Jan. 12, 1932. J. E. WHEATLEY 1,840,647

FIREPROOF CLOSABLE FILM REEL

Filed Jan. 15, 1927 2 Sheets-Sheet 1

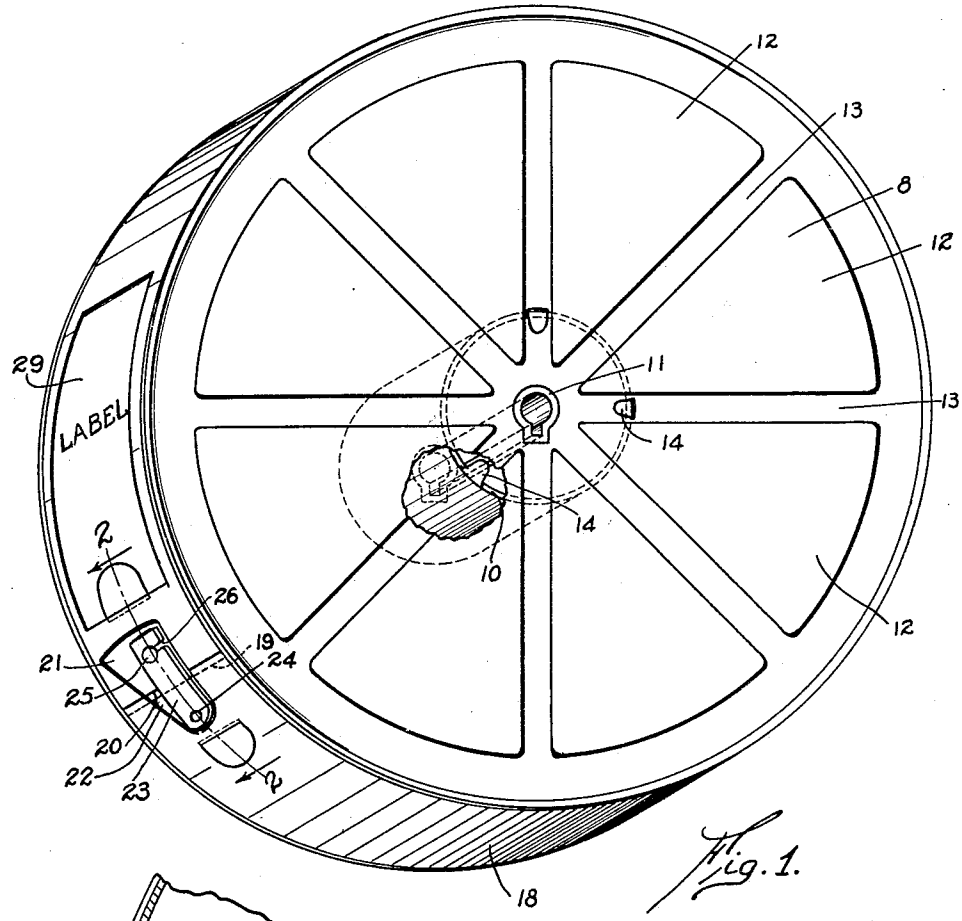


Fig. 1.

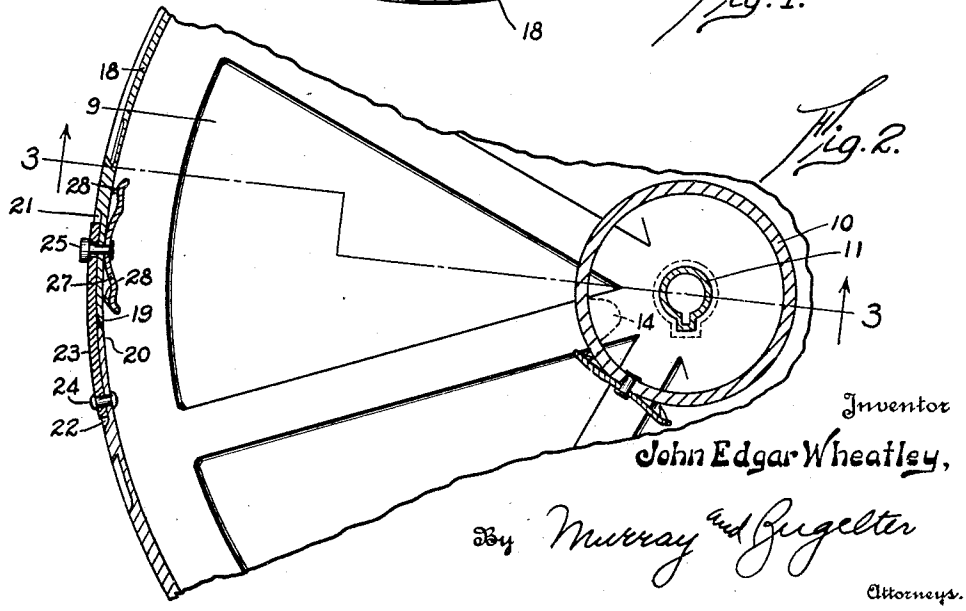


Fig. 2.

