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FILM END CLAMP FOR WINDING REELS

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FIG. 1.

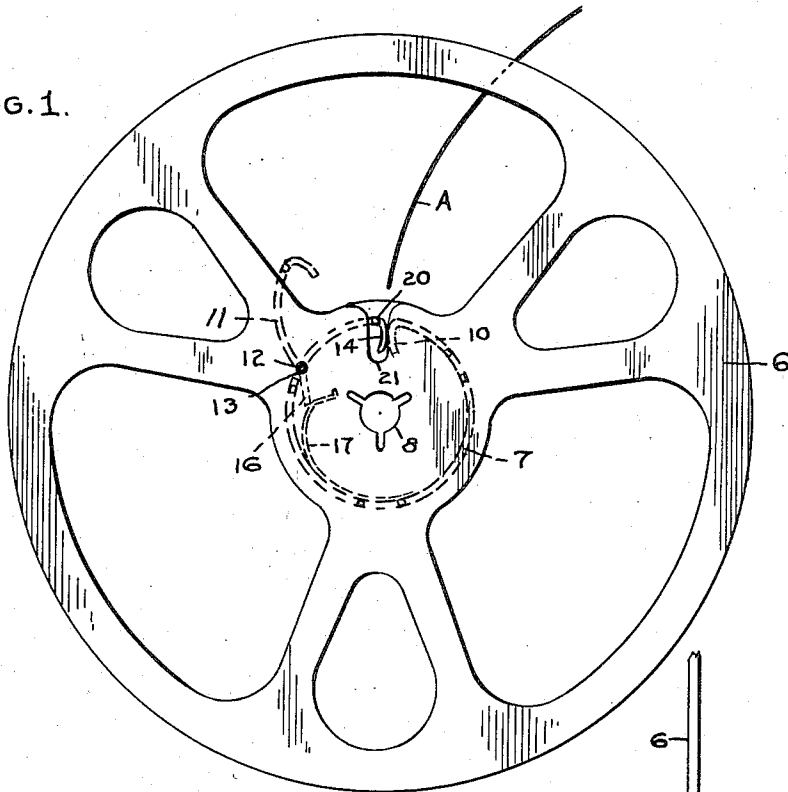


FIG. 2.

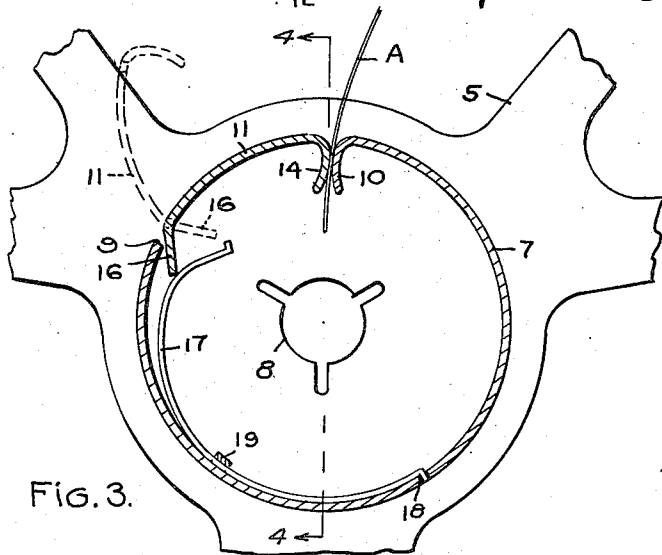
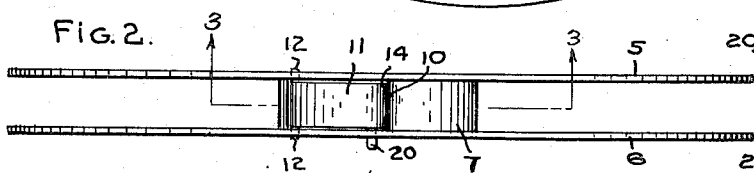


FIG. 3.

