Feb. 9, 1926. 1,572,648

P. S. GAURIAT

APPARATUS FOR TAKING CINEMATOGRAPHIC VIEWS

Filed Jan. 26, 1923 3 Sheets-Sheet 1

Fig. 1

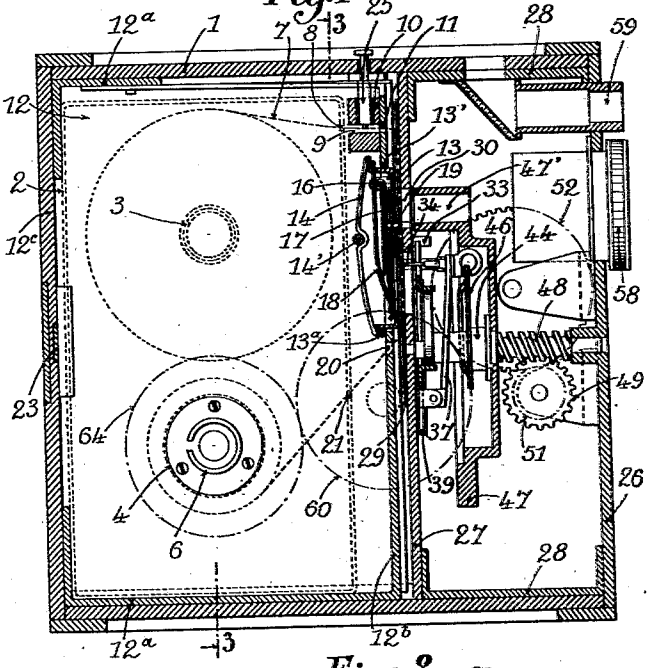
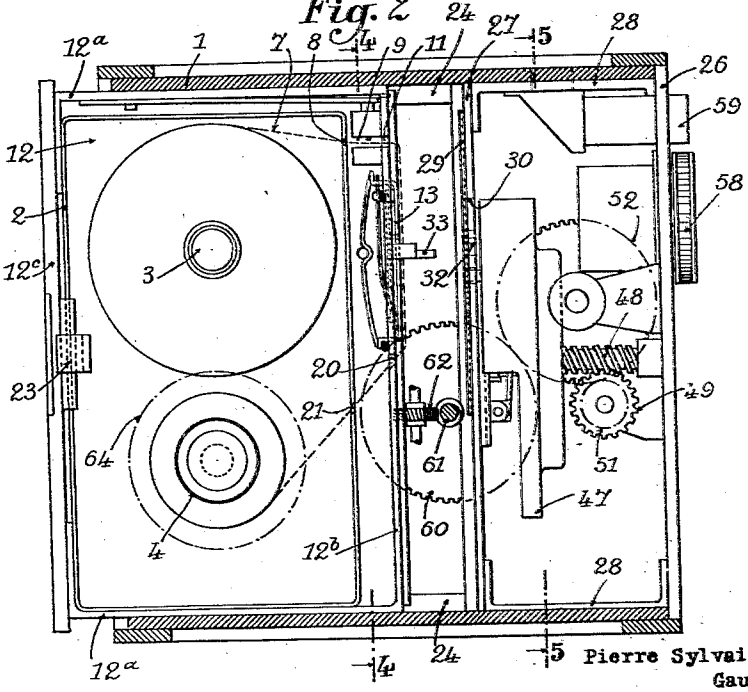


Fig. 2



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by Otto Munk his Attorney.

