W. N. DENNISON.

COUNTERBALANCED SOUND BOX.

APPLICATION FILED MAR. 12, 1907.

927,505.

Patented July 13, 1909.

Fig. 1.

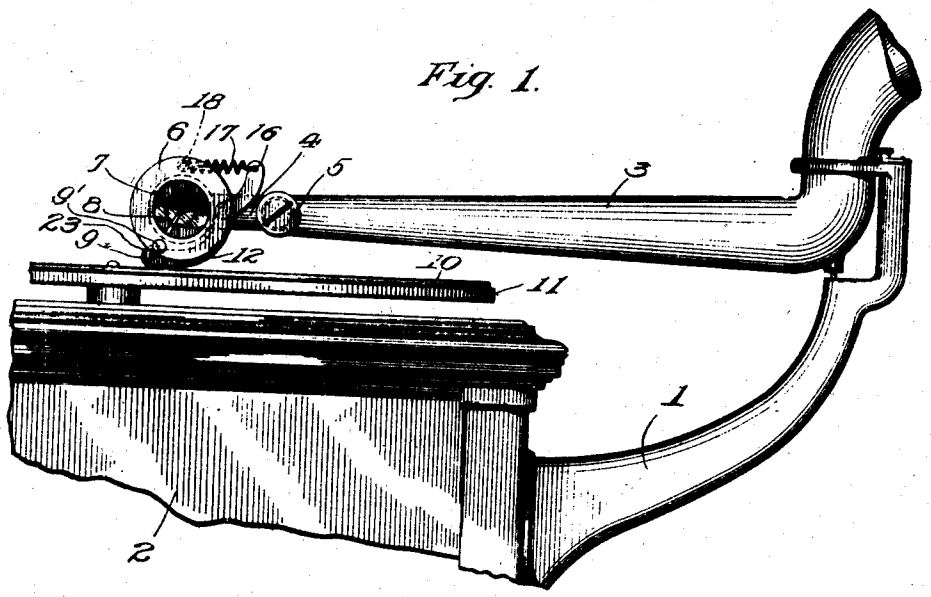


Fig. 2.

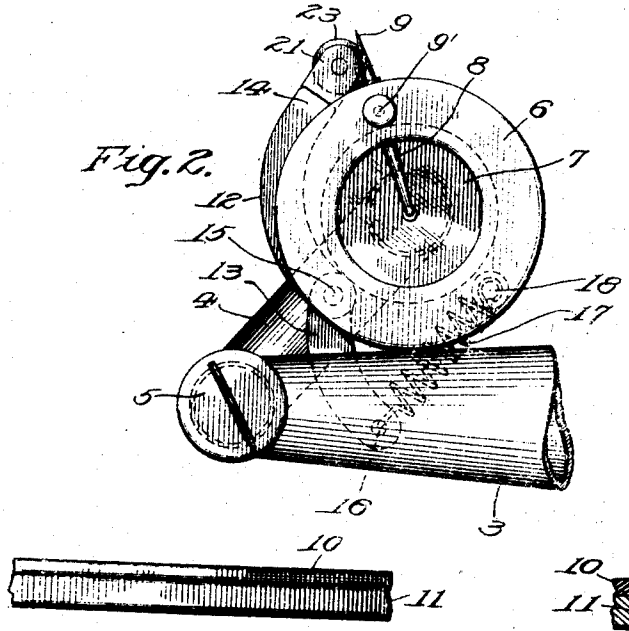
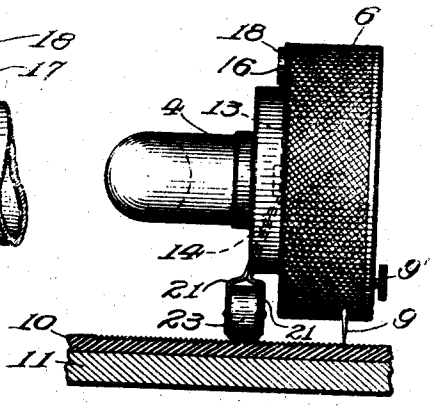


Fig. 3.



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COUNTERBALANCED SOUND-BOX.

