

July 19, 1949.

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2,476,928

MOTION-PICTURE FILM REEL

Filed Oct. 11, 1945

2 Sheets-Sheet 1

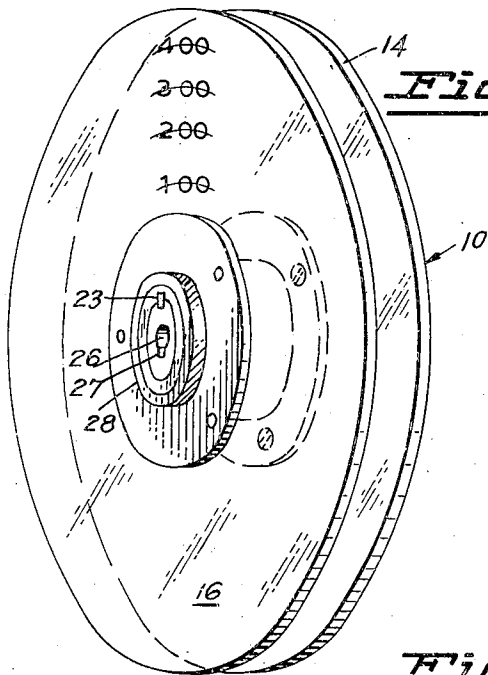


Fig. 1.

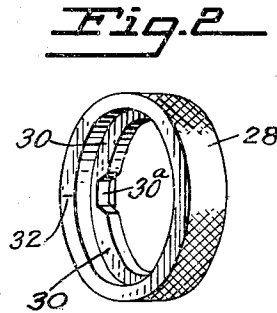


Fig. 2.

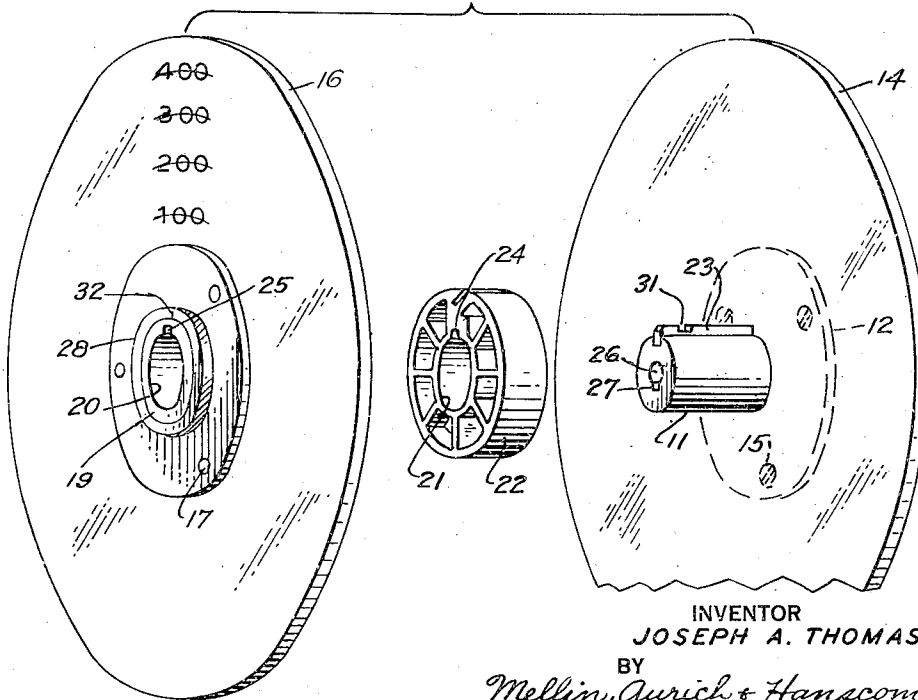


Fig. 3.

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Fig. 4.

