D. McNEILL.

COMBINED CAMERA AND CHANGEABLE EXHIBITOR.

APPLICATION FILED OCT. 20, 1917.

1,295,544. Patented Feb. 25, 1919.

3 SHEETS—SHEET 1.

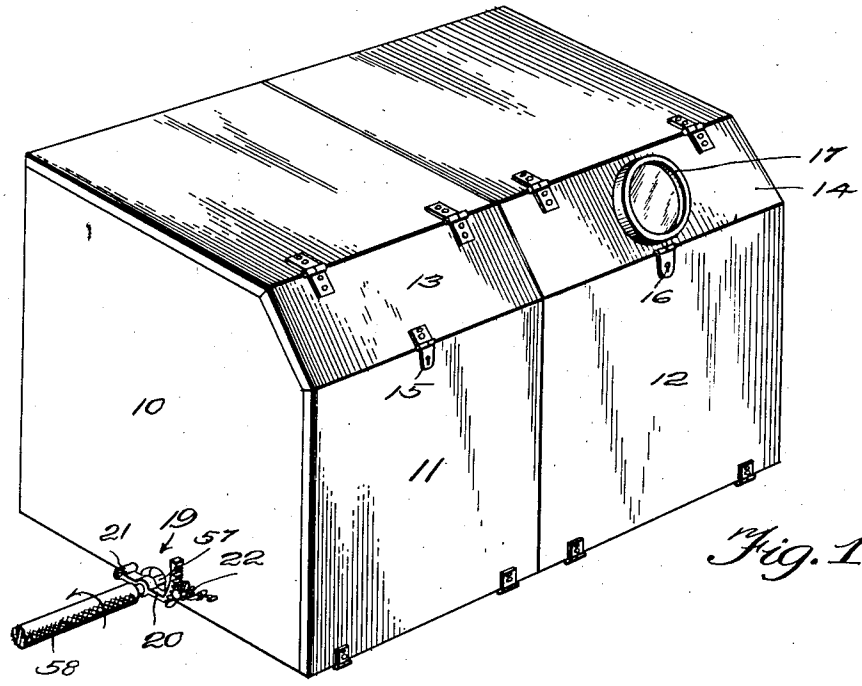
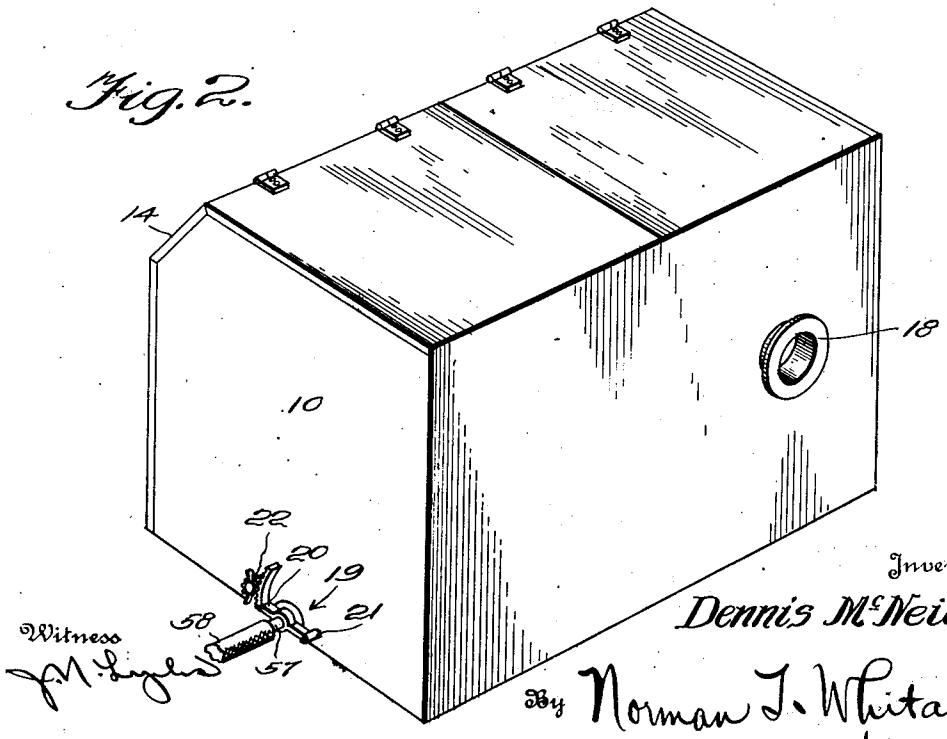