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Fig. 3

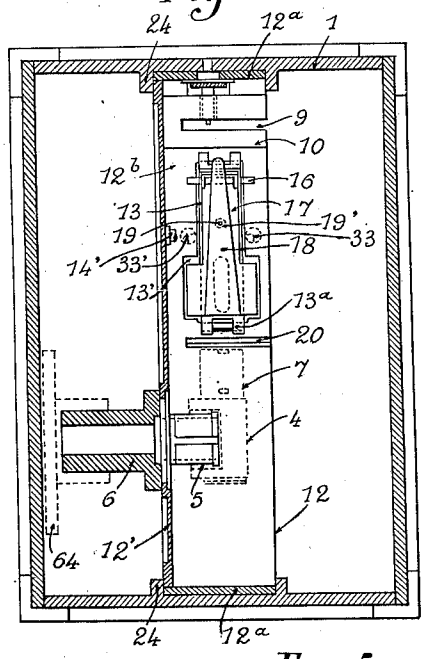


Fig. 4

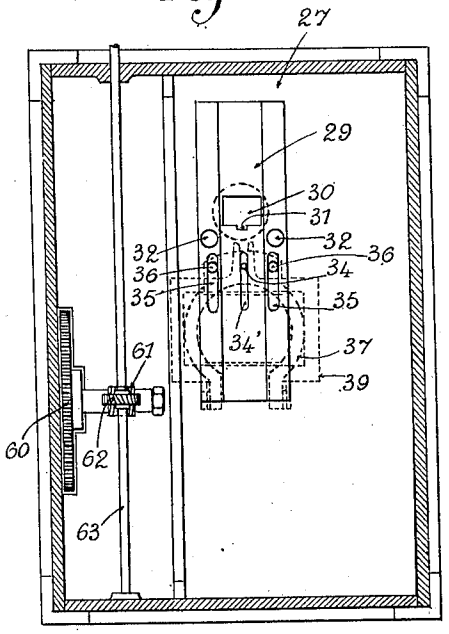
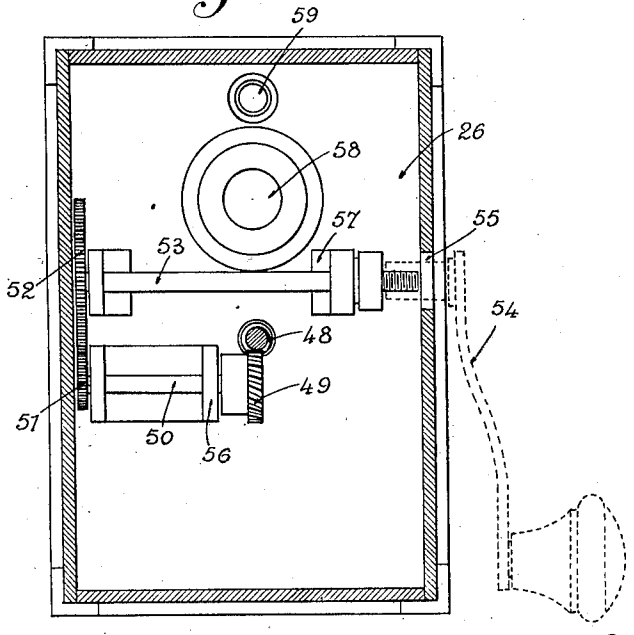


Fig. 5



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Fig. 6

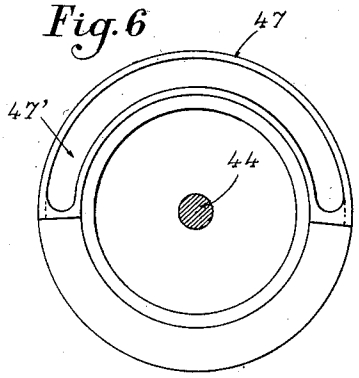


Fig. 7

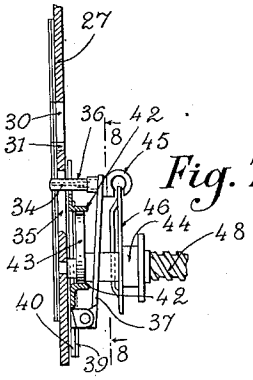


Fig. 9

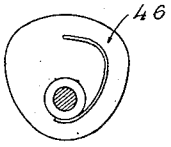


Fig. 8

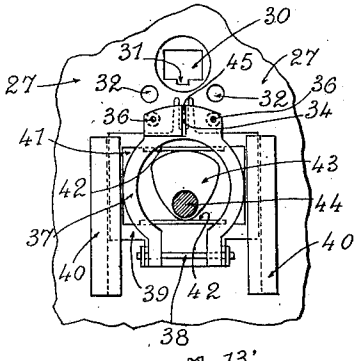


Fig. 10

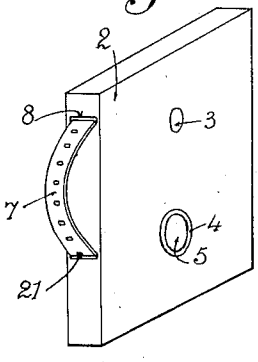
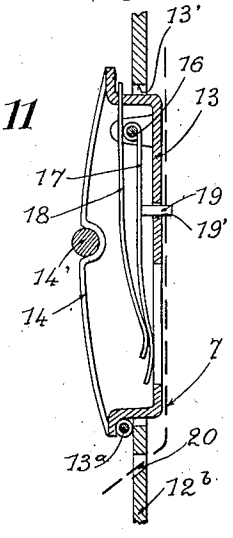


Fig. 11



Pierre Sylvain Gauriat

INVENTOR:

by

his Attorney.

