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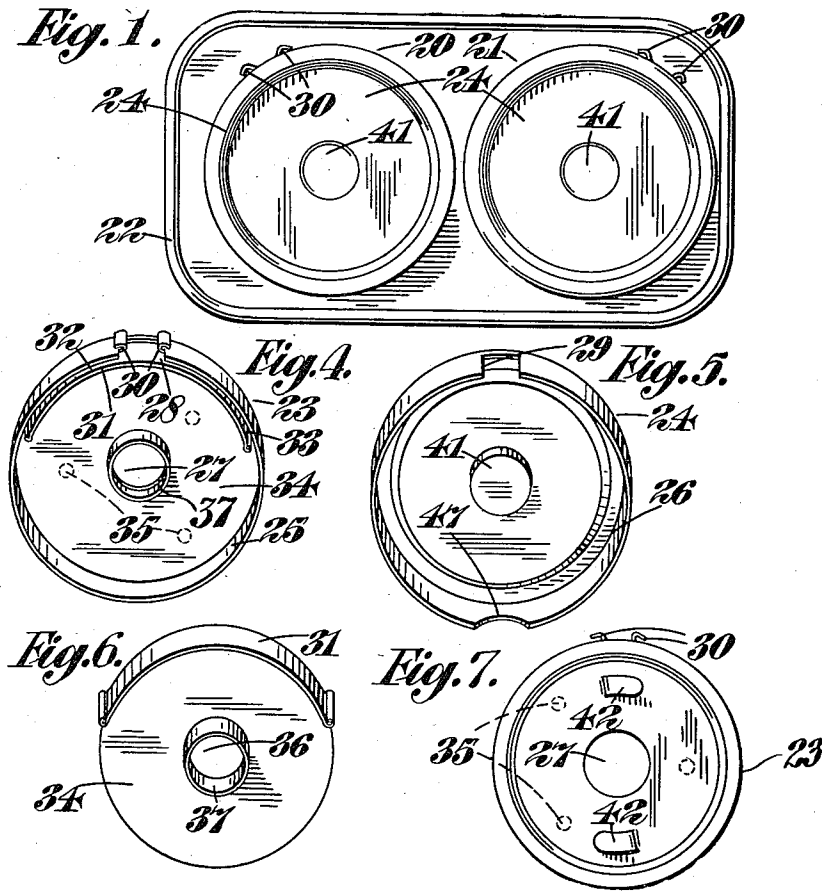
B. J. DELLA GANA

2,011,624

CHARGER OR LOADER FOR CINEMATOGRAPH CAMERAS

Filed May 17, 1933

2 Sheets-Sheet 1.



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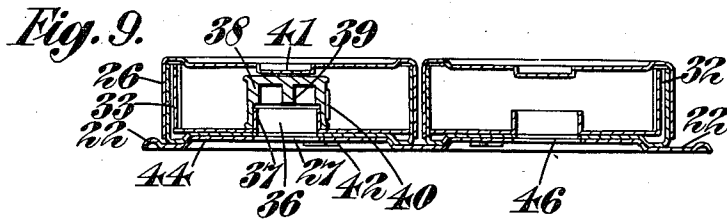
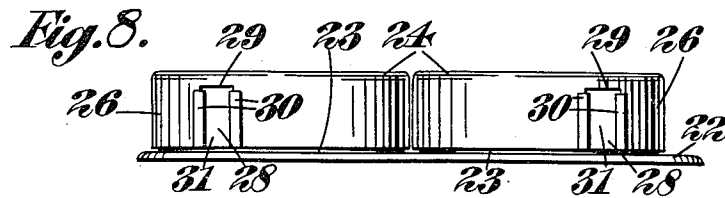
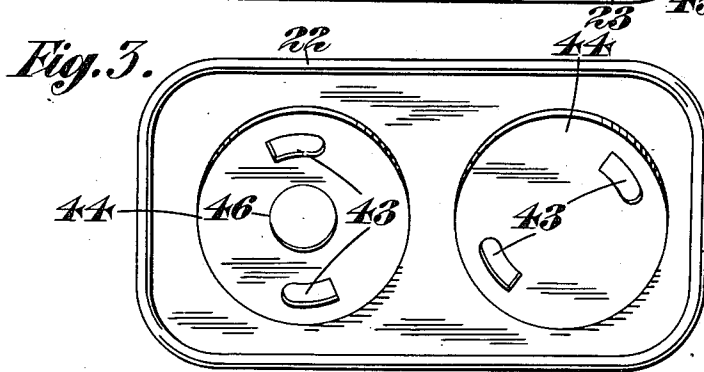
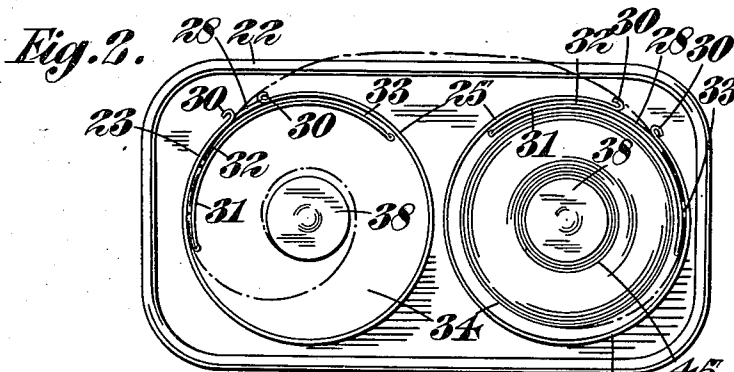
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2,011,624

