

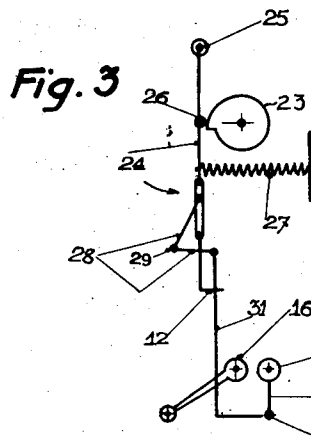
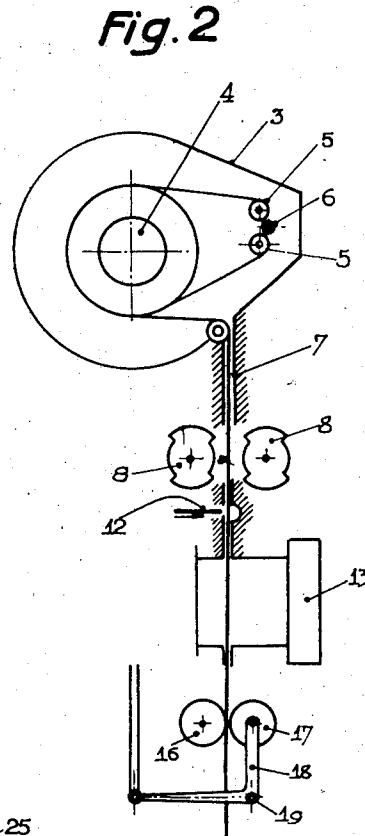
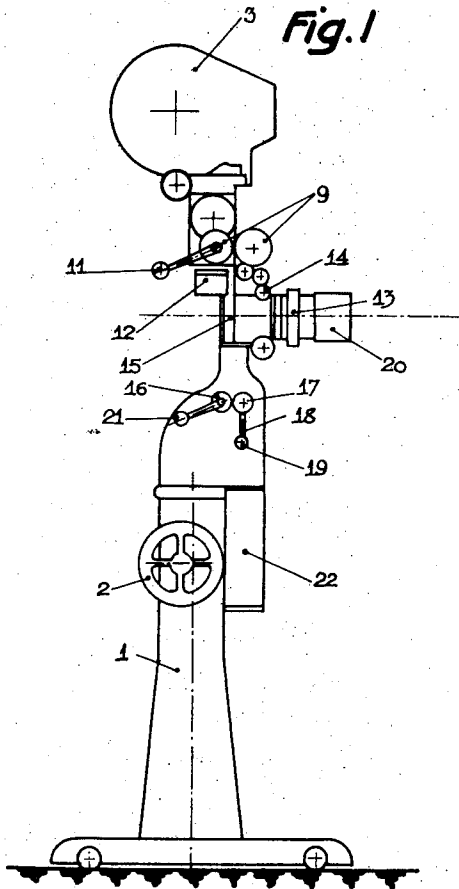
June 21, 1949.

L. G. A. PEJOIS
VIEW TAKING APPARATUS

2,474,159

Filed Aug. 20, 1945

5 Sheets-Sheet 1



Inventor:
LOUIS GEORGES ALBERT PEJOIS
By E. F. O'Kearney
ATTY

June 21, 1949.

