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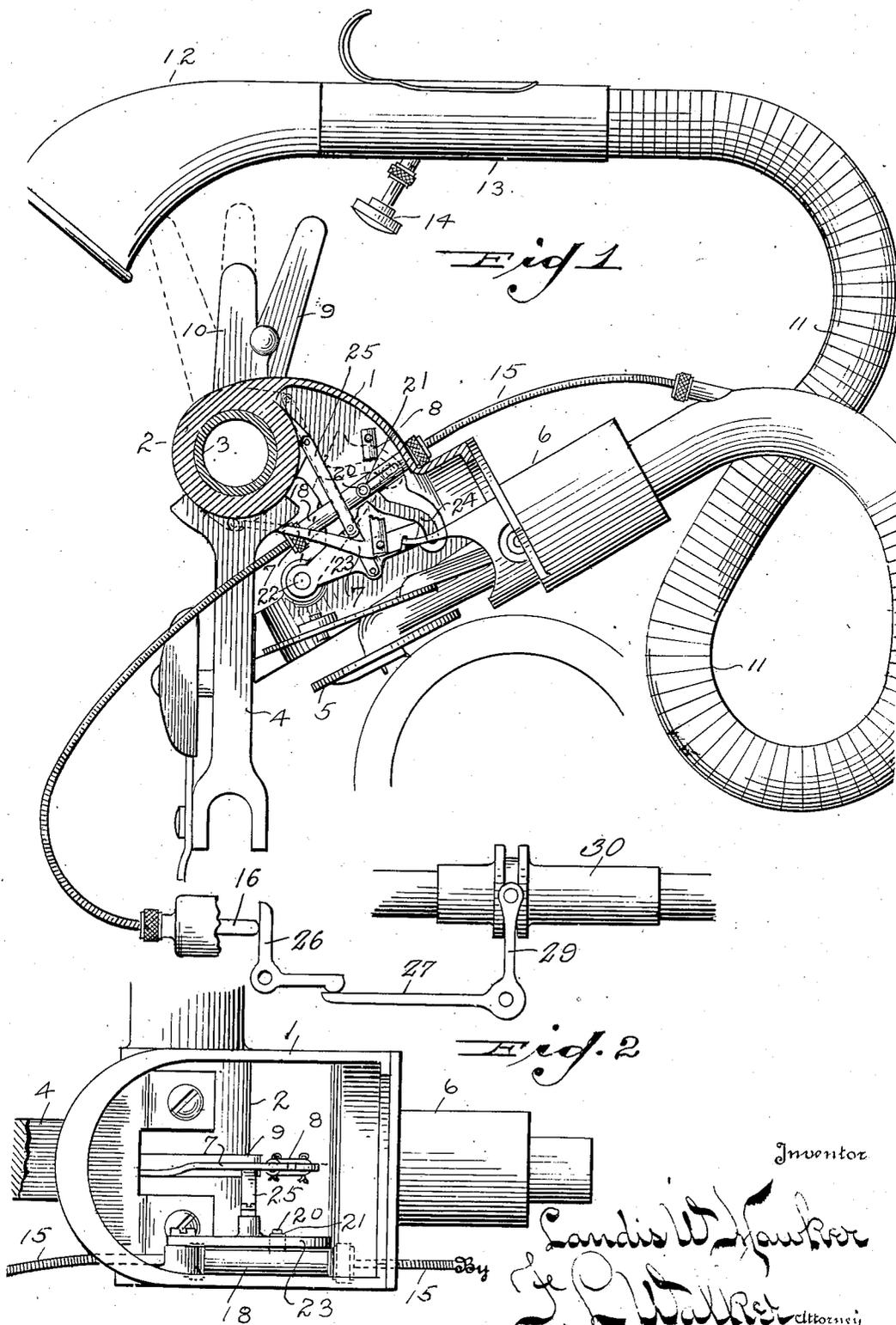
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1,996,374

