

Aug. 20, 1929.

A. V. BODINE

1,725,332

SAFETY DEVICE FOR PHONOGRAPHS

Filed March 27, 1925

2 Sheets-Sheet 1

Fig. 1.

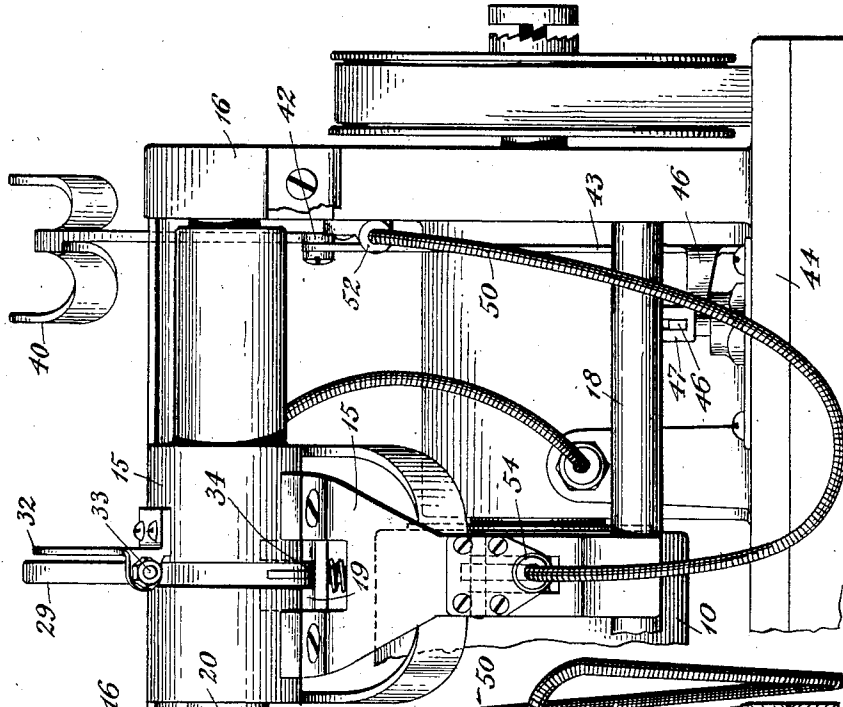
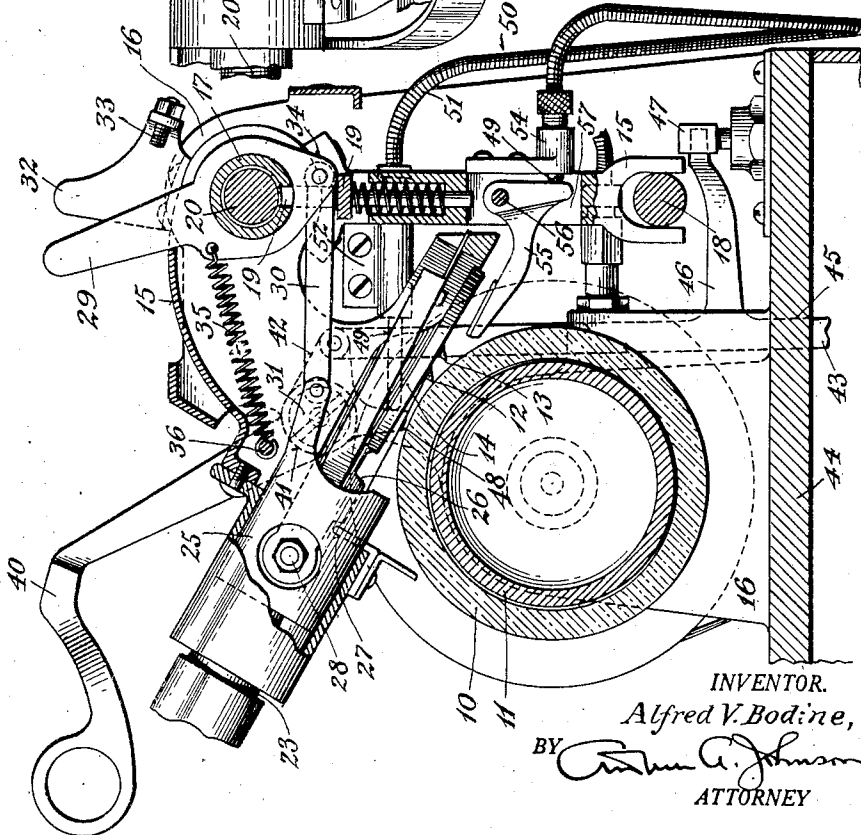