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FIREPROOF CLOSABLE FILM REEL

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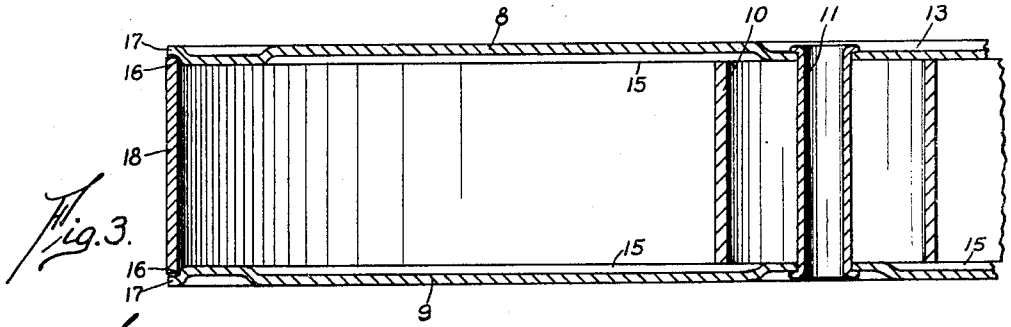


Fig. 3.

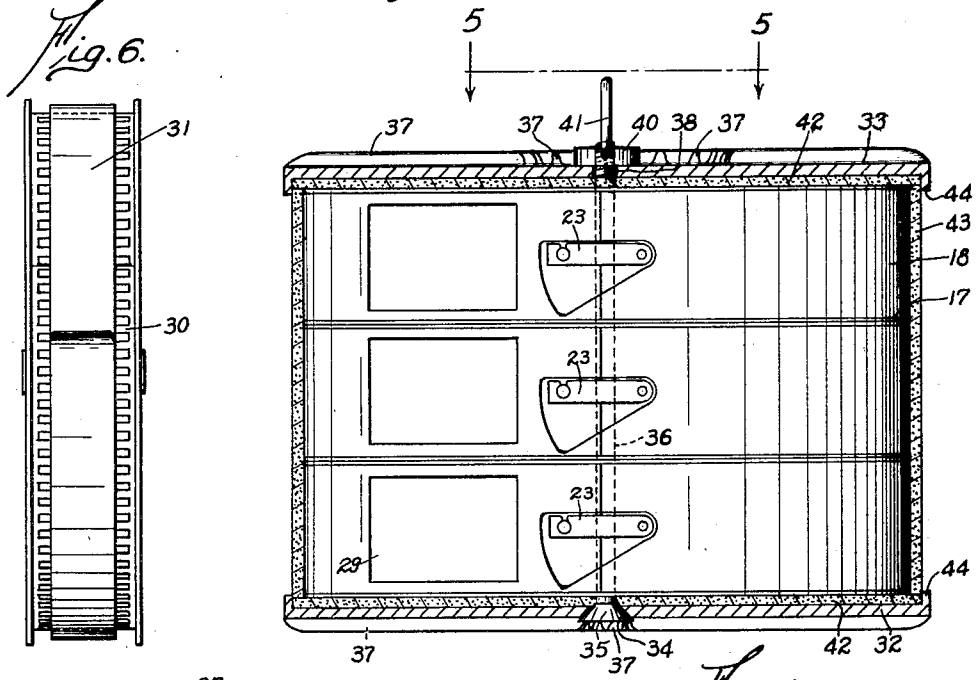


Fig. 6.

Fig. 4.

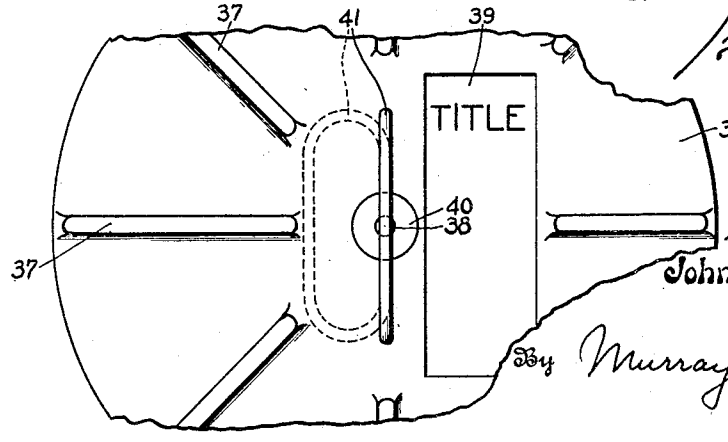


Fig. 5.

