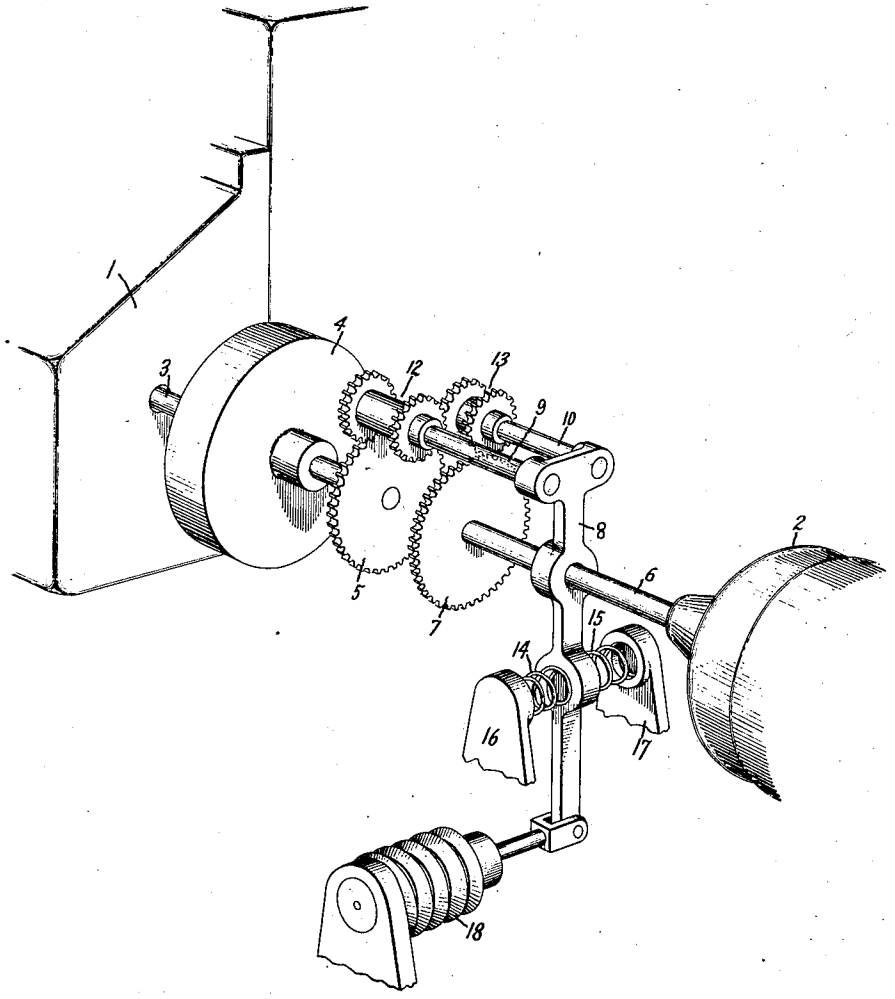
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APPARATUS FOR TRANSMITTING ROTARY MOTION

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APPARATUS FOR TRANSMITTING ROTARY MOTION

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My invention relates to apparatus for transmitting rotary motion from one member to another. It relates particularly to the driving mechanism for a sound record apparatus which as is well known requires being driven at a speed which is uniform to a very high degree. It is the object of my invention to provide an improved apparatus of this character which will absorb or damp out small speed variations that may occur in a driving member in order that a driven member may rotate at a more uniform speed. A further object of my invention is the provision of such apparatus which is of simple construction and inexpensive to manufacture.

My invention will be better understood from the following description taken in connection with the accompanying drawing, and its scope will be pointed out in the appended claims.