No. 927,505. Specification of Letters Patent. Patented July 13, 1909.

Application filed March 12, 1907. Serial No. 361,980.

To all whom it may concern:

Be it known that I, WILBURN N. DENNISON, a citizen of the United States, and a resident of the borough of Merchantville, in the county of Camden and State of New Jersey, have invented certain new and useful Improvements in Counterbalanced Sound-Boxes, of which the following is a full, clear, and complete disclosure.

The object of my invention is to provide means for preventing heavy sound boxes or those of excessive weight from causing the stylus needle thereof from exerting the excessive pressure upon the record.

For a full, clear and exact description of one form of my invention, reference may be had to the following specification and accompanying drawings, in which like reference characters refer to corresponding parts.

In the drawings Figure 1, is an elevational view of my invention, showing the fragmentary portions of the adjacent parts of the machine; Fig. 2 an enlarged view of my invention, showing the sound box turned back on the sound conveying arm; and Fig. 3 an enlarged end view of the sound box turned down into its operative position on the record.

It is sometimes customary in the art to make different parts of a talking machine, especially those parts which come in contact with the sound waves, of excessive proportions in order to produce a clearer tone. In some cases the sound box is enlarged to such a degree as to cause the stylus needle to exert too forcible or abnormal pressure upon the record, thus destroying the revolution of the latter, or retarding the same or doing some other damage to interfere with the operativeness of the machine. To obviate said disadvantages I have provided means for taking that much of the weight off the sound box as the same is heavier, than the ordinary or regular size sound box in common use, or in other words the excessive weight thereof. Otherwise the peculiar construction of this device, the parts of the machine may be constructed like those of variable designs in common use. In the one I have illustrated, however, a supporting arm 1 to attach to a cabinet 2, and to the upper end of the supporting arm is a swinging arm 3 mounted to swing in a horizontal plane and having pivoted to its free end a U shaped tube 4, by the usual hinge 5, the free end of the U shaped tube having mounted thereon the spring 4. The sound box 6, as heretofore stated is of heavy or excessive weight, otherwise being like the construction of any of the several sound boxes common in the art. To the diaphragm 7 is connected the stylus 8 in the usual manner, having a needle 9 inserted in the outer end thereof.

As shown in Figs. 1 and 3 the sound box is in its operative position having the stylus needle 9 resting in grooves of the record 10, which latter is mounted in the usual manner upon the turn table 11. The lever 12 having arms 13 and 14 pivoted at its intermediate portion 15 to the annular face 6′ of the sound box 6. The arms 13 and 14 of the lever are curved to be substantially concentric with the annular face of the sound box, when either one of the same is turned to such a position to be coincident therewith. Attached to the extremity 16 of the arm 13 is the spiral spring 17 whose opposite extremity is attached to the pin 18 on a sound box 6. Attached to the extremity of the arm 14, is the yoke arm 21 which taken together with the yoke 22, which is a continuation of the arm 14, form a bearing for the roller 23 which is made of wood or other suitable material that will roll readily over the face of the record without damaging the same.

When the machine is not in operation the sound box may be swung back to rest on the extremity of the sound conveying arm 3 in the usual manner and in such position there being no pressure upon the roller 23 the same will be slightly beyond the stylus point 9, due to the spring 17 having been relieved from its tension. During the operation of the machine, however the box is turned down, as shown in Figs. 1 and 3 so the needle will take its proper position upon the record. Owing to the fact that the roller 23 is beyond the end of the needle it will strike the record first and the weight of the sound box will cause the lever 12 to swing on its pivot until the excessive weight of the sound

box and the tension on the spring 17 are counterbalanced. The pressure exerted by the needle when this counterbalancing action takes place is regulated by the adjustment of the spring 17, which adjustment is arranged to be a permanent one. When the counterbalancing mechanism is first attached the curvature of the arms and their proper dimensions is also determined to a certain standard.

While not admitting that there is no invention in the exact device illustrated and set forth in the above description, yet I wish it directly understood that a lever of other peculiar configurations together with other types of springs may be utilized so long as the device will perform the result herein described and will be within the construction set forth within the appended claims.