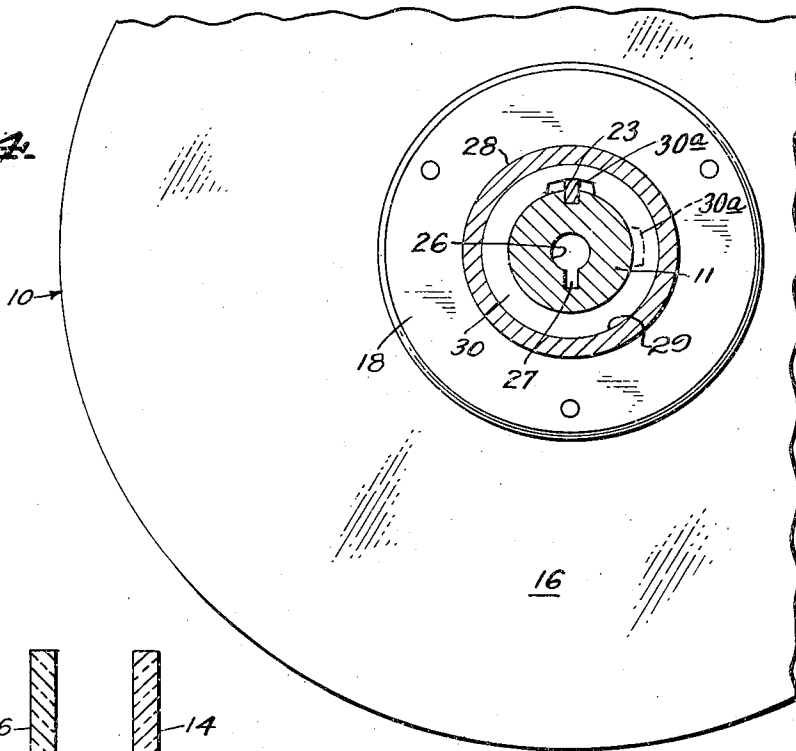
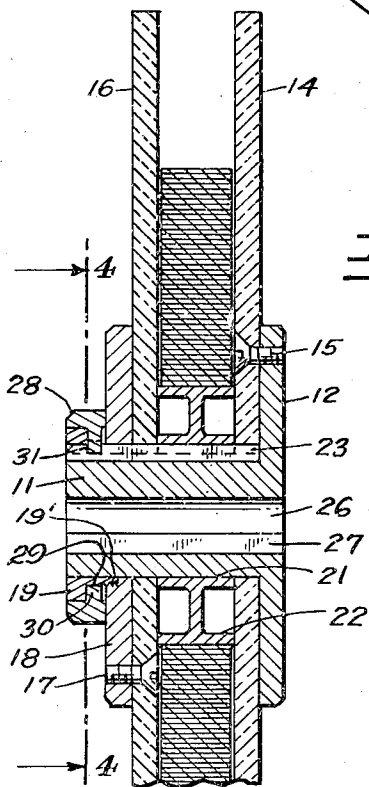


Fig. 5.



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# UNITED STATES PATENT OFFICE

2,476,928

## MOTION-PICTURE FILM REEL

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Application October 11, 1945, Serial No. 621,729

3 Claims. (Cl. 242-70)

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This invention relates to equipment for use in processing motion picture film, and particularly pertains to an improved film reel.

It is the principal object of my present invention to provide a generally improved motion picture film reel which is provided with a removable side reel disk which may be securely latched in position relative to the remainder of the reel, but which is capable of being easily unlatched and removed therefrom.

One form which the invention may assume is exemplified in the following description and illustrated by way of example in the accompanying drawings, in which:

Fig. 1 is a perspective view of a film reel constructed in accordance with my present invention.

Fig. 2 is a perspective view of the latch band which forms a part of the apparatus.

Fig. 3 is an exploded view in perspective illustrating the various parts of the reel.

Fig. 4 is a transverse section through the reel taken on line 4-4 of Fig. 5.

Fig. 5 is a longitudinal view taken centrally through the reel.

Referring more particularly to the accompanying drawings, 10 indicates a reel for use in connection with motion picture film. Reels of this character have various uses, one of which is to assist in transferring a roll of film from what is known as a laboratory core to a secondary reel during the processing of the film.

It should be pointed out that when the film is received from the laboratory, it is wound upon a laboratory core and in a container. The roll of film with its laboratory core is removed from the container and ordinarily placed upon a transfer spindle and transferred to a reel. Some of the operations are carried on in the dark room and others in the processing room, during which times extreme care must be taken that the original film is not damaged.

