Dec. 7, 1926. 1,610,134

J. G. JONES

METHOD OF MAKING PHOTOGRAPHIC CARTRIDGES

Filed Dec. 4, 1925

FIG. 1.

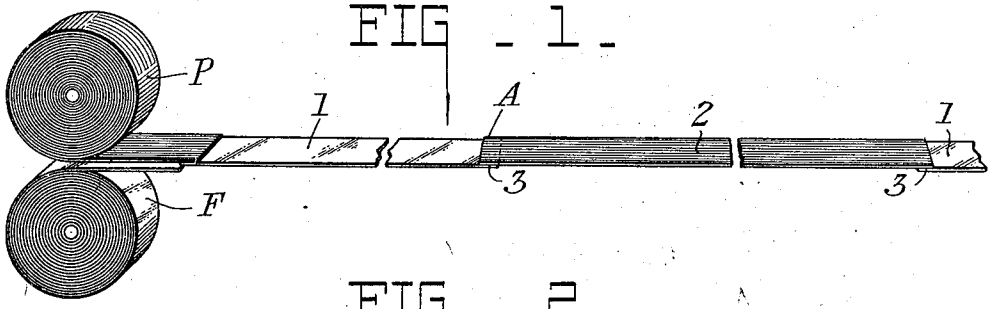


FIG. 2.

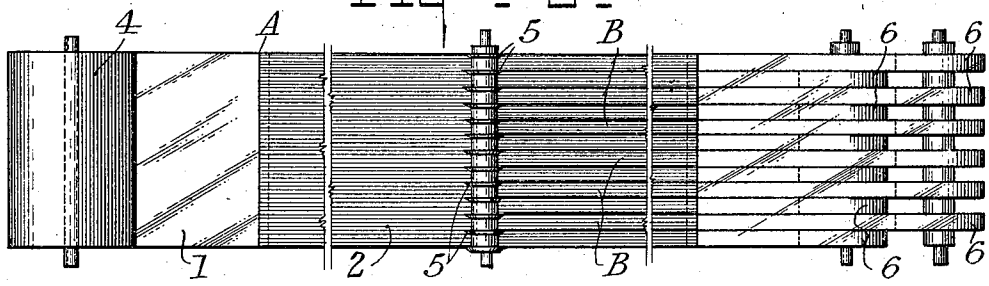


FIG. 3.

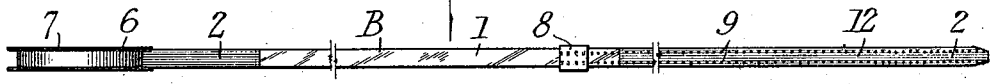


FIG. 4.

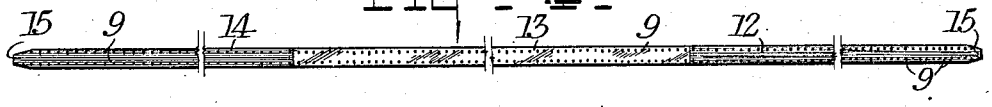


FIG. 5.

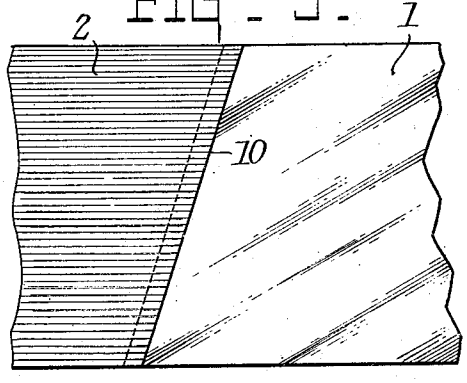
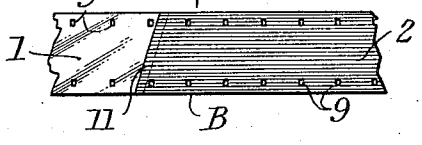


FIG. 6.



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UNITED STATES PATENT OFFICE.

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METHOD OF MAKING PHOTOGRAPHIC CARTRIDGES.

Application filed December 4, 1925. Serial No. 73,130.

This invention relates to a method of making and assembling the strip material to be used in the manufacture of rolls of sensitized material.

It has been customary in such manufacture to make a wide band, comprising a support of pyroxylin or the like coated with photographic emulsion, then to slit this band into narrow strips of the desired width, then to perforate these strips, if desired, and take a large roll of the desired width to the cartridge assembling station where each individual length was cut off as needed, either by hand or by automatic means, and to attach to it lead strips of the desired length by an adhesive. When the adhesive is dried the assembled strip is wound up.

I have found that economies can be effected if the wide strip is cut into the desired lengths and these lengths connected by equally wide strips of protective material. A single splicing operation can be performed on the wide strip in the same time that would be required for each individual narrow strip since the greater part of the time required is needed for the adhesive to dry. Moreover, the material will be prepared so that no delay whatever takes place at the time of spooling on the final cartridge. As there may be as many as sixty narrow strips cut from a single wide one, the saving is very considerable. Other objects and advantages will appear hereinafter.

Other objects and advantages of my invention will appear from an inspection of the accompanying description in which reference is made to the accompanying drawing wherein,—

Fig. 1 illustrates an arrangement whereby two kinds of strip of material may be joined in alternating sequence in a band;

Fig. 2 shows such a band being slit into narrow strips which are rolled into individual reels;

Fig. 3 shows such a narrow strip being perforated;

Fig. 4 shows the strip material used on a single cartridge;

Fig. 5 illustrates one form of splice for the wide band;

Fig. 6 illustrates a narrow strip made from a band spliced as in Fig. 5.

