

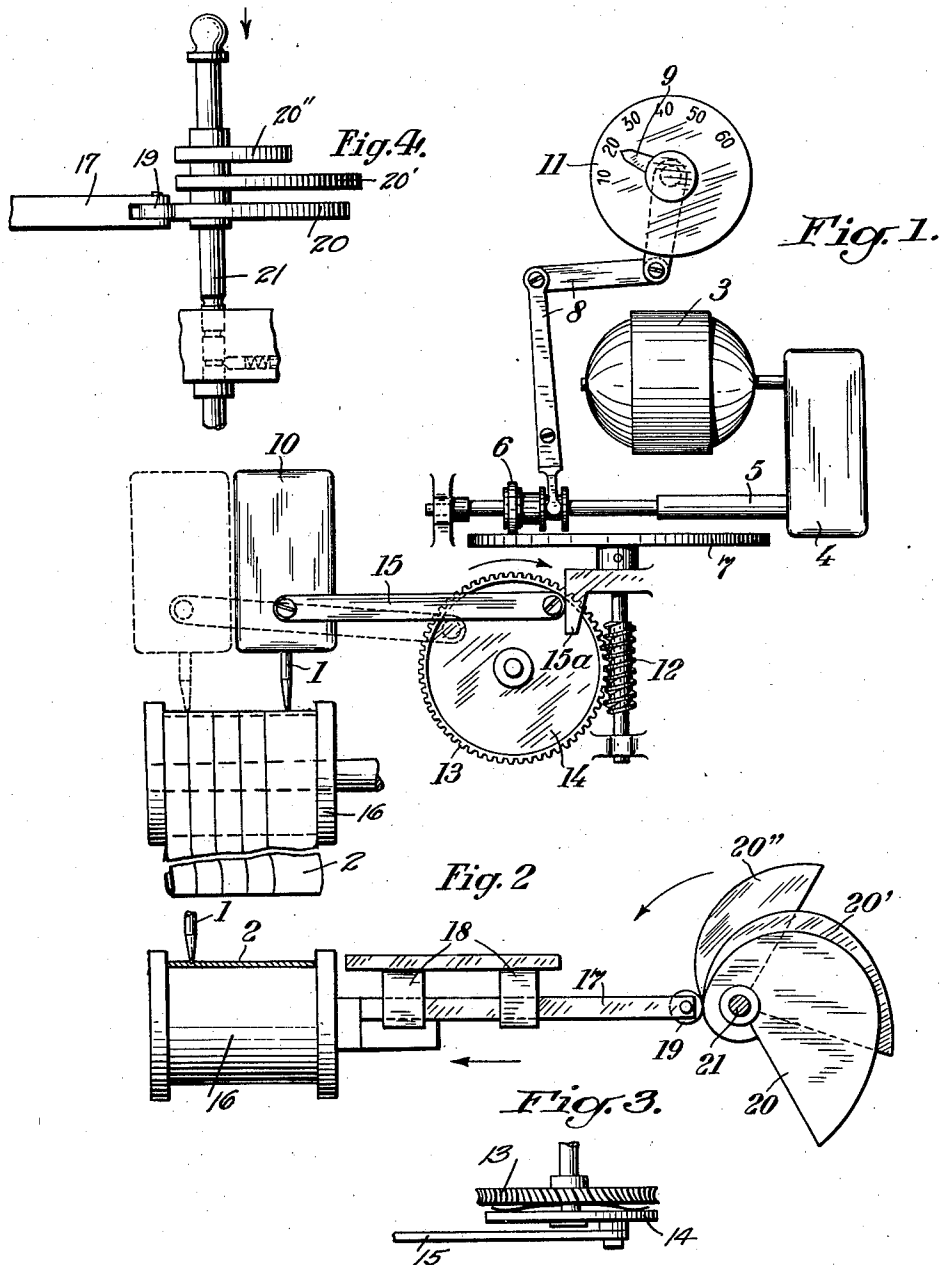
Sept. 17, 1935.

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2,014,495

SOUND RECORDING

Filed Nov. 26, 1932



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UNITED STATES PATENT OFFICE

2,014,495

SOUND RECORDING

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Application November 26, 1932, Serial No. 644,530
In Germany December 2, 1931

5 Claims. (Cl. 274—11)

Our present invention relates to the production of sound records and more particularly to the production of sound records on an endless band-shaped record base.

One of its objects is a device for the production of such sound records. Further objects will be seen from the detailed specification following hereafter.

According to this invention there is used a mechanism comprising a recording or reproducing device which is given a continuous transverse movement relatively to the band whilst the latter travels in the direction of its length, for the production of sound records on endless bands of differing lengths, for instance, on cinematograph films of differing lengths the ends of which have been united, the mechanism adapted in this manner being suitable also for the reproduction of sound from records on endless bands of varying lengths. For this purpose there is provided a means whereby the speed of the relative transverse movement between the recording or reproducing device and the band travelling in the direction of its length can be varied to suit the length of the band.