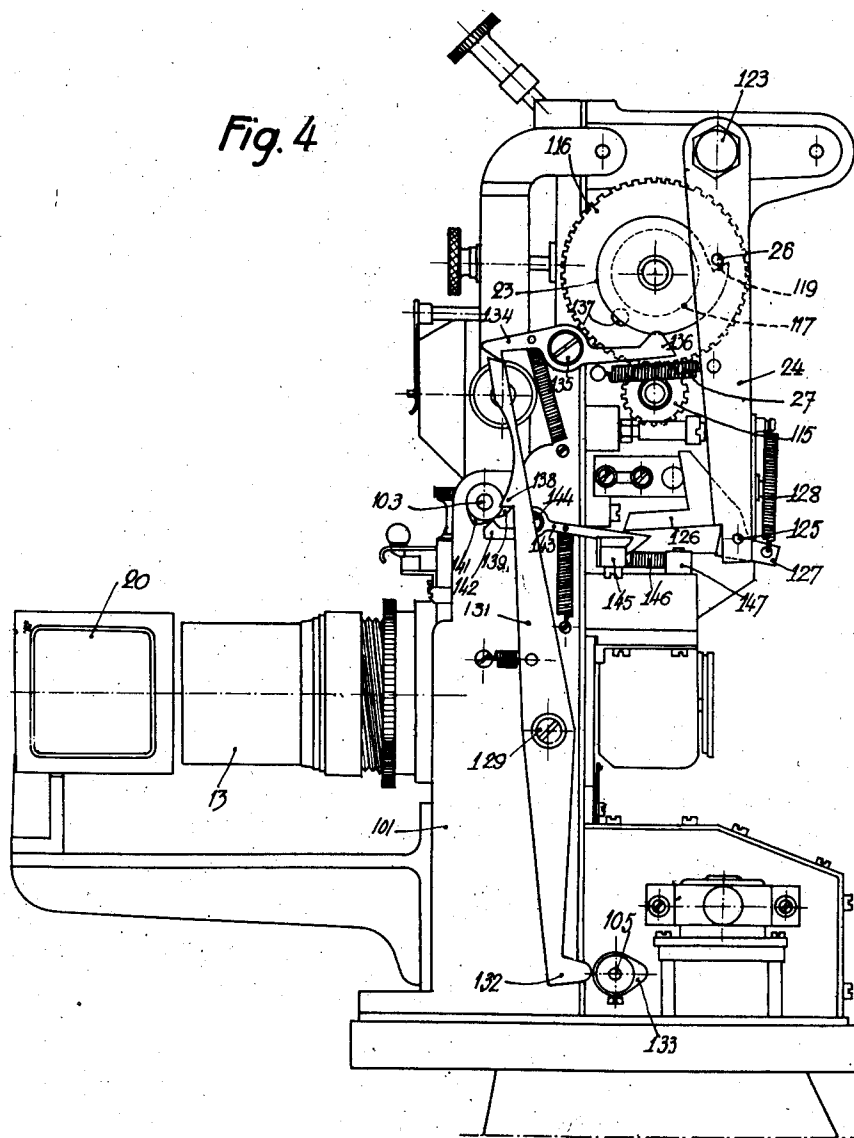
L. G. A. PEJOIS

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Inventor:
LOUIS GEORGES ALBERT PEJOIS
By *G. F. O'Connor*
Att'y

June 21, 1949.

L. G. A. PEJOIS
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Fig. 5

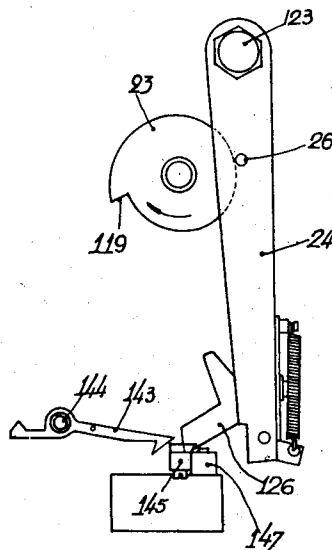
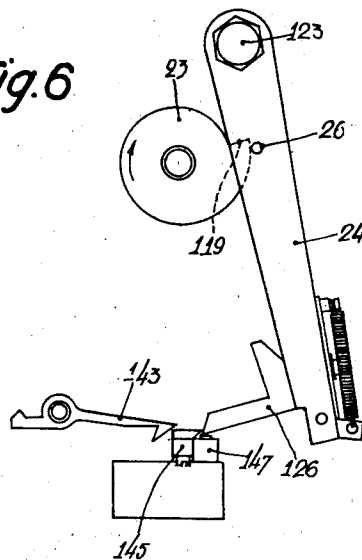


Fig. 6



Inventor:
LOUIS GEORGES ALBERT PEJOIS

By E. F. Winkler
Att'y

June 21, 1949.

