

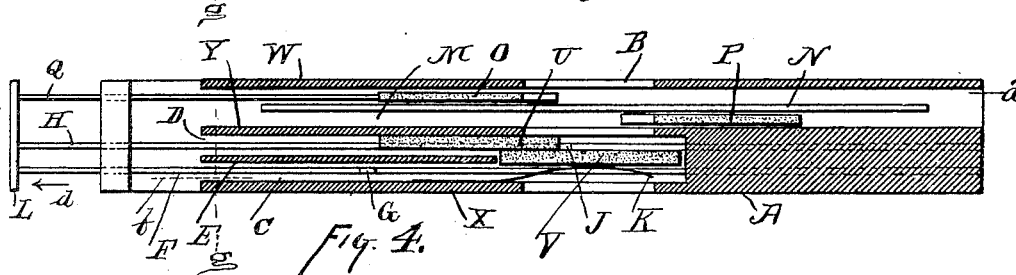
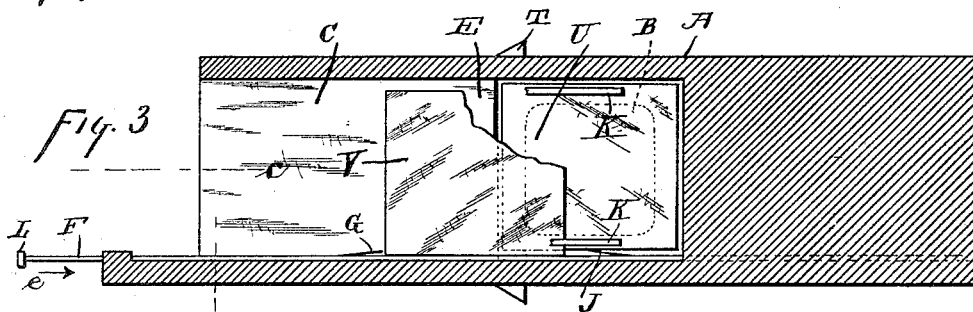
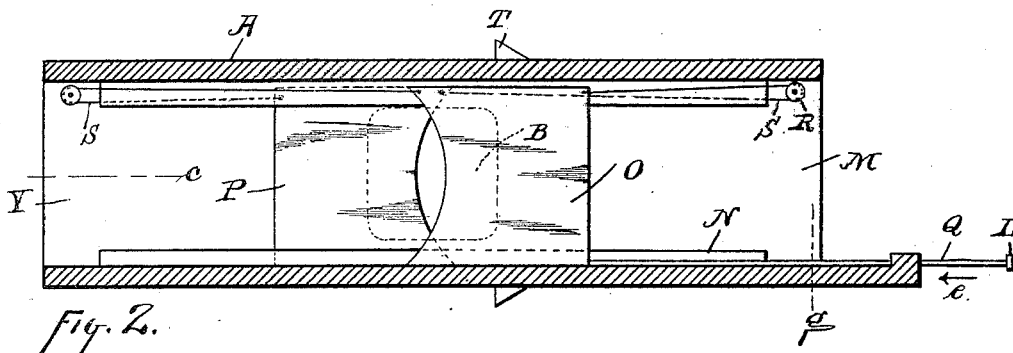
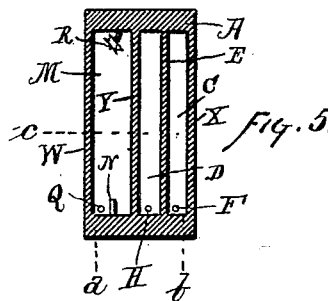
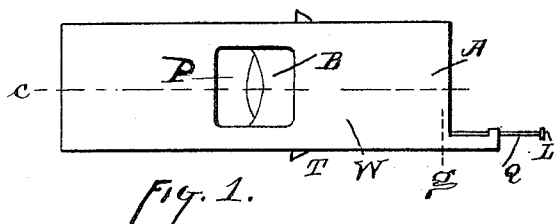
(No Model.)

Z. B. COES.

DISSOLVING VIEW ATTACHMENT FOR MAGIC LANTERNS.

