

N^o 26,173



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PROVISIONAL SPECIFICATION.

**Improvements in or relating to Apparatus for Printing
Cinematograph Films.**

I, COLIN NOEL BENNETT, of 9, Morrab Road, Penzance, Cornwall, Journalist, do hereby declare the nature of this invention to be as follows:—

This invention relates to apparatus for making a print or positive film from a cinematograph negative film.

5 The object of this invention is to provide means for printing two or more pictures on each film simultaneously.

The apparatus used in making a print or positive film from a cinematograph negative film usually consists in the first place of a sprocket wheel or wheels so arranged as to feed the negative to be printed from in front of an aperture or
10 "gate opening" through which artificial light from a suitable light source passes, and also to feed the unprinted positive film face to face with the negative and close up against it so that the light striking through the gradations of the negative impresses itself in varying amount upon the positive behind.

The gate opening is ordinarily of about the same dimensions as the single
15 negative picture, and after each exposure an intermittent escapement comes into operation and pulls both negative and positive film down one picture or picture length so that the next picture may in its turn be exposed. During the period that the picture is being changed, the light is cut off by means of a rotating sector of opaque substance mounted so as to come between light source
20 and the gate aperture at the desired interval and period.

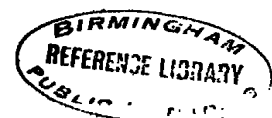
According to this invention the feed sprocket wheels are geared and toothed to deliver, and the shifting mechanism pitched to pull the positive and negative films, to and past the gate the length of two or more pictures for each single
25 operation of the picture shifting mechanism, and the picture gate is constructed of a size so that two or more pictures are exposed for printing simultaneously.

Apparatus made in accordance with this invention is especially adapted for printing films when the negative records have been made by taking two or more pictures simultaneously, and where it is desired to obtain accurate spacing
30 between the pictures of a set of two or more so taken.

The particular type of shifting mechanism used is not material to this invention. It may conveniently be a form of the well known claw mechanism, but the idea is not limited to the employment of this mechanism.

Where it is desired to print one picture of the set a trifle more than its fellow, when using the multiple step printer, this may be accomplished by covering a
35 portion of the picture gate aperture between the negative and the light source with a substance which will partially cut down the light, such as a piece of light grey glass.

[Price 8d.]



Improvements in or relating to Apparatus for Printing Cinematograph Films.

In printing two or more pictures simultaneously in accordance with this invention accurate register of the pictures which were taken simultaneously is obtained.

Dated this 14th. day of November, 1912.

MEWBURN, ELLIS & PRYOR,
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COMPLETE SPECIFICATION.

**Improvements in or relating to Apparatus for Printing
Cinematograph Films.**

I, COLIN NOEL BENNETT, of 9, Morrab Road, Penzance, Cornwall, Journalist, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to apparatus for making a print or positive film from a cinematograph negative film.

The object of this invention is to provide means for printing two or more pictures on each film simultaneously.

The apparatus used in making a print or positive film from a cinematograph negative film usually consists in the first place of a sprocket wheel or wheels so arranged as to feed the negative to be printed from in front of an aperture or "gate opening" through which artificial light from a suitable light source passes, and also to feed the unprinted positive film face to face with the negative and close up against it so that the light striking through the gradations of the negative impresses itself in varying amount upon the positive behind.

The gate opening is ordinarily of about the same dimensions as the single negative picture, and after each exposure an intermittent escapement comes into operation and pulls both negative and positive film down one picture or picture length so that the next picture may in its turn be exposed. During the period that the picture is being changed, the light is cut off by means of a rotating sector of opaque substance mounted so as to come between light source and the gate aperture at the desired interval and period.

According to this invention the feed sprocket wheels are geared and toothed to deliver, and the shifting mechanism pitched to pull the positive and negative films to and past the gate the length of two or more pictures for each single operation of the picture shifting mechanism, and the picture gate is constructed of a size such that two or more pictures are exposed for printing simultaneously.

Apparatus made in accordance with this invention is especially adapted for printing films when the negative records have been made by taking two or more pictures simultaneously, and where it is desired to obtain accurate spacing between the pictures of a set of two or more so taken.

The particular type of shifting mechanism used is not material to this invention. It may conveniently be a form of the well known claw mechanism, but the invention is not limited to the employment of this mechanism.

The accompanying drawings illustrate by way of example a form of printing apparatus constructed to embody the invention, and provided with a lengthened gate and multiple picture shift adapted for printing two pictures on each film simultaneously.

Fig. 1 is an inside elevation of the device.

Fig. 2 is a front elevation of Fig. 1.

Improvements in or relating to Apparatus for Printing Cinematograph Films.

Fig. 3 is a diagram showing the arrangement of the light source.

Referring to the drawings 2 represents a casing, 3 a shutter provided with an opaque portion 4 and open portion 5; 6 is the gate; 7, 7 are operating claws for shifting the film; 8 is a driving shaft provided with a handle 9; 10, 11 and 12 are bevel wheels for driving the shutter 3 from the shaft 8; 13 is a crank for operating the claws 7, 7; 14 is a sprocket drum for feeding the film to the gate. This drum is driven by a shaft 15, bevel wheels 16, 17 and shaft 18. The light 19 is disposed in a case 20. The sensitive and negative films are passed in front of the gate opening 6 face to face.

10 In operation the films are fed forward continuously by the drum 14 to one end of the gate. When the opaque portion 4 of the shutter 3 comes between the light and the gate, the claws 7, 7 engage the film and draw it down a length equal to two pictures in this case. On rotation of the shutter these pictures are exposed to the light and printed on the sensitive film and the cycle of operation
15 is repeated.

Where, as is sometimes the case in colour cinematography it is desired to print one picture of the set a trifle more than its fellow, when using the multiple step printer, this may be accomplished by covering a portion of the picture gate aperture between the negative and the light source with a substance which will
20 partially cut down the light, such as a piece of light grey glass.

In printing two or more pictures simultaneously in accordance with this invention accurate register of the pictures which were taken simultaneously is obtained.

25 Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. Apparatus for printing cinematograph films characterised in that the feed sprocket wheels for the films are geared and toothed to deliver, and the inter-
30 mittedly operated shift mechanism pitched to pull the positive and negative films to and past the gate a distance equal to the length of two or more pictures for each single operation of the film shift mechanism, the picture gate being constructed of a size such that two or more pictures are exposed for printing simultaneously.

2. Film printing apparatus according to Claim 1 constructed substantially as
35 described with reference to the accompanying drawings for the purpose specified.

Dated this 8th. day of May, 1913.

MEWBURN, ELLIS & PRYOR,
70 & 72, Chancery Lane, London, W.C.,
Chartered Patent Agents.

[This Drawing is a reproduction of the Original on a reduced scale.]