L. G. A. PEJOIS

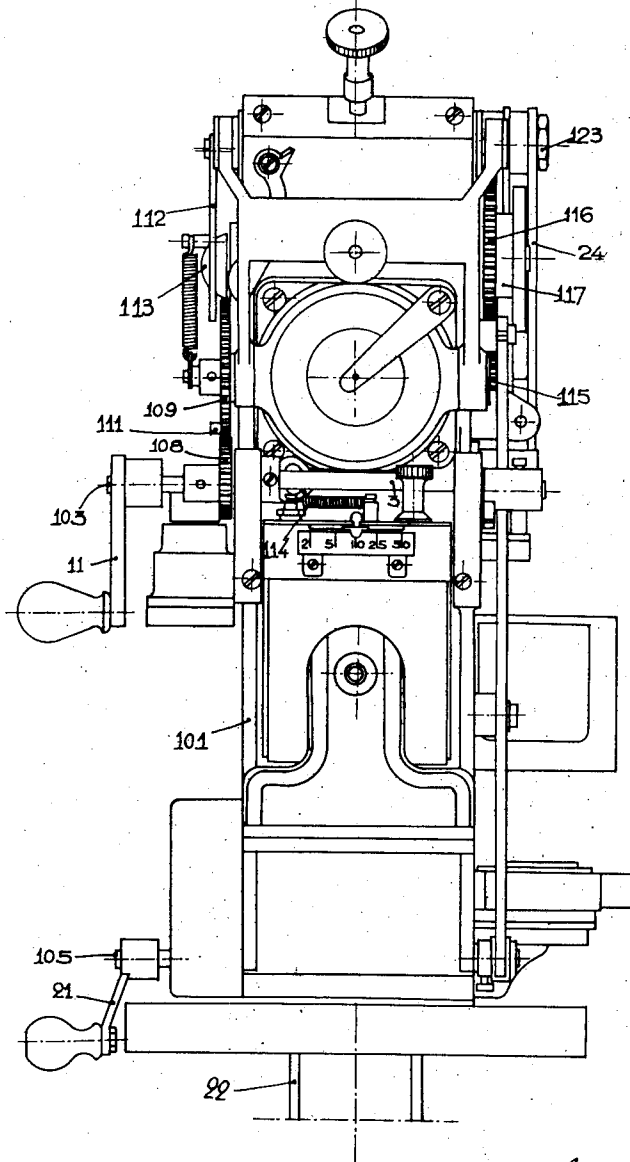
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Fig. 7



Inventor:
LOUIS GEORGES ALBERT PEJOIS
By E. F. Alexander
Att'y

June 21, 1949.

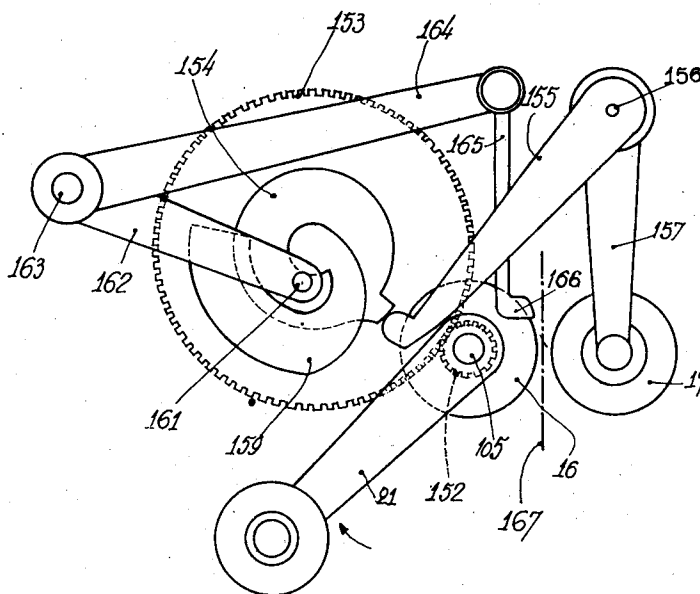
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Fig. 8



LOUIS GEORGES ALBERT PEJOIS
By E. F. Olinde
RAY

UNITED STATES PATENT OFFICE

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VIEW TAKING APPARATUS

Louis Georges Albert Pejois, Asnieres, France, as-
signor to Paul Rabanit, Paris, France

Application August 20, 1945, Serial No. 611,558
In France August 23, 1943

3 Claims. (Cl. 88—18)

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There exists a number of well known apparatuses which afford means for executing a number of successive photographs, chiefly for identity cards, on a strip of reversible paper or film, said strip being cut as soon as the desired number of photographs is obtained; the impressed strip section is treated in a series of developing, reversing and washing baths, after which it is dried and ejected from the apparatus. Such apparatuses, which are set operating by a coin and which also produce the automatic lighting and extinction of the lamps illuminating the subject, require special water and electricity supply means and can be used therefore only in those places where a considerable supply of water and electricity is available.