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Patented Jan. 12, 1932 1,840,647

UNITED STATES PATENT OFFICE

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FIREPROOF CLOSABLE FILM REEL

Application filed January 15, 1927. Serial No. 161,432.

This invention relates to film reels and has for an object the provision of a device which may be used in the projection of motion pictures and which, when removed from the projector may be immediately converted into a spark-proof inclosing casing for a film.

Another object is to provide a means whereby one or more of these devices may be assembled to provide a light-weight and thoroughly safe shipping container for films.

Another object of the invention is to provide a simple and rapidly applied means for banding a loaded reel.

Another object is to provide a device of the class referred to which is capable of such facile manipulation and combination into storage and shipping units as to eliminate the necessity for special shipping reels and for the commonly used shipping containers.

These and other objects are attained by the means described herein and disclosed in the accompanying drawings, in which:

Fig. 1 is a perspective view of an inclosed film reel of the invention, part being broken away.

Fig. 2 is a view taken on line 2—2 of Fig. 1.

Fig. 3 is a view taken on line 3—3 of Fig. 2.

Fig. 4 is an elevational view, partly in cross section showing a plurality of the inclosed reels secured together to provide a shipping unit for films.

Fig. 5 is an enlarged fragmental view taken on line 5—5 of Fig. 4.

Fig. 6 is an elevational view of an ordinary reel having the film banded with a modified form of part of the invention shown in Fig. 1.

Because of the inflammability of motion picture films it has heretofore been compulsory under the regulations of the fire underwriters that all motion picture films be placed in closable metal containers when not in use. In the transportation of films additional precautionary means are used to exclude every possibility of entry of spark or fire into the metal shipping containers in which the boxed reels of films are placed.

In the present invention the structure of the reel is made to provide part of a fireproof metal case and means are provided whereby the film on the reel is at once banded and securely sealed so as to completely cover all of the film and protect it from damage in handling and from exposure to fire or sparks.

One or more of these reels, thus sealed may be readily mounted between protective end plates and surrounded by a suitable cylinder of fire-proof material such as asbestos fiber whereupon they are amply protected against fire, spark and rough handling.

As will be noted in the drawings the reel is formed of a pair of imperforate discs 8 and 9 abutting opposite ends of tubular cylindrical hub 10 and provided with the usual key receiving tube 11. The discs 8 and 9 are provided with outwardly extending bosses 12 which are preferably made sector shaped and taper radially inwardly and project beyond the wall of the hub member 10. Intermediate narrow channels 13 serve to receive bendable lugs 14 on hub 10 which extend through suitable slits in the discs. The lugs 14, as will be noted in Fig 1, seat in the bottom of channels 13 and are thus protected from breakage. The channels 13 are narrow and square shouldered so as to provide strengthening ribs 15 interiorly of the reel. For this reason the reel may be made of somewhat lighter gage sheet metal than is ordinarily employed for the purpose. The discs 8 and 9 are circumferentially flanged to provide the internal square shoulders 16 which are spaced from the edges 17 of said disc. A split circular band 18 has tapered over-lapping edges 19 and 20 so that the inner circumference of the band may assume the form of a true circle The end 19 is provided with a depression 21 intermediate its edges and extending to the edge 20. A complementary depression 22 is provided intermediate the edges adjacent the opposite edge 20 of the band. A latch 23 is pivotally mounted within the depression 22 by any suitable means such as a rivet 24 and extends into the depression 21 when the band is closed. A headed stud 25 extends upwardly through the depression 21 and is received by a notch 26 in latch 23. The inner end of the stud 25 serves as a rivet to secure a resilient clamp 27 which fits snugly against the

inner face of the end 19 of the band. Teeth 28 are provided on the abutting side of clamp 27 and serve to securely retain the end of a film against the inner face of the band adjacent the end 19. A suitable elongated depression 29 is disposed in the outer face of the band adjacent the locking means and serves to receive an identification label for the film.