Fig. 1.

Fig. 2.



Witness

Inventor

Dennis McNeill,

By Norman T. Whitaker

his Attorney

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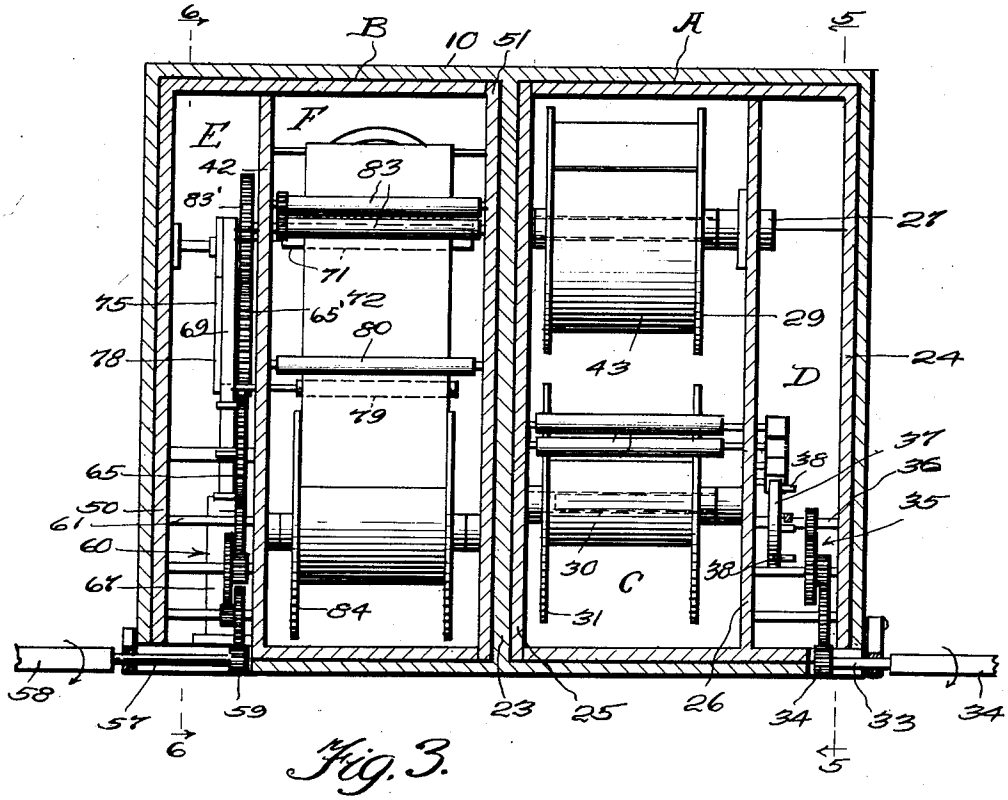


Fig. 3.

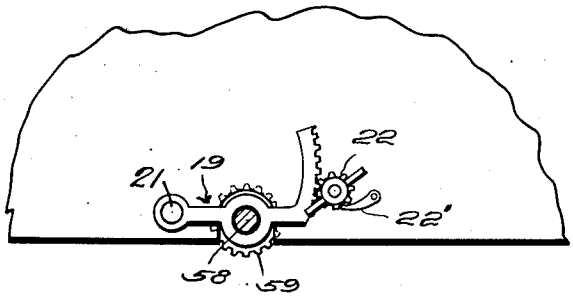


Fig. 4.

