of the lip portion 13 with respect of the axis of the handle portion 10 is such that when the dictator grasps the handle and holds it substantially parallel with his body, the lip portion 13 will be parallel with his face when his head is slightly inclined to view the work before him.

The handle 10 is usually provided with manually operable means for controlling the

dictation machine, for instance to cause it to stop during pauses in dictation and start at will, and this manually operable means has heretofore been mounted in a fixed position with relation to the handle, thus making it necessary for the dictator always to grasp the handle in substantially the same way, so that the proper digit on the hand—usually the thumb—may conveniently operate the manually operable button. Not infrequently a dictator, for convenience or to rest the hand, desires to grasp the handle portion 10 in some other way, but any change in the way the handle may be grasped would make it awkward and inconvenient to operate the manually operable button.

The present invention, accordingly, provides means whereby the manually operable device may be adjusted relatively to the handle to change its position with respect of the inclined lip portion 13 to suit the convenience of the operator's hand.

There are two methods of controlling dictation machines now in vogue—one through a Bowden-wire, in which case movement of a finger-piece causes the Bowden-wire to operate a control device, and the other an electric arrangement comprising a push-button on the handle for closing a circuit leading to an electric control device. In its broader aspect, the present invention embraces both methods and arrangements.

However, the physical embodiment of the invention shown in the accompanying drawings is provided for use in connection with an electric control device. As shown, the manually operable part is in the form of a push-button 14 mounted in a housing 15 and held in position therein against outward movement by a flange 16 on the button engaging an overhanging portion 17 on the housing. The housing 15 is preferably formed integral with a ring-shaped supporting member 18 adapted to be slipped over the end 19 of the handle portion 10 and to be carried by a bearing portion 20 at the upper end of the handle adjacent the mouthpiece 12. The ring-shaped portion 18 may be held in proper position on the handle portion 10 longitudinally of the handle by means of a retaining screw 21 projecting into an annular groove 22 in the bearing portion 20.

Thus, when the ring-shaped supporting member 18 is moved upwardly on the handle until its upper end engages a flange 23 at the beginning of the mouthpiece portion 12 and the retaining screw 21 is set in place, the supporting member and the button are held longitudinally of the handle.

The retaining screw 21 usually is not set in so far as to firmly engage the walls of the annular grooves 22, and hence the ring-shaped supporting structure 18 with the button 14 may be rotated about the handle 10 to bring the button 14 to the position most convenient for the dictator. However, the retaining screw 21, if desired, may be further screwed into the annular groove 22 until it firmly engages the walls of the groove and locks the button 14 in adjusted position. While the ring-shaped structure 18 and the button 14 may be locked in said position by the retaining screw 21 as just described, nevertheless, means are provided for frictionally holding the ring-shaped structure 18 in desired set position against accidental or unintentional movement so that when the retaining screw 21 is not driven home against the annular groove 22, the dictator may change the location of the button to suit his convenience without the use of a screw-driver or other tools.

A control device for dictation machines such as the electric stop and start mechanism shown in the patent to Noyes No. 836,940, may be connected to wires 24 which pass through the sound-conveying tube 11 to the handle portion 10. At the handle portion 10, the wires 24 are secured to bus bars 25 and 26 mounted on the handle, preferably being embedded therein if and when the handle is made of moulded composition, as in the case shown. The bus bar 25 is connected by preference integrally to a current-carrying ring 27 also embedded in the handle, while the bus bar 26 is provided with a similar ring 28 likewise embedded in the handle. These rings 27 and 28 are spaced from each other longitudinally of the handle and are thus insulated from each other, and also are countersunk below the surface of the bearing portion 20 to further avoid any danger of short-circuiting.

For closing the circuit comprising the current-carring rings 27 and 28, the push-button 14 is provided with contact arms 29 and 30 electrically connected together by a bridge 31 secured to the button 14 by screws 32. These contact arms 29 and 30 are normally above and out of contact with the current-carrying rings 27 and 28 respectively, but, when the push-button 14 is pressed inwardly, the arms contact with their respective current-carrying rings and the circuit is closed through the bridge 31.

