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PROVISIONAL SPECIFICATION.

Communicated from abroad by LA SOCIÉTÉ L. GAUMONT ET CIE., of 57 Rue St. Roch, Paris, in the Republic of France, Manufacturers.

“Improvements in, and relating to, Photographic Cameras”

I, HENRY HARRIS LAKE, of the Firm of Haseltine, Lake & Co., Patent Agents, 45 Southampton Buildings, in the County of Middlesex, do hereby declare the nature of this invention to be as follows:—

This invention has reference to photographic cameras and has for its object to provide an improved apparatus capable of being folded into a very small compass so that it may be easily carried in the pocket.

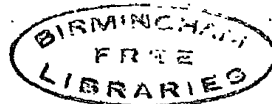
The main feature of this invention consists in improved means whereby the shutter is cocked when putting the view finder in a position for viewing the object to be photographed.

According to this invention the camera is provided with a front portion carrying the view finder and a rear portion, said portions being connected together by a bellows or the like. The distance between said front and rear portions may be regulated, when the bellows is expanded, by suitable folding or spring links or other suitable means. The front portion is provided with guides in which is adapted to slide a shaped plate carrying the lens of the view finder. This plate normally covers an aperture in the front portion of the camera behind which is arranged the photographic lens. The second part of the view finder consists of a lug pivoted on the rear portion of the camera in such a manner that it may be folded down against the camera when not in use. The shutter is cocked, but without uncovering the lens, by drawing out the aforesaid plate carrying the view finder. This is effected by means of a hook fixed to said plate and adapted to engage with a pin carried by a spring controlled plate forming the shutter proper, which latter is formed with a suitable opening. When the plate carrying the view finder is freely drawn out the shutter is thus cocked and is retained in this position by a pivoted hooked lever which engages a pin or the like upon the shutter. The various parts of the apparatus are now in position for an instantaneous exposure. To release the shutter the pivoted hooked lever above described is actuated by a pusher projecting outside the casing of the camera and the shutter is drawn back by means of its spring to the normal position thus making the exposure. The speed of the shutter may be regulated by a pneumatic or other piston.

For making time exposures means are provided whereby the shutter is released upon pressing upon the aforesaid pusher, the lens uncovered, and the shutter then arrested and retained in this position as long as the pusher is pressed, but upon releasing the said pusher the shutter completes its travel and covers the lens.

The rear part of the camera is arranged to receive a dark slide containing the sensitized plate or plates. The dark slide is retained in position by an articulated stirrup piece placed between the upper blading of the dark slide shutter and the frame of the same.

[Price 8d.]



Lake's Improvements in and relating to Photographic Cameras.

A suitable casing is so arranged that it may be folded around the apparatus and retained in position by suitable studs buttons or catches.

Dated this 26th-day of November 1902.

HASELTINE, LAKE & Co.,
45 Southampton Buildings, London, W.C., Agents for the Applicant. 5

COMPLETE SPECIFICATION.

"Improvements in and relating to Photographic Cameras."

I, HENRY HARRIS LAKE, of the Firm of Haseltine, Lake & Co., Patent Agents, 45 Southampton Buildings, in the County of Middlesex, 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:— 10

This invention has reference to photographic cameras and has for its object to provide an improved apparatus capable of being folded into a very small compass so that it may be easily carried in the pocket. The main feature of this invention consists in improved means whereby the shutter is cocked when putting the view 15 finder in a position for viewing the object to be photographed. According to this invention the camera is provided with a front portion carrying the view finder and a rear portion, said portions being connected together by a bellows or the like. The distance between said front and rear portions may be regulated, when the bellows is extended, by suitable folding or spring links or other suitable means. The front 20 portion is provided with guides in which is adapted to slide a shaped plate carrying the lens of the view finder. This plate normally covers an aperture in the front portion of the camera behind which is arranged the photographic lens. The second part of the view finder consists of a lug pivotted on the rear portion of the camera in such a manner that it may be folded down against the camera when not in use. The 25 shutter is cocked, but without uncovering the lens, by drawing out the aforesaid plate carrying the view finder. This is effected by means of a hook fixed to said plate and adapted to engage with a pin carried by a spring controlled plate forming the shutter proper, which latter is formed with a suitable opening. When the plate carrying the view finder is fully drawn out the shutter is thus cocked and is retained 30 in this position by a pivotted hooked lever which engages a pin or the like upon the shutter. The various parts of the apparatus are now in position for an instantaneous exposure. To release the shutter the pivotted hooked lever above described is actuated by a pusher projecting outside the casing of the camera and the shutter is drawn back by means of its spring to the normal position thus making the exposure. The 35 speed of the shutter may be regulated by a pneumatic or other piston.

For making time exposures means are provided whereby the shutter is released upon pressing upon the aforesaid pusher, the lens uncovered, and the shutter then arrested and retained in this position as long as the pusher is pressed, but upon 40 releasing the said pusher the shutter completes its travel and covers the lens.

The rear part of the camera is arranged to receive a dark slide containing the sensitized plate or plates. The dark slide is retained in position by an articulated stirrup piece placed between the upper beading of the dark slide shutter and the 45 frame of the same.

A suitable casing is so arranged that it may be folded around the apparatus and 45 retained in position by suitable studs buttons or catches.

In order that the said invention may be readily understood and carried into effect I will describe the same fully with reference to the accompanying drawings in which :

Figure 1 is a side elevation and

Figure 2 is a plan of a camera embodying this invention, while

Figure 3 is a front view. 50

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Figure 4 is a rear view of the same.

