

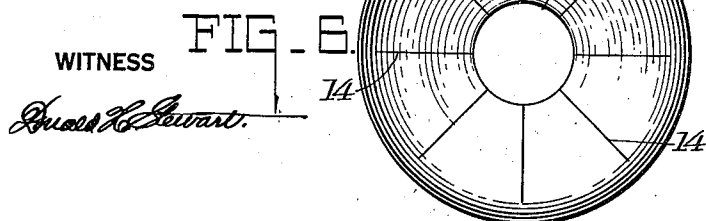
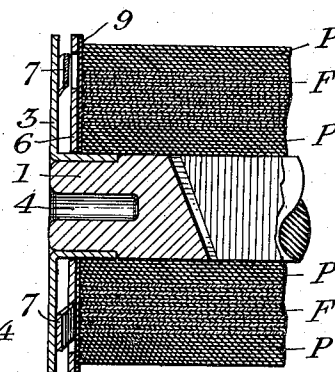
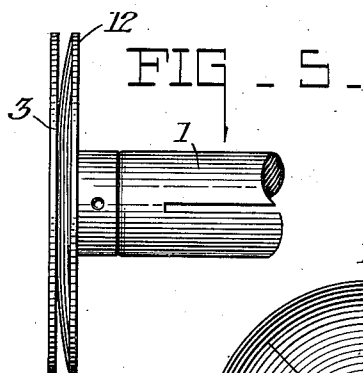
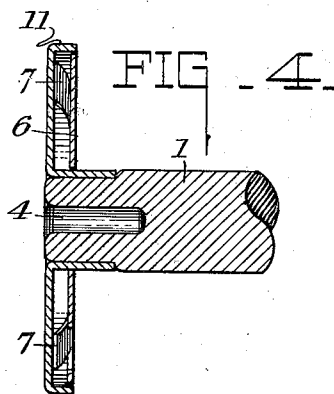
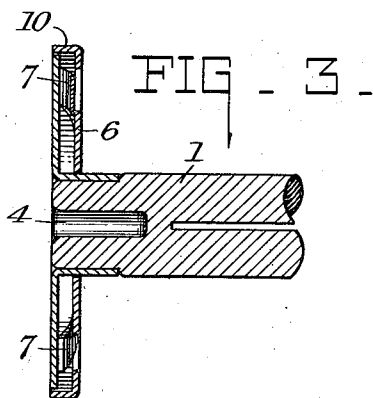
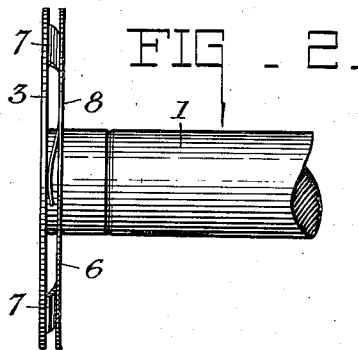
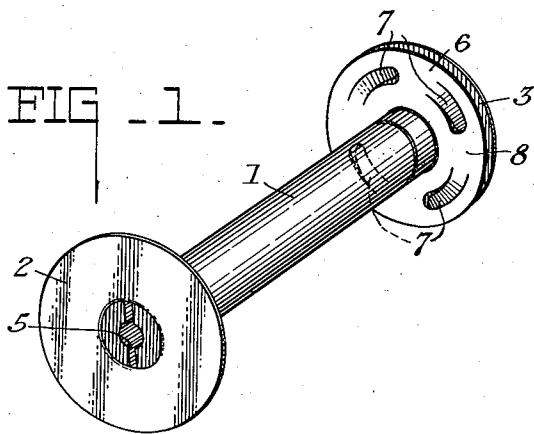
May 8, 1923.

1,454,818

J. G. JONES

PHOTOGRAPHIC CARTRIDGE

Filed July 25, 1921



John G. Jones,
INVENTOR
BY *R. L. Strickfield*
N. M. Perrins
ATTORNEYS.

UNITED STATES PATENT OFFICE.

JOHN G. JONES, OF ROCHESTER, NEW YORK, ASSIGNOR TO EASTMAN KODAK COMPANY,
OF ROCHESTER, NEW YORK, A CORPORATION OF NEW YORK.

PHOTOGRAPHIC CARTRIDGE.

Application filed July 25, 1921. Serial No. 487,453.

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.

10 This invention relates to photographic roll film cartridges of the type commonly used in cameras and comprising a spool upon which is rolled bands of film and protective paper therefor.

15 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 margins or border of a roll film. It has been impractical to avoid edge fog by cutting the ordinary backing paper throughout its length of such a width as always to contact with the inner surface of both end flanges of the spool upon which it is wound.
20 Certain tolerances must be allowed in manufacture, and the width of the backing paper may vary to an appreciable extent because of atmospheric conditions. When the backing paper is cut so wide as to contact with the flanges under all conditions, the friction between the paper and the flange may be considerable because of the expansion of the paper due to moisture. It has been usual, therefore, to allow such tolerances
25 that it is not uncommon for a space to exist between the end of the coil and the flange through which light may leak to the margins of the sensitized film.

30 It is desirable, therefore, to so design the backing paper and flanges that there is a resilient interaction between them, whereby the expansion of the paper is taken up, but without causing such friction between the flange and paper as to render impractical rapid spooling during manufacture or
35 use in an ordinary camera.

