

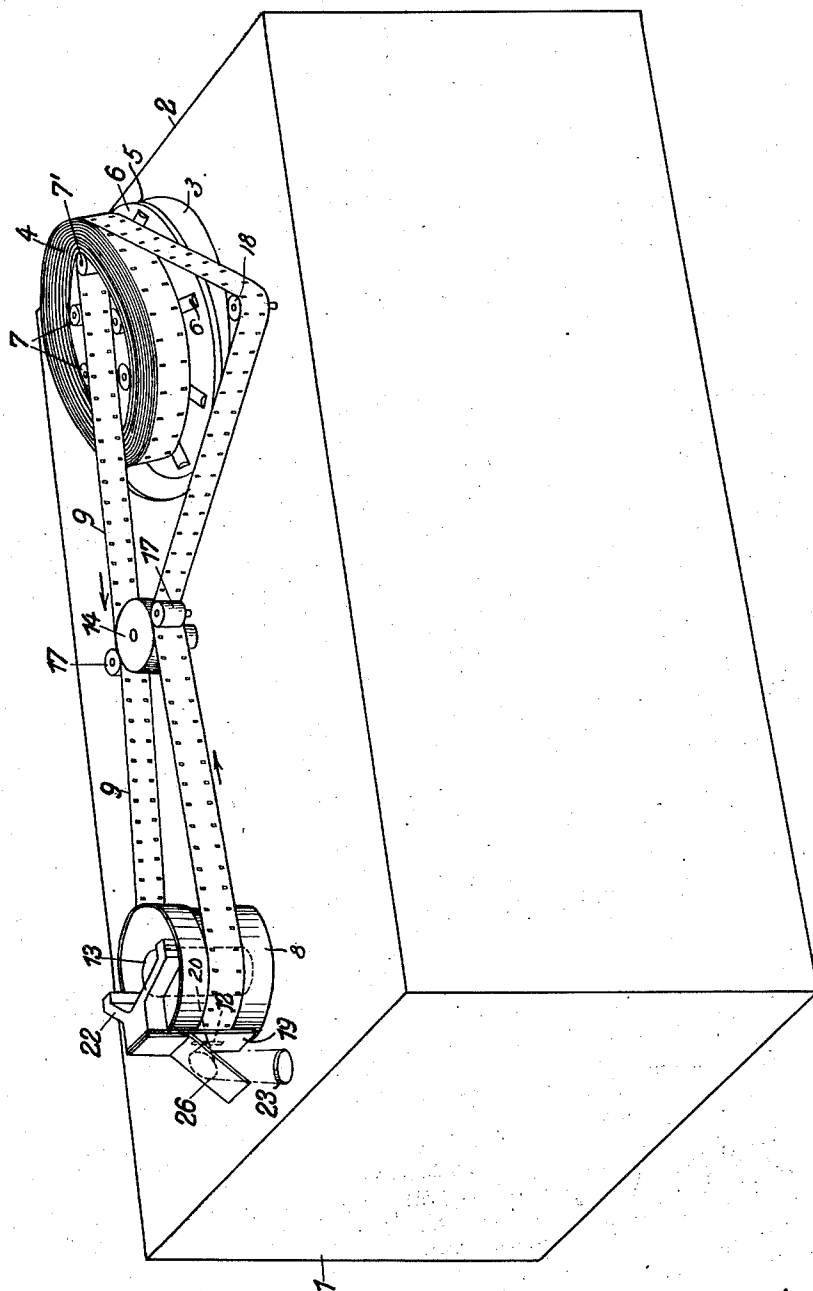
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MECHANISM FOR WINDING ENDLESS FILMS

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MECHANISM FOR WINDING ENDLESS FILMS

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3 Claims. (Cl. 88—18.7)

This invention relates to mechanism for winding endless films.

There has been developed an apparatus for recording sound on an endless band of photographic film, and for reproducing sound from a record on such film, in which the sound record is in the form of a plurality of separate parallel tracks on the film which tracks are successively traversed by the recording light beam, or by the reproducer, while the film is repeatedly moved past the light beam. The endless band of film is here drawn off a coil, passed in a loop through the light beam and is then again wound up on the coil.

The known apparatus has the disadvantage that the film gets frequently broken because it is led in the loop over a great number of guide rollers under repeated strong twistings, so that it has to be driven by a considerable force in order to overcome the high friction caused by the guide rollers.