DICTATING MACHINE

Filed Sept. 17, 1928

3 Sheets-Sheet 1



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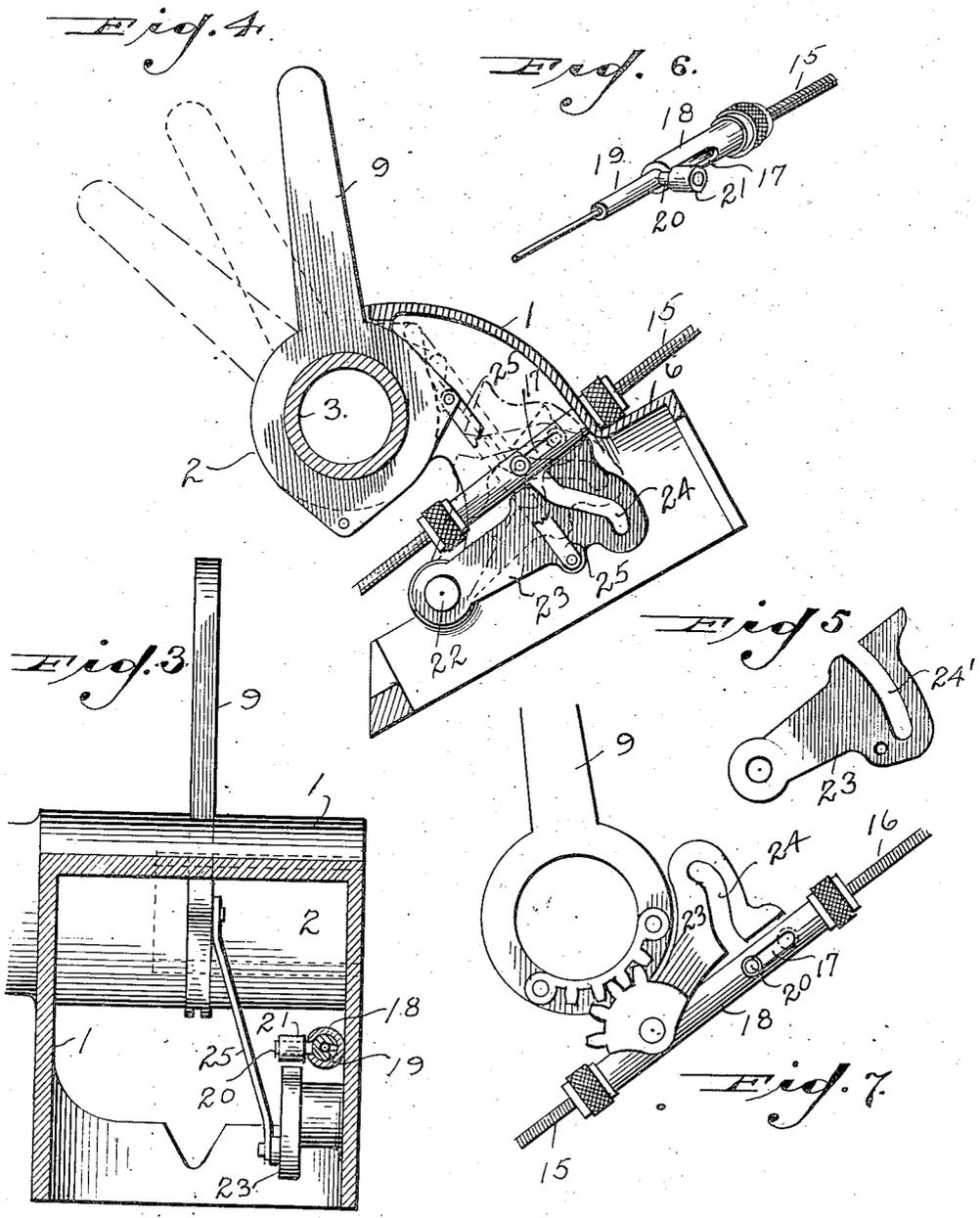
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3 Sheets-Sheet 2



