July 31, 1934. J. M. LUCARELLE ET AL 1,968,649

DICTATING MACHINE

Original Filed June 7, 1929 4 Sheets-Sheet 1

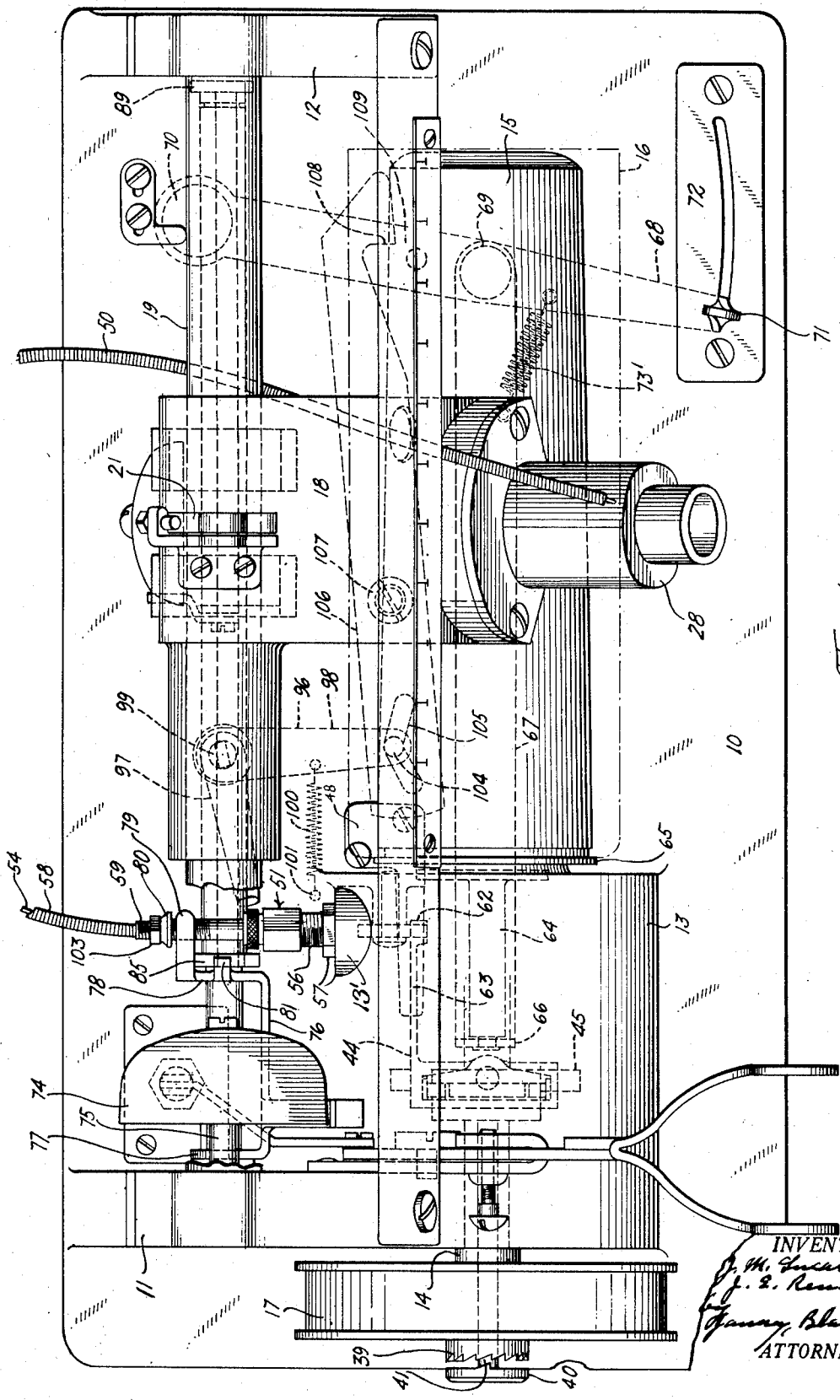


Fig. 1.