The present reel is particularly useful and important in that it enables the film wound upon a laboratory core to be placed in a reel where it will have guiding reel disks at opposite sides to insure protection of the film during the unwinding thereof from the laboratory core.

The present device comprises a cylindrical trunnion 11 formed at one end with a circum-scribing flat flange 12. At the inner face of this flange is fixed a reel disk 14 of appropriate diameter. I prefer that this reel disk be of such transparent material as Lucite, although other materials may be used. The reel disk 14 is concentrically disposed relative to the trunnion 11 and is fastened to the flange 12 by screws 15 or other suitable fastening elements.

A second and similar reel disk 16 is provided which is, of course, complementary to the other reel disk 14 and is likewise formed of Lucite or other suitable material. The second disk 16 is

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fastened by screws 17 or the like to a circular flange 18 formed as a fixed part of a bearing member 19. For example, the flange 18 may be integral with or threaded on to the bearing member 19 as indicated at 19'. This bearing member 19 is concentrically bored as at 20 so as to be complementary to the trunnion 11, over which it slidably fits.

The diameter of the trunnion 11 is such that it will be received in the bore 21 of a standard laboratory core 22 so that the latter may be fitted over the trunnion with one end abutting the inner surface of the reel disk 14. The axial dimension of the core 22 corresponds with the transverse dimension of the film to be wound thereon.

It is intended that the other disk 16 be located in juxtaposition to the other end of the core 22, as illustrated more clearly in Fig. 5 of the drawings. In this position the outer end of the bearing member 19 is flush with the adjacent end of the trunnion 11, as illustrated in Fig. 5.

For the purpose of preventing relative rotation between the laboratory core 22 and the bearing member 19 and its flange 18 relative to the trunnion 11 and its disk 14, the trunnion 11 is fitted with a longitudinal key 23 which is firmly fixed thereto and projects radially therefrom. This key extends the full length of the trunnion 11 as shown. This key is complementary to a longitudinal keyway 24 in the laboratory core and to a keyway 25 in the bearing member 19. Therefore, when the laboratory core 22 and the bearing 19 with its disk 16 is slipped on to the trunnion 11, all of those elements are relatively non-rotatable.

It should be pointed out that the trunnion 11 is formed with an axial bore 26 formed with a keyway 27 so that the trunnion may be slipped on and become non-rotatable relative to an ordinary transfer spindle, such as commonly used in laboratories and similar places handling and processing film.

I intend that the reel disk 16 and its bearing member 19 be detachably connected with the trunnion 11, when it is properly positioned thereon, so that it will be latched in a precise position axially of the trunnion at a fixed point relative to the other reel disk 14. To accomplish this, I provide a circular latch band 28 circumscribing the exterior periphery of the bearing member 19 and rotatably mounted thereon. The bearing 19 is formed with a circular keyway 29 formed inwardly of its outer surface intermediate the flange 18 and the outer end of the bearing. The bottom surface of this circular keyway 29 is of a diameter somewhat greater than the bore 20 of the bearing 19.

Formed as a fixed part of the latch band 28 is a circular latch key 30 which projects radially inward into the circular keyway 29 and is complementary thereto. The circular key 30 is formed with a recess 30a extending completely trans-

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versely therethrough. The circumferential and radial dimensions of this recess 30a are sufficient that it will allow the longitudinal key on the trunnion to freely pass therethrough, when the bearing is slipped on to the trunnion 11 with the recess 30a in register with the longitudinal key on the trunnion 11.

It should be pointed out that the circular keyway 29 intersects the longitudinal keyway 25 in the bearing 19 so that by rotating the latch band 28 on the bearing 19, the circular key 30 may be projected through the longitudinal keyway 25, or the recess 30a in the circular key 30 may be registered with the keyway 25 to allow the free passage of the key 23 on the trunnion 11 there-through.