It will be readily apparent that with the structure just described films will be handled in the usual manner. When a reel is completely filled with film, the operator will simply slip the flexible spring band 18 about the film, and fit the end of the film beneath the toothed clamp 28. The band 18 will seat snugly between the discs and rest upon shoulders 16 whereupon the latch 23 is moved about its pivotal mounting to receive the stud 25. The film is then completely and tightly sealed against all exposure to spark or flame and at the same time is amply protected from damage due to rough handling. This sealing of the film in its own reel requires considerably less time than the presently employed banding of reels with a paper strip having a string and button attached thereto.

In Fig. 6 there is shown an ordinary film reel having a roll of film 30 thereon. A modified temporary retaining band 31 comprises a spring metal strip curved in substantially a circular form and adapted to embrace the roll of film 30 for temporarily retaining it. It should be understood that the band 31 is not required with the device shown in Figs. 1, 2 and 3, but represents an application of the present invention to film reels and films as are now in use. As a means for conveniently packing and shipping a plurality of the filled reel casings of the type shown in Fig. 1 there is provided a pair of circumferentially flanged aluminum plates 32 and 33. The plate 32 has a tapered bore 34 in the center thereof for receiving a tapered and preferably angular head 35 of a bolt 36 which is passed through the tubular members 11 of the reels. The plates 32 and 33 may be provided with external ribs 37 which strengthen said plates and also receive the wear due to hard usage. The plate 33 (see Fig. 5) has the ribs 37 interrupted about the central perforation 38 for receiving any suitable identification or shipping label such as 39. A threaded member 40 is adapted to receive the projecting end of bolt 36 for securely clamping the plates 32 and 33 upon the end faces of the group of reels. A swivel handle 41 is attached to threaded member 40 and may be used as a means for tightening the plates and also as a handle for carrying the package. When the handle 41 is not in use it may be caused to rest flat upon the top face of plate 33 and is adapted to lie beneath the top edges of ribs 37. This structure permits the convenient stacking of numbers of packages of this kind. As an additional protection against fire there are provided discs 42 of suitable asbestos material or the like which discs are received on the inner faces of plates 32 and 33. A cylinder 43 of asbestos fiber or the like may be used to surround the assembled group of reels and to be retained in position against displacement by the flanges 44 on plates 32 and 33. It should be noted that the asbestos discs 42 provide a limited resiliency against the clamping action of the plates. This clamping action does not have a crushing effect upon the cylinder 43 which is merely retained against displacement by the flanges 44.

From the foregoing it will be noted that there has been provided a means which is not only useful as an ordinary reel, but which can be quickly and easily converted into a spark-proof casing for the film, thereby not only eliminating the usual metal can employed for the purpose but also eliminates the necessity for the paper bands which frequently become worn out. The metal reel band is permanent, and the label is so well protected as to eliminate the necessity for replacement. The reel itself is adapted to very inexpensive production because of the relative thinness of the metal and because of its extreme rigidity which insures a longer period of use. When the reel band is in position the flanged edges of the reel are materially strengthened against damage.

In the assembly of a plurality of reels into a shipping package there is again effected a saving in time, and the production of a lighter and more conveniently handled package.

It will be understood that the invention herein is not to be considered as limited to the exact structural details comprising the herein disclosed practical embodiment, but may be modified within the scope and spirit of the appended claims.

What is claimed is:

1. A metallic band for film comprising a flexible strip of material having a clamp on the inner face thereof for holding the end of a film, overlapping ends on the band, a stud on one end of the band, and a latch on the other end of the band for receiving the stud whereby to lock the band about the periphery of a film reel, the clamp serving to preclude displacement of a film upon the reel.

2. In a film reel and incasing structure the combination of a pair of spaced peripherally flanged discs between which a film is adapted to be wound, a spring band adapted to seat on the flanges of the discs to completely inclose the reel, means for locking the spring band in position for frictionally binding it to the flanges against relative movement and a clamp on the inner face of the band

for retaining an end of the film against displacement upon the reel.

3. In a device of the class described the combination of a hub having a pair of peripherally shouldered discs mounted on opposite ends thereof, means for securing one end of a film roll to the hub, a band adapted to seat on the shoulders on the discs to provide an inclosing wall between said discs substantially flush with the peripheries thereof, and a film clamp on the inner face of the band for receiving the free end of the film and retaining it against movement between the discs.

4. In a device of the class described the combination of a band adapted to be locked about the periphery of a film reel and a resilient clamp on the inner face of said band for receiving a free end of a film and retaining it against displacement upon a reel.

In testimony whereof, I, have hereunto subscribed my name this 6th day of January, 1927.

JOHN EDGAR WHEATLEY.