The present invention has for its object a much simpler apparatus adapted for use anywhere without restriction, while affording services similar to those afforded by any prior apparatus. My improved apparatus comprises chiefly a paper holder, hand-operated means for intermittently driving the unimpressed paper strip, an automatically operating cutting system, a view taking device the object-glass of which is automatically uncovered by the hand-operated means for driving the impressed paper strip and a receiver box collecting the strip sections so as to allow their transportation towards the laboratory where their treatment is proceeded with.

It is thus apparent that it has been possible in particular to separate the treatment of the strip from the view taking, to do away with all special illuminating means and thereby to considerably simplify the apparatus which may be used by any photographer in his studio.

It has been noticed that there is a risk of disturbing the proper operation of the apparatus if the means for driving the unimpressed film or strip is actuated without the prior passage of the precedently exposed and cut strip element, said passage being performed by the above mentioned means for driving the exposed strip or film.

To remove this drawback in accordance with my invention, there is provided a locking device which is set working automatically as soon as the means for driving the unimpressed film has caused said film to advance through the amount corresponding to the number of pictures for which the apparatus is designed; this locking device ceases being operative and consequently the means for driving the unimpressed film are released only when the means for driving the exposed film have been operated.

As far as the driving of the exposed film is

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concerned, it has been noticed also that the friction of the rubber-lined driving rollers of the means driving said film is not always sufficient for producing the correct passage of the cut section of the film into the receiver. For this reason, there is provided, in accordance with my invention, a film-pushing arrangement acting positively on the upper edge of the film as soon as the latter has passed beyond the rubber-lined driving rollers in order to accompany same as it advances up to its entrance into the receiver. This film-pushing arrangement may be constituted for instance by a series of vertical rods provided with a pusher and the lowering of which with a view to accompanying the displacement of the film element is produced by a cam arranged, together with a cam adapted to move the rubber-lined rollers towards one another, on a wheel the rotation of which is produced by the means for driving the exposed film.

I will describe hereinafter, with reference to accompanying drawings, two forms of execution chosen by way of example of an apparatus executed in accordance with my invention.

Fig. 1 is an outer diagrammatical side view of said apparatus,

Fig. 2 shows diagrammatically at a larger scale the path followed by the strip or film,

Fig. 3 shows diagrammatically the association of the control means for the cutter with the control means for the movable roller of the driving means for the exposed strip or film,

Fig. 4 is a side view of a part of the mechanism of the apparatus after removal of the protecting hood,

Figs. 5 and 6 are detail views showing certain parts of Fig. 4 at different stages of the cycle of operation,

Fig. 7 is a rear view of the apparatus,

Fig. 8 is a diagrammatic side view of the means for driving the exposed film.

Returning to Fig. 1, the whole apparatus is carried by a base 1 which may for instance be carried by rollers and it includes means for anchoring it so as to ensure its stability. It comprises moreover a rack controlled by the hand wheel 2 for ensuring its adjustment as to height.

The provision of strip-shaped reversible paper is contained in a holder 3 inside which (Fig. 2) the strip is rolled round a roller 4; the paper passes between the stationary rollers 5 and a movable inwardly-urged roller 6, after which it passes again over the roller 4 and passes downwardly out of the holder 3 through a velvet-lined channel into a further channel 7 independent of

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the holder 3 which is, of course, removable. The drive of the paper strip or film is produced by rubber cams 8 acting on either side of the strip or film and showing depressed portions which ensure the intermittent character of the drive. When these depressed parts face one another, the strip ceases being driven, as required for view taking. The cams 8 are keyed to the spindles carrying the pinions 9 (Fig. 1) meshing with one another, one of said pinions 9 being provided with a pawl and ratchet system coupled with a crank 11 allowing the hand-controlled rotation of the corresponding pinion in one direction only.