In one construction in accordance with the invention the transverse movement is transmitted to the recording device or to the band through a gearing which comprises a rotating disc and a roller in frictional driving contact with the face of the disc and adjustable along a radius of the disc.

In another embodiment of the invention, the required transverse movement is caused by the action of one of a number of spiral-shaped cams, each of which is capable of being brought into operation to produce the required transverse movement and has a cam path of a gradient to suit a particular length of band.

Figs. 1 and 2 are front views of devices according to our invention;

Fig. 3 is a top plan view of a portion of Fig. 1; and

Fig. 4 is a top plan view of a portion of Fig. 2. The mechanism illustrated in Fig. 1 is used for imparting the required movement to a recording needle, and that illustrated in Fig. 2 for imparting the required movement to the support of the band, but it will be obvious that each mechanism may be adapted to either purpose.

Referring to Fig. 1, 3 is a motor driving a shaft 5 by means of a gear box 4. The shaft 5 carries a friction roller 6 the distance of which, from the centre of a disk 7, can be regulated by a rod sys-

tem 8 in accordance with the length of the endless film band 2. The endless film band 2 is supported by a carrier 16 which simultaneously serves for moving the film band in longitudinal direction. By means of a hand 9 the transverse movement of the recording device 10 can be controlled in the following manner. If the film in use has, for instance, a length of 20 m., the hand 9 is set on the Figure 20 of a dial 11. In this case the friction roller 6 drives the disk 7 at such a speed that the stylus 1 of the recording device 10, while producing on the film 2 a helical sound track of, for instance, 5 spires is transversely moved at a uniform speed from one edge of the film to the other, that is to say, is displaced approximately by one film breadth. In this manner there is produced on the endless film a mechanical sound record extending from one edge of the film to the other.

From the friction disk 7 the rotation is transmitted to a disk 13 by a worm reduction gearing 12. The disk 13 drives by friction a crank disk 14 connected by a crank rod 15 with the recording device 10. As the disks 13 and 14 are frictionally connected with each other (see Fig. 3), the recording device 10 after each recording operation can be returned to its initial position without moving the driving mechanism. In the path of the crank pin on disk 14 there is preferably provided a stop 15a by which the recording device 10 is stopped at the end of the transverse movement.

In Fig. 2 the recording stylus 1 is stationary and the film band is moved together with its support 16 transversely to the length of the band while the recording stylus is vibrated by the sound waves to be recorded. For this purpose the carrier 16 which may simultaneously move the endless film band 2 in longitudinal direction is fixed to a slide 17 guided in bearings 18 and having at its end a roller 19 which bears against spiral-shaped cams 20. The breadth of the film being constant, the difference between the shortest and the longest radius of each cam member is the same, but the gradient of the cam 20 is flatter than that of the cam 20' and this, in turn, is flatter than that of the cam 20''. Each of the cams can be displaced axially and is brought into position for operating on the roller 19 in accordance with the length of the film used as shown in Fig. 4. Thus the cam disk 20 may be used for controlling the transverse movement of a film of 60 m. length, the cam disk 20' a film of 40 m. length, and the cam disk 20'' a film of a length of 20 m.

What we claim is:

1. A device for recording sounds on an endless film band which comprises in combination a carrier, an endless film band on said carrier, a recording member adapted to register sounds on said film band, a crank disk, a lever connecting said recording member with said crank disk, a first disk frictionally connected to said crank disk, a worm reduction gearing for driving said first disk, a second disk connected with said worm gearing, a roller slidable on and frictionally engaging said second disk for driving the same at different speed according to its distance from the centre, and means for moving said film band.
2. A device for recording sounds on an endless film band which comprises in combination a carrier, an endless film band on said carrier, a lever connected with one end to said carrier, a slide roller mounted on the other end of said lever, an axle, cams movably mounted on said axle so that they can be brought into touch with said slide roller, said cams having gradients of different flatness, and means for moving said film band.
3. A device for recording sounds on an endless film band which comprises in combination a carrier, an endless film band on said carrier, means for moving said film band in longitudinal direction, a recording device adapted to register sounds on said film band, means for moving said carrier and said recording device transversely to each other at a uniform speed, and means gripping frictionally said means for moving said carrier and said recording device transversely to each other, for changing said uniform speed according to the length of said film band.
4. A device for recording sounds on an endless film band which comprises in combination a carrier, an endless film band on said carrier, means for moving said film band in longitudinal direction, a stationary recording device adapted to register sounds on said film band, means for moving said carrier transversely to said stationary recording device, and means gripping frictionally said means for moving said carrier transversely to said stationary recording device, for changing said uniform speed according to the length of said film band.
5. A device for recording sounds on an endless film band which comprises in combination a carrier, an endless film band on said carrier, means for moving said film band in longitudinal direction, a recording device adapted to register sounds on said film band, means for moving said recording device transversely to said carrier at a uniform speed, and means gripping frictionally said means for moving said recording device transversely to said carrier, for changing said uniform speed according to the length of said film band.

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