Figure 5 is a sectional elevation of the front part showing the shutter in its inoperative position.

Figure 6 is a vertical section on the line A. B. of Figure 5.

5 Figure 7 is a vertical section on the line C D of Figure 5.

Figure 8 is a sectional elevation of the front part, the shutter being shewn in the operative position.

Figure 9 shows a constructional detail on a larger scale.

Figure 10 shows the apparatus folded and ready to be enveloped in its casing.

10 Figures 11 and 12 are vertical sections of the rear part of the apparatus in which there are placed the small frames carrying the sensitive plates.

Figure 13 is a plan of the same.

Figures 14 and 15 represent a front view and a plan of the apparatus fitted with a view finder, the front plate which carries said view finder being displaced and brought into the position suitable for taking a photograph.

Figure 16 is a section on line M N Figure 15, the glass of the view finder being in the position suitable for taking a photograph at the height of the chest.

Figure 17 is a front view of the articulated holed leather disc with a glass herein- after described.

20 Figures 18, 19 and 20 represent in external elevation, side elevation and horizontal section a constructional form of holed leather disc for view finding laterally.

Figure 21 is a section of the regulating mechanism for governing the speeds of the shutter.

25 Fig. 22 is a sectional elevation of the front part shewing the shutter in position for making a time exposure.

According to this invention the improved folding photographic apparatus is formed by a front portion A carrying the lens of the view finder, and by a rear portion B, said parts being connected by the usual bellows C. When the camera is extended, as shewn in Figs. 1 and 2 the parts A and B are maintained rigidly separated from one another by means of toggle joints D which latter may be locked in the open position by springs or in any other known manner. These toggle links or arms are of the known kind and form no part of the present invention.

30 As may clearly be seen from Figures 1 and 2 the front A carries two guides *a a* in which is adapted to slide a divided plate *b* carrying the lens *c* of the view finder; it is the outward displacement of this plate which causes the cocking of the shutter. At ordinary times it does not project outside the casing but covers the opening *d* behind which is placed the object-glass *e*.

40 The second part of the view finder is formed by a holed leather disc *f* which can rotate on the rear part B so as not to form a projection when the apparatus is not being used.

The shutter is cocked without uncovering the object-glass by pulling the plate *b* out of the portion A. To the plate *b* is fixed a cam-like piece *k* sliding in a groove *g*. When this plate is pulled towards the outside, the rear of the cam-like piece *k* comes in contact with a pin *h* fixed to the obturating plate *i* which latter is provided with an opening *j* and, whilst flexing the spring *l*, drags said plate *i* along till a pin *m* projecting therefrom is engaged by the pivoted lever *n*. The movement is then continued a little in order that the shoulder of the piece *k* may, on passing over a small projection *o*, move behind the pin *h* of the shutter, *i.e.* the obturating plate *i*.

50 The parts of the shutter then occupy the positions shown in Figure 8, said shutter being arranged to take an instantaneous photograph.

In order to effect the release it suffices to press on the push *p*; the piece *q* presses on the pivoted lever *n* which rotates and liberates the pin *m*. The spring *l* then returns the plate *i* to its normal position; the speed is regulated by a governing piston enclosed in a cylinder *r* and whose shaft *s* is rigidly connected with the plate *i*.

55 When it is desired to make a time exposure, the piece *t* is pushed over against the push *p*, (see Fig 22) the result of which is to displace the piece *q* whose square point is then brought opposite the bent foot *u* of a lever *v* placed under the lever *n*.

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After cocking the shutter and releasing the same by actuating the push *p*, the lever *q* causes the common operation of the two levers *n* and *v*; the top one, *n*, releases the pin *m* while the lever *v* causes the rotation of a third lever *x* the hook of which engages a pin *y* fixed to the plate *i*.

The lens then remains uncovered till pressure ceases to be exerted on the push *p*. *k* is released from *h* by the stud *o*. *i* is then free to return; the projection *z* is only necessary when *b* is pushed in to reengage *k* and *h* for re-setting the shutter, *i.e.* "the obturating plate *i*".

The rear part *B* of the apparatus is provided with slides *1* in which there is placed a metallic frame *2* formed by a shutter *3* and containing a sensitive plate *4*; the frame *2* is held in position in its slides by means of a jointed yoke *5* which is thus placed between the upper flange of the shutter *3* and the top of the frame. The apparatus can be used when the shutter of the frame is arranged as described, or else this shutter may be withdrawn and placed behind the frame as shown in Figure 12. In this case the yoke *5* makes a complete obturation on the upper part of the frame and the whole is rendered motionless by the position of the shutter *3* which is thus placed behind the yoke. In this position the apparatus is ready for a rapid exposure, as a matter of fact it is sufficient to unfold the apparatus and cock the shutter.

The apparatus when folded back can be easily put in the pocket when it is enveloped by its casing or supple sheath *E* which is attached to the apparatus itself at any point thereof; the edges of this sheath are held close together by any suitable means, for instance by the aid of buttons *6* as shown.

In the constructional form according to Figures 14 to 17 the holed disc *f*, which serves for view finding, is provided with a glass *6'* jointed to a hinge at *7*; a spring *8* acts under the claw presented by the jointed glass *6'* near its articulation in order to maintain it in the lowered position shown in Figures 15 and 17, or else in the position at 45° shown in dotted lines in Figure 15. When the glass is brought into this position it permits of lateral view finding which, under certain conditions, may be advantageous.

