June 18, 1940. L. DEWAN 2,204,887

WEB OR FILM DRIVING MECHANISM

Filed March 4, 1939

Fig. 1.

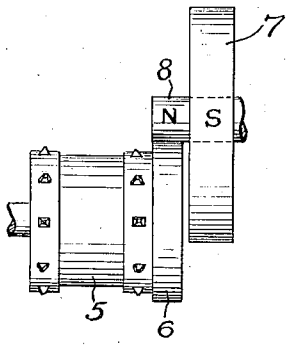


Fig. 2.

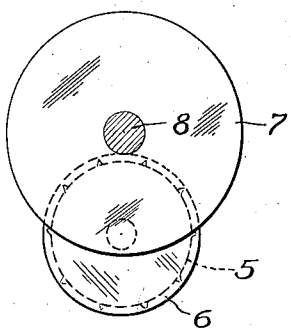


Fig. 3.

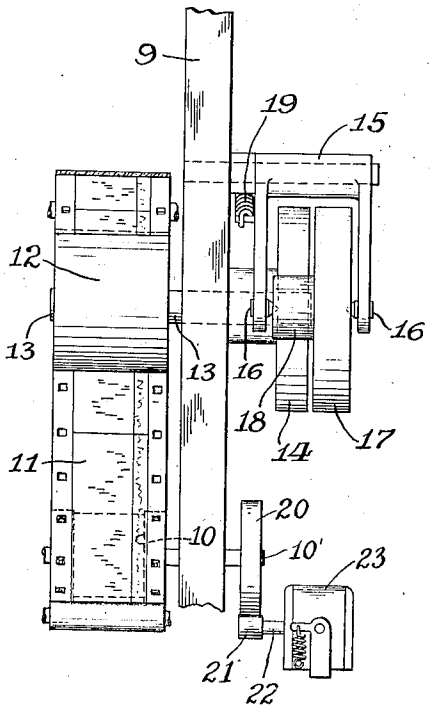
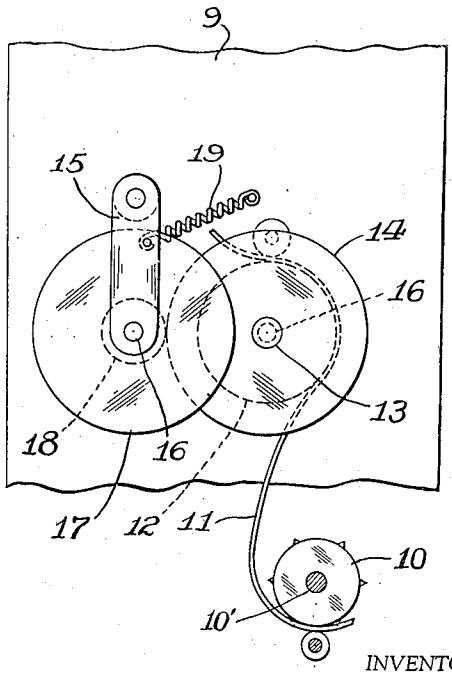


Fig. 4.



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WEB OR FILM DRIVING MECHANISM

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6 Claims. (Cl. 271—2.3)

The present invention relates to improvements in web or film driving mechanisms.

One object of the invention is the provision of inertia means that will assist in imparting to a film during the recording or reproducing of sound, a steady constant motion, so that any flutter or wavering is absent.

Another object of the present invention is the provision of a fly wheel so mounted as to have a steady and rapid motion imparted thereto, and which in turn acts as an inertia or momentum device to assist in moving the film steadily and constantly.

Many ways and means have been devised to accomplish this action, but up to the present time, the fly wheel, whether operated by the film advancing means or driven by and through the film, does not give the desired result. It is therefore proposed to so mount and drive a fly wheel that it shall revolve at a much higher speed than the shaft which carries the film drum, and the fly wheel shaft and film drum shaft be coupled in such manner that two smooth cylindrical surfaces, one or both of which may be magnetized if desired, are in constant rolling contact, the driven element being of a larger diameter, while the smaller one is connected directly to and imparts rotation to the momentum device or fly wheel.

In the accompanying drawing:

Figure 1 is a view in elevation of the invention as applied to a constant speed film driving sprocket.