In the single figure of the drawing which illustrates one embodiment of my invention I have shown at 1 a sound record apparatus which is arranged to be driven by the motor 2 which is subject to small speed variations. The apparatus 1 may be either for sound recording or sound reproducing. It may also be one in which the sound record carrier is a film or may be one in which the sound record carrier is a phonograph disc. In any case it is essential that the record carrier shall move with a speed which is as nearly uniform as possible and free from the small speed variations to which the motor 2 is subject. Since in the present case the apparatus 1 employs a film as a sound record carrier, the shaft 3 directly connected with the apparatus is preferably provided with an inertia member thereon such as the flywheel 4. If, on the other hand, the sound apparatus employs a phonograph disc as the sound record carrier, the use of an additional inertia member may be found unnecessary since the turntable or disc support may perform the function of a flywheel. The mechanism by which the power from the motor is transmitted to the sound record apparatus comprises a form of differential gear which will now be described.

On the end of shaft 3 is a gear 5 and on the end of the motor shaft 6, which is coaxial with shaft 3, is the gear 7. Rotatably mounted upon shaft 6 is the bracket 8 having at its upper end the two studs 9 and 10 which extend parallel with shaft 6. Rotatably mounted respectively on shafts 9 and 10 are the pinions 12 and 13, pinion 12 having one portion meshing with gear 5 and pinion 13 having one portion meshing with gear 7. The other portions of pinions 12 and 13 mesh with each other. A drive connection is thereby formed between gear 7 on the shaft 6 and gear 5 on the shaft 3. It will be noted that by reason of this construction the reaction between gear 7 and pinion 13 and the reaction between gear 5 and pinion 12 both tend to rotate the bracket 8 in the same direction. This bracket, however, is resiliently retained in a predetermined position by the springs 14 and 15 adjacent ends of which engage opposite faces of the bracket 8, while the opposite ends of the springs are attached to the fixed members 16 and 17. The springs permit a certain limited amount of movement of the bracket due to sudden small variations in the speed of the driving motor. To prevent undue oscillation of the bracket 8 the dash pot 18 is connected therewith. This dash pot may be of the air type as illustrated or may be of any other suitable construction.

In the operation of the above described apparatus the rotary motion of the motor is transmitted through the several gears and pinions to the sound apparatus without any movement of the bracket 8 as long as the speed of the motor does not undergo any appreciable variations. If, however, small variations in the speed of the motor shaft occur, the bracket 8 responding thereto will rock one way or the other whereby the variations in the speed will be largely if not entirely absorbed and the shaft 3 of the sound device operated at a substantially uniform speed.

I have chosen the particular embodiment described above as illustrative of my invention and it will be apparent that various modifications may be made without departing from the spirit and scope of my inven-

tion which modifications I aim to cover by the appended claims.

What I claim as new and desire to secure by Letters Patent of the United States, is:

1. In combination, a driving shaft, a driven shaft, and means for imparting to the driven shaft a uniform speed independent of speed variations of the driving shaft, said means comprising an inertia member associated with the driven shaft, a differential gear mechanism connecting said shafts including a reaction member mounted to have a limited yielding movement in response to a change in speed of the driving shaft and resilient means for limiting the movement of said reaction member.

2. In combination, a driving shaft, a driven shaft, and means for imparting a uniform speed to the driven shaft independent of speed variations of the driving shaft, said means comprising a flywheel on the driven shaft, a differential gear mechanism connecting said shafts including a coaxially mounted reaction gear arranged to have a yielding movement in response to speed changes of the driving shaft, a spring for limiting the movement of said reaction gear and dash-pot for damping said movement.

3. Motion transmitting apparatus comprising a driving member, a driven member having an inertia device connected therewith, a gear connected with each of said members, a rotatably mounted bracket having gears carried thereby arranged to mesh with said gears and with each other, a resilient member and a dashpot for limiting the movement of the bracket.

4. Driving mechanism for sound record apparatus comprising a driven shaft having an inertia member connected therewith, a driving shaft subject to speed variations, a gear on each of said shafts, a bracket mounted for movement coaxially with said shafts, a plurality of studs carried by said bracket, pinions on said studs arranged to mesh respectively with said gears and with each other, spring means for opposing movement of said bracket and a dashpot for damping the movement of the bracket.

In witness whereof, I have hereunto set my hand.

RALPH D. GIVEN.