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DICTATING MACHINE

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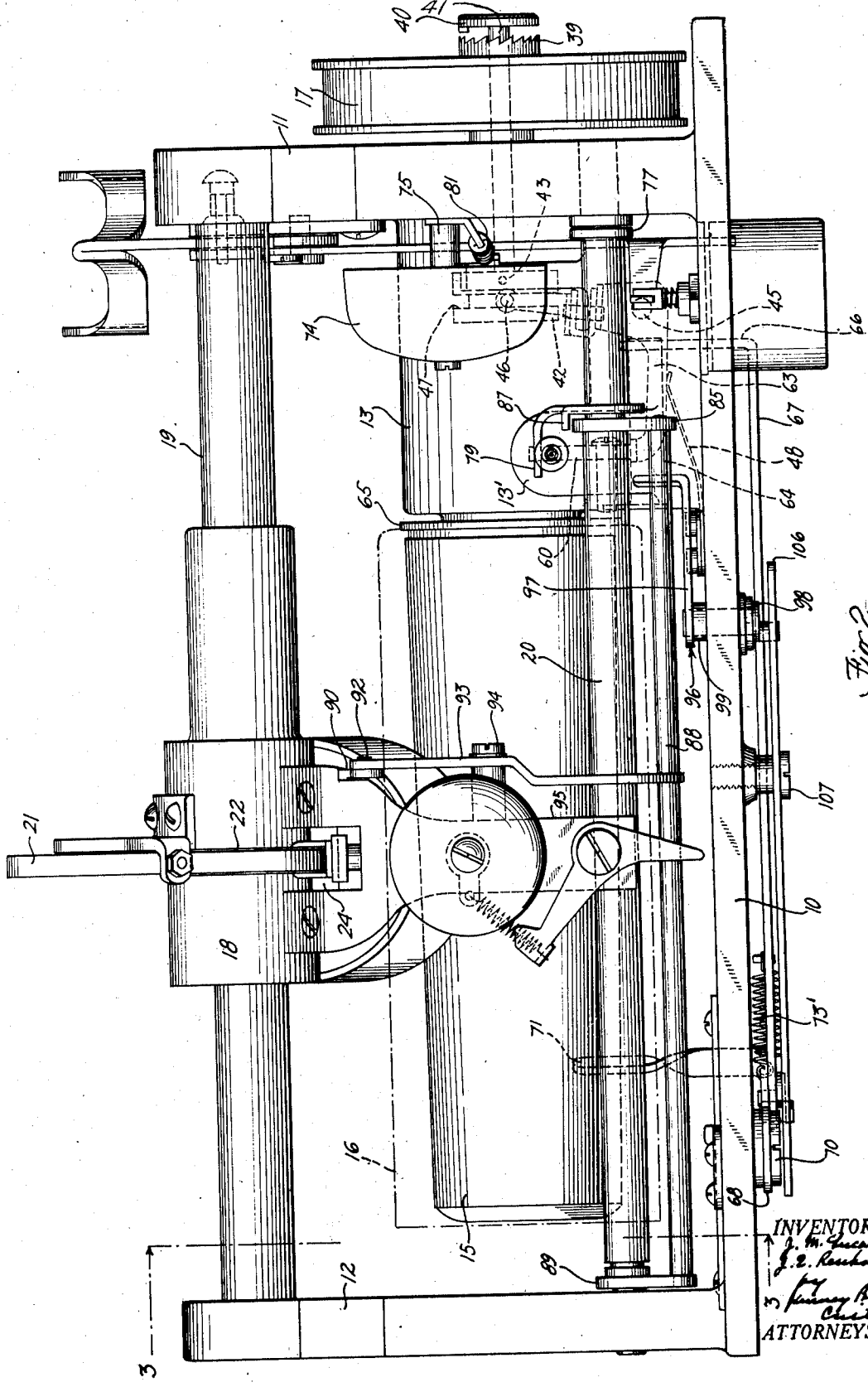


Fig. 2.

