No. 676,463. Patented June 18, 1901.

D. H. HILTON.

APPLIANCE FOR PREDETERMINING SPEED.

(Application filed Sept. 1, 1900.)

(No Model.)

Fig. 1.

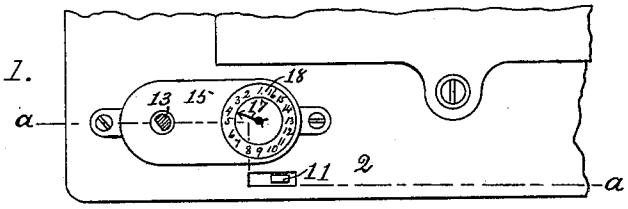
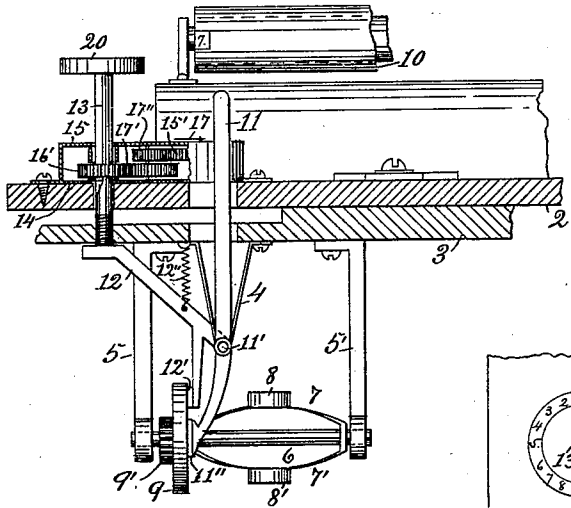


Fig. 2.



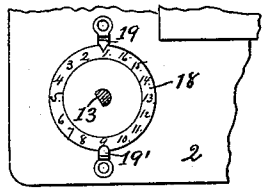


Fig. 5.

Fig. 3.

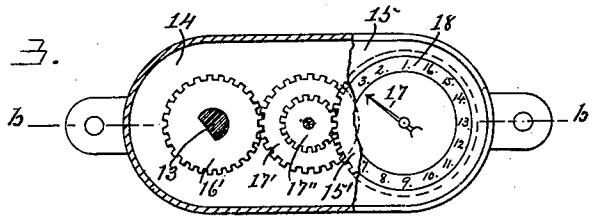
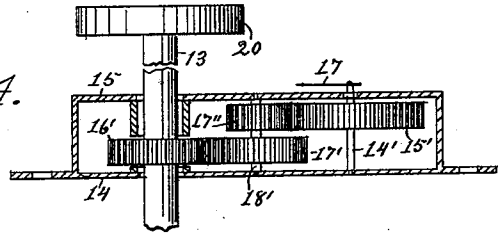


Fig. 4.



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APPLIANCE FOR PREDETERMINING SPEED.

SPECIFICATION forming part of Letters Patent No. 676,463, dated June 18, 1901.

Application filed September 1, 1900. Serial No. 28,753. (No model.)

To all whom it may concern:

Be it known that I, DAVID H. HILTON, a citizen of the United States, and a resident of Jersey City, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Appliances for Predetermining Speed, which improvements are fully set forth in the following specification and accompanying drawings, in which—

Figure 1 is a plan view of a speed-determining appliance embodying my said invention, the same being here illustrated substantially as it appears when attached to a sound-reproducing machine, as a phonograph, a fragment of the latter being also shown. Fig. 2 is a vertical section of the parts shown in Fig. 1, the section being taken as along the line *a a* of Fig. 1. Fig. 3 is a plan view of the said appliance, a portion of the cover or top inclosing wall thereof being broken away to disclose the interior mechanism and the scale being enlarged. Fig. 4 is a central longitudinal section of said appliance as on the line *b b* of Fig. 3, the scale corresponding with Fig. 3. Fig. 5 is a detail plan view showing a somewhat-modified form of my improved appliance.

Similar reference-numerals denote like parts throughout the several views of the drawings.