Witness
J. M. Lyles

Inventor
Dennis McNeill,
By Norman T. Whitaker
his Attorney

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3 SHEETS—SHEET 3.

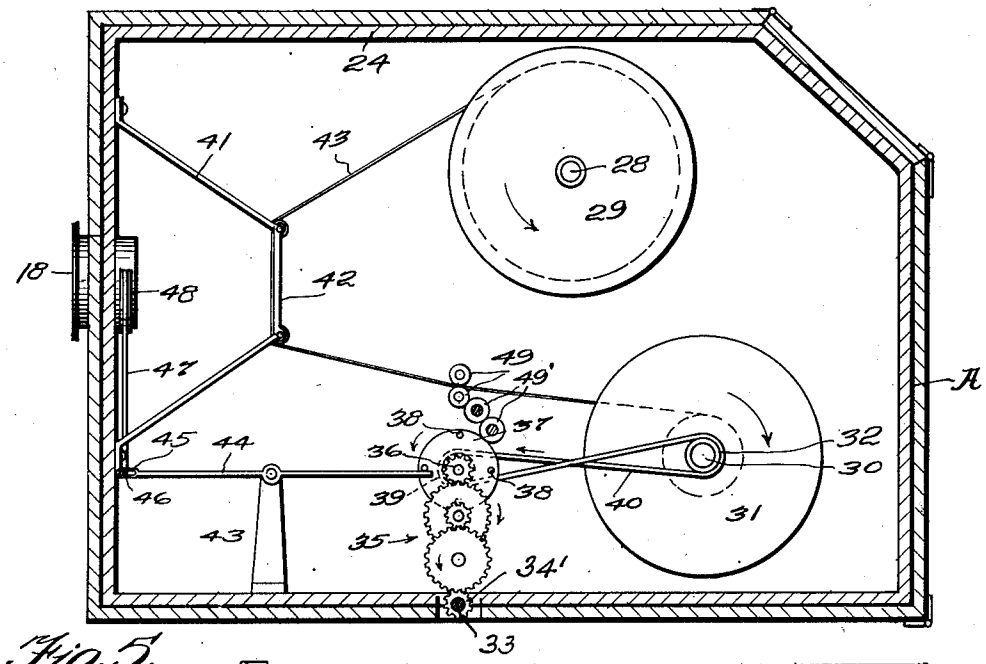


Fig. 5.