I have discovered that, if the backing paper is cut somewhat narrow and a spacing flange of a character to be later described is placed between the end of the flange and the end of the coil, so as to press resiliently against the coil, it will force the opposite end of the backing paper against

the opposite flange while it is pressing that end of the coil, thus preventing the ingress
55 of light at both ends of the coil.

It is obvious that numerous modifications of 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. Certain illustrative forms will be specifically described, these being shown in the figures of the drawing to which reference will now
60 be made. Those parts which are the same in the various figures bear the same reference characters in each.

Fig. 1 is a perspective view of a spool embodying the features of my invention;

Fig. 2 is an end elevation of one end of
65 this spool;

Fig. 3 is a section of one end of a modified form of spool;

Fig. 4 is a section of one end of another modified form of spool;

Fig. 5 is an elevation of one end of still another modified spool;

Fig. 6 is an elevation of the auxiliary flange used in the form shown in Fig. 5;

Fig. 7 is a section of one end of a film
75 cartridge including the film and paper wound upon still another modified form of spool.

My improved spool consists of a core 1 of the usual type, upon opposite ends of
80 which are fixed metallic flanges 2 and 3, the core having at one end an axial pintle opening 4 and at the other end the usual key slot 5. Loosely mounted upon the core is an auxiliary flange 6 comprising an annular resilient sheet metal member having struck out from the body thereof resilient
85 springs 7. When the bands of coiled material including film F and backing paper P are wound upon such a spool between one end flange 2 and the auxiliary flange 6, the latter will be forced between the end of the coil of material and the other flange 3, and the resiliency of the tongues 7 will constantly
90 force the inner surface 8 of the auxiliary flange tightly against the end of the coil of the material. If the coil should now expand due to moisture, it would, of course, somewhat increase the compression of the springs 7, but not enough, nevertheless, to
95 cause the material to jam or tear in use, and

it would under all conditions maintain a tight joint between the ends of the coil and the contacting surfaces.

The resilient tongues may be struck from either flange. When the material of the resilient tongues is struck from the auxiliary flange, it leaves small openings through which a small amount of light may leak. It is to be understood, however, that the separation of the two flanges is much exaggerated in the drawings for clearness of illustration, and that ordinarily these openings are filled by the material of the flanges, the flanges being spaced by a distance less than the thickness of the spring, so that the amount of light that can leak through them is negligible and much less than frequently occurs under ordinary conditions. However, in order to prevent any such accidental light leak, the interior surface of the auxiliary flange may be lined with paper, as indicated at 9, Fig. 7. Another way of overcoming this difficulty is to flange either the auxiliary disk shown at 10 in Fig. 3, or to flange the fixed disk as shown at 11 in Fig. 4, in either case the flanged disk encircling the other and constituting a light seal for the space between the two flanges.

Another modification of my invention consists of making the auxiliary flange of a single annulus of sheet metal 12, which is cupped as shown in Figs. 5 and 6. This flange preferably fits loosely upon the core where it joins the fixed flange 3 at one end of the spool. The auxiliary flange has a central opening 13 from which extend radial slits 14.

It will be obvious that this form, like the one first described, has an inner surface which bears against the end of the coiled material, although in this case it bears particularly against the outer convolutions thereof, and it has an opposite resilient portion or surface which bears against the fixed end flanges. In each of the forms described there is an inner surface lying in a plane and bearing against the end of the coil and the outer surface bent from that plane and bearing against one of the flanges. In certain of its aspects the forms shown in Figs. 5 and 6 may be considered as a modification of the film spool described and claimed in the application of Edwin F. Kingsbury, Serial No. 438,888, filed Jan. 21, 1921.

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

1. A photographic film cartridge comprising a core with fixed end flanges, a coil thereon comprising bands of sensitized material and of protective material, and an an-

nular auxiliary flange loosely mounted on said core between, and having opposed surfaces bearing against, one end of said coil and the adjacent flange, said auxiliary flange being resiliently resistant to compression.

2. A photographic film cartridge comprising a core with fixed end flanges, a coil thereon comprising bands of sensitive material and protective material, an auxiliary flange on said core between one end of the coil and the adjacent end flange, said auxiliary flange comprising an annulus of sheet metal, having one surface bearing resiliently against the end of the coil and another surface bearing resiliently against the flange.

3. A photographic film spool comprising a core with fixed end flanges and an auxiliary flange loosely mounted on said core adjacent one end flange and comprising a bearing surface adapted to bear against the end of a coil of material wound on the spool, and another bearing surface adapted to bear against the adjacent flange, and resiliently resistant to pressure between the two surfaces.

4. A photographic film spool comprising a core with fixed end flanges, and an auxiliary flange comprising a resilient sheet metal annulus mounted on said core adjacent one end flange and comprising a portion lying in one plane and adapted to bear against the end of a coil of material wound on said spool, and another portion bent out of such plane and adapted to bear against the end flange, whereby resilient pressure may be brought to bear between the flange and coiled material.

5. A photographic film spool comprising a core with fixed end flanges, and an auxiliary flange loosely mounted on said core adjacent one end flange and comprising an annulus of sheet metal, the edge of which lies in one plane, and having part lying out of such plane to constitute a resilient spring portion adapted to press against the adjacent end flange, whereby when strip material is coiled upon said spool said auxiliary flange will bear resiliently between one end flange and the corresponding end of the coil of material.

6. A photographic film spool comprising a core with fixed end flanges, and an auxiliary flange loosely mounted on said core adjacent one end flange, there being resilient means between the auxiliary flange and the adjacent fixed end flange tending to force them apart.

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

JOHN G. JONES.