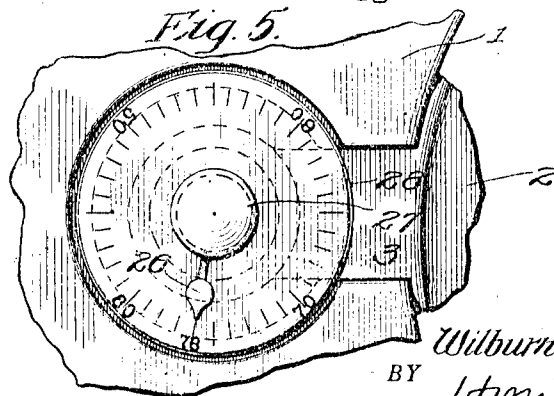
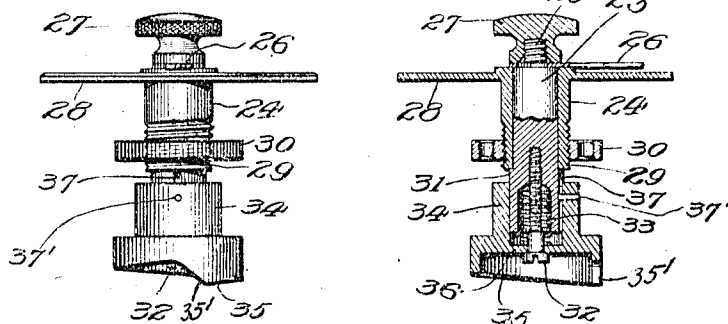
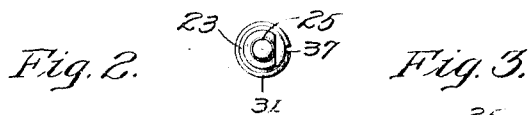


SPEED REGULATOR FOR SOUND RECORDING AND REPRODUCING MACHINES.

Patented Oct. 8, 1912.

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UNITED STATES PATENT OFFICE.

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SPEED-REGULATOR FOR SOUND RECORDING AND REPRODUCING MACHINES.

1,040,522.

Specification of Letters Patent.

Patented Oct. 8, 1912.

Application filed February 1, 1907. Serial No. 355,218.

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, county of Camden, and State of New Jersey, have invented certain new and useful Improvements in Speed-Regulators for Sound Recording and Reproducing Machines, of which the following is a full, complete, and exact disclosure.

The objects of this invention are, to provide an improved governor; to provide an improved governor by which the speed of a motor may be regulated to any pre-determined rate within prescribed limits by simply moving an index or finger over a numbered plate to a number corresponding to the speed desired; to provide improved means for adjusting a governor; to provide a governor having exposed means for varying the speed thereof and concealed means for adjusting the speed varying means, whereby tampering with or accidental displacement of the adjusting means will be avoided; to provide in a talking machine or other machine a rigid support, and a motor, a governor, and adjusting means for the governor, each secured rigidly to said support to hold said parts rigidly in predetermined positions of adjustment; and to provide other improvements as will appear hereinafter.

In the accompanying drawings, Figure 1 is a side elevation of a governor or speed regulator constructed in accordance with this invention and applied to a talking machine; Fig. 2 a side elevation of a portion of the same; Fig. 3 a vertical central section of Fig. 2; Fig. 4 a top plan view of a portion of Fig. 3 with attached parts removed; and Fig. 5 a fragmentary top plan view of a portion of the device.

Referring to the drawings, one embodiment of this invention comprises a talking machine having a casing 1 of wood or other suitable material, the top or cover of which is provided with an aperture in which is secured a flanged metal plate 2, having a lateral extension 3, and adapted to support the usual turntable and its actuating and speed controlling mechanism. The motor or actuating mechanism of the machine may be of any well known or suitable construction, and is located as usual within the casing 1, being supported by an arm 4 or other

suitable means depending from the plate 2. The turntable or record support is mounted as usual above the casing upon the upper end of a vertical spindle 5 which is journaled in the plate 1, and extends downwardly into the casing and is operatively connected to the motor of the machine to be rotated thereby. The turntable and the motor are not shown as these parts may be of any well known construction.

For controlling the speed of the machine, any well known or suitable governor may be used. In the construction illustrated, a friction governor of the well known fly ball type is used, and comprises an arm 6 which depends from the plate 2, and the lower end of which supports the lower end of a vertically arranged governor shaft 7, the upper end of which is journaled in a bearing 8, upon the under side of the plate 2.