Fig. 2.



INVENTOR.

Alfred V. Bodine,

BY *Arthur A. Johnson*
ATTORNEY

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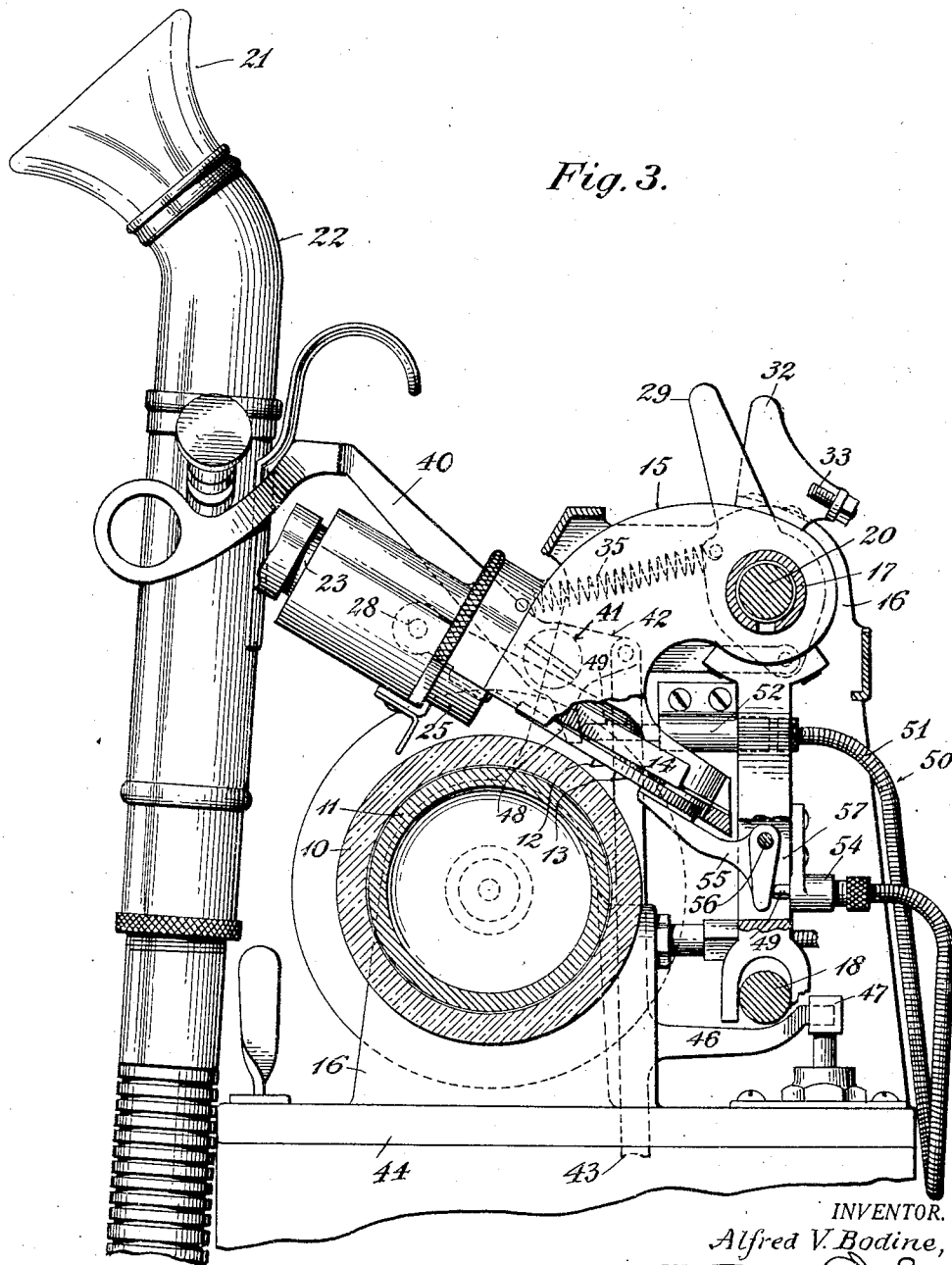
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INVENTOR.
Alfred V. Bodine,
BY *Arthur A. Johnson*
ATTORNEY