This invention relates to improvements in devices of that class which may be designated "appliances for predetermining speed," the same being designed for service in connection with a revoluble part or parts for the purpose of predetermining the velocity or rate of speed at which such part or parts shall revolve under duly-applied power or energy.

The object of the invention is to provide an appliance of the character above indicated which shall be simple, inexpensive, and novel as regards construction, efficient in operation, and which shall admit of being readily attached for service to a mechanical structure, as a phonograph or analogous sound-reproducing machine, embodying a revoluble part or parts.

The invention consists in the employment of certain novelly-formed parts, in the novel disposition and arrangement of the various parts, in certain combinations of the latter and novel manner of coöperation thereof, and in certain details of construction, all of which will be specifically referred to hereinafter and set forth in the appended claims.

In the accompanying drawings the invention is represented as applied to a phonograph; but said invention may be availed of in connection with other mechanical contrivances embodying a revoluble part or parts the speed of which it may be desirable to predetermine.

Having reference now to the accompanying drawings, 2 denotes a bed-plate having attached to the under side thereof a horizontal frame 3, from which depend a hanger 4 and oppositely-arranged bearings 5 5′, in the lower extremity of which bearings is mounted to rotate the governor-shaft 6, provided with elastic elements 7 7′, the former of which carries the governor-ball 8 and the latter the governor-ball 8′. There is also firmly mounted on the governor-shaft 6 a friction-disk 9 and a pinion 9′, the latter adapted to mesh at all times with a member of a suitable train of gear-wheels spring-actuated or otherwise impelled and whereby under certain conditions a rotary motion is imparted to the record or cylinder 10. The lever 11 is mounted to work on the pivot 11′ and is provided at its lower extremity with a shoe 11″ for engagement with the disk 9, and whereby a braking effect for the movable parts of the device as a whole may be had through proper manipulation of the said lever 11.

12 is a spring-controlled arm mounted also to work on pivot 11′ and having at its lower extremity a shoe 12′, adapted under normal conditions to have frictional contact with the disk 9 through the action of spring 12″.

The parts thus far described are of ordinary construction and are assembled in a manner well known in the art. The speed of the intermeshing parts is regulated in common practice through variable downward tilting of the arm 12 against the action of spring 12″, thus causing the shoe 12′ to engage the disk 9 with variable degrees of friction. To accomplish this variable tilting of the arm 12, there is ordinarily provided an adjusting-stem, as 13; but it is further essential that means be provided whereby the range of adjustment of the stem 13 or degrees of such

adjustment of said stem may be determined and indicated to the end that the speed of, say, the governor-shaft 6 may be predetermined with respect to the starting of said shaft in motion.

As to phonographs and the like it is the common practice to place the record or prepared cylinder in position for service, start the machine in operation, and then if it is found that the record is revolving too rapidly or too slowly to produce the clearest enunciation effect the stem 13 is accordingly adjusted; but as the speed at which one record should move varies materially from the speed at which another record should move in order to obtain the best results the proper adjustment for the stem 13 is not readily determined.

The chief purpose of my invention is to overcome the objectionable feature above named, particularly in phonographs and analogous sound-reproducing machines, and to this end I provide an adjusting-stem, as 13, a part bearing degree-indicating characters and a record bearing a character corresponding with one of said degree-indicating characters, the said stem being capable of free longitudinal adjustment and capable when revolved of actuating said part.

As shown in the accompanying drawings, my improved appliance comprises a base 14, a top portion 15, by preference an inclosing wall 16, connecting said base and top portion and forming with said base and top portion a box-like body structure, and a train of gear-wheels arranged within said box-like structure, the shaft 14′ on which the final member 15′ of said train is mounted carrying at its upper end and outside the top portion 15 a pointer 17 for coöperation with the dial 18, here shown as directly applied to the outer surface of the top portion 15, as by painting or otherwise, though the same may be applied to a separate piece of material and the latter attached to the upper side of the top portion 15 in any well-known and approved manner. While the pointer 17 is here represented as movable and the dial as fixed or stationary, the arrangement of these parts may be reversed, if desired.

The initial member 16′ of the train of gear-wheels referred to is here shown as loosely mounted on the stem 13, and as the latter is angular in cross-section and the opening in the member 16′ corresponds therewith in contour the said member 16′ acts with said stem when the latter is revolved, and at the same time said stem has longitudinal movement irrespective of said member 16′.

The member 16′ meshes at all times with the gear-wheel 17′, mounted on shaft 18′, on which is also mounted the gear-wheel or pinion 17″, which meshes at all times with the final member 15′.

The stem 13 is provided with suitable threads adapted to engage the threads of a suitable opening formed in the frame 3 in vertical alinement with the free end of the arm 12.

It will be understood that the gear-wheels 16′, 17′, 17″, and 15′ or a similar train are essential only where the pitch of the threads of the stem 13 is such as to necessitate a plurality of revolutions of the stem 13 in order to move said stem throughout its range of longitudinal adjustment. In the event that the stem 13 be worm-threaded or so threaded that, say, a single revolution thereof shall be necessary in order to move said stem throughout its range of longitudinal adjustment the dial 18 may be mounted upon or directly applied to the stem 13, as indicated in Fig. 5, thus not only doing away with the train of gear-wheels mentioned, but also with the box-like structure therefor. Where the dial 18 is thus arranged for direct coöperation with the stem 13, it will lie along the upper side of the bed-plate 2 and may be there loosely held in any approved manner, as by means of the cleats 19 19′, one of which may serve as a pointer.

The stem 13 is provided with a finger-piece 20.

10 denotes the record or prepared cylinder, of ordinary construction, and bearing a character corresponding with one of the characters on the dial 18.

In operation the user selects a record, mounts it in position for service, turns the stem 13 till the pointer 17 registers with the character on the dial 18 which corresponds with the character on said record, and then starts the machine in motion. The turning of the stem 13 will result in tilting the arm 12 downward, thus diminishing the friction of the shoe 12′ on the disk 9, and the governor-shaft 6, record 10, and intermediate intermeshing parts will move at the required speed.

It will be understood that my improved appliance may be modified to some extent, particularly as to the details of the general construction, without material departure from the spirit and principle of my invention.

Having fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. A device of the class herein described comprising a casing, a stem extending through said casing and therein movable longitudinally and rotarily, and means for indicating variable degrees of movement of said stem, the device as a whole being constructed and arranged for removable attachment to a sound-reproducing machine, substantially as herein specified.

2. A device of the class herein described comprising a casing having graduations thereon, a stem extending through said casing and therein movable longitudinally and rotarily, a movable pointer, and elements between said pointer and said stem and whereby said pointer may be moved upon movement being

imparted to said stem, the device as a whole being constructed and arranged for removable attachment to a sound-reproducing machine, substantially as herein specified.

3. In a sound-reproducing machine, in combination, a rotatable governor-shaft, brake mechanism for controlling the movement of said shaft, a casing constructed and arranged for removable attachment to said machine, a stem extending through said casing, therein movable longitudinally and rotarily, and whereby said brake mechanism may be actuated, and means for indicating variable degrees of movement of said stem, substantially as herein described.

4. In a sound-reproducing machine, in combination, a rotatable governor-shaft, brake mechanism for controlling the movement of said shaft and comprising a spring-controlled, movable arm, a casing constructed and arranged for removable attachment to said machine, a stem extending through said casing, therein movable longitudinally and rotarily, and engaging at its lower end the free end of said movable arm, and means for indicating variable degrees of movement of said stem, substantially as herein described.

5. In a sound-reproducing machine, in combination, a casing constructed and arranged for removable attachment to said machine, a stem extending through said casing and therein movable longitudinally and rotarily, means for indicating variable degrees of movement of said stem, and a sound-record bearing a character indicative of a degree of movement of said stem, substantially as herein described.

6. In a sound-reproducing machine, in combination, a casing constructed and arranged for removable attachment to said machine, a stem extending through said casing and therein movable longitudinally and rotarily, the said casing bearing characters indicative of variable degrees of movement of said stem, a movable pointer, elements between said pointer and said stem and whereby said pointer may be moved upon movement being imparted to said stem, and a sound-record bearing a character corresponding with one of the characters on said casing, substantially as herein described and for the purpose set forth.

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