Upon the lower end of the governor shaft 7 is fixed a collar 9, and slidably mounted upon the upper end of the governor shaft is a collar 10. These two collars are connected by means of spring members 11, each carrying a governor ball 12, and upon the upper face of the movable collar 10, is fixed a friction or brake disk 13. The governor shaft 7 is driven by a pinion 14 fixed upon the upper end thereof and engaging with a gear 15 mounted upon the turntable shaft 5, which is driven by the motor of the machine.

Below the friction disk 13 and spaced in close proximity thereto is a ring 16 carrying brake shoes or pads 17. This ring is pivotally supported between the outer ends of arms 18 of a yoke forming the inner end of a brake lever 19, the said lever 19 being fulcrumed to the side of the arm 6 by means of a screw or pivot 20. The outer end of the brake lever is provided with an off-set 22 arranged to form a follower to be actuated as will be explained hereinafter, to control the speed of the governor.

For adjusting or controlling the speed of the governor, an index shaft 23, is rotatably mounted in a fixed index sleeve 24, which is rigidly mounted in an aperture in the lateral extension 3 of the plate 2, which supports the governor as heretofore explained. This index shaft 23 has a reduced upper end 25 provided with screw threads, over which is keyed an index or finger 26, extending at right angles to the axis of the shaft, and held in engagement with the upper shoulder

der of the shaft by means of a nut 27 which engages over the threaded portion of the shaft. The index 26 bears against the upper end of the sleeve 24 and prevents downward

5 motion of the shaft.
The index sleeve 24 is provided at its upper end with a flat annular flange 28, forming a dial which is graduated and numbered in a circle about its center to
10 correspond to various speeds of the governor. The sleeve is also provided with a threaded lower end 29, and a nut 30 engaging therewith and against the under surface of the lateral extension 3 of the plate 2,
15 and the dial at the upper end of the sleeve against the upper surface of the lateral extension 3 of the plate.

The index shaft 23 has an enlarged lower end forming a shoulder 31, bearing against
20 the lower end of the index sleeve 24. The lower end of the shaft 23 is counter-sunk axially and is provided with an upwardly extending adjusting screw 32, threaded axially into the shaft, and a spiral spring 33
25 surrounding the screw 32 and within said counter-sunk portion.

Slidably mounted upon the lower end of the index shaft 23 is a cam head 34 having
30 substantially the form of a stepped cylinder, the upper and smaller end of which is recessed to receive the lower end of the index shaft, and the lower larger end of which is cupped and has a downwardly facing
35 inclined edge 35 forming a cam terminating in an oppositely inclined shoulder 35', connecting the uppermost and lowermost points of the cam by a gradual descent which permits of the passage of a cam
40 follower over the shoulder without causing a shock tending to disarrange the mechanism.

Between the upper and lower recessed portions of the cam head 34, extends a web
45 36 through which extends the adjusting screw 32. The spring 33 engages against the upper surface of the web and tends to keep the web in engagement against the upper surface of the head of the screw. A keyway 37 is provided in the lower end of the
50 index shaft 23 and a pin or key 37' projects inwardly from the head 34 to engage in the keyway to prevent the head from rotating with respect to the shaft, but to permit the head to slide longitudinally thereon.
55 The inclined edge or cam 35 of the cam head bears against the outer end 22 of the brake lever 21, and through the lever controls the position of the brake shoes and the speed of the motor.

60 In the operation of this device, adjustment is made by means of the adjusting screw 32 in the lower end of the index shaft, until it is found that the speed of the turntable corresponds with the indications upon
65 the dial when the index or finger is set at

any particular division. In the arrangement illustrated in the drawings the governor and regulator depend from the cover of the casing, and to adjust the regulator it is necessary to lift the cover, and the
70 regulator is thus normally concealed and protected from accidental displacement. After this adjustment is effected the index or finger 26 is moved to register with the
75 division on the dial corresponding to the speed desired, thus rotating the cam against the brake lever and forcing the brake pads or shoes 17 into a predetermined position where they will engage with greater or less
80 force against the friction disk 13, to control in a well known manner, the speed of the governor.

Although only one embodiment of this invention has been illustrated herein, it is obvious that this invention might also be
85 applied to other forms of machines than the one shown, and that various changes might be made in the construction shown to adapt it to various purposes, and for other reasons, without departing from the spirit of
90 of this invention or the scope of the appended claims.