UNITED STATES PATENT OFFICE.

ALFRED V. BODINE, OF BRIDGEPORT, CONNECTICUT, ASSIGNOR TO DICTAPHONE CORPORATION, OF BRIDGEPORT, CONNECTICUT, A CORPORATION OF NEW YORK.

SAFETY DEVICE FOR PHONOGRAPHS.

Application filed March 27, 1925. Serial No. 18,799.

This invention relates to phonographs, and more particularly to phonographs of the type used to record and reproduce dictation et cetera.

5 In some cases, especially with new and inexperienced operators who have not become sufficiently familiar with the machine, the user dictates to the phonograph while it is in other than dictating condition. That is
10 to say, it sometimes occurs that persons speak into the speaking-tube of the dictating machine while the control-lever is in either reproducing position or neutral position. Of course, when this is done, the dictation is not
15 recorded upon the record, for in neither of these positions does the recording stylus engage the record.

To avoid this inconvenience and disadvantage, the present invention provides a safety
20 device by the provision of which it is practically impossible for the novice operator to make these mistakes.

A preferred way for accomplishing this, according to the present invention, is to provide means for automatically moving the
25 control-lever or the sound-box, or both, to recording position. And it is further preferable to so arrange the device that the control-lever needs must be held manually in
30 either neutral position or reproducing position when it is desired to have the phonograph so conditioned.

Since the present invention provides means whereby the sound-box or recording stylus
35 is normally in record-engaging position, it would be necessary for the operator in withdrawing the record from or replacing a record upon the record-support to manually hold the control-lever in neutral position in
40 which the styli are raised from the record, for otherwise the record would be scratched by the recording stylus, or the record would damage the styli or sound-box.

Accordingly, the present invention provides means for automatically raising the
45 styli from record-engaging position during the time when it is desired to remove a record from or replace it upon the record-support. This means, according to the present
50 invention, comprises a flexible and positive connection between a speaking-tube support and means mounted on the sound-box carriage adapted to raise the styli from the record when the speaking-tube is placed upon
55 its support.

This flexible and permanent connection preferably comprises a Bowden-wire, or its equivalent, one end of which is operated by the speaking-tube support and the other end of which, directly or indirectly, engages the
60 sound-box to raise it from record-engaging position.

Either of the above features, taken alone, is an advantageous improvement on commercial and other phonographs, but when the
65 two features are combined, the results are greater than the sum total of the results of each, since the machine is practically fool-proof when these two features are used together.

Other features and advantages will hereinafter appear.

In the accompanying drawings, which illustrate one form of the present invention as
75 exemplary thereof—

Figure 1 is a rear elevation of one side of a dictation machine embodying the present invention.

Fig. 2 is a sectional side view, showing the parts shown in Fig. 1.

Fig. 3 is a view similar to Fig. 2, but shows the parts in their respective positions when the speaking-tube is supported upon its hook.

It will be apparent to those skilled in the
85 art, that the present invention may be applied to various kinds and forms of phonographs and is not limited in any way to use solely in connection with the commercial phonograph of any type or of the type here-
90 in shown.

