May 8, 1923. 1,454,817

J. G. JONES

PHOTOGRAPHIC CARTRIDGE

Filed July 25, 1921

FIG. 1.

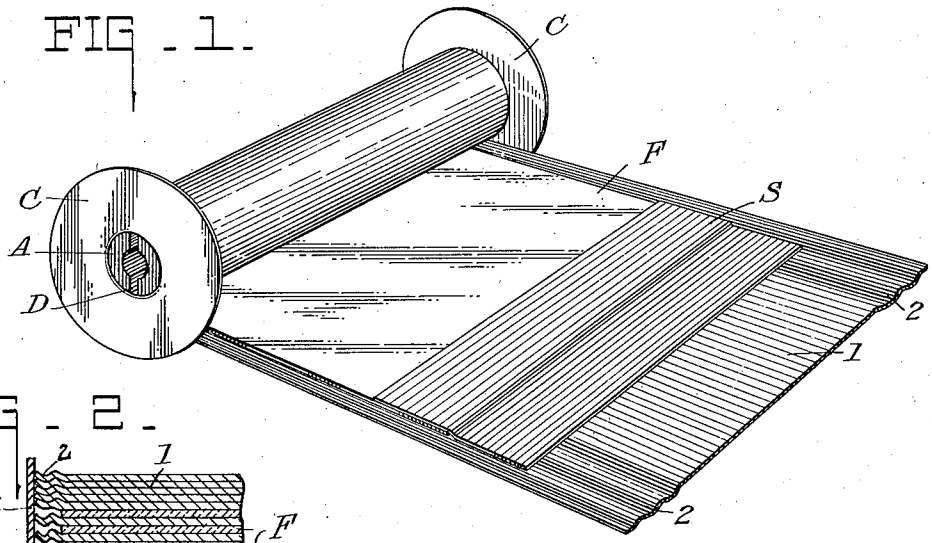


FIG. 2.

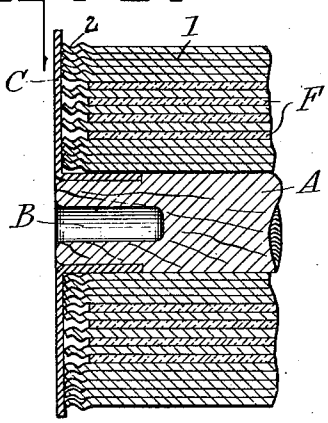


FIG. 3.

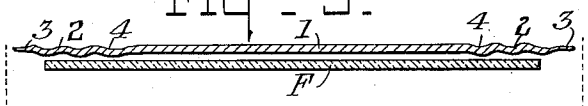


FIG. 4.

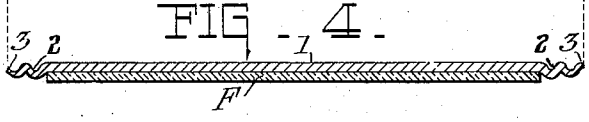


FIG. 5.

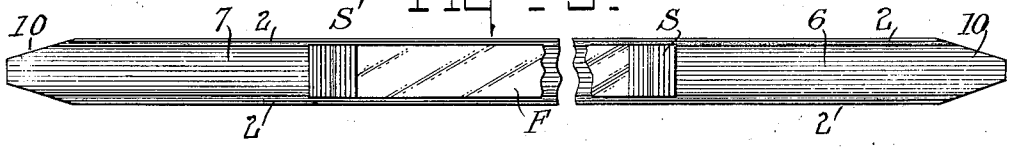
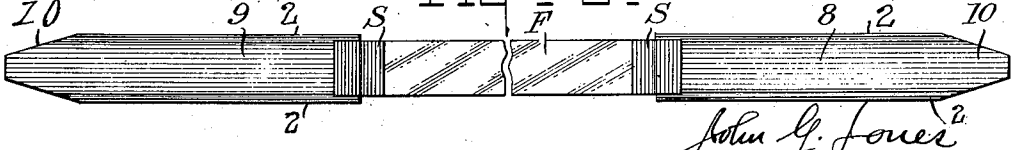


FIG. 6.



WITNESS

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Patented May 8, 1923. 1,454,817

UNITED STATES PATENT OFFICE.

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PHOTOGRAPHIC CARTRIDGE.

Application filed July 25, 1921. Serial No. 487,452.

To all whom it may concern:

Be it known that I, JOHN G. JONES, a citizen of the United States of America, residing at Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Photographic Cartridges, of which the following is a full, clear, and exact specification.

This invention relates to photographic roll film cartridges of the type commonly used in cameras and comprising a roll of film and protective paper therefor.

More particularly this invention has for its object the elimination of the fault commonly known as edge fog which results from the undesired leaking of light into the margin or border of a roll film.

I have discovered that it is possible to so construct the backing paper that its effective width as it is being spooled is not greater than the distance between the end flanges, but when subject to the pressure of the tight winding on the spool, it will expand laterally and the edges will be forced tightly against the inner edges of the flange, forming light tight seals. Preferably these undulations are formed longitudinally of the margins of the protective paper which are made thinner than the median portion thereof; and preferably there is a series of these undulations, the innermost ones being well within the edge of the film opposite its surface.

It is obvious that numerous modifications embodying the principles above described are possible, and I consider all of these as comprised within the scope of my invention as defined in the appended claims.

I will now describe specifically certain illustrative forms, which also include certain features of my co-pending applications, Serial Nos. 487,447 and 487,450 filed July 25, 1921, reference being now made to the figures in the accompanying drawing. Those parts which are the same in the various figures bear the same reference characters in each. It is to be understood that the figures are not drawn to scale, but are so proportioned as best to illustrate the features of my invention.