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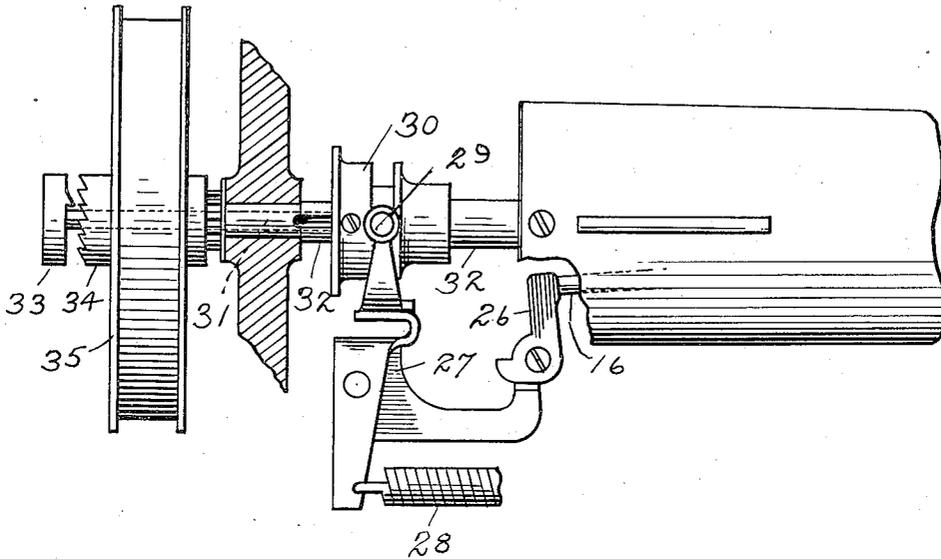
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Fig. 3.



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UNITED STATES PATENT OFFICE

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DICTATING MACHINE

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2 Claims. (Cl. 274—17)

My invention relates to phonographic dictating machines and more particularly to a safety control device for locking the start and stop mechanism when the machine is not in condition to record dictation and for automatically starting the machine when it is adjusted to listening condition.

When using a phonographic dictating machine, the dictator frequently finds it desirable to "read back" or cause the machine to repeat previous dictation. For this purpose, machines of this character are ordinarily provided with means by which the machine may be readily changed from recording or dictating condition to reproducing or listening condition and vice versa. It frequently occurs that even an experienced dictator will forget or neglect to restore the machine to recording or dictating condition after listening to a repeat of recorded matter, before continuing his dictation. Consequently any dictation while the machine is in reproducing or listening condition or while in an intermediate or neutral condition is not recorded.

Such machines are motor operated. The operator controls the start and stop of the machine by a remote control push button or equivalent device upon the speaking tube. Such thumb operated control operates through an intermediate connection either mechanical, pneumatic, or electrical to actuate a clutch or switch which operatively connects the phonographic mechanism with the driving motor or which serves to start and stop the motor, as the case may be.

The present safety mechanism is designed to prevent ineffective dictation or failure to record dictation, by warning the operator when the machine is inoperative or not in a receptive or recording condition. This is effected by locking the start and stop mechanism whereby the control button is rendered unresponsive to the operator's thumb. The act of pressing the control button at the moment of dictation becomes a fixed habit and is ordinarily performed subconsciously. Any resistance or failure of the button to respond is immediately noticeable as a disturbance of routine. Such failure of the control button to respond forcibly impresses upon the dictator's mind the necessity for readjusting the machine to recording or dictating condition.

In order to reproduce or repeat dictated matter when the machine is in listening condition, the machine must be in motion. This ordinarily necessitates two distinct operations. First the machine must be manually adjusted to listening or reproducing condition, and then by a separate

operation the machine is set in motion by the depression of the control button. Provision is made in the present construction for automatically adjusting the control means to start position by the adjustment of the machine to listening condition. A single operation only is necessary. Upon the return of the machine to dictating or recording condition, the machine is stopped and control is automatically restored to the start and stop mechanism.

The object of the invention is to simplify the construction as well as the means and mode of operation of safety control devices upon dictating machines whereby they will more efficient in operation, automatic in action, capable of being readily applied to existing machines, and unlikely to get out of order.

A further object of the invention is to provide a safety device which will effectively prevent the operation of the dictating machine while in an intermediate or neutral condition.

A further object of the invention is to provide means whereby the start and stop mechanism will be unresponsive to manual operation when the machine is in listening or reproducing condition.

A further object of the invention is to provide means whereby the machine will be automatically set in operation by the adjustment of the machine from dictating or recording condition to listening or reproducing condition.

A further object of the invention is to provide a touch signal as distinguished from a visual or auditory signal which will attract the attention of the operator to the ineffective condition of the machine.

With the above mentioned primary and other incidental objects in view, as will more fully appear in the specification, the invention consists of the features of construction, of the parts and combinations thereof, and the mode of operation or their equivalents as hereinafter set forth and described in the claims.