Lateral view finding can also be effected by placing on the rotating holed disc *f* (Figures 18, 19 and 20) a prism *9* formed in one with a foot *10* which is held fast on a screw *11* of the rotating holed disc, whilst at the same time slides *12* surround the upper and lower edges of the holed disc.

Behind the lens *c* of the view finder (Figures 15 and 16) there is an articulated glass *14* which can be lowered behind the lens as shown at 15 Figure 16, in order to place itself on a level with the rear face of the movable plate *b* and enable the lens of the view finder to be pushed back. When the plate *b* is pulled, this glass *14* can thus occupy the position 14 at 45° so as to admit of view finding at the height of the chest. As shown in dotted lines in Figures 15 and 16 it can also occupy the position 18 in order to completely uncover the lens of the view finder, when it is desired to use the view finder at the height of the eye. A spiral spring, coiled round the axis of the hinge *19* of this movable glass, tends to bring the said glass into the horizontal position. A sliding plate *20*, which presents in its upper part an edge cut at 45°, serves as a stop for the glass for the breast high view finding position, when this slide is raised. When this latter is lowered, it is the upper horizontal stop of the said slide which stops the rotating glass.

The regulation of the speed of closing the obturator is effected by means of the tap *21* (Figure 21) pierced with a central hole *22* abutting on a groove *23* of decreasing section which corresponds to an orifice *24* pierced in the mounting. The tap is held in its position by a spring *25*, and it can be operated by means of a milled button *26*. On turning this button *26* there is caused to correspond with the orifice *24* a more or less large section of the groove *23* and consequently the passage of the air is more or less rapid.

The mounting of the bellows of the apparatus is effected by means of frames *29*

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as shewn in Fig 15. The bellows C is bent at 27 and lodged between the plate 28 and an inner lining frame 29. Screws 30 unite the parts.

The shutters of the frames which should be used in combination with this apparatus are provided with a tab 3¹ of suitable fabric; and if desired these tabs may be
5 furnished with different numbers 1, 2, 3, 4 *etc.* These numbers may also be in different colours in order to correspond to various emulsions.

The improved photographic apparatus may be constructed to serve as a simple, or as a stereoscopic apparatus, the dimensions being suitable for this special purpose. If required the apparatus could also be fitted with a magazine for films, either rigid
10 and separated, or flexible in rolled strips or bands.

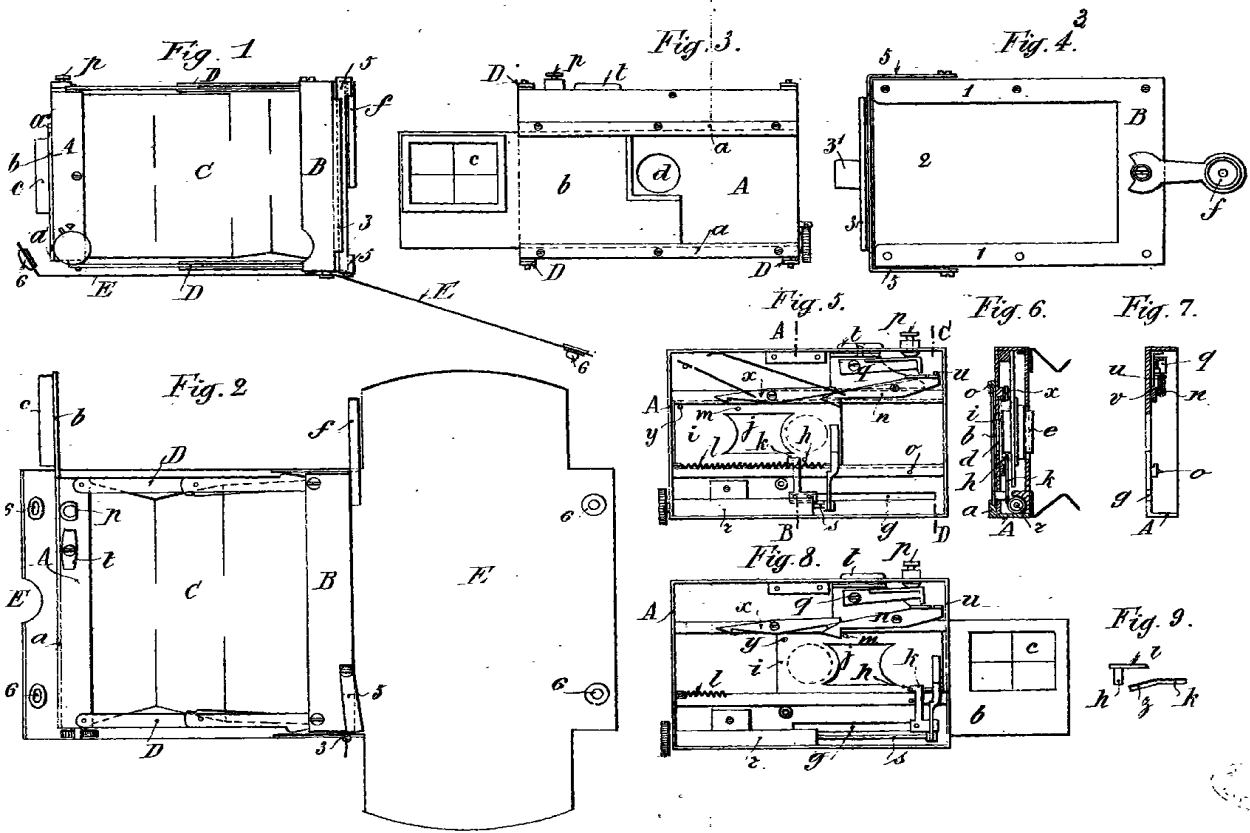
Having now particularly described and ascertained the nature of the said invention and in what manner the same is to be performed, as communicated to me by my foreign correspondents, I declare that what I claim is:—