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DICTATING MACHINE

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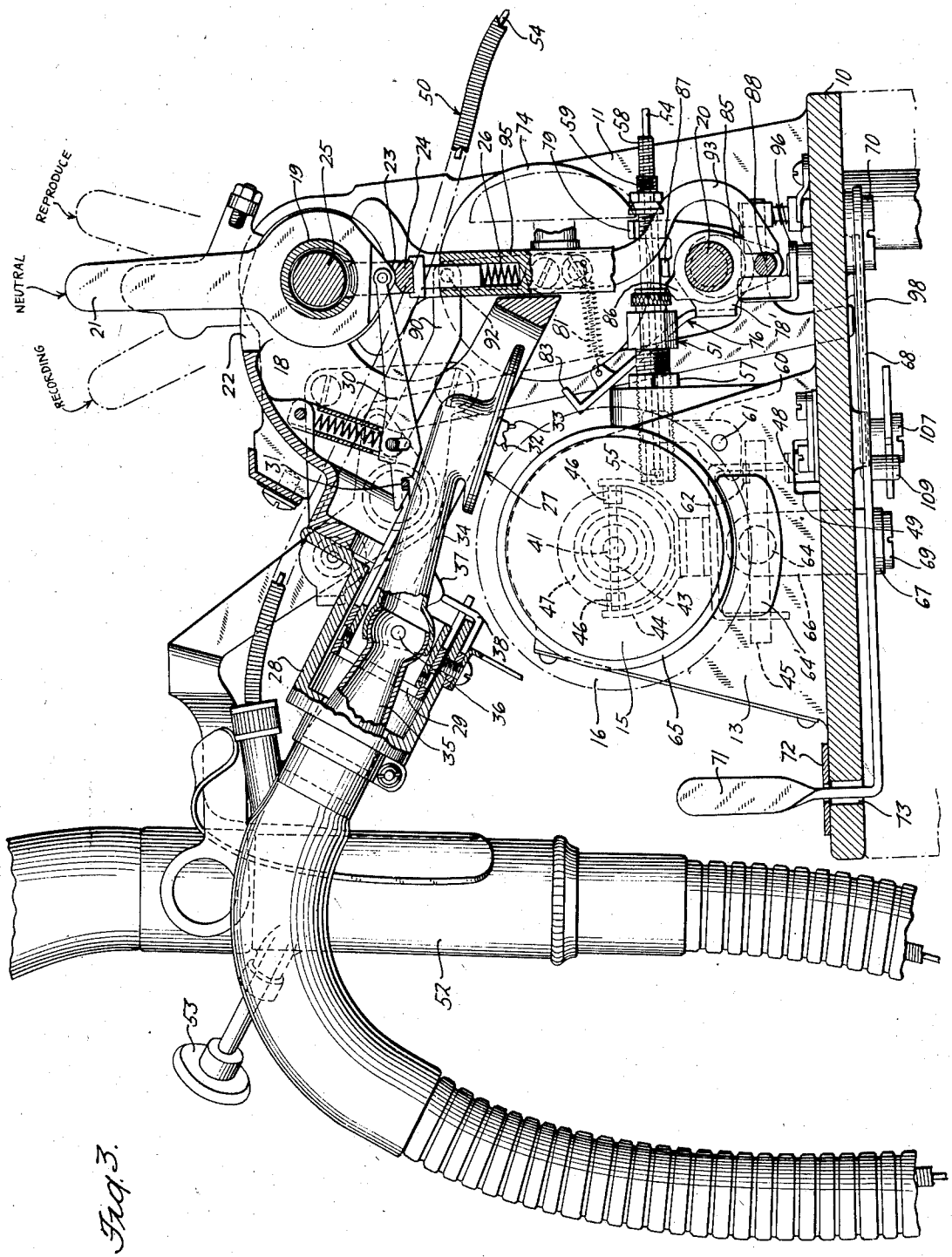


Fig. 3.

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DICTATING MACHINE

Original Filed June 7, 1929 4 Sheets-Sheet 4

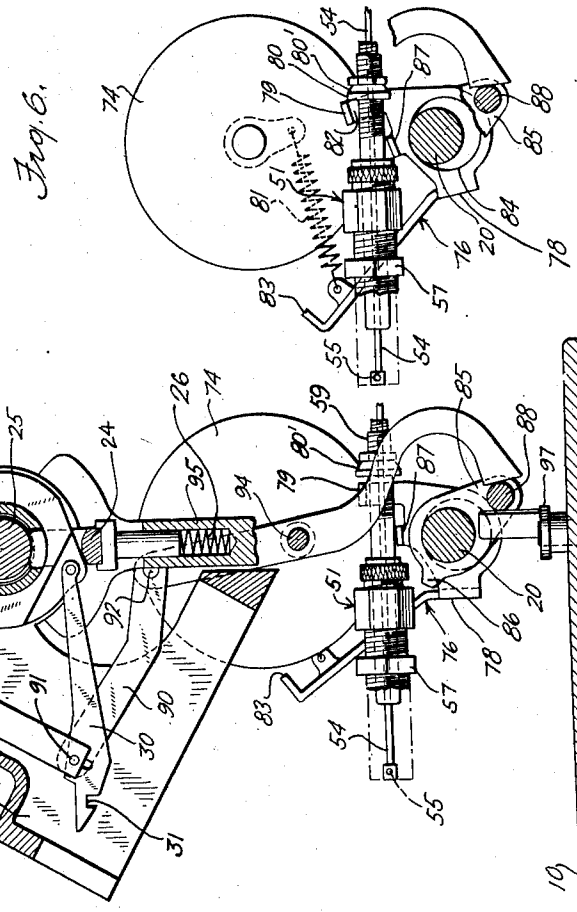


Fig. 6.

Fig. 5.

