

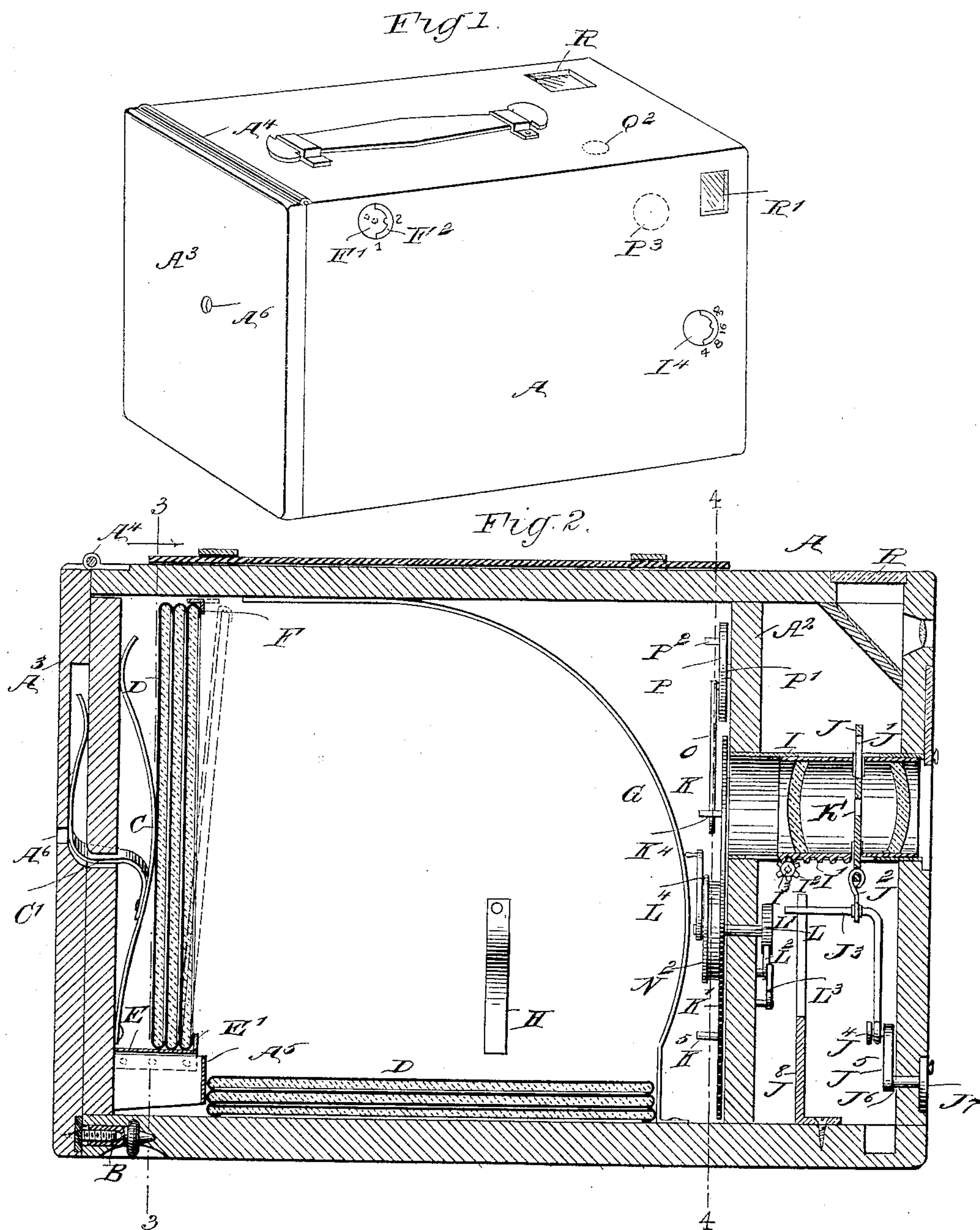
(No Model.)

2 Sheets—Sheet 1.

A. LUNDELIUS.
MAGAZINE CAMERA.

No. 534,115.

Patented Feb. 12, 1895.