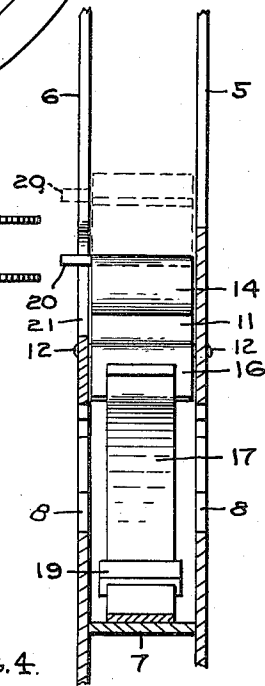


FIG. 4.

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FILM END CLAMP FOR WINDING REELS

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1 Claim. (Cl. 242—74.2)

This invention relates generally to winding reels and has particular reference to a winding reel wherein a strip of material to be wound upon the reel is clamped against accidental displacement to facilitate the initial winding of the strip thereon.

Winding reels, such as reels for the support of motion picture film, have previously provided a slotted hub portion in which the free end of the film is inserted. However, such slotted engagement fails to successfully hold the end of the film during the initial wrapping and prior to the installation of the reel upon a projector or the like.

The device of the present invention contemplates a winding reel having spaced apart flanges and a central concentric hub portion upon which the film is to be wound and with the hub being cut away and bent to provide a clamping tongue and, a clamping lever supported within the hub that is biased in a direction toward the clamping tongue whereby to securely grip an inserted end of a film, ribbon or other strip to be wound thereon.

The invention further contemplates a winding reel having a centrally arranged hub that is cut away to form an opening for a clamping lever and with the clamping lever being longitudinally curved to conform to the curvature of the hub and whereby the clamping lever when in the clamping position provides a substantially uninterrupted surface with the hub for the winding support of the film.

The invention further contemplates a clamping device of the above noted character that is provided with a lateral tongue that extends beyond one flange of the reel and whereby the operator may easily shift the clamping lever upwardly and outwardly to provide a relatively large opening into which the free end of the film is inserted and with the lever when shifted in an opposite direction being biased to provide a clamping action upon the film.

Novel features of construction and operation of the device will be more clearly apparent during the course of the following description, reference being had to the accompanying drawings, wherein has been illustrated a preferred form of the device and wherein like characters of reference are employed to denote like parts throughout the several figures.

In the drawings:

Figure 1 is a side elevation of a winding reel constructed in accordance with the invention,

Figure 2 is a plan view thereof,

Figure 3 is an enlarged longitudinal section taken substantially on line 3—3 of Figure 2, and

Figure 4 is a transverse vertical section taken substantially on line 4—4 of Figure 3.

In the drawings the numerals 5 and 6 designate a pair of spaced apart flanges that are connected together by a centrally arranged and concentric tubular hub 7. The flanges are cut away upon their sides in any desirable configuration as is customary. The flanges are also cen-

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trally apertured at 8 for the reception of a winding shaft commonly employed upon projectors or other winding devices.

The hub 7 is cut away at 9, forming a generally rectangular opening and with one end portion of the hub being bent inwardly to form an arcuate tongue 10. Pivotaly supported within the opening 9 to swing in a vertical plane, is a clamping lever 11 that is provided with studs 12, that engage through openings 13 in the opposite flanges 5 and 6 whereby the lever is pivotaly supported in a manner to swing toward and from the tongue 10. The lever 11 is longitudinally curved to conform substantially to the circumferential curvature of the hub 7. One end of the lever 11 is bent downwardly to form an arcuate tongue 14. The tongue 14 serves as a clamping jaw in cooperation with the tongue 10 and whereby a flexible strip of material, indicated at (A) may be clamped therebetween. The lever 11 at its opposite end is bent to form an angled tongue 16. The tongue 16 is biased in a direction to maintain the lever in a clamping position by an arcuate leaf spring 17. The spring 17 has one terminal end engaged within a slot 18 formed in the hub remote from the clamping tongues 10 and 14. To further prevent displacement and shifting of the spring 17 there has been provided a clip 19 that is anchored to the hub 7 and whereby to maintain the spring 17 in operative position. The lever 11, adjacent the tongue 14 is provided with a lateral lug 20, that extends outwardly through a notch 21 formed in the flange 6 and whereby to permit of freedom of movement of the lever by the operator. The lug 20 further serves as a stop means to limit the outward swinging movement of the lever when it is shifted to a non-clamping position to permit of the insertion of the strip (A). The lever 11 when in the operative position assumes the position illustrated in dotted lines of Figure 3 and in such position, its tongue 16 is free of contact with the spring 17. The lever 11 when swung to the operative clamping position causes the tongue 16 to bear against the upper terminal position of the spring 17 to thereby bias the lever to a constant clamping position against the inserted end of a film strip, a ribbon end or the like. It will be observed, that the tongues 10 and 14 are arcuately curved in opposite directions whereby to present no sharp edges that might catch upon or interfere with the pulling away of the strip (A) when the strip is being rewound upon another reel, such as the rewinding of films in motion picture devices. In the use of the device, where a strip of film is to be wound upon the reel, the operator through the medium of the lug 20 swings the lever 11 upwardly and outwardly to a point where the lug will engage one of the spoke portions of the flange 6. In this position, there is provided a relatively elongated opening wherein is inserted the end of the film. After the film has been inserted through the opening, the operator then proceeds to swing the lever 11 inwardly and downwardly, to the point where its tongue 16 contacts the spring 17, in which position the lever will be held against accidental movement outwardly and the tension of the spring 17 upon the tongue 16 will cause the tongue 17 to force the film end against the tongue 10 where it will be successfully held against slippage during the initial wraps of the film upon the hub 7. The reel will then function in a normal manner without any slippage of the windings upon the hub. When the film is to be rewound upon another reel, the film will be fed in a normal manner and, upon the rewinding of the last loop of the film, the original inserted end as held between the tongues 10 and 14 will pull outwardly, since there are no sharp corners or other obstructions that