The unimpressed strip thus driven advances and passes in front of the cutter knife 12 of any suitable type and then in front of the photographic object-glass 13 the release shutter of which is controlled by a pinion 14 driven by means of a suitable transmission through one of the pinions 9. The apparatus may also comprise a ground glass 15 and a magnifying glass for focusing, which allows taking views of subjects of various sizes. In front of the object-glass there is preferably arranged, as known per se, a righting prism 20 which allows the production of normal pictures on the paper instead of inverted ones.

The exposed strip passes then between two driving rubber-lined rollers 16 and 17. The axis of the roller 16 is stationary and the roller 17 is carried by a support 18 adapted to rock round an axis 19 and consequently to move nearer to or further away from the roller 16. Said roller 16 is provided with a driving crank 21 which may be actuated by hand (Figs. 1 and 3).

After its passage between the rollers 16 and 17, the strip section falls into the receiver 22 which is removable and may be made light-tight by means of a sliding cover after the manner of a photographic frame.

I will now describe diagrammatically the association of the movements of the cutter knife with those of the movable roller 17 (Fig. 3). A cam 23 is set rotating through a suitable transmission driven by the crank 11 driving one of the pinions 9, in a manner such that this cam 23 accomplishes one entire revolution for every six revolutions of the interengaging pinions 9. A lever 24 pivotally secured to the stationary pivot 25 is urged towards the surface of this cam by a spring 27 and rests against said cam with the interposition of the stud 26. The lever 24 controls the cutter knife 12, illustrated here diagrammatically and constituted in any known or suitable manner. The lever 24 controls moreover through the agency for instance of a slide or of a knob, a bell crank 28 pivotally secured to the stationary pivot 29. Said bell crank acts in its turn through a rod 31 on the support 18 of the roller 17, the support 18 or the rod 31 being preferably constituted by a bell crank.

The operation of the apparatus is as follows: the paper holder 3 being mounted and the front end of the strip being threaded inside the channel 7, the crank 11 is set rotating by hand. Under such conditions, the strip advances intermittently under the action of the cams 8 and, at each stoppage of the strip, the shutter of the object-glass 13 is released whereby a view is taken.

When six photographs have been taken (the number six being chosen solely by way of example and any other number being possible provided a corresponding change in the gear ratio is adopted), the cam 23 allows the stud 26 to escape; the lever 24 rocks then from left to right,

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as seen in Fig. 3, and the knife 12 cuts the strip behind the last impressed photograph. At the same time, the parts 28, 31 cause the support 18 to rock towards the left. The roller 17 moves towards the roller 16 so as to secure between said rollers 16 and 17 the impressed strip the end of which is engaged between them. If the crank 21 is then hand-actuated, the impressed strip section is driven forwards and falls into the receiver 22. When the operator deems a sufficient number of strip sections has fallen into the receiver 22, he closes the cover of the latter and removes same. The receiver being brought to the laboratory, the different strip sections it contains are treated in a succession of suitable baths. During this treatment, the strip sections are held by a carrier which affords means for securing them and for handling them easier.

In Figs. 4 and 7, the frame of the apparatus is shown at 101 while the holder for the unimpressed film, which is to be placed at the upper part of the apparatus, has been removed for greater simplicity in the showing. The crank 11 the axis of which is shown at 103 serves for the driving of the unimpressed film, the release of the shutter and the cutting of the film. The crank 21 the axis of which is shown at 105 serves for driving the exposed film into the receiver. The optical system of the apparatus is shown at 13 and its picture righting prism at 20.

The axis 103 acts through the gear-work 108—109 on one of the rubber cam-shaped rollers 8 the rotation of which is thus ensured in order to drive the unimpressed strip as described hereinabove. One of the wheels of the gearwork carries a pin 111 adapted to meet the lever 112 submitted to a yielding pressure, so as to make said lever 112 hit the bell 113 which produces an acoustic signal just before the shutter is released under the action of the cam 114. The axis of the gear wheel 109 which serves for the drive of the unimpressed film carries on the opposite side of the apparatus a pinion 115 (Fig. 7) which meshes with a toothed wheel 116. The latter carries through a smaller coaxial disc 117 a cam 23 provided with a notch 118 cooperating with a stud 26; this stud is carried by a lever 24 pivotally secured through one end to the axis 123 mounted in the frame of the apparatus. The lever 24 is submitted to the action of the spring 27 the other end of which is secured to the casing and a crowbar 126, pivotally secured at 125 to said lever 24, is provided with a tail-piece 127 urged back by a spring 128 the other end of which is secured to the lever 24.