WITNESSES:
Paul Jakob.
C. Sedgwick

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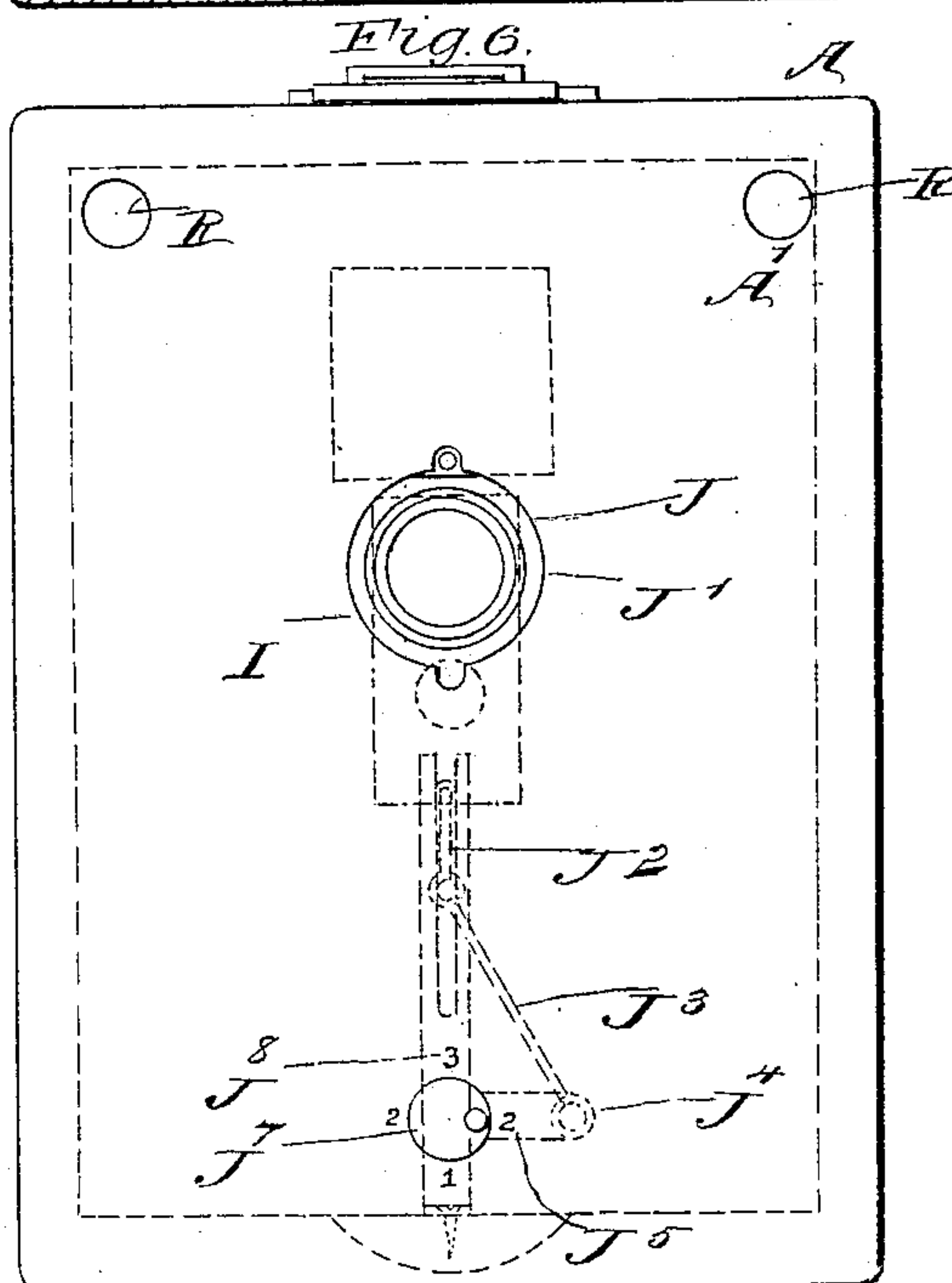
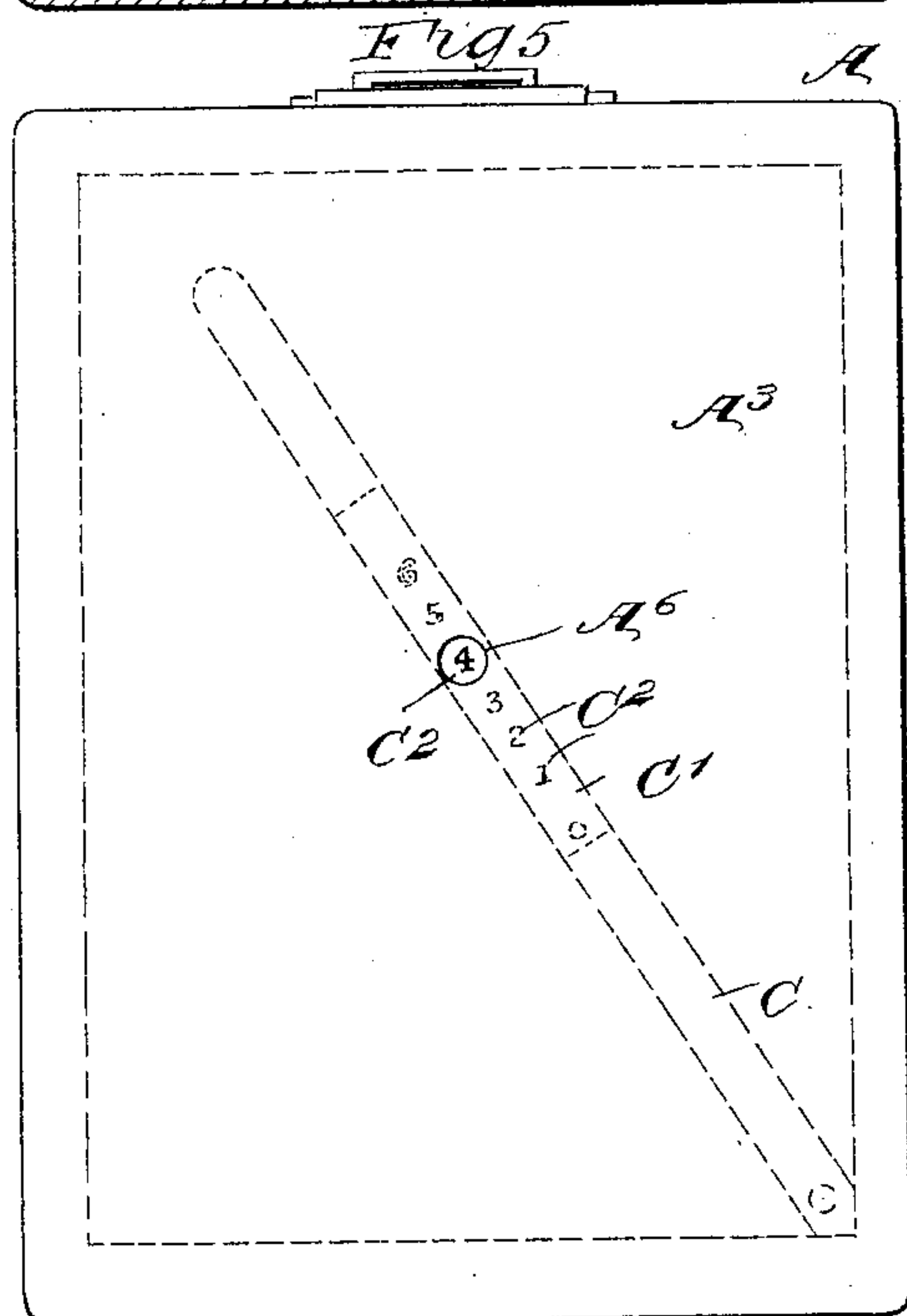
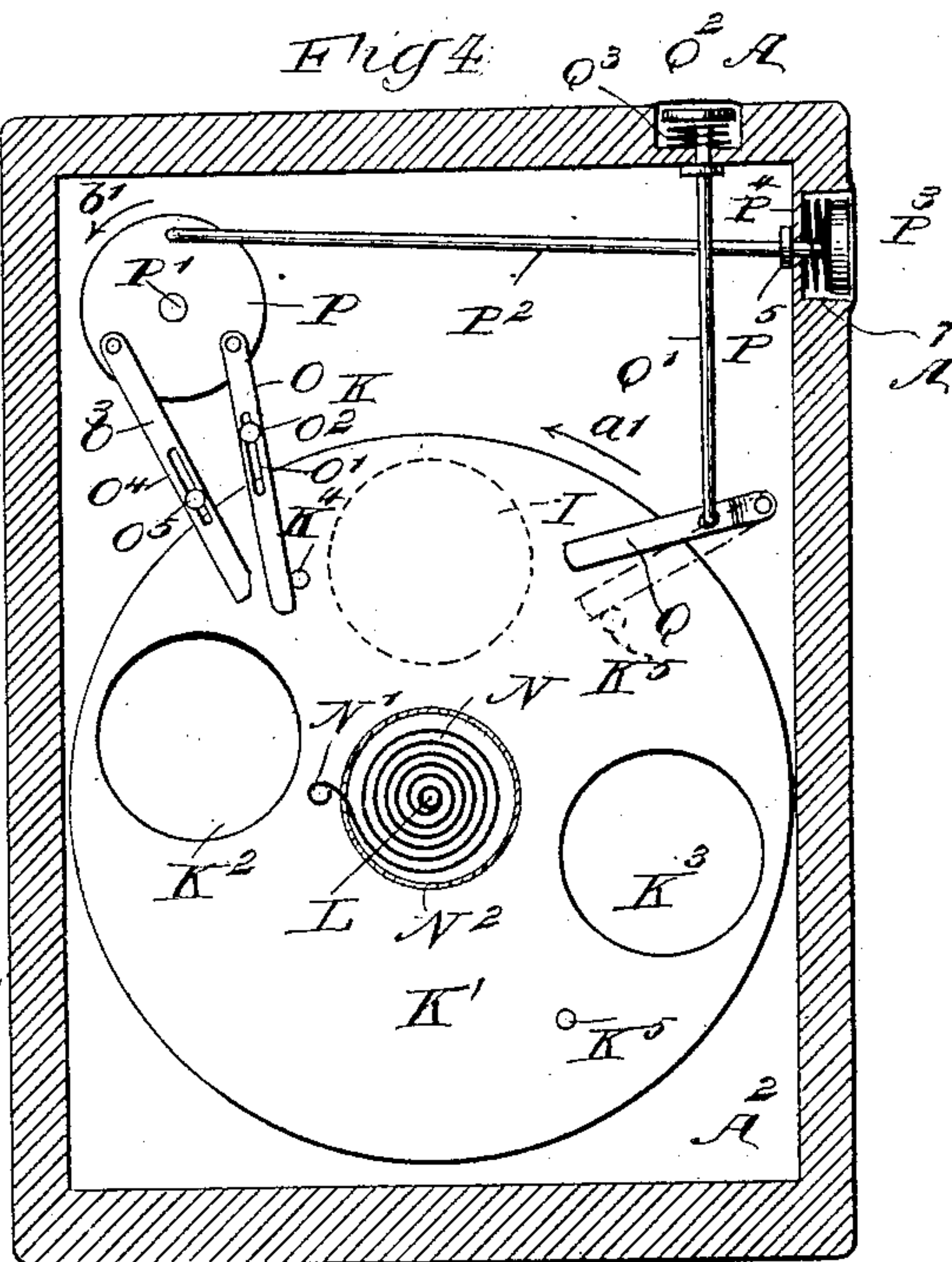