Patented Feb. 9, 1926. 1,572,648

UNITED STATES PATENT OFFICE.

PIERRE SYLVAIN GAURIAT, OF PARIS, FRANCE, ASSIGNOR TO PATHE CINEMA, ANCIENS ETABLISSEMENTS PATHE FRERES, OF PARIS, FRANCE.

APPARATUS FOR TAKING CINEMATOGRAPHIC VIEWS.

Application filed January 26, 1923. Serial No. 615,165.

To all whom it may concern:

Be it known that I, PIERRE SYLVAIN GAURIAT, citizen of the French Republic, residing at Paris, in the Republic of France, have invented new and useful Improvements in Apparatus for Taking Cinematographic Views, of which the following is a specification.

This invention relates to apparatus for taking cinematographic views and it more particularly concerns an apparatus of small size which occupies no more space than a photographic apparatus of the standard type and may be easily used by amateurs, the manipulations necessary for putting the film in place and for changing it after the photographing being reduced to a minimum and of an extremely simple nature.

This apparatus is intended for taking views having a short duration, and the film which, preferably, has a reduced width and a single central line of perforations, consequently has a comparatively small length. It has thus been possible to omit the winding members usually employed in the cinematographic apparatus. The film is placed in a magazine which contains an unwinding spool or holder and a winding up spool and which has two slots for the exit and re-entering of the film. Said film is fed directly from the unwinding spool which has a reduced inertia owing to the small dimensions of the film. It is thus possible to omit the loops or slack parts of the film which were necessary in apparatus of large size between the unwinding spool and the feeding members whereby an economy is obtained in the length of the film. The feeding operation is preferably effected by means of a feeding claw which has a combined horizontal and vertical movement.

As stated above, the apparatus is so constructed that the film can be placed very easily into the operative operation and readily changed after exposure. For this purpose, the apparatus is provided with a loader or drawer in which one places the magazine containing the film. Said loader is then inserted into the apparatus and the construction is such that this operation alone is sufficient to have the film ready for operation.

Other characteristic features of the invention will appear from the following description.

In the accompanying drawings:

Fig. 1 is a section through the middle of the apparatus for taking views, at the time when it is ready to operate, the magazine being shown in dotted lines.

Fig. 2 is a similar section showing the loader or drawer slightly removed from the outer box of the apparatus.

Fig. 3 is a cross section taken approximately along the line 3—3, Fig. 1.

Fig. 4 is a cross section taken approximately along the line 4—4, Fig. 2, the loader being removed.

Fig. 5 is a cross section taken approximately along the line 5—5, Fig. 2.

Fig. 6 represents the shutter in elevation.

Fig. 7 is a view of the feeding mechanism for the film.

Fig. 8 is a section of said mechanism along line 8—8, Fig. 7.

Fig. 9 shows a cam.

Fig. 10 is a perspective view showing the film magazine.

Fig. 11 is a detail view on a larger scale corresponding to the central part of Fig. 1.

In the example of construction shown in the drawing, the apparatus comprises a metallic box 1 of a very light construction, in the rear part of which is engaged a loader or drawer 12 comprising a lateral wall 12′, two upper and lower walls 12^a, a front wall 12^b and a rear wall 12^c. The latter forms a closure for the rear end of the outer box 1, when the loader 12 has been introduced into said box. The loader is guided in the box 1 by upper and lower ribs 24 (Fig. 3) provided in said box. It is held in the box by means of a fastening device 23 of any desired type.

The loader or drawer 12 is adapted to contain a removable magazine 2 (Fig. 10) which is formed by a hermetically closed box and contains two spools or reels; an upper spool 3 which carries the blank film and a lower spool 4 adapted to receive the film after exposure. The spool 4 is provided with a lateral recess 5 by means of which it is centered upon a hollow shaft 6 which is rotatably supported in the wall 12′ and carries at its end a driving wheel 64. The spool 4 of the removable magazine 2 is thus driven by friction by the shaft 6.

