May 5, 1931. A. GENTILUOMO 1,804,332

FIREPROOF FILM REEL

Filed Aug. 18, 1928

Fig. 1.

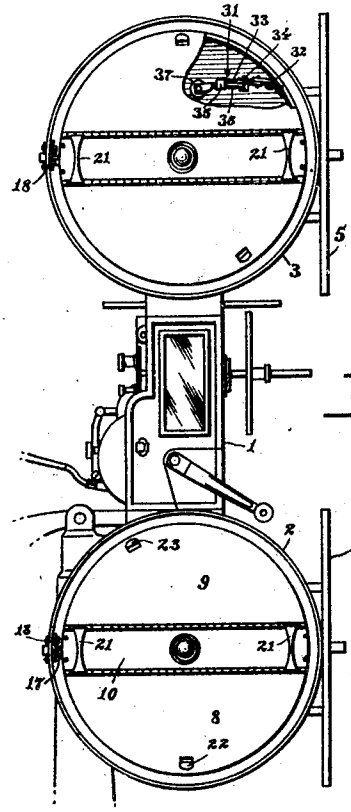


Fig. 2.

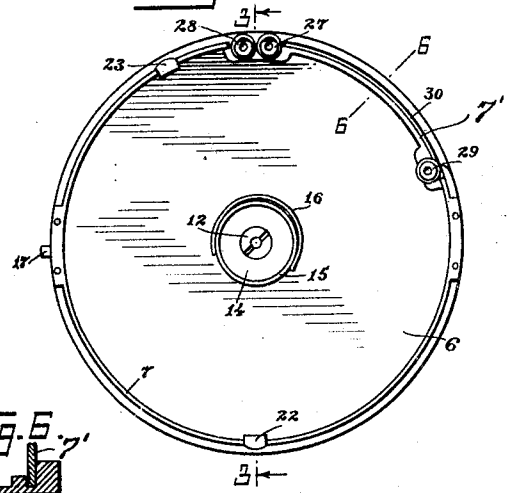


Fig. 6.

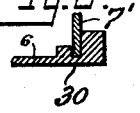


Fig. 4.

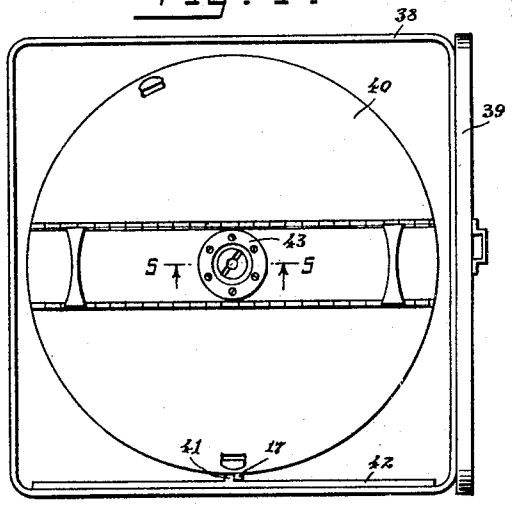


Fig. 5.

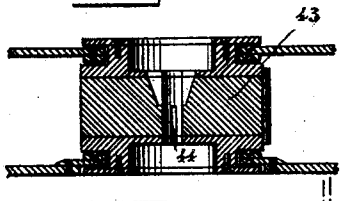


Fig. 3.

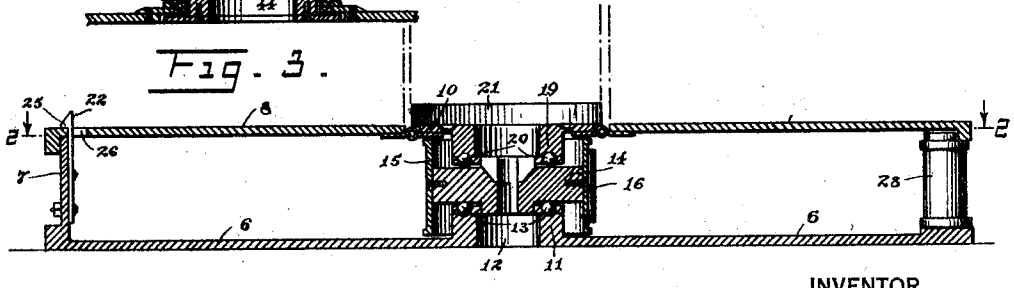
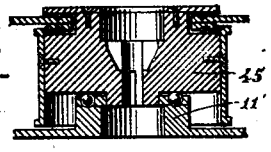


Fig. 7.