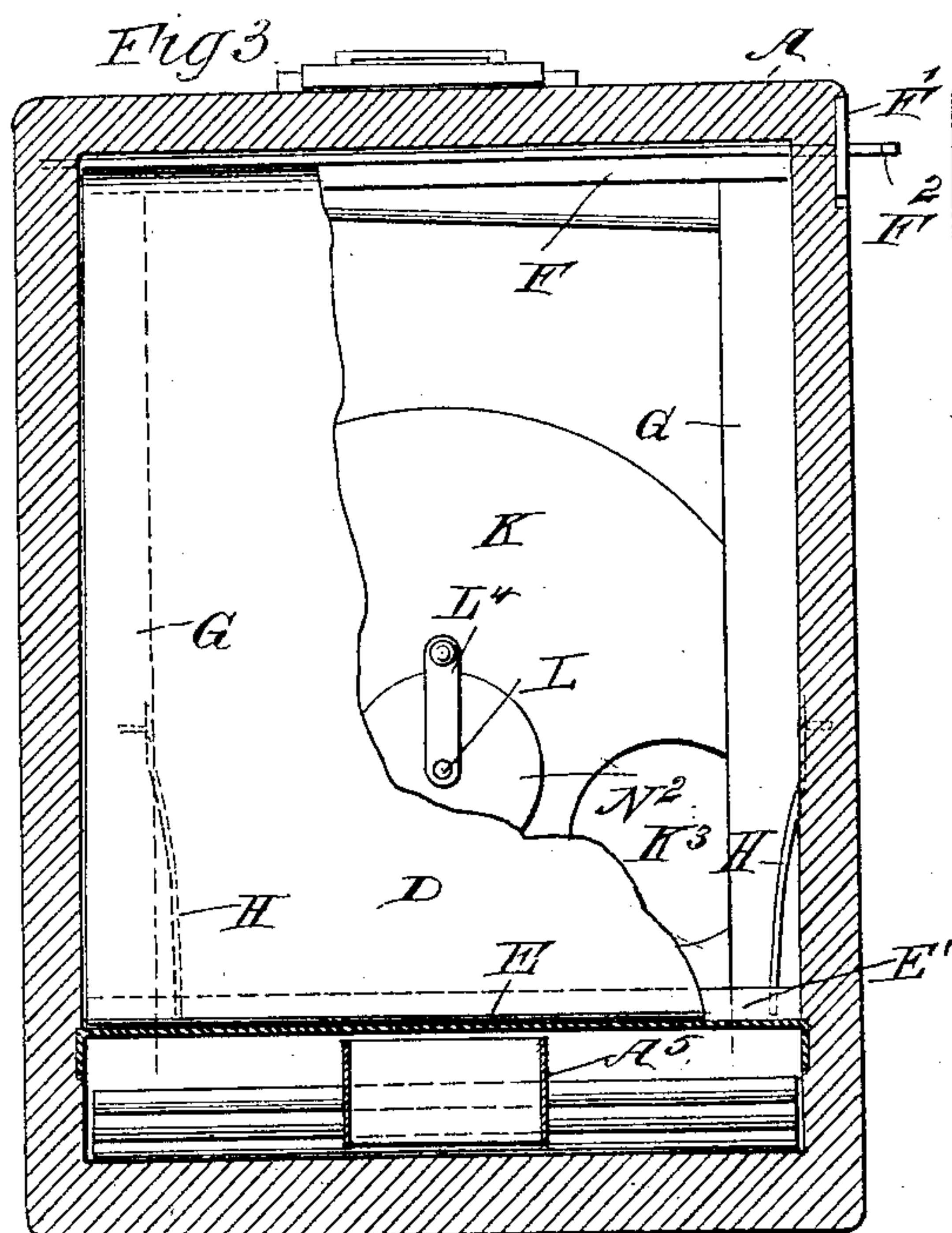
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2 Sheets—Sheet 2.