CHARGER OR LOADER FOR CINEMATOGRAF CAMERAS

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2 Sheets-Sheet 2



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## UNITED STATES PATENT OFFICE

2,011,624

CHARGER OR LOADER FOR CINEMATO-  
GRAPH CAMERASBartholomew James Della Gana, London, Eng-  
land, assignor to Ilford Limited, Ilford, England,  
a British companyApplication May 17, 1933, Serial No. 671,560  
In Great Britain May 24, 1932

4 Claims. (Cl. 242—71)

This invention relates to day-light chargers or loaders for cinematograph cameras and is principally concerned with cameras of the kind (typified by the Pathoscope) in which a reel of unexposed film and a spool for winding on the film after exposure, are mounted side-by-side in the same plane (i. e. with their axes at right angles to that plane) in the camera.

The charging or loading device most commonly employed for cameras of the above kind comprises a box (usually constituted as a moulding) having two side-by-side compartments to hold the unexposed reel and the winding-on spool respectively and provided with a single detachable lid forming a cover for both compartments.

The main object of the present invention is to provide an improved form of charger having certain advantages (which will hereinafter be explained) over the single box type described above.

In its preferred form the support plate and the film casings are formed as sheet metal stampings or pressings. Conveniently the light-trap channel associated with the film access opening is formed between the flange of the inner shell of the casing and an arcuate strip which is of approximately the same curvature as the shell flange, is disposed within it, and extends some way to each side of the access opening aforesaid. An example embodying the invention will now be described with reference to the accompanying drawings in which:—

Figure 1 is a plan showing a charger constructed according to the invention.

Figure 2 is a plan corresponding to Figure 1 but with the lids of the casings removed.

Figure 3 is a perspective view of the support plate.

Figure 4 is a perspective view looking on the inside of the inner shell of a casing.

Figure 5 is a perspective view looking on the inside of the outer shell or lid of a casing.

Figure 6 is a perspective view of the light-trap insertion.

Figure 7 is a plan view of the back of the inner shell.

Figure 8 is a side elevation of the complete charger, and

Figure 9 is a section of the charger.

Like reference numerals indicate like parts throughout the figures.

The charger is shown in Figures 1-9 and comprises two identical film casings 20, 21 and a single support 22 common to both. The casings and their support, on which they are detachably mounted, form a unit which can be inserted as

such in the camera. Each casing comprises two shells 23, 24—hereinafter referred to as the body shell 23 and lid 24 respectively—each formed (like the push-on lid of a box) as a disc with a marginal flange, arranged to fit together forming a box with the marginal flange 25 of the body shell lying within the marginal flange 26 of the lid. Each shell is formed as a thin sheet metal pressing or stamping. The body shell 23 is provided with a central aperture 27 to permit the passage into the interior of the casing of the camera winding spindle. The flange 25 of the body shell is formed with a slot 28 to provide a passageway for the film, and a corresponding slot 29 is formed in the flange 26 of the lid. The metal at the side edges of the slot 28 is bent back to form beadings 30 which afford smooth running surfaces for the film. In assembling the two shells of the casing the edges of the slot 29 in the lid are engaged under the beadings 30 and by this means the lid is properly located with the two slots 28, 29 in register.

