Sept. 23, 1924. 1,509,441

E. G. NIESS-WANER

REEL FOR MOTION PICTURE FILMS

Filed March 20, 1923

Fig. 1

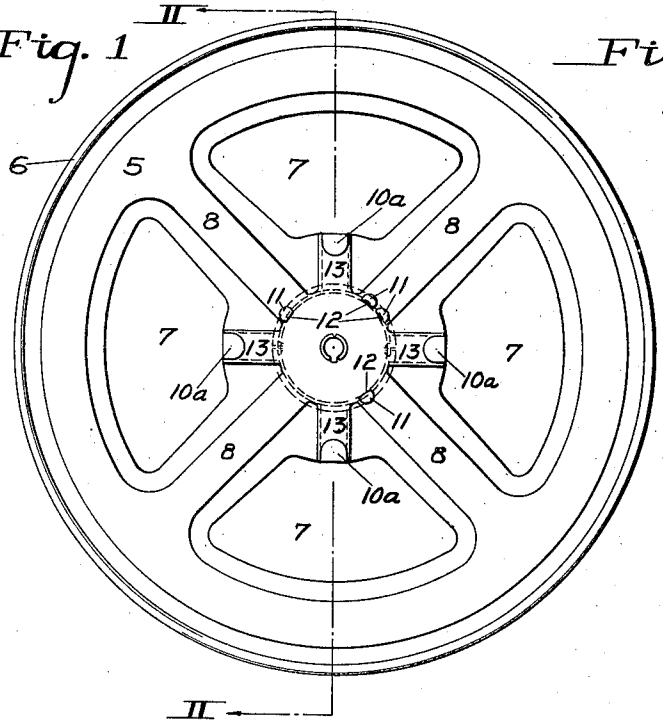


Fig. 2

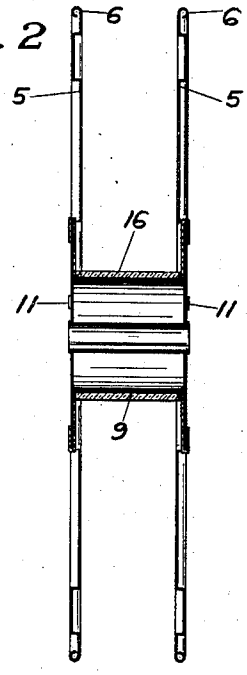


Fig. 3

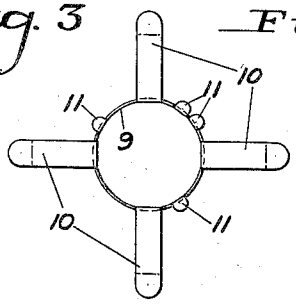


Fig. 4

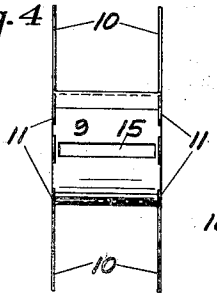


Fig. 5

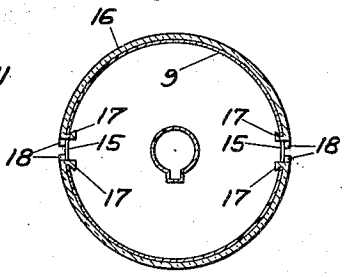
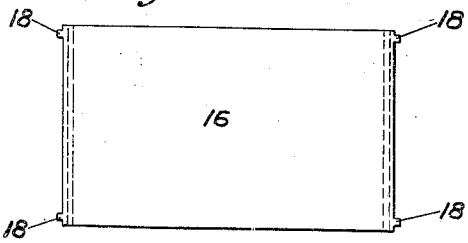


Fig. 6



INVENTOR

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UNITED STATES PATENT OFFICE.

EDWIN G. NIESS-WANER, OF PITTSBURGH, PENNSYLVANIA.

REEL FOR MOTION-PICTURE FILMS.

Application filed March 20, 1923. Serial No. 626,287.

To all whom it may concern:

Be it known that I, EDWIN G. NIESS-WANER, a citizen of the United States, residing at Pittsburgh, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Reels for Motion-Picture Films, of which the following is a specification.

This invention is for a reel for receiving and holding motion picture films.