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UNITED STATES PATENT OFFICE.

AUGUST LUNDELIUS, OF PORT JERVIS, NEW YORK.

MAGAZINE-CAMERA.

SPECIFICATION forming part of Letters Patent No. 534,115, dated February 12, 1895.

Application filed February 28, 1894. Serial No. 501,825. (No model.)

To all whom it may concern:

Be it known that I, AUGUST LUNDELIUS, of Port Jervis, in the county of Orange and State of New York, have invented a new and Improved Hand-Camera, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved combined magazine, hand and detective camera, which is comparatively simple, compact and durable in construction, without any loose parts or projections on the outside of the casing, and arranged to permit the operator to manipulate the various devices from the outside to conveniently make the desired time or instantaneous exposure, to bring the plates successively in the proper position for exposure, and to permit of filling the camera with simple and independent plate carriers, for glass plates or films.

The invention consists of certain parts and details, and combinations of the same, as will be hereinafter described and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a perspective view of the camera. Fig. 2 is an enlarged sectional side elevation of the camera. Fig. 3 is a transverse section of the same on the line 3—3 of Fig. 2. Fig. 4 is a like view of the same on the line 4—4 of Fig. 2. Fig. 5 is a rear elevation of the camera, and Fig. 6 is a front elevation of the same.

The improved hand camera is provided with a suitably constructed casing A having the front A', the transverse partition A², and a rear door A³ hinged at A⁴ to the top of the casing A, as is plainly shown in Figs. 1 and 2. The lower free end of the door A³ is adapted to be locked to the bottom of the casing by a suitable locking device B, shown in Fig. 2.

On the inner face of the door A³ is secured a spring C curved so as to press with its middle portion on the back of the rearmost plate carrier D held in a vertical position and set with its lower edge on a transversely-extending rest E, secured to the sides of the casing A, as is plainly shown in Figs. 2 and 3. The front end of the rest E is formed with a short transversely-extending flange E', to prevent the front plate holder from sliding off the rest

until the said plate carrier is released, as hereinafter more fully described.