Referring to the accompanying drawings wherein is shown the preferred, but obviously not necessarily the only form of embodiment of the invention, Fig. 1 is a side elevation, partly in section of the travelling carriage of a phonographic dictating machine together with the speaking tube and start and stop mechanism to which the present invention has been applied. Fig. 2 is a bottom plan view of the traveling carriage showing the relative location of the safety control means therein. Fig. 3 is a detail sectional view. Fig. 4 is an enlarged detail view showing

the relative adjustment of the parts in accordance with different operating conditions of the machine. Fig. 5 shows a modified form of detent plate. Fig. 6 is a structural detail view in perspective of the detent device incorporated in the Bowden-wire. Fig. 7 shows a modified form of mechanical connection between the shift lever and detent plate. Fig. 8 is a detail view of the clutch operating mechanism of a typical dictating machine.

Like parts are indicated by similar characters of reference throughout the several views.

While the present invention is broadly applicable to phonographic dictating machines of various types employing different methods of control, including mechanical, pneumatic, and electrical, for illustrative purposes it will be shown and described in connection with a well known type of dictating machine employing a mechanical or Bowden wire control means. Such type of dictating machine per se forms no part of the present invention. For the present purpose only such parts of a dictating machine as are essential to the illustration of the present invention have been shown in the drawings. It will suffice to say however that such machines embody a revoluble mandrel to receive cylindrical records over which travels the carriage shown in the drawings, which is propelled by a revolving feed screw rotating in unison with the mandrel under the influence of a driving motor. Sounds transmitted through the speaking tube to a vibratory diaphragm are recorded upon the wax record blank by the engraving thereon of undulating lines helically disposed upon the blank by means of an engraver point carried by the vibratory diaphragm. In the particular style of dictating machine adopted for the purpose of illustrating the application of the present invention and to which the general features of the traveling carriage illustrated in the drawings pertain, there is provided a second tracer point or stylus which by following the helical record lines engraved upon the record blank, will vibrate the diaphragm to reproduce the recorded speech. In such style of dictating machine the head carrying the vibratory diaphragm is movable to and fro to alternately present the recording or engraving point and the tracer or stylus in engagement with the rotating cylindrical record.

Referring to the accompanying drawings, 1 is the traveling carriage frame, having in the head 2 a bushing sleeve 3, which, slidingly engages a supporting rod of the machine frame. From such head 2, there projects downwardly a bifurcated arm 4 which slidingly engages a second frame rod to support the carriage housing in its proper relation with the rotating mandrel carrying the record blank.

Located interiorly of the carriage housing 1 is a recorder-reproducer head 5 which carries the diaphragm with the graver point and tracer point before mentioned. This speaker head 5 is mounted upon a reciprocatory sleeve for to and fro adjustment to present the graver point and the tracing stylus alternately in operative position upon the cylinder. Such reciprocatory supporting sleeve is mounted in a forwardly projecting boss upon the carriage housing 1. The recorder-reproducer head 5 is shifted to and fro, from dictating or recording to listening or reproducing position and vice versa by means of a reciprocatory hook arm 7 supported upon a swinging link 8 within the housing 1 and having its rearward end connected with an oscillatory shift

lever 9 journalled upon the bushing 3. The arrangement is such that as the shift lever 9 is oscillated forwardly, the hook arm 7 and with it the speaker head 5 are retracted rearwardly within the carriage housing to present the graver point in engagement with the record cylinder, and thereby place the machine in dictating or recording condition. Upon reversal of the position of the shift lever 9 to its rearmost position, the hook arm 7 and speaker head are moved to a reversed position the tracer stylus engages the record cylinder and thus the machine is then in listening or reproducing condition. The shift lever 9 may be arrested in a vertical position coincident with a fixed center stop arm 10 in which position the speaker head 5 will be in an intermediate or neutral position and hence entirely inoperative.

Connected to the forward end of the boss 6 and communicating therethrough with the recorder-reproducer head 5, is a flexible speaking tube 11 having at its extremity a mouth-piece 12 and adjacent thereto, a handgrip portion 13 carrying a depressible plunger button 14 which controls the start and stop mechanism. The depressible plunger button 14 is operatively connected by a Bowden wire transmission element 15 with a clutch operating plunger 16, as is illustrated in Fig. 8, controlling the operative connection of a driving motor and the record mandrel. As is shown in Fig. 8 the plunger 16 upon actuation oscillates a cam lever 26 thereby rocking a shift lever 27 against the tension of the retracting spring 28. The shift lever 27 is provided with arms 29 engaging in a groove in the shift collar 30. This collar 30 is connected with a reciprocatory rod 31 within the hollow mandrel shaft 32. The rod 31 carries at its end a clutch head 33 engageable with a corresponding clutch member 34 upon the driving pulley 35 to rotate the shaft, and with it the record carrying mandrel 36 so long as the button 14 is held depressed.