Figure 2 is a side view thereof.

Figure 3 is a view similar to Figure 1 of a modified form, and

Figure 4 is a side view thereof.

Referring to the drawing, and more particularly to Figures 1 and 2, the numeral 5 designates a film sprocket wheel, which may drive the film, not shown, or be driven by such film.

Adjacent to one end of the wheel, is a smooth cylindrical rim 6, which may be integral or attached fixedly to the wheel 5, and this may be of soft iron or magnetized metal.

Adjacent to the roller 6 and with its axis parallel to the axis of the wheel 5, is a fly wheel 7, which acts as a momentum device, and is driven from the smooth rim 6, by means of the small smooth roller 8, the same being in such contact as to be rotated by the frictional engagement of the two, so that when the sprocket wheel 5 is rotated the fly wheel 7 will be rotated at a greatly increased speed, and thus act to "iron out" any irregularities that the rotation of the sprocket wheel 5 might impart to the fly wheel. In this manner the fly wheel due to its high speed gives the effect of a much larger inertia device rotated at the same speed as the film shaft.

If the rim 6 is magnetic and the smooth roller 8 is of highly magnetized steel, then the magnetic pull creates friction between the two, so that a non-slip connection between the two elements is assured. It is preferred in this instance that the smooth roller or rim be one pole, while the fly wheel per se is the other pole of the permanent magnet forming these members.

In the arrangement shown in Figures 3 and 4, 9 designates the main plate of a sound motion picture camera or projector, a driving sprocket 10 being employed to move the sound film 11, through the device, and over the smooth driven scanning drum 12, whose shaft 13 is journalled in the main plate and carries upon its opposite end a drum or roller 14. Mounted upon a swinging arm 15, are set screws 16 carrying the large fly wheel 17 and the small driven roller 18, the spring 19 being so tensioned as to hold the roller 18 into frictional contact with the driven drum 14, so that the fly wheel is driven at a greater speed than the drum 14, and acts as a means to iron out irregularities in drum 12. In this way, the sound film has imparted thereto a smooth constant speed, and permits the recording and reproduction of sound of greatest fidelity. The roller 14 and/or the roller 18 may be magnetized to create the necessary friction.

In Figure 3, the electric motor 23 drives a shaft 22, which in turn drives a small cylindrical smooth surfaced gear roller 21, which is in frictional contact with the periphery of the large roller or smooth gear 20 fast to the shaft 10'. By this means a smooth continuous drive is provided for the film progressing mechanism.

Although this invention is shown in connection with a film drive it is evident that its effect of imparting a smooth even motion is useful with and applicable to means for driving any carrier of sound wave recordations such as disc or cylinder records for example.

What is claimed as new is:

1. In a sound carrier progressing mechanism, the combination of a rotative member by means of which the carrier is moved, a roller element operated thereby, a fly wheel, and a small roller operatively connected to the fly wheel and having direct rolling and frictional contact with the roller element, whereby the fly wheel is rotated

through and at a greater speed than the rotative member.

2. In a web progressing mechanism, the combination of a rotative member over which the web is moved, a roller element operated thereby, a fly wheel, and a small roller operatively connected to the fly wheel and having direct rolling and frictional contact with the roller element, whereby the fly wheel is rotated at a greater speed than the rotative member.

3. A web progressing mechanism as claimed in claim 2, wherein the small roller and the roller element are additionally attracted to each other by magnetism.

4. A web progressing mechanism, including in combination a main support, a web drum mounted thereon, a momentum device in the form of a fly wheel mounted adjacent to the web drum, and cooperating smooth periphery gears carried respectively by the web drum and the fly wheel, the latter of which is of a smaller diameter than the former and directly engages the former.

5. A web progressing mechanism as claimed in claim 4, wherein the smooth periphery gears are additionally attracted to each other by permanent magnetism to create friction therebetween.

6. In a film progressing mechanism, means for driving a film, a scanning drum driven by the film, a flywheel and a small roller operatively connected thereto, said small roller being driven by the scanning drum through direct rolling and frictional contact with a rotative element concentric with the scanning drum whereby the flywheel rotates at a greater speed than the scanning drum, the small roller and the rotative element having megnetism at this point of rolling contact to provide additional friction therebetween.

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