By having the current-carrying rings 27 and 28 in annular form so as to extend completely around the handle portion 10, the contact arms 29 and 30 of the push-button may close the circuit comprising the rings 27 and 28 in any position on the handle to which the button may be moved. The current-carrying rings 27 and 28 are shielded by the ring-shaped supporting structure 18.

For the purpose of holding the button 14 in elevated inoperative position, in which position the flange 16 on the button is engaged with the overlying edge 17 on the housing 15, the present invention provides the bridge 31 with spring arms 33 adapted to normally and

continually engage the annular ribs 34 formed on the bearing surface 20 by the annular groove 22 and the grooves in which the current-carrying rings 27 and 28 are located. These spring arms 33, as will be seen in Fig. 3, normally hold the button in the position shown and spread apart when the button is pressed inwardly to cause the contact fingers 29 and 30 to engage the current-carrying rings 27 and 28 respectively.

It will thus be seen that the present invention provides an adjustable electric switch button for the sound-receiving device of dictation machines and the like, and that this switch button may be adjusted on the handle relative to the inclined lip 13 to any position around the handle in which the dictator desires to have it located.

While the physical embodiment of the present invention is shown as applied to a type of sound-receiving device in which the sound is acoustically conducted to the dictation machine, it should be distinctly understood that the present invention is not limited in its scope to merely this kind of sound-receiver. For instance, the sound may be transmitted electrically, in which case an electric transmitter may be located in the mouthpiece or in the handle portion as desired.

Variations and modifications may be made within the scope of this invention and portions of the improvements may be used without others.

Having now described the invention, what is claimed as new and for which it is desired to obtain Letters Patent, is:—

1. A sound-receiving device for dictation machine sound-conveying means and the like, comprising a handle portion and a mouthpiece portion integrally connected to the handle portion and inclined at an angle thereto; a control device comprising a manually operable button; a ring-shaped support for the button rotatably mounted on the handle portion to permit the button to be adjusted about the axis of the handle portion relative to the inclined mouthpiece; current-carrying rings on the handle portion for connection to an electric control device; circuit-closing arms on the button adapted when the button is operated in all adjusted positions of the button about the axis of the handle portion to close a circuit through said current-carrying rings; and spring arms on the button for holding said circuit-closing arms out of contact with said current-carrying rings, and also for frictionally holding the ring-shaped support for the button in adjusted position on the handle portion.

2. A sound-receiving device for dictation machine sound-conveying means and the like, comprising a handle portion and a mouthpiece portion integrally connected to the handle portion and inclined at an angle thereto; a control device comprising a manually operable button; a ring-shaped support for the button rotatably mounted on the handle portion to permit the button to be adjusted about the axis of the handle portion relative to the inclined mouthpiece; current-carrying rings on the handle portion for connection to an electric control device; circuit-closing arms on the button adapted when the button is operated to close a circuit through said current-carrying rings; and means for holding said circuit-closing means out of contact with said current-carrying rings, and also for frictionally holding the ring-shaped support for the button in adjusted position on the handle portion.

3. A sound-receiving device for dictation machine sound-conveying means and the like, comprising a handle portion and a mouthpiece portion integrally connected to the handle portion and inclined at an angle thereto; a control device comprising a manually operable button; a ring-shaped support for the button rotatably mounted on the handle portion to permit the button to be adjusted about the axis of the handle portion relative to the inclined mouthpiece; current-carrying rings on the handle portion for connection to an electric control device; circuit-closing arms on the button adapted when the button is operated to close a circuit through said current-carrying rings; and means for holding said circuit-closing arms out of contact with said current-carrying rings.

4. A sound-receiving device for dictation machine sound-conveying means and the like, comprising a handle portion and a mouthpiece portion integrally connected to the handle portion and inclined at an angle thereto; a control device comprising a manually operable button; a ring-shaped support for the button rotatably mounted on the handle portion to permit the button to be adjusted about the axis of the handle portion relative to the inclined mouthpiece; current-carrying rings on the handle portion for connection to an electric control device; circuit-closing arms on the button adapted when the button is operated to close a circuit through said current-carrying rings; and means for frictionally holding the ring-shaped support for the button in adjusted position on the handle portion.