Such is the general construction and operation of the particular style of machine in connection with which the present invention has been illustrated. Such mechanism so far described forms no part per se of the present invention, and is here described merely in order that the application and operation of the safety control and automatic starting features may be more readily and fully understood without, however, any intention of limiting the scope and application of the invention.

The Bowden wire control element 15 which extends interiorly of the speaking tube 11 from its connection with the depressible plunger button 14 to a point adjacent to the boss 6 which emerges from such speaking tube, as is well known, embodies relatively reciprocatory elements, consisting of an outer tubular guide sheath and an inner flexible wire capable of reciprocatory motion within the guide sheath. In the present instance the outer element or flexible guide sheath of such Bowden wire control element, is interrupted at a point coincident with the traveling carriage, and there is inserted therein a short rigid tubular section 18 to the opposite ends of which the guide sheath of the Bowden wire element 15 is fixedly secured. Located within the rigid tubular section 18 is a short reciprocatory rod guided in its to and fro movement by the tube 18 and operatively connected with the interior reciprocatory wire element of the Bowden wire device 15. This rod 19 may be an integral section of the inner reciprocatory Bowden wire element. Its

method of engagement with the wire is immaterial. In actual practice, the rod 19 has been longitudinally slotted and the reciprocatory inner wire of the element 15 has been engaged in such longitudinal slot and the rod contracted thereon, or the slot filled with solder whereby such rod 19 is fixedly united for unison movement with the reciprocatory element of the Bowden wire control device 15. The rod 19 carries a lateral detent stud 20 projecting through a longitudinal slot 17 in the side of the guide tube 18. The operative connection between the depressible plunger button 14 and the reciprocatory element of the Bowden wire control device 15 is such that upon depression of the plunger 14, the reciprocatory wire and with it the rod 19 moves forwardly or toward the right in Fig. 1. This is the operative movement necessary to start the dictating machine or to operatively connect the driving motor with the record carrying mandrel. Such movement is comparatively short, being in actual practice approximately three-eighths of an inch. To facilitate operation, the detent stud 20 carried by the reciprocatory rod 19 may be provided with an anti-friction roller 21.

Mounted in the lower portion of the carriage housing 1 upon a suitable trunnion stud 22 is an oscillatory detent plate 23 having therein a cam slot 24 positioned coincident with the detent stud 20 when the latter is in its retracted position. That is to say when the Bowden wire device is in the motor stop position, the detent plate 23 is positioned below the path of travel of the detent stud 20 so that the latter is free for unrestricted to and fro motion as the plunger 14 is depressed and released. The detent plate 23 is connected by a link 25 with the shift lever 9 at a point eccentric with its center of oscillation. This link is so positioned and of such length that, as before stated, the detent plate 23 is positioned out of the path of travel of the detent stud 20 when the shift lever is in its forward dictating position, at which time the speaker head 5 is adjusted to recording position. Upon the adjustment of the shift lever 9 rearwardly to a mid-stroke or an upright position whereby the speaker head is adjusted to its intermediate or neutral position, the detent plate 23 is simultaneously oscillated upwardly by the pulling influence of the link 25 causing the plate to be projected into the path of to and fro movement of the detent stud 20 which is thereby engaged within the cam slot 24. When the shift lever 9 is in such intermediate or neutral position, the detent plate 23 is in operative engagement with the detent stud 20 as shown by dotted lines in Fig. 4, the stud 20 and with it the reciprocatory rod 19 and movable wire element of the Bowden wire control device are securely locked against movement. The plunger 14 is held against depression. It thereby becomes unresponsive or resistant to the pressure of the operator's thumb. This resistance or failure to respond to pressure of the plunger 14, which when the machine is in dictating position is freely responsive, is a positive indication to the dictator that the machine is in an unreceptive or inoperative condition for receiving dictation. Attempt has been made to provide signal means by visual indicators such as a lamp to be lighted or by auditory signals such as a bell to be rung whenever the machine is in such ineffective or inoperative condition. However such signals are quite likely to be ignored. Unless the dictator constantly watches the signal light it may not be seen and during a moment of intense concen-

tration upon the dictation a signal bell might not be heard. However the resistance of the plunger 14 serves as a touch indicator or signal which the operator is not likely to ignore. The depression of such plunger at the moment of dictation becomes a subconscious or automatic action. A resistance of the plunger disturbs the established routine and affords a positive indication to the operator through his sense of touch rather than that of sight or hearing.

