N. POWER.

FIREPROOF MAGAZINE FOR FILM REELS.

APPLICATION FILED MAY 5, 1906. RENEWED JAN. 24, 1910.

959,601. **Patented May 31, 1910.**

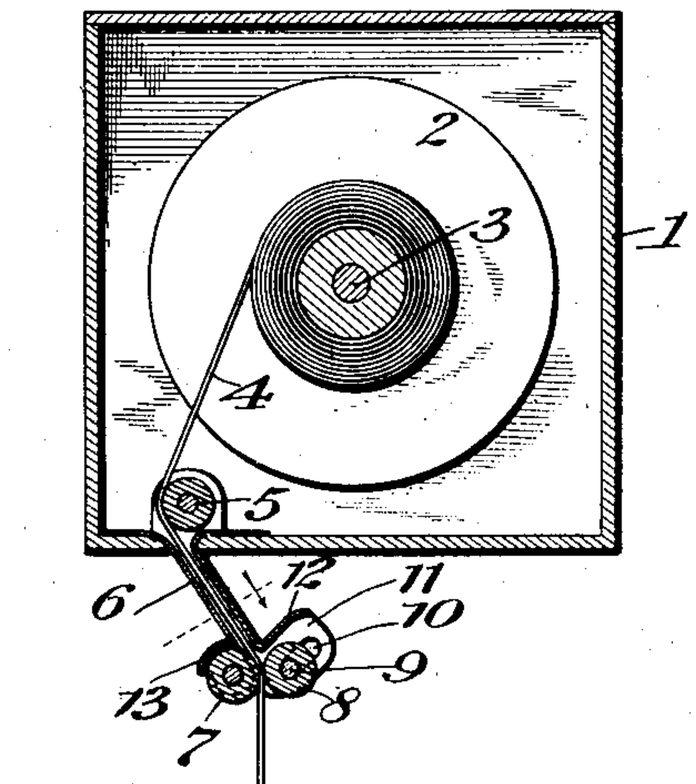


Fig. 1.

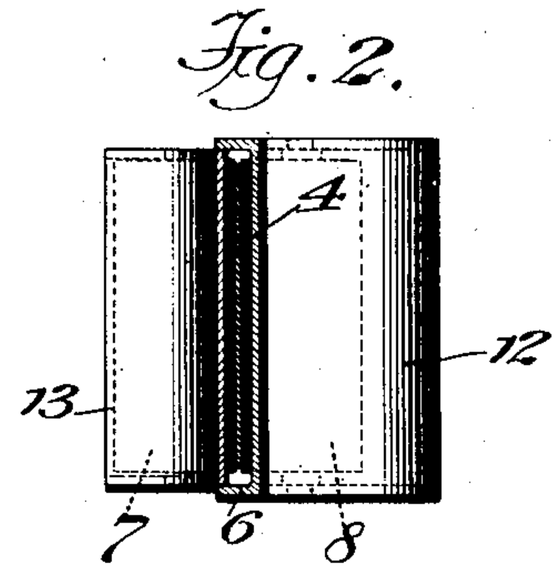
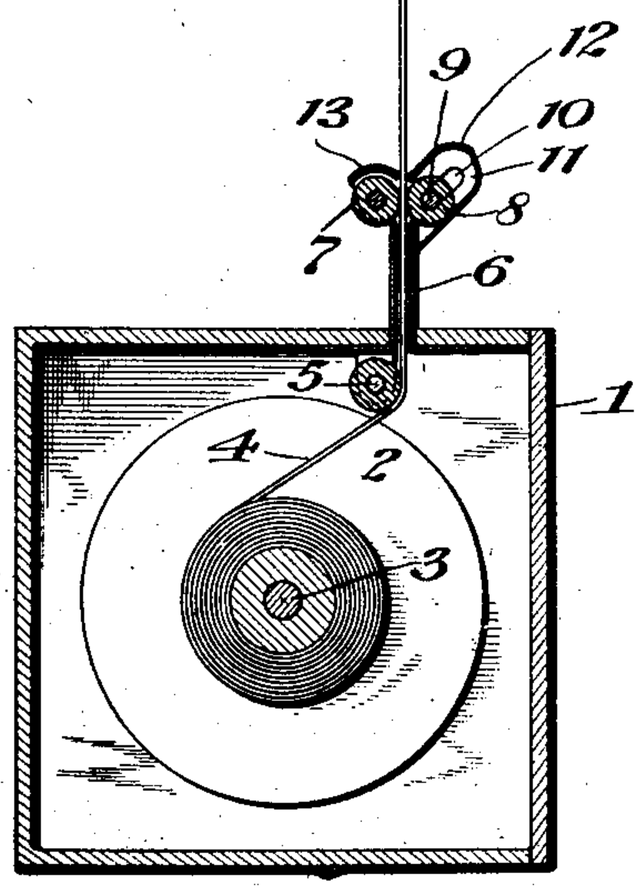


Fig. 2.