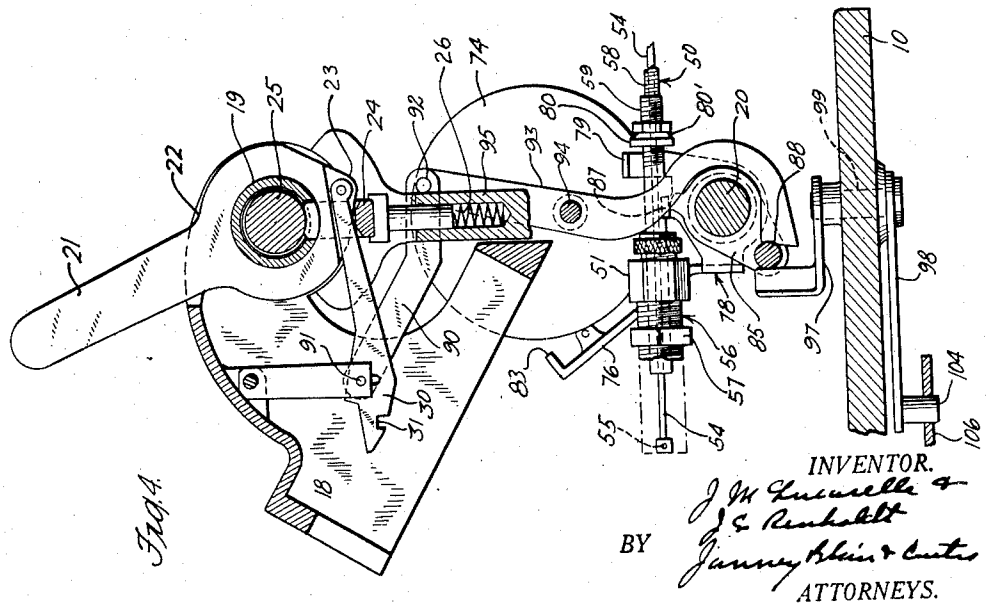


Fig. 4.

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Patented July 31, 1934 1,968,649

UNITED STATES PATENT OFFICE

1,968,649

DICTATING MACHINE

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Application June 7, 1929, Serial No. 369,044
Renewed March 14, 1934

14 Claims. (Cl. 274—17)

This invention relates to dictating machines, and more particularly to condition indicating and ejector locking devices for dictation machines.

One of the objects thereof is to provide in a machine of the above character a simple and dependable means for warning the operator when the mandrel starting control is actuated with the stylus or sound-box control occupying certain of its selective positions.

Another object is to provide in a machine of the above character a simple, practical and reliable means for preventing manipulation of the record ejector while the sound-box occupies an operative position relative to the mandrel and record cylinder. A further object is to provide practical means adapted to control the operation of such a warning signal and permit or prevent operation of a record ejector irrespective of the position along its path of travel which the sound-box carriage may chance to occupy. Other objects will be in part obvious and in part pointed out hereinafter.

For the further disclosure of the invention, reference may be had to the following description and to the accompanying drawings showing one embodiment of the invention selected merely for purposes of illustration, and in which:

Figure 1 is a top plan view of a dictating machine with operating parts in the position they assume when the sound-box control is in neutral position.

Figure 2 is a rear elevation showing the operating parts in the position they assume when the machine is in neutral condition.

Figure 3 is a sectional view taken substantially on line 3—3 in Figure 2, with portions of the carriage broken away and other parts shown in section, showing the sound-box control in neutral condition.

Figure 4 is a diagrammatic view of certain of the operating parts in the position they assume when the sound-box control is moved forwardly into recording position.

Figure 5 is a diagrammatic view similar to Figure 4, but shows the operating parts in the position they assume when the sound-box control is moved rearwardly into reproducing position.

Figure 6 is similar to Figures 4 and 5, but showing certain parts thereof in a different operative position.

Stated broadly, the present invention comprises a bell hammer tripping device actuated by the Bowden wire clutch control and arranged to strike a bell once each time the clutch control is operated when the machine is in either neutral or reproducing position, but permitting operation of the machine without a warning when the machine is in recording position.

The dictating machine selected for the purpose of illustrating the present invention, comprises a main frame 10 having an integral left-hand or head-end standard 11 and a right-hand standard 12. A housing 13 is also made integral with the main frame and provides a suitable bearing for a mandrel shaft 14 supporting at its outer end a mandrel 15, upon which a record cylinder 16 is moved for recording and reproducing. The opposite end of the mandrel shaft supports a driving pulley 17 which is rotated through suitable connection by an electric motor or other prime mover, not shown.

A sound-box carriage 18 is slidably mounted so as to travel longitudinally of the record cylinder 16 upon the upper tubular guide rod 19 and lower guide rod 20 extending between the left hand standard 11 and right hand standard 12. A stylus position or sound-box control lever 21 is rotatably mounted on the carriage rod 19 within an open space 22 formed in the carriage 18 and has a limited range of rotative movement. As shown in Figure 3, the sound-box control lever 21, or ring lever as it is commonly called in the art, is selectively movable to three stations, namely, recording, neutral and reproducing. When the said lever is in neutral position, as shown in Figure 3, a lug 23 thereon engages a feed nut 24 and moves it downwardly out of engagement with a feed screw 25 extending longitudinally within the guide rod 19. In this position of the feed nut, the operator can freely move the carriage by hand longitudinally of the record cylinder into any desired position. By shifting the ring lever into either recording or reproducing position, shown by dot and dash outline in Figure 3, the feed nut becomes free to be lifted upwardly into engagement with the feed screw under the influence of the compression spring 26 progressively to advance the carriage when the feed screw is rotated.

