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T. S. BARBOUR.

SLIDE SHIFTER FOR MAGIC LANTERNS.

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NO MODEL.

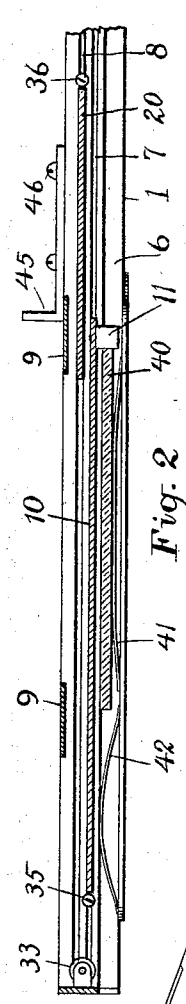


Fig. 2

Fig. 1

Fig. 3

Witnesses;

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SLIDE-SHIFTER FOR MAGIC LANTERNS.

SPECIFICATION forming part of Letters Patent No. 720,099, dated February 10, 1903.

Application filed August 10, 1901. Serial No. 71,644. (No model.)

To all whom it may concern:

Be it known that I, THOMAS S. BARBOUR, a citizen of the United States, residing at Wollaston, in the county of Norfolk, State of Massachusetts, have invented certain new and useful Improvements in Slide-Shifters for Magic Lanterns, of which the following is a full, clear, and exact description.

This invention relates to slide-shifters for what are known as "single" lanterns, and has for its object the production of such an instrument of great simplicity in construction and efficiency in operation.

In the drawings forming a part of this specification, Figure 1 is a perspective view of my slide-shifter with the lower right-hand corner represented as broken away. Fig. 2 is a horizontal section of the same, illustrating the parts in the position and operation of locating a slide in place; and Fig. 3 is a detail view showing the adjustable slide-engaging finger in a different position from that given in Fig. 1.

The reference-numeral 1 designates the frame of the slide-shifter, said frame being composed of the top and bottom bars 2, preferably of wood, secured together by the metal uprights 3, 4, and 9. The inner faces of the bars 2 are formed with grooves or ways 6, 7, and 8, the ways 6 being partially constituted by the metal strips 5, fixed to the fronts of said bars, and being designed for the reception of the upper and lower edges of the slides, while the ways 7 and 8 are designed for the shutter-plates 10 and 20. While both said parts 10 20 serve as shutter-plates, one is the shifter or carrier plate and is much longer than the other. This plate 10 is provided at its right-hand end with a projection or finger 11, reaching out into the field of the ways 6, and so adapted to engage the edge of a plate in said ways and move the same with it toward the left, and hence into the focus of the lantern. To move said carrier-plate, a cord 32 passes about the pulley 33 and is attached at its ends to the respective lower left-hand corners of the plates 10 and 20, suitable holes 16 22 being formed in said plates for the purpose. From the hole 21 in the plate 20 another cord 31 passes out through a hole in the upright 3 and is provided at its outer end with a ring 30 or other means for the ready application of the operator's hand or finger. A pull upon the cord 31 moves the plate 20 to the right and the plate 10 to the left, the two plates moving equally and shutting off the light from the screen with perfect uniformity.

A rubber band or other form of tension-spring 14 is terminally anchored by the fixed hook 15 and secured to the left-hand edge of the plate 10 by being looped over the lug 13, formed by cutting two deep notches in said edge. By the action of this spring the shutter-plates are normally retained in their open position. (Shown in Fig. 1.) So, also, after a pull upon the cord 31 has drawn the shutter-plates toward and nearly past each other said spring will immediately return them to their normal position when the operator releases the pull upon said cord.

A slide being put in the ways 6 immediately in front of the plate 10 when in its normal position and the cord 31 pulled as described, the finger 11 engages the edge of the said slide and moves the latter along with the carrier-plate until the slide reaches the field of the lantern, a position which corresponds with the open space between the shutter-plates when in their normal positions. When the scene depicted on the slide has remained a sufficient length of time upon the screen, where it is thrown by the lantern, the operator inserts another slide in the ways 6, the shutter-plates having in the meantime been allowed to return to their normal positions. The ring 30 is then again drawn to the right and the shutter-plates moved to their closed positions, the finger 11 carrying the new slide into the field of the lantern, while the edge of this slide coming in contact with the edge of the first slide pushes the latter along and nearly out from the ways 6 at the left-hand end of the shifter-frame, where it can be readily removed by the operator.

