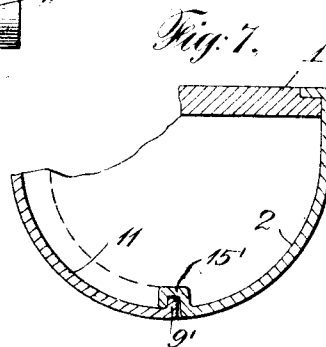
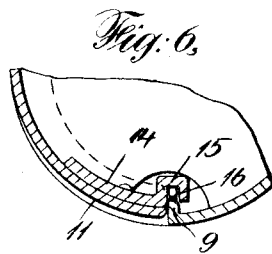
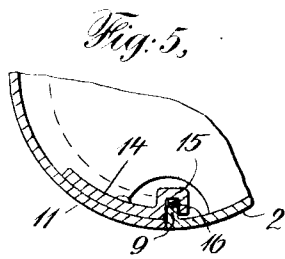
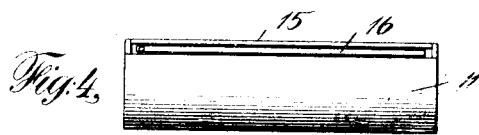
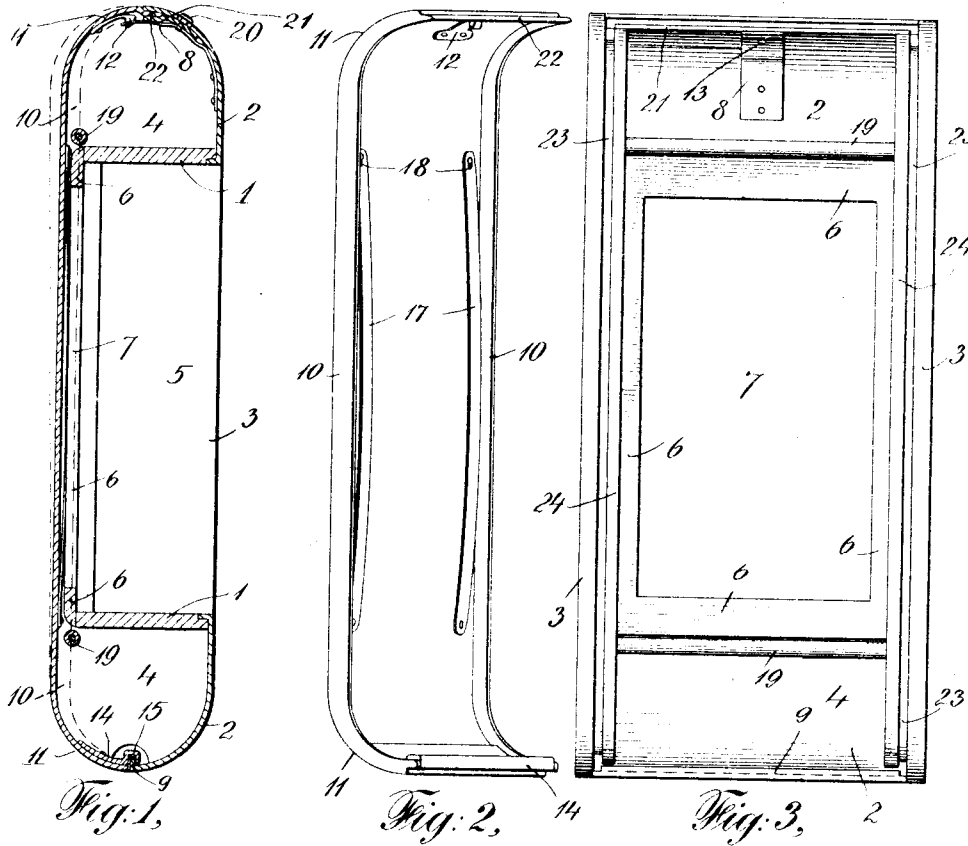


C. BORNMANN.
 PHOTOGRAPHIC CAMERA.
 APPLICATION FILED FEB. 14, 1912.

1,033,525.

Patented July 23, 1912.



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UNITED STATES PATENT OFFICE.

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PHOTOGRAPHIC CAMERA.

1,033,525.

Specification of Letters Patent.

Patented July 23, 1912.

Application filed February 14, 1912. Serial No. 677,516.

To all whom it may concern:

Be it known that I, CARL BORNMANN, a citizen of the United States, and a resident of the city of Binghamton, county of Broome, and State of New York, have invented certain new and useful Improvements in Photographic Cameras, of which the following is a full, clear, and exact description.

This invention relates to improvements in cameras and is especially useful in connection with so-called folding or collapsing metallic cameras, but is applicable also to many other styles and whether made of metal or other material.

It has special relation to the construction of the rear part or cover plate for the camera and to the means whereby the same is held in place. The construction is such that several advantages are secured, among them, reduced cost, ease in application, simplicity in construction and reliability in use.