The carriage 18 comprises a casing 28, within which is slidably mounted a sleeve 29 having a hook and slot connection 31 with a link 30, which link is pivotally secured to the ring lever 21. The sound box 27 is provided with a recording stylus 32 and a reproducing stylus 33, connected in a well known manner to a single diaphragm, not shown. The sound box tube 34, which supports the sound box 27, is connected by means of a ball and socket joint and a pivot pin connection 36 with a tube 35 slidingly mounted with-

in the casing 28. This connection gives the sound box a limited range of up and down movement in order that it may accommodate itself to record cylinders of various diameters, or to compensate for any eccentricity or runout of said cylinders. In Figure 3, these parts are shown in neutral position, in which relation a cam lug 37 on the sound box tube 34 rides upon an adjustable guide plate 38, raising the sound box to an inoperative position, with both styli out of engagement with the record cylinder. This conditioning is necessary in order to safely load and unload the mandrel 15, and also to allow forward and back spacing of the carriage without marring the record cylinder surface, as would occur if either of the styli were left in engagement with the record.

In a similar manner, the sound box 27 is conditioned for recording when the control lever 21 is moved to the forward position, as shown in Figure 4, for in this operation the connecting link 30 moves the sleeve 29 forwardly within the casing 28, and by this movement the cam lug 37 moves out of engagement with the guide plate 38 and allows the recording stylus to engage the record cylinder. Also, by moving the control lever 21 to the rearmost position, as shown in Figure 5, the sleeve 29 is moved forwardly within the casing 28 and moves the pivotally connected sound box forwardly until the lug 37 rides out of engagement with the guide plate 38, and allows the reproducing stylus to engage the sound grooves on the record cylinder, when matter previously recorded will be audibly reproduced. This form of sound box control and construction is more fully described in the United States Patent to Bodine et al, No. 1,606,744, November 16, 1926.

When the machine is in operation the mandrel rotates while the carriage moves longitudinally thereof, in order that the stylus may cut or follow a spiral sound groove on the surface of the record cylinder. It is customary to provide a clutch for starting and stopping rotation of the mandrel shaft and feed screw, so that the operator may instantly control the operation of the machine so as not to use up space on the record cylinder should he pause in his dictation. The clutch mechanism shown herein comprises the toothed hub 39 of the driving pulley 17, and a single tooth clutch disc 40, attached to a rod 41 extending forwardly within a hollow portion of the mandrel shaft 14. This rod is connected with a clutch collar 42 longitudinally movable upon shaft 14 by means of a cross pin 43 which passes through a suitably slotted portion of shaft 14 (not shown). A clutch operating yoke 44 is pivotally mounted on a pin 45 and is provided with two engagement members 46 fitting within a groove 47 of the collar 42. A flat spring 48 fixed to the top of the main frame and extending through an aperture 49 in the side of the housing, yieldingly engages the underside of a horizontally extending arm 63 of the clutch shifting yoke and tends to move the yoke in a clockwise direction about the pin 45 normally to keep the clutch disc 40 out of engagement with the toothed hub 39 and thereby permit free rotation of the driving pulley (see Figure 2).

The clutch is controlled by a Bowden wire 50 which is connected to a boss 13 on the back of the housing 13 by means of a coupling 51, and extends to a mouth piece handle 52 where it is operatively related to the push button 53. The Bowden wire 50 comprises an inner member 54 (see Figures 1 and 3) secured by a pin connection to a nipple 56 threaded in the boss 13' and held there by means of a lock nut 57. An outer Bowden wire 58 is connected, at one end, within the handle 52, in such a manner as to permit of its being moved relatively to the inner member by means of a finger piece 53. The other end of said outer member is connected to a plunger 59 longitudinally movable within the nipple 56. The inner end of the plunger engages one arm of a bell crank lever 60 pivoted on a pin 61 within the housing. The other arm of the bell crank lever in its pivotal movement engages the upper side of a shelf 62 offset from the arm 63 of the clutch shifting yoke. In operation, the yoke is swung on its pivot upon actuation of the push button 53 mutually to engage the clutch members and establish driving relations between the pulley 17 and the mandrel shaft. During this operation the outer member of the Bowden wire moves relatively to the inner member; the plunger 59 swings the bell crank lever 60 to depress the arm 63 of the yoke structure, which results in throwing in the clutch. When the button is released the parts are returned to stop position by the spring 48. The feed screw 25 is rotated when the mandrel shaft is set in motion by means of any suitable system of gearing, disposed within the house. As this gearing is common to many forms of dictating machines, no further description of it will be given herein, nor is it thought necessary to complicate the drawings by the addition of gearing pitch lines.

An ejector is provided for moving the record cylinder from the mandrel. In its present form it comprises a plunger 64 slidably mounted within the housing 13 for movement longitudinally of the machine. The operating end of the plunger has a head 64', so shaped and disposed as to pass by the flange 65 of the mandrel and to engage the inner end of the record cylinder 16 when the plunger is advanced. The other end of the plunger is fixed to an upstanding arm 66, forming part of a link 67. The link extends longitudinally of the machine beneath the base of the frame and terminates at a convenient point adjacent the end of the mandrel, where it has pivotal attachment to a transversely disposed lever 68 by means of a screw 69. The lever 68 is fulcrumed upon a stud 70 at the rear of the machine and at its forward end is provided with an upwardly extending portion 71, forming a finger piece by means of which the lever may be operated. This finger piece extends through a slotted plate 72 covering a suitable opening 73 left in the casting forming the base 10. The ends of the slot in the plate 72 serve as stops for limiting the movement of the lever.