The upper edge of the plate carrier D abuts against an abutment F, extending transversely and made in the shape of an angle iron, as is plainly indicated in Fig. 2. The abutment F is mounted to turn in suitable bearings in the sides of the casing A, and one outer end of the shaft or trunnion of the said abutment is provided with a button or disk F' arranged in a circular recess on the outside of the casing, and having a hinged semi-ring or segment F², adapted to be swung at right angles to the button or disk F', to permit the operator to conveniently turn the said disk from the numeral 1 to numeral 2 (stamped in the casing, see Fig. 1) and consequently the abutment, either from the position shown in Fig. 2 into that illustrated in dotted lines therein, and back to 1 and into the normal position to hold the front plate carrier in position. The button or disk F' is preferably provided with a suitable catch (not shown) to hold it in place.

It will be seen that when a series of plate carriers are set on the rest E and the door A³ is closed, then the rearmost plate carrier is pressed on at the back by the spring C, while the front plate carrier abuts at the bottom on the flange E', and at its upper end on the abutment F. Now, when the operator turns the segment F² to give a quarter turn to the abutment F, so that the latter moves into the position shown in dotted lines in Fig. 2, then the front plate carrier D is forced forward and swings downward by the action of the spring C on the back of the rearmost plate carrier, as the several plate carriers press one on the other by the action of the said spring. Thus, the front plate carrier swings downward into the casing and rests on the bottom thereof, while the next following plate carrier is retained by the vertical part of the L-shaped abutment F, and when the latter is returned to its normal position the other arm of the said abutment engages the upper edge of this plate carrier to hold the latter in position.

In order to guide the downwardly-falling plate carrier D, I provide the curved arms G secured to the sides of the casing A, as is plainly shown in Figs. 2 and 3. In order to prevent injury to the plate carriers while swinging down, and to prevent the exposed

plates from falling out of position when the box is turned upside down, I provide one or more sets of springs H, secured to the inner faces of the sides of the casing A, so that the plate carrier, in swinging or falling downward, strikes with its side edges the curved springs H, so as to break the fall of the plate and to permit the same to land easily on the bottom of the casing, or in case of a second plate carrier, to land easily on the plate carrier first deposited on the bottom of the casing.

In order to prevent the carriers D placed on the bottom of the casing A after the exposure is made, from sliding rearward, I provide a transversely-extending lug A⁵ fastened to the inner face of the door A³ near the free end thereof, the said lug extending under the rest E, as is plainly shown in Fig. 2. Thus, the carriers D on the bottom of the casing cannot slide forward or rearward, as the forward motion is limited by the side arms G, and rearward motion by the lug A⁵.

In order to indicate the plate exposed, I provide the spring C with an extension arm C' passing over an aperture A⁶ formed in the door A³, the said extension C' being fitted to slide in a recess in the said door, as is plainly shown in the said Fig. 2. Now, on the rear face of the extension C' are arranged numerals, or other suitable characters, C², to indicate the various plates held in a vertical position on the rest E. It will be seen that when all the plates are set on the rest E, then the spring C is compressed to its greatest extent, and consequently the extension C' is pressed inward in its recess, so that the first numeral "1," or other character appears in the aperture A⁶. Now, when an exposure has been made and the front plate carrier is thrown down, then the spring C expands, by the forward movement of the remaining plates, so that a pull is exerted on the extension C', and the next numeral "2" or character, is drawn over the aperture A⁶ to indicate to the operator that the second plate is now ready for exposure. Thus, it will be seen that a very simple indicating device for the plate holders is obtained by the action of the spring C.

The objective I is mounted to slide in the usual manner in the front A' and the partition A², and is provided at its bottom with a rack I' in mesh with a pinion I² secured on a transversely-extending shaft I³, carrying on one outer end a disk I⁴, having a hinged segment similar to the one shown and described above in relation to the disk F. Now, when the operator opens this segment of the disk I⁴ and turns the latter, then a forward or backward sliding motion is imparted to the objective, according to the distance of the object to be photographed, so as to obtain the proper focus. The disk or button I⁴ is turned to the numeral stamped in the casing covering and representing the number of feet the subject is from the lens.