The invention has for its principal objects to provide a reel of rigid construction designed to withstand the hard usage to which devices of this kind are subject, and having improved film engaging means thereon, by virtue of which the attachment of the end of the film to the hub of the reel may be quickly and easily effected, said film engaging means preferably being of a material which will avoid, to the greatest possible extent, injury to the end of the film so attached.

These and other objects are attained by my invention, which may be readily understood by reference to the accompanying drawings, in which:

Fig. 1 is a side elevation of a reel constructed in accordance with my invention;

Fig. 2 is a transverse section therethrough, in the plane of line II—II of Fig. 1;

Fig. 3 is an end view of the hub, showing the manner in which it is constructed;

Fig. 4 is a front elevation thereof;

Fig. 5 represents a cross section, on a larger scale, through the hub; and

Fig. 6 is a plan view of one of the film engaging members detached from the hub.

In the drawings, 5 designates each of the two side plates which are formed of sheet metal and are of the necessary shape. The periphery of each disk is preferably curled outwardly to form a bead 6, to avoid the formation of sharp edges at a point where the film might be damaged by contact therewith.

The usual openings 7 are punched in the disks, leaving radial webs 8, portions of which may be pressed outwardly in any suitable fashion, as shown in the drawing, to provide strengthening webs.

The two disks are held in spaced relation to each other by a hub 9, which is preferably formed by bending into cylindrical form a strip of sheet metal which has previously been stamped to shape. At each end of the hub are relatively long wide integral extensions 10, and at other points on the ends of the hub are short ears or projections 11. The projections 11 pass through slots 12 in the disks and are bent over to keep the parts assembled. In Figs. 3 and 4, the ears 11 are shown in different positions, for the purpose of illustration, their correct position on the hub when the hub is not assembled in the reel being that of Fig. 4.

When the hub is in this position, the longer extensions 10 are preferably staggered with relation to the webs 8. These extensions are fitted snugly against the inner faces of the disks, and bend over the edge of the metal disks through the openings 7, the bent-over portions being designated 10^a. The inner faces of the disks are preferably pressed outwardly, as indicated at 13, so that the faces of extensions will be set back out of the space between the disks, as clearly shown in Fig. 2. Notches are preferably cut in the edge of the metal where part 10^a is bent over, so that the bent portion of the metal will be flush with the edge over which it is turned. The extensions might be spot welded to the disks in order to make the structure more secure.

The relatively wide long extensions 10 serve to provide a relatively large area of contact between the flanges and the disks, whereby the strength of the reel is materially increased over the common type where only ears, similar to ears 11, are provided. At the same time, the cost of manufacture is not greatly increased. The extensions 10 also serve to relieve ears 11 from much of the strain put upon them.

In the hub are one or more transversely extending slots 15, whose length is the width of the film which is wound upon the reel, so as to enable the end of a film to be inserted in the slots. I have shown two such slots, but there may be any desired number.

For securing the end of a film to the reel, I provide a rubber strip 16 having transverse hook-like lugs 17 on opposite ends thereof. This strip is stretched around a part of the hub and the lugs at the end thereof inserted in the slots (see Fig. 5), the lugs hooking onto the edges of the slot, whereby the tension of the rubber holds the strip in place. There are as many such strips as there are slots.

Each strip carries film engaging means, preferably at each end thereof, in the form of a pair of projections 18, of a suitable width to engage in the usual perforation at each side of the film. These teeth or projections 18 are formed on the ends of the rubber

strips and are at an angle of approximately ninety degrees to a radius of the hub passing through them, or, in other words, extend in a plane which is substantially tangential to the circle defined by the hub. That is, they project into the slots transversely of the length of the slots.

When the end of a film is passed through one of the slots 15, the teeth 18 engage the perforations in the film strip, and thereby hold the end of the film so that it may be reeled up. Thus, it will be seen that the film may be very easily attached to the hub. The teeth being of rubber are not likely to injure the film. In the event of one of the rubber strips 16 becoming defective, it is a simple matter to replace it with a new one, no cement being necessary to hold these strips in place.

Centrally positioned in the hub and supported in the disks 5, is a central bushing of a type common in the art, through which a supporting shaft and key are passed.

Various changes and modifications may be made in the construction of the reel within the contemplation of my invention, and under the scope of the appended claims.