The ejector parts just described are normally held retracted by means of a spring 73 interposed between and connected to the link 67 and the lever 68 at points adjacent to the screw 69, in which position the ejector is kept out of engagement with the record cylinder.

Novelty is not claimed for the features of the dictation machine hereinbefore described, and only such detail has been presented as will give a ready understanding of the present invention and the structural and functional relation thereof to the other parts of the machine, as will now be described. In giving dictation to a machine, the operator may, at times, desire to turn back and "listen in" on portions of his recorded dictation, in which case the sound box control or ring lever will be thrown into reproducing position. He might then forget to return the parts to recording

position before resuming his dictation and only discover subsequently that the machine was improperly conditioned and his efforts wasted. Or he might inadvertently allow the ring lever to remain in neutral position, after placing a record cylinder upon the mandrel, and then dictate for some time before learning that nothing had been recorded.

The present invention provides a simple means for warning the operator that the machine is not properly conditioned for recording whenever the ring lever is in neutral or reproducing position. The means comprises a simple bell trip arrangement adapted to sound a single warning signal on a bell should the starting button be pressed while the control lever is in either neutral or reproducing position. This means comprises a bell 74 mounted upon a stud 75 on the side of the standard 11. and a bell hammer 76 having spaced bearing members 77 and 78 pivotally supported upon the carriage guide rod 20. Bearing member 77 is provided with an upstanding offset finger 79 overlying a portion of the Bowden wire plunger 59, in a position to be engaged by a trip nut or abutment 80 threaded upon said plunger.

Normally, when the machine is in neutral or reproducing position, the position of the bell hammer 76 and abutment 80 is as shown in Figure 5. However, when the operator depresses the button 53 to engage the clutch and start the machine, the outer member 58 of the Bowden wire and plunger 59 move to the left, as viewed in Figure 5, and the abutment 80 engages the side of the offset finger 79 and upon further movement turns the hammer about the guide rod 20 against the tension of a spring 81, as shown in Figure 6. When the Bowden wire member 59 has been moved a certain distance, the under surface 82 of the offset finger rides over the abutment and trips off behind it, in a manner which will be clearly understood by inspection of its position in Figure 6. The striker end 83 of the bell hammer then is drawn sharply against the bell to sound a single signal, thus giving the operator an effective warning that the machine is not properly conditioned for recording. Preferably this warning is sounded before the Bowden wire has been moved a sufficient distance to cause the engagement of the clutch members and start rotation of the mandrel shaft. Adjustment is provided as will be described later, for determining how long before the clutch engages, the warning will be given.

When the button is released to stop the machine and the Bowden wire plunger 59 returns to its original position, the tapered side 80' of the abutment 80 lifts the finger 79 until it is clear of the abutment 80, when it drops again to the position shown in Figure 5. This lift of the hammer parts is made possible by having the bearing opening 84 in the bearing member 78 of relatively larger diameter than the similar opening in the bearing member 77, and also considerably larger than the rod 20. The relatively large aperture serves another purpose, as will be seen later.

As the bell trip or warning device is operative solely to warn the operator when the machine is in neutral or reproducing position and therefore not properly conditioned for recording, means must be provided for rendering such operation automatically selective. This means comprises a cam plate 85 pivotally mounted upon the carriage guide rod 20 and having a lobe 86 projecting from the upper part thereof in a position to engage a second finger, or lug, 87, offset from a point on the hammer bearing member 78 when the machine is conditioned for recording, and thereby to lift the offset finger 79 out of the path of the abutment 80. As it is a necessary feature of this device that its actuation may be effected with its carriage occupying any point in its path of travel, a bail 88 is provided for actuating the cam plate 85, which bail is mounted at one end in the lower end of the cam plate and at the other end in a plate or hanger 89, supported upon the rod 20 at the opposite end of the machine. To move the bail 88 and cam plate 85 to any one of the three positions shown in Figures 3, 4 and 5, a link 90 is provided, connected at one end with the sound box sliding tube link 30, as by the pin 91, and extending rearwardly and downwardly to a point of connection by means of a stud 92 with the upper end of a lever 93, pivotally mounted on a stud 94 upon the side of the carriage guide support 95. The lower end of said lever occupies an operative position relative to the bail 88, which is yieldingly maintained in engagement therewith by means of a bell crank lever 96 having a longitudinally disposed arm 97 positioned above the base 10, and a transversely disposed arm 98 situated below the base, both of which arms are affixed to a pin 99 extending downwardly through said base. As may best be seen in Figure 1, this bell crank lever is normally held in contact with the bail 88 by means of a tension spring 100 fastened at one end to the transverse arm of the bell crank, and at the opposite end to a stud 101 on the underside of the frame. The bell crank is provided for a purpose later to be described.