In order to obtain the desired effect, I provide a stop J, fitted to slide vertically in suit-

able bearings in the objective I, the said stop being provided with the openings J' of different diameters and adapted to register with the center of the objective I. The openings J' are arranged one above the other, and the lower end of the stop J is pivotally-connected by a loop J² with the horizontal part of an L-shaped link J³ pivoted on the wrist pin J⁴ of the crank arm J⁵ fastened on a short shaft J⁶ mounted to turn in suitable bearings in the front A' of the casing. See Fig. 2. The outer end of this shaft J⁶ carries a button J⁷, which, when turned, imparts a turning motion to the shaft J⁶ and crank arm J⁵, so that the wrist pin J⁴, by the link J³ and loop J², imparts a vertical sliding motion to the stop J, to bring either of the openings J' into alignment with the center of the objective I. The button J⁷ indicates on numerals 1, 2, 3 stamped in the covering surrounding the button, the said numerals representing various sized openings in the stop. The loop J² is free to slide on the horizontal part of the link J³, as the stop is moved forward and backward with the objective I. The horizontal part of the link J³ is guided in a vertical slot of a guideway J⁸ secured in the casing.

In order to make the proper exposure, either instantaneous or time, I provide a shutter K having a disk K' made of rubber or other suitable material and arranged on the inner face of the transverse partition A². The disk K' is mounted to rotate loosely on a longitudinally-extending shaft L mounted to rotate in suitable bearings in the transverse partition A², the outer end of the said shaft carrying a ratchet wheel L' engaged by a pawl L² pivoted on the front of the partition A² and pressed on by a spring L³, to hold the said pawl in engagement with the ratchet wheel L'. On the rear end of the shaft L is secured a crank arm or handle L⁴, adapted to be taken hold of by the operator at the time the door A³ is opened, so as to turn the said shaft L in one direction, the return movement of the latter being prevented by the ratchet wheel L' and spring-pressed pawl L². On this shaft L, at the front face of the disk K' is secured one end of a coil spring N, fastened at its outer end to a pin N', secured on the disk K', as is plainly shown in Fig. 4, said spring being coiled within a casing N² forming part of the disk K'. Now, when the operator turns the crank arm L⁴, the spring N is wound up, so as to rotate the disk K' in the direction of the arrow a' whenever the said disk is released, as hereinafter more fully described.

The disk K' is provided with diametrically-arranged openings K² and K³, adapted to register with the objective I at the time the disk K' is rotated in the direction of the arrow a', it being understood that the disk K' is normally held in such a position that the apertures K² and K³ are out of register with the objective I, as shown in Fig. 4.

In order to lock the disk K' normally in position, I provide the same with diametrically-

arranged pins K^4 and K^5 , located midway between the openings K^2 and K^3 , and adapted to be alternately engaged by a tripping lever O , pivoted on a disk P having its shaft P' mounted to oscillate in suitable bearings in the transverse partition A^2 . The lever O is provided with a slot O' , engaged by a pin O^2 , secured on the said transverse partition A^2 , so that when the disk P is turned the said lever O is carried upward to draw its lower end away from the corresponding pin K^4 or K^5 , to release, for a time, the disk K' , to permit the spring N to rotate the latter in the direction of the arrow a' . A second lever O^3 is pivoted on the disk P and is adapted to engage the released pin K^4 or K^5 shortly after the other lever O is withdrawn from the said pin, and this lever O^3 is likewise provided with a slot O^4 , engaged by a pin O^5 fastened on the transverse partition A^2 .

By reference to Fig. 4 it will be seen that when the disk P is turned in the direction of the arrow b' , then the lever O is carried upward out of engagement with the pin K^4 , while at the same time the other lever O^3 moves downward to take hold of the said pin K^4 , to interrupt the rotating movement of the disk K' and lock the same in place. When the disk P is turned in the inverse direction of the arrow b' , the other lever O moves downward, while the lever O^3 moves upward, so that the latter releases the pin K^4 and the disk K' is now free to make nearly a one-half revolution; that is, until the other pin K^5 strikes against the lower end of the lever O , and further turning of the disk K' in the direction of the arrow a' is prevented.

The disk P is turned in the directions indicated, by the operator, and for this purpose I connect the disk P with a link P^2 , extending transversely and having one outer end fitted to slide in one of the sides of the casing A . A button P^3 on the outer end of this link P^2 is under the control of the operator who can press the said button inward to turn the said disk in the direction of the arrow b' , as above described. On releasing the pressure on the button P^3 , the latter, with the link P^2 , is moved outward by the action of a spring P^4 set in a recess A^7 in the side of the casing A and pressing on the inner face of the said button P^3 , as will be readily understood by reference to Fig. 4.