1. In a photographic camera, means whereby the movement which brings the view
15 finder into position and also puts the lens in condition to be uncovered when the push button is pressed is utilized for cocking the shutter this result being obtained by a rectilinear movement substantially as described.
2. In photographic cameras the arrangement of the frame with its oscillating retention stirrup, and its shutter, substantially as described with reference to the
20 accompanying drawings and for the purpose set forth.
3. In apparatus of the kind described the glass jointed to the disc for view finding laterally, substantially as described.
4. In apparatus of the kind described the immovable prism on the disc for the same purpose.
- 25 5. In apparatus of the kind described the glass jointed behind the lens of the view finder for view finding at breast height.
6. In photographic apparatus the special tap for regulating the speeds of the shutter substantially as described.
7. In photographic cameras the mounting of the bellows by means of inner lining
30 frames substantially as described.
8. In photographic apparatus the numeration of the frames by means of figures, of various colours if required, made on the tabs of the shutters substantially as described.

Dated this 26th day of August 1903.

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HASELTINE, LAKE & Co.,
45 Southampton Buildings, London, W.C., Agents for the Applicant.



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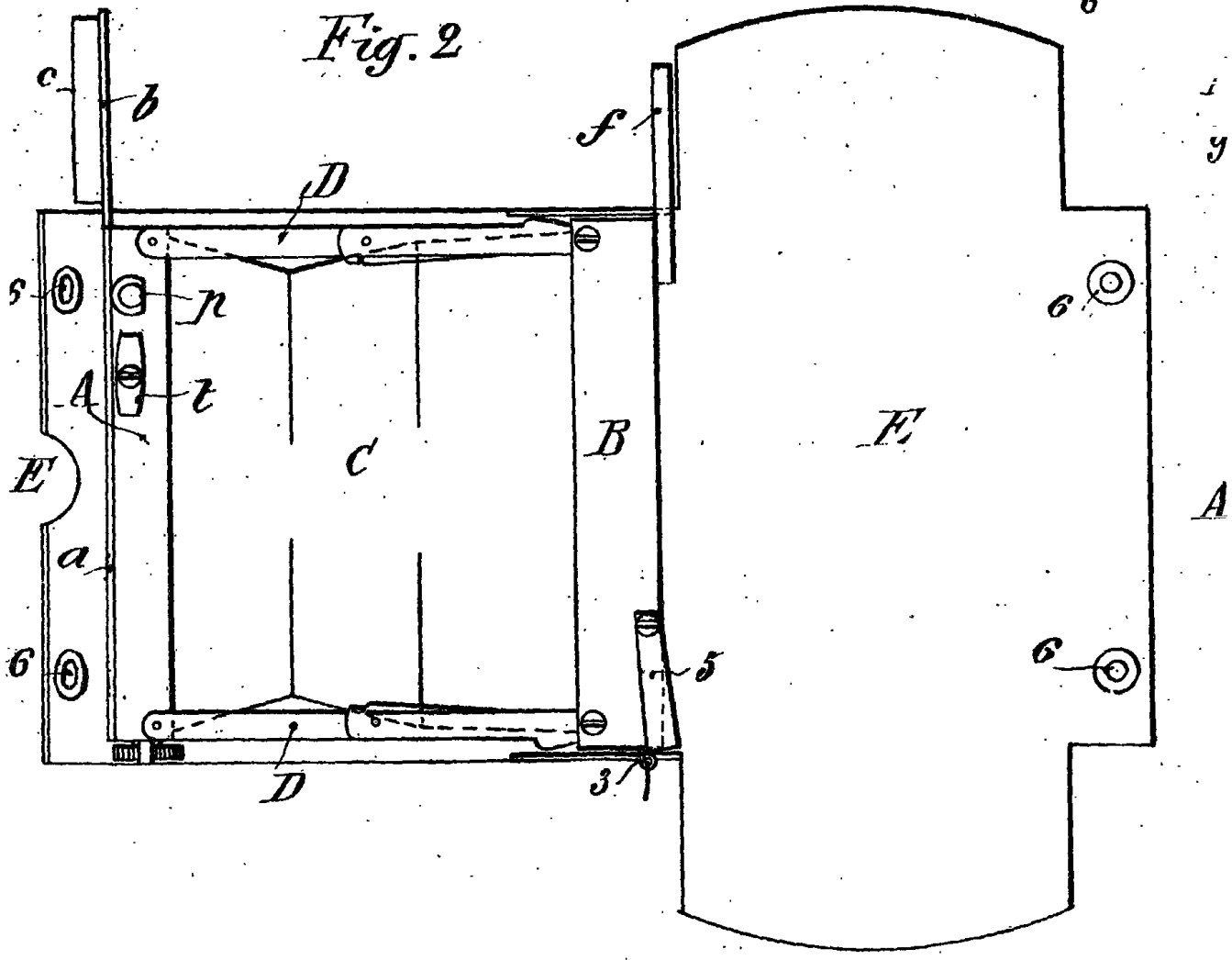
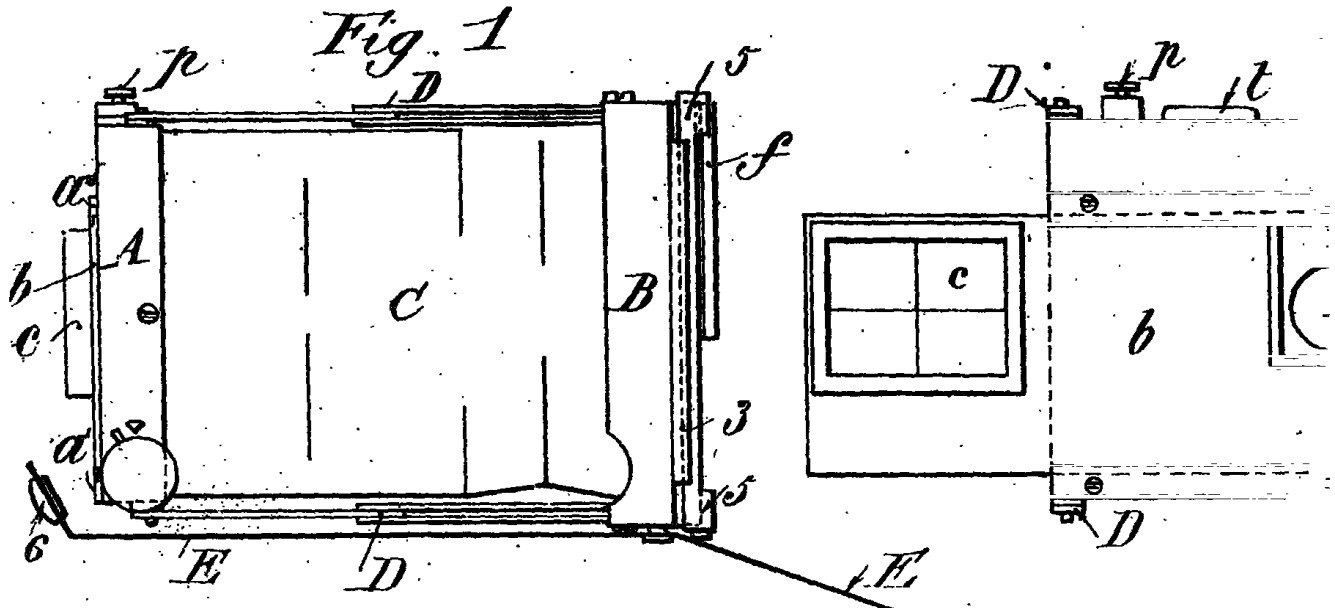


