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HAND SWITCH

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Fig. 1.

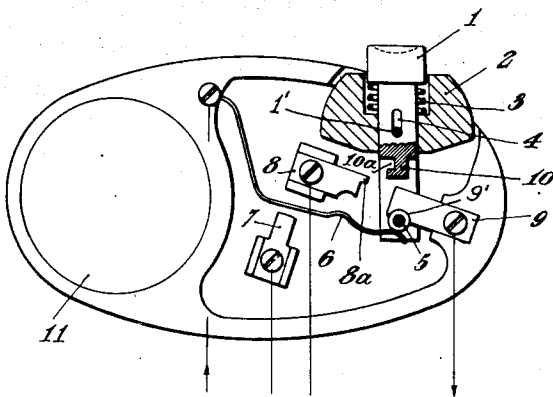


Fig. 2.

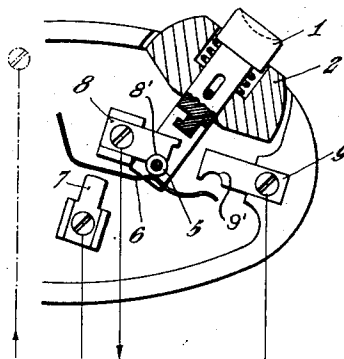


Fig 3.

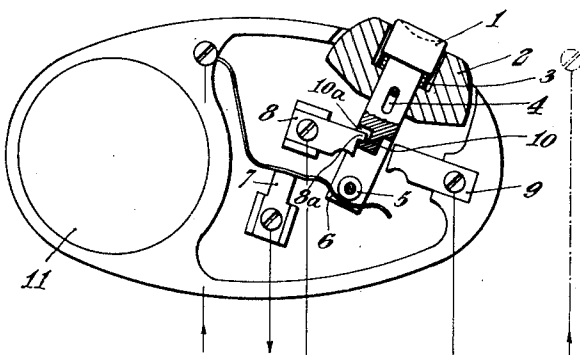
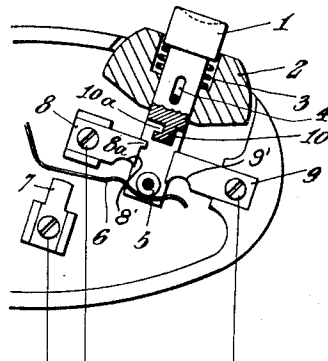


Fig. 4.



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HAND SWITCH

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1

Dictating devices, particularly magnetic sound devices, are frequently switched on or off during dictation, or changed over. It is necessary for the reproduction of the subject matter already dictated and also, when the occasion arises, for the person taking the dictation, to repeat or to go over a certain amount of the dictation which requires switching operations.

In known devices such switching operation takes place in such manner that for the dictation a hand switch in the form of a key is actuated which controls the forward running or feed of the dictating device while for the backward running switching over is effectuated by corresponding keys arranged on a control board.

To avoid damage to the sound carrier or other parts of the apparatus by the simultaneous operation of several keys, multi-switches and similar elements have been provided. The operation of different keys is, however, inconvenient in dictating and distracts the attention of the person during dictation. Moreover, the control board which should be within easy reach of the operator must be located at a definite place not always available.

The present invention comprises a hand switch in which four positions, namely that of rest, and operating positions, namely that for forward movement for dictation, backward movement and reproduction are arranged in a single switch device in which each of said three operating positions can be turned on from the rest position. Thus the control board, hitherto needed, is dispensed with. As required, a repeating telephone of electromagnetic, electrodynamic or other construction is built into the housing of the hand switch so as to be able to replace the usual repetition over a loudspeaker of known devices. The switching off of the repeating telephone may be such that simultaneously or alternatively reproduction can take place over a loudspeaker.

One constructional embodiment of the invention is illustrated somewhat diagrammatically in the accompanying drawing.

Figures 1, 2 and 3 show the switch keys in different operating positions, while

Figure 4 represents the switch built into a housing.

In all figures similar reference characters relate to like parts.

A key or push button 1 is axially movable in a guide or holder 2 relatively to a fixed pin or axis 1' and is normally held under the influence of the spring 3 in the guide 2, in its upper position. The movement of key 1 is limited by a slot 4 of

2

the key body in which slot the axis 1' is guided. Key 1 is preferably constructed of electrically insulated material. On the lower flattened shaft end of the key 1 is located a contact roller 5 against which a contact spring arm 6 bears to constitute the current conductor. Furthermore, three or more contact pieces or shoes 7, 8 and 9 are provided in the housing 12 of the switch device. The rod shaped contact pieces 8 and 9 are arranged at the same height or level and spaced from one another so that a projecting hook-shaped tongue 10, bent downwards from a ridge of the key 1 can extend as far as the middle position of the key between the contact pieces 8 and 9. The contact piece 8 has on the side facing contact piece 9 a nose 8a which can enter detent or groove 10a of the tongue 10 when the key 1 in the middle or neutral position is pressed downwardly into guide piece 2. The current conducting spring 6, the contact pieces 8 and 9 and the roller 5 are so formed that in one of the outwardly pivoted positions of the key 1 under the influence of the spring 3 a resting position is attained whereby by suitable wave-like shaping of the spring 6 the guiding back into middle position of the roller 5 together with key 1 results as soon as the stops 8' and 9' of the contact pieces 8 and 9 are freed. The contact piece 7 is arranged within the range of the spring 6 on the side opposite the contact piece 8. If necessary, other contact pieces may be arranged within the range of the spring 6.