If so desired, the slot 24 in the detent plate 23 may be concentric with the center 22 of oscillation in which case the detent stud 20 with its reciprocatory rod 19 and the active element of the Bowden wire transmission will be held immovable while the shift lever 9 is moved to its further listening or reproducing position at the rear or left in Fig. 1. Such disposition of the slot 24 for positively locking the start and stop mechanism in both the neutral and listening positions of the shift lever 9 is shown in detail in Fig. 5. Under such condition the operator must employ the auxiliary start and stop device ordinarily provided upon such machine to set the machine in operation when in the listening or reproducing condition.

For convenience and simplicity of operation the slot 24 is preferably cam shaped or disposed eccentrically relative to the center of oscillation 22 of the detent plate 23 whereby as the plate continues its operation under the influence of the movement of the shift lever 9 from its center or neutral position to the rearward or listening position, such cam slot will effect a simultaneous longitudinal shifting movement of the rod 19 and Bowden wire control element by moving the detent stud 20 within the limit of the slot 17. By such shifting movement of the detent stud 20 incident to the camming action of the slot 24 in the detent plate 23, the clutch mechanism 16 is operated to set the dictating machine in motion without necessity of manual manipulation of the start and stop device. Thus it is only necessary for operator to move the shift lever 9 from its dictating to its listening position in order to not only change condition of the machine from recording to reproducing position but also to start the machine in operation whereby the recorded dictation will be repeated. Upon the return oscillation of the shift lever 9 to its normal or dictating position, the cam slot 24 acting upon the detent stud 20 in reverse direction automatically adjusts the start and stop device to arrest the motion of the machine. As the detent plate 23 returns to its normal depressed position the detent stud is entirely released for free to and fro motion and the operative control of the start and stop mechanism is restored to the depressible plunger 14 and Bowden wire transmission element.

While the detent and automatic operating means heretofore described is the preferable and simplest construction, it is obvious that the detent plate 23 might be reversed and connected to operate with a descending motion under influence of a link connected to the opposite side of the shift lever 9 or by means of intermeshing gear sectors upon the shift lever 9 and upon the oscillatory detent plate. Such plate would be elevated out of the path of travel of the detent stud 20 and upon operation would be depressed into engagement therewith just contrary to the action of the detent plate 23 before described as is illustrated in Fig. 7. It is also obvious that the cam slot 24 could be located in a recipro-

catory member actuated by the to and fro motion of the shift lever 9. Such variation being obvious and differing merely in details of mounting and not in principle from that shown in Figs. 1 to 4 has not been illustrated in detail.

From the above description it will be apparent that there is thus provided a device of the character described possessing the particular features of advantage before enumerated as desirable, but which obviously is susceptible of modification in its form, proportions, detail construction and arrangement of parts without departing from the principle involved or sacrificing any of its advantages.

While in order to comply with the statute the invention has been described in language more or less specific as to structural features, it is to be understood that the invention is not limited to the specific details shown, but that the means and construction herein disclosed comprise the preferred form of several modes of putting the invention into effect and the invention is, therefore, claimed in any of its form or modifications within the legitimate and valid scope of the appended claims.

Having thus described my invention, I claim:
 1. A phonographic dictating machine including a movable start and stop member, a detent stud carried thereby, a shift lever for adjusting

the machine alternately to listening and dictating condition, a movable detent plate having a cam slot therein, said cam slot being positioned beyond the path of movement of the detent stud when the machine is in dictating condition, and an operative connection between the cam plate and shift lever whereby the adjustment of the lever to change the machine from dictating condition will move the cam plate to entrap the stud within the cam slot, said cam plate being further movable in unison with the adjustment of the machine to listening condition, said cam slot being so shaped as to actuate the start and stop member, through engagement with said stud to start position.

2. In a dictating machine, in combination, a movable start-and-stop member, a detent stud carried thereby, a shift lever movable to different positions for controlling a function of said machine, a plate mounted on said machine by means of a pivot and having a cam slot formed therein, and means connecting said shift lever to said plate for producing movement of said plate simultaneously with movement of said shift lever to cause said detent stud to travel said slot when said lever is moved from one position to another, thereby automatically to actuate said start-and-stop member.

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