To keep the slides steady in the ways 6, but more especially to keep their edges flush when one slide is pushing another from the field of the lantern, for the purpose of preventing any unusually thin ones from becoming wedged together, said ways are provided with the thin bow-springs 41 42. (Shown more clearly in Fig. 2.) These springs by pressing the slides against the same side of the ways effectively perform the desired function.

The object in employing two shutter-plates reciprocally moved, as described, is that the light may be shut off from the slides during their application and removal and nothing cast upon the screen until the new slide is in exact position.

In order to accurately and automatically position each slide, I provide the ways 7 and 8 with fixed stops, which meet and bring the shutter-plates to rest at the precise points for leaving each slide in the proper location for the lantern. These stops are shown as screws 35 36 in Fig. 2, and although the stop 35 is sufficient to bring the carrier-plate 10 to rest at the correct point, yet I prefer to provide the stop 36 for the other plate 20 and to thereby diminish the strain upon the cord 32 and pulley 33. Fig. 2 illustrates the two plates as thus brought to rest in their closed position and with a slide 40, shown as carried by the plate 10 into the desired place.

The frame is secured to the lantern in the usual manner by an angle-piece 45, affixed to said frame by screws 46, as shown in Fig. 2.

As is well known, different makes of slides vary somewhat in length, the standard English slides being three-quarters of an inch shorter than the American. From this it results that when the slide-shifter is adapted for the English slides it will not accurately locate the American slides. To overcome this defect, I provide the carrier-plate with an adjustable finger constructed to accommodate either size of slide. This adjustability is obtained by forming the finger with engaging faces differing in their distances from the screw 12, upon which the finger is mounted friction tight. By simply turning this finger 11 to present another face it is easily adjusted to either make of slide. The two different adjustments of this finger are illustrated in Figs. 1 and 3.

What I claim as my invention, and for which I desire Letters Patent, is as follows, to wit:

1. In a slide-shifter, a frame formed with three distinct guideways one for the slides, a second for the carrier-plate and the third for the shutter-plate, in combination with a slide, a carrier-plate and a shutter-plate slidable in the respective guideways of said frame; said carrier-plate and shutter-plate being constructed to move simultaneously in opposite directions; said carrier-plate being provided with a finger projecting into the plane of the slide's guideway, and the latter being terminally open; whereby the slide-carrier having pushed a slide into position and returned is enabled by its action upon a newly-applied slide to simultaneously push the new slide into position and the old slide out at the open terminal of the guideway of the slides, substantially as described.

2. In a slide-shifter, a frame formed with three distinct guideways, one for the slides, a second for the carrier-plate and the third for the shutter-plate, in combination with a slide, a carrier-plate and a shutter-plate slidable in the respective guideways of said frame; said carrier-plate and shutter-plate being constructed to move simultaneously in opposite directions; said carrier-plate being provided with a finger projecting into the plane of the slide's guideway, and the latter being terminally open; and said carrier-plate guideway being provided with a stop limiting its further motion when the carrier-plate has brought a slide into position; whereby the slide-carrier having pushed a slide into exact position and returned, is enabled by its action upon a newly-applied slide to simultaneously push the new slide into exact position and the old slide out at the open terminal of the guideway of the slides, substantially as described.

3. In a slide-shifter, the combination with the carrier-plate and magic-lantern slides, of suitable guideways therefor, a fixed stop for bringing the carrier-plate to rest, and a finger projecting from the carrier-plate for engaging and moving the slides said finger being revolubly held by said carrier-plate and formed with engaging faces of varying radial distances, substantially as described.

4. The combination in a slide-shifter, of the frame having the guideways, the carrier-plate and the shutter-plate slidable in said ways and constructed for reciprocal motion by means of a cord passing about a fixed pulley and terminally fastened to said plates, an elastic band fastened to said frame and carrier-plate, the latter being formed with the two notches in its edge for fastening said band thereto, and a cord fastened to the shutter-plate and having a ring at its opposite end, substantially as described.

In testimony that I claim the foregoing invention I have hereunto set my hand this 18th day of July, 1901.

THOMAS S. BARBOUR.

Witnesses:
JOHN F. BARNES,
A. B. UPHAM.