Having now described my invention what I desire to claim and protect by Letters Patent of the United States is:

1. In a sound recording and reproducing machine, a sound box and means pivoted to said sound box to counterbalance a part of the weight thereof to prevent an excessive pressure of the stylus upon a record.

2. In a sound recording and reproducing machine, a sound box and means pivoted to said sound box yieldingly restrained to counterbalance a part of the weight of said sound box to prevent an excess of pressure of the stylus upon a record.

3. A record, a horizontally swinging arm, a sound box pivoted to the free end thereof, the said sound box carrying a stylus needle and a pivoted spring restrained lever to counterbalance the excessive pressure of the stylus needle on a record.

4. A record, a horizontally swinging arm, a sound box pivoted to the free end thereof, the said sound box carrying a stylus and being of excessive weight, and means pivoted to said box to counterbalance the excessive pressure of the stylus needle upon a record.

5. In a sound recording and reproducing machine, the combination with a record of a sound box movable to and from the record, said sound box carrying a stylus, a lever fulcrumed at its intermediate portion to said stylus box, and a spring connected to said lever to counterbalance the excessive pressure of the stylus needle upon the record.

6. In a sound recording and reproducing machine, the combination with a record of a sound box movable to and from the record, the said sound box carrying a stylus, a lever fulcrumed at its intermediate portion to said sound box and having such a configuration as to conform substantially with the curvature of one of the annular edges thereof, and a spring connected to the upper arm thereof, to counterbalance the excessive pressure of the stylus needle upon the record.

7. In a sound recording and reproducing machine, the combination with a record of a sound box movable to and from the record, a lever pivoted at its intermediate portion to the annular edge of the sound box the arms of said lever being of such configuration as to conform to the curvature of one of the annular edges of the sound box when said arms coincide with the annular edge thereof, a spring connecting one end of said lever with the annular edge of the sound box.

8. In a sound recording and reproducing machine, the combination with a sound box, of a record, and means pivoted to said sound box and resting upon the record to counterbalance a part of the weight of said box to prevent an excessive pressure of the stylus needle upon the record.

9. In a sound recording and reproducing machine, the combination with a sound box, a stylus and a record, of spring actuated pivoted means to counterbalance a part of the pressure of the stylus upon the record.

10. In a sound recording and reproducing machine, the combination with a sound box, a stylus and a record, of spring actuated means pivoted to said sound box to counterbalance a part of the pressure of the stylus upon the record.

11. In a sound recording and reproducing machine, the combination of an arm and a sound box secured thereto, the said parts together forming a vertically swinging member, and spring actuated means pivoted to said member to counterbalance a part of the pressure of the stylus upon a record.

12. In a sound recording and reproducing machine, the combination with a sound box, a stylus and a record, of spring actuated means pivoted to said sound box engaging said record to counterbalance a part of the pressure of the stylus upon the record.

13. In a sound recording and reproducing machine, the combination with a sound box carrying a stylus, of pivoted means to counterbalance a part of the weight of said sound box to prevent an excessive pressure of the stylus upon a record during the operation of the machine.

14. In a sound recording and reproducing machine, the combination with a sound box carrying a stylus, of means pivoted to said sound box to counterbalance a part of the weight of said sound box to prevent an excessive pressure of the stylus upon a record during the operation of the machine.

15. In a sound recording and reproducing machine, the combination with a sound box carrying a stylus, of a record and a pivoted lever having a free end restrained to swing in a direction substantially perpendicular to the face of a record to counterbalance a part of the pressure of the stylus upon the record.

16. In a sound recording and reproducing

machine, the combination with a sound box carrying a stylus, of a lever pivoted to said sound box and having a free end restrained to swing in a direction substantially perpendicular to the face of a record to counterbalance a part of the pressure of the stylus upon the record.

17. In a sound recording and reproducing machine, the combination with a sound box carrying a stylus, of a record and a lever pivoted intermediate of its ends, and a spring connected to one end of said lever, the other end of said lever being yieldingly restrained to swing in a direction substantially perpendicular to the face of a record.

18. In a sound recording and reproducing machine, the combination with a sound box carrying a stylus, of a record, and means pivoted to swing in a direction substantially perpendicular to the face of the record to prevent an excessive pressure of the stylus upon the record.