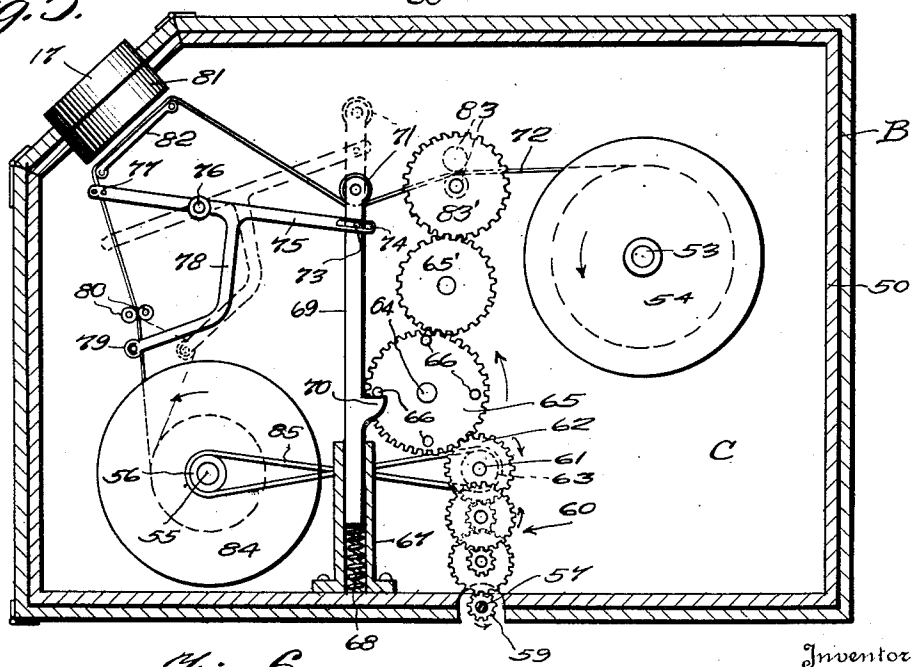


Fig. 6.

Witness
J. N. Lyles

Inventor
Dennis McNeill

By Norman T. Whitaker
his Attorney

UNITED STATES PATENT OFFICE.

DENNIS McNEILL, OF HUNTINGTON, WEST VIRGINIA.

COMBINED CAMERA AND CHANGEABLE EXHIBITOR.

1,295,544. Specification of Letters Patent. Patented Feb. 25, 1919.

Application filed October 20, 1917. Serial No. 197,630.

To all whom it may concern:

Be it known that I, DENNIS McNEILL, a citizen of the United States, and a resident of Huntington, in the county of Cabell and State of West Virginia, have invented new and useful Improvements in Combined Cameras and Changeable Exhibitors, of which the following is a specification.

This invention relates to combined cameras and changeable exhibitors and has particular reference to that class of cameras and changeable exhibitors employed in connection with automobiles.

An important object of the invention is to provide in a device of the above mentioned character a means whereby a sensitized film may be intermittently exposed at various intervals along a course of travel pursued by a movable vehicle.

A further object is to provide in a device of the above mentioned character a means whereby the developed images or pictures may be intermittently exhibited at various intervals along the course of travel of a vehicle.

Other objects and advantages of the device will be apparent during the course of the following description taken in conjunction with the accompanying drawing.

In the drawing, forming a part of the specification, and in which like numerals are employed to designate like parts throughout the same,

Figure 1 is a perspective view of a receptacle adapted to receive therein the device embodying my invention,

Fig. 2 is a rear view of the same shown in perspective,

Fig. 3 is a central vertical longitudinal sectional view of the same,

Fig. 4 is an enlarged detail view of an adjustable bearing,

Fig. 5 is a vertical transverse sectional view of Fig. 3 taken on line 5—5, with a partition removed showing in end elevation the spools employed therein, and,

Fig. 6 is a similar view of the same taken on line 6—6 with a partition removed showing in end elevation the spools employed therein.

In the drawings, wherein for the purpose of illustration, is shown a preferred form of my invention the numeral 10 designates a receptacle having hinged at its front end a pair of doors 11 and 12. These doors are hinged to the bottom portion of the receptacle 10 and extend upwardly sufficiently far to form a jointure with doors 13 and 14, hinged to the top portion of the receptacle 10, as shown. The doors 13 and 14 are provided with latches 15 and 16, respectively, which latches are adapted to hold the doors 11 and 13, 12 and 14, respectively, in a closed position as is clearly shown in Fig. 1. The door 14 is provided with a lens 17 which is located approximately centrally therein.

The side of the receptacle opposite that which carries the above named doors is provided substantially near one end thereof with a lens indicated by the numeral 18, the purpose of which lens will hereinafter be described.

Each end of the receptacle 10 is provided with an adjustable bearing indicated as a whole by the numeral 19. This bearing comprises a rack 20 substantially arcuate and is pivoted at one end to the receptacle as shown at 21. The teeth carried by the rack 20 are adapted to engage a pinion 22 disposed in proximity to the rack bar 20, which pinion is adapted to raise or lower the bearing 19 as a whole by moving the same upon its pivotal point 21.