Fig. 3.

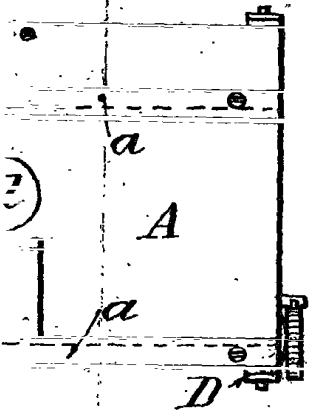


Fig. 4.

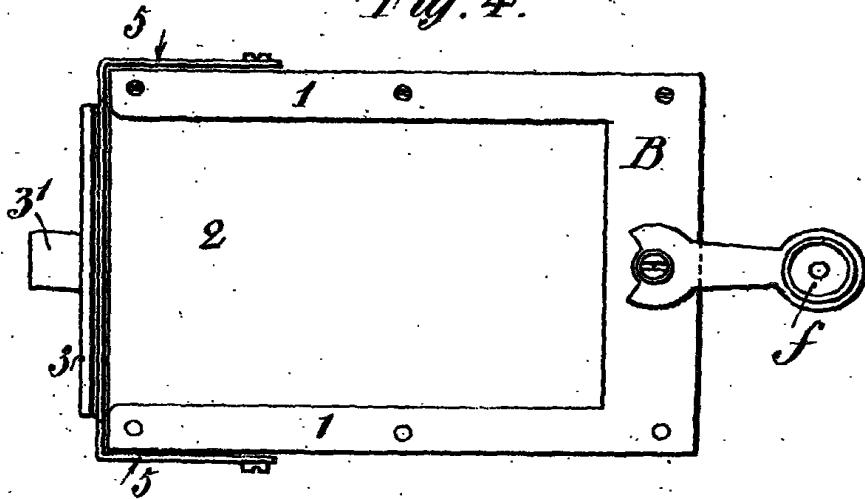


Fig. 5.

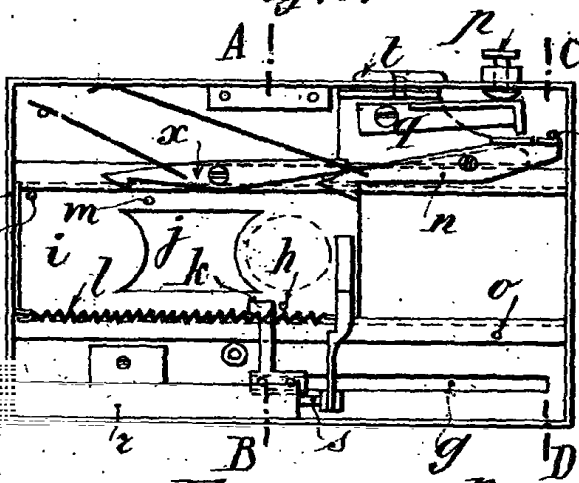


Fig. 6.

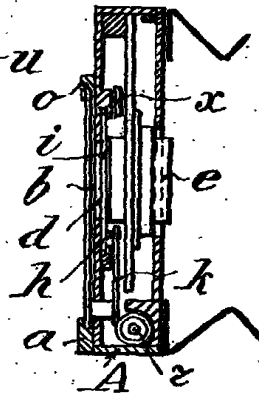


Fig. 7.