Having thus fully described my invention, I claim and desire to protect by Letters Patent of the United States:—

1. A speed regulator comprising a governor, a fixed member, a rotatable actuating member carried by said fixed member upon
95 a fixed axis, coincident with the geometrical axis of said rotatable member, and fixed in position longitudinally of its axis of rotation, and means mounted upon and rotated
100 by said rotatable member and adjustable thereon for regulating the speed of the governor.

2. A speed regulator, comprising a governor, a fixed member, a rotatable actuating member carried by said fixed member upon
105 a fixed axis, coincident with the geometrical axis of said rotatable member and fixed in position longitudinally of its axis of rotation, and a cam mounted upon and rotated
110 by said rotatable member and adjustable thereon for regulating the speed of the governor.

3. A speed regulator, comprising a governor, a fixed member, a rotatable actuating member carried by said fixed member upon
115 a fixed axis, coincident with the geometrical axis of said rotatable member, and fixed in position longitudinally of its axis of rotation, and a cam mounted upon said rotatable member and actuated thereby and adjustable
120 longitudinally of the axis of rotation thereof for regulating the speed of the governor.

4. A speed regulator, comprising a governor, a fixed member, a rotatable member carried by said fixed member, a cam carried
125 by said rotatable member and adjustable

and slidable longitudinally of the axis of rotation thereof, and a key sliding in a key-way provided therefor between said cam and said rotatable member to hold said cam 5 slidably in position for regulating the speed of the governor.

5. A speed regulator, comprising a governor, a fixed member, a rotatable member carried by said fixed member, a cam carried 10 by said rotatable member, and means for adjusting said cam longitudinally with respect to the axis of said rotatable member, said means comprising a screw and a spring.

6. A speed regulator, comprising a governor, a rotatable actuating member mounted 15 upon a fixed axis, coincident with the longitudinal axis of said rotatable member, a cam rotated by said rotatable member, and adjustable longitudinally with respect to the 20 axis of rotation thereof, and means whereby when said actuating member is stationary, said governor will be controlled to rotate at a predetermined rate.

7. A speed regulator, comprising a governor, a rotatable member, a fixed member 25 carrying said rotatable member, a cam slidably mounted upon one end of said rotatable member, a screw adjustable in said rotatable member for limiting the longitudinal motion of the cam in one direction and a spring 30 between said rotatable member and said cam for holding said cam in engagement with said screw.

8. A speed regulator comprising a governor, a fixed member, a rotatable actuating 35 member carried by said fixed member upon a fixed axis, coincident with the geometrical axis of said rotatable member and fixed in position longitudinally of its axis of rotation, and means mounted upon and rotated 40 by said rotatable member and adjustable longitudinally thereof for regulating the speed of the governor.

9. A speed regulator, comprising a governor, a fixed sleeve provided with a dial 45 at one end and having its opposite end threaded, a nut upon said threaded end to retain the sleeve in position, a shaft rotatably mounted within said sleeve, said shaft 50 having one end reduced and threaded, and its opposite end enlarged to form a shoulder bearing against one end of said fixed sleeve, an index fixed upon said reduced end and a cam adjustably mounted upon said enlarged 55 end for regulating the speed of the governor.

10. A speed regulator, comprising a governor, a fixed sleeve provided with a dial 60 at one end and having its opposite end threaded, a nut upon the threaded end to retain the sleeve in position, a shaft rotatably mounted within said fixed sleeve, said shaft having one end reduced and threaded, and its opposite end enlarged and counter- 65 sunk, a screw engaging said enlarged end

through said counter-sunk portion, yielding means seated in said counter-sunk portion surrounding said screw, a cam adjustably 70 mounted upon said enlarged end and held in position by means of said screw and said yielding means, and means between said cam and said governor whereby the speed is varied in accordance with the rotation of 75 said shaft as shown by the index of said dial.

11. A speed regulator, comprising a governor, a fixed sleeve provided with a dial 80 at one end and having its opposite end threaded, a nut upon said threaded end to retain the sleeve in position, a shaft rotatably mounted within said fixed sleeve, said shaft having one end reduced and threaded, 85 and its opposite end enlarged and counter-sunk, a screw engaging said enlarged end through said counter-sunk portion, yielding means seated in said counter-sunk end surrounding said screw, a cam slidably mounted 90 upon said enlarged end by means of a key sliding in a key-way, said cam being held in position longitudinally by means of said yielding means and screw, and means between 95 said cam and said governor whereby the speed of said governor is varied in accordance with the rotation of said shaft as shown by the index upon the dial.