In carrying out my invention two rolls of strip material are taken, of which one, F, is of photographic film of any known or usual type such as a pyroxylin base, coated with sensitive emulsion, while the other, P, is of protective material such as opaque paper. These are successively unrolled for the desired measured distances and strips of the required length cut off, and joined in alternating sequence in a combined band A by splices 3. As shown, one end of a long strip of film 1 appears at the right of Figure 1, then a strip of protective paper 2, then another strip of film 1, to which is attached the end of the paper still on the roll which is about to be unwound the required distance.

If the cartridges for which the film is intended are those for small motion picture cameras, for instance, the strips of film might be fifty or one hundred feet long and the strips of paper might be about fifteen feet. The strips are spliced together by any well known adhesive such as are ordinarily used for this purpose, and the operation of pulling off the lengths alternately, measuring, cutting and joining can obviously be done manually or by suitably designed machines.

For purpose of illustration the strip is shown in Fig. 1 as extended, but of course in ordinary practice it would be rolled up at once into one large roll such as 4 in Fig. 2. In this figure, a combined band A is shown as being drawn from such a roll and passed through a series of rotating slitters 5 of a known type and thus divided into a series of narrow strips B which are individually reeled up at 6.

Such a reel on a spool 7 is shown in Fig. 3 as being unwound and passed through a perforator shown conventionally at 8 which forms standard perforations 9 in the strips B.

A long strip of narrow perforated combined material is fed to an operator or automatic machine when cartridges are to be manufactured and the operator or machine, beginning with a lead strip of ordinary length, merely winds the material upon successive spools or reels until the initial lead strip 12, a length of film 13 and half a length of paper is wound thereon. The strip is then severed half of it constituting the tail strip 14 and the other half the lead strip for the next cartridge. The severing tool may form the ends of the protective strips in any desired way as shown at 15.

In Fig. 5 the wide strips 1 and 2 are joined

by an oblique splice 10 and a narrow band B with an oblique splice 11 is shown in Fig. 6. This has certain advantages, particularly in reducing breakage in passing around a sharp bend or sprocket. In such long strips as here are contemplated, the normal shrinkage of the material renders it impossible to calculate exactly where the splice will lie with respect to sprocket holes and, if the edge of the material coincides with the registering edges of opposite perforations, it makes a place peculiarly susceptible to bends and breaks. The oblique splice is so inclined as to insure its not passing through two perforations, the edge of the material cannot coincide with the edge of a perforation and the splice passes a bending point gradually instead of abruptly.

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

1. In the process of manufacturing photographic cartridges each comprising a strip of sensitive material with lead and tail strips, the steps of assembling a wide band comprising alternate strips of sensitive material and protective material, slitting said band longitudinally to form narrow bands each comprising alternate strips of sensitive material and protective material, severing each narrow strip of protective material at an intermediate point in its length, thus dividing the band into individual lengths each comprising a strip of sensitive material with lead and tail strips.

2. In the process of manufacturing a photographic film cartridges each comprising a strip of film with lead and tail strips, the steps of assembling a wide band comprising alternate strips of film and protective material, slitting said band longitudinally to form narrow bands each comprising alternate strips of film and protective material, severing each narrow strip of protective material at an intermediate point in its length, thus dividing the band into individual lengths each comprising a strip of film with lead and tail strips and coiling said individual lengths into film cartridges.

3. The method of assembling strip material for photographic cartridges that consists in severing a long, wide strip of sensitized flexible material at intervals, severing a long strip of protective material of the same width at intervals equal to the combined desired lengths of the lead and tail strips for a single cartridge, uniting the lengths thus obtained to form a single long strip having alternate lengths of sensitized and protective material, slitting the resulting strip longitudinally into bands of the width desired for the proposed cartridges and severing each length of protective material at an intermediate point to form lead and tail strips.

4. The method of assembling photographic cartridges that comprises severing a long wide strip of sensitized film at intervals equal to the desired length for a single cartridge, severing a long wide strip of protective material of the same width at intervals equal to the combined desired lengths of the lead and tail strips for a single cartridge uniting the lengths thus obtained to form a single, long strip, having alternate lengths of sensitized and protective material, slitting the resulting strip longitudinally into bands of the width desired for the proposed cartridges severing the lengths of narrow protective material at an intermediate point to divide the material into individual lengths each comprising a strip of film and lead and tail strips therefor and winding such individual lengths upon spools to form photographic cartridges.

5. In the process of manufacturing photographic cartridges each comprising a strip of sensitive material with lead and tail strips, the steps of severing obliquely a long wide strip of sensitized flexible material at intervals, severing obliquely a long strip of protective material of the same width at intervals, uniting the lengths thus obtained to form a single long strip having alternate lengths of sensitized material and protective material connected by oblique splices, slitting the resulting strip longitudinally, and severing each length of protective material at an intermediate point.

6. In the process of manufacturing photographic film cartridges each comprising a strip of film with lead and tail strips, the steps of cutting at an oblique angle a long wide strip of film at intervals, cutting at the same oblique angle a long strip of protective material of the same width at intervals, uniting the lengths thus obtained to form a single long strip having alternate lengths of film and protective material connected by oblique splices, splitting the resulting strip longitudinally to form narrow strips, perforating the narrow strips, and severing each length of protective material at an intermediate point to form individual lengths each comprising a perforated narrow strip of film with perforated lead and tail strips, and coiling the individual lengths into photographic cartridges.

Signed at Rochester, New York, this 30th day of November 1925.

JOHN G. JONES.