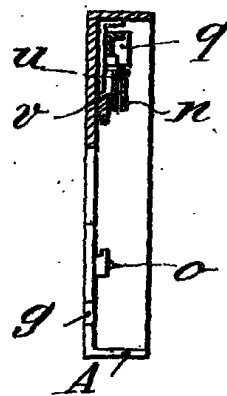


Fig. 8.

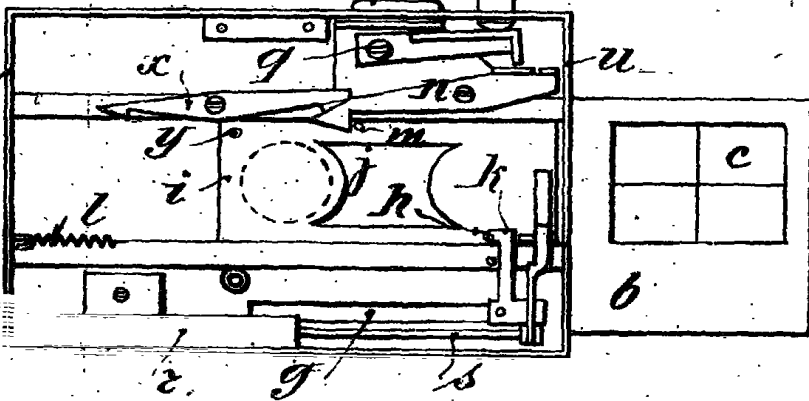
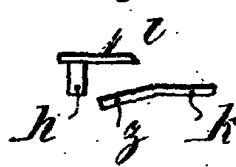
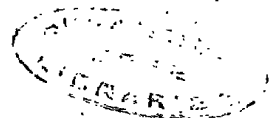
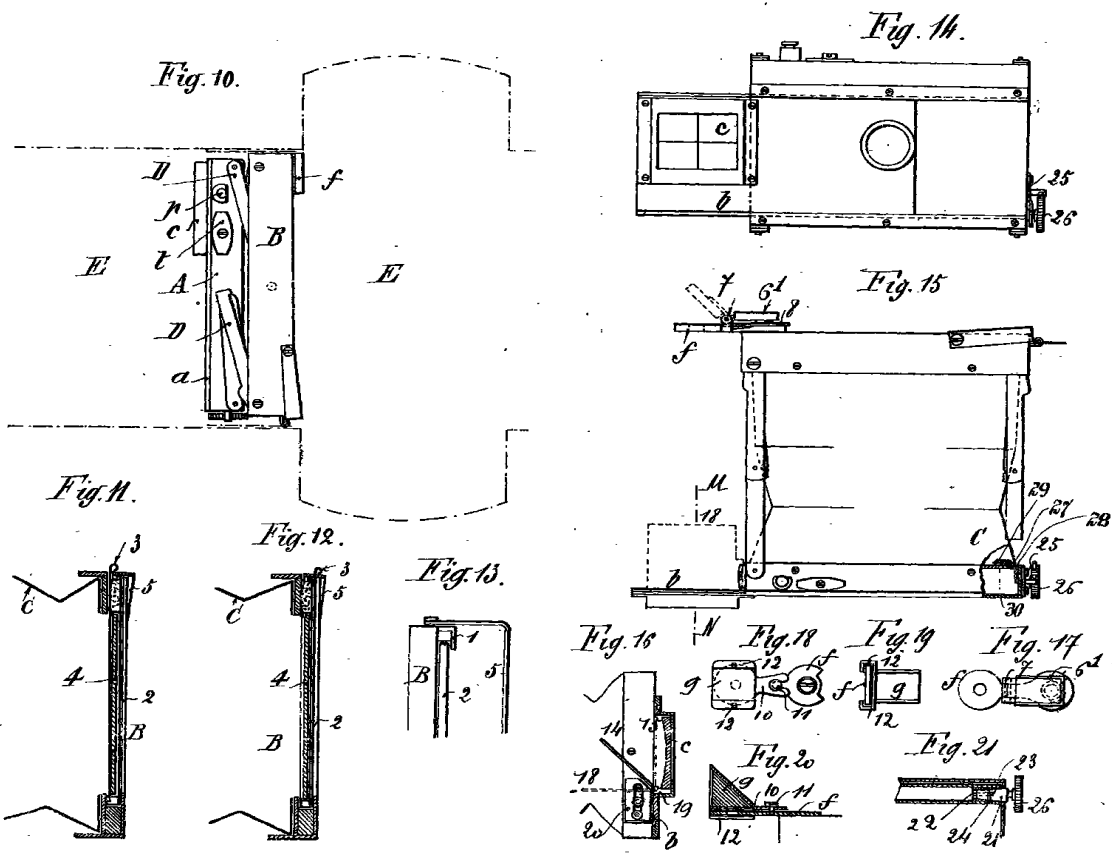


Fig. 9.



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Fig. 10.

