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DRAWINGS ATTACHED

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(54) IMPROVEMENTS IN AND RELATING TO FILM CARTRIDGES

(71) We, AGFA-GEVAERT AKTIEN-GESELLSCHAFT, a body corporate recognised under German Law, of Leverkusen, Germany, do hereby declare the invention for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

The invention relates to film cartridges.

The invention provides a film cartridge which comprises a film-supply chamber, a film take-up chamber, a front wall located between the chambers, which comprises a picture gate, and means arranged to support the film in the region of the picture gate which is mounted on the cartridge so as to be movable relative to the front wall, the side of the film support means facing the picture gate being of such configuration, and the cartridge being so arranged that, when the cartridge is positioned within a camera, the said side of the film support means can be brought into abutting engagement with the camera so as to position the film support means relative to the camera.

Advantageously, the cartridge comprises resilient means arranged to urge the said side of the film support means into abutting engagement with the camera, when the cartridge is positioned within the camera.

The side of the film support means facing the picture gate is advantageously of such configuration as to provide spacer means which project forwardly of the film so as to abut the camera, in use. Preferably, the spacer means projects through aperture means in the front wall.

The cartridge advantageously also comprises a rear wall located between the film-supply and the film take-up chambers, the film support means being located between the front and rear walls. The film support means is advantageously mounted on the rear wall so as to be movable relative to the

front wall in a direction perpendicular to the front wall and, preferably, the film support means is mounted in guide means on the rear wall which serve to limit the movement of the film support means in a direction perpendicular to the front wall.

Advantageously, a frame counter is arranged between the rear wall and the film-support means which rests resiliently against it, the frame counter being mounted on the film-support means. This arrangement offers the advantage that the frames can be counted without it being necessary for the film to be provided with a protective backing paper having numbers stamped thereon for viewing through an aperture in the camera back. The film can thus be thinner and it becomes possible for a greater length to be accommodated in a given cartridge space.

Advantageously, the film support means is in the form of a plate, side portions of which extend towards the front wall so as to form channels to guide the film from the supply chamber to the take-up chamber. The channels are preferably U-shaped.

The spacer means is preferably provided by angled lugs on the plate on each side of the film path.

A cartridge constructed in accordance with the invention will now be described by way of example with reference to the accompanying drawings, in which:

Fig. 1 shows a section, in a direction normal to the film transport direction, through the cartridge; and

Fig. 2 shows a component of the cartridge shown in Figure 1.

Referring to Figure 1, a cartridge 101 comprises front and rear members joined together to provide a film-supply chamber, and a film take-up chamber connected by an intermediate portion 102. Only one of the chambers indicated by the reference numeral 103 is shown. The portion 102 comprises a front wall which consists of a frame 104 and

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a rear wall 105. A picture gate 106 is cut out of the frame 104 and has a surface 106a bordered by forward-projecting walls 104b and 104c.

- 5 Between the frame 104 and the rear wall 105 film-support means which comprises a film-guide plate 107 is arranged, the construction of which is shown in greater detail in Fig. 2. With reference to this Figure, 10 the film-guide plate 107 is provided with four bayonet lugs 108 angled towards the rear wall by way of which the plate is guided in a groove 105b of a recess 105a in the rear wall 105. Compression springs 109 15 between the rear wall 105 and the film-guide plate 107 resiliently urge the film-guide plate 107 against the side wall of the groove 105b opposite the recess 105a. Adjacent to the bayonet lugs 108 on the film-guide plate 107 20 there are angled support lugs 110 on the frame side which extend through apertures 104d in the surface 104a of the frame 104. The support lugs 110 serve as support surfaces for the film-guide plate 107 which co- 25 operate with a recess 111 in the camera. The sides 113 of the film-guide plate 107 which are parallel to the film-transport direction are bent over in a U-shape so that the film guide plate 107 partly engages round the film 112 30 and forms a film channel.

- The film-guide plate 107 accordingly rests on the one hand on the rear wall 105 by way of the springs 109 and on the other hand on the supporting surface 111 in the 35 camera by way of the support lugs 110. The position of the film-guide plate 107 and thus of the film 112 which it guides is precisely defined in the cartridge by the length of the support lugs 110, whilst the manufacturing 40 tolerances of the film cartridge 101 are taken up by the resilient mounting of the film-guide plate 107 on the rear wall 105. The film position in the camera is thus not influenced by the welding of the front and rear 45 cartridge members.

- In order to be able to use roll film without protective paper in the film cartridge 101 when the cartridge is to be used in a camera without a frame counter, a frame counter, 50 which is only indicated diagrammatically in Fig. 1 by a counting disc 114, can be arranged between the rear wall 105 and the film-guide plate 107. The frame counter is supported by way of a spindle 115 on the 55 film-guide plate 107, whilst an observation window 116 for the counting disc 114 is cut into the rear wall 105. The method of operation of frame counters is already known.

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WHAT WE CLAIM IS:—

1. A film cartridge which comprises a film-supply chamber, a film take-up chamber, 65 ber, a front wall located between the cham-

bers, which comprises a picture gate, and means arranged to support the film in the region of the picture gate which is mounted on the cartridge so as to be movable relative to the front wall, the side of the film support means facing the picture gate being of such configuration, and the cartridge being so arranged that, when the cartridge is positioned within a camera, the said side of the film support means can be brought into abutting engagement with the camera so as to position the film support means relative to the camera.

2. A film cartridge as claimed in claim 1, which comprises resilient means arranged to urge the said side of the film support means into abutting engagement with the camera, when the cartridge is positioned within the camera.

3. A film cartridge as claimed in claim 1 or claim 2, wherein the side of the film support means facing the picture gate is of such configuration as to provide spacer means which project forwardly of the film so as to abut the camera, in use.