Secured upon the inner face of the wall 12^b of the loader, is a guiding member 10 having a horizontal slot 9 which coincides

with a slot 11 in the wall 12b. The latter has also a lower similar slot 20. The film 7, which has a central line of perforations, comes out of the magazine 2 by a slot 8 (Fig. 10), passes through the slots 9, 11 and the slot 20 and enters again the magazine by the slot 21 (Fig. 10). The slots 9, 11 and 20 are opened at one end (Fig. 3) to allow for the insertion of the film; the two slots 9 and 20 are so disposed that they come respectively opposite the slots 8 and 21.

In the wall 12b, is formed an opening 13' in which is located a member 13 adapted to act as a lateral support for the film. The member 13 may be pivoted on the wall 12b at 13a, as shown in Fig. 11, and it is yieldingly forced towards the right (Figs. 1 and 11) by a vertical spring blade 14 which rests upon a horizontal rod 14' carried by the wall 12'. A vertical plate 17 is pivoted at its upper end, by the pivot 16, upon the member 13. It is urged towards the right by a spring blade 18 secured at its upper end in the member 13. The blade 17 carries a small stud 19 which extends through an opening 19' in the member 13 and may engage into one of the perforations of the film, so as to hold the same stationary, during the exposure.

A perforating device 25, Fig. 1, operated by a knob, admits of punching the blank film at the time when it travels in the guide 10, before leaving the loader. This mark serves to indicate the moment when the taking of views is completed for a given subject.

The loader 12 can be easily removed from the box 1 so as to permit replacing the magazine box 2, when all the film has been used.

The feeding mechanism for the film and the optical elements are carried by a front vertical plate 26 which closes the front end of the outer box 1 and by a rear vertical plate 27. Said plates 26 and 27 are connected by upper and lower bracing members 28.

The plate 27 which is at a very short distance from the wall 12b of the loader 12, comprises a vertical guide member 29, (Fig. 4) in which the film travels. An opening 30 is formed in the plate 27 and the guide 29; its demensions are those of the corresponding photographs taken on the film. At the lower part of this opening is provided a small notch 31 disposed opposite the small stud 19, carried by the plate 17. As above stated, the stud 9 enters the perforation disposed between two views, so as to hold the blank film when it is exposed to the light passing through the window 30. Openings 32, (Figs. 2 and 4) formed in the guide 29 and the plate 27 engage centering studs 33 secured to the vertical wall 12b and serve to exactly centre the loader in position with respect to the wall 27, so that the film can travel exactly in the guide 29.

The vertical slots of equal length are also provided in the guide 29 and in the plate 27. The central slot 34' (Fig. 4) gives passage to the feeding claw 34 which engages into the perforations of the film (Figs. 7 and 8) for feeding the latter. The lateral slots 35 give passage to two studs 36 which bear against the lateral parts of the film and facilitate its entraining.

The claw 34 and studs 36 are secured to the upper part of a claw carrier 37 having a horseshoe form, pivoted at 38 at the bottom (Fig. 8) to a sliding frame 39 which is slidable in guides 40 secured to the plate 27. This frame has a central opening 41 with horizontal flanges 42 between which a triangular cam 43 is adapted to work, said cam being mounted on a shaft 44 held by the two plates 26, 27.

The claw carrier 37 has at its upper part a slotted eye member 45 engaging the edge of a cam 46 (Fig. 9) termed "penetration cam", which allows the claw carrier 37 to assume a reciprocating movement, from right to left and inversely, about the pivot 38 of the sliding frame 39. The stroke from right to left (Fig. 7) causes the claw 34 and studs 36 to extend further through the slots 34', 35 and the claw 34 is thus engaged into a perforation of the film. At the same time, the studs 36 press upon the lateral parts of the film. The supporting member 13 of the loader 12 is provided with vertical slots corresponding to the slots 34', 35 whereby the lateral parts of the film are yieldingly pressed between the studs 36 and the blade 17 which is itself pushed by the spring 18. Said rearward movement of the blade 17 permits the stud 18 to be disengaged from the film.