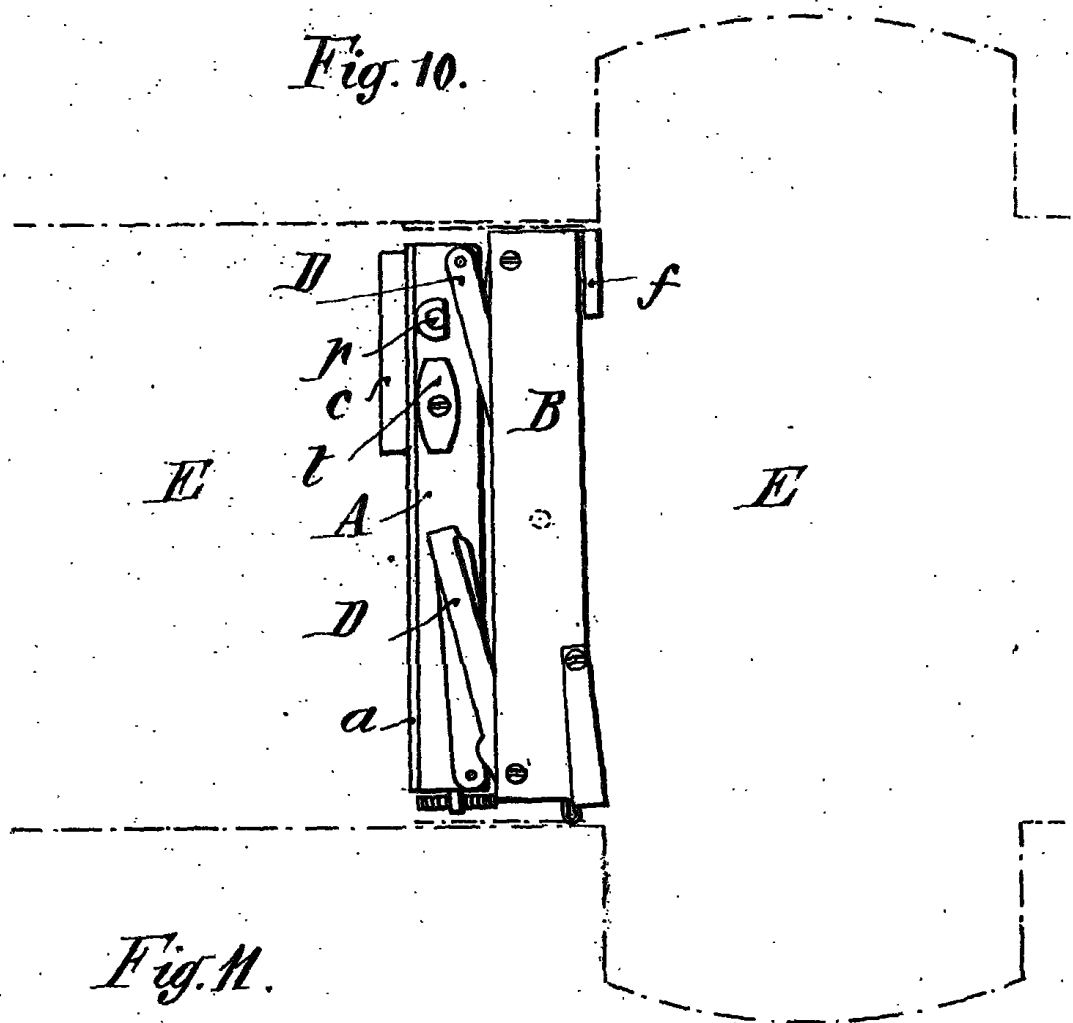


Fig. 11.

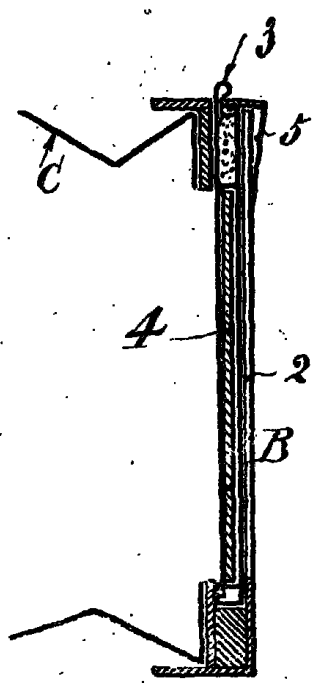


Fig. 12.

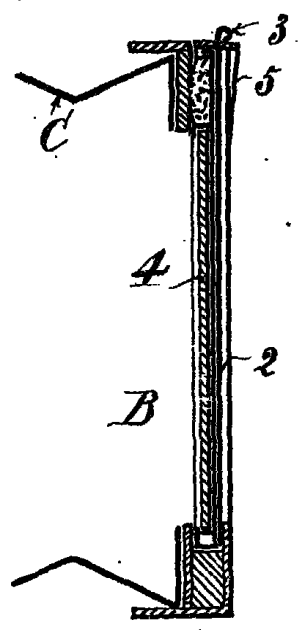


Fig. 13.

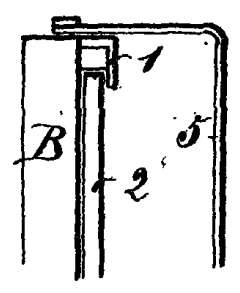


Fig. 14.

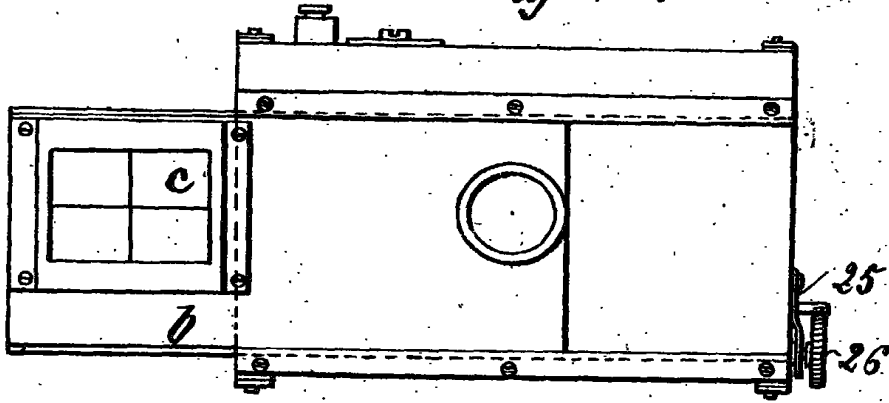


Fig. 15.