WITNESSES

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Patented May 5, 1931 1,804,332

UNITED STATES PATENT OFFICE

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FIREPROOF FILM REEL

Application filed August 18, 1928. Serial No. 300,522.

This invention relates to moving picture apparatus, and particularly to fireproof reels for projecting machines, the object being to provide a construction which may be used with any special projecting machine or with any machine now on the market, and when used presents a fireproof enclosure for the film at all times.

Another object of the invention is to provide a fireproof reel for films, wherein the film is always properly protected by metal covering and means are provided for presenting an alarm or indication when the reel is substantially empty.

A further object of the invention is to provide a fireproof film reel, wherein an enclosure is presented with doors associated with means, whereby the doors will automatically move to a closed position when released and thereby prevent an accidental exposure of the film.

In the accompanying drawings,

Figure 1 is a fragmentary side view of a projecting apparatus with a pair of fireproof reels embodying the invention shown in connection therewith;

Figure 2 is a plan view of one of the reels shown in Figure 1 with the front plate removed, the same being constructed to be used with a suitable projector;

Figure 3 is a sectional view through Figure 2 approximately on the line 3—3;

Figure 4 is a side view of a reel formed to be used with a suitable projector;

Figure 5 is an enlarged fragmentary sectional view through Figure 4 on the line 5—5;

Figure 6 is an enlarged fragmentary sectional view through Figure 2 on the line 6—6;

Figure 7 is a sectional view similar to Figure 5 showing in the upper part the covering plates and covering members and associated parts of Figure 5, and in the lower part showing the lower part of the structure as illustrated in Figure 3.

Referring to the accompanying drawings by numerals, 1 indicates a projector of any desired kind, as for instance, a desirable projector having reel cases 2 and 3. These cases are provided with doors 4 and 5 which are adapted to be closed and held by suitable fastening means when the projector is not in use. When it is desired to change a reel these doors must be opened and the old reel removed and a new one substituted. This, under the old method, exposed the film, but according to the present invention means have been provided whereby this may be done without exposing the film, and also the films stored in the room with the projector are all enclosed in sheet metal casings.

In Figures 2 and 3 a fireproof film reel is disclosed capable of being used with any suitable machine. This reel is provided with what may be termed a back 6, an enclosing wall 7, doors 8 and 9 and a mounting structure 10. The back 6 is preferably a thin sheet of metal merging into a thickened annular portion 11 having a bore 12. On the thickened portion 11 are arranged suitable balls 13 presenting a bearing surface for the rotating member 14. This rotating member is rigidly secured by screws or otherwise to a band or drum 15 on which the film is adapted to be wound. A spring clip 16 is secured to band 15 and acts to clamp one end of the film so that the film may be readily wound on the drum or readily removed.

When the reel embodying the invention is used in casing 3 the back 6 and associated parts are held stationary, while member 14 and drum 15 rotate. A bar or projection 17 is connected in any desired manner with the wall 7 and is adapted to strike against any desired form of stop 18 bolted or otherwise secured to the casing 3. By reason of this structure the reel may be readily inserted or removed but the wall 7 and associated parts are held against rotation. The doors 8 and 9 are hingedly connected to the plate 10 carrying a tubular center 19 supported on suitable balls 20. Any desired number of locks or abutment members 21 are secured to plate 10 so that when either or both doors are open they cannot be moved more than 90° and when released automatically drop back into closed position. Suitable catches 22 and 23 are provided for locking the doors normally closed. The catches are formed identical, so that the description of one will apply to both. As indicated at the left in Figure 3,

the catch 22 is formed of a flat spring member riveted or bolted to the wall 7 and merging into an enlarged head or hook 25. The lid 8 is provided with an aperture 26, whereby the head 25 may readily pass therethrough and snap over into locked position.

