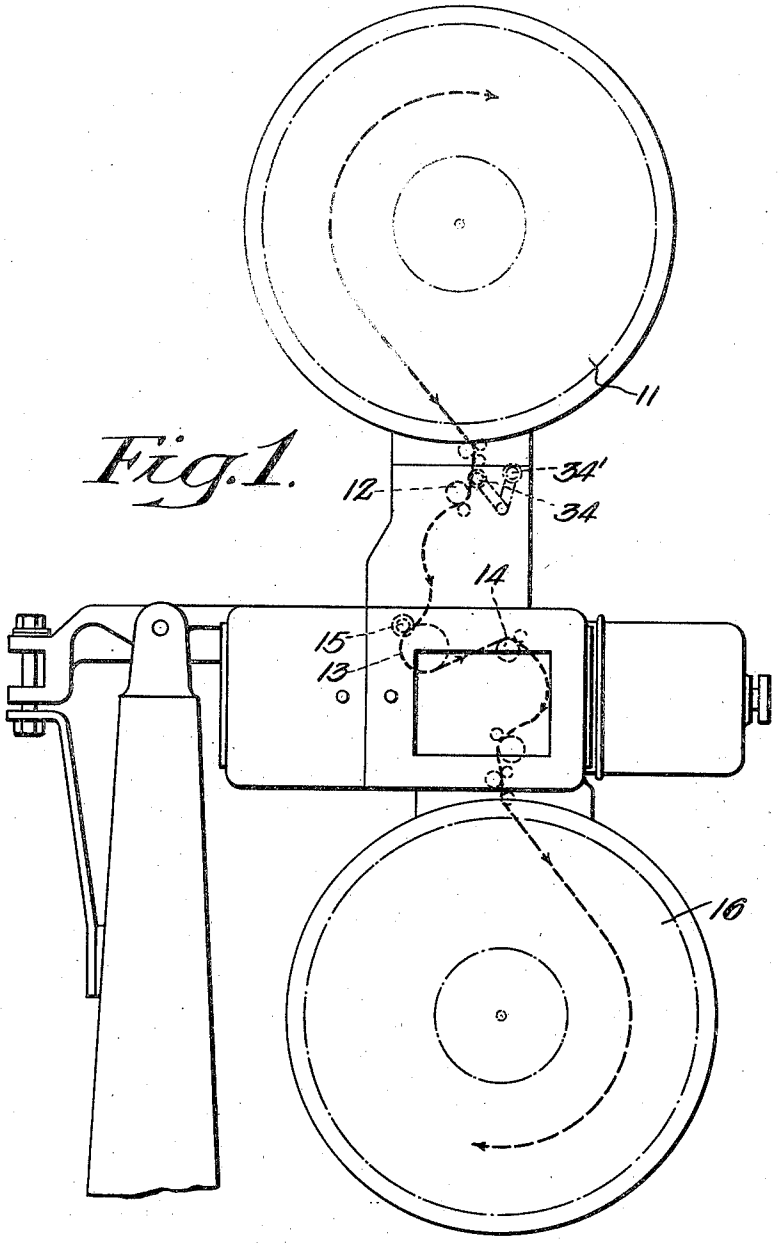
May 21, 1940. A. T. SINCLAIR 2,201,324

SOUND HEAD

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Fig. 1.



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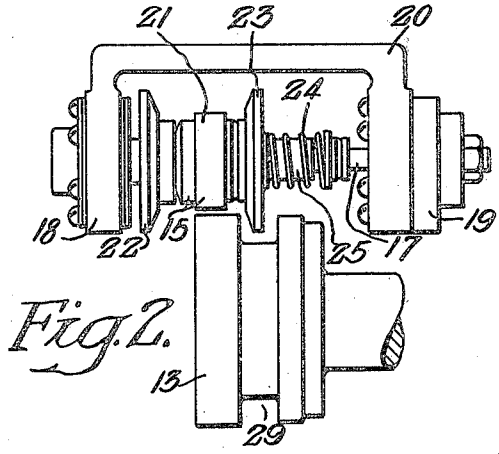


Fig. 2.

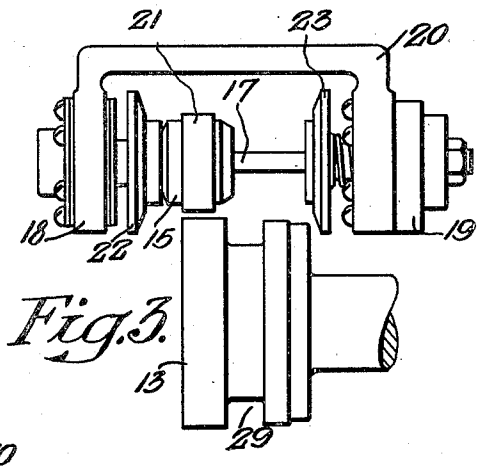


Fig. 3.