No. 453,623.

Patented June 9, 1891.



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# UNITED STATES PATENT OFFICE.

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## DISSOLVING-VIEW ATTACHMENT FOR MAGIC LANTERNS.

SPECIFICATION forming part of Letters Patent No. 453,623, dated June 9, 1891.

Application filed February 13, 1891. Serial No. 381,307. (No model.)

*To all whom it may concern:*

Be it known that I, ZORESTER B. COES, of Hamilton, Butler county, Ohio, have invented certain new and useful Improvements in Dissolving-View Apparatus, of which the following is a specification.

In the use of magic lanterns and similar instruments of projection it is often desirable in changing views to dissolve the earlier view into the later one. This invention pertains to apparatus for this purpose. A simple view-holder adapted to fit the stage of an ordinary lantern is provided with a guideway for the entrance of the new picture, a guideway for the exit of the old picture, a translucent blind to cover the pictures during the change, and mechanism for substituting the new picture for the old picture.

My invention will be readily understood from the following description, taken in connection with the accompanying drawings, in which—

Figure 1 is a front elevation of a view-holder embodying my invention; Fig. 2, a vertical longitudinal section of the same in the plane of line *a*, or, what may be plainer, a front elevation like Fig. 1, but with the front plate *W* removed, so as to expose the blinds in the act of covering; Fig. 3, a vertical longitudinal section in the plane of line *b*, or, stated otherwise, a rear elevation with the back plate *X* removed, so as to expose the old picture *U* in place and the new picture *V* sliding to the right to cover the old picture and eventually displace it; Fig. 4, a horizontal section in the plane of line *c*, showing the old picture *U* in the act of departing to the left while the new picture *V* is at the end of its inward trip to the right and stands ready to move forwardly into focal position when the old picture shall have moved a little more to the left, the blinds *O P* being in the act of uncovering, and Fig. 5, a vertical transverse section in the plane of line *g*, showing the apparatus without the pictures or blinds.

In the drawings, *A* indicates the view-holder, which is a rectangular thin block or case adapted to fit the stage of the lantern; *B*, an opening entirely through the center of the view-holder so that light behind the view-holder may pass through a picture held in the view-holder at this opening, this opening being hereinafter

termed the "aperture;" *C*, Figs. 4 and 5, a channel or slot from one end of the view-holder inwardly to the aperture, so that a picture could be pushed into the end of a view-holder and inwardly till it occupied a position coincident with the aperture, this slot being hereinafter termed the "entrance-guide;" *D*, a similar guide-slot farther to the front of the view-holder, this slot being intended for the departure of the old picture and being hereinafter termed the "exit-guide;" *E*, the partition separating the entrance-guide from the exit-guide, this partition, however, not reaching inwardly so far as to interfere with a picture moving flatwise from the entrance-guide to the exit-guide when coincident with the aperture; *F*, a rod extending endwise into the entrance-guide at the floor thereof, and adapted for sliding motion therein, this rod being hereinafter termed the "entrance-rod;" *G*, an inwardly-facing upwardly-projecting tooth on this rod, adapted to engage behind a picture in the entrance-guide and push the picture to the right, this tooth being hereinafter termed the "entrance-tooth;" *H*, a second similar rod, disposed in the exit-guide and hereinafter termed the "exit-rod;" *J*, an outwardly-facing upwardly-projecting tooth upon the exit-rod, adapted to engage behind a picture in the exit-guide and pull the picture to the left, this tooth being hereinafter termed the "exit-tooth," the horizontal difference between the entrance-tooth and the exit-tooth being somewhat in excess of the length of picture to be dealt with; *K*, light springs in the entrance-guide, at top and bottom thereof, and adapted to press forwardly on a picture in the entrance-guide at the aperture, the tendency of these springs being to transfer the picture flatwise from the entrance-guide to the exit-guide while at the aperture; *L*, a handle common to the two rods, whereby sliding motion may be given to the two rods at once, the two rods thus forming a carrier adapted to move pictures to the right in the entrance-guide and to the left in the exit-guide; *M*, a guide-slot endwise through the view-holder forward of the exit-guide; *N*, ribs at the roof and floor thereof dividing this guide into two guides, these guides being hereinafter termed the "blind-guides;" *O*, a sheet of translucent material, as celluloid or properly-prepared