19. In a sound recording and reproducing machine, the combination with a sound box carrying a stylus, of a record, and means pivoted to swing in a direction substantially perpendicular to the face of a record to prevent the excessive pressure of the stylus upon the record during the operation of the machine.

20. In a sound recording and reproducing machine, the combination with a record, of a sound box movable to and from the record, a stylus carried by said sound box, a lever fulcrumed intermediate its ends to said sound box, and a spring connected to the upper arm of said lever, the free end of said lever being yieldingly restrained to swing in a direction substantially perpendicular to the face of the record to prevent an excessive pressure of the stylus upon the record.

21. In a sound recording and reproducing machine, the combination with a record, of a sound box movable toward and away from the record, a stylus carried by said sound box, and a spring restrained lever pivoted to said sound box and bringing a pressure to bear upon the record when the stylus is in operative engagement therewith to prevent an excessive pressure of the stylus against the record.

22. In a sound recording and reproducing machine, the combination with a record, of a sound box, a stylus carried by said sound box, and a spring restrained pivoted lever bringing a pressure to bear upon the record, when the stylus is in operative engagement therewith, to prevent an excessive pressure of the stylus upon the record.

23. In a sound recording and reproducing machine, the combination with a record, of a sound box movable toward and away from said record, a stylus carried by said sound box, a lever pivoted to said sound box, and a spring connected to said lever to prevent an excessive pressure of the stylus upon a record.

24. In a sound recording and reproducing machine, the combination with a record, of a sound box movable to and from the record, a stylus carried by said sound box, a lever pivoted to one of the faces of said sound box near the periphery, and a spring connected to one end of said lever to prevent an excessive pressure of the stylus upon the record.

25. In a sound recording and reproducing machine, the combination with means for supporting a stylus, of a lever fulcrumed intermediate of its ends to said means, and a spring connected to said lever to counterbalance the excessive pressure of the stylus upon a record.

26. In a sound recording and reproducing machine, the combination with means for supporting a stylus, of a lever fulcrumed intermediate of its ends to said means, a roller carried by one end of said lever, and a spring connected to the other end of said lever to counterbalance the excessive pressure of the stylus upon a record.

27. In a sound recording and reproducing machine, the combination with means for carrying a stylus, of a lever pivoted to said means, and a spring connected to said lever to prevent an excessive pressure of the stylus upon a record.

28. In a sound recording and reproducing machine, the combination with a record, of means for carrying a stylus across said record, a lever pivoted to said means and having a portion yieldingly restrained to swing in a direction substantially perpendicular to the face of the record to prevent an excessive pressure of the stylus upon the record.

29. In a sound recording and reproducing machine, the combination with means for carrying a stylus, of means yieldingly restrained to oscillate upon said first mentioned means to prevent an excessive pressure of the stylus upon a record.

30. In a sound recording and reproducing machine, the combination with a stylus bar mounted to oscillate, of means mounted to oscillate upon an axis fixed with respect to the axis of oscillation of said bar to prevent an excessive pressure of the stylus upon a record.

31. In a sound recording and reproducing machine, the combination with a stylus bar mounted to oscillate, of a lever mounted upon an axis fixed with respect to the axis of oscillation of said bar, and a spring to restrain the oscillation of said lever to prevent an excessive pressure of the stylus upon a record.

32. In a sound recording and reproducing machine, the combination with a stylus, mounted to oscillate, of means mounted to oscillate upon an axis fixed with respect to

the axis of oscillation of the stylus, and yieldingly restrained to prevent an excessive pressure of the stylus upon a record.

33. In a sound recording and reproducing machine, a sound box, and means mounted on said sound box to counterbalance a part of the weight thereof.

34. In a sound recording and reproducing machine, a sound box, and counterbalancing means mounted on said sound box to support a part of the weight thereof and to prevent an excessive pressure of the stylus upon a record.

In testimony whereof, I have hereunto set my hand this 9th day of March, A. D. 1907.

WILBURN N. DENNISON.

Witnesses:
ALSTON B. MOULTON,
ALEXANDER PARK.