In order to limit the outward sliding movement of the link P^2 , I provide the latter with a collar P^5 , adapted to abut against the inner face of the side of the casing in which the said link is fitted to slide. See Fig. 4. Now, it is understood that when the pressure is released from the button P^3 , the spring P^4 forces the button outward to turn the disk P in the inverse direction of the arrow b' to cause the lever O^3 to release the respective pin K^4 or K^5 , as previously mentioned.

When it is desired to make a time exposure, the following device is provided: A lever Q pivoted on the inner face of the partition A^2

is adapted to be thrown downward into the path of one of the pins K^4 , K^5 , so as to interrupt the turning movement of the disk K' and to hold the corresponding aperture K^2 or K^3 in alignment with the objective I , for such a length of time as is deemed necessary for the time exposure. As soon as the lever Q is permitted to swing upward, then the respective pin K^4 or K^5 is released and the disk K' turns forward in the direction of the arrow a' to again close the objective I . The disk K finally comes to rest by the respective pin K^4 or K^5 engaging the lever Q . Now this lever Q is under the control of the operator and is connected with a link Q' extending upward and having its upper end fitted to slide in suitable bearings in the top of the casing A . On the upper, outer end of the said link Q' is secured a button Q^2 and a spring Q^3 is coiled on the said link with a recess of the casing to hold the link Q' and lever Q normally in an uppermost position; that is, to hold the lever Q out of the path of the pins K^4 and K^5 . When the operator presses the button P^3 and releases the same to first withdraw the lever O from the pin K^4 , see Fig. 4, and then to withdraw the lever O^3 on the release of the button P^3 to permit the disk K' to turn in the direction of the arrow a' , he can stop the movement of the disk at the time the respective opening K^2 or K^3 is in alignment with the objective I , by pressing the button Q^2 so as to swing the lever Q in the path of the corresponding pin K^5 or K^4 . The operator then releases the pressure on the button Q^2 and the time exposure has been made, though the disk K continues to turn until the pin K^5 or K^4 strikes the lever O , and its movement is thus interrupted. The casing is covered with leather, canvas or other suitable material so as to hide the buttons P^3 and Q^2 as shown in Fig. 1, and thus make the casing appear as plain as possible.

In the front end of the camera casing A are arranged the usual finders R of any approved construction.

It will be seen that by making the plate carriers half the thickness shown, they can be used for holding films, so that twelve films can easily be stored in the casing, occupying the same space that half that many carriers will do. Cameras for plates larger than four inches by five inches can readily be made to hold twelve or more plates.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. A hand camera comprising a plate-rest extending transversely and secured in the camera casing, the said plate-rest being adapted to receive the lower edges of the plate carriers, an L-shaped abutment extending transversely and mounted to turn in the casing, the said abutment being adapted to be engaged by the upper ends of the plate carriers to hold the latter in a vertical position during exposure, a spring pressing on the back

of the rearmost plate carrier to force the several plate carriers forward on the turning abutment, and an indicator controlled by the said spring to indicate the number of plates
5 exposed, substantially as shown and described.

2. A hand camera comprising a plate-rest extending transversely and secured in the camera casing, the said plate-rest being adapted
10 ed to receive the lower edges of the plate carriers, an L-shaped abutment extending transversely and mounted to turn in the casing, the said abutment being adapted to be engaged by the upper ends of the plate carriers
15 to hold the latter in a vertical position during exposure, a spring pressing on the back of the rearmost plate carrier to force the several plate carriers forward on the turning abutment, and an extension for the said spring
20 and provided with characters to indicate the plate exposed, substantially as shown and described.

3. A photographic shutter, comprising a spring-controlled apertured disk having pro-
25 jections, and two levers operatively connected

with one another, to move in unison and adapted to alternately engage the said projections, as and for the purpose set forth.

4. A photographic shutter comprising a spring-controlled apertured disk having pro- 30 jections, two levers having movement toward and from the disk and adapted to alternately engage the said projections, a disk mounted to turn and operatively connected to each of the said levers, and means for turning the 35 disk, substantially as described.

5. A hand camera provided with a shutter comprising a spring-controlled, apertured disk having pins, levers adapted to alternately en- 40 gage the said pins, a disk mounted to oscillate and on which the said levers are pivoted, a link connected with the said disk and provided on its outer end with a button, and a spring connected with the said link to return the latter after being pressed on by the oper- 45 ator, substantially as shown and described.

AUGUST LUNDELIUS.

Witnesses:

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