4. A film cartridge as claimed in claim 3, wherein the spacer means projects through aperture means in the front wall.

5. A film cartridge as claimed in any one of claims 1 to 4, which comprises a rear wall located between the film-supply and the film take-up chambers, and the film support means is located between the front and rear walls.

6. A film cartridge as claimed in claim 5, wherein the film support means is mounted on the rear wall so as to be movable relative to the front wall in a direction perpendicular to the front wall.

7. A film cartridge as claimed in claim 6, wherein the film support means is mounted in guide means on the rear wall which serve to limit the movement of the film support means in a direction perpendicular to the front wall.

8. A film cartridge as claimed in any one of claims 5 to 7, which includes a frame counter located between the film support means and the rear wall.

9. A film cartridge as claimed in claim 8, wherein the frame counter is mounted on the film support means.

10. A film cartridge as claimed in any one of claims 1 to 9 wherein the film support means is in the form of a plate, side portions of which extend towards the front wall so as to form channels to guide the film from the supply chamber to the take-up chamber.

11. A film cartridge as claimed in claim 10, wherein the said channels are U-shaped.

12. A film cartridge as claimed in claim 10 or claim 11 when dependent on claim 3, wherein the spacer means are provided by angled lugs on the plate on each side of 130



a rear wall 105. A picture gate 106 is cut out of the frame 104 and has a surface 106a bordered by forward-projecting walls 104b and 104c.

- 5 Between the frame 104 and the rear wall 105 film-support means which comprises a film-guide plate 107 is arranged, the construction of which is shown in greater detail in Fig. 2. With reference to this Figure, 10 the film-guide plate 107 is provided with four bayonet lugs 108 angled towards the rear wall by way of which the plate is guided in a groove 105b of a recess 105a in the rear wall 105. Compression springs 109 between the rear wall 105 and the film-guide plate 107 resiliently urge the film-guide plate 107 against the side wall of the groove 105b opposite the recess 105a. Adjacent to the bayonet lugs 108 on the film-guide plate 107 there are angled support lugs 110 on the frame side which extend through apertures 104d in the surface 104a of the frame 104. The support lugs 110 serve as support surfaces for the film-guide plate 107 which co-operate with a recess 111 in the camera. The sides 113 of the film-guide plate 107 which are parallel to the film-transport direction are bent over in a U-shape so that the film guide plate 107 partly engages round the film 112 and forms a film channel.

- 20 The film-guide plate 107 accordingly rests on the one hand on the rear wall 105 by way of the springs 109 and on the other hand on the supporting surface 111 in the camera by way of the support lugs 110. The position of the film-guide plate 107 and thus of the film 112 which it guides is precisely defined in the cartridge by the length of the support lugs 110, whilst the manufacturing tolerances of the film cartridge 101 are taken up by the resilient mounting of the film-guide plate 107 on the rear wall 105. The film position in the camera is thus not influenced by the welding of the front and rear cartridge members.

- 30 In order to be able to use roll film without protective paper in the film cartridge 101 when the cartridge is to be used in a camera without a frame counter, a frame counter, which is only indicated diagrammatically in Fig. 1 by a counting disc 114, can be arranged between the rear wall 105 and the film-guide plate 107. The frame counter is supported by way of a spindle 115 on the film-guide plate 107, whilst an observation window 116 for the counting disc 114 is cut into the rear wall 105. The method of operation of frame counters is already known.

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WHAT WE CLAIM IS:—

1. A film cartridge which comprises a film-supply chamber, a film take-up chamber, a front wall located between the cham-

bers, which comprises a picture gate, and means arranged to support the film in the region of the picture gate which is mounted on the cartridge so as to be movable relative to the front wall, the side of the film support means facing the picture gate being of such configuration, and the cartridge being so arranged that, when the cartridge is positioned within a camera, the said side of the film support means can be brought into abutting engagement with the camera so as to position the film support means relative to the camera.

2. A film cartridge as claimed in claim 1, which comprises resilient means arranged to urge the said side of the film support means into abutting engagement with the camera, when the cartridge is positioned within the camera.

3. A film cartridge as claimed in claim 1 or claim 2, wherein the side of the film support means facing the picture gate is of such configuration as to provide spacer means which project forwardly of the film so as to abut the camera, in use.

4. A film cartridge as claimed in claim 3, wherein the spacer means projects through aperture means in the front wall.

5. A film cartridge as claimed in any one of claims 1 to 4, which comprises a rear wall located between the film-supply and the film take-up chambers, and the film support means is located between the front and rear walls.

6. A film cartridge as claimed in claim 5, wherein the film support means is mounted on the rear wall so as to be movable relative to the front wall in a direction perpendicular to the front wall.

7. A film cartridge as claimed in claim 6, wherein the film support means is mounted in guide means on the rear wall which serve to limit the movement of the film support means in a direction perpendicular to the front wall.

8. A film cartridge as claimed in any one of claims 5 to 7, which includes a frame counter located between the film support means and the rear wall.

9. A film cartridge as claimed in claim 8, wherein the frame counter is mounted on the film support means.

10. A film cartridge as claimed in any one of claims 1 to 9 wherein the film support means is in the form of a plate, side portions of which extend towards the front wall so as to form channels to guide the film from the supply chamber to the take-up chamber.

11. A film cartridge as claimed in claim 10, wherein the said channels are U-shaped.

12. A film cartridge as claimed in claim 10 or claim 11 when dependent on claim 3, wherein the spacer means are provided by angled lugs on the plate on each side of



the film path.

13. A film cartridge as claimed in claim
1 and substantially as hereinbefore described
with reference to and as shown in the
5 accompanying drawings.

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