A light-trap channel leading to the slot 28 in the body shell is provided between the inner surface of the flange 25 and an arcuate strip 31 of substantially the same curvature as, and disposed within, the flange 25. The strip 31 extends to each side of the slot 28 forming in effect two channels 32, 33; the object of duplicating the channel being to render the two casings interchangeable as will later be explained.

In the present example the strip 31 is formed as a flange pressed up from a metal disc 34 (see Figure 6) which is fitted within the shell 23 and secured thereto, for example by spot welding at 35. The ends of the strip 31 are beaded to provide smooth edges so as to avoid any possibility of the film being scratched or fouled when it enters the channel. The disc 34 is formed with a central aperture 36 to register with the spindle aperture 27 in the shell and the metal at the aperture 36 is pressed up to form a flange 37 to receive and position the spool.

The spool or bobbin on which the film is wound consists of a small metal cap 38 (Figure 9) adapted to fit over the flange 37 which forms a bearing on which the spool is free to rotate. The end of the cap 38 is formed on the inside with a ridge 39 constituting a key for engagement with a co-operating key-way in the end of the winding spindle of the camera. The cap 38 is fitted with a spring clip 40 by means of which the end of a film may be connected to the cap. The lid 24 of the casing is formed with a pressed-in central boss 41 arranged, when the lid is in position, to

bear on or lie close to, the end face of the cap 38 and so locate the latter against endwise movement. The cap 38 also serves to effect a light-tight closure of the spindle aperture 27 in the body shell.

The casings are secured to the support 22 in the following manner. The end wall of each body shell 23 is formed with two pressed-up tongues 42 positioned on the same diameter of the shell on opposite sides of the spindle aperture 27. The tongues 42 are adapted to engage in co-operating slots 43 formed in the support plate 22. Each casing is secured in position by placing it flat against the support plate with the co-operating tongues and slots in register, and then partially rotating the casing, in the direction in which the tongues project, to bring the tongues under portions of the support plate beyond the slots. The slots 43 are formed in raised circular portions 44 of the support plate, and the end wall of each body shell is formed with a depression which accommodates the raised portion 44 when the shell is mounted on the plate. These co-operating depressions and projections on the support plate and casings facilitate the attachment of the casings to the support. It will be seen (Figure 3) that the slots 43 at one end of the support plate are offset angularly from those at the other end; this is for the purpose of ensuring that the film access openings 28, 29 of the two casings will be properly presented (i. e. towards corners of the support plate at opposite ends of one of its long sides) when the casings are mounted on the support. Referring to Figures 1 and 3, each casing is secured in place by partial rotation with respect to the support in a counter-clockwise direction.

Referring to Figures 1 and 2, the reel 45 of unexposed film is located in the casing 21 and the other casing 20 contains the spool on which the film after exposure is to be wound. The end of the film is led from the casing 21 round the light-trap channel 33 in the body shell of that casing, and then through the registering slots 28, 29 to the exterior of the charger. The end of the film is then taken through the registering slots 28, 29 in the casing 20, round the light-trap channel 32 in that casing, and is therein connected to the winding-on spool 38. The charger is inserted in the camera in a position with the two casings vertically one above the other, the casing 21 containing the unexposed reel being uppermost, and the casing 20 presented towards the camera winding spindle. In order to permit the winding spindle to pass through the support plate 22 (which is nearest the spindle when the charger is inserted), an aperture 46 is formed in the support in a position in register with the central aperture 27 in the body shell of the casing 20. On insertion of the charger the film, where it passes from one casing to the other, is threaded through the gate of the camera. The charger is located in position in the camera in the same way as the usual single box type of charger.