The object of this invention is to provide an apparatus of the above described type in which the endless band of film is guided in the loop between the inside and the outside of the coil substantially without any twisting and by a correspondingly reduced driving force.

Another object of the invention is to guide the film in the loop in a plane slightly inclined relatively to the plane of the coil.

In the accompanying drawing the invention is illustrated by way of example.

Referring to the drawing, the housing 1 contains the motor for driving the film as well as the means for shifting the recording or reproducing light beam in a direction transversely of the film. In the base plate 2 forming the cover of the housing 1 is at one end a circular hole 3 in which the plate 5 carrying the film coil 4 is mounted in such manner that its plane is inclined with respect to the plane of the base plate 2. The coil is supported by freely rotatable rollers 6 radially arranged on the plate 5; and also freely rotatable guide rollers 7 are provided for holding the coil in position on the plate 5.

On the other end of the base plate 2 a drum 8 is mounted which is provided with a vertical slit 12 the width of which is about 0.02 mm. and the length of which is equal to the useful width of the film. Before the drum 8 there is a mask 19, the opening 20 of said mask being exactly before the slit 12. The diameter of this opening 20 is substantially equal to the width of any of the sound tracks on the film. The mask 19 is fastened to a frame 22 which is vertically shiftable

along guides provided within the drum 8. This frame supports on its lower end within the housing 1 a light source, and the light beam falls through the opening 23 in the base plate upon an inclined mirror 26 being secured to the mask 19. The mirror projects the light beam through the opening 20, the sound track on the film, and the slit 12 onto a photoelectric cell 13 arranged within the drum 8, if the apparatus is employed for reproduction. If employed for recording, then naturally the mask 19 has to be replaced by another one having a slit-shaped opening of suitable dimensions, and in this case the photoelectric cell is superfluous. In both cases the frame 22 and with it the light beam are moved by suitable means arranged within the housing 1 in such manner, transversely of the film, that the sounds be recorded by it on the film in several parallel sound tracks or that such sound tracks be reproduced by the light beam successively while the film is repeatedly moved past the light beam.

Between the film coil 4 and the drum 8 a sprocket 14 is provided which is mounted upon the axis of the motor being arranged within the housing 1, and is driven by this motor. On both sides of said sprocket 14 spring supported pressing rolls 17 are provided. The endless band of film 9 is withdrawn from the inside of the coil 4 over the roller 7' by the one side of the sprocket 14, is then led round the drum 8 to the other side of the sprocket 14 and past the guide roller 18, and it winds up on the outside of the coil 4.

The inclination of the plate 5 and of the coil 4 with respect to the base plate is such that the film can be led from the roller 7' across the winding of the coil in a loop past the two sides of the sprocket 14 and round the drum 8 back to the outside of the coil in a plane being substantially parallel to the plane of the base plate 2, while the film is kept in its substantially vertical position in all parts of the loop.

The invention is naturally applicable to any apparatus for recording images on or reproducing from an endless band of film, i. e., also for picture films or combined picture and sound films, as may be used for advertising purposes.

Having now particularly described and ascertained the nature of my invention and in what manner the same is to be performed I declare that what I claim is:

1. In a mechanism for winding endless films, especially sound films, in combination, a supporting base, means for rotatably supporting an endless coil of film on the base, means for feeding the film to the coil on the support and means for

withdrawing the film from the coil, said feeding and withdrawing means comprising a single roller for moving said film, and means outside said coil for guiding the film to and from the coil, the axes of said roller and said guide means being disposed substantially parallel and in the same plane so that the film is fed and withdrawn in said plane, said coil supporting means having its axis of rotation slightly inclined to the perpendicular of said plane to permit the film to leave the coil on the support in a straight line.

2. A mechanism according to claim 1, in which said means for feeding the film to the coil and said means for withdrawing the film from the

coil consist of the opposite sides of a single sprocket which engage points of the film longitudinally spaced by a distance greater than the length of the peripheral portion of the sprocket between the two points thereof which engage the film.

3. A mechanism according to claim 1 further including means positioned within said coil and on said base for guiding said film when said film is withdrawn from said coil so that said film is withdrawn in a plane passing substantially through the center of said coil.

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