In the illustrated type of phonographs, the record 10 is supported upon a mandrel 11 to rotate with respect to a recording stylus 12 and a reproducing stylus 13, which
95 styli are preferably carried by a sound-box 14 mounted in a carriage 15 movable longitudinally of the frame 16, upon an upper guide 17 and a lower guide 18. The carriage 15 is caused to move across the frame
100 16 by the engagement of a feed-nut 19 thereon with a feed-screw 20, so that sound is recorded in a helical groove generated by the rotation of the mandrel and traveling movement of the carriage.

The sound to be recorded is received by a mouthpiece 21, see Fig. 3, located at the free end of a speaking-tube 22, whose other end is adapted to engage a nozzle 23 provided on the carriage 15. The sound re-
110

ceived by the nozzle 23 is communicated to the sound-box 14 carrying the recording stylus 12 and the reproducing stylus 13 upon its diaphragm, not shown.

5 The sound-box 14 is mounted in a slide 25 for longitudinal movement to bring either the recording stylus 12 or the reproducing stylus 13 into record-engaging position. In order that the styli may be moved relatively
10 to the record-surface without scratching the record, the sound-box 14 is provided with a cam 26 adapted to engage a stationary arm 27 mounted on the nozzle 23, and the sound-box 14 is pivoted at 28 to allow it to be
15 raised when the cam 26 engages the stationary arm 27 during the longitudinal movement of the slide 25. The sound-box 14 is pivoted at 28, also for the purpose of allowing it to assume different positions to
20 accommodate records of different thicknesses. The cam 26 and stationary arm 27 with which it engages is also adapted to maintain the sound-box 14 out of record-engaging position when the slide 25 is in intermediate position.

To move the slide 25 longitudinally for the purpose of changing the machine from recording, reproducing or neutral conditions to either of the other conditions, there is provided a manually operable control-lever 29
30 mounted in the carriage 15 and pivotally mounted upon the guide 17. The lower end of the control-lever is provided with a link 30 connected to a rearwardly extending arm 31 formed on the slide 25. Hence, when the control-lever 29 is in its forward position, the slide 25 is in its rearward position, and in this position the recording stylus 12 is adapted to engage a record 10. When the
40 control-lever 29 is in its intermediate position, in which it is located directly opposite an upstanding guide arm 32, the slide 25 is also in its intermediate position, in which the sound-box is raised so that both styli are clear of the record-surface. In its rear-most position, in which the control-lever engages an adjustable stop 33, the slide 25 is in its forward position in which the reproducing stylus 13 engages the record.

50 The control-lever 29, in addition to performing these functions by the engagement of its end 34, depresses the feed-nut 19 and holds it depressed when the control-lever is in neutral position. This is done so as to
55 allow the carriage to be shifted to any desired position without interference from the feed mechanism.

In order to prevent the operator, especially a novice operator, from leaving the control-lever 29 in either reproducing position
60 or neutral position while he dictates, in which condition the machine would not record, the present invention provides means for automatically moving the control-lever
65 29 to recording or dictating position, and

this means preferably operates so that the control-lever may be maintained in neutral position, or in listening or reproducing position only by manually holding it in such position.

70 The means for accomplishing these results, preferably comprises a spring 35 connected at one end to the control-lever 29 and at the other end to a pin 36 anchored in the carriage 15. This spring is normally under tension and holds the control-lever 29
75 in recording or dictating position continuously. When the operator desires to move the control-lever 29 to neutral position for the purpose of shifting the carriage or for any other purpose, or to move it to reproducing position to listen to matter already dictated, it is consequently necessary to manually hold the lever 29 in either the neutral position or the reproducing position,
85 otherwise the spring 35 will return the control-lever to recording position.