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prevent the film from readily disengaging the clamping means.

The clamping tension of the lever 11, while being adequate to securely clamp the film end during the initial winding, will also be of such tension as to permit the film end being pulled therefrom under the power action of the rewind reel. It is contemplated of course that the device of this invention shall be applicable to both the winding and the rewinding reels. The structure readily lends itself to winding reels of varying widths that have a winding hub portion and it will be entirely obvious that the device is not restricted to motion picture reels, but readily adapts itself for use with other reels for winding ribbons and other flexible materials.

It will be apparent from the foregoing that an extremely simple and novel arrangement has been provided whereby to greatly facilitate the engagement of a film end with a winding reel. The device requires little change in the reel construction and the lever 11, when in the clamping position conforms to the curvature of the winding hub. The tension upon the lever 11 may of course be varied and it will be understood that the clamping engagement will be of such tension that the inserted end of the film will be securely held during the initial winding of the film. The clamping means is a distinct improvement in the old and well known slotted hub commonly employed, is simple in construction, is strong, durable and most effective for its purpose.

It is to be understood, that the invention is not limited to the precise construction shown but that changes are contemplated as readily fall within the spirit of the invention as shall be determined by the scope of the subjoined claim.

Having described my invention, what I claim as new and desire to secure by Letters Patent is:

A film strip end clamping means for winding reels that comprises a pair of concentric flanges including at least

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one spoke and a centrally disposed and concentric cylindrical hub for spacing the flanges apart, the hub being a band that is circumferentially cut away to form an elongated opening, the band being fixedly connected to the flanges, one free end of the band being inwardly bent to form a clamping tongue, a clamping lever that is pivotally connected to the side flanges adjacent the opposite end of the band and with the lever being longitudinally curved upon an arc corresponding to the curvature of the band, the lever being longitudinally dimensioned to be co-extensive with the major length of the opening, the free end of the lever being bent to form a clamping tongue for cooperative clamping engagement with the first named tongue, the tongues being curved in a direction away from each other and whereby to form smooth unobstructed surfaces for clamping engagement of an end of a film to be wound upon the reel, the lever and its pivotal means being stamped from a single section of material, the lever being provided adjacent the second named tongue with a lateral lug that projects outwardly through a notch formed in one flange and whereby the lever may be shifted to inoperative position, the said lug adapted to engage said spoke of the adjacent flange for limiting the swinging movement, the lever being inwardly bent at its opposite end to form a flat tongue that extends into the hub, an arcuate leaf spring fixedly disposed upon an inner wall of the hub and having a free end portion that is eccentric to the hub, the free end portion of the spring having a bearing against the last named tongue and whereby to yieldably bias the lever to a clamping position and to yieldably retain the lever in the inoperative position.

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