Fig. 1 shows the position of the switch for reproducing operation. The key 1 swung or pivoted round the axis 1' has first established connection between the spring 6 and the contact piece 9 with the contact roller 5, whereby the actuating current coming from the contact spring 6 switches on the relay in the dictating device for repetition. The contact pieces 7 and 8 in this position are out of contact with roller 5 and spring 6 so that faulty switching is excluded.

Fig. 2 shows the position for backward running or operation. Here, the current conducting spring 6 is in connection with the contact piece 8 over the contact roller 5 whereby the relay for backward running is switched on in the dictating device.

Fig. 3 shows the operating position for "Dictation." By pressing down the key 1 the tongue 10 is placed between the two contact pieces 8 and 9 and thus prevents a sidewise movement of the key 1 and the guide 2. The spring 6 is pressed down by the roller 5 and is thus brought in contact with the contact piece 7 and operates the

relay (not shown) for the dictation reception. Contacts 8 and 9 are out of contact with the current conductor 6.

For dictations of longer duration and conferences the key 1 pressed down is swung round the axis 1' in the direction of the dotted arrow whereby the tongue 10 is brought into gripping connection through detent 10a with the nose 8a so that the current circuit 6, 7 is maintained even after releasing the key 1.

Practical experiments have shown that the most favorable form of housing 12 of the hand switch enclosing the contact pieces and the key for operating, is a housing elliptical in cross section in longitudinal direction of its axis and a housing rectangular in cross section with well rounded edges in transverse direction of its axis. In Fig. 4 is illustrated an inside view of such a two-part switch housing with switch, the key 1 being in the position of rest. A space for the introduction of a reproduction telephone is shown at 11. The switch may also be so arranged that, for example, the position according to Fig. 1 corresponds to the back running or operation of the dictating machine and that corresponding to Fig. 2 operating position for repetition is attained.

Furthermore, instead of the contact pieces 8 and 9 elastic contact springs of known form may be used whereby by corresponding shaping of the current conducting spring 6 the desired stops may be obtained. It can thus be seen that there has been provided according to the invention a switch to be carried by the hand and operated by the fingers of the hand of an operator, comprising a hollow housing elliptical in cross-section and having an opening, a holder within said opening, a pivot pin supporting said holder and permitting swinging movement within said opening about said pivot pin, a key member springedly supported on said holder and engaging said pivot pin, whereby said key member is operatively connected to said holder, a conductor spring fixed to said housing and extending into the path of movement of said key member, and spaced apart contact shoes carried by said housing and therewithin, said contact spring being shiftable by means of said key member for contact with said shoes successively and independently from each other.

Having thus described the invention, what is claimed as new and desired to be secured by Letters Patent, is:

1. A switch to be carried by the hand and operated by fingers of the hand of an operator comprising a key member, a holder for said key member and springedly supporting the latter, a pivot swingably supporting said holder in one plane, said key member being operatively connected with said pivot and being movable relatively to said holder and in the same plane as said holder, a spring arm forming an electric conductor and adapted for movement by said key member, and a plurality of spaced apart contact shoes within the range of movement of said spring arm, said key member including a guide element in engagement with said spring arm to move the latter for contact with one of said con-

tact shoes, said guide element bearing on said spring arm and being positioned between two of said contact shoes in spring-extended neutral position of said key member, said key member and said holder being movable relatively to said pivot so as to bring said spring arm through said guide element into engagement position with a selected contact shoe.

2. A switch according to claim 1, wherein said guide element forms a contact roller carried by said key member.

3. A switch according to claim 1, wherein said two of said contact shoes are each provided with a stop for seating said guide element in the respective position thereof with either of said two contact shoes.

4. A switch according to claim 1, wherein one of said shoes is provided with a nose, and a detent projecting from said key member and engageable with said nose in spring compressed position of said key member, said guide element bearing on said spring arm exerting pressure on the latter against a further of said contact shoes.

5. A switch according to claim 1, wherein said spring arm is wave-shaped, said guide element forming a contact roller bearing on said spring arm and movable therealong by means of said key member.

6. A switch according to claim 5, wherein said spring arm actuates said key member through said contact roller to maintain said key member normally in neutral position.

7. A switch to be carried by the hand and operated by the fingers of the hand of an operator comprising a hollow housing elliptical in cross-section and having an opening, a holder within said opening, a pivot pin supporting said holder and permitting swinging movement within said opening about said pivot pin, a key member springedly supported on said holder and engaging said pivot pin, whereby said key member is operatively connected to said holder, a conductor spring fixed to said housing and extending into the path of movement of said key member, and spaced apart contact shoes carried by said housing and therewithin, said contact spring being shiftable by means of said key member for contact with said shoes successively and independently from each other.

8. A switch according to claim 7, wherein said key member is provided with a contact roller bearing on said spring contact, and stop seats respectively provided on some of said contact shoes for retaining said contact roller and establishing contact between the respective contact shoe and said spring contact.

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The following references are of record in the file of this patent:

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