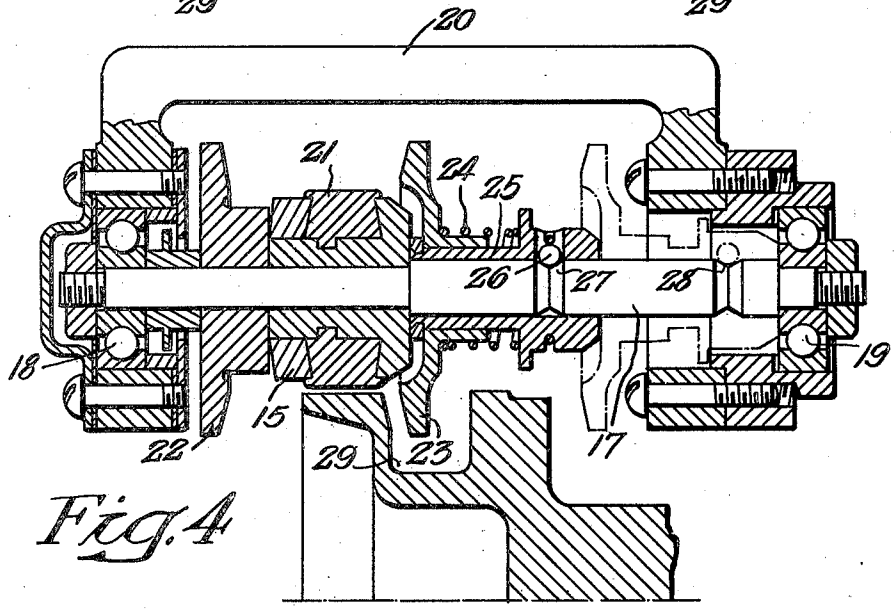


Fig. 4

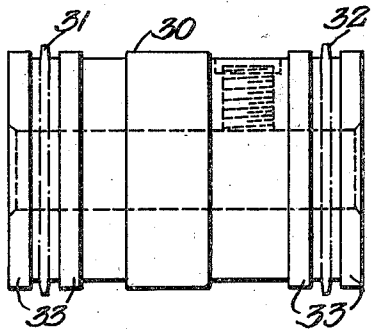


Fig. 5.

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UNITED STATES PATENT OFFICE

2,201,324

SOUND HEAD

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Application September 25, 1937, Serial No. 165,650
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6 Claims. (Cl. 271—2.3)

This invention relates to cinematograph apparatus, and is particularly concerned with the design of an improved sound head for such apparatus.

As is well known, there are in use at the present time films of different standard widths, and in order to avoid duplication of somewhat expensive apparatus, it is very desirable that the same piece of apparatus can be easily and quickly adapted for films of different widths.

It is an object of the present invention to provide an improved construction for the sound head of such apparatus which can be modified in this way, and according to the invention there is provided apparatus for recording sound on, or reproducing sound from, films of different widths, alternatively, comprising a rotatable scanning drum around which the film may be led and, associated with said drum, a pressure roller the axis of which is movable toward and away from that of said drum and which comprises two flanges, one of which is fixed and the other of which is movable axially of the roller to accommodate films of different widths, the arrangement being such that when adjusted for a narrower film this flange is accommodated in a groove in the periphery of said drum.

The movable flange may comprise a flange proper slidable under the influence of a spring on a sleeve which is itself slidable on the spindle of the pressure roller, and is locatable in its alternative position, for example, by a spring influenced ball which may be caused to engage in any one of two or more peripheral grooves in said spindle.

One form of the invention will now be described with reference to the accompanying drawings which show apparatus constructed to take either films of 35 or 17.5 mm. width.

Figure 1 shows diagrammatically a side elevation of a cinematograph projector,

Figure 2 is a fragmentary view, as seen from one side, Figure 1, of the scanning drum and pressure roller adjusted to operate with 17.5 mm. film,

Figure 3 is a similar view showing the apparatus adjusted to operate with 35 mm. film,

Figure 4 shows to a larger scale a sectional elevation of the apparatus shown in Figure 2, and

Figure 5 shows in elevation one of the sprocket wheels for the apparatus.

It should be noted that the 17.5 mm. film corresponds with 35 mm. film which has been split down the middle, and there is thus only one row of sprocket holes.