The receptacle 10 is divided into two compartments, A and B, by means of a vertical partition 23 disposed transversely therein. The compartment A is adapted to receive a casing 24 which is provided with a removable side 25. The casing 24 is divided in two compartments, C and D, by means of a vertical wall 26 disposed horizontally therein. To the partition 26 there is secured a hub member 27 by means of screws or the like as shown. This hub member is provided with a spindle 28 adapted to receive thereon a rotatable spool or reel 29. Within the lower portion of the partition 26 there is journaled a spindle 30, one end of which projects into the compartment C and is provided thereon with a pulley 32.

A shaft 33 adapted to be driven by a flexible cable 34 or the like connected to a suitable rotating member of an automobile, not shown, is journaled within the adjustable bearing 19 and has one end projecting a substantial distance into the receptacle 10, which end is provided with a pinion 34' adapted to drive a train of gears as shown at 35. This train of gears is adapted to rotate a shaft 36 carrying a disk 37 which is provided on one face with a plurality of

pins 38. Upon the shaft 36 there is disposed a pulley 39 adapted to impart rotary motion to the spindle 30 by means of a belt 40 as shown.

Within the compartment C and at the rear end thereof there is secured a support 41 by means of screws or the like as shown. This support carries a vertical plate 42 over which a sensitized film 43 is adapted to move.

Substantially intermediate the train of gears 35 and the rear end of the compartment C there is secured an upright member 43 by means of screws or the like as shown. At the upper end of this member there is pivoted a rocking arm 44. One end of this rocking arm is provided with an elongated slot 45 adapted to receive therein a pivot 46 carried at the lower end of a reciprocatory rod 47 pivoted at its upper end to a shutter mechanism indicated by the numeral 48.

At a substantial distance above the train of gears 35 there is mounted within the compartment C a pair of friction rollers 49 through which the film 43 is adapted to pass in its course of travel. The rollers 49 are adapted to be driven through the instrumentality of the gears 49′, one of which engages the periphery of the disk 37 as shown.

The compartment B of the receptacle 10 is adapted to receive therein a casing 50 provided with a removable side 51 and divided in two compartments, E and F, by means of a vertical partition 42, disposed longitudinally therein. To the partition 52 there is secured a spindle 53 adapted to receive thereon a rotatable spool or reel 54. Within the partition 52, substantially near the front end thereof there is journaled a shaft 55 having provided at one end thereof a pulley 56. A shaft 57, adapted to be rotated by a flexible shaft 58 or the like connected to a suitable rotating member of an automobile, not shown, is journaled within the adjustable bearing 19 and has one end projecting a substantial distance into the receptacle 10, which end is provided with a pinion 59 adapted to drive a train of gears as shown at 60. This train of gears is adapted to rotate a shaft 61 carrying a gear 62 and the pulley 63. Upon a shaft 64 disposed within the compartment E there is mounted a disk 65 carrying a plurality of pins 66 on one face thereof.

Approximately intermediate the shaft 55 and train of gears 60 there is secured by means of bolts or the like, as shown, a sleeve 67 carrying therein a compressible spring 68. Within the sleeve 67 there is disposed a reciprocatory rod 69 provided with a lug 70 adapted to engage successively the pins 66 carried by the disk 65. The upper end of this rod 69 has rotatably secured thereto a roller 71 under which a film 72 is passed as shown. Substantially near the end of the rod 69 there is provided a pin 73 adapted to reciprocate within a slot 74 provided at the end of an arm 75 which is pivoted approximately intermediate its ends as shown at 76. This arm 75 is provided at its front end with a grapple indicated at 77 which is adapted to grip the film 72 when the arm 75 is being moved to the position indicated by the dotted lines in Fig. 6, the same being adapted to move freely over the film 72 when the arm 75 is moving from the dotted line position to the position clearly shown in Fig. 6. The arm 75 is provided substantially near the pivotal point 76 with a depending substantially L-shaped arm 78, which arm has rotatably secured to the free end thereof a roller 79. Immediately above the roller 79 there is disposed within the compartment F a pair of friction rollers 80 between which the film 72 passes in its course of travel. Within the compartment F in proximity to a lens 81 carried by the casing 50 there is disposed a plate 82 over which the film 72 moves in its course of travel. Within the compartment F and substantially intermediate the reciprocatory rod 69 and the spool or reel 54 there is disposed a pair of friction rollers 83 between which the film 72 is adapted to pass in its course of travel as it is being wound upon a spool or reel 84 mounted upon the spindle 55 which spindle together with the reel 84 is rotated by means of a belt 85 connecting the pulley 63 with the pulley 56. These rollers 83 are adapted to be driven through the influence of the gears 83′ and 65′, one of which engages the disk 65 as shown.