glass, seated in one of the blind-guides and adapted to slide therein, so as to either cover or be from over the aperture, this sheet of material forming a blind to cover the pictures during transition; P, a second similar blind, sliding in the other blind-guide, the two blinds when in covering position forming a double-thickness blind in front of the picture, the blinds opening by sliding each way from the center, so as to produce a symmetrical opening of the blinds; Q, a rod attached at its inner end to one of the blinds and at its outer end to the handle L, so that the carrier which carries the pictures in and out also positively carries one of the blinds, the relation of parts being such that this blind coincides with a picture as it is moved in by the entrance-tooth or as it is moved out by the exit-tooth; R, a sheave at each end of the blind-guide; S, a pair of cords, one attached to the heel of one blind and passing over a sheave and then attached to the front edge of the other blind, while the other cord connects the front edge of the first blind with the heel of the second one; T, stops on the view-holder to serve as gages in placing the view-holder in the stage of the lantern and bring the aperture in the axis of projection of the lantern; U, the old picture, shown in Fig. 3 as in view position at the aperture and shown in Fig. 4 as having left that position and moving out to the left; V, the new picture, shown in Fig. 3 as moving to the right over the old picture, which it is to supplant, and shown in Fig. 4 as having reached the end of its inward trip and being pressed by springs K forwardly so as to take the view position whenever the old picture shall have moved far enough to the left to permit it to do so; W, the front plate of the view-holder; X, the back plate of the view-holder, and Y the partition separating the picture-guides from the blind-guides, the disposition of this partition being such that when springs K press a picture flatly against this partition at the aperture the picture will be in view position and in proper focus. The ribs N may, if desired, of course extend vertically from top to bottom of the apparatus like the partitions E and Y; or, if desired, the partitions E and Y and plate W and X (shown as extending from top to bottom of the view-holder) may be mere guide-ribs like the ribs N, the office of these partitions and plates being simply to furnish separated guideways.

Let us now ignore entirely the existence of the blinds and investigate the action of the picture-changing apparatus. Referring to Fig. 4, let us assume that the rods have been pulled clear to the left so that old picture U has been pulled out of the end of the view-holder or where it can be reached with the fingers. Springs K press forward on the new picture V, and the old picture being no longer an obstacle the new picture becomes pressed forwardly into view position against partition Y. This picture may now be exhibited. Having been exhibited, it becomes

the old picture, and a new picture must be put into the apparatus. The new picture is placed in the initial end of the entrance-guide and the entrance-tooth G, now clear to the left, can engage the outer edge of the picture. If, now, the rods be pushed inwardly, we will have the new picture moved to the right, as seen at V, Fig. 3, overlapping the old picture and passing in front of springs K, which press the new picture forwardly. Continuing the inward motion, the new picture completely overlies the old picture and both are over the aperture, and springs K press the new picture forwardly off of the entrance-rod and against the old picture. As the rods move to the right the exit-tooth J passes under the old picture, and at the end of the rod-stroke this exit-tooth could engage the right-hand edge of the old picture. The two pictures are thus at the aperture, the new one free from its rod and seeking to move forward flatwise, while the old picture is engaged by the exit-tooth. The rods being pulled to the left, withdraw the old picture from in front of the new picture, as seen in Fig. 4, and as soon as the old picture shall have moved sufficiently to the left the springs will press the new picture flatwise forwardly into the exhibition position, the continued outward movement of the rods withdrawing the old picture, as before. In this way an inward movement of the carrier superposes a new picture over the old one, and the outward movement of the carrier withdraws the old picture and permits the springs to press the new picture into exhibition position.

As thus far described the apparatus is complete as a picture-changing device; but the change will show upon the screen in an undesired manner, an advancing new picture showing itself during the movement, and then a composite picture appearing on the screen, and then the departure of the old picture showing, together with the uncovered portion of the new picture out of focus, and then the new picture coming into focus. It is therefore preferable to diffuse the projected light by a translucent curtain over the pictures during the transition.