It will readily be seen that when the operator manually moves the sound box control lever 21 from the neutral position shown in Figure 3, forwardly into the recording position shown in Figure 4, the links 30 and 90 will serve pivotally to move the lever 93 and swing the bail 88 and cam plate 85 into the position shown in Figure 4. As the cam plate advances the lobe 86 engages the offset finger 87 and raises the finger 79 out of the path of the abutment nut 80. In this position of the parts, actuation of the starting mechanism by means of the button 53 and Bowden wire 50 will not sound an alarm signal to warn the operator, who may proceed with his dictation with the assurance that the machine is properly conditioned for recording. When, however, the sound box control lever 21 is moved rearwardly into the neutral position to raise the styli out of contact with the record cylinder, the lower end of the lever 93 is drawn back, permitting the parts to return, under the influence of spring 100, to the position shown in Figure 3. As the lobe 86 of the cam plate 85 is now removed from engagement with the finger 87, the finger 79 returns to its operative position relative to the abutment 80, thus resetting the device for operation should the operator depress the Bowden wire button 53 to start the machine.

Likewise, when the operator moves the control lever 21 to the reproducing position in which the reproducing stylus is brought into engagement with the record cylinder, the parts assume the position shown in Figure 5, where the lobe 86 is still out of engagement with the offset finger 87 and the bell hammer trip device is set for actuation by the starting mechanism.

With the arrangement of parts just described, it will be apparent that the present invention provides a simple bell hammer trip warning de-

vice which is operative when the machine is in either neutral or reproducing position, but which is inoperative when the machine is in recording position. It should be noted that there is an adjustable relationship between the bell hammer 76 and tripping device, for as shown in Figures 4 to 6 inclusive, the plunger 59 is threaded and the abutment nut 80 is movable thereon in order to effect the bell trip-off at any desired point in the manipulation of the clutch control. A lock nut 103 serves to maintain the abutment in its position of adjustment. Preferably, the bell trip is timed to occur just prior to the actual operative engagement of the clutch members.

It should be particularly noted that the bail 88 of the present invention serves another very useful purpose. As is best shown in Figure 1, the bell crank 96, which is at all times in operative engagement with the bail 88, is provided with a pin 104 which rides in the V-shaped aperture 105 formed in a latch lever 106 pivotally mounted by a stud 107 on the underside of the base. The latch lever 106 is provided at its outer end with a hook or catch 108 adapted to swing into the path of a pin 109, projecting downwardly from the ejector lever 68. This arrangement of parts is such that the ejector may be operated only when the machine is in neutral condition, that is, when both the recording and reproducing styli are out of engagement with the record cylinder, and positively locks the record ejector against operation when the machine is in either recording or reproducing position.

As shown in Figure 1, the pin 104 in the end of the bell crank arm 98 is in the position it assumes when the sound box control lever 21 is in neutral position, and when so positioned, the pin being in the high point of the inverted V-shaped slot 105, holds the latch lever 106 in such a position that the hook 108 clears the pin 109 on the ejector lever 68 and does not lock the record ejector, but when the control lever is moved into either its recording or reproducing station, the pin 104 travels to one or the other of the low points of the inverted V slot 105 and causes the latch lever 106 to lock the ejector lever and positively prevent operation of the ejector.

It will thus be seen that the bail 88 of the present invention serves a twofold purpose, namely, the conditioning of the bell trip warning device and of the record ejector lock, in predetermined relationship with the stationing of the sound box control lever 21, regardless of the position of the carriage 18 longitudinally of the machine.

As various embodiments might be made of this invention, and as various changes might be made in the construction herein described, all without departing from the scope of the invention, it is to be understood that all matter herein set forth or shown in the accompanying drawings is to be interpreted as illustrative and not in a limiting sense.

I claim:

1. In a dictating machine, in combination, a frame, a record support mounted on said frame, a sound box mounted for progressive movement along said frame, a sound box control having recording, neutral and reproducing positions, control means for controlling the rotation of said record support, and signal means mounted on said frame for giving a warning upon actuation of said rotation control means when said sound box is in other than recording position.

2. In a dictating machine, in combination, a frame, a record support mounted on said frame, a sound box mounted for progressive movement along said frame, control means for controlling the rotation of said record support, a sound box control having recording and non-recording positions, and means mounted on said frame, operatively associated with said control means and said sound box control and operable by said control means to give a warning signal upon actuation of the control means with the sound box control in non-recording position.