In use, the operation of my device is as follows: When it is desired to photograph various points along the course of travel of a moving vehicle, a case 24 may be removed from the receptacle 10 by opening the doors 12 and 14 of the same. The casing may be taken to a dark room or the like, whereupon a sensitized film carried by the spool or reel 29 may be placed upon the spindle 28 by removing the side 25 of the casing 24. The film 43 is then passed over the plate 42, between the friction rollers 49 and secured to the hub of the spool or reel 31 by any desired means. The side 25 may then be placed upon the casing 24 whereupon the same is ready to be inserted into the compartment A of the receptacle 10. When the casing 24 is placed in position within the receptacle 10 the gear 34 is moved into mesh with train of gears 35 by turning the pinion 22 which is held against undesirable rotation by means of the pivoted pawl 22′. Upon the operation of the vehicle, the flexible shaft 34 being connected to a suitable moving part thereof, the train of gears 35 will be actuated

through the influence of the pinion 34′ carried by the shaft 33 to which the flexible shaft 34 is attached. This actuation will impart rotary motion to the rollers 49, through the instrumentality of the gears 49′, one of which engages the disk 37 as shown, in such a direction as to cause the film 49 to travel from the spool 29 over the plate 42 and onwardly toward the spool 31. The actuation of the train of gears 35 will impart rotary motion to the spool or reel 31 in the direction indicated by the arrow thereon, whereupon the film will be wound upon the same as it travels between the rollers 49. It might be well for me to state here that the belt 40, employed to transmit power from the pulley 39 to the spool 31, is capable of slipping upon the pulley 39 under strain, and is intended to be only sufficiently tight to keep taut that portion of the film between the roller 49 and the spool 31. As the film 43 travels from the reel 29 over the plate 42 to the reel 31 the pins 38 carried by the disk 37 are brought successively into contact with the arm 42 which is connected to the shutter mechanism 48 by means of the reciprocatory rod 47 thereby causing said shutter mechanism to be intermittently operated allowing light rays to pass into the compartment C and strike upon the film 43 at various intervals along the same in its course of travel. This operation is continued until the desired number of exposures have been made or the desired distance has been traveled by the vehicle. The casing 24 may then be removed from the receptacle 10 whereupon the spool or reel 31 carrying the film which has been exposed may be removed from the spindle 30 and developed. Upon the development of the film prints of the exposures may be produced upon a suitable film or the like designed to be used as an exhibitor in aiding one to traverse the course along which the previous exposures had been made. To use the film carrying the developed exposures adapted to aid one in a course of travel, it is necessary to place the reel 54, carrying the film, upon the spindle 53. The film is then threaded between the rollers 83, under the roller 71, over the plate 82, through the grapple mechanism 77, between the rollers 80, over the roller 79 to the hub of the spool or reel 84 whereupon it is fastened by any suitable means to the same. The casing 50 is then inserted into the compartment B of the receptacle 10 and the pinion 59 is brought into mesh with the train of gears 60 in the same manner and by similar operation as that described in connection with pinion 34 and the train of gears 35. When the vehicle begins to move, rotary motion is imparted to the train of gears 60 through the influence of the pinion 59 carried by the shaft 57 to which the flexible shaft 58 is attached. Rotary motion is then imparted to the disk 65 through the influence of the gear 62 thereby bringing the pin 60 successively into contact with the lug 70 carried by the reciprocatory rod 69. As the pins 60 pass over the lug 70 the rod 69 is moved downwardly against influence of the spring 68. It is to be noted that rotary motion is imparted to the rollers 83 through the influence of the gears 83′ and 65′, the gear 