During said movement, the sliding frame 39 actuated by the cam 43 acting on the flanges 42, is moved downwardly, and hence this combined motion of the claw carrier 37 and frame 39 produces a downward motion of the film equal to the distance between two perforations and between which is situated the photographed part of the film. The claw 34 and the studs 36 are then disengaged from the film by a movement to the right (Fig. 1).

To the shaft 44, is secured the shutter 46', comprising a semi-annular opening 47, (Fig. 6). The shaft 44 carries a worm 48 engaging a worm wheel 49 disposed on a shaft 50 to whose end is secured a pinion 51 keyed to the main driving shaft 53. To the end of the shaft 53 is screwed the control handle 54 traversing an opening 55 in the box 1. The supports 56 and 57 of the shafts 50 and 53 are secured to the plate 26.

The objective 58 is secured to the plate 26,

and above the said lens the plate 26 has an opening traversed by the small lens of the finder 59. At one side of the box 1 is mounted a wheel 60 (Fig. 4) whose shaft comprises a worm 61 engaging a worm wheel 62 keyed on a vertical shaft 63 actuating by any suitable means a counter of a known type.

When the loader or drawer 12 is put in place in the box 1, the wheel 60 engages the wheel 64 (Fig. 1) mounted on the hub 6 which actuates the spool 4 upon which the exposed film is wound up.

The operation of the apparatus results clearly from the preceding description. By drawing a certain length of film out of the magazine 2, as shown in Fig. 10, the film can be easily engaged into the slots 9 and 20 of the loader 12. The magazine is placed at the same time upon the wall 12' of the loader and the spool 4 is engaged by its recess 5 upon the shaft 6. The loader 12 is then inserted into the box 1 and pushed therein. If a perforation of the film is not exactly opposite the claw 34, by simply operating the feeding mechanism this film will come into the proper position by itself.

It is understood that the invention is not restricted to the constructive details shown or described which have been selected only by way of example.

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

1. In a cinematographic apparatus for taking views, the combination with an outer protecting box of a driving mechanism in said box for feeding the film, a removable loader adapted to be inserted into said box, means carried by said loader for centering it within said box, a winding up spindle rotatably mounted in said loader, means for automatically coupling up said spindle with the said driving mechanism when the loader is inserted into the outer box, a light tight interchangeable magazine adapted to contain the unwinding and the winding up film spools and to be inserted into said loader, means provided on the winding-up spool for automatically frictionally coupling up the latter with the said spindle when the interchangeable magazine is inserted into the removable loader.

2. In a cinematographic apparatus for taking views, the combination with an outer protecting box of a driving mechanism in said box for feeding the film, a film guide way mounted in the box, film feeding means actuated by said driving mechanism, a removable loader adapted to be inserted into said box, means carried by said loader for centering it within said box, a winding up spindle rotatably mounted in said loader, means for automatically coupling up said spindle with the said driving mechanism when the loader is inserted into the outer box, a light tight interchangeable magazine adapted to contain the unwinding and the winding-up film spools and to be inserted into said loader, means provided on the winding-up spool for automatically frictionally coupling up the latter with the said spindle when the interchangeable magazine is inserted into the removable loader, and a film pressing frame yieldingly mounted on said loader for pressing the film on the said guide-way.

3. In a cinematographic apparatus for taking views, the combination with an outer protecting box of a driving mechanism in said box for feeding the film, a film guide-way mounted in the box, film feeding means actuated by said driving mechanism, a removable loader adapted to be inserted into said box, means carried by said loader for centering it within said box, a winding up spindle rotatably mounted in said loader, means for automatically coupling up said spindle with the said driving mechanism when the loader is inserted into the outer box, a light tight interchangeable magazine adapted to contain the unwinding and the winding-up film spools and to be inserted into said loader, means provided on the winding-up spool for automatically frictionally coupling up the latter with the said spindle when the interchangeable magazine is inserted into the removable loader, a film pressing frame yieldingly mounted on said loader for pressing the film on said guide-way, a spring blade on said frame a stud carried by said spring blade and adapted to engage into a perforation in the film for holding the latter stationary during an exposure, members carried by the film feeding means for pushing back the said blade, whereby disengaging the said stud from the film and releasing the same.

In testimony whereof I have signed my name to this specification.

PIERRE SYLVAIN GAURIAT.