5. A sound-receiving device for dictation machine sound-conveying means and the like, comprising a handle portion and a mouthpiece portion fixed with relation to the handle portion and inclined at an angle thereto; a control device comprising a manually operable button; a support for the button rotatably mounted on the handle portion to permit the button to be adjusted about the axis of the handle portion relative to the inclined mouthpiece; current-carrying rings on the handle portion for connection to an electric control device; and circuit-closing

means on the button adapted when the button is operated to close a circuit through said current-carrying means.

6. A sound-receiving device for dictation machine sound-conveying means and the like, comprising a handle portion, a control device comprising a manually operable button, a ring-shaped support for the button rotatably mounted on the handle portion to permit the button to be adjusted about the axis of the handle portion, current-carrying rings on the handle portion for connection to an electric control device, circuit-closing arms on the button adapted when the button is operated in all adjusted positions of the button about the axis of the handle portion to close a circuit through said current-carrying rings, and spring arms on the button for holding said circuit-closing arms out of contact with said current-carrying rings, and also for frictionally holding the ring-shaped support for the button in adjusted position on the handle portion.

7. A sound-receiving device for dictation machine sound-conveying means and the like, comprising a handle portion, a control device comprising a manually operable button, a ring-shaped support for the button rotatably mounted on the handle portion to permit the button to be adjusted about the axis of the handle portion, current-carrying rings on the handle portion for connection to an electric control device, circuit-closing arms on the button adapted when the button is operated to close a circuit through said current-carrying rings, and means for holding said circuit-closing means out of contact with said current-carrying rings, and also for frictionally holding the ring-shaped support for the button in adjusted position on the handle portion.

8. A sound-receiving device for dictation machine sound-conveying means and the like, comprising a handle portion, a control device comprising a manually operable button, a ring-shaped support for the button rotatably mounted on the handle portion to permit the button to be adjusted about the axis of the handle portion, current-carrying rings on the handle portion for connection to an electric control device, circuit-closing arms on the button adapted when the button is operated to close a circuit through said current-carrying rings, and means for holding said circuit-closing arms out of contact with said current-carrying rings.

9. A sound-receiving device for dictation machine sound-conveying means and the like, comprising a handle portion, a control device comprising a manually operable button, a ring-shaped support for the button rotatably mounted on the handle portion to permit the button to be adjusted about the axis of the handle portion, current-carrying rings on the handle portion for connection to an electric control device, circuit-closing arms on the button adapted when the button is operated to close a circuit through said current-carrying rings, and means for frictionally holding the ring-shaped support for the button in adjusted position on the handle portion.

10. A sound-receiving device for dictation machine sound-conveying means and the like, comprising a handle portion, a control device comprising a manually operable button; a support for the button rotatably mounted on the handle portion to permit the button to be adjusted about the axis of the handle portion, current-carrying rings on the handle portion for connection to an electric control device, and circuit-closing means on the button adapted when the button is operated to close a circuit through said current-carrying means.

11. In a sound-receiving device for distation machines and the like, in combination, a handle, fixed switch contacts carried thereby, and an operating button rotatable about the handle and having other switch contacts adapted to co-act with said first contacts in any radial position of said button.

12. In a sound-receiving device for dictation machines and the like, in combination, a handle, a plurality of switch contact rings affixed thereto, and an operating button for making connection between said rings, said button being rotatable about the handle.

13. In a sound-receiving device for dictation machines and the like, in combination, a handle, switch contact rings carried thereby, and an operating button for making connection between said rings and rotatable about the handle independently of said rings and adapted to co-operate with said rings at any point about the circumference of the handle.

Signed at Bridgeport, in the county of Fairfield, and State of Connecticut, this 25th day of April, 1927.

ARTHUR A. JOHNSON.