Referring now to Figure 1, a film of either size is taken from an upper magazine 11 in the usual manner by means of a sprocket wheel 12 and drawn through the sound head around the scanning drum 13 by means of a second sprocket wheel 14 revolving at constant speed. A pressure roller 15, bearing on the face of the drum 13, serves to locate the film in position on the drum 13. The film is then fed; if desired, through the projector system (not shown) to a lower magazine 16.

Referring now to Figures 2, 3 and 4, the pressure roller 15 consists of a roller mounted on a spindle 17, the axis of which is parallel to the axis of rotation of the scanning drum 13, said spindle 17 being supported in bearings 18 and 19 carried in a frame 20 which is, for example, spring loaded so that the roller 15 is held in close contact with a portion of the surface of the scanning drum 13. This frame 20 is also pivoted in any suitable manner so that, if desired, the roller 15 may be moved out of contact with the drum 13. A portion of the roller 15 is formed of felt or similar material, as at 21, and it is provided with flanges 22 and 23 between which the film travels, the flange 23 being separate from the body of the roller 15 and held in close contact with the edge of the film by means of a spring 24. The outer edges of the flanges 22, 23 extend somewhat below the surface of the scanning drum 13 which is positioned between them, and in this way the film is held exactly in position on the drum 13 as it passes around it.

In order to accommodate a different width film, the spring mounted flange 23 is arranged to be movable with respect to the body of the roller 15 and the other flange 22 by mounting it, together with the spring, on a sleeve 25, shown more clearly in Figure 4, which can be slid along the spindle 17, and is located in the desired positions by means of a spring influenced ball 26 cooperating with peripheral grooves 27 and 28 formed in the spindle 17.

The surface of the drum 13 lies entirely between the flanges 22 and 23 when they are adjusted for the wider film, and is grooved peripherally, as at 29, to accommodate the movable flange 23 when it is moved inward to take the narrower film. The position of the flange 22 in relation to the edge of the drum 13 is, however, unchanged, and film of either size is thus held on the surface of the drum 13 in the exact position required.

In order to support the plain edge of the 17.5 mm. film as it passes over the sprocket wheels 12,

14, the latter are formed with a raised portion 30 (see Figure 5) intermediate the two rows of sprocket teeth 31 and 32, of the same diameter as that portion of the wheel 33 adjacent the teeth 31, 32 on which the outer edge of the film lies. In addition, a small guide roller 34 (see Figure 1), bearing on the plain edge of the 17.5 mm. film, may be provided in order that the film coming from the upper magazine 11 may be fed in the correct position on to the first sprocket 12, said guide roller 34 being arranged so that it can be moved to a position such as 34' when 35 mm. film is being used.

In order to change over from 35 mm. film to 17.5 mm. film, it is only necessary to lift the pressure roller 15 away from the scanning drum 13 so that the movable flange assembly 23, 24 and 25 can be slid along the spindle 17 to its new position, whence said flange 23 lies within the groove 29 formed in the scanning drum 13, and to place in position the guide roller 34 by the first sprocket 12.

It will be seen that this invention provides a simple and quick method for modifying apparatus to take films of two different sizes, and although it has been described with reference to films of particular sizes, it will be clear that the invention could be used in apparatus designed for films of other sizes or where films of more than two different sizes are used.

Having now described my invention, I claim:

1. Photophonographic apparatus comprising a rotatable scanning drum for supporting the sound record film at the operational point with the sound track thereof overhanging the end of the drum, and a pressure roller for maintaining the film in contact with the said scanning drum, the said pressure roller being movable toward or away from the scanning drum and including two flanges adapted to cooperate with the edges of the film, one of said flanges being fixed in the axial direction spaced from the end of said drum and the other being movable axially of the roller to accommodate films of different widths, whereby the sound track is maintained in uniform relation to the drum irrespective of the film width.

2. Apparatus as defined in claim 1 wherein the movable flange is spring pressed toward the fixed flange.

3. Apparatus as defined in claim 1 wherein the scanning drum is formed with a groove in its periphery to accommodate the movable flange of the pressure roller when said flange is moved for films of a narrower width.

4. Apparatus as defined in claim 1 wherein the pressure roller is so arranged in relation to the scanning drum that the film will be supported with the sound track thereof overhanging the edge of the scanning drum.

5. Apparatus as defined in claim 1 wherein the movable flange is mounted on a sleeve which may be slid axially on the spindle carrying the pressure roller and which is retained in its alternative positions by means of a spring pressed ball adapted to engage selectively in any one of two or more peripheral grooves in said spindle.

6. Apparatus as defined in claim 1 wherein the movable flange is slidably mounted on a movable sleeve and is held in contact with the edge of the film by means of a spring engaging the flange and the sleeve.

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