The key 23 is formed with a transverse groove 31 which registers with the circular key 30, when the bearing 19 and the disk 16 are in proper axial position on the trunnion 11 with respect to the other disk 14. This transverse groove 31 in the key 23 is of a shape and dimension to receive the circular key 30 so as to form an interlocking connection between the bearing 19 and the trunnion 11, and prevent endwise movement between the bearing 19, the disk 16 and the trunnion 11 and its disk 14. However, by turning the latch band 28 so that the recess 30a in the circular key registers with the keyway 25 and the key 23, the bearing 19 and its disk 16 may be moved endwise of the trunnion 11 and disengaged therefrom.

In operation of the device, assuming that it is desired to unreel a roll of film from a laboratory core in the dark room, it is only necessary to rotate the latch band 28 of the reel 10 until the recess 30a of the circular key 30 registers with the keyway 25 and the key 23. The reel disk 16 and its bearing 19 and flange 18 may then be removed from the trunnion 11. The laboratory core 22 with the film wound thereon may then be fitted on to the trunnion 11 until one edge of the laboratory core 22 engages the surface of the reel disk 14. Then the disk 16 and its bearing 19 and flange 18 may be fitted on to the exposed or projecting end of the trunnion 11 until the inner surface of the reel disk 16 engages the opposite end of the laboratory core 22. The latch band 28 may then be rotated so as to project the circular key 30 through the transverse slot 31 in the key 23 of the trunnion 11, which latches the two reel disks 14 and 16 in their relative axial positions. The key 23, of course, prevents relative rotation between the various parts. The trunnion 11 may then be mounted on a transfer spindle and the normal and usual unwinding or rewinding action may be performed.

I have shown the latch band 28 with an indexing mark 32 on its face, which is located at the center of the recess 30a of the circular key 30 so that by registering the indexing mark 32 with the keyway 25, the user will know that the recess 30a of the circular key 30 is in register with the keyway 25 for the purpose of either applying the disk 16 to the trunnion or removing it therefrom.

As illustrated in Fig. 3, I have shown calibrations on one of the disks 14 and 16 by means of which the footage of film disposed in the reel may be determined. Inasmuch as the reel disks 14 and 16 are transparent, the outer diameter of the unwound film may be compared with these calibrations and the footage of film remaining in the reel may be determined.

From the foregoing it is obvious that I have

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provided a very simple but highly effective and useful reel for use in connection with processing motion picture film, and while I have shown the preferred form of my invention, it is to be understood that various changes may be made in its construction by those skilled in the art without departing from the spirit of the invention as defined in the appended claims.

Having thus described my invention, what I claim and desired to secure by Letters Patent is:

1. A motion picture film reel comprising a reel disk, a trunnion fixed thereto and projecting coaxially therefrom, means on said trunnion for removal but non-rotatably receiving a laboratory film core, a bearing removably but non-rotatably fitting the trunnion, a second reel disk complementary to the first and concentrically fixed to said bearing, and operable latch means to latch the bearing on the trunnion against axial movement thereon, said latch means including an element coaxial of said bearing and rotatable with respect thereto.

2. A film reel comprising a reel disk, a trunnion fixed thereto and projecting axially therefrom, a key extending longitudinally of the trunnion and projecting radially therefrom, a bearing having a bore slidably fitting the trunnion and a keyway to receive said key, a circumscribing keyway formed in the bearing, a latch member rotatably mounted on the bearing, a circumferential key carried by the latch member fitting said circumscribing keyway, the diameter of the circumferential key and circumscribing keyway being such that the longitudinal key on the trunnion will intersect the same, said longitudinal key having a groove formed transversely thereof to register with the circumscribing keyway when said bearing is correctly mounted on said spindle, said circumferential key having a recess therein through which the longitudinal key may project when said recess is in register therewith whereby the bearing may be mounted on the trunnion when said recess is in register with said longitudinal key and the bearing latched to the trunnion by rotating the latch member to engage the circumferential key with said groove.

3. A film reel comprising a reel disk, a trunnion fixed thereto and projecting axially therefrom, a key on said trunnion extending longitudinally thereof from said disk, a bearing mounted upon the periphery of said trunnion and having a keyway adapted to receive said key, a second reel disk complementary to the first and fixed to said bearing, and complementary latch means on the bearing and trunnion operative to releasably latch the bearing in a fixed axial position on the trunnion, said latch means including an element coaxial with said bearing and rotatably mounted thereon.

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