12. A speed regulator, comprising a governor, a fixed member, a shaft rotatably 100 mounted thereby, a head adjustably secured to one end of said shaft and having a cupped outer end with inclined edges forming a cam, and means between the cam and said governor whereby the speed of said governor is varied in accordance with the 105 rotation of said shaft.

13. A speed regulator comprising a governor, a fixed member, a shaft rotatably 110 mounted by said fixed member, a head slidably mounted upon said shaft, said head having one end counter-sunk to fit over the end of the said shaft and its opposite end cupped and provided with inclined edges 115 forming a cam, means for adjusting the head in various positions upon the shaft, and means between the head and governor whereby the speed of the governor is varied in accordance with the amount of rotation 120 of said shaft.

14. A speed regulator, comprising a governor, a fixed member, a shaft rotatably 125 mounted by said fixed member, a head slidably mounted upon said shaft, said head having one end counter-sunk to fit over the end of the shaft, and its opposite end cupped and provided with an inclined edge forming a cam, means for adjusting the head in various positions upon the shaft and means 130 between the head and governor whereby the speed of the governor is varied or entirely checked in accordance with the rotation of said shaft, said means comprising a spring and screw and a key sliding in a key-way. 135

15. A speed regulator, comprising a governor, a rotatable member, a fixed member carrying said rotatable member, a cam carried by said rotatable member, and a screw
5 and a spring for adjusting said cam to vary the speed of the governor.

16. A speed regulator, comprising a governor, a fixed sleeve provided with a dial at one end and having its opposite end
10 threaded, a nut upon said threaded end to retain the sleeve in position, a shaft rotatably mounted within said sleeve, said shaft having one end threaded and its opposite end enlarged to form a shoulder bearing
15 against one end of said fixed sleeve, an index fixed upon said threaded end, and a cam upon said enlarged end for regulating the speed of the governor.

17. A speed regulator, comprising a governor, a cam mounted to yield in one direction but fixed in the opposite direction for
20 controlling the speed of the governor, and means whereby when said cam is held in a fixed position said governor will be restrained to move at a predetermined rate.
25

18. A speed regulator, comprising a governor, a rotatable shaft, a cam slidably mounted upon said shaft for varying the
30 speed of said governor, said cam being yieldingly restrained in one direction and fixed in the opposite direction, and means whereby when said shaft is held in a fixed position said governor will be restrained to rotate at a predetermined rate.

35 19. A speed regulator, comprising a governor, a rotatable shaft, a cam splined to said shaft and yieldingly restrained with respect to said shaft in one direction but fixed in the opposite direction, to control
40 the speed of the governor, and means whereby when said cam is held stationary said governor will be restrained to move at a predetermined rate.

20. In a speed regulator, the combination
45 with an index rotatable about a fixed axis and a graduated index plate, of a governor, yielding means rotatable with said index for varying the speed of the governor, and means for adjusting the position of said

speed varying means to cause the governor 50 to rotate at speeds corresponding to the graduations on said plate.

21. In a speed regulator, the combination with an index rotatable about a fixed axis, of a governor, yielding means rotatable with
55 said index for varying the speed of the governor, and means for adjusting the position of said speed varying means to cause the governor to rotate at speeds corresponding to the indications of said index. 60

22. A speed regulator comprising a governor, a fixed sleeve provided with a dial at one end and having its opposite end threaded, a nut upon said threaded end to retain
65 said sleeve in position, a shaft rotatably mounted in said sleeve, an index carried by said shaft, adjacent said dial, a shoulder upon said shaft bearing against one end of said fixed sleeve, and means upon said shaft for regulating the speed of the governor. 70

23. A speed regulator comprising a governor, a fixed sleeve provided with a dial at one end and having its opposite end threaded, a nut upon said threaded end to retain said sleeve in position, a shaft rotatably
75 mounted in said sleeve, an index carried by said shaft, adjacent said dial, a shoulder upon said shaft bearing against one end of said fixed sleeve, and a cam upon said shaft for regulating the speed of the governor. 80

24. A speed regulator comprising a governor, a fixed sleeve provided with a dial at one end, a shaft rotatably mounted within said sleeve, said shaft having one end
85 threaded, and its opposite end enlarged to form a shoulder bearing against one end of said fixed sleeve, an index fixed upon said threaded end, adjacent said dial, and means upon said enlarged end for regulating the speed of the governor. 90

In witness whereof I have hereunto set my hand this 30th day of January, 1907.

WILBURN N. DENNISON.

Witnesses:

ALSTON B. MOULTON,
ALEXANDER PARK.