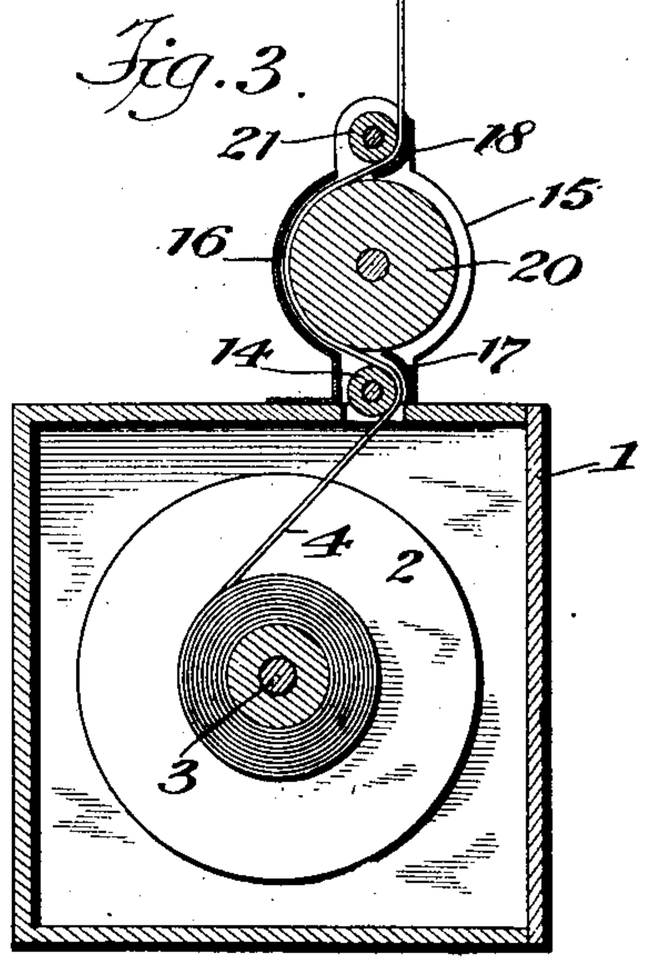


Fig. 3.

Witnesses
A. R. Appleman
Gilbert Cannon.

Nicholas Power, Inventor
By His Attorney Baxter & Morton

UNITED STATES PATENT OFFICE.

NICHOLAS POWER, OF NEW YORK, N. Y.

FIREPROOF MAGAZINE FOR FILM-REELS.

959,601. Specification of Letters Patent. Patented May 31, 1910.

Application filed May 5, 1906, Serial No. 315,358. Renewed January 24, 1910. Serial No. 539,881.

To all whom it may concern:

Be it known that I, NICHOLAS POWER, a citizen of the United States, residing in the borough of Brooklyn, county of Kings, city and State of New York, have invented a new and useful Improvement in Fireproof Magazines for Film-Reels, of which the following is a specification.

This invention relates to fire-proof magazines or cases for the film-reels of moving picture exhibiting machines, and is an improvement on the apparatus disclosed in my prior Patent No. 809,981, granted January 16, 1906.

The object of the present invention is to provide a magazine for the film-reels of moving picture exhibiting machines of such construction that it will be thoroughly effective in preventing fire from reaching the reel of film inclosed in the magazine and will cause no rubbing friction upon the film as it passes into or out of the magazine.

A further object of the invention is to provide a magazine of the character specified which will be simple, inexpensive and durable and entirely positive in its operation.

In attaining the objects above stated I employ a fire-proof casing provided with a narrow and elongated passage or guideway for the film and having a plurality of rollers suitably arranged in relation to the guideway or passage so as to protect the film from rubbing contact with any portion of the guideway or casing, and I may or may not employ a shiftable roller arranged to press the film in contact with one of the guide rollers at the outer end of the guideway or passage for the film.

In the accompanying drawings illustrative of this specification I have illustrated two slightly different types of magazine embodying the present invention, and it is to be understood that variations in the details of construction of either type of apparatus may be made without departing from the spirit of the invention or exceeding the scope thereof, which is clearly defined in the appended claims.

In the drawings: Figure 1 is a view in vertical section through two complete magazines arranged in the relative positions which they ordinarily occupy when fitted to a moving picture exhibiting apparatus. Fig. 2 is a sectional view taken on the dotted section line *a* of Fig. 1. Fig. 3 is a view in vertical section showing a magazine of slightly different type from those illustrated in the preceding figures.

Referring now to the drawing by the reference characters, 1 designates the casing or housing for a film reel or spool 2. This casing or housing may be made of any suitable fire-proof material, such as sheet iron, and will ordinarily be provided with a door (not shown). Extending transversely through the casing 1 is a spindle 3 to receive and support the film-reel or spool so that the film 4 may be freely wound on the reel in the casing or unwound therefrom as may be required. Each casing 1 is provided in the top or bottom, as the case may be, with a narrow aperture for the passage of the film, and in the casing adjacent to the film aperture is mounted a guide roller 5 over which the film passes from the reel or spool to the film aperture. Extending outward from the casing and mounted in or adjacent to the film aperture is a narrow chute 6 which forms a guideway or passage for the film. This chute 6 is preferably made of sheet iron or other sheet material not readily affected by heat and is of just sufficient width to permit the ready passage therethrough of a splice in the film. At the outer end of the chute 6 a guide roller 7 is mounted in such position that it will coöperate with the guide roller 5 located at the inner end of the chute in preventing rubbing contact of the film with the walls of the chute. Another roller 8 having its axle 9 supported in slots 10 formed in ears 11 extending upward and from the outer end of the chute serves to press the film in contact with the roller 7, the weight of the roller 8 and its axle 9 being sufficient to cause the required pressure.

A shield 12 is preferably provided over each roller 8, and a shield 13 is arranged over each roller 7, these shields serving to prevent in a measure the accumulation of dust upon the rollers.

The action of the devices associated with each casing 1 in extinguishing fire in case the film should become ignited between the two magazines will be readily understood. The rollers 5, 7 and 8 and the chute 6 are preferably formed of metal which is not only desirable on account of its incombustibility but because of its high conductivity of heat. When the film becomes ignited the flame travels almost instantly to the outer

end of the chute 6 extending from the upper or lower magazine. In the great majority of instances, the flame will be extinguished as soon as it reaches the outer end of the chute forming the guideway for the film, as the contact of the two rollers 7 and 8 with the film at that point tend to keep the film so cool that it will not ignite. If, however, the burning should not be stopped at the outer end of the chute, the tendency of the film to curl in the chute will bring the ignited portion into contact with the wall of the chute, which will still further tend to cool the film and stop combustion. The cooling of the film within the chute together with the scarcity of air to support combustion will always stop the burning of the film before the fire has passed through the chute and reached the interior of the casing.

In Fig. 3 I have illustrated a magazine consisting of a casing of the type already described, and adjacent to the film aperture or lying directly in the film aperture I have located a guide roller 14 for the film which is mounted in a combined bracket and shield 15 which is fixed on the exterior of the casing. The structure 15 comprises curved shields 16, 17 and 18 for the film and affords support for the roller 14 and two other rollers 20 and 21 respectively. Each roller is arranged adjacent to one of the shields, and the axes of the rollers are preferably arranged in the same vertical plane. The passage of the film into the casing is therefore quite sinuous and at every point of the passage one side thereof is formed of a fixed shield and the opposite side is the surface of one of the rollers. The rollers are so placed that the film lies always in contact with them and does not come into contact with the shields except when the film is ignited.

The operation of this device depends in part upon the resiliency of the film and its tendency to curl. If the film becomes ignited above the upper roller 21 the tension upon the film is relaxed and it tends to spring into contact with the shields which form a part of the wall of the guideway or passage. This guideway or passage is only of sufficient width to permit the passage of a splice in the film and in consequence the ignited portion of the film is inevitably brought into contact with the roller 21 and the opposite shield 18 practically at the instant that the flame reaches the upper part of the structure 15. This contact is ordinarily sufficient to extinguish the flame and prevents its further passage along the film. If the burning does not cease at the top of the structure 15 the passage of the flame around the roller 20 and the roller 14 cannot occur on account of the limited supply of air and the contact of the ignited portion of the film with both rollers and the opposite shields, all of which are made of iron or other highly conductive metal.

From the foregoing description of the two slightly different types of magazine illustrated in the drawings it will be obvious that the passage of the film into or out of either type will not be accompanied with any rubbing friction upon the film, thus preventing injury to the film itself and minimizing the wear upon the parts of the apparatus which come into contact with the film.

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

1. A magazine for inflammable films comprising a casing or housing of non-inflammable material, a narrow guidway or passage having closed sides projecting from the casing through which the film must pass into said casing or housing, and guiding means external to the casing or housing associated with said guideway or passage to prevent rubbing contact of the film with said guideway or passage.

2. A device for extinguishing ignited picture films comprising a narrow guideway or passage and a plurality of guide rollers so arranged relative to said passage as to prevent rubbing contact of the film with the fixed portions of said guidway or passage, and a shiftable roller normally resting against said film and holding it in contact with one of said guide rollers, said shiftable roller and the adjacent guide roller being supported at the outer end of said guideway or passage.

3. In apparatus of the character specified, the combination with a narrow guideway or passage for a moving picture film of a guide roller arranged adjacent to the outer end of said passage, and a shiftable roller arranged opposite said guide roller and normally pressing against the film and holding it in contact with said guide roller.

4. In apparatus of the character specified, the combination with a narrow guideway or passage for a moving picture film of a guide roller mounted adjacent to the outer end of said passage and a shiftable roller having an axle mounted in inclined slots so arranged that said shiftable roller lies normally in contact with the film and presses it against said guide roller.

5. A film magazine comprising a casing, a narrow guideway having closed sides projecting therefrom through which the film must pass, and guiding means at the outer end of the guideway.

In testimony whereof, I have signed my name in the presence of two witnesses.

NICHOLAS POWER.

Witnesses:
A. M. KILBURN,
BAXTER MORTON.