A long locking lever 131 is adapted to rock round a pivot 129 carried by the frame of the apparatus. The lower end of this lever carries a projection 132 adapted to cooperate with a cam 133 keyed to the shaft 105 of the crank 21 which serves for driving the exposed film. The other end of the lever 131 may engage a hook 134 pivotally secured at 135 to the frame and the tail-end of which, provided with a projection 136, is adapted to meet a stud 137 carried by the toothed wheel 116. In the medial portion of the locking lever 131 is provided a shoulder 138 adapted to cooperate with a cam 139 having a flat radial surface and which I will term the locking cam. Said cam is carried by the axis 103 of the crank driving the unimpressed strip or film, which axis also carries in another plane parallel to that of the cam 139 a cam 141 with two opposite slopes adapted to cooperate with the tail end 142 of a hook 143. This hook pivotally secured at 144 to

the frame may engage the rear portion 145 of the knife which is to be imagined as lying in a plane perpendicular to the plane of Fig. 4. This knife need not be specially described as it may be of any type and does not form part of my invention. A spring 146 urges towards the right hand side of the figure the rear end of the knife, until it abuts against the stop 147.

The different parts have been shown in Fig. 4 in the inoperative position occupied by them as soon as the number of pictures, say six, for which the apparatus is designed, has been exposed and before the exposed film has been allowed to enter the receiver; at such a moment the locking cam 139 abuts against the shoulder 138 of the lever 131 which disengages the hook 134. On the other hand, the hook 143 keeps the rear end 145 of the knife in the position reached after the strip has been cut. It is apparent that by reason of the cam 139 abutting against the shoulder 138, it is impossible to continue rotating the crank 11 and consequently engaging a further length of unimpressed film into the apparatus.

If it is then desired to make the exposed film enter the receiver 22 and if the crank 21 is rotated for driving said exposed film, the cam 133 acting on the projection 132 will cause the lever 131 to rock and to engage the hook 134. Consequently, the locking cam 139 is disengaged and it is possible to rotate the crank 11 which drives the unimpressed film, together with its axis 103. As soon as this rotation begins, the double slope cam 141, meeting the projection 142, releases the hook 143 which in its turn releases the rear portion 145 of the knife which is urged back towards the stop 147. Thus the knife sets the channel for the passage of the unexposed film free.

At each revolution of the axis or shaft 103, the stud 111 acts so as to produce a ringing of the bell 113 while a little later, the cam 114 releases the shutter and allows a view to be taken during the time corresponding to a stopping of the unimpressed film, which progresses intermittently inside the apparatus.

As the cam 23, which performs one revolution for every six revolutions of the axis 103, rotates, it acts on the stud 26 so as to urge the lever 24 towards the right. Fig. 5 shows an intermediary position for which the end of the crow-bar 126 slides over the rear end 145 of the knife.

Fig. 6 shows the parts towards the end of the fifth revolution of the axis 103. The stud 26 occupies then its extreme position towards the right and is quite near the notch 119. The end of the crow-bar 126 is then in engagement with the back of the rear end 145 of the knife.

When the sixth revolution of the axis 103 begins (Fig. 4), the stud 137 on the wheel 116 meets the projection 136 and the hook 134 releases the locking lever 131; but as the back of the projection on the cam 139 is then in front of the shoulders 138, said shoulder rests against this back of the projection on the cam 139 so that the axis 103 may still execute one revolution before it is stopped. During this revolution, the bell rings once and a view is taken as during each of the preceding revolutions. Then the stud 26 arriving in front of the recess 119 is suddenly urged into the bottom of said recess. The crow-bar 126 urges sharply leftwards the rear end 145 of the knife, which produces the cutting of the strip. When it has reached the left hand side of its path, the rear end 145 of the knife engages the hook 143. Lastly, the flat radial portion of the projection on the cam 139 abuts against the shoulder 138

so that the operator can no longer make the axis 103 rotate. At this moment, the parts occupy the positions shown in Fig. 4.