Referring to the drawings, Figure 1 illustrates a vertical sectional view taken through the camera from front to rear; Fig. 2 illustrates a perspective view of the cover plate detached; Fig. 3 illustrates a rear elevation of the main or body part of the camera; Fig. 4 illustrates an elevation of the lower end of the cover plate; Fig. 5 illustrates a vertical sectional view showing the lower end of the cover plate in operative position interlocked with the appropriate part of the body part; Fig. 6 illustrates a view similar to Fig. 5, showing the operation of what I call the compression spring; Fig. 7 illustrates a vertical sectional view of the lower parts of the cover plate and camera body, showing a modified construction.

1 represents the camera body proper. It consists of a rectangular wooden frame having rounded metallic end pieces 2, with continuous wooden side pieces 3, 3. The metallic end pieces form practically half of the walls of the spool receiving chambers 4, 4, the other half being made by the rounded ends of the cover plate. Between the spool receiving chambers is an open space 5 adapted to receive the bellows, lens-frame, etc., in the usual manner. These last-named parts are not illustrated in the drawings.

At or near the focal plane the body part is provided with a rectangular frame 6 having the exposure opening 7 made therein. This frame 6 has ledges, as shown, extend-

ing all around the opening, adapted to support the film in a manner well known.

8 is a metallic spring latch located in one of the spool chambers and 9 is a lip formed in the corresponding place in the opposite spool chamber with which the cover plate engages in a manner about to be described.

The cover plate (see Fig. 2) preferably consists of a single piece of metal, although it may be made of more than one piece and of material other than metal. It is formed as shown in Fig. 2, that is to say, it has a continuously extending central portion adapted to close the rear of the camera and on each side thereof is a flange 10, 10, and at each end the structure is rounded, as at 11, to form part of the walls of the spool chambers. At the upper end there is a catch or hook 12 adapted to engage in a hole (see Fig. 3) made in the spring latch 8 and at the opposite end of the cover plate there is attached transversely a piece of metal 14, (see Figs. 1 and 2) which has on its edge a recessed flange 15 and within the recess of this flange there is a longitudinally extending flat spring 16 (see Figs. 4, 5 and 6). The groove in the flange is of such size as to receive a lip 9 formed on the body part. 17, 17, are two springs which may be riveted, or otherwise securely fastened at one end to the cover plate, and each of which is provided with a pin and slot at its other end, so that the spring may be readily compressed. Any other equivalent construction may be substituted for that shown. When the cover plate is in operation, these springs bear upon the side ledges of the frame 6 shown in Fig. 3, and since the film, when in position for exposure, rests upon these ledges, of course these springs 17, 17, aid in holding it in position and also beneficially apply tension thereon, as is well understood. Other tension devices may be used if desired.

19, 19, are two guide rollers for the film appropriately placed in each of the spool chambers to properly guide and aid in the movement of the film, as well understood.

20 is a push button connected at its inner end with the spring latch 8, which projecting outwardly is capable of compression from the exterior of the camera, whereby the spring latch 8 will be moved inwardly and disconnected from the catch 12. Adjacent to this spring latch 8 and on the inside

of the camera (see Fig. 1) is a small transverse plate 21 fastened to the rounded end of the camera body 6 and separated from it by a sufficient space to permit the entrance
 5 between the two of a lip 22 (see Figs. 1 and 2) made upon the adjoining rounded end of the cover plate, so that when the parts are assembled this lip can enter between this transverse plate 21 and the rounded end of
 10 the camera body and thus make a light tight joint.

23 is a groove which extends down each side of the camera body, within which the flanges 10, 10, on the cover plate snugly fit
 15 light tight, when the cover plate is in position. This groove 23 may be made either by attaching suitably shaped and rabbeted pieces 24, 24, to the inside of the side pieces 3 of the camera body or in any other suitable
 20 manner. The object of the construction is to afford light tight interlocking of the side flanges of the cover plate with the rear part of the camera body and it is immaterial in what special manner this may be effected.

25 The operation of the apparatus as thus far described is as follows: Assume the cover plate to be separated from the camera body. The stock and winding spools are placed in the two spool chambers 4, 4, in the
 30 usual manner and the black paper is led across the focal plane and connected up also as usual; then to replace the cover plate, its rear end is properly engaged with the lower end of the camera body by adjusting the
 35 grooved flange 15 of the cover plate in proper relation to the lip 9 on the body part. Thereupon the cover plate and body part are swung toward one another, during which operation the flanges 10 of the cover plate
 40 will naturally register with and enter the grooves 23 in the edges of the body part and as the cover plate approaches its final position, the springs 17, 17, will take a bearing upon the side ledges of the frame 6 and of
 45 course upon the black paper or film which is resting upon these side ledges and the lip 22 on the upper edge of the cover plate will enter between the plate 21 and the outer shell of the body part. Thereupon slight
 50 pressure will cause the catch 12 to engage with the spring latch 8, the end of the catch entering the hole 13 in the spring latch and when the parts are in this position, they will be firmly held together, with the outer surface of the cover plate flush, or substantially
 55 so, with the outer edges of the body part, and in attaining this position, the spring 16 (see Figs. 4, 5 and 6) in the grooved flange 15 at the lower end of the cover plate will be
 60 put under compression, thus completely filling the said groove and preventing the passage of light and also putting all parts under tension, so that no space for the entrance of dust or light will be possible. To again
 65 separate the cover plate for the removal of

the spools, or for any other purpose, pressure upon the thumb piece 20 will depress the spring latch 8, disengaging the catch 12 therefrom. The pressure of the springs 17
 70 against the side ledges of the frame 6 will thereupon project the cover plate rearwardly and at the same time the spring 16 will slightly move it upwardly, thus presenting the edges of the cover plate for easy manipulation with the thumb and finger, whereby
 75 the plate may be readily picked off from the rear of the camera.