In order to make it unnecessary for the operator to manually hold the lever 29 in neutral position away from its normal recording position in which the recording stylus is normally in record-engaging position when it is desired to remove a record from the mandrel or replace a blank thereon, the present invention provides means for automatically moving the stylus out of record-engaging position. This means is preferably operated as an incident to the operation of some part of the machine subconsciously performed by the operator when he finishes dictation. Such an operation is the placing of the speaking-tube 22 upon a supporting hook 40, for the operator always does this as soon as he finishes dictating, it being the most convenient place to put the speaking-tube. This hook 40 is pivoted at
105 41 in the frame 16 and has a rearwardly extending arm 42 connected with a link 43 guided in the base plate 44 at 45, and also has a rearwardly extending arm 46 engaging an electric switch 47 controlling the motor circuit. When the speaking-tube 22 is hung upon the hook 40, the link 43 with its arm 46 is raised to cause the switch 47 to open the motor current-supply circuit.

115 According to this invention, the hook 42 or any part of it such as an arm 48 secured to or formed integral therewith, is adapted to operate the internal member 49 of a Bowden-wire element 50, while the external member 51 of the Bowden-wire element is anchored to the frame 16 by a bracket 52. At its other end, the member 51 of the Bowden-wire 50 is anchored in a bracket 54 mounted on the carriage 15 so that its internal member 49 is located in position to operate a bell-crank lever 55 mounted on a pin 56 in a cut-out portion 57 of the carriage 15.

The forward end of the bell-crank lever 130

is located in position to engage the sound-box 14 when this end of the bell-crank is swung upwardly by the operation of the Bowden-wire, but is normally located far enough below the sound-box 14 as not to interfere with it in any of its normal operations. Hence, when the speaking-tube 22 is hung upon the hook 40, the member 49 of the Bowden-wire is moved to cause its operative end to raise the bell-crank lever 55 upwardly, for instance to the position shown in Fig. 3. In this position, the recording stylus is entirely clear of the record-surface and will allow the record to be removed or replaced without damaging either the stylus or the sound-box, or the record.

It should be noted that by providing a Bowden-wire connection between the operating part, namely the speaking-tube hook 40 on the frame, and the operated part, namely the bell-crank 55 on the movable carriage, a positive and sure connection is provided between these parts, and the operating parts may actuate the operated parts in any of the longitudinal positions of the carriage with respect to the frame.

As above stated, the provision of the means for automatically raising the sound-box from record-engaging position when the machine is idle, and the safety device by means of which the sound-box is normally held in recording position while the machine is in use, each separately produce advantageous and new results. In addition, however, the two features in combination cooperate with each other to such an extent that not only does the machine automatically assume a recording position, but the dangers accompanying these conditions, namely that of the recording stylus always being in engagement with the record, are adequately overcome by the provision of means for maintaining the styli out of record-engaging position when the machine is idle.

It should also be noted that the provision, by the present invention, of a Bowden-wire element between a part of a frame and a part of a carriage or sound-box in a phonograph is in itself a new and advantageous feature, irrespective of the functions performed by the Bowden-wire. The provision of this kind of connection opens up the many avenues of development for the controlling operation of commercial phonographs.

Variations and modifications may be made within the scope of this invention, and portions of the improvements may be used without others. For instance, the Bowden-wire 50, instead of causing the sound-box 14 to be raised, might actuate the control-lever 29 or some other part connected to the sound-box so that these parts are moved

against the tension of a spring 35 to neutral position, and means other than the Bowden-wire might be used for the purpose.

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

1. A phonograph having means which is shiftable to either cause the phonograph to record, reproduce, or be inoperative; and means for causing said shiftable means to normally be so positioned as to cause the phonograph to record.

2. A phonograph having means which is shiftable to cause the phonograph to record, or reproduce; and means for causing said shiftable means to normally be so positioned as to cause the phonograph to record.

3. A phonograph having means which is shiftable to cause the phonograph to record, or to be inoperative for recording; and means for causing said shiftable means to normally be so positioned as to cause the phonograph to record.

4. A phonograph having a sound-box control-lever which has a recording position and at least one other position; and yieldable means for automatically tending to move said control-lever to recording position.