What I claim is:

1. A reel for motion picture films comprising a hub and side plates, said hub having a co-axially extending slot therein adapted to receive a film, and a tooth at each edge of the slot projecting part way across it for engaging a perforation in a film, the tooth at one side of the slot being adapted to engage the film when the reel is revolved in one direction and the tooth at the other side of the slot being adapted to engage the film when the reel is revolved in the opposite direction.

2. A reel for motion picture films comprising a hub and side plates, said hub having a co-axial slot therein adapted to receive a film, and a tooth on the hub at each edge of the slot projecting transversely beyond the edge of the slot and adapted to engage in a perforation in the film when the end of a film is received in the slot, the tooth at one side of the slot being adapted to engage the film when the reel is revolved in one direction and the tooth at the other side of the slot being adapted to engage the film when the reel is revolved in the opposite direction.

3. A reel for motion picture films including a hub and side flanges, said hub having a slot therein, and means carried on the outside of the hub having a tooth thereon projecting part way across the slot, said tooth being positioned to engage a perforation in a film when the end of a film is positioned in the slot.

4. A reel for motion picture films including a hub and side flanges, said hub having a slot therein adapted to receive the end of a film, and a rubber strip carried by the hub on the outside thereof having a tooth extending part way across the slot and adapted for engagement with a perforation in a film when the end of the film is inserted in the slot.

5. A reel for motion picture films including a hub and side flanges, said hub having a slot therein adapted to receive the end of a film, and a rubber strip removably carried by the hub on the outside thereof having a tooth extending part way across the slot and adapted for engagement with a perforation in a film when the end of the film is inserted in the slot.

6. A reel for motion picture films including a hub and side flanges, said hub having a slot therein adapted to receive the end of a film, a non-metallic strip secured to the outside of the hub, and a pair of teeth on the end of the strip adapted to project over the slot, the teeth being so spaced as to engage perforations in the opposite sides of a film strip when the end of the film is inserted in the slot.

7. A reel for motion picture films including a hub having side plates thereon, said hub having a slot therein adapted to receive the end of a film, and means on the hub projecting in a transverse direction from opposite sides of the slot for engaging a perforation in a film when the end of a film is inserted therein, one of said means being adapted to cooperate with the film when the reel is turned in one direction, and the other cooperating with the film when the reel is turned in the other direction.

8. A reel for motion picture films comprising a slotted hub into which the ends of a film may be inserted, and film engaging members removably secured to said hub, said film engaging members having means on the ends thereof engaging in the slot of the hub.

9. A reel for motion picture films comprising a hub and side plates carried thereby, said hub having a plurality of slots therein, and film engaging members on the hub having means thereon which hook into said slots for removably retaining said members on the hub.

10. A reel for motion picture films comprising a hub and side plates carried thereby, said hub having a plurality of slots therein adapted to receive the end of a film, and film engaging members on the hub having means thereon which hook into said slots for removably retaining the members on the hub, said members having projections at the ends thereof extending over the slots for engaging perforations in a film when the film has been inserted in the slots.

11. A reel for motion picture films comprising a hub, disks at each end of the hub, said hub having ears thereon extending

through the disk to hold the parts together, and extensions bent up against the inner faces of the disks and secured to the disks for bracing the reel.

12. A reel for motion picture films comprising a hub, disks at each end of the hub, said hub having ears thereon extending through the disk to hold the parts together, and extensions bent up against the inner faces of the disks and secured to the disks for bracing the reel, said disks being recessed to receive the extensions, whereby the extensions are set in from the main surface of the disks.

13. A reel for motion picture films comprising a hub, disks at each end of the hub having side openings therein, said hub having ears thereon extending through the disks to hold the parts together, and extensions bent up against the inner faces of the disks and having their ends passed through openings in the disks and turned over to impart rigidity to the reel.

14. A reel for motion picture films comprising a hub, disks at each end of the hub, having side openings therein, said hub having ears thereon extending through the disks to hold the parts together, and extensions bent up against the inner faces of the disks and having their ends passed through openings in the disks and turned over to impart rigidity to the reel, said extensions being spot welded to the disks.

In testimony whereof I affix my signature.

EDWIN G. NIESS-WANER.