I show a modified construction in Fig. 7. In it the grooved flange 15' at the lower end of the camera, instead of being made upon
 80 the cover plate, is made upon the body part of the camera, and the lower part of the cover plate is provided with the lip 9'. This construction is practically the same as that shown in the other figures and above described, excepting that the spring 16 is not
 85 employed. The operation is obviously somewhat different in that the engagement of the lip on the cover plate with the groove in the flange is made from the outside inwardly
 90 instead of from the inside outwardly, as in the other case, and while this is somewhat more easy of accomplishment, yet the cover plate is not quite so securely held in place. The operation otherwise is substantially the
 95 same as that above described, excepting that when the thumb button is pressed inwardly and the latch disengaged from the spring catch, the springs 17, 17, will move the cover plate rearwardly and it should then be supported by the hand of the operator. Otherwise it might drop away from the camera.

It will be obvious to those who are familiar with such matters that modifications may be made in the details of construction
 105 of the parts and their method of assemblage. The constructions illustrated and described are two forms only of many in which the invention may be embodied. I therefore do not limit myself to the details of construction
 110 shown.

I claim:

1. In a camera, a detachable cover plate adapted to fit against the rear of the camera body, interlocking parts on the cover plate
 115 and on the camera body at one end and fastening devices at their other ends adapted to be engaged after the interlocking parts have been interlocked.

2. In a camera, a detachable cover plate
 120 having flanges on its edges, a camera body having grooves for the reception of the flanges of the cover plate, interlocking parts on the cover plate and on the camera body and fastening devices also upon these two
 125 parts adapted to be engaged after the interlocking parts have been interlocked.

3. In a camera, a body part having partially formed spool chambers separated by a space adapted to receive the bellows, the
 130

lens, etc., a detachable cover plate adapted to fit against the rear of the camera and to complete the spool chambers, interlocking parts on the cover plate and on the camera body at one end, and spring actuated fastening devices at their other ends.

4. In a camera, a body part having partially formed spool chambers separated by a space adapted to receive the bellows, the lens, etc., and having grooves on its rear edges, a detachable cover plate provided with flanges adapted to fit within the grooves of the body part and to close the rear of the camera, the ends of the cover plate being rounded to complete the spool chambers, interlocking parts on the cover plate and on the camera body at one end, and spring actuated fastening devices at their other ends.

5. In a camera, a body part having partially formed spool chambers separated by a space adapted to receive the bellows, the lens, etc., and having grooves on its rear edges, a detachable cover plate provided with flanges adapted to fit within the grooves of the body part and to close the rear of the camera, the ends of the cover plate being rounded to complete the spool chambers, interlocking parts on the cover plate and on the camera body at one end, and spring actuated fastening devices at their other ends adapted to be engaged after the interlocking parts have been interlocked.

6. In a camera, a detachable cover plate provided with lateral flanges and rounded ends adapted to form part of the walls of the spool chambers, a camera body having partially formed spool chambers and a space for the bellows, the lens, etc., between them, the rear edges of the camera body being provided with grooves adapted to receive the flanges of the cover plate, interlocking parts and spring actuated fastening devices upon the camera body and the cover plate whereby they are detachably attached to each other.

7. In a camera, a detachable cover plate

adapted to fit against the rear of the camera body, interlocking parts on the cover plate and on the camera body at one end, fastening devices at their other ends, and a spring put under tension when the cover plate and the body part are closed together, whereby the cover plate is initially separated from the camera body when the fastenings are loosened.

8. In a camera, a body part provided with spaces for the reception of the spools, bellows, lens and co-acting parts, a cover plate adapted to close the rear of the camera and the spool chambers, means to detachably attach the cover plate to the camera and a spring interposed between the body part and the cover plate put under tension when they are closed together, and which initially separates the parts upon loosening the fastening devices.

9. In a camera, a body part having separated spool chambers, an exposure opening between the spool chambers, a ledge for the support of the film at each side of the exposure opening, a cover plate adapted to close the rear of the camera, and springs on the cover plate adapted to press on said ledges when the cover plate is in closed position.

10. In a camera, a body part having spool chambers, an exposure opening between the spool chambers, a ledge for the support of the edges of the film at each side of the exposure opening, a cover plate adapted to close the rear of the camera and also to make light tight the spool chambers, and springs on the cover plate adapted to apply tension upon the edges of the film by pressing them against said ledges when the cover plate is in closed position.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CARL BORNEMANN

Witnesses:

GEO. W. TOPLIFF,
A. DEICHELMANN.