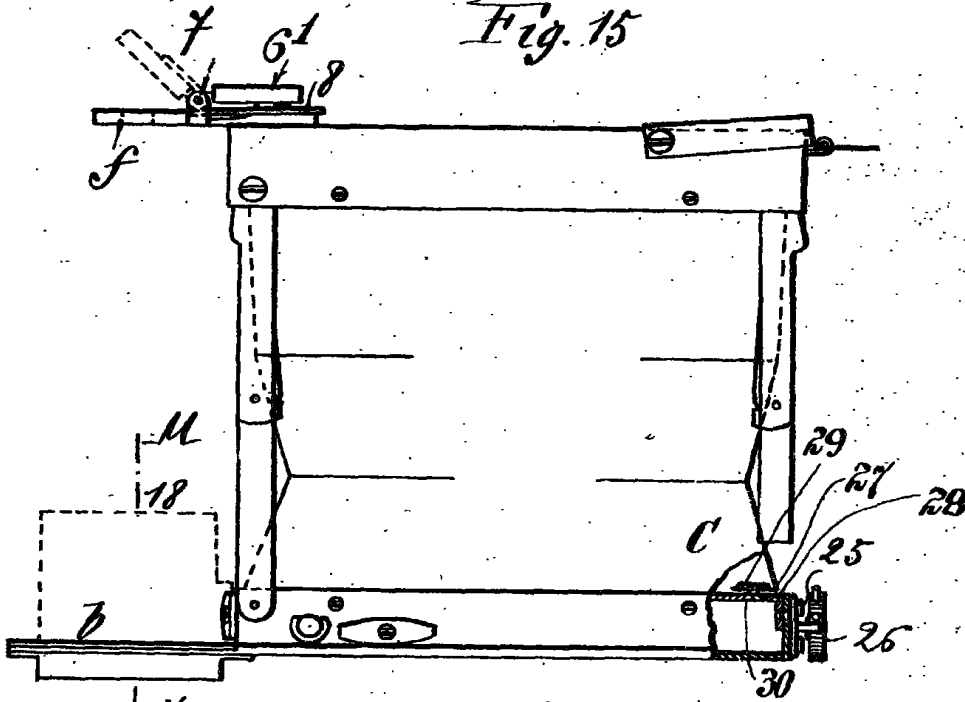


Fig. 16.

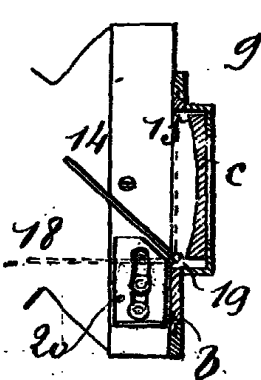


Fig. 18.



Fig. 19.

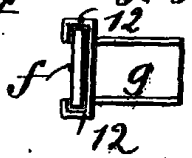


Fig. 17.

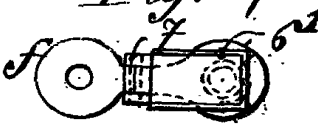


Fig. 20.

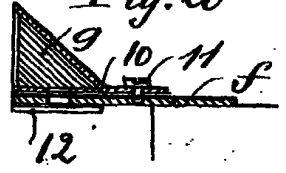
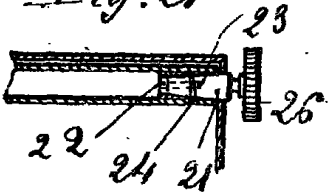
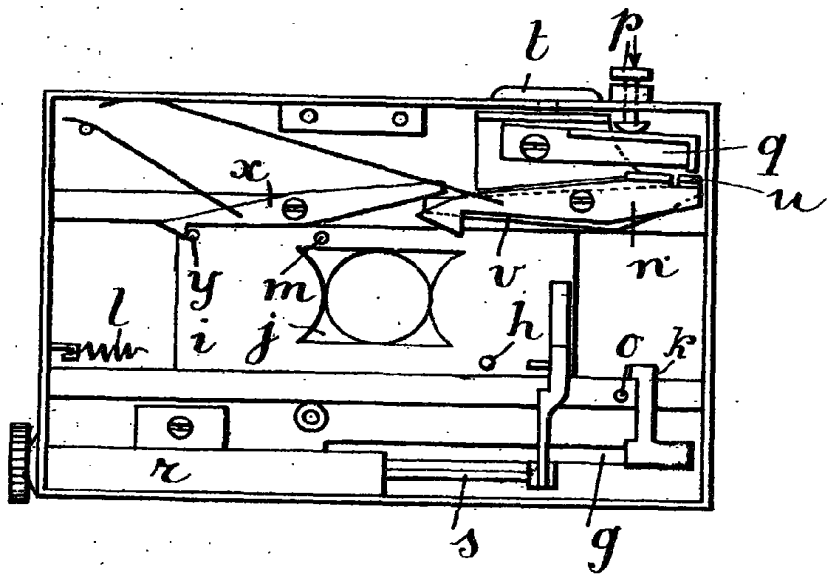


Fig. 21.



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Fig. 22.



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