83′ being connected to the spindle of the lower roller, and meshing with the gear 65′ which engages the disk 65 as shown. The rotation of the rolls causes an unwinding of the film 72 from the spool 54. When the pin 66 has passed over and out of engagement with the lug 70 the reciprocatory rod 69 being acted upon by the spring 68 moves upwardly to the position indicated by the dotted lines, causing the grapple 77, carried by the arm 75, to grasp the film and move the same downwardly over the plate 82 a sufficient distance to bring the next pictured or developed exposure directly under the lens 81, making possible the same to be viewed by one for an appreciable length of time. As the film 72 moves over the plate 82 by the action of the grapple 77 upon the same, it is moved between the rollers 80 by the action of the arm 78 upon the same. When the reciprocatory rod 69 moves again into the position clearly shown in Fig. 6 the spool or reel 84, rotating under the influence of the belt 85, winds up the film 72 which has passed between the rollers 80 due to the action of the arm 78 upon the same. It might be well for me to state here that the belt 85, employed to transmit power from the pulley 63 to the spool 84, is capable of slipping upon the pulley 39, and is intended only to be sufficiently tight to keep taut that portion of the film between the rollers 80 and the spool 84. It is to be noted that the downward movement of the rod 69 causes that portion of the film 72 between the plate 82 and rollers 83 which has been unwound from the spool 54 by the rollers 83, to be kept taut, the same being prevented against reverse movement, however, by the friction rollers 80 between which the film passes. It is to be further noted that as the rod 69 moves downward the arm 78 moves to the position clearly shown in Fig. 6, thereby releasing the tension of that portion of the film between the rollers 80 and the spool 84, whereupon the said portion of the film will be wound upon the spool 84 rotating under the influence of the belt 85. When the pin 66 engaging the lug 70 has passed over the same, the rod under the influence of the spring 68 will move to the dotted line position. It is to be understood that by continuing the above described operation the entire film may be unwound from the reel 54 and wound upon the reel 84, and that should it be desired to use the film 72 again, all that need be done would be to interchange the reels 84

and 54 by inserting the same in position as hereinbefore described.

It is to be understood that various changes in the shape, size and arrangement of parts may be resorted to without departing from the spirit of my invention or the scope of the subjoined claims.

I do not claim as a part of my invention the camera shown and described herein, but what I do claim as new and desire to secure and protect by Letters Patent of the United States, is:

1. A changeable exhibitor comprising a casing, a pair of reels carried therein, a film carried by one of said reels and adapted to be wound upon the other of said reels, a plate disposed within said casing, a rotatable disk having a plurality of pins arranged thereon, a reciprocatory rod adapted to be moved in one direction by engagement of said pins whereby said film may be intermittently unwound from one of said reels, resilient means for moving the reciprocatory rod to a normal position, operable means having engagement with said rod for intermittently moving said film over said plate, and means for rotating the other of said reels whereby the film may be wound thereupon.

2. A changeable exhibitor comprising a casing, a pair of reels carried therein, a film carried by one of said reels, a train of gears mounted within said casing, a disk rotatably mounted within said casing and adapted to be rotated by said gears, a plurality of pins carried by said disk, a reciprocatory rod adapted to be moved in one direction by engagement of said pins therewith whereby the film may be unwound from one of said reels, resilient means for moving said rod to a normal position, means for intermittently moving said film over said plate, and driving means connecting said train of gears with the other of said reels whereby the film may be wound thereupon.

DENNIS McNEILL.