It is to be understood that with this new form of charger the container in which the unexposed reel of film is sold consists of a single disc-like casing of the kind shown. In order to assemble the charger, the casing containing the unused film is mounted in the position 21 (Figure 1), and an empty casing is mounted in the position 20 (Figure 1). The lid of the casing 20 is then removed and the free end of the unexposed film (which, in the container as sold projects, or has a tag which projects, through the openings

28, 29) is threaded round the channel 32 and is connected to the empty spool 38. The lid of the casing 20 is now closed and the charger inserted. In order to facilitate manipulation of the lids of the casings, each is formed on its marginal flange with a thumb slot 47. When the film has been completely transferred to the casing 20, the latter is detached bodily from the support plate, and to prepare the charger for a fresh reel, the now empty casing 21 is removed and reassembled in the position formerly occupied by the casing 20. In each casing as sold the film is wound upon a bobbin 38, so that after the film has been used and the casing containing it removed, there will always be left on the charger one casing complete with a bobbin 38 for the winding on of a new film. It will be seen that by having two light-tight channels 32, 33 on each side of the film access slot 28 of the body shell, the casings are rendered interchangeable, the channel 33 being in operation when the casing is in the position 21 (Figure 1) and the channel 32 being in operation when the casing is in the position 20 (Figure 1).

With this improved form of charger the exposed and unexposed portions of the film are contained in independent light-tight casings, and it will be appreciated therefore that if for any reason it is desired to obtain access to the winding-up spool, this can be done without exposing the unused film in the other casing. Moreover, it will be appreciated that compared with the single box type of charger now in use in the art, the present invention provides a container in which the film is sold of much simpler and less expensive construction and of substantially reduced bulk.

It is to be understood that the invention includes a light-tight film casing of the special kind described herein, whether used with a support plate of the kind described or not. The support plate is, of course, to be employed where the charger is used in connection with a camera of the type for which the known box form of charger is suitable.

I claim:—

1. For a cinematograph camera a light-tight film casing comprising two separable shells, each formed like the push-on lid of a box, as a disc with a marginal flange, arranged to fit together forming a box with the marginal flange of one shell lying within the marginal flange of the other, the flange of each shell having a single registering aperture arranged to form only a single access opening for the passage of the film to the exterior of the casing, and an arcuate strip disposed close to the inner shell flange, spaced apart from the flange throughout its length and extending to each side of the film access opening to form light tight channels for the film leading to the interior of the casing in each direction around the shell flange from the access opening.

2. For a cinematograph camera a light-tight film casing comprising two separable shells, each formed like a push-on lid of a box as a disc with a marginal flange, arranged to fit together to form a box with the marginal flange of one shell lying within the marginal flange of the other, and each shell having only a single aperture in the flange arranged in the assembled position of the shells, to cooperate with the aperture of the other shell to form only a single access opening for the passage of the film to the exterior of the casing, an arcuate strip disposed close to the inner shell flange, spaced apart from the flange throughout its length and extending to each side of the film

access opening to form light-tight channels for the film leading to the interior of the casing in each direction around the shell flange from the access opening, a spool for the film revolubly mounted on the casing, and a flange turned inwardly around an aperture in the disc portion of one of the shells arranged to cooperate with the spool to form a light trap aperture for the insertion of the camera winding spindle.

3. For a cinematograph camera a charger comprising two identical light-tight film casings each constituted by two separable shells, each shell formed, like the push-in lid of a box, as a disc with a marginal flange, arranged to fit together forming a box with the marginal flange of one shell lying within the marginal flange of the other, the flange of each shell having a single registering aperture, arranged to form only a single access opening for the passage of the film to the exterior of the casing, an arcuate strip disposed close to the inner shell flange spaced apart from the flange throughout its length and extending to each side of the film access opening to form light tight channels for the film leading to the interior of the casing in each direction around the shell flange from the access opening, and a support for the casings constituted by a substantially flat plate and means for detachably securing the casings each independently of the other, to the face of the support in position side-by-side in

the same plane, and parallel with that of the support and with their film access openings properly presented.

4. For a cinematograph camera a charger comprising a support having a flat face and attachment means thereon and two identical light-tight film casings each constituted by two separable shells, each shell formed, like the push-on lid of a box, as a disc with a marginal flange, arranged to fit together forming a box with the marginal flange of one shell lying within the marginal flange of the other, the flange of each shell having a single registering aperture, arranged to form only a single access opening for the passage of the film to the exterior of the casing, an arcuate strip disposed close to the inner shell flange spaced apart from the flange throughout its length and extending to each side of the film access opening to form light tight channels for the film leading to the interior of the casing in each direction around the shell flange from the access opening, and attachment means on only one disc of each casing for detachably securing the casings each independently of the other, to the face of the support in position side-by-side in the same plane, and parallel with the aforesaid flat face of the support and with their film access openings properly presented.

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