5. A safety device for dictation machines which are capable of recording and reproducing comprising means normally tending to condition the dictation machine for recording.

6. In a phonograph having a recording condition and non-recording condition, and having a positionable condition controlling device: a safety device comprising means for making it necessary to manually hold the controlling device in a position in which it causes the phonograph to be in non-recording condition.

7. In a phonograph having a recording condition and a reproducing condition, and having a positionable condition controlling device: a safety device comprising means for making it necessary to manually hold the controlling device out of recording position and in reproducing position when it is desired to cause the phonograph to reproduce.

8. In a phonograph having a recording condition and a neutral condition and having a positionable condition controlling device having a recording and a neutral position: and a safety device comprising means for making it necessary to manually hold the controlling device in neutral position.

9. A commercial phonograph comprising a dictating lever and means for automatically returning the dictating lever to dictating position from another position which it may occupy.

10. A phonograph comprising a sound-transmitting device; a support for the

sound-transmitting device and movable when the sound-transmitting device is placed upon the support; a Bowden-wire engaging said support; a sound-box connected to the sound-transmitting device; and means operated by the Bowden-wire for moving the sound-box to inoperative position when the sound-transmitting device is placed upon its support.

11. In a phonograph, the combination of a sound-box adapted to engage the record; a carriage for the sound-box; feed mechanism for the carriage comprising a feed-nut on the carriage for engaging a feed screw on the phonograph; means mounted on the carriage adapted to raise the sound-box from record-engaging position, said means operating without altering the engagement of the feed nut with the feed screw; a movable device located at a point remote from the carriage and a Bowden-wire element connected to said movable device for operating the last-named means when said movable device moves.

12. In a phonograph, the combination of a sound-box adapted to engage a record; a carriage for the sound-box; means mounted on the carriage adapted to raise the sound-box from record-engaging position; a Bowden-wire element for operating the last-named means; said Bowden-wire element being anchored at one end in said carriage; means for anchoring the other end of the Bowden-wire element in the frame in position to be operated; and a speaking-tube hook mounted on said frame and adapted to

operate the Bowden-wire when the speaking-tube is placed upon the hook.

13. A phonograph comprising a sound-transmitting device; a support for the sound-transmitting device movable when the sound-transmitting device is placed upon the support; a mechanical connection engaging said support; a sound-box connected to said sound-transmitting device; and means operated by said mechanical connection for moving the sound-box to inoperative position when the sound-transmitting device is placed upon its support.

14. In a phonograph having a control-lever, a sound-box adapted to engage a record, and a speaking-tube support: a safety device comprising means for automatically holding said control-lever in a predetermined one of a plurality of positions, in which said predetermined one of positions the sound-box normally engages the record; and means for raising the sound-box from record-engaging position when a speaking-tube is placed upon its support.

15. In combination, a sound-box adapted to engage a record; means automatically biased for normally holding the sound-box in recording position; and means acting independent of said first-named means for raising the sound-box from record-engaging position when it is desired to move the record relative to the sound-box.

Signed at Bridgeport, in the county of Fairfield, and State of Connecticut, this 11th day of March, 1925.

ALFRED V. BODINE.

DISCLAIMER

1,725,332.—*Alfred V. Bodine*, Bridgeport, Conn. SAFETY DEVICE FOR PHONOGRAPHS. Patent dated August 20, 1929. Disclaimer filed November 19, 1929, by the patentee, assignee, *Dictaphone Corporation*, assenting and concurring.

Hereby enters this disclaimer to the subject matter of claim 13 in the said specification, which reads as follows:

"13. A phonograph comprising a sound-transmitting device; a support for the sound-transmitting device movable when the sound-transmitting device is placed upon the support; a mechanical connection engaging said support; a sound-box connected to said sound-transmitting device; and means operated by said mechanical connection for moving the sound-box to inoperative position when the sound-transmitting device is placed upon its support."

[*Official Gazette December 10, 1929.*]