I will now describe (Fig. 8) the arrangement of the parts controlled by the crank 21 driving the exposed film. In this form of execution, the rollers driving the exposed film are brought together by the operation of the crank driving the exposed film instead of by the movement of the cutter knife.

To the axis 105 of the crank is secured the stationary rubber-lined driving roller 16. The same crank acts also through the pinion 152 on the toothed wheel 153 which carries a first cam 154 which serves for bringing the rollers near one another. Said cam is adapted to cooperate with a lever 155 keyed to the axis 156 which carries on the other hand an arm 157 the end of which is provided with a movable rubber-lined roller 17. On the other hand, the toothed wheel 153 carries in a plane parallel to that of the cam 154 another cam 159 adapted to act on the stud 161 secured to the end of a lever 162 keyed to the axis 163, to said axis 163 is also keyed a lever 164 carrying at its remote end pivoting rods 165 guided vertically to either side of the ends of the roller 16 and the lower ends of which form pusher elements 166.

When the crank 21 is caused to rotate in the direction of the arrow in Fig. 8, the projection on the lever 155 which was resting on the most projecting part of the cam 154 slides and falls on to a less projecting part of said cam, which makes the movable roller 17 move nearer the stationary roller 16 so as to pinch the film 167 between said rollers; this being performed, the cam 159 engages through the stud 161 the lever 162, whereby the lever arm 164 is actuated and makes the rods 165 sink, the pusher elements 166 on the latter pressing the cut end portion of the film after the latter has passed between the rollers 16-17 so as to urge said film downwards and accompanying its movement until it has entered the receiver.

When the driving mechanism is at the end of its stroke and the knob of the crank 21 is released, the axis 105 begins rotating rapidly in the direction opposed to its preceding rotation under the action of a return spring not shown and the different parts return to their starting position, as shown in Fig. 8.

What I claim is:

1. A view taking apparatus for taking a predetermined number of views on strip elements comprising a strip holding and feeding box, hand-operated means for the intermittent drive of the strip passing unimpressed out of said box, cutting means controlled by said hand-operated means for cutting the strip when it has advanced through a predetermined length corresponding to the number of views to be taken, a view-taking system including an object glass and a shutter controlled by the hand-operated means at each intermittence of the drive operated by same, further hand-operated means for driving the cut and exposed strip element, locking means adapted to prevent operation of the first hand-operated means from continuing as soon as the predetermined number of views has been taken on the strip, means whereby the second hand-operated means release said locking means and a removable light-tight receiver adapted to receive said strip element driven by the second hand-operated means.

2. A view taking apparatus for taking a predetermined number of views on strip elements comprising a strip holding and feeding box, hand-operated means for the intermittent drive of the strip passing unimpressed out of said box, cutting means controlled by said hand-operated means for cutting the strip when it has advanced through a predetermined length corresponding to the number of views to be taken, a view-taking system including an object glass and a shutter controlled by the hand-operated means at each intermittence of the drive operated by same, further hand-operated means for driving the cut and exposed strip element, a lever, a stationary pivot therefor, a projection on said lever adapted to engage the first hand-operated means for preventing operation thereof, means engaging the lever in its inoperative position for locking same in said position, means whereby the first hand-operated means release said locking means when the predetermined number of views has been taken, means urging the lever into its operative position, means whereby the second hand-operated means urge the released lever back into its inoperative position and a removable light-tight receiver adapted to receive the cut and exposed strip element driven by the second hand-operated means.

3. A view taking apparatus for taking a predetermined number of views on strip elements comprising a strip holding and feeding box, hand-operated means for the intermittent drive of the strip passing unimpressed out of said box, cutting means controlled by said hand-operated means

for cutting the strip when it has advanced through a predetermined length corresponding to the number of views to be taken, a view-taking system including an object glass and a shutter controlled by the hand-operated means at each intermittence of the drive operated by same, further hand-operated means for driving the cut and exposed strip element, a removable light-tight receiver, vertical rods the ends of which form pusher elements and means whereby said rods are moved vertically by the second hand-operated means for pushing the cut and exposed strip element into said receiver.

LOUIS GEORGES ALBERT PEJOIS.

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