By examining Fig. 4 and ignoring right-hand blind P and assuming that the carrier is clear to the left and that a new picture has just been inserted so as to be engaged by the entrance-tooth G, it will be understood that blind O is in front of the newly-placed picture, and that as the new picture moves to the right this blind will also move to the right, and that when the new picture reaches the aperture and begins to overlap the picture on exhibition the blind will also overlap the old picture. The blind being of translucent material, an obscuring effect will be given upon the screen, this obscuration following the inward movement of the new picture. When the new picture completely overlies the old picture, then the obscuration by the blind will be total, and as the old picture departs to the left the obscuring blind moves with it,

The blind being translucent, it will of course be understood that the obscuration is a mild one only and total only as regards position; but I prefer that the obscurations shall be symmetrical in position and movement, and therefore use the two blinds.

By examining Fig. 2 and studying the action of the cords it will be apparent that as one blind moves to the right the other will move to the left. The blinds are nearly closed. If handle L be pushed to the left, the blinds move toward each other and overlap each other, and finally become superposed over the aperture. If the handle be moved to the right, one blind moves to the right and the other to the left, and then they open at the center of the aperture, and finally they move clear off the aperture. The obscuration due to the blinds, therefore, begins at each side of the exhibited picture and moves to the center, and after meeting becomes more intense by reason of the double thickness of blind, and when the blinds are opening there is the reverse action.

I prefer to have the blinds graduated in opacity from their inner edges outwardly, the inner edges being most transparent. This may be done by giving the blinds an opaque coloring of increasing intensity from the inner edge outwardly or by making the blinds of translucent material and giving them a wedge-shaped horizontal section thinnest at their inner edges.

I claim as my invention—

1. The combination, substantially as set forth, of a view-holder having an aperture and adapted to hold a picture in view position at said aperture, an entrance-guideway to direct a picture to the aperture, an exit-guideway to direct a picture from said aperture, springs to press a picture from the entrance-guideway to the exit-guideway at the aperture, and a carrier in said guideways having an inwardly-facing tooth in the entrance-guideway and an outwardly-facing tooth in the exit-guideway.

2. The combination, substantially as set forth, of view-holder A, having aperture B, and guide-slots C and D, springs K, arranged to press a picture forwardly from one guide-slot to the other, rod F, having inwardly-facing tooth G, rod H, having outwardly-facing

tooth J, and handle L, common to the two rods.

3. The combination, substantially as set forth, with a view-holder having an aperture and means for supporting a picture at said aperture and having guideways for blinds, of a pair of blinds arranged to slide in said guideway and overlie each other at the aperture, a handle for sliding one of said blinds over and from over the aperture, and mechanism connecting the two blinds to cause them to move simultaneously in opposite directions.

4. The combination, substantially as set forth, of a view-holder having an aperture and arranged to support a picture in view position at the aperture and having guideways for blinds, of a pair of blinds arranged to slide in said guideways over and from over said aperture, sheaves supported by the view-holder, cords connecting the heel of each blind with the forward edge of its fellow blind and engaging said sheaves, and a handle for operating the blinds.

5. The combination, substantially as set forth, of a view-holder having an aperture, an entrance-guideway, and an exit-guideway, and a guideway for a blind, a carrier having an inwardly-facing tooth in said entrance-guideway and an outwardly-facing tooth in said exit-guideway, springs to transfer a picture at the aperture flatwise from the entrance-guideway to the exit-guideway, a blind arranged to slide over and from over said aperture, and a handle for simultaneously moving said carrier and blinds.

6. The combination, substantially as set forth, of a view-holder having an aperture and an entrance-guideway and an exit-guideway and guideways for blinds, of a carrier having an inwardly-facing tooth in the entrance-guideway and an outwardly-facing tooth in the exit-guideway, springs at the aperture to transfer a picture from the entrance-guideway to the exit-guideway, a pair of blinds arranged to slide over and from over said aperture, and a handle connected with said carrier and blinds.

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