3. In a dictating machine, in combination, a frame, a record support mounted on said frame, a sound box mounted for progressive movement along said frame and being adapted to assume recording and non-recording positions, driving means for said record support, signal means mounted on said frame, control means, means associated with said control means adapted when said sound-box assumes certain predetermined positions to cause said signal means to give a single warning signal upon initial actuation of the control means, and other means associated with said control means to cause the driving means to rotate the record support upon a further actuation of said control means.

4. In a dictating machine, in combination, a frame, a record support mounted on said frame, driving means for said record support, signal means mounted on said frame, control means for said driving means, means associated with said control means for causing said signal means to give a single warning signal upon initial actuation of the control means, other means associated with said control means to cause the driving means to rotate the record support upon a further actuation of said control means, and means for rendering said warning causing means ineffective.

5. In a dictating machine, in combination, a frame, a sound-box mounted for movement along said frame and adapted to assume recording and non-recording positions, a signal means and a record support also mounted on said frame, driving means for said record support, a clutch adapted to connect and disconnect said driving means and record support, a clutch-actuating means, a sound-box control for determining the position occupied by said sound-box, and signal-effectuating means associated with said sound-box control and actuated by said clutch-actuating means when said actuating means is moved to operate said clutch and said sound-box control occupies a selective one of its positions.

6. In a dictating machine, in combination, a frame, a sound-box mounted on said frame and movable into recording and non-recording positions, signal means mounted on said frame, sound-box control means, a rotatable record support mounted on said frame, and control means for controlling the rotation of said support, signal-effectuating means actuated by said record support control when said control is moved to start the rotation of said record support, and means for preventing actuation of said effectuating means when said sound-box control has moved said sound-box to recording position.

7. In a dictating machine, in combination, a frame, a bell mounted thereon, a sound-box mounted on said frame and movable into recording and non-recording positions, a sound-box control, a rotatable record support also mounted on said frame and control means for controlling the rotation of said record support, a bell-sounding device actuated by said record support con-

trol means when said means is operated, means adapted to be moved to different positions to control the operation of said bell-sounding device, and means associated with said sound-box control adapted to render said positioning means effective to prevent actuation of said bell-sounding device.

8. In a dictating machine, in combination, a frame, a bell mounted thereon, a sound-box mounted on said frame and movable into recording and non-recording positions, a sound-box control, a rotatable record support also mounted on said frame and control means for controlling the rotation of said record support, a bell hammer adapted to be moved and tripped by said record support control means to strike said bell a single blow, and means associated with said sound-box control adapted to render said bell hammer inoperative.

9. In a dictating machine, in combination, a frame, a bell mounted thereon, a sound-box mounted on said frame and movable into recording and non-recording positions, a sound-box control, a rotatable record support also mounted on said frame and control means for controlling the rotation of said record support, a bell hammer adapted to be moved and tripped by said record support control means to strike said bell a single blow, means for moving said bell hammer to an inoperative position relative to said record support control means, and means associated with said sound-box control for causing said last means to function.

10. In a dictating machine, in combination, a frame, a record-support, a carriage movable relatively to said record-support, a sound-box supported by said carriage, a sound-box control having recording, neutral and reproducing positions, a signal device on said frame, means for actuating said signal device, rockable means for controlling the operation of said signal device, and means associated with said sound-box control for so controlling movement of said rockable means as to permit effective operation of said signal-actuating means when said sound-box control is in other than recording position.

11. In a dictating machine, in combination, a frame, a record-support, a carriage movable relatively to said record-support, a sound-box supported by said carriage, a sound-box control having recording, neutral and reproducing positions, a signal device on said frame, means for actuating said signal device, rockable means for controlling the operation of said signal device, and means associated with said sound-box control for so controlling movement of said rockable means as to prevent effective operation of said signal-actuating means when said sound-box is in recording position.

12. In a dictating machine, in combination, a frame, a bell mounted thereon, a sound-box movable along said frame, a sound-box control, clutch-actuating means mounted on said frame, a bell hammer adapted to be moved and tripped by said clutch-actuating means to strike said bell a single blow, rockable means for moving said bell hammer to an inoperative position relative to said clutch-actuating means, and means associated with said sound-box control for controlling the movement of said rockable means to cause proper functioning of said bell hammer.

13. In a dictating machine, in combination, a frame, a sound-box movable along said frame, a record-support, signal means mounted on said frame, a clutch, clutch-actuating means adapted to actuate said signal means, a sound-box control movable into recording, neutral or reproducing positions, an interponent member movable into different positions to control the operation of said signal means, and means associated with said sound-box control for controlling the position of said interponent member.

14. In a dictating machine, in combination, a frame, a sound-box movable along said frame, a record-support, signal means on said frame, a clutch, clutch-actuating means adapted to actuate said signal means, a sound-box control movable into recording, neutral and reproducing positions, an interponent member movable into different positions to control the operation of said signal means, and means associated with said sound-box control for controlling the positions of said interponent member, said interponent member permitting operation of said signal device by said clutch-actuating means only when said sound-box control is in neutral and reproducing positions.

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