When the parts are in the position shown in Figures 2 and 3, the reel is ready to receive a film. One end of the film is passed between the guiding rollers 27 and 28 and to a position to be clamped by the spring 16. Drum 15 is then rotated until the film has been properly wound. The film usually substantially fills the reel so that the guiding roller 29 is used to guide the film when it is being first fed from the reel. From Figures 2 and 6 it will be noted that the cover 9 fits snugly against the wall 7 except between rollers 27 and 29, where a grooved portion 30 is provided and where a section 7′ of wall 7 is rigidly secured to the cover 9 so as to move out of groove 30 when the cover is open and move back into the groove 30 when the cover is closed. This permits an easier adjustment of the film. When the reel is being used and the film is being pulled therefrom the drum 15 will rotate and the film will be fed out in the desired manner. However, an alarm device 31 is provided for indicating when the reel is about empty. This alarm device is merely a swinging follower. Preferably the alarm device is hinged at 32 to the wall of the reel and is provided with a plate 33 having a slot therein accommodating a bolt 34. Plate 33 is provided with an encircling member 35 slidably fitted onto the plate 36, whereby when bolt 34 is loosened the plate 36 and the wheel 37 carried thereby may be moved inwardly or outwardly to vary the effective length of the alarm device. When the film is about exhausted the alarm device will fall by its own weight and strike against the side wall 7. This will make a sufficient sound to notify the operator that the reel is about empty. In Figure 4 a casing 38 is provided which is part of a machine, having a casing provided with a door 39. In this casing a reel 40 embodying the invention may be placed, said reel being identical with the reel shown in Figure 2, except for the location of the lug 17 which is positioned at a low point to engage the abutment 41 extending from the plate or bar 42. This plate or bar is loosely placed in the bottom of the casing 38 and readily acts to prevent rotation of the reel. Aside from this point and the difference in construction of the hub 43, the device is identical with that shown in Figure 2. The hub 43 is formed with a desired opening or passageway 44, whereby it may receive the usual shaft or spindle carried by the projecting machine. In this form of the invention the entire hub 43 rotates, while in the form shown in Figure 3 only the central portion rotates with drum 15. This arrangement is merely to adapt the invention to a desirable projector. Sometimes it may be desirable to make the hub formation so that it will be usable in connection with either of two makes of machine. When this is desired the structure shown in Figure 7 is used. This structure is provided with a hub member 45 which is rotatably mounted on the enlargement 11′ and which is adapted to be used with two or more makes of machines. Aside from these points the structure is the same as the preferred form.

In all forms of the invention some kind of a hub structure is necessary and the hub structure is always designed to fit the driving or driven shaft found in the machines now in use. The films when waiting to be used are completely enclosed in metal and after they have been used they are completely enclosed in metal. In this way the film is always protected against fire.

What I claim is:—

1. A fireproof film reel, including a casing formed with an upstanding wall and a hinged cover, said wall being broken away at one point and provided with a groove, said cover being provided with an extension acting as a continuation of said wall and positioned to fit into said groove when the cover is closed, a rotatable hub provided with a clamp arranged in said casing, and means for guiding the film into and out of the casing.

2. In a fireproof film reel, a casing, means at the periphery for guiding the film into and out of said casing, a hub member arranged centrally of the casing adapted to receive a film, said hub member being formed with a tubular part on which the film is adapted to be wound, a hub for said tubular part, and a pair of stationary members for holding the hub in such a position that the tubular part will be permitted free rotation within the casing, said hub member being also provided with a passageway and notches, whereby it may be operatively connected with the spindle of the film box of a projector.

3. A fireproof film reel, including a casing formed with a back member, an upstanding wall projecting from said back member, a pair of hinged front cover members coacting with said wall and said back member for forming an enclosure, a fixed central plate positioned between said hinged cover members, means for hingedly connecting said cover members to said central plate, means for normally locking said cover members to said upstanding wall, a drum structure positioned centrally of said enclosure for receiving a film, and means for guiding the film into and out of the casing.

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