Fig. 1 is a perspective view of a partially unwound film cartridge, the leader strip being broken away;

Fig. 2 is a section of one end of such a cartridge;

Fig. 3 is a section of the film and the backing paper showing the condition of the latter when not under pressure;

Fig. 4 is a similar section showing the condition of the backing paper under pressure;

Fig. 5 is an elevation of the film and backing paper unrolled;

Fig. 6 is an elevation showing a film having lead strips at the ends only.

Upon a film spool of ordinary character comprising a core A and metallic end flanges C, the core having at one end an axial pintle opening B and at the other end a winding slot D, are interwound a strip of film F and a piece of backing paper 1, the latter being longer than the film which is attached thereto by the usual sticker S. As thus far described, the cartridge is in every way similar to that in general use. The backing paper includes, however, certain important modifications. The original width of the material is greater than the distance between the flanges of the spool for which it is intended and adapted, but there are made along the margins longitudinally extending undulations 2 the effect of which is to laterally contract the backing paper as a whole, so that its effective width is less than it would otherwise be and not greater than the distance between the flanges of the spool for which it is intended and adapted. When the film and the backing paper are tightly interwound upon the spool, the pressure of the convolutions or coils one upon another is great enough to flatten out these undulations, thus expanding the backing paper laterally and forcing the extreme edges against the inner surface of the flanges, as indicated in Fig. 2.

The material of the backing paper may be of uniform thickness throughout, as indicated in Figs. 1 and 2, or it may be thinner, tapered or beveled at its margins, as indicated at 3 in Figs. 3 and 4. As shown there, the inner undulations 4 indicated in Fig. 3, which shows the condition

of the paper when not under pressure, are flattened out when tightly coiled as indicated in Fig. 4, this figure also indicating the parts of the margin beyond the film as being compressed against the flanges. Because of the greater flexibility of the edges, the compression of this form against the flanges may take place more readily. In both forms, however, it is evident that due to the tendency of the paper to contract laterally upon itself there will not occur during the winding and unwinding of the film, and particularly during the spooling operation, such pressure or friction between the edges of the material and the flanges as to cause objectionable jamming or binding.

In Figs. 1, 2 and 5 the backing paper is shown as extending throughout the length of the film and beyond the ends thereof to form end strips 6 and 7, the trailing end of the film having attached thereto a sticker S′ which is not attached to the backing paper.

In Fig. 6 a modified form is shown in which the film F is attached by the usual stickers S to lead strips 8 and 9 only, which embody the modifications above described with reference to the backing paper, there being no backing paper opposite the film in this form. In both embodiments of the invention the ends of the lead strips are tapered as shown at 10, this being customary. It is to be noted that in both of the above illustrative embodiments the end strip which lies outside of and around the film constitutes strip material wider than the distance between the flanges, and the edges of these act as light seals, preventing the ingress of light.

It is to be further understood that while the different modified forms that I have described and suggested and others which are their equivalents come within the scope of my invention as claimed, these different forms naturally vary in their practicability, their advantages and disadvantages and their efficiency. In this application I have particularly claimed that form which has thinner margins and undulations extending the entire length of the backing paper, this being a particularly desirable form. It is apparent, however, that it embodies certain characteristics applicable to cartridges differing widely therefrom and I contemplate such variations and modifications as within the scope of my invention as hereinafter claimed.

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

1. A photographic cartridge comprising tightly interwound sensitized material and protective material, there being in the protective material longitudinally extending portions which tend to assume a laterally contracted position but which are held in a laterally expanded position in the cartridge by the pressure of the interwound material.

2. A photographic cartridge comprising a roll of sensitized material, a support therefor comprising spaced end flanges and a strip of protective material tightly coiled around said sensitive material and having longitudinally extending undulations, the total width of the material being greater than the distance between the flanges, the pressure of the coils holding said undulations flattened in the cartridge so that the edges of the protective material are forced into contact with the flanges.

3. An article of manufacture comprising tightly interwound sensitized material and protective material, a support therefor comprising spaced end flanges, the total width of the protective material being greater than the distance between the flanges, there being in the protective material longitudinally extending portions which tend to assume a laterally contracted position but which are held in a laterally expanded condition by the pressure of the interwound material, so that the edges thereof contact the flanges.

4. A photographic cartridge comprising tightly interwound sensitized material and protective material, a support therefor comprising spaced end flanges, the total width of the protective material being greater than the distance between the flanges, there being in the said protective material longitudinally extending portions tending to assume an undulating form and thus to contract the protective material laterally, but which are held in the cartridge in a flattened condition by the pressure of the interwound material, so that the edges of the protective material are forced outwardly into contact with the flanges.

5. A photographic cartridge comprising a spool with end flanges, sensitized material and protective material wound thereon, the total width of the protective material being greater than the distance between the flanges and there being formed along the margins thereof longitudinally extending undulations.

6. A photographic cartridge comprising tightly interwound sensitized material and protective material, the protective material being wider than the sensitized material and the margins thereof being thinner than the median portion thereof, there being longitudinal undulations formed in the protective material and extending along said margins.

7. A photographic cartridge comprising a spool with end flanges, sensitized material and protective material tightly wound thereon, the total width of the protective material being greater than the distance between

the flanges, the margins thereof being thinner than the median portions, and there being formed along the margins longitudinally extending undulations, which in the cartridge are held in flattened condition.

8. A photographic cartridge comprising tightly interwound sensitized film and protective material, the protective material being wider than the film, and having along its margins and extending inwardly beyond the edges of the sensitized bands, longitudinally extending undulations, the pressure of the coils holding said undulations flattened.

Signed at Rochester, New York, this 21st day of July, 1921.

JOHN G. JONES.