P. CATUCCI.

MANDREL FOR TALKING MACHINES.

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1,162,034.

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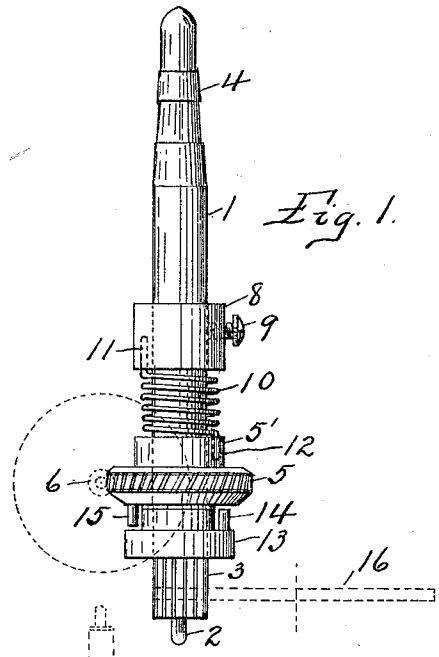


Fig. 1.

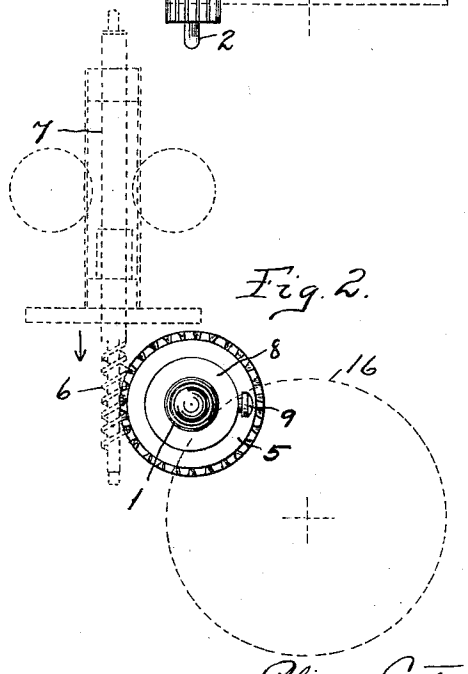


Fig. 2.

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PLINY CATUCCI, OF NEWARK, NEW JERSEY, ASSIGNOR TO A. F. MEISSELBACH & BROTHER, A CORPORATION OF NEW JERSEY.

MANDREL FOR TALKING-MACHINES.

1,162,034. Specification of Letters Patent. Patented Nov. 30, 1915.

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To all whom it may concern:

Be it known that I, PLINY CATUCCI, a citizen of the United States, residing in the city of Newark, county of Essex, and State of New Jersey, have invented certain new and useful Improvements in Mandrels for Talking-Machines, of which the following is a specification.

In talking machines for the reproduction of disk records, it is found that when the stop or brake mechanism is applied to stop the rotation of the motor, the momentum of the governor is such as to cause the governor shaft to rotate several turns thereby producing a disagreeable "click" as the governor comes to a final and sudden stop. This overrunning of the governor shaft also produces an undue and unnecessary strain upon the driving parts. The introduction of the worm gear as a means for communicating motion from the driving mechanism to the governor shaft has resulted in a large measure as producing a silent motor; nevertheless, without some device such as that hereinafter described, the silent running of the motor is marred by the disagreeable "click" produced by the parts when the motor is suddenly stopped by applying a brake pressure to the tablet support.

The object of my invention is to introduce into the driving mechanism for the governor shaft, a yielding connection between the driving worm gear and the mandrel or driving shaft so that the overrunning of the governor shaft due to the momentum of the governor balls will be yieldingly retarded and gradually stopped rather than suddenly stopped as is the case with the present form of driving mechanism.

In carrying out my invention I make use of the structure substantially as illustrated in the accompanying drawings, wherein—

Figure 1, is a side elevation of my improved mandrel or driving shaft with the governor shaft and parts shown in dotted lines. Fig. 2, is a plan view of the mandrel and worm gear with the governor and its shaft and driving shaft shown in dotted lines.

Similar letters of reference refer to like parts throughout the specification and drawings.

I have not deemed it necessary to show the remaining parts of the motor, inasmuch as they may be of any usual or preferred type.

The mandrel, or tablet driving shaft 1, is substantially cylindrical throughout its length and provided at its lower end with a pivot 2, adjacent to which pinion teeth 3 are cut in the cylindrical body of the shaft. The upper end of the shaft 1 is tapered in the usual manner as at 4, to receive the tapered bearing thimble of a tablet support, or turntable. The driving worm wheel 5 is loosely mounted upon the shaft in position to engage the worm 6 upon the governor shaft 7. Located above the worm wheel 5, upon the shaft 1, is a collar 8, which may be rigidly secured to the shaft 1 by means of a set screw 9. Between the hub 5′ of the wheel 5, and the collar 8, surrounding the shaft 1, is the coiled spring 10, the upper end 11, of which, is bent parallel to the axis of the shaft 1, and inserted into an aperture in the face of the collar 8; the opposite end of the spring 10 is similarly bent as at 12, and inserted into a corresponding aperture in the hub 5′ of the worm wheel 5.

As a safety device I rigidly secure upon the shaft 1, a collar 13, located adjacent to the pinion 3, and provide said collar with the pin 14, lying parallel to the axis of the shaft 1, in position for engagement with a similar pin 15 projecting from the lower face of the worm wheel 5.

It is to be understood that the shaft 1 is rotated by means of a driving gear 16, which engages the pinion 3. The governor shaft 7 is rotated by the teeth of the worm wheel 5, meshing with the threads 6, upon the shaft 7, in the usual way.

In talking machine motors of the type to which my improvement relates, it is the practice to stop the motor by the application of a brake to the tablet support or turntable, which as above indicated is mounted upon the tapered end 4 of the shaft 1. When such a stop is applied the shaft 1 stops suddenly, but because of the "quickness" of the threads 6 upon the shaft 7, and the momentum of the governor balls, the shaft 7 continues to rotate until such time as the governor shaft shall have traveled in the direction of the arrow to bring the shoulder adjacent to its lower pivot, as shown in Fig. 2, against the bearing of said pivot. This is what produces the disagreeable "click" and also the sudden strain upon the parts of the governor. If not corrected in some way, the parts of the gov-

ernor very frequently work loose and cause trouble. But the introduction of the yielding spring 10, into this driving train, permits a resilient retardation of the rotation of the governor shaft, thereby gradually overcoming the momentum of the governor balls.

In connecting up the parts as shown in Fig. 1, I find it advisable to turn the collar 8 to such a position that it will cause the worm wheel 5 to assume a position with the stop pin 15, diametrically opposite the pin 14. This permits the governor shaft 7 to have a dozen or more turns before the pins 14 and 15 will contact; usually the governor shaft is completely checked before the pins 14 and 15 come into contact. These pins, however, serve the additional purpose of permitting the continuous use of the talking machine in case of breaking the spring 10, for it is readily seen that when the shaft 1 is rotated, even with the spring 10 broken, the pin 14 will revolve around until it contacts with the pin 15, after which the shaft 1 and the worm 5 will rotate together.

In practice I find that when the rotation of the shaft 1 is suddenly arrested, the momentum of the governor balls will cause the shaft to rotate, thereby winding up the spring 10 until such time as its tension completely overcomes the momentum of the governor balls, at which time the governor shaft 7 will oscillate back and forth until it completely comes to rest, but in no case is there any endwise movement of the governor shaft with a result that the disagreeable "click" is completely overcome.

I claim:

1. A mandrel for talking machines comprising a rotating shaft, a pair of collars spaced apart and rigidly secured to said shaft, a driving gear loosely mounted upon said shaft between said collars, a spring connecting one of said collars with said gear, a projection upon the other collar, and a mating projection upon said gear whereby independent rotation of said gear upon said shaft will cause said projections to contact.

2. A mandrel for talking machines comprising a rotating shaft, a collar rigidly secured to said shaft and provided with a projection thereon, a second collar mounted upon said shaft, a driving gear loosely mounted upon said shaft between said collars, a projection upon the face of said gear for engagement with the projection upon the first named collar, and a coiled spring surrounding said shaft and connecting said gear with said second named collar.

3. A mandrel for talking machines comprising a rotating shaft, a collar rigidly secured to said shaft and provided with a projection thereon, a second collar mounted upon said shaft, a driving gear loosely mounted upon said shaft between said collars, a projection upon the face of said gear for engagement with the projection upon the first named collar, a coiled spring surrounding said shaft and connecting said gear with said second named collar, and means for adjusting said second named collar upon said shaft to bring the projections respectively opposite each other.

4. A mandrel for talking machines comprising a shaft, a driving pinion upon one end of said shaft, a pair of collars spaced apart and rigidly secured to said shaft, a worm gear located between said collars and loosely mounted upon said shaft, a spring connection between one of said collars and said gear, and mating projections upon said gear and said other collar whereby upon the rupture of said spring connection said projections will engage and cause said gear to rotate with said shaft.

In testimony whereof I have hereunto set my hand this 3d day of April, 1915.

PLINY CATUCCI